Sydney Metro City and Southwest - Central Station Main Works Project

Construction Environmental Management Plan

Central Station Main Works Project
Construction Environmental Management Plan

Project name	Sydney Metro City and Southwest – Central Station Main Works: Construction Environmental Management Plan
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Laing O'Rourke contract number	K51

Revision history

Rev	Date	Description	Reviewed	INT/Date	Authorised
1	03/05/2018	Draft for review	DC		CM
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LAING O'ROURKE

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LAING O'ROURKE

Terms and Definitions

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

Terms	Explanation
AA	Acoustic Advisor
AHD	Australian Height Datum
ARI	Average Rainfall Intensity
AS	Australian Standard
Assurance Application	Laing O'Rourke's Online Tool to manage Non-Conformances
CAQMP	Construction Air Quality Management Plan
CAR	Corrective Action Request
CBD	Central Business District
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CFCs	Chlorofluorocarbons
CHMP	Construction Heritage Management Plan
CNVIS	Construction Noise and Vibration Impact Statement
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
CSMW	Central Station Main Works Contract Package
CSC	City of Sydney Council
CSSI	Critical State Significant Infrastructure
CTMP	Construction Traffic Management Plan
Cwth	Commonwealth
dB	Decibels
DPIE	Department of Planning, Industry and Environment
ECM	Environmental Control Map
ECR	Environmental Compliance Requirement
EIFR	Environmental Incident Frequency Rate
EIS	Environmental Impact Statement (Sydney Metro City and Southwest Chatswood to Sydenham dated 3 May 2016 submitted to the Secretary seeking approval to carry out the CSSI and as revised as required by the Secretary under the EP&A Act)
EMS	Environmental Management System

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Terms	Explanation
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPA	NSW Environment Protection Authority
EPL	Environmental Protection Licence under the POEO Act
ER	Environmental Representative (independent of design and construction personnel)
ESR	Eastern Suburbs Railway
HAZID	Hazard Identification
HSE	Health Safety and Environment
HSEQ	Health Safety Environment and Quality
HV	High voltage
iGATE	Laing O'Rourke Intranet
iGMS	Laing O'Rourke's enterprise-wide management system
IMPACT	Laing O'Rourke Online Reporting System
ISO	International Standardization Organisation
ITP	Inspection and Test Plan
JSEA	Job Safety and Environment Assessment
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 - The Sydney Metro City and Southwest Chatswood to Sydenham
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
RAPS	Registered Aboriginal Parties as defined in the Aboriginal cultural heritage consultation requirements for proponents 2010
RMS	Road and Maritime Services
Secretary	The Secretary of the Department of Planning Industry and Environment

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Terms	Explanation
SDS	Safety Data Sheet
SER	Severe Environmental Risk
SR	(Environmental) System Requirements
SM	Sydney Metro (Transport for NSW)
EPS	Environmental Primary Standard
SSI	State Significant Infrastructure
SWMS	Safe Works Method Statement
TBA	To be advised
TEC	Threatened Environmental Communities
TfNSW	Transport for New South Wales
TSMP	Threatened Species Management Plan
WIRES	Wildlife Information, Rescue and Education Service

1. Introduction

1.1 Purpose of the CEMP

The Construction Environmental Management Plan (this Plan) has been developed to:

- ensure that the needs and expectations of Sydney Metro 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 Laing O'Rourke Australia Construction Pty Limited (Laing O'Rourke) corporate and project management system
- provide all Laing O'Rourke personnel with systems, procedures and documentation necessary to undertake the construction of this project with environmental requirements
- Minimise negative impacts on the community
- Identify reasonable and feasible opportunities to minimise the environmental impact of the project
- Identify reasonable and feasible opportunities to maximise project sustainability
- Meet the requirements of condition A1 (as modified) of the project approval and as specified in the staging report.

The following CEMP sub-plans, have be prepared separately to this document, and form part of the CEMP:

- Construction Noise and Vibration Management Sub Plan (as referred to in CoA C3)
- Construction Heritage Management Sub Plan (as referred to in CoA C8)
- Construction Biodiversity Management Sub Plan (as referred to in CoA C3)
- Construction Air Quality Management Sub Plan (as referred to in CoA C3)
- Construction Groundwater Management Sub Plan (as referred to in CoA C3)
- Construction Soil and Water Management Plan (incorporating stormwater and flooding) (as referred to in CoA C3).

The above-mentioned CEMP sub-plans were submitted to the Secretary for approval as required by Condition C3 on 7 June 2018.

The following plans were prepared as required under section 3.4 of the CEMF:

- Construction Spoil Management Sub Plan
- Construction Traffic Management Sub Plan (as also referred to in CoA E82)
- Construction Visual Amenity\Landscape Management Sub Plan
- Construction Carbon and Energy Management Sub Plan
- Construction Materials Management Plan
- Construction Waste Quality Management Sub Plan.
- Construction Sustainability Strategy (as referred to in CoA E72).

The above-mentioned CEMP sub-plans were submitted to the Environmental representative for approval on 3 May 2018.

Blasting is not required for the Project and hence a Blasting Management Plan is not required.

In addition, this Plan will provide continuity between a range of documents and specific requirements to ensure that the Central Station Main Works (CSMW) Project (the Project) is carried out generally in accordance with:

- The Sydney Metro City and Southwest – Development Consent – Determination, dated 9th January 2017
- The Sydney Metro City and Southwest - Environmental Impact Statement, dated 3rd May 2016
- The Sydney Metro City and Southwest – Central Walk Modification (SSI Mod 2: Central Walk), 21 December 2017
- The Sydney Metro Construction Environmental Management Framework v1.3
- The Department of Infrastructure, Planning and Natural Resources' Guideline for the Preparation of Environmental Management Plans
- 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)
- The conditions of all other environmental regulatory requirements
- All other requirements of The Contract.

Construction will not commence until the CEMP and relevant Sub-plans are endorsed by the Environmental Representative (ER) and approved by the Secretary of the Department of Planning, Industry and Environment (DPIE).

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 and revised environmental mitigation measures relating to the CEMP and indicates where the condition is addressed within the CEMP.

Table 1 Conditions Compliance Matrix

Condition Reference	Condition Requirements	Document Reference
Conditions of Approval		
A9	Where the terms of this approval require consultation with identified parties, details of the consultation undertaken, matters raised by the parties, and how the matters were considered must accompany the strategies, plans, programs, reviews, audits, protocols and the like submitted to the Secretary.	Section 4.3
A16	Ancillary facilities that are not identified by description and location in the EIS as amended by the documents listed in A1, must meet the following criteria, unless otherwise approved by the Secretary: (a) the facility is development of a type that would, if it were not for the purpose of the CSSI, otherwise be exempt or complying development; or	Ancillary facilities that may be required for the project will meet the requirements of this condition as required.

(b) the facility is located as follows:
   i. at least 50 metres from any waterway unless an erosion and sediment control plan is prepared and implemented so as not to adversely affect water quality in the waterway in accordance with Managing Urban Stormwater series;
   ii. within or adjacent to land upon which the CSSI is being carried out unless it can be demonstrated that performance criteria established in this approval can be met and that there will be a reduction in impact at other sites and a reduction in the construction program;
   iii. with ready access to a road network
   iv. to prevent heavy vehicles travelling on local streets or through residential areas in order to access the facility, except as identified in the EIS and amended by the documents listed in A1
   v. on level land
   vi. so as to be in accordance with the Interim Construction Noise Guideline (DECC 2009) or as otherwise agreed in writing with affected landowners and occupiers
   vii. so as not to require vegetation clearing beyond the extent of clearing approved under other terms of this approval except as approved by the ER as minor clearing
   viii. so as not to have any impact on heritage items (including areas of archaeological sensitivity) beyond the impacts identified, assessed and approved under other terms of this approval
   ix. so as not to unreasonably interfere with lawful uses of adjacent properties that are being carried out at the date upon which construction or establishment of the facility is to commence
   x. to enable operation of the ancillary facility during flood events and to avoid or minimise, to the greatest extent practicable, adverse flood impacts on the surrounding environment and other properties and infrastructure
   xi. so as to have sufficient area for the storage of raw materials to minimise, to the greatest extent practicable, the number of deliveries required outside standard construction hours.

A17	Before establishment of any ancillary facility that satisfies the criteria in Condition A16, the Proponent must prepare an Ancillary Facilities Management Plan which outlines the environmental management practices and procedures to be implemented for the establishment and operation of the ancillary facility. The Ancillary Facilities Management Plan must be prepared in consultation with the EPA and the relevant council(s) and submitted to the Secretary and EPA for information one month before installation of the relevant ancillary facilities. The Ancillary Facilities Management Plan must detail the management of the ancillary facilities and include: (a) a description of activities to be undertaken during construction (including scheduling of construction) (b) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition, including an initial risk assessment undertaken before the commencement of construction of the CSSI; and (c) details of how the activities described in subsection (a) of this condition will be carried out to: i. meet the performance outcomes stated in the EIS as amended by the documents listed in A1 ii. manage the risks identified in the risk analysis undertaken in subsection (b) of this condition	Ancillary facilities that may be required for the project will meet the requirements of this condition.

A18	Minor ancillary facilities comprising lunch sheds, office sheds, and portable toilet facilities, or the like, that are not identified in the EIS as amended by the documents listed in A1 and which do not satisfy the criteria set out in Condition A16 of this approval must satisfy the following criteria: (a) have no greater environmental and amenity impacts than those that can be managed through the implementation of environmental measures detailed in the CEMP required under Condition C1 of this approval; and (b) have been assessed by the ER to have: i. minimal 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 ii. minimal environmental impact with respect to waste management and flooding iii. no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.	A Minor Ancillary Facility in Sydney Yard has been approved by the ER in accordance with this condition.
A19	Boundary fencing that incorporates screening must be erected around all ancillary facilities that are adjacent to sensitive receivers for the duration of construction unless otherwise agreed with Relevant Council(s), and affected residents, business operators or landowners.	Ancillary facilities that may be required for the project will meet the requirements of this condition.
A20	Boundary screening required under Condition A19 of this approval must minimise visual, noise and air quality impacts on adjacent sensitive receivers	Ancillary facilities that may be required for the project will meet the requirements of this condition.
A24	From commencement of construction until completion of construction, the approved ER must: (a) receive and respond to communications from the Secretary in relation to the environmental performance of the CSSI (b) consider and inform the Secretary on matters specified in the terms of this approval (c) consider and recommend any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community (d) review all documents identified in Conditions C1, C3 and C9 and any other documents that are identified by the 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 Secretary (if those documents are required to be approved by the 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 Secretary for information or are not required to be submitted to the Secretary) (e) regularly monitor the implementation of environmental management related documents to ensure implementation is being carried out in accordance with what is stated in the document and the terms of this approval (f) review the Proponent's notification of incidents in accordance with Condition A41 of this approval (g) as may be requested by the Secretary, help plan, attend or undertake Department audits of the CSSI, briefings, and site visits	(m) Section 7

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	(h) if conflict arises between the Proponent and the community in relation to the environmental performance of the CSSI, follow the procedure in the Community Communication Strategy approved under Condition B3 of this approval to attempt to resolve the conflict, and if it cannot be resolved, notify the Secretary (i) review any draft consistency assessment that may be carried out by the Proponent, and provide advice on any additional mitigation measures required to minimise the impact of the work (j) consider any minor amendments to be made to the documents listed in Conditions C1, C3 and C9 and any document that requires the approval of the Secretary (excluding noise and vibration documents) 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 C9 or other documents approved by the Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval (k) assess the impacts of minor ancillary facilities as required by Condition A18 of this approval (l) prepare and submit to the Secretary and other relevant regulatory agencies, for information, a monthly Environmental Representative Report detailing the ER's actions and decisions on matters for which the ER was responsible in the preceding month (or other timeframe agreed with the Secretary). The Environmental Representative Report must be submitted within seven (7) days following the end of each month for the duration of works and construction of the CSSI, or as otherwise agreed with the Secretary.	
A25	A suitably qualified and experienced Acoustics Advisor (AA), who is independent of the design and construction personnel, must be nominated by the Proponent and engaged for the duration of construction and for no less than six (6) months following operation of the CSSI. The details of the nominated AA must be submitted to the Secretary for approval no later than one (1) month before commencement of works, or within another timeframe as agreed with the Secretary. The Proponent may nominate additional suitably qualified and experienced persons to assist the lead Acoustics Advisor for the Secretary's approval. The Proponent must cooperate with the AA by: (a) providing access to noise and vibration monitoring activities as they take place (b) providing for review of noise and vibration plans, assessments, monitoring reports, data and analyses undertaken (c) considering any recommendations to improve practices and demonstrating, to the satisfaction of the AA, why any recommendation is not adopted.	Section 7 and the Noise and Vibration Management sub-plan
A26	Any activities generating noise and vibration in excess of the Noise Management Level derived from the Interim Construction Noise Guideline must not commence until an AA, nominated under Condition A25 of this approval, has been approved by the Secretary.	Noise and Vibration Management sub-plan
A27	The approved AA must: (a) receive and respond to communication from the Secretary in relation to the performance of the CSSI in relation to noise and vibration (b) consider and inform the Secretary on matters specified in the terms of this approval relating to noise and vibration	Section 7

(c) consider and recommend, to the Proponent, improvements that may be made to work practices to avoid or minimise adverse noise and vibration impacts
(d) review all noise and vibration documents required to be prepared under the terms of this approval and, should they be consistent with the terms of this approval, endorse them before submission to the Secretary (if required to be submitted to the Secretary) or before implementation (if not required to be submitted to the Secretary)
(e) regularly monitor the implementation of all noise and vibration documents required to be prepared under the terms of this approval to ensure implementation is in accordance with what is stated in the document and the terms of this approval
(f) review the Proponent's notification of noise and vibration incidents in accordance with Condition A41 of this approval
(g) in conjunction with the ER (where required), the AA must:
  i. consider requests for out of hours construction activities and determine whether to endorse the proposed activities in accordance with Condition E47
  ii. as may be requested by the Secretary or Complaints Mediator, help plan, attend or undertake audits of noise and vibration management of the CSSI including briefings, and site visits
  iii. if conflict arises between the Proponent and the community in relation to the noise and vibration performance during construction of the CSSI, follow the procedure in the Community Communication Strategy approved under Condition B3 of this approval to attempt to resolve the conflict, and if it cannot be resolved, notify the Secretary
  iv. consider relevant minor amendments made to any noise and vibration document approved by the Secretary that require updating or are of an administrative nature, and are consistent with the terms of this approval and the document approved by the Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval
  v. assess the noise impacts of minor ancillary facilities as required by Condition Al 8 of this approval
  vi. prepare and submit to the Secretary and other relevant regulatory agencies, for information, a monthly Noise and Vibration Report detailing the AAs actions and decisions on matters for which the AA was responsible in the preceding month (or other timeframe agreed with the Secretary). The Noise and Vibration Report must be submitted within seven (7) days following the end of each month for the duration of construction of the CSSI, or as otherwise agreed with the Secretary.

A28	A Compliance Tracking Program to monitor compliance with the terms of this approval must be prepared, taking into consideration any staging of the CSSI that is proposed in a Staging Report submitted in accordance with Condition Al 2 and Condition Al 3 of this approval.	Section 4.4
A29	The Compliance Tracking Program must be endorsed by the ER then submitted to the Secretary for information before the commencement of works or within another timeframe agreed with the Secretary.	Section 4.4
A30	The Compliance Tracking Program in the form required under Condition A28 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 Secretary based on the outcomes of independent	Section 4.4

	environmental 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 Tracking Program must be implemented for the relevant period for each stage or part of the CSSI.	
A31	A Pre-Construction Compliance Report must be prepared and submitted to the Secretary for information no later than one month before the commencement of construction or within another timeframe agreed with the Secretary.	Section 15
A32	The Pre-Construction Compliance Report must include: (a) details of how the terms of this approval that must be addressed before the commencement of construction have been complied with; and (b) the commencement date for construction.	Section 15
A33	Construction must not commence until the Pre-Construction Compliance Report has been submitted to the Secretary.	Section 15
A37	An Environmental Audit Program for independent annual environmental auditing against the terms of this approval must be prepared in accordance with AS/NZS ISO 19011:2014 -Guidelines for Auditing Management Systems and submitted to the Secretary for information no later than one month before the commencement of construction or within another timeframe agreed with the Secretary.	Section 17
A38	The Environmental Audit Program, as submitted to the Secretary, must be implemented for the duration of construction and operation	Section 17
A39	All independent environmental audits of the CSSI conducted under Conditions A35 and A36 must be conducted by a suitably qualified, experienced and independent team of experts in auditing and be documented in an Environmental Audit Report which: (a) assesses the environmental performance of the CSSI, and its effects on the surrounding environment (b) assesses whether the project is complying with the terms of this approval (c) reviews the adequacy of any document required under this approval (d) recommends measures or actions to improve the environmental performance of the CSSI, and improvements to any document required under this approval.	Section 17
A40	The Proponent must submit a copy of the Environmental Audit Report to the Secretary with a response to any recommendations contained in the audit report within six (6) weeks of completing the audit, or within another timeframe agreed with the Secretary.	Section 17
A41	The Secretary must be notified as soon as possible and in any event within 24 hours of any incident.	Section 16 and Appendix E
A42	Notification of an incident under Condition A41 of this approval must include the time and date of the incident, details of the incident and must identify any non-compliance with this approval.	Section 16
A43	Any requirements of the Secretary or Relevant Public Authority (as determined by the Secretary) to address the cause or impact of an incident reported in accordance with Condition A41 of this approval, must be met within the timeframe determined by the Secretary or relevant public authority.	Section 16
A44	If statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be	Section 16

	provided to the Secretary for information within 24 hours after the notification was given to the EPA.	
B15	A website providing information in relation to the CSSI must be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction or another timeframe as agreed with the Secretary. The following up-to-date information (excluding confidential, private and commercial information or other documents as agreed to by the Secretary) must be published prior to the relevant works commencing, or in the case of documents prepared in accordance with E66 and E67 when finalised in accordance with the requirements of this approval, and maintained on the website or dedicated pages: (a) information on the current implementation status of the CSSI (b) a copy of the documents listed in Condition A1 and Condition A2 of this approval, and any documentation relating to any modifications made to the CSSI or the terms of this approval (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval (d) a copy of any Environment Protection Licence required and obtained in relation to the CSSI or link to any existing Environment Protection Licence applied to the CSSI (e) a current copy of each document required under the terms of this approval and any endorsements, approvals or requirements from the ER and Secretary, all of which must be published within one week of its endorsement / approval or before the commencement of any works to which they relate or before their implementation as the case may be. *Note: Environment Protection Licences relevant to each stage of the project need to be clearly differentiated to identify how and where they specifically apply.*	Section 10.2
C1	A Construction Environmental Management Plan (CEMP) must be prepared in accordance with the Construction Environmental Management Framework (CEMF) included in the PIR and the Department's Guideline for the Preparation of Environmental Management Plans to detail how the performance outcomes, commitments and mitigation measures specified in Chapter 11 of the PIR, as amended by the documents listed in A1, will be implemented and achieved during construction.	This document fulfils the requirements of the Project CEMP. The Project Compliance Matrix tracks these requirements.
C2	The CEMP must provide:	
	(a) a description of activities to be undertaken during construction (including the scheduling of construction)	Sections 1.4 to 1.8
	(b) details of environmental policies, guidelines and principles to be followed in the construction of the CSSI	Sections 4, 5 and 6
	(c) a schedule for compliance auditing	Section 17
	(d) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition, including an initial risk assessment undertaken before the commencement of construction of the CSSI	Section 8 Appendix C
	(e) details of how the activities described in subsection (a) of this condition will be carried out to:	Sub-plans Section 1 – Table 1

		i. meet the performance outcomes stated in the EIS as amended by the documents listed in A1: and ii. manage the risks identified in the risk analysis undertaken in subsection (d) of this condition;	Section 8 Appendix C
	(f)	an inspection program detailing the activities to be inspected and frequency of inspections	Section 15
	(g)	a protocol for managing and reporting any: i. incidents; and ii. ii. non-compliances with this approval and with statutory requirements;	Section 16 Section 15 Appendix E Appendix G
	(h)	procedures for rectifying any non-compliance with this approval identified during compliance auditing, incident management or at any time during construction	Section 14 Section 15 Appendix G
	(i)	a list of all the CEMP sub-plans required in respect of construction, as set out in Condition C3. Where staged construction of the CSSI is proposed, the CEMP must also identify which CEMP sub-plan applies to each of the proposed stages of construction	Section 1
	(j)	a description of the roles and environmental responsibilities for relevant employees and their relationship with the ER	Section 7
	(k)	for training and induction for employees, including contractors and sub-contractors, in relation to environmental and compliance obligations under the terms of this approval	Section 9
	(l)	for periodic review and update of the CEMP and all associated plans and programs.	Section 8 Section 17

C3 The following 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 C3. The Construction Traffic Management Plan must also be prepared in accordance with the Construction Traffic Management Framework as required by Condition E81.

ID	Required CEMP Subplans	Relevant Government Agencies to be consulted for each CEMP submission
a)	Noise and Vibration	City of Sydney Council
b)	Biodiversity	OEH and City of Sydney Council
c)	Air quality	N/A
(d)	Soil and Water	DPI Water, Relevant Council (s), OEH, SES, NSW Fire and Rescue
(e)	Groundwater	DPI Water
~~(f)~~	~~Blasting~~	~~N/A~~
(g)	Heritage	Heritage Council (or its delegate) and relevant Council(s)
~~(h)~~	~~Construction traffic~~	~~Relevant Road Authorities, RMS, Sydney Coordination Office~~

In accordance with the Staging Report only the following sub-plans apply to the CSM works project:

- Noise and Vibration
- Biodiversity
- Air Quality
- Soil and water
- Groundwater
- Heritage
- Construction Traffic

Consultation with the relevant government agencies will occur in accordance with this Condition and the Consultation Matrix as shown in Appendix K.

The following plans will also be prepared as required under section 3.4 of the CEMF:

- Spoil
- Visual Amenity/Landscape
- Carbon and Energy
- Materials
- Waste

C4	The CEMP sub-plans must state how:		
	(a)	the environmental performance outcomes identified in the EIS as amended by the documents listed in A1 will be achieved	Refer to individual sub-plans

	(b) the mitigation measures identified in the EIS as amended by documents listed in A1 will be implemented	Refer to individual sub-plans
	(c) the relevant terms of this approval will be complied with	Refer to individual sub-plans
	(d) issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed.	Refer to individual sub-plans
C5	The CEMP sub-plans must be developed in consultation with relevant government agencies. Where an agency(ies) request(s) is not included, the Proponent must provide the Secretary justification as to why. Details of all information requested by an agency to be included in a CEMP sub plan as a result of consultation and copies of all correspondence from those agencies must be provided with the relevant CEMP sub-plan.	The CEMP sub-plans will be developed in consultation with the relevant agencies. Feedback received on each plan will be incorporated in Appendix K of the CEMP.
C6	Any of the CEMP sub-plans may be submitted to the Secretary along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before commencement of construction.	The CEMP sub-plans will be developed in consultation with the relevant agencies. Feedback received on each plan will be incorporated in Appendix K of the CEMP.
C7	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.	Sections 1 and 3
C8	Construction must not commence until the CEMP and all CEMP sub-plans have been approved by the Secretary. The CEMP and CEMP sub-plans, as approved by the Secretary, including any minor amendments approved by the ER (or AA in regard to the Noise and Vibration sub-plan), must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and sub-plans have been approved by the Secretary.	Section 1
C9	The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each Construction Monitoring Program to compare actual performance of construction of the CSSI against predicted performance. Required Construction Monitoring Programs Relevant government agencies to be consulted for each Construction Monitoring Program (a) Noise and Vibration - EPA and Relevant Council(s) (b) Blasting - EPA and Relevant Council(s) (c) Water Quality - EPA and Relevant Council(s) (d) Groundwater - DPI Water	Section 15 and individual sub-plans
C10	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 (i) any consultation to be undertaken in relation to the monitoring programs.	Section 15 and individual sub-plans

C11	The Noise and Vibration Construction Monitoring Program and Blast Construction Monitoring Program must include provision of real time noise and vibration monitoring data. The real time data must be available to the construction team, Proponent, ER and AA in real time. The Department and EPA must be provided with access to the real time monitoring data in real time.	Refer to the Noise and Vibration Monitoring Plan. Note, no blasting is required for the project.
C12	The Construction Monitoring Programs must be developed in consultation with relevant government agencies as identified in Condition C9 of this approval and must include, to the written satisfaction of the Secretary, 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.	Section 15 and individual sub-plans
C13	The Construction Monitoring Programs must be endorsed by the ER (or AA in regards to the Noise and Vibration Construction Monitoring Program) and then submitted to the Secretary for approval at least one (1) month before commencement of construction or within another timeframe agreed with the Secretary.	Section 13 and individual sub-plans
C14	Construction must not commence until the Secretary has approved all of the required Construction Monitoring Programs, and all relevant baseline data for the specific construction activity has been collected.	Section 13 and individual sub-plans
C15	The Construction Monitoring Programs, as approved by the Secretary including any minor amendments approved by the ER (or AA in regards to the Noise and Vibration Construction Monitoring Program), 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.	Section 13 and individual sub-plans
C16	The results of the Construction Monitoring Programs must be submitted to the Secretary for information, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	Section 15 and individual sub-plans
C17	Where a relevant CEMP sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP sub-plan.	Refer to individual sub-plans
E6	The CSSI must be designed to retain as many trees as possible and provide replacement trees such that there a net increase in the number of trees. The Proponent must commission an independent, experienced and suitably qualified arborist to prepare a comprehensive Tree Report before removing any trees as detailed in the EIS, as amended by the documents listed in A1. The Tree Report must include: (a) a description of the conditions of the tree(s) and its amenity and visual value (b) consideration of all options to avoid tree removal, including relocation of services, redesign or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services (c) measures to avoid tree removal, minimise damage to, and ensure the health and stability of those trees to be retained and protected. This includes details of any proposed canopy or root pruning, root protection zone, excavation, site controls on waste disposal, vehicular access, materials storage and protection of public utilities.	Refer to the Construction Biodiversity Management Plan

	In the event that tree removal cannot be avoided, then replacement trees are to be planted within, or in close proximity to the CSSI or other location in consultation with the Relevant Councils and agreed by the Secretary. The size of the replacement trees will be determined in consultation with the relevant Council. A copy of the Tree Report must be submitted to the Secretary before the removal, damage and/or pruning of any trees, including those affected by the site establishment works. All recommendations of the Tree Report must be implemented by the Proponent, unless otherwise agreed by the Secretary.	
E36	Construction, except as allowed by Condition E48 (excluding cut and cover tunnelling), must only be undertaken during the following standard construction hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive (b) 8:00am to 1:00pm Saturdays; and (c) at no time on Sundays or public holidays.	Section 1.8
E44	Notwithstanding Condition E36 construction associated with the CSSI may be undertaken outside the hours specified under those conditions 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 construction; or (d) 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 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 those for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or (e) 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 limits for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Secretary at least one (1) week before the works commencing; or (f) construction approved through an Out of Hours Work Protocol referred to in Condition E47, provided the relevant council, local residents and other affected stakeholders and sensitive receivers are informed of the timing and duration at least five (5)	Section 1.8

	days and no more than 14 days before the commencement of the works. Note: This condition does not apply where an EPL is in force in respect of the construction.	
E45	On becoming aware of the need for emergency construction in accordance with Condition E44(b), the Proponent must notify the AA, the ER and the EPA (if an EPL applies) of the need for those activities or work. The Proponent must also use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works.	Section 1.8
E46	Notwithstanding Conditions E44 and E48, rock breaking and other particularly annoying activities for station shaft or cut and cover stations is not permitted outside of standard construction hours, except at Central (excluding Central Walk works at 20-28 Chalmers Street, Surry Hills); or (a) 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 (b) where different construction hours are permitted or required under an EPL in force in respect of the construction; or (c) construction that causes LAeq(15 min) 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 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, measures at the most affected residence are no more than those 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 those for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006). **Out of Hours Work Protocol for works not subject to an EPL**	Section 1.8
E47	An Out of Hours Work Protocol for the assessment, management and approval of work outside of standard construction hours, as defined in Condition E36 of this approval, must be prepared in consultation with the EPA and submitted to the Secretary for approval before construction commences for works not subject to an EPL. The protocol must include: (a) the identification of low and high-risk construction activities (b) a risk assessment process in which the AA reviews all proposed out of hours activities and identifies their risk levels (c) a process for the endorsement of out of hours activities by the AA and approval by the ER for construction activities deemed to be of: i. low environmental risk; or ii. high risk where all construction works cease by 9pm. All other high risk out of hours construction must be submitted to the Secretary for approval unless otherwise approved through an EPL.	(d) Section 1.8

	The protocol must detail standard assessment, mitigation and notification requirements for high and low risk out of hours works and detail a standard protocol for referring applications to the Secretary.	
E59	Before commencement of construction, all property owners of buildings identified as being at risk of damage must be offered a building condition survey. Where an offer is accepted a structural engineer must undertake the survey. The results of the surveys must be documented in a Building Condition Survey Report for each building surveyed. Copies of Building Condition Survey Reports must be provided to the owners of the buildings surveyed, and if agreed by the owner, the Relevant Council within three (3) weeks of completing the Survey Report and no later than one (1) month before the commencement of construction.	Refer to the Construction Groundwater Management Plan
E60	Within three (3) months of the completion of construction, all property owners of buildings for which a building condition survey was carried out in accordance with Condition E59 must be offered a second building condition survey. Where an offer is accepted, building condition surveys must be undertaken by a structural engineer. The results of the surveys must be documented in a Building Condition Survey Report for each building surveyed. Copies of Building Condition Survey Reports must be provided to the owners of the buildings surveyed within one (1) month of the survey being completed	Refer to the Construction Groundwater Management Plan
E61	The Proponent must install appropriate equipment to monitor areas in proximity to construction sites and the tunnel route during construction and for a period of not less than six (6) months after settlement has stabilised with particular reference to risk areas identified in the building and infrastructure condition surveys required by conditions E59 and E60 and/or the geotechnical analysis as required. If monitoring during construction indicates exceedance of the criteria, then all construction affecting settlement must cease immediately and must not resume until fully rectified or a revised method of construction is established that will ensure protection of affected buildings.	Refer to the Construction Groundwater Management Plan
E62	The Proponent must establish an Independent Property Impact Assessment Panel before relevant works commencing. The Secretary must be informed of the Panel Members and the Panel must comprise geotechnical and engineering experts independent of the design and construction team. The Panel will be responsible for independently verifying surveys undertaken under conditions E59 and E60, the resolution of property damage disputes and the establishment of ongoing settlement monitoring requirements. Either the affected property owner or the Proponent may refer unresolved disputes arising from potential and/or actual property impacts to the Panel for resolution. All costs incurred in establishing and implementing the Panel must be borne by the Proponent.	Coordinated by Sydney Metro
E79	The Proponent must consult with the Relevant Road Authority regarding the use of any weight restricted road by heavy vehicles.	Refer to the Construction Traffic Management Plan
E80	The Proponent must minimise truck movements during peak periods within commercial centres. Peak periods are 7am to 10am and 4pm to 7pm Monday to Friday.	Refer to the Construction Traffic Management Plan
E81	The Proponent must prepare and implement a Construction Traffic Management Framework (CTMF). The CTMF must be prepared in consultation with TTLG(s) and submitted to the Secretary for approval no later than one (1) month before the commencement of construction (or within any other timeframe agreed with the	Refer to the Construction Traffic Management Plan

	Secretary). The CTMF will set out the approach to managing issues across the CSSI and include but not be limited to: (a) construction site access, including the efficient and safe egress and ingress of vehicles, consistent relevant Austroads, Australian Standards and RMS requirements (b) the erection and maintenance of hoardings, scaffolds and associated structures on roads (c) short- and long-term lane and road closures including those associated with plant, crane and other operations between the road reservation and construction site (d) cumulative construction vehicle management from surrounding developments (e) bus stop and associated facilities relocation and service rerouting (f) short and long term works zones on roads adjacent to the construction site (g) mail zone and associated facilities relocation (h) short and long term works within the road reservation (i) regulatory, advisory and other signage changes and modifications (j) parking management, including on and off street and remote parking and access (k) heavy vehicle management, the restriction (unless otherwise approved) of heavy vehicles to certain routes and the minimisation of heavy vehicle traffic in peak traffic periods (l) special event management (m) the retention and reinstatement of emergency and property access (n) the retention of user and passenger safety, including pedestrians, cyclists, public transport users, including at stops and related facilities (o) incident response planning around construction worksites; and (p) monitoring of transport and access related impacts attributable to the CSSI.	
E82	Construction Traffic Management Plans (CTMPs), consistent with the CEMF and CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to the RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site. A copy of any Construction Traffic Management Plans approved by the RMS must be submitted to the Secretary for information.	Refer to the Construction Traffic Management Plan
E83	Where construction results in a worsening of the matters identified in Condition E81(a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to the CTMPs must be submitted to the RMS for approval following Sydney Coordination Office endorsement and implemented.	Refer to the Construction Traffic Management Plan
E84	Notwithstanding the above, the Proponent must investigate opportunities to maximise spoil removal by non-road methods and schedule final track laying as soon as practicable following completion of tunnelling with a view to transporting materials and equipment for station fit-out, systems and commissioning by rail to minimise truck movements in town centres and the Sydney CBD.	Refer to the Construction Traffic Management Plan and Construction Spoil management Plan

	The findings of the investigation must be reported to the Secretary before commencement and before completion of tunnel spoil generation as relevant. A decision to not adopt spoil haulage or materials delivery by non-road methods must be demonstrated to the satisfaction of the Secretary.	
E85	Heavy vehicle haulage must not use local roads unless no feasible alternatives are available.	Refer to the Construction Traffic Management Plan
E86	During construction, measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Alternative pedestrian and vehicular access, and parking arrangements must be developed in consultation with affected businesses. Such arrangements must be outlined in the Business Management Plan required in Condition E64 and implemented as required. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.	Refer to the Construction Traffic Management Plan
E86.1	Construction traffic is not to use Elliot Street, North Sydney except where required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm.	Refer to the Construction Traffic Management Plan
E87	Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists and public transport users will be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be included within each relevant CTMP and carried out in consultation with the TTLG before the completion and use of the subject infrastructure and must be made available to the Secretary on request.	Refer to the Construction Traffic Management Plan
E88	Details of haulage routes and heavy vehicle sizes to transport material to and from any construction site must be specified in the Construction Traffic Management Plan(s) and be approved by the RMS following endorsement by Sydney Coordination Office and consultation with the TTLG(s).	Refer to the Construction Traffic Management Plan
E89	The Proponent must implement traffic and transport management measures with the aid of a truck marshalling and logistics facility located within close proximity to the Sydney and North Sydney CBDs. The facility must be operational in advance of tunnel spoil generation. Details of the facility must be documented in the Ancillary Facilities Management Plan required by Condition A16.	Refer to the Construction Traffic Management Plan
E89.1	Access to basement car parking to properties off Randle Lane must be maintained at all times except in consultation with affected occupiers and agreement with affected owners for alternative parking, storage or other forms of compensation	Refer to the Construction Traffic Management Plan
E106	Waste generated during construction and operation is to be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.	Refer to the Construction Waste Management Plan
E107	The CSSI must be constructed and operated so as to maintain the NSW Water Quality Objectives where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW Water Quality Objectives over time where they are not being achieved as at the date of this approval, unless an EPL in force in respect of the CSSI contains different requirements in relation to the	Refer to the Construction Soil and Water Management Plan

	NSW Water Quality Objectives, in which case those requirements must be complied with.	
E108	Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions must be undertaken in accordance with relevant guidelines and designed by a suitably qualified and experienced person.	Refer to the Construction Soil and Water Management Plan
E109	Any works within Sydney Harbour will be undertaken in consultation with the Harbour Master and RMS as owner of the seabed	NA

Revised Environmental Mitigation Measures		
T1	Ongoing consultation would be carried out with (as relevant to the location) the CBD Coordination Office, Roads and Maritime Services, Sydney Trains, NSW Trains, the Port Authority of NSW, Barangaroo Delivery Authority, local councils, emergency services and bus operators in order to minimise traffic and transport impacts during construction.	Refer to the Construction Traffic Management Plan
T2	Road Safety Audits would be carried out at each construction site. Audits would address vehicular access and egress, and pedestrian, cyclist and public transport safety.	Refer to the Construction Traffic Management Plan
T3	Directional signage and line marking would be used to direct and guide drivers and pedestrians past construction sites and on the surrounding network. This would be supplemented by Variable Message Signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.	Refer to the Construction Traffic Management Plan
T4	In the event of a traffic related incident, co-ordination would be carried out with the CBD Coordination Office and / or the Transport Management Centre's Operations Manager.	Refer to the Construction Traffic Management Plan
T5	The community would be notified in advance of proposed road and pedestrian network changes through media channels and other appropriate forms of community liaison.	Refer to the Construction Traffic Management Plan
T6	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence.	Refer to the Construction Traffic Management Plan
T7	Additional enhancements for pedestrian, cyclist and motorist safety in the vicinity of the construction sites would be implemented during construction. This would include measures such as: • Use of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers • Community educational events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility from a bicycle; and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children	Refer to the Construction Traffic Management Plan

Revised Environmental Mitigation Measures		
	• Specific construction driver training to understand route constraints, expectations, safety issues, human error and its relationship with fitness for work and chain of responsibility duties, and to limit the use of compression braking • Use of In Vehicle Monitoring Systems (telematics) to monitor vehicle location and driver behaviour • Safety devices on construction vehicles that warn drivers of the presence of a vulnerable road user located in the vehicles' blind spots and warn the vulnerable road user that a vehicle is about to turn.	
T8	Access to existing properties and buildings would be maintained in consultation with property owners.	Refer to the Construction Traffic Management Plan
T9	All trucks would enter and exit construction sites in a forward gear, where feasible and reasonable.	Refer to the Construction Traffic Management Plan
T10	Any relocation of bus stops would be carried out by Transport for NSW in consultation with Roads and Maritime Services, the CBD Coordination Office (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	Refer to the Construction Traffic Management Plan
T11	For special events that require specific traffic measures, those measures would be developed in consultation the CBD Coordination Office (for relevant locations), Roads and Maritime Services, Barangaroo Delivery Authority (for relevant locations) and the organisers of the event.	Refer to the Construction Traffic Management Plan
T12	Construction sites would be managed to minimise construction staff parking on surrounding streets. The following measures would be implemented: • Encouraging staff to use public or active transport • Encouraging ride sharing • Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable. Transport for NSW would work with local councils to minimise adverse impacts of construction on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.	Refer to the Construction Traffic Management Plan
T13	Construction site traffic would be managed to minimise movements in the AM and PM peak periods.	Refer to the Construction Traffic Management Plan
T16	Timing for the temporary closure of the Devonshire Street tunnel would avoid periods of peak pedestrian demand. Wayfinding and customer information would be provided to guide pedestrians to alternative routes.	Refer to the Construction Traffic Management Plan
T19	Where existing parking is removed to facilitate construction activities, alternative parking facilities would be provided where feasible and reasonable.	Refer to the Construction Traffic Management Plan
T20	Alternative pedestrian routes and property access would be provided where these are affected during the construction of the power supply routes.	Refer to the Construction Traffic Management Plan

Central Station Main Works Project
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Revised Environmental Mitigation Measures		
T21	The potential combined impact of trucks from multiple construction sites would be further considered during the development of Construction Traffic Management Plans.	Refer to the Construction Traffic Management Plan
T22	Where existing footpath routes used by pedestrians and / or cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (eg suitably paved and lit), with any necessary modifications to be carried out in consultation with the relevant local council.	Refer to the Construction Traffic Management Plan
T23	Specific station management measures would be implemented during pedestrian movement Phase 2. This would include strategies such as encouraging passengers to exit platforms at the closest stair case or escalator, signage and marshalling of passengers waiting to board to minimise those waiting adjacent to hoarding and to direct passengers so that that there is even distribution along the platform.	Refer to the Construction Traffic Management Plan
T24	The temporary closures of footpaths on Chalmers Street would not occur at the same time as the temporary closure of the Devonshire Street Tunnel.	Refer to the Construction Traffic Management Plan
T25	During the closure of Randle Lane, traffic control would be provided at either end. Reversing movements out of Randle Lane onto Elizabeth Street would not be carried out during the peak periods of 7 am to 10 am and 3 pm to 7 pm.	Refer to the Construction Traffic Management Plan
T26	During the closure of Randle Lane, access to basement car parking would be maintained where feasible and reasonable. If access cannot be maintained, alternative parking would be arranged.	Refer to the Construction Traffic Management Plan

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Revised Environmental Mitigation Measures		
NV1	The Construction Noise and Vibration Strategy would be implemented with the aim of achieving the noise management levels where feasible and reasonable. This would include the following example standard mitigation measures where feasible and reasonable: • Provision of noise barriers around each construction site • Provision of acoustic sheds at Chatswood dive site, Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and Marrickville dive site • The coincidence of noisy plant working simultaneously close together would be avoided • Offset distances between noisy plant and sensitive receivers would be increased • Residential grade mufflers would be fitted to all mobile plant • Dampened rock hammers would be used • Non-tonal reversing alarms would be fitted to all permanent mobile plant • High noise generating activities would be scheduled for less sensitive period considering the nearby receivers • The layout of construction sites would consider opportunities to shield receivers from noise. This would also include carrying out the requirements in relation to construction noise and vibration monitoring.	Refer to the Construction Noise and Vibration Management sub-plan
NV3	Where vibration levels are predicted to exceed the screening criteria, a more detailed assessment of the structure and attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure. For heritage items, the more detailed assessment would specifically consider the heritage values of the structure in consultation with a heritage specialist to ensure sensitive heritage fabric is adequately monitored and managed.	Refer to the Construction Noise and Vibration Management sub-plan
NV4	Feasible and reasonable measures would be implemented to minimise ground borne noise where exceedances are predicted.	Refer to the Construction Noise and Vibration Management sub-plan

Revised Environmental Mitigation Measures		
NV5	Feasible and reasonable mitigation measures would be implemented where power supply works would result in elevated noise levels at receivers. This would include: • Carrying out works during the daytime period when in the vicinity of residential receivers • Where out of hours works are required, scheduling the noisiest activities to occur in the evening period (up to 10 pm) • Use of portable noise barriers around particularly noisy equipment such as concrete saws.	Refer to the Construction Noise and Vibration Management sub-plan
NV6	Transport for NSW would engage an Independent Acoustic Advisor to act independently of the design and construction teams and provide oversight of construction methods, construction noise and vibration planning, management and mitigation, and construction noise and vibration monitoring and reporting. The key responsibilities of the Independent Acoustic Advisor would include: • Assurance of contractor noise and vibration planning, modelling, management and monitoring practices • Verification of compliance with relevant guidelines and approval requirements • Audit noise and vibration management practices.	Refer to the Construction Noise and Vibration Management sub-plan
NV7	Alternative demolition techniques that minimise noise and vibration levels would be investigated and implemented where feasible and reasonable. This would include consideration of: • The use of hydraulic concrete shears in lieu of hammers/rock breakers • Sequencing works to shield noise sensitive receivers by retaining building wall elements • Locating demolition load out areas away from the nearby noise sensitive receivers • Providing respite periods for noise intensive works • Methods to minimise structural-borne noise to adjacent buildings including separating the structural connection prior to demolition through saw-cutting and propping, using handheld splitters and pulverisers or hand demolition • Installing sound barrier screening to scaffolding facing noise sensitive neighbours • Modifying demolition works sequencing / hours to minimise impacts during peak pedestrian times and / or adjoining neighbour outdoor activity periods.	Refer to the Construction Noise and Vibration Management sub-plan
NV8	Opportunities to minimise heavy vehicles movements on Randle Lane at night would be further investigated during detailed construction planning.	Refer to the Construction Noise and Vibration Management sub-plan

Revised Environmental Mitigation Measures		
NV9	Measures would be implemented to reduce work health and safety noise exposure for station workers, retail staff and members of the public within Central Station. These would include: • The use of hoarding and / or temporary noise barriers around construction sites • Providing hearing protection to station staff employees where appropriate • Providing specific work health and safety noise training to commercial receiver employers including guidance on managing their employees during highly noisy periods. • The use of signage around construction sites to inform the general public of high noise exposure areas.	Refer to the Construction Noise and Vibration Management sub-plan and the Construction Occupational Health and Hygiene Management sub-plan
BI1	Specific consultation would be carried out with businesses potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual businesses.	Refer to the Construction Business Management sub-plan and the Property Management sub-plan
BI2	A business impact risk register would be developed to identify, rate and manage the specific construction impacts for individual businesses.	Refer to the Construction Business Management sub-plan and the Property Management sub-plan
BI3	Appropriate signage would be provided around construction sites to provide visibility to retained businesses.	Refer to the Construction Business Management sub-plan and the Property Management sub-plan
NAH1	Archival recording and reporting of the following heritage items would be carried out in accordance with the NSW Heritage Office's *How to Prepare Archival Records of Heritage Items* (1998a), and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006): • The internal heritage fabric and any non-original elements removed from within the curtilage of Mowbray House, Chatswood • The interior, exterior and setting of the shop at 187 Miller Street, North Sydney • The fabric and setting of the North Sydney bus shelters requiring removal and temporary relocation at Victoria Cross Station and Blues Point temporary site • Any component of the Blues Point Waterfront Group and the McMahons Point South heritage conservation area to be directly affected or altered, including vegetation and significant landscape features • Hickson Road wall in the vicinity of proposed ventilation risers and skylights for Barangaroo Station • The interior, exterior and setting of the 'Flat Building' at 7 Elizabeth Street, Sydney • Martin Place, between Elizabeth and Castlereagh streets, Sydney	Refer to the Construction Heritage Management sub-plan

Revised Environmental Mitigation Measures		
	• The heritage fabric of areas of the existing Martin Place Station affected by the project • The Rolling Stock Officers Garden, Rolling Stock Officers Building and Cleaners Amenities Building in Sydney Yard and any other component of the Sydney Terminal and Central Railway Stations group to be removed or altered • Directly impacted parts of the Congregational Church at Waterloo.	
NAH2	The archaeological research design would be implemented. Significant archaeological findings would be considered for inclusion in heritage interpretation (as per NAH8) for the project and be developed in consultation with the relevant local council.	Refer to the Construction Heritage Management sub-plan
NAH3	An Exhumation Policy and Guideline would be prepared and implemented. It would be developed in accordance with the *Guidelines for Management of Human Skeletal Remains* (NSW Heritage Office, 1998b) and NSW Health Policy Directive – Exhumation of human remains (December 2013). It would be prepared in consultation with NSW Heritage Office and NSW Health.	Refer to the Construction Heritage Management sub-plan
NAH4	The method for the demolition of existing buildings and / or structures at Chatswood dive site, Victoria Cross Station, Martin Place Station, Pitt Street Station, Central Station and Waterloo Station would be developed to minimise direct and indirect impacts to adjacent and / or adjoining heritage items.	Refer to the Construction Heritage Management sub-plan
NAH6	An appropriately qualified and experienced heritage architect would form part of the Sydney Metro Design Review Panel and would provide independent review periodically throughout detailed design.	Refer to the Construction Heritage Management sub-plan
NAH7	The project design would be sympathetic to heritage items and, where reasonable and feasible, minimise impacts to the setting of heritage items. The detailed design for Martin Place Station and Central Station would be developed with input from a heritage architect.	Refer to the Construction Heritage Management sub-plan
NAH8	Appropriate heritage interpretation would be incorporated into the design for the project in accordance with the NSW Heritage Manual, the NSW Heritage Office's Interpreting Heritage Places and Items: Guidelines (August 2005), and the NSW Heritage Council's Heritage Interpretation Policy.	Refer to the Construction Heritage Management sub-plan
NAH9	A Central Station heritage interpretation plan would be developed and implemented. It would be consistent with the Central Station Conservation Management Plan (Rappoport and Government Architects Office, 2013) and in accordance with the guidelines identified in NAH8.	Refer to the Construction Heritage Management sub-plan
NAH10	The detailed design of the Sydney Yard Access Bridge would be carried out in accordance with the relevant specific element principles in the Design Guidelines.	Refer to the approved Sydney Yard Access Bridge CEMP
NAH11	Except for heritage significant elements affected by the project, direct impact on other heritage significant elements forming part of the following items would be avoided: • The Blues Point Waterfront Group (including the former tram turning circle, stone retaining wall, bollards and steps)	Refer to the Construction Heritage Management sub-plan

Revised Environmental Mitigation Measures		
	• The Millers Point and Dawes Point Village Precinct • The existing Martin Place Station • Sydney Terminal and Central Railway Stations group • Sydney Yard (including the Shunters Hut and Prince Alfred Sewer).	
NAH12	Power supply works would be designed and constructed to avoid impacts to the Tank Stream and Bennelong Stormwater Channel.	Refer to the Construction Heritage Management sub-plan
NAH13	The design and detailed construction planning of work at Central Station would consider the requirements of the *Central Station Conservation Management Plan* (Rappoport and Government Architects Office, 2013) and include consideration of opportunities for the retention, conservation and / or reuse of original and significant heritage fabric and movable heritage items. Consultation would be carried out with Sydney Trains and the Heritage Council of NSW during design development.	Refer to the Construction Heritage Management sub-plan
NAH18	Works at Central Station would be carried out with the oversight of heritage specialists.	Refer to the Construction Heritage Management sub-plan
AH1	Aboriginal stakeholder consultation would be carried out in accordance with the NSW Office of Environment and Heritage's Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.	Refer to the Construction Heritage Management sub-plan
AH2	The cultural heritage assessment report would be implemented.	Refer to the Construction Heritage Management sub-plan
AH3	Archaeological test excavation (and salvage when required) would be carried out where intact natural soil profiles with the potential to contain significant archaeological deposits are encountered at the Blues Point temporary site, Barangaroo Station, Martin Place Station, Pitt Street Station, Central Station, Waterloo Station and Marrickville dive site. Excavations would be conducted in accordance with the methodology outlined in the Aboriginal cultural heritage assessment report.	Refer to the Construction Heritage Management sub-plan
AH4	Appropriate Aboriginal heritage interpretation would be incorporated into the design for the project in consultation with Aboriginal stakeholders.	Refer to the Construction Heritage Management sub-plan
LV1	Where feasible and reasonable, the elements within construction sites would be located to minimise visual impacts, for example materials and machinery would be stored behind fencing.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
LV2	Existing trees to be retained would be protected prior to the commencement of construction in accordance with *Australian Standard AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties*.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
LV3	Lighting of construction sites would be oriented to minimise glare and light spill impact on adjacent receivers.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
LV4	Visual mitigation would be implemented as soon as feasible and reasonable after the commencement of construction and remain for the duration of the construction period.	Refer to the Construction Visual Amenity and Landscape Management sub-plan

Central Station Main Works Project
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Revised Environmental Mitigation Measures		
LV5	Opportunities for the retention and protection of existing trees would be identified during detailed construction planning.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
LV6	The design and maintenance of construction site hoardings would aim to minimise visual amenity and landscape character impacts, including the prompt removal of graffiti. Public art opportunities would be considered.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
LV10	Temporary impacts to public open space would be rehabilitated in consultation with the relevant local council and / or landowner.	Refer to the Construction Visual Amenity and Landscape Management sub-plan
GWG1	A detailed geotechnical model for the project would be developed and progressively updated during design and construction. The detailed geotechnical model would include: • Assessment of the potential for damage to structures, services, basements and other sub-surface elements through settlement or strain • Predicted changes to groundwater levels, including at nearby water supply works. Where building damage risk is rated as moderate or higher (as per the CIRIA 1996 risk-based criteria), a structural assessment of the affected buildings / structures would be carried out and specific measures implemented to address the risk of damage. With each progressive update of the geotechnical model the potential for exceedance of the following target changes to groundwater levels would be reviewed: • Less than 2.0 metres – general target • Less than 4.0 metres – where deep building foundations present • Less than 1.0 metre – residual soils • Less than 0.5 metre – residual soils (Blues Point) (fill / Aeolian sand). Where a significant exceedance of target changes to groundwater levels are predicted at surrounding land uses and nearby water supply works, an appropriate groundwater monitoring program would be developed and implemented. The program would aim to confirm no adverse impacts on groundwater levels or to appropriately manage any impacts. Monitoring at any specific location would be subject to the status of the water supply work and agreement with the landowner. The geotechnical model and groundwater monitoring program would be developed in consultation with the Department of Primary Industries (Water).	Refer to the Construction Groundwater Management sub-plan
GWG2	Condition surveys of buildings and structures in the vicinity of the tunnel and excavations would be carried out prior to the commencement of excavation at each site.	Refer to the Construction Noise and Vibration Management sub-plan

Central Station Main Works Project
Construction Environmental Management Plan

Revised Environmental Mitigation Measures		
SCW1	Updated desktop contamination assessments would be carried out for Chatswood dive site, Blues Point temporary site, Barangaroo Station, Central Station and Waterloo Station. If sufficient information is not available to determine the remediation requirements and the impact on potential receivers, then detailed contamination assessments, including collection and analysis of soil and groundwater samples would be carried out. Detailed contamination assessment would also be carried out for the Barangaroo power supply route within Hickson Road and the Marrickville power supply route adjacent to Sydney Park and Camdenville Oval. In the event a Remediation Action Plan is required, these would be developed in accordance with *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998) and a site auditor would be engaged.	Refer to the Construction Soil and Water Management sub-plan
SCW3	Erosion and sediment control measures would be implemented in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) and *Managing Urban Stormwater: Soils and Construction Volume 2* (Department of Environment and Climate Change, 2008a). Measures would be designed as a minimum for the 80th percentile; 5-day rainfall event.	Refer to the Construction Soil and Water Management sub-plan
SCW4	Discharges from the construction water treatment plants would be monitored to ensure compliance with the discharge criteria in an environment protection licence issued to the project.	Refer to the Construction Soil and Water Management sub-plan
SO2	Specific consultation would be carried out with sensitive community facilities (including aged care, childcare centres, educational institutions and places of worship) potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual sensitive community facilities.	Refer to Community Communications Strategy Management sub-plan
B1	An ecologist would be present during the removal of any hollow-bearing trees.	Refer to the Construction Biodiversity Management sub-plan
B2	Potential bat roosting locations at Central Station, Waterloo Station and Marrickville dive sites would be checked by a qualified ecologist or wildlife handler prior to demolition. Any bats found would be relocated, unless in torpor, in which case the relocation would be delayed until the end of the torpor period.	Refer to the Construction Biodiversity Management sub-plan
B3	The local WIRES group and / or veterinarian would be contacted if any fauna is injured on site or require capture and / or relocation.	Refer to the Construction Biodiversity Management sub-plan
AQ1	The engines of all on-site vehicles and plant would be switched off when not in use for an extended period.	Refer to the Construction Air Quality Management sub-plan
AQ2	Plant would be well maintained and serviced to minimise emissions. Emissions from plant would be considered as part of pre-acceptance checks.	Refer to the Construction Air Quality Management sub-plan

Revised Environmental Mitigation Measures		
AQ3	Construction site layout and placement of plant would consider air quality impacts to nearby receivers.	Refer to the Construction Air Quality Management sub-plan
AQ4	Hard surfaces would be installed on long term haul routes and regularly cleaned.	Refer to the Construction Air Quality Management sub-plan
AQ5	Unsurfaced haul routes and work area would be regularly damped down in dry and windy conditions.	Refer to the Construction Air Quality Management sub-plan
AQ6	All vehicles carrying loose or potentially dusty material to or from the site would be fully covered.	Refer to the Construction Air Quality Management sub-plan
AQ7	Stockpiles would be managed to minimise dust generation.	Refer to the Construction Air Quality Management sub-plan
AQ8	Demolition would be managed to minimise dust generation.	Refer to the Construction Air Quality Management sub-plan
AQ9	Ventilation from acoustic sheds would be filtered.	Refer to the Construction Air Quality Management sub-plan
HR1	All hazardous substances that may be required for construction would be stored and managed in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33* (Department of Planning, 2011).	Section 13
HR2	Dial before you dig searches and non-destructive digging would be carried out to identify the presence of underground utilities.	Refer to the Construction Demolition Management sub-plan
HR3	A hazardous material survey would be completed for those buildings and structures suspected of containing hazardous materials (particularly asbestos) prior to their demolition. If asbestos is encountered, it would be handled and managed in accordance with relevant legislation, codes of practice and Australian standards.	Refer to the Construction Demolition Management sub-plan
WM1	All waste would be assessed, classified, managed and disposed of in accordance with the *NSW Waste Classification Guidelines*.	Refer to the Construction Waste Management sub-plan, Construction Soil and Water Management sub-plan and Construction Spoil Management sub-plan
WM2	100 per cent of spoil that can be reused would be beneficially reused in accordance with the project spoil reuse hierarchy.	Refer to the Construction Waste Management sub-plan, and Construction Spoil Management sub-plan
WM3	A recycling target of at least 90 per cent would be adopted for the project.	Refer to the Construction Waste Management sub-plan
WM4	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	Refer to the Construction Waste Management sub-plan

Central Station Main Works Project
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Revised Environmental Mitigation Measures		
SUS1	Sustainability initiatives would be incorporated into the detailed design and construction of the project to support the achievement of the project sustainability objectives.	Refer to the Construction Sustainability Management sub-plan
SUS2	A best practice level of performance would be achieved using market leading sustainability rating tools during design and construction.	Refer to the Construction Sustainability Management sub-plan and ISCA rating summaries in respective sub-plans
SUS3	A workforce development and industry participation strategy would be developed and implemented during construction.	Refer to the Construction Sustainability Management sub-plan
SUS4	Climate change risk treatments would be incorporated into the detailed design of the project including: • Ensuring that adequate flood modelling is carried out and integrated with design • Testing the sensitivity of air-conditioning systems to increased temperatures, and identify potential additional capacity of air-conditioning systems that may be required within the life of the project, with a view to safeguarding space if required • Testing the sensitivity of ventilation systems to increased temperatures and provide adequate capacity.	Refer to the Construction Sustainability Management sub-plan
SUS5	An iterative process of greenhouse gas assessments and design refinements would be carried out during detailed design and construction to identify opportunities to minimise greenhouse gas emissions. Performance would be measured in terms of a percentage reduction in greenhouse gas emissions from a defined reference footprint.	Refer to the Construction Sustainability Management sub-plan
SUS6	25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction would be offset.	Refer to the Construction Sustainability Management sub-plan

Revised Environmental Mitigation Measures		
CU1	Transport for NSW would manage and co-ordinate the interface with projects under construction at the same time. Co-ordination and consultation with the following stakeholders would occur, where required: • CBD Coordination Office • Department of Planning Industry and Environment • Roads and Maritime Services • Sydney Trains • NSW Trains • Sydney Buses • Sydney Water • Port Authority of NSW • Willoughby Council • North Sydney Council • City of Sydney Council • Marrickville Council • Sydney Motorways Corporation • Barangaroo Delivery Authority • Emergency service providers • Utility providers • Construction contractors. Co-ordination and consultation with these stakeholders would include: • Provision of regular updates to the detailed construction program, construction sites and haul routes • Identification of key potential conflict points with other construction projects • Developing mitigation strategies in order to manage conflicts. Depending on the nature of the conflict, this could involve: • Adjustments to the Sydney Metro construction program, work activities or haul routes; or adjustments to the program, activities or haul routes of other construction projects • Co-ordination of traffic management arrangements between projects.	Refer to the Construction Traffic Management sub-plan, Community Communications Strategy Management Plan, and Construction Business Management sub-plan

Environmental Performance Outcomes

Revised Environmental Performance Outcomes		
Field	**Environmental Performance Outcomes**	**Document Reference**
Construction Traffic and Transport	• The project would minimise impacts to the road network • Pedestrian and cyclist safety would be maintained • Effective coordination would be carried out to minimise cumulative network impacts • Access to properties would be maintained.	Refer to Construction Traffic Management Plan

Central Station Main Works Project
Construction Environmental Management Plan

Revised Environmental Performance Outcomes		
Operational Traffic and Transport	• The project would appropriately integrate with existing and planned future transport infrastructure including active transport • Access to properties would be maintained • Metro customers would be provided with a safe and secure service • The project would reduce station crowding, increase rail network reach and use, improve network resilience, and improve travel times within the global economic corridor.	Not applicable to this Plan or any construction component
Construction Noise and Vibration (Amenity and Structural)	• Noise levels would be minimised with the aim of achieving the noise management levels where feasible and reasonable • The project would avoid any damage to buildings from vibration.	Refer to Construction Noise and Vibration Management Plan
Operational Noise and Vibration (Amenity and Structural)	• Noise levels would comply with the Rail Infrastructure Noise Guidelines (Environment Protection Authority, 2013). • The project would avoid any damage to buildings from vibration.	Not applicable to this Plan or any construction component
Land use and property	• The project would be appropriately integrated into local land use planning strategies • The surface footprint of the project would be minimised • The project would provide substantial future development opportunities.	Not applicable to this Plan as it has been assessed within the EIS and not relevant to the construction component of this project.
Non-Aboriginal heritage	• The project would be sympathetic to heritage items and, where feasible and reasonable, avoid and minimise impacts to non-Aboriginal heritage items and archaeology • The design of the project would reflect the input of an independent heritage architect, relevant stakeholders and the design review panel.	Refer to Construction Heritage Management Plan
Aboriginal heritage	• The project would be sympathetic to heritage items and, where feasible and reasonable, avoid and minimise impacts to Aboriginal heritage items and archaeology • The design of the project would reflect the input of an independent heritage architect, relevant stakeholders and the design review panel.	Refer to Construction Heritage Management Plan

Revised Environmental Performance Outcomes		
Business impacts	• The project would minimise impacts on businesses during construction • During operation, the project would improve access to businesses for employees and customers, and connectivity between businesses within the global economic corridor.	Not applicable to this Plan as it has been assessed within the EIS and not relevant to the construction component of this project.
Landscape character and visual amenity	• During operation, the project would make a positive contribution to the quality of the urban environment at each station site • During operation, the project would minimise change to landscape character in the vicinity of the dive structures and Artarmon substation • The project would be visually integrated with its surroundings	Not applicable to this Plan or any construction component.
Groundwater and geology	• The project would make good any impacts on groundwater users • The project would avoid any damage to buildings from settlement.	Refer to Construction Groundwater Management Plan
Soils, contamination and water quality	• Erosion and sediment controls during construction would be implemented in accordance with Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Managing Urban Stormwater: Soils and Construction Volume 2 (Department of Environment and Climate Change, 2008a) • There would be no impacts on aquatic environments associated with the disturbance of acid sulphate soils during construction • Any contamination on project sites would be remediated to suit future land use the project would protect or contribute to achieving the Water Quality Objectives, during construction and operation • Construction water quality discharge would comply with the requirements of an environment protection licence issued to the project • Operation water quality discharge would comply with a discharge criterion determined in consultation with the NSW Environment Protection Authority.	Refer to Construction Soil and Water Management Plan

Revised Environmental Performance Outcomes		
Social impacts and community facilities	• The project would avoid long term impacts (during operation) on the availability and quality of public open space and community facilities • The project, during operation, would help to improve access to local facilities, services and destinations, supporting opportunities for community interaction.	Not applicable to this Plan or any construction component
Biodiversity	• The biodiversity outcome would be consistent with the Framework for Biodiversity Assessment • The project would minimise impacts to biodiversity.	Refer to Construction Biodiversity Management Plan
Flooding and hydrology	• Changes to overland flow diversions during construction would meet the following criteria: ○ Not worsen existing flooding characteristics up to and including the 100 year annual recurrence interval event in the vicinity of the project (not worsen is defined as a maximum increase flood levels of 50mm in a 100 year Average Recurrence Interval flood event, a maximum increase in time of inundation of one hour in a 100 year Average Recurrence Interval flood event, and no increase in the potential for soil erosion and scouring from any increase in flow velocity in a 100 year Average Recurrence Interval flood event). ○ Dedicated evacuation routes would not be adversely impacted in flood events up to and including the probable maximum flood. • There would be no additional private properties affected by flooding up to and including the 100-year average recurrence interval event during operation • Flood levels would be increased by a maximum of 470 mm during the 100-year average recurrence interval event in the vicinity of the Marrickville dive structure during operation • The performance of the downstream drainage network would be maintained during operation.	Refer to Construction Soil and Water Management Plan
Air quality	• Dust and exhaust emissions during construction would be minimised.	Refer to Construction Air Quality Management Plan
Hazard and risk	• The storage, use and transport of dangerous goods and hazardous substances would comply with Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011) • There would be no unplanned or unexpected disturbance of utilities.	Refer to Section 13.

Revised Environmental Performance Outcomes		
Waste Management	• All waste would be assessed, classified, managed and disposed of in accordance with the NSW Waste Classification Guidelines • 100 per cent of spoil that can be reused would be beneficially reused in accordance with the project spoil reuse hierarchy. • A recycling target of at least 90 per cent would be adopted for the construction of the project.	Refer to Construction Spoil Management Plan. Refer to Construction Waste Management Plan
Sustainability	• The project would be carried out in accordance with the Sydney Metro City & Southwest Environment and Sustainability Policy. • 25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction would be offset • 100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.	Refer to Construction Sustainability Management Plan

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
Project Description	Section 1
EMP Context	Sections 1, 3, 4 and 5
EMP Objectives	Section 6
Environmental Policy	Section 5
Environmental Management Structure and Responsibility	Section 7 and Appendix D
Approval and Licensing Requirements	Section 5 and Appendix A
Reporting	Section 7 and 10
Environmental Training	Section 9
Emergency Contacts and Response	Sections 14 15, 16 and 18, Appendix G
Risk Assessment	Section 8 and Appendix C
Community and Business Impacts	Section 11.2, Appendix C, Community Communications Strategy and the Business Management Plan.
Environmental Management Activities and Controls	Section 13, specific sub-plans and Appendix C

Requirement	Document Reference
Environmental Control Plans or Maps	Section 13 and Appendix L
Environmental Schedules	Section 19
Environmental Monitoring	Section 15 and specific sub-plans
Environmental Auditing	Section 17
Corrective Action	Sections 10, 15 and 18.
EMP Review	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
1.3	Transport for NSW (TfNSW) has developed an Environment and Sustainability Policy for Sydney Metro. Principal Contractors will be required to undertake their works in accordance with this policy.	Section 3, Appendix J and relevant sub-plans
2.1	TfNSW and its Contractors should regularly review their legislative requirements.	Section 4
2.2	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.	Section 4 and Appendix A
2.3	Contractors may be required to obtain an Environment Protection Licence (EPL). 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.	Section 4.1
2.4	Numerous environmental publications, standards, codes of practice and guidelines are relevant to Sydney Metro construction and are referenced throughout this Construction Environmental Management Framework	Sections 3 and 4
3.1 (a) to (f)	Principal Contractors are required to have a corporate Environmental Management System certified under AS/NZS ISO 14001:2004	Section 3
3.3 (e)	As a minimum the CEMP will:	

Central Station Main Works Project
Construction Environmental Management Plan

Clause	Requirement	Document Reference
(i)	Include a contract specific environmental policy;	Section 5
(ii)	Include a description of activities to be undertaken during construction	Sections 1.4 to 1.8
(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
(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 D
(vi)	Assign the responsibility for the implementation of the CEMP to the Environment Manager, who will have appropriate experience. The Principal 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 7 and 10
(viii)	Include induction and training requirements and a summary of the Training Needs Analysis required in Section 3.9(b)	Section 9
(ix)	Management strategies for environmental compliance and review of the performance of environmental controls;	Sections 15.3 and 17
(x)	Processes and methodologies for surveillance and monitoring, auditing and review, and reporting on environmental performance including environmental compliance tracking;	Sections, 17,18 and 19
(xi)	Include procedures for emergency and incident management, non-compliance management, and corrective and preventative action; and	Section 7 and 14
(xii)	Include procedures for the control of environmental records.	Section 14
3.4	Construction Environmental Management Sub-Plans	Section 1.1 and associated sub-plans
3.5	Environmental Procedures and Control Maps	Section 13
3.6	Additional Environmental Assessments	Section 15.4

Central Station Main Works Project
Construction Environmental Management Plan

Clause	Requirement	Document Reference
3.7	Condition Surveys	Construction Noise and Vibration Management sub-plan and Construction Groundwater Management sub-plan
3.8	Register of Hold Points	Section 13.2
3.9	Training, Awareness and Competence	Section 9
3.10	Emergency and Incident Response	Section 16
3.11	Independent Environmental Representative	Section 7
3.12	Roles and Responsibilities	Section 7
3.13	Environmental Monitoring, Inspections and Auditing	Section 17
3.14	Environmental non-compliances	Sections 4 and 17
3.15	Environmental Records and Compliance Reporting	Section 15
3.16	Review and Improvement of the E&SMS	Sections 16 and 17
4.1	Stakeholders and the community will be informed of significant events or changes	Sections 4.3 and 10
4.3	Complaint Handling	Section 16.1
4.4	Urban Design of Temporary Works	Construction Visual Amenity and Landscape Management sub-plan
4.5	Business and Property Impacts	Construction Business Management sub-plan
5.1	Working Hours	Section 1.8
5.2	Site Layout	Section 1.6 and relevant sub-plans
5.3	Reinstatement	Construction and Site Management sub-plan, Commissioning and Operational Readiness Management sub-plan
6.1	Spoil Management Objectives	Construction Spoil Management sub-plan
6.2	Spoil Management Implementation	Construction Spoil Management sub-plan
6.3	Spoil Mitigation	Construction Spoil Management sub-plan
7.1	Groundwater Management Objectives	Construction Groundwater Management sub-plan
7.2	Groundwater Management Implementation	Construction Groundwater Management sub-plan
7.3	Groundwater Mitigation	Construction Groundwater Management sub-plan
8.1	Construction Traffic Management Objectives	Construction Traffic Management sub-plan
8.2	Construction Traffic Management Implementation	Construction Traffic Management sub-plan
8.3	Construction Traffic Mitigation	Construction Traffic Management sub-plan
9.1	Noise and Vibration Management Objectives	Construction Noise and Vibration Management sub-plan

Central Station Main Works Project
Construction Environmental Management Plan

Clause	Requirement	Document Reference
9.2	Noise and Vibration Management Implementation	Construction Noise and Vibration Management sub-plan
9.3	Noise and Vibration Mitigation	Construction Noise and Vibration Management sub-plan
10.1	Heritage Management Objectives	Construction Heritage Management sub-plan
10.2	Heritage Management Implementation	Construction Heritage Management sub-plan
10.3	Heritage Mitigation	Construction Heritage Management sub-plan
11.1	Flora and Fauna Management Objectives	Construction Biodiversity Management sub-plan
11.2	Flora and Fauna Management Implementation	Construction Biodiversity Management sub-plan
11.3	Flora and Fauna Mitigation	Construction Biodiversity Management sub-plan
12.1	Visual Amenity Management Objectives	Construction Visual Amenity and Landscape Management sub-plan
12.2	Visual Amenity Management Implementation	Construction Visual Amenity and Landscape Management sub-plan
12.3	Visual Amenity Mitigation	Construction Visual Amenity and Landscape Management sub-plan
13.1	Carbon and Energy Management Objectives	Construction Sustainability Management sub-plan
13.2	Carbon and Energy Management Implementation	Construction Sustainability Management sub-plan
13.3	Carbon and Energy Management Mitigation	Construction Sustainability Management sub-plan
14.1	Materials Management Objectives	Construction Materials Management sub-plan
14.2	Materials Management Implementation	Construction Materials Management sub-plan
14.3	Materials Management Mitigation	Construction Materials Management sub-plan
15.1	Soil and Water Management Objectives	Construction Soil and Water Management sub-plan
15.2	Soil and Water Management Implementation	Construction Soil and Water Management sub-plan
15.3	Soil and Water Mitigation	Construction Soil and Water Management sub-plan
16.1	Air Quality Management Objectives	Construction Air Quality Management sub-plan
16.2	Air Quality Management Implementation	Construction Air Quality Management sub-plan
16.3	Air Quality Mitigation	Construction Air Quality Management sub-plan
17.1	Waste Management Objectives	Construction Waste Management sub-plan
17.2	Waste Management Implementation	Construction Waste Management sub-plan
17.3	Waste Mitigation	Construction Waste Management sub-plan

1.2 Background

Sydney Metro City & Southwest – Chatswood to Sydenham Project 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 Project forms part of the Sydney Metro City & Southwest – Chatswood to Sydenham Project and includes the construction of new underground platforms at Central Station and new related pedestrian access ways. The works will be undertaken by Laing O'Rourke. The Project consists of the Metro Station Works, the Central Station Works and the Central Walk Works which are described in the sections below.

1.3 Planning Approval

The Project has been assessed by the Department of Planning Industry and Environment under Section 115ZB of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as Critical State Significant Infrastructure (CSSI). The Project, its impacts, consultation and mitigation were documented in the following suite of documents:

- Critical State Significant Infrastructure Application SSI 15_7400
- Sydney Metro – Chatswood to Sydenham –Environmental Impact Statement (Jacobs/Aracadis/RPS, 2016)
- Sydney Metro – Chatswood to Sydenham –Response to Submissions and Preferred Infrastructure Report (Jacobs/Aracadis/RPS 2016); and
- The Planning Assessment Commission granted Approval for the Project on 9 January 2017 and the Laing O'Rourke scope of works is subject to the Minister's Conditions of Approval.

Following approval of the Sydney Metro City and Southwest – Chatswood to Sydenham Project, a modification (SSI Mod 2: Central Walk) was assessed by the Department of Planning Industry and Environment and subsequently approved on 21 December 2017 under section 115ZI of the EP&A Act. The consolidated Conditions of Approval's for the Sydney Metro City and Southwest have been defined from the following approval modification documents.

- CSSI 7400 MOD 1 – Victoria Cross and Artarmon Substation (determined 18 October 2017)
- CSSI 7400 MOD 4 – Sydenham Station and Metro Facility South (determined 13 December 2017)
- CSSI 7400 MOD 2 – Central Walk (determined 21 December 2017)
- CSSI 7400 MOD 3 – Martin Place Metro Station (determined 22 March 2018).
- CSSI 7400 MOD 5 - Blues Point Acoustic Shed (determined 2 November 2018).
- CSSI 7400 MOD 6 – Administrative Changes- Modification to Sydney Metro City & Southwest - Chatswood to Sydenham (determined 21 February 2019)
- CSSI 7400 MOD 7 – Administrative Changes – Modification to Sydney Metro City & Southwest – Chatswood to Sydenham (determined 24 June 2020)
- CSSI 7400 MOD 8 – Blues Point Access Site (determined 25 November 2020)
- CSSI 7400 MOD 9 – Extension to standard construction hours (determined 30 June 2022)

1.4 Overview of the Project

The Metro Station Works include the installation of new platforms that will be constructed using sophisticated excavation techniques to create a cavern with an island platform, beneath Central Station's existing heavy-rail platforms 13, 14 and 15.

The Central Station Works include new infrastructure and the adjustments to existing infrastructure at Central Station to construct, operate and maintain the Metro Station Works. The key features of the Central Station Works include:

- a new north-south concourse for Central Station which will link the new metro station with the existing northern entrance and north concourse, a new east concourse, and the existing southern baggage tunnel; and
- adjustments to the existing Grand Concourse, Olympic Tunnel, north concourse and northern entrance to Central Station.

The Central Walk Works include the provision of other infrastructure to provide improved connectivity and other operational enhancements throughout Central Station. The key features of the Central Walk Works include:

- a new eastern entrance for Central Station
- a new east concourse and advanced tunnel for Central Station beneath existing platforms 16 to 23, which will link the new eastern entrance, the new north south concourse, existing platforms 16 to 23 and the existing Eastern Suburbs Railway (ESR) concourse; and
- provisions to enable the future construction (by others) of an extension of the Central Walk through a new west concourse and a new western entrance for Central Station.

1.5 Scope of Works

1.5.1 Permanent Works

The permanent new infrastructure to be constructed includes:

- Shortening of platforms 9 to 14 at the northern end, and a corresponding lengthening at the southern end
- Demolition of platforms 13 to 15 and re-instatement of platforms 13 to 14 to accommodate the construction of the new metro station
- Reinforcement of Platform 12
- Station excavation requiring the removal of approximately 230,000 cubic metres of spoil
- A Tunnel Boring Machine (TBM) passing through the station (TBM works by others)
- Demolition of the 'Bounce Hostel'
- Construction of the new eastern pedestrian portal, the Central Walk and related station access arrangements to existing platforms.

Refer to Figure 1.1 below for the locations of the works.

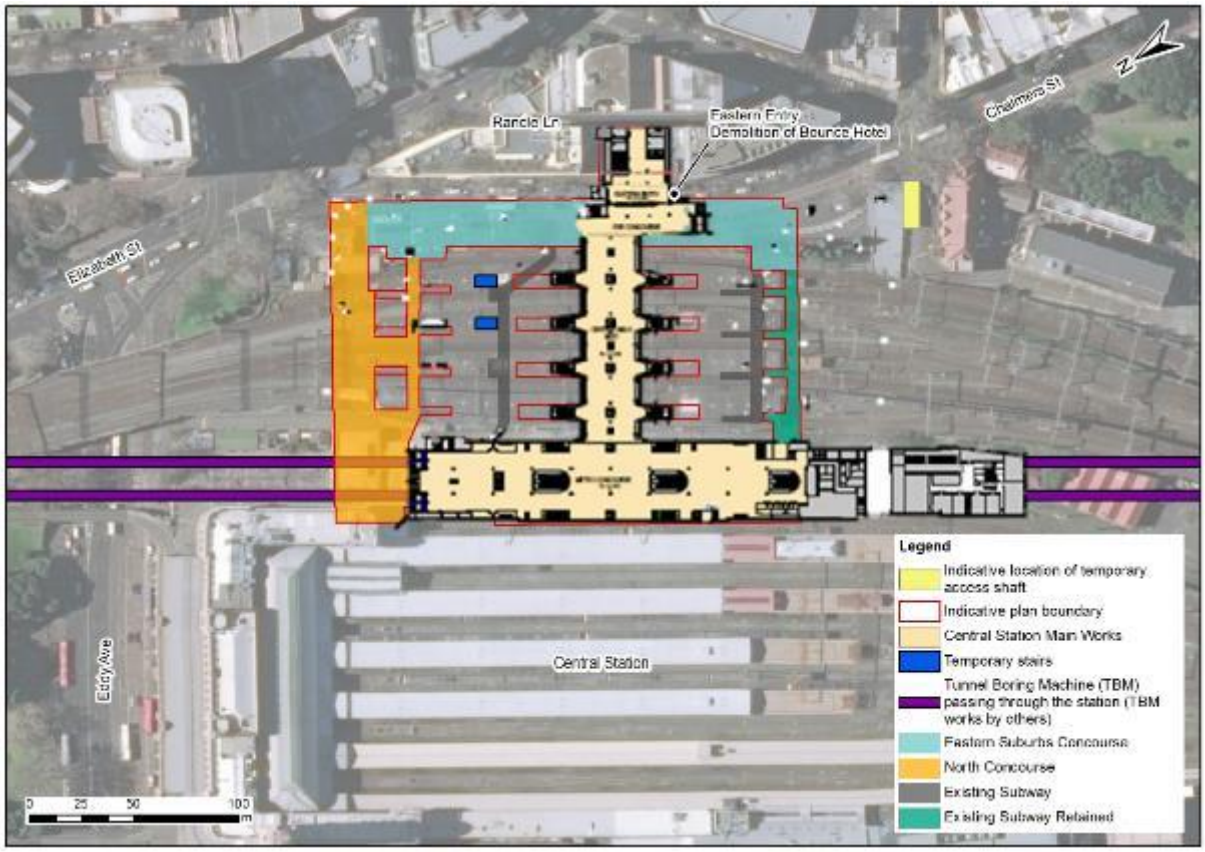


Figure 1.1: CSMW Project Works

1.5.2 Ancillary works

Ancillary works include fencing, hoarding, maintenance access, utility works, drainage, noise barriers, road and transport network works and temporary site offices, laydown and work sites to support construction. Minor ancillary facilities including lunch sheds, office sheds, and portable toilet facilities were endorsed by the ER under CoA 18 for the Sydney Yard Access Project and documented in the Construction Visual Amenity and Landscape Management Sub Plan.

1.5.3 Combined Services Route CSM

The CSR for Central Station will provide for Communications (Comms) services (voice, data and IT connectivity, requiring 6 to 8 cables) and High Voltage electrical (HV) services that will service the whole site, both existing and the new infrastructure installations that are being introduced as part of the Central Station Main Works. It will extend as a circular route around the site, utilising existing service infrastructure where this is available and providing new installations as required to complete the system.

The CSR was included in the Environmental Impact Statement that was approved under SSI 15_7400 as part of the concept design (refer EIS Chapter 7, Project Description – Construction, Part 7.10.9, p231) and has progressed through a detailed design process (see figure 1.2). Note, the CSR route will be delivered in two phases. Phase A occurs in areas, 2, 3 and 4 and is restricted to the Western Baggage Tunnel, Northern Baggage Tunnel and Platform 1. Phase B occurs in all other Areas and extends to the Darling Harbour Goods Line, Mortuary Tunnel, Sydney Yard, Water Mains tunnel, Prince Alfred Substation, Railway Institute driveway and Sydney Network Base.

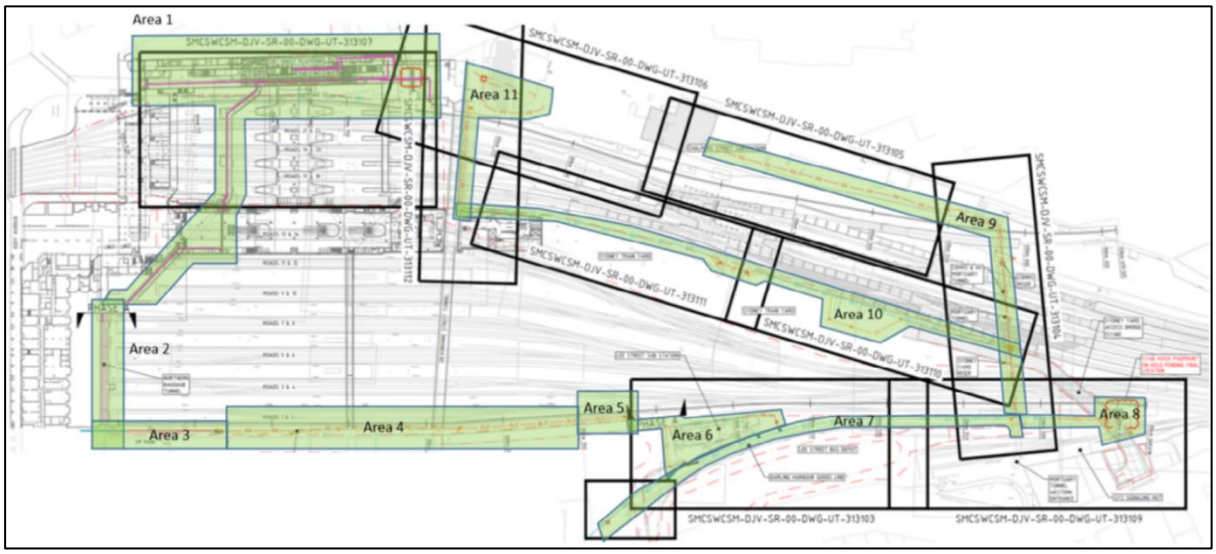


Figure 1.2 CSR Route around central station.

1.6 Works Location and Site Layout

The Project location and site layout is highlighted in Figure 1.3 below. Refer also to the Environmental Control Map in Appendix L.

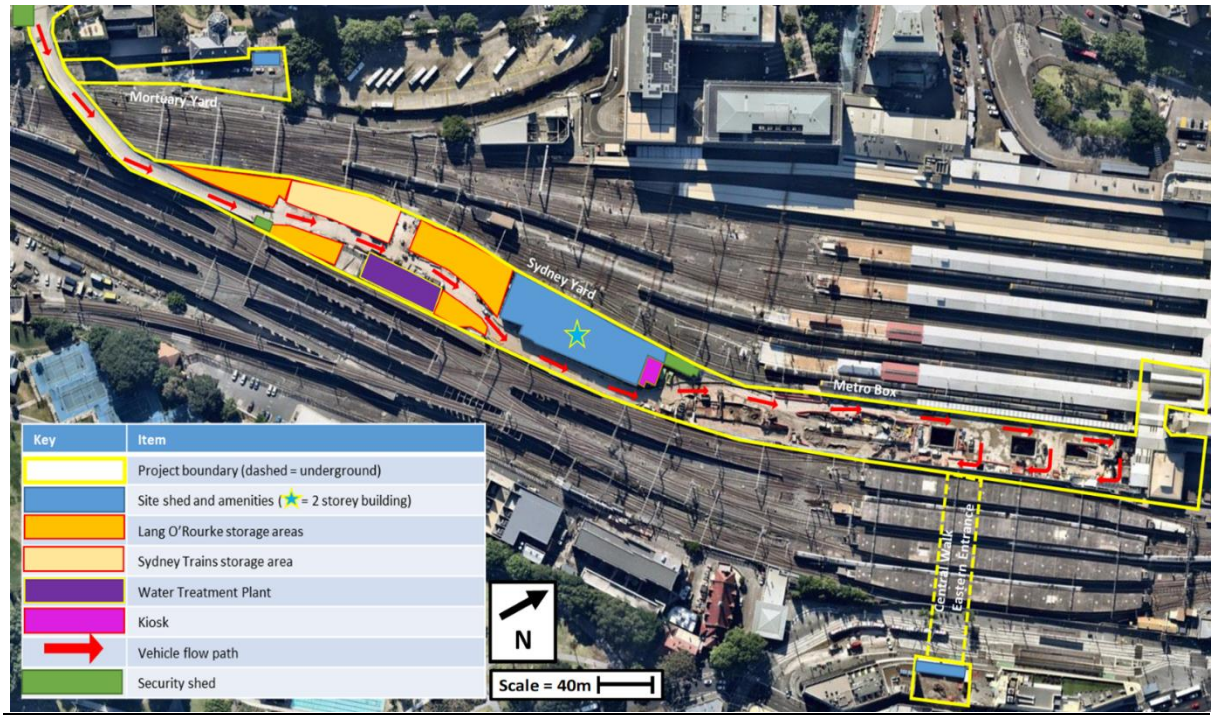


Figure 1.3: Site Layout

1.7 Indicative Construction Schedule

Table 4 shows the indicative construction timeframe.

Table 4: Indicative Construction Schedule

Activity Description	2018				2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CSM Contract Works																								
Contract Award																								
Design																								
Procurement																								
Enabling Works																								
Olympic Street Tunnel Staircases																								
Metro Box Structure																								
Metro Box Fit out																								
Central Walk - East Concourse																								
Central Walk - Eastern Entrance																								
Central Walk - ESR																								
Grand Concourse																								
Northern Concourse and North Entry																								
Testing & Commissioning																								
Station Testing and Commissioning																					Station Completion			
Central Walk Testing and Commissioning																					Portion 6 Completion			
Contract Completion																					Contract Completion			

1.8 Construction Hours

In accordance with Condition of Approval (CoA) – E36 - Construction, except as allowed by Conditions E47 and E48 (excluding cut and cover tunnelling), 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
- at no time on Sundays or public holidays.

CoA E38 places further restriction on the hours that 'high noise impact' generating activities may occur where internal noise levels are greater than Leq(15min) 60dBA at nearest sensitive receivers. Construction works and activities with the potential to exceed internal criteria will be scheduled to occur between the hours of 7am and 8pm. CoA E38 provides for an extended daytime period as it may be preferred by commercial (or residential) receivers for high noise generating activities to occur after 5pm. As required in CoA E37, the relevant receivers have been identified throughout the Construction Noise and Vibration Management Plan (CNVMP) regarding the determination of hours of respite so that construction noise (including ground-borne noise) does not exceed the Highly Noise Affected Management Level (HNAML) outlined within the Interim Construction Noise Guideline (ICNG). Construction noise management levels have been outlined within **Table 4.1** of the CNVMP.

Conditions E44 and E45 also allows construction outside of scheduled hours under a range of conditions such as emergency works, 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, etc.

Condition E47 requires an out of hours work protocol be developed and implemented for work outside of the above standard construction hours (refer also to Section 1.8.1 below). Condition E48 specifies that the following activities may occur 24 hours per day seven days a week, subject to Condition E47:

(a) tunnelling and associated support activities (excluding cut and cover tunnelling);
(b) excavation within an acoustic enclosure
(c) excavation at Central without an acoustic enclosure (excluding Central Walk works at 20-28 Chalmers Street, Surry Hills)
(d) station and tunnel fit out; and
(e) haulage and delivery of spoil and materials.

1.8.1 Out of Hours Works Protocol

Out of Hours Works (OOHW) are proposed for a number of phases during construction and are detailed within the scope of the Construction Noise and Vibration Impact Statement (CNVIS).

CoA E44(f) and E47 requires the preparation of an OOHW Protocol when undertaking works outside of standard construction hours for works not subject to an EPL. An OOHW Protocol has been prepared and is located in **Appendix G** of the Construction Noise and Vibration Management Plan (CNVMP) and should be referred to during the assessment, management and approval of work outside of standard construction hours (as defined in Condition of Approval E36).

1.8.2 Environmental Protection Licence noise limits and hours of operation

An Environmental Protection Licence (EPL 21148) was issued for the Project on 28 November 2018 for rail system activities (refer to S4.1 of this CEMP).

OOH work from the 28 November 2018 will be governed by the EPL conditions as well as CoA. To assist with the assessment of noise and vibration impacts, mitigation measures (including community notification requirements), a OOH Application will continue to be produced by LOR, and issued for information/endorsement to the ER and Sydney Metro. The LOR Environment Manager will sign off on the OOH Application.

2. Distribution Policy

The master 'controlled' CEMP 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 CEMP will be considered as 'uncontrolled' unless they have been allocated a 'copy number' in a colour other than black.

Where required, controlled copies of this CEMP will be published as a hard copy, allocated a copy number (colour other than black), and distributed as follows:

Table 5: CEMP Distribution

Copy No.	Issued To
01	Project Leader
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.

2.1 Issue, Revision and Re-issue

The initial issue of this plan has been reviewed by the Laing O'Rourke Regional Environmental Manager 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 Quality Assurance Statement on page 1 of this document.

In accordance with CoA C7, the CEMP must be endorsed by the Sydney Metro Environmental Representative (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; and/or

- Changes to the Company's standard system.

It is expected that the Environmental Audits and Management Reviews will be within 3 months of commencing on site and approximately every 12 months thereafter. The CEMP and sub-plans would be subsequently reviewed and updated by the Environmental Manager as required. Minor amendments and reviews will be approved by the ER. Revisions shall be reviewed and approved by the Environmental Manager prior to issue. Updates to this plan are numbered consecutively and issued to holders of controlled copies.

The CEMP and CEMP sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction.

Revised versions of the CEMP and sub-plans will be updated on Team Binder and notifications sent to the Project team.

3. 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 (see figure 1,5 below):*

Central Station Main Works Project
Construction Environmental Management Plan

SCI QUAL INTERNATIONAL

Environment Management Systems

Certificate of Registration

Laing O'Rourke Australia Construction Pty Limited
LORA National Pty Ltd
Laing O'Rourke Australia PM Pty Ltd
LOR Rail Operations Pty Ltd

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 13, 197 St Georges Terrace, Perth WA 6000

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
4749	31 March 2021	6 September 1991	30 October 2023

Alain Etchegaray
GENERAL MANAGER

Signed for and on behalf of
Sci Qual International Pty Ltd

JAS-ANZ

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.

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. (refer to Section 8 and 9 of the CEMP).

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

- The Sydney Metro City and Southwest – Project Approval – Determination, dated 9th January 2017
- The Sydney Metro City and Southwest - Environmental Impact Statement, dated 3rd May 2016
- The Sydney Metro City and Southwest – Submissions and Preferred Infrastructure Report, dated October 2016
- Sydney Metro City & Southwest - Chatswood to Sydenham: Modification 2 (MOD 2) - Central Walk, dated 12 December 2017
- Transport for NSW's Environment and Sustainability Policy (Appendix J)
- Laing O'Rourke Australia Construction Pty Limited integrated Group Management System (iGMS). The iGMS is the portal to Laing O'Rourke Australia Construction Pty Limited enterprise wide management system, knowledge and information, the repository for all processes, procedures, technical information, guidance template, checklists and learning relating to the Environmental Management System
- ISO 14001:2015 Environmental Management System
- The Sydney Metro Chatswood to Sydenham Environmental Impact Statement
- The Construction Environmental Management Framework v3
- The Overarching Stakeholder and Community Involvement Plan; and
- All other legal requirements.

This CEMP references relevant parts of Laing O'Rourke's HSEMS and incorporates the additional elements necessary to satisfy the client's environmental system requirements. The HSEMS is designed to promote continual improvement and to promote a life cycle approach.

An outline of Laing O'Rourke's Environmental Requirements in its HSEMS is provided below.

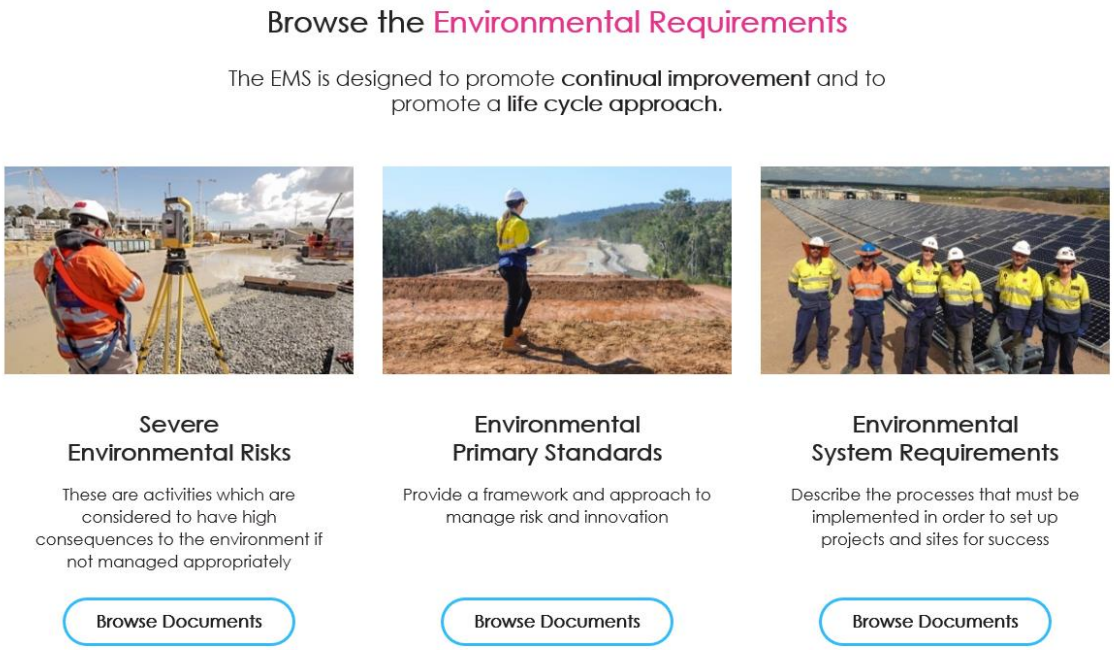


Figure 3-1: Laing O'Rourke Environmental Requirements

The SER's, EPS's and ESR's as listed above have been incorporated into this CEMP and various adaptions of the documents have been customised for specific use on the CSM Project.

4. Legal and Other Requirements

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

- Laws – Acts, regulations, policies, etc.
- Environment Protection Licences and permits
- Development consents
- Conditions of Approval, Revised Environmental Mitigation Measures and Construction Environmental Management Framework requirements; and
- Relevant industry standards / codes.

An assessment of the relevant legislative instruments has been conducted and recorded in Appendix A of this CEMP. A copy of relevant Permits, Licences, and any development approvals relevant to Laing O'Rourke's activities will be kept on site.

A Compliance Matrix for the project has been established in accordance with the Sydney Metro compliance tracking program to ensure the approval conditions are captured, addressed, and closed out. The Matrix includes all conditions relevant to Laing O'Rourke's scope of works and will be updated as the works progress and reviewed on a monthly 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 sub-plans.

Non-compliances with the conditions will be documented and addressed in accordance with Sydney Metro Environmental Incident and Non-compliance Reporting Procedure (SM-17-00000096) and documented on the Environmental Incident and Non-compliance Notification Report form (SM-17-00000105).LOR will also ensure that non-compliances and environmental incidents are appropriately recorded and promptly reported to Sydney Metro.

Licences, permits and approvals are outlined in Appendix B 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 annual management review outlined in Section 18 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.

Status of compliance conditions relating to items listed on the Project Permits and Licenses Register will be tracked in a separate 'live' Project specific Environmental Compliance Matrix. Specific details and controls are included in the associated sub-plans and Environmental Risk Action Plans.

4.1 Environmental Authority / Licence

Pre-construction minor works were delivered in accordance with the MCoA and the Sydney Trains Environment Protection Licence (EPL) 12208.

A project EPL 21148 was acquired by LOR, November 2018 for the commencement of construction. The EPL was required for the Scheduled activity of railway systems activities of any capacity. The EPL covers all works outlined in the CEMP and sub plans. In accordance with CoA B15 (d), a copy or link of the Environment Protection Licence has been provided for information on the project website: https://centralstationmetro.com/documents/

4.2 References, Standards, Codes and Regulations

The project will be constructed in accordance with relevant standards, codes, acts, and regulations. Access to the latest Australian standards is available via the Supporting Information section of iGMS, Laing O'Rourke's enterprise-wide management system. Appendix A provides a register of applicable legislative instruments relevant to the project.

In addition to legislative requirements, the following environmental publications, standards, codes of practice and guidelines are relevant to the Project and are referenced throughout this Plan. Other aspect specific guidelines are discussed in the relevant CEMP sub-plans and other project management plans.

Table 6: Relevant Standards/Guidelines

Standard/Guideline	Relevant Authority
TfNSW Sustainable Design Guidelines	TfNSW
Sydney Metro Construction Noise and Vibration Strategy (CNVS) (NSW Govt, 2017)	TfNSW
Construction Noise Strategy (CNS) (TfNSW, 2013).	TfNSW
ISO 14001 Environmental Management Systems – Requirements with Guidelines for use	DPIE
Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004)	DPIE
Interim Construction Noise Guidelines (Department of Environment and Climate Change, 2009)	NSW EPA
Traffic Control at Worksites Manual Version 4 (NSW RMS, 2010)	RMS
AS1742.3:2009 Manual of Uniform Traffic Control Devices – Traffic Control Devices for Works on Roads	RMS
Guide to Traffic Management – Part 2 0 Traffic Theory (Austroads, 2008)	RMS
NSW Road Noise Policy (RNP) (NSW Department of Environment, Climate Change and Water, 2011)	OEH
NSW Environmental Noise Management - Assessing Vibration: a Technical Guide (the NSW Vibration Guideline)	OEH
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)	NSW EPA
Australian Rainfall and Runoff – Volume 1 (Engineers Australia, 2001)	
Best Practise Erosion and Sediment Control (International Erosion Control Association, 2008)	IECA Australasia
Managing Contaminated Land Planning: Planning Guidelines SEPP 55 – Remediation of Land (Department of Urban Affairs and Planning & Environment Protection Authority, 1998)	NSW EPA
Managing Urban Stormwater: Soil and Construction (Landcom, 2008)	NSW EPA
AS2436:1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites	NSW EPA
AS2436:2010 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites	NSW EPA
AS1055-1997 Description and Measurement of Environmental Noise	NSW EPA

Standard/Guideline	Relevant Authority
AS IEC 61672.1-2004 Electro Acoustics – Sound Level Meters Specifications Monitoring / AS1259.2-1990 Acoustic – Sound Level Meters – Integrating/Averaging (as appropriate to the device)	NSW EPA
AS/IEC 60942:2004/IEC 60942:2003 Electroacoustic – Sound Calibrators	NSW EPA
AS/ NZS 1940: 2004 - The Storage and Handling of Flammable and Combustible Liquids	NSW EPA
Rail Infrastructure Noise Guidelines (EPA, 2013)	NSW EPA
Industrial Noise Policy (NSW Government, 2000)	NSW EPA
Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006)	NSW EPA
AS/NZS 3580.1.1:2007 Methods for Sampling and Analysis of Ambient Air – Part 1.1 Guide to Siting Air Monitoring Equipment	NSW EPA
ASNZS 3580.10.1:2003 Methods for Sampling Anaylsis of Ambient Air, Method 10.1 Determination of Particulate Matter – Deposited Matter – Gravimetric Method	NSW EPA
Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW Environmental Protection Authority, 2005)	NSW EPA
DIN 4150:3 (1990-2002) Structural Vibration – Effects of Vibration on Structures	German Institute for Standardisation
BS7385 – Evaluation and Measurement for Vibration in Buildings – Part 2 – Guide to Damage from Ground-borne Vibration (1993)	British Standard
AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting	OEH
Code of Practice for How to Safely Remove Asbestos (Safe Work Australia, 2016)	Safe Work Australia
Code of Practice for How to Management and Control of Asbestos in the Workplace (Safe Work Australia, 2016)	Safe Work Australia
AS2601:1991 Demolition of Structures	DPIE
Waste Classification Guidelines (Environmental Protection Authority, 2014)	NSW EPA
NSW Government Resource Efficiency Policy (GREP) Office of Environment and Heritage, 2019	OEH
Code of Practice for the archaeological investigation of Aboriginal objects in NSW (2010)	OEH
Aboriginal cultural heritage consultation requirements for proponents (2010)	OEH
Due Diligence Code of practice for protection of Aboriginal objects in NSW (2010)	OEH
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (2011)	OEH
Guide to Aboriginal Heritage Impact Permit processes and decision making (2011)	OEH
Assessing Heritage Significance (NSW Heritage Office, 2001)	OEH
Levels of Heritage Significance (NSW Heritage Office, 2008)	OEH
Assessing Significance for Historical Archaeological Sites and Relics (NSW Heritage Branch, Department of Planning, 2009)	DPI&E
Investigating Heritage Significance (NSW Heritage Office, 2001)	OEH

Standard/Guideline	Relevant Authority
NSW Government's Aboriginal Participation in Construction Guidelines (2007)	NSW Govt.
How to Prepare Archival Recording of Heritage Items (Heritage Branch, 1998).	OEH
Photographic Recording of Heritage Items Using Film or Digital Capture (Heritage Branch, 2006)	OEH

Access to the latest Australian standards is available via the through iGMS (Laing O'Rourke Intranet).

4.3 Stakeholder Consultation and Approval of Plans

The Minister's Condition of Approval C3 requires that the CEMP be endorsed by the ER and to be submitted to DPIE for approval. The CEMP was submitted to the ER for endorsement prior to approval by DPIE.

CEMP sub-plans are required to be prepared in consultation with the relevant government agencies as listed in Condition of Approval C3 and the Chatswood to Sydenham Staging Report. The sub-plans relevant to the Project and associated stakeholder consultation is listed below.

Table 7 – CEMP sub-plan consultation requirements

Required Project CEMP Sub-plan	Relevant government agencies to be consulted	Consultation Required by
Construction Noise and Vibration Management	City of Sydney Council	Condition of Approval
Construction Biodiversity Management	OEH, City of Sydney Council	Condition of Approval
Construction Air Quality Management	N/A	Condition of Approval
Construction Soil and Water Management	DPI Water, City of Sydney Council, OEH, SES, NSW Fire and Rescue	Condition of Approval
Construction Groundwater Management	DPI Water	Condition of Approval
Blasting	N/A	Conditions of Approval
Construction Heritage Management	Heritage Council (or delegate) and City of Sydney Council	Condition of Approval
Construction Traffic Management	RMS, Sydney Coordination Office and City of Sydney	Condition of Approval

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

4.4 Compliance Tracking

In accordance with CoA A28, A29 and A30, a compliance tracking program must be developed and implemented during construction works in order to monitor compliance with the terms of the project approval. The Compliance Tracking Program must be endorsed by the ER then submitted to the Secretary for information before the commencement of works or within another timeframe agreed with the Secretary. It is the responsibility of Sydney Metro (SM) to undertake the Compliance Tracking Program in accordance with these conditions with input from Laing O'Rourke as required. The Compliance Tracking Program 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 Secretary based on the outcomes of independent environmental audits, Environmental Representative Reports and regular compliance reviews submitted through Compliance Reports.

A compliance matrix has been established for the project, incorporating CoA, licence conditions, permits and other approvals relevant to the Project to track issues and ensure compliance issues are addressed and closed out (refer to Section 1.1 and Appendix B).

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, will be submitted to the Principal's Representative for review in accordance with the Contract.

The register of ECRs will classify each ECR as:

(i) Ongoing or Complete, to indicate their progress; and

(ii) Compliant or Non-Compliant, to indicate compliance.

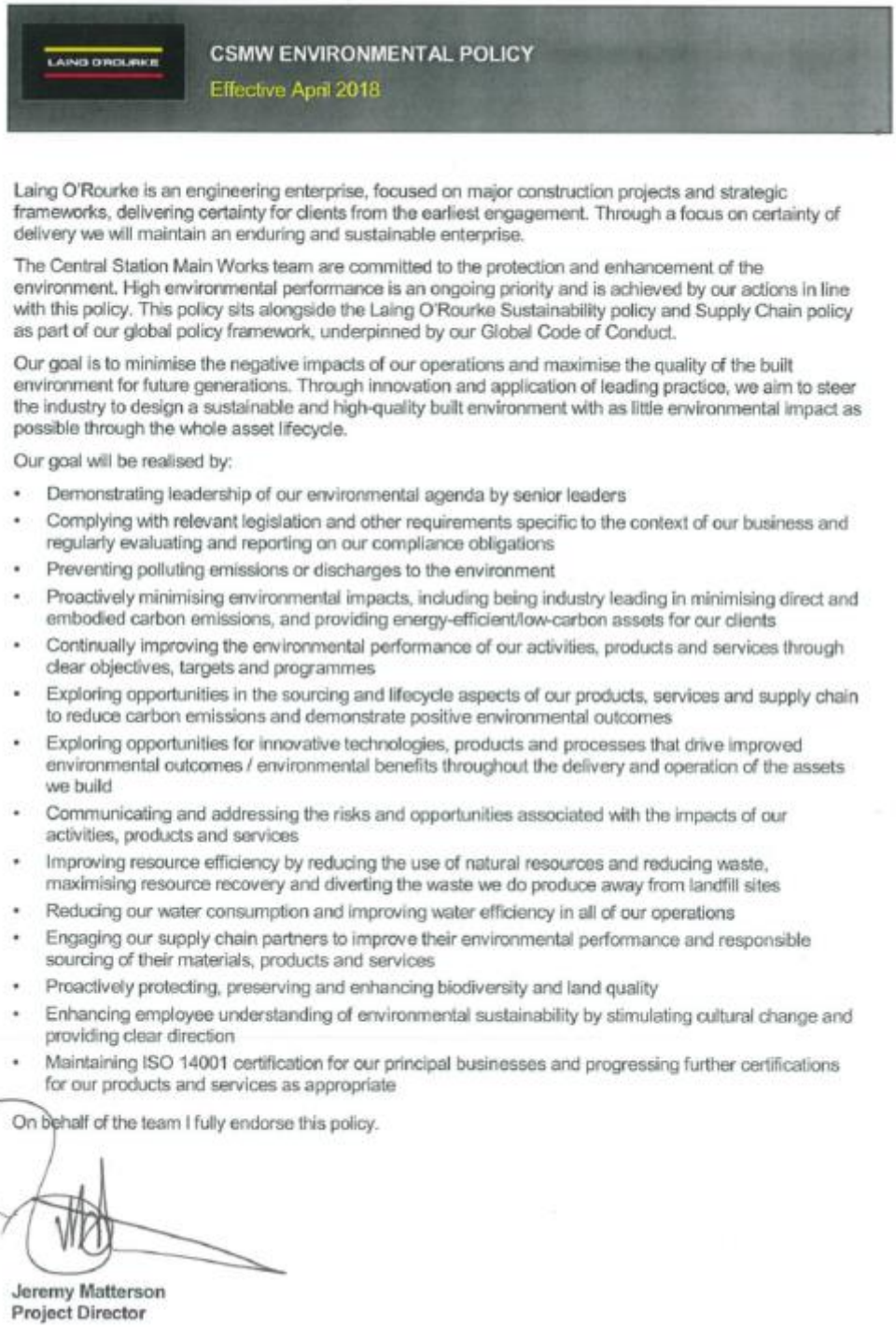
5. Policy

Laing O'Rourke maintains a Corporate and Project Environmental Policy, which will be:

- Displayed at prominent locations on the project site
- Communicated to site personnel during induction and training; and
- Made accessible to clients and concerned / interested members of the public.

All personnel associated with the project including subcontractors must comply with the spirit and intent of the policy. Figure 5.1 contains a copy of the Project Environmental Policy.

Figure 5.1: Project Environmental Policy



CSMW ENVIRONMENTAL POLICY

Effective April 2018

Laing O'Rourke is an engineering enterprise, focused on major construction projects and strategic frameworks, delivering certainty for clients from the earliest engagement. Through a focus on certainty of delivery we will maintain an enduring and sustainable enterprise.

The Central Station Main Works team 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 the Laing O'Rourke Sustainability policy and Supply Chain policy as part of our global policy framework, underpinned by our Global Code of Conduct.

Our 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 goal will be realised by:

- 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 and progressing further certifications for our products and services as appropriate

On behalf of the team I fully endorse this policy.

Jeremy Matterson
Project Director

6. Objectives and Targets of the project

The main objectives and targets for this project are as follows:

- Compliance with the Minister for Planning's Project Planning Approval
- Compliance with all permits and licences; and
- Implementation of the performance outcomes, commitments and mitigation measures specified in the EIS, PIR, Modification and Submissions Report.

Additional specific targets are contained in Table 8 below

Table 8: Objectives and targets of the project

Objective	Target	Reporting / Monitoring
Effective site environmental controls	Set-up prior to starting work in the affected area. Maintain effective controls	Weekly Inspection checklists and daily environmental surveillance (informal inspection)
Environmental performance	No breaches or environmental infringement notices No Class 1 or Class 2 incidents[1]	Monthly reports
Key Performance Indicator	Above 80% Leadership attendance rate at agreed environmental inspections and environmental training events (excl. toolbox talks and inductions) Score from quarterly survey with Environmental Representative, EPA official and Heritage Council (as applicable).	Quarterly
Effective implementation of the environmental system	No level 1 Corrective Action Requests <3 level 2 risks each report <20 level 3 risks each report Closure of CARs within the nominated timeframe. Timely release of Environmental Hold Points/Witness Points	Audit report
Community issues carefully managed	Complainant contacted within two hours of complaint Matter closed out within one week.	Complaints register

Note 1: See Table 14 for definition of Incident Classifications.

Objectives and targets relating to specific environmental issues are contained within the respective CEMP sub-plans.

7. Responsibilities and Authorities

Authorities and responsibilities for all positions are defined and communicated in Job Descriptions and project documentation.

Project specific reporting and communication lines are shown in the Organisation Chart in Appendix D. Key responsibilities are indicated in the table below.

Table 9: Key responsibilities and authorities

Position	Key Responsibilities and Authorities
General Manager - Infrastructure	– Reports to the Regional Director – 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 Director – Must complete corporate and project induction covering environmental responsibilities and Laing O'Rourke's environmental management system.
Project Director / Construction Director	– Project Director reports to the Sector General Manager – Construction Director reports to the Project Director – Ensure that project responsibilities and authorities are defined and communicated – Provide adequate resources to meet environmental objectives – Approve the CEMP – Ensure that the CEMP is effectively implemented and maintained – Appoint/nominate and provide support for the Project Environmental Manager (PEM) – 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 / authorities as required – Must complete corporate and project induction covering environmental responsibilities and Laing O'Rourke's environmental management system.
Construction Managers / Project Managers / Project Leaders	– Reports to the Project Director / Construction Director – 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 – Ensure that site environmental controls are properly maintained and provide support for the PEM – Report all environmental incidents – Take action to resolve non-conformances and incidents – Must complete corporate and project induction covering environmental responsibilities and Laing O'Rourke's environmental management system.

Position	Key Responsibilities and Authorities
Procurement Personnel	– Reports to the Project Leader and Construction Manager – 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 Laing O’Rourke’s environmental management system.
Project Environmental Manager	– Reports to the Systems Manager and Regional Environmental Manager – Ensure that the CEMP is effectively established, implemented and maintained at the project level – Ensure relevant licences, approvals and permits identified in Appendix B 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 Systems Manager 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 and Environmental Manager within 24-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 – 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 Laing O’Rourke’s environmental management system. – Must have completed Erosion and Sediment Control Training – Maintains an ongoing relationship with the Environmental Representative by coordinating site inspections and maintaining an open communication regarding on-site activities and environmental activities.

Central Station Main Works Project
Construction Environmental Management Plan

Position	Key Responsibilities and Authorities
Environmental Leader	– Reports to the General Manager Infrastructure – Provide environmental support to the project team – Coordinate internal environmental audits – 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 Laing O'Rourke's environmental management system.
Sub-Contractors	– Comply with all legal requirements, 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 Laing O'Rourke's environmental management system. – Additional environmental training as detailed in Section 9.
All Personnel	– Comply with the relevant Acts, Regulations and Standards – Comply with the Company's environmental policy and procedures – Promptly report to Manager 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 Laing O'Rourke's environmental management system. – Additional environmental training as detailed in Section 9.

Central Station Main Works Project
Construction Environmental Management Plan

Position	Key Responsibilities and Authorities
Independent Environmental Representative	– Receive and respond to communications from the Secretary in relation to the environmental performance of the Critical State Significant Infrastructure (CSSI); – Consider and inform the Secretary on matters specified in the terms of the planning approval – Consider and recommend any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community – Review all documents required to be prepared under the terms of the planning approval, ensure they address any requirements in or under the planning approval and if so, endorse them before submission to the Secretary (if required to be submitted to the Secretary) or before implementation (if not required to be submitted to the Secretary) – Regularly monitor the implementation of all documents required by the terms of the planning approval for implementation in accordance with what is stated in the document and the terms of the planning approval – Notify the Secretary of an incident in accordance with Condition A41 of the planning approval – As may be requested by the Secretary, help plan, attend or undertake Department audits of the CSSI, briefings, and site visits – If conflict arises between the Proponent and the community in relation to the environmental performance of the CSSI, follow the procedure in the Community Communication Strategy approved under Condition B3 of the planning approval to attempt to resolve the conflict, and if it cannot be resolved, notify the Secretary – Review any draft consistency assessment that may be carried out by the Proponent, and provide advice on any additional mitigation measures required to minimise the impact of the work – 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 the planning 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 planning approval – Assess the impacts of minor ancillary facilities as required by Condition A18 of the planning approval; and prepare and submit to the Secretary and other relevant regulatory agencies, for information, a monthly Environmental Representative Report detailing the ER's actions and decisions on matters for which the ER was responsible in the preceding month (or other timeframe agreed with the Secretary). The Environmental Representative Report must be submitted within seven (7) days following the end of each month for the duration of works and construction of the CSSI, or as otherwise agreed with the Secretary – Perform the roles under CoA A24 – Must complete project induction covering Laing O'Rourke's environmental management system.

Central Station Main Works Project
Construction Environmental Management Plan

Position	Key Responsibilities and Authorities
Acoustics Advisor	– Receive and respond to communication from the Secretary in relation to the performance of the CSSI in relation to noise and vibration – Consider and inform the Secretary on matters specified in the terms of this approval relating to noise and vibration – Review all noise and vibration documents required to be prepared under the project approval and, should they be consistent with the CoA, endorse them prior to submission to the Secretary (if required to be submitted to the Secretary) or before implementation (if not required to be submitted to the Secretary) – Consider and provide recommendations on improvements that may be made to works practices to avoid or minimise noise and vibration impacts – Regularly monitor the implementation of all noise and vibration documents required to be prepared under the project approval to ensure implementation is in accordance with what is stated in the document and the project approval – Notify the Secretary of noise and vibration incidents in accordance with CoA A41 – In conjunction with the ER: ○ consider requests for out of hours construction activities and determine whether to endorse the proposed activities in accordance with Condition E47 ○ as may be requested by the Secretary or Complaints Commissioner, help plan, attend or undertake audits of noise and vibration management ○ facilitate conflict resolution with the community in relation to noise and vibration management performance during construction as required ○ consider relevant minor amendments made to the CEMP, relevant sub-plans and noise and vibration monitoring programs that require updating or are of an administrative nature, and are consistent with the terms of the project approval and the management plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, endorse the amendment ○ assess the noise impacts of minor ancillary facilities as required by Condition A18 of the project approval; and ○ prepare and submit to the Secretary and other relevant regulatory agencies, for information, a monthly Noise and Vibration Report detailing the AAs actions and decisions on matters for which the AA was responsible in the preceding month.

8. Environmental Risk Assessment and Control

Project wide environmental aspects and impacts have been identified and assessed in Appendix C – Risk Assessment.

Significant environmental issues, with a risk ranking of High (10 – 16) or Medium (5 – 9), 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. The control measures to address these issues are documented in the respective CEMP sub-plan.

Activities, aspects or impacts that represent an extreme risk (>17) after control measures have been applied must be reviewed / redesigned or have approval of the Regional Environmental Manager.

The key environmental risks as defined in Appendix C 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.

It is expected that the Environmental Audits and Management Reviews will be within 3 months of commencing on site and approximately every 12 months thereafter. The audit schedule will allow for flexibility where necessary i.e. external audit scheduled for similar time. Section 17 outlines the proposed audit schedule of the Environmental Management System and CEMP.

9. Laing O'Rourke Severe Environmental Risk

A Severe Environmental Risk (SER) is an activity if not managed effectively; severe environmental impacts could eventuate, resulting in permanent or long-term damage to the environment that is not easily rectified. They would substantially alter the receiving environment and result in a significant impact on the project's and Laing O'Rourke's environmental policy and objectives. The SER Controls Standard provides clear guidance to managing these risks.

Each SER provides clear guidance on the requirements and control measures that when implemented are intended to manage these risks. They describe the critical controls that must be in place, demonstrated and working effectively such that severe environmental impacts are prevented. The SER Control Adequacy Assessment Tool assists with this process. It is also used to conduct SER reviews. A general and overarching SER's assessment for the project was undertaken on 7 March 2019 as a snapshot in time. The assessment identified good environmental practice for the transition from enabling works to construction and should improve as more permanent environmental controls are implemented and interim measures are phased out. All SER's are specific to a key environmental variable and can be viewed within each respective Sub-Plan. SER's will updated/reviewed at the same frequency as the CEMP.

10. Training, Awareness and Competence

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 toolbox meetings, briefings, notifications and the like.

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

- Overview of training purpose, objectives and key issues
- Environmental Policy
- Site environmental objectives and targets
- Understanding individual authorities and responsibilities
- Site environmental rules
- Potential consequences of departure from rules
- Due diligence, duty of care and responsibilities
- Relevant licence conditions and conditions from the conditions of approval
- Emergency procedure and response (e.g. Spill clean-up, hazard identification); and
- Basic understanding of their legal obligations.

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

All Laing O'Rourke construction staff on this project will be provided with training in the requirements and implementation of this Environmental Management Plan. Initial training in the project Environmental Management Plan shall be undertaken prior to commencement of construction. CEMP 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 construction staff. Training in aspects outlined in Table 10 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.

Table 10: Training Requirements

Aspect	Training Inclusion	Personnel Required	Timing / Frequency/Means
Emergency Spill Response	– Use and location of spill kits – Spill control – Emergency response procedures – Identification of hydraulic hose fatigue	Construction Personnel	Project Toolbox Talks ECM briefing
Erosion and Sediment Control	– Standard erosion and sediment controls from the Landcom 'Blue Book' – Implementation of controls on site – Erosion and Sediment Control Plans	Environmental Manager	As required Project Toolbox Talks ECM briefing

Aspect	Training Inclusion	Personnel Required	Timing / Frequency/Means
Heritage Awareness	– Stop works and reporting protocols for discovery of previously unknown heritage and archaeological items – Exclusion zone for Mortuary Station – Archaeological monitoring requirements	Construction Personnel Laing O'Rourke Management Team	Project Induction Project Toolbox Talks Issue specific formal training for relevant staff Protocol posted on message boards
Contamination Awareness	– Contamination status of site – Stop works protocols for unidentified potential contamination (hydrocarbons, asbestos, etc.)	Construction Personnel	Project Induction Project Toolbox Talks Protocol posted on message boards
Environmental Legal Obligations	– POEO Act and other project requirements – Applicable fines and prosecutions – Planning Approval – Minister's Conditions of Approval	Construction Personnel Laing O'Rourke Management Team	Project Induction Project Toolbox Talks Issue specific formal training for relevant staff
Energy and Resource Usage	– Awareness training of energy and resource efficiency in the workplace including office/compound and site	Construction Personnel LOR Management Team	As required Project Toolbox Talks
Community / Stakeholder Awareness	– Adjacent community and Project involvement – Relevant Project stakeholders – Community engagement protocols – Accepted behaviours – Approved hours of work	Construction Personnel Laing O'Rourke Management Team	Project Induction Project Toolbox Talks
Biodiversity	– Stop work and reporting protocols for injured wildlife – Measures to stop feral animals coming to site	Construction Personnel	As required Project Toolbox Talks
Noise and Vibration	– Work hours – CNVMP and OOHW Protocol – EPL Requirements – POEO Act and other project requirements – Interim Construction Noise Guideline	Construction Personnel Laing O'Rourke Management Team	Project Induction Project Toolbox Talks Issue specific formal training for relevant staff

All required evidence of training is maintained on the On Site Track Easy System (Pegasus). The Site Induction Register is maintained on the projects K/; Drive. Staff qualifications are maintained on LOR's Success Factors portal.

All training and toolbox meetings will be recorded. The name of trainee, when the person was trained, the name of the trainer, and a general description of the training content will be included in the recording of training and toolbox meetings.

11. 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.

11.1 Internal

Internal stakeholders include Laing O'Rourke employees/staff and subcontractors.

General internal communication methods would include:

- Management reports.
  - Includes monthly progress reports from each discipline and includes non-conformances, issues and corrective actions
  - submitted by the Project Director to Laing O'Rourke senior management for information and action
- Site inspection reports (via Laing O'Rourke's Fieldview software on computer tablets)
  - Weekly Environmental Inspections are undertaken by the Environmental Advisor/Manager
  - Submitted to the Project Director, Construction Manager and Supervisor for information and action
  - Closeout of Environmental Actions are tracked by the Environmental Manager
- Audit reports
  - Laing O'Rourke EMS audits to be undertaken by external auditor
  - Project audits to be undertaken by the Regional Environmental Manager
  - Content to include Observations, Non-conformances, Corrective Actions and Issues identified on project performance against Laing O'Rourke's EMS and project CEMP
  - Audit reports submitted to Laing O'Rourke Senior Management, and the Project Director, Construction Manager, Environmental Manager, Quality Manager, Safety Manager, and Supervisors for information and action
  - Closeout of required actions is tracked by the Quality Manager and the Environmental Manager
- Incident reports
  - Includes information on Action Required Target, Completion Date, Person Responsible, Risk Level and Closeout information / Date
  - Submitted by the Environmental Manager
  - Issued to Senior Management
  - Tracked by Environmental Manager and the Regional Environmental Manager
  - Reported in Monthly Report

- Noticeboards to include:
  - Information on Next Gear safety program
  - Health and Well-being Information
  - Environmental Control Map
  - Site Contacts
  - Toolbox Information
  - Other information as required
  - Noticeboard content updated by the Environmental Manager, Safety Manager, Construction Manager and Site Supervisor
- Site meetings
  - Includes regular project meetings and issue specific meetings to discuss issues and track project performance
  - Managed by the Project Director, Construction Director, Construction Managers, Project Managers or relevant discipline manager
  - Minutes to be saved on Project hard drive
- Employee induction
  - Includes Laing O'Rourke Corporate Induction and Project specific induction
  - Records maintained by Laing O'Rourke HR and the Safety Manager
- Training
  - Issue specific as required by roles and responsibilities
  - Records to be maintained on the project hard drive or On Site Track Easy (Pegasus) as required
- Toolbox sessions
  - Conducted daily or prior to commencement of a new activity covering safety and environmental requirements relevant to the activity undertaken
- Briefings, notifications and alerts
  - Content defined by current issues
  - Prepared by the relevant Manager
  - Documents saved on Project hard drive

Templates, further details of required report content, responsibilities, communication protocols, and document controls are provided on Laing O'Rourke's intranet.

11.2 External

External stakeholders include TfNSW/Sydney Metro (the Client), Department of Planning, Industry and Environment (DPIE), EPA, OEH, Roads and Maritime Services, Sydney Coordination Office, Sydney Trains, Sydney City Council, Members of Public (Community), other relevant third party agencies, government authorities and organisations.

General external communication methods would include:

- Site meetings with the Client
- All significant incidents notified to the client and ER/Approving Authority
- Monthly reporting to SM as per Section 15.2
- Meetings and correspondence with interested parties (e.g. Local council and EPA) as necessary
- Discussions with adjoining landowners / neighbours and the community who may be affected by the project in accordance with the Overarching Stakeholder and Community Involvement Plan (both LOR and Sydney Metro Community Consultation Strategy (CCS)); and
- A Project website will be established in accordance with CoA B15. The documents listed in Section 11.3 will be displayed.

11.3 Project Website

Condition of Approval B15 specifies:

A website providing information in relation to the CSSI must be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction or other timeframe as agreed with the Secretary. The following up-to-date information (excluding confidential, private and commercial information or other documents as agreed to by the Secretary) must be published prior to the relevant works commencing, or in the case of documents prepared in accordance with E66 and E67 when finalised in accordance with the requirements of this approval, and maintained on the website or dedicated pages:

(a) information on the current implementation status of the CSSI;
(b) a copy of the documents listed in Condition A1 and Condition A2 of this approval, and any documentation relating to any modifications made to the CSSI or the terms of this approval;
(c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval;
(d) a copy of any Environment Protection Licence obtained in relation to the CSSI or link to any existing Environment Protection Licence applied to the CSSI; and
(e) a current copy of each document required under the terms of this approval must be published within one week of its endorsement / approval or before the commencement of any works to which they relate or before their implementation as the case may be.

Note: Environment Protection Licences relevant to each stage of the project need to be clearly differentiated to identify how and where they specifically apply.

12. System Documentation

Laing O'Rourke's integrated HSEMS is part of an enterprise-wide management system called iGMS. The core elements of the HSEMS are described in this EMP, with reference to relevant Environmental System Requirements, Primary Standards and Severe Environmental Risk Protocols.

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.

13. Document Control and Records

All project documentation, including environmental records, will be controlled in accordance with Laing O'Rourke Project requirements using TeamBinder – the Project's main Document Control System.

Environmental records will be:

- kept as objective evidence of compliance with environmental requirements; and
- filed on the project drive and 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); and
- Other records as required by the Construction Environmental Management Framework.

14. Environmental Controls

14.1 General

Specific controls to manage environmental issues are defined in either or all of the following:

- CEMP Sub-plans as standalone documents
- SWMS, JSEA's, HAZID, CRAW, Inspection and Test Plans / check sheets (as appropriate. Each subcontractor will use a format consistent with their EMS/SMS) and will contain only key elements of the CEMP and sub plan. Subcontractors will work in accordance with this CEMP
- Work instructions (e.g. refuelling and servicing); and
- Procedures and forms.

Where a corresponding system document exists within the Sydney Metro Integrated Management System, procedures will be consistent with any requirements in those documents. The procedures will include:

- A breakdown of the work tasks relevant to the specific activity and indicate responsibility for each task
- Potential impacts associated with each task
- A risk rating for each of the identified potential impacts
- LOR SER's
- Mitigation measures relevant to each of the work tasks; and
- Responsibility to ensure the implementation of the mitigation measures.

Environmental controls will be specified in the respective CEMP sub-plans (see Section 1 for a list of Project sub-plans).

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).

Table11: Hold Points

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 & Environment (DPIE)
Dewatering	Dewatering / pumping water off the site.	Verification that the water quality criteria have been met.	Project 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.	Project Environment Manager
Vegetation removal	Commencement of site clearing or vegetation removal.	Tree Report has been updated, endorsed by the ER and submitted to DPI &E 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.	Project Environment Manager and Environmental Representative
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 sub-plans.	Project Environment Manager

Item	Process Held	Acceptance Criteria	Approval Authority
Out of Hours Work (OOHW)	Works to be performed outside of approved construction hours	OOHW Protocol Application Form and Community Notification. EPL requirements	ER / AA / TfNSW (Endorsement) Environment Manager (EPL approval for OOH works)
Dangerous Goods	Transport of dangerous goods	Verification that transport vehicles meet the requirements.	Construction Director
Dangerous Goods	Storage of dangerous goods	Verification that bunded storage is provided and that offset distances are maintained for the storage area.	Construction Director
Encounter of Unexpected Heritage Item	Recommencement of works in the affected area	A 'Stop Works' protocol (developed as part of CHMP) must be applied in the event of encountering unexpected/potential heritage items. Approval to proceed by Heritage Consultant required prior to re-commencing works.	Construction Director Environmental Manager Heritage Consultant
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	DPIE, in consultation with EPA 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	DPIE
Construction Monitoring Programs	Construction Works	Endorsement of the programs by the ER/AA 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 DPIE AA

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

14.3 Environmental Control Map

The project Environmental Control Map(s) will be 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 for the relevant stage of works. It is the practical application of the proposed control measures.

It is noted that the CSM Works ECM is a 'live' document and will be updated to reflect the relevant works stage as works progress and will 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. The ECM will be endorsed by the Environment Manager.

The project Environmental Control Map will include (depending on the type of activity):

- 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 (unless a separate Erosion and Sediment Control Plan has been developed)
- 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 details
- Location of environmentally sensitive areas (e.g. threatened species, critical habitat, contaminated areas, heritage zones, archaeological areas 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; and
- 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 preliminary ECM can be found in Appendix L.

14.4 Design

The project is a design and construct contract. The following environmental issues should be considered during the design of the works:

- How to minimise any adverse impacts on the environment including energy efficient operation, reduction of operational greenhouse gas emissions, incorporation of sustainable or recycled materials

- How to improve design efficiency to conserve natural resources
- Address the requirements of Laing O'Rourke's sustainability agenda
- How to meet environmental codes, regulations and other requirements
- Incorporate requirements from TfNSW's Sustainability Design Guidelines into the CSM Works design
- Adherence to Planning Approval Requirements; and
- Adherence to the relevant heritage design requirements and inputs.

These issues should be considered, while taking into account the practicalities and economic realities of the project/site.

The design process is controlled in accordance with the Design Brief and Project Design Execution Plan.

14.5 Procurement

The supply of goods and/or services by suppliers and subcontractors will be carefully controlled in accordance with the Project Director and Commercial Manager procedures in Core Process and as follows:

- 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
- Suppliers of chemicals and hazardous substances will be required to submit SDS's with delivery or prior to chemicals arriving at site. Prior approval to bring hazardous substances to site may need to be obtained from the client
- Procurement strategies and processes will be required to implement the requirements of the Construction Sustainability Strategy, Construction Materials Management Plan and Construction Carbon and Energy Management Plan
- Subcontractors will be required to work under this CEMP; and
- The environmental performance of subcontractors will be monitored during site inspections.

14.6 Handling, Storage, Packaging and Transport

The handling, storage, packaging and transport of goods will be controlled in accordance with Laing O'Rourke Procurement Requirements. Dangerous goods, as defined by the Australian Dangerous Goods Code, must be stored and handled strictly in accordance with:

(a) all relevant Australian Standards

(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund and storage area will be roofed/covered

(c) Storing and Handling Liquids: Environmental Protection – Participants Manual (Department of Environment and Climate Change, May 2007)

(d) Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005)

(e) Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011); and

(f) the Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management – Part B Review of Best Practice and Regulation (Department of Environment and Conservation (NSW), 2005).

In the event of an inconsistency between the requirements listed from (a) to (d) above, the most stringent requirement shall prevail to the extent of the inconsistency.

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 Laing O'Rourke 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; and
- Product name, classification, container type, quantity.

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 the Materials sub-plan. 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 the LOR Plan Workmanship, Quality Inspections and Commissioning Procedure.

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; and
- Environmental control procedures.

14.8 Plant and Equipment

Plant and equipment owned or supplied by Laing O'Rourke will be maintained in a safe and serviceable manner in accordance with Project Team (Operations/Construction & HSEQ) Requirements the procedures provided in 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
- Plant and equipment will be maintained to prevent / fix oil leaks
- Plant will be driven and operated only in approved areas; and

- Plant will have effective pollution control devices fitted.
- All permanent plant will be installed with non-tonal reversing alarms.

Further information on environmental controls is contained in the respective CEMP sub-plans.

15. Emergency Preparedness and Response

Pre-construction minor works were delivered in accordance with the Sydney Trains Environment Protection Licence (EPL) 12208. Schedule 5 of the Collaboration Agreement between Sydney Trains and Sydney Metro specifies the EPL obligations including the Environmental Incident Reporting Protocol. The Protocol will continue for construction works under the LOR EPL 21148 as of 28 November 2018.

For Construction works, environmental emergencies, and relevant preparations, are shown in Appendix E. Rectification of any identified non-compliances are outlined in Appendix G. The client and relevant statutory and regulatory authorities (such as the EPA) will also be informed.

Environmental emergencies will be handled as follows:

- Immediately report all incidents to the Project Director, Construction Director, Project Managers and Construction Managers who will assess the situation and manage the following steps
    1. Immediately take all reasonable steps to contain further damage or danger to personnel, public, property and the environment
    2. Inform relevant authorities in accordance with the regulatory requirements provided in Table 12 below.
    3. Contact emergency service personnel as necessary (e.g. fire dept., spill clean-up services, etc.).
    4. Provide notification to the Regional Environmental Manager, HSE General Manager and Head of Legal immediately via phone and email
    5. Inform the Client's Representative and ER in accordance with contractual requirements
    6. Complete a detailed report of the incident using IMPACT
    7. Liaise with the Client's Representative regarding corrective and preventive actions required and the timeframes within which these actions must occur
    8. The designated personnel will undertake the corrective and preventive actions.

The Community Line will be operational 24 hours per day. Calls made to the 24- hour Community Line will be forwarded to the Environmental Manager for Environmental Incidents, the Project Director and Safety Manager for Safety Incidents. The Project Director will be the Crisis Management Team Leader. Refer to the Emergency Response Management Plan (SMCSWSMC-LOR-SMC-HS-PLN-0006) for an outline of the general procedures for initiating an emergency response and managing an emergency that could occur as a result of project construction works or natural causes.

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.

Project Emergency contact numbers are included in the table below:

Table 12: 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	Not Applicable
Fire and Rescue NSW	000	211-217 Castlereagh St, Sydney NSW 2000
City of Sydney Council	(02) 9265 9333	Town Hall House, Level 2, 456 Kent Street Sydney NSW 2000
Sydney Metro 24-hour Enquiries Line	1800 171 386	22 Giffnock Avenue, Macquarie Park NSW

16. Monitoring and Measurement

Key characteristics of the project construction and activities will be regularly monitored and measured. This will include:

- recording of information to track performance
- monitoring environmental controls; and
- level of conformance with objectives and targets.

E-T-8-1227 Environmental Inspection Report (Appendix F) will be used to monitor environmental issues on site and issued to the Environmental Manager. The report will be completed on a weekly basis or as required for works under rail possession basis by the Project Environmental Manager or delegate.

Issues identified during environmental inspection requiring further action beyond normal practice or maintenance and are to be logged into Impact's assurance application. Impact is a Laing O'Rourke 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 the Business Unit Managers on a monthly basis.

Non-compliances with the conditions will be documented and addressed in accordance with Sydney Metro Environmental Incident and Non-compliance Reporting Procedure (SM-17-00000096) and documented on the Environmental Incident and Non-compliance Notification Report form (SM-17-00000105).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 E-T-8-1227 and E-T-8-0905
- Incidents and associated corrective actions (refer to Appendix G);
- Internal audit observations/non-compliance

- Client audits or other notice of non-compliance; and
- Notices or action from regulatory authorities.

Where environmental inspection or monitoring outcomes will be recorded 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 Environmental Risk Action Plans to control potential impacts will be developed.

Regular site inspections will be completed by the ER and SM representatives at a frequency to be agreed with by all parties. The Environmental Manager 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 CAR timeframes outlined in Section 15.1 and as agreed with the ER.

As required under CoA C9, Construction Monitoring Programs were prepared in consultation to the relevant government agencies. Each construction monitoring program has been incorporated into the relevant CEMP sub-plan. The results of the Construction Monitoring Programs will be submitted to the 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. Table 13 provides an overview of the Construction Monitoring Programs.

Table 13: Construction Monitoring Program

Sub-Plan	Monitoring Requirement	Monitoring and Reporting Schedule
Soil and Water	Discharge water either treated through the water treatment plant or in-drain sediment device will be monitored to ensure discharge meets discharge criteria.	• Monitoring prior to discharge. • Reporting as per EPL requirements, annually during construction and following completion of construction to DPIE, EPA and Council of Sydney City.
Spoil	Spoil volumes and disposal sites, any testing requirements and any contamination management requirements.	• Monitoring of truck movements. • Internal reporting on a monthly basis and six-monthly reports to SM of quantities, classifications.
Groundwater	Discharge from the Water Treatment Plant.	• Monitoring of contaminants of concern in accordance with the NSW Water Quality Objectives would be achieved through grab samples on a weekly basis, real time monitoring of oil and grease, total suspended solids and pH. • Internal reporting on a monthly basis and six-monthly reports to SM.

Heritage	Monitoring of construction activities to mitigate / manage impacts on heritage structures.	• Weekly inspections and monitoring of construction activities to ensure compliance with the requirements of the HMP. • The Weekly Environmental Inspection Checklist will be used to maintain compliance and effectiveness of controls. • Vibration monitoring of sensitive heritage structures
Noise and Vibration	Monitoring of noise and vibration generating activities	• At commencement of work phases identified in Table 10.1 in the CNVMP at target locations • Where ground-borne noise generating activities are identified to occur within the safe working distances outlined in Section 8.1.2 of the CNVMP, noise monitoring in the community should be undertaken to verify the noise level contribution from ground-borne noise generating activities. • Vibration monitoring will be undertaken at the potentially most affected receptors identified in the CNVIS from the commencement of vibration generating activities to confirm that the vibration levels at the nearest sensitive receptor are compliant with the criteria outlined the CNVIS and Section 4.3 of the CNVMP. Vibration monitoring devices will be located on all sensitive buildings and rail infrastructure in Central Station throughout all vibration intensive works.
Air Quality	Monitoring dust generating activities.	• Daily and weekly site visual inspections. • Daily weather monitoring. • Plant/equipment inspections prior to use. • Internal reporting on a monthly basis and six-monthly reports to SM
Biodiversity	Compliance with Biodiversity sub-plan.	• Inspection of the operation of biodiversity management works installed on the premises and undertake any works required to repair and/or maintain these controls – at least weekly during normal construction hours (when relevant) – prior to any site closure of greater than 24 hours (when relevant) • Internal reporting on a monthly basis and six-monthly reports to SM.

Visual Amenity and Landscape Management	Compliance with Visual Amenity and Landscape Management	• Daily passive visual inspections of hoarding and perimeter fencing; scaffolding, acoustic sheds and other structures; and lighting structures. • Weekly inspections of health of retained vegetation around site boundaries; the condition of any site hoarding; position and direction of any site lighting; litter; and graffiti. • Internal reporting on a monthly basis and six-monthly reports to SM

It is noted that 'Blasting' (a feature of the broader Sydney Metro City and Southwest project) is not required for the Project. Blasting has not been addressed in the CNVMP and as a result, a construction monitoring program was not prepared.

The Construction Monitoring Programs, as approved by the Secretary including any minor amendments approved by the ER or AA, 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.

If monitoring and measuring equipment is required, then it will be calibrated, maintained and controlled in accordance with Project Team (Operations/Construction & HSEQ) and the procedures provided in Plan Workmanship, Quality Inspections and Commissioning. Records of calibration will be kept in the Contract Filing System.

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.

16.1 Environmental Records

A register of the activities outlined in the table below is to be maintained. The register will be populated and used as a witness point in the activity process. These records that include witness points should be incorporated into the working plans for the project (SWMS, work instructions, construction methodologies, etc.).

Table 7: Witness Points

Item	Process Held	Acceptance Criteria	Approval Authority
Heritage	Methodology for Demolition and Deconstruction	Conservation Action Schedule D produced to demonstrate principles contained in the Burra Charter, works as proposed will not result in any irreversible damage, ensure retention and preservation.	Heritage Architect

The applicable data from the register will feed into the monthly reporting as required.

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

16.2 Non-Compliances and Corrective Actions

Non-conformance arising out of the above monitoring, inspections and audit outcomes shall be documented and addressed in accordance with Sydney Metro Environmental Incident and Non-compliance Reporting Procedure (SM-17-00000096) and documented on the Environmental Incident and Non-compliance Notification Report form (SM-17-00000105).SM or the Environmental Representative may raise non-compliances against environmental requirements.

All communications from SM (including CAR's and Audit reports) expressing concern or dissatisfaction with the implementation or operation of the CEMP shall be addressed by raising a Non-Conformance Report and managed in accordance with the Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure.. 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 Manager. The Environmental Manager is responsible for the investigation, tracking and ensuring appropriate closeout of non-compliances, corrective and preventative actions.

Corrective and preventive actions may include:

- Site remediation and rehabilitation
- Increased site inspections and monitoring
- Increase environmental awareness (re-training, tool-box meetings); and
- 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 Corrective Actions Requests (CAR) Register are as follows:

Table 14: Corrective Actions 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.

Actions will be resolved within the required timeframe and the CAR closed in accordance with the Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure.

16.3 Monthly Environmental Reporting

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 Contract Review Report.

16.4 Compliance Reporting

In accordance with Conditions A31, 32 and 33, a Pre-Construction Compliance Report was endorsed by the ER on 31 March 2017 and submitted to the DPI&E on 31 March 2017. DPI&E requested a specific update for each CEMP approval on 27 June 2017. Updates to Appendix A for Central Station Main Works (CSMW) was endorsed by the ER and submitted to DPI&E for information on 3 August 2018. The report included:

(a) details of how the terms of this approval that must be addressed before the commencement of construction have been complied with; and
(b) the commencement date for construction.

Construction must not commence until the Pre-Construction Compliance Report has been submitted to the Secretary.

For each Calendar Quarter Date, a Compliance Tracking Report (CTR), which identifies progress, and evidence of compliance against each compliance requirement, must be submitted to the Principal's Representative for review in accordance with the Contract. The CTR must classify each compliance requirement 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 Condition A41 and Condition A44 of this 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 Environmental Representative for information.

16.5 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 construction 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; and

  Identification of the timing for completion of the construction works, and how the sites would be reinstated (including any necessary rehabilitation).

17. Incidents and Complaints

Pre-construction minor works were delivered in accordance with the Sydney Trains Environment Protection Licence (EPL) 12208. Schedule 5 of the Collaboration Agreement between Sydney Trains and Sydney Metro specifies the EPL obligations including the Environmental Incident Reporting Protocol. The Protocol will continue for construction works under the LOR EPL 21148 as of 28 November 2018.

During Construction, environmental control and performance will be continually monitored on site, with site inspections completed by the Environmental Manager and as required by TfNSW's appointed Environmental Representative.

Any incident would be classified as outlined below with following actions undertaken in accordance with Appendix G.

The classifications are explained in Table 15 below.

Class 3 Incidents

Where a Class 3 incident has occurred, the Laing O'Rourke Construction Manager or immediate supervisor is to be informed. Class 3 incidents must be documented and addressed in accordance with Sydney Metro Environmental Incident and Non-compliance Reporting Procedure (SM-17-00000096) and documented on the Environmental Incident and Non-compliance Notification Report form (SM-17-00000105). 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 will make appropriate enquiries to determine the likely causal factors involved and assigns effective corrective actions.

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 Director. 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 16.2 - External Incident Reporting. 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. The subsequent investigation report must be provided to Sydney Metro within 7 days of the event unless another timeframe is agreed with the EL. Further details are provided in the Sydney Metro Management Procedure v5.1.

Class 1 Incidents

Where a Class 1 incident occurs the Laing O'Rourke HSE General Manager and the Head of Legal are to be informed immediately. The requirements of the Figure 6 in Appendix G are to be applied to all actual or potential Class 1 environmental incidents. A determination may be 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 to be followed.

All identified incidents will be registered on IMPACT, Laing O'Rourke's online incident reporting system. IMPACT will allocate a number to the identified incident to ensure traceability. Depending on the severity of the incident, it will be categorised as Class 1, Class 2 or Class 3 with Class 1 being the most serious and Class 3 being the least serious. 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 Manager, HSE General Manager and Head of Legal shall be notified by telephone as soon as practicable after any Actual or Potential Class 1 & Class 2 Incidents.See Appendix G for environmental incident investigation guidelines.

A Pollution Incident Response Management Plan (PIRMP) has been developed in accordance with the EPA Guidelines and will be implemented accordingly.

Correspondence with Sydney Metro Incident Classifications

All environmental incidents and non-conformances must also be reported to the ER and Sydney Metro in accordance with TfNSW *Environmental Incident and Non-compliance Notification Report (SM-17-00000105)*, see figure 6 of Appendix G. The corresponding Sydney Metro incident classifications are outlined below.

Table 15 Environmental Incident Classification

Laing O'Rourke 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					
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

17.1 Incident and Complaints Reporting

Environmental incidents and complaints are to be investigated, documented, actioned and closed out in accordance with the Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure.

The form *Environmental Incident and Non-compliance Notification Report (SM-17-00000105)* or a similar and consistent form approved by Sydney Metro **shall be completed for all environmental actual and potential class 1 and 2 incidents and complaints** within **48 hours** of the incident and forwarded to the Project Director.

Laing O'Rourke will provide notification of the incident to the Client's Representative in accordance with Table 16. Sydney Metro incident reporting requirements are outlined in Figure 6 of Appendix G.

In accordance with the contract requirements, the Client is to be notified as follows:

Table 16: Incident and Complaints Reporting Requirements

Notification Type	Contract Requirement
Initial verbal notification	Notify SM/SM Representative and ER regarding the incident as soon as possible. If the incident is a notifiable event, Laing O'Rourke will notify the EPA, Sydney Metro and relevant authorities immediately.
Environmental Incident Report requirements	Prepare an incident / non-conformance report and submit to Sydney Metro and ER within 48 hours.

Class 1 and Class 2 reportable incidents shall be reviewed by the Environmental Manager, HSE General Manager and Head of Legal prior to the issue of formal correspondence to external parties or regulatory authorities. More information is contained within the Sydney Metro Incident Management Procedure v5.1.

Management system non-conformances and recurring environmental incidents will be handled in accordance with LOR Incident Management Requirements.

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; and
- Increase environmental awareness including re-training and tool-box meetings.

Each incident shall be sufficiently investigated to allow specific and detailed corrective and preventative actions to be identified, actioned, and closed out.

Specific procedures relating to heritage finds are outlined in the Project Construction Heritage Management Plan (a sub-plan to this CEMP).

Note: where a Class 1 Incident has occurred the HSE General Manager will initiate the investigation and allocate responsibilities.

17.1.1 Senior Leaders Environmental incident review

For all Class 1 and Class 2 incidents, within 3 days the Construction Director will convene a briefing with the relevant Senior Business Leader to provide an update on the incident investigation and to allow the Area/Construction 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/Construction 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
- Any other relevant information.

17.2 External Incident Notification

DPIE notification requirements are outlined in CoA A41-A44 as tabulated below. Any incidents will be notified to the Secretary in accordance with these requirements. An incident is defined in the Critical State Significant Infrastructure Conditions of Approval as "An occurrence or set of circumstances that causes, or threatens to cause, material harm to the environment, community or any member of the community, being actual or potential harm to the health or safety of human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial."

Table 17: Incident Notification to DPIE

CoA	Requirement
A41	The Secretary must be notified as soon as possible and in any event within 24 hours of any incident.
A42	Notification of an incident under Condition A41 of this approval must include the time and date of the incident, details of the incident and must identify any non-compliance with this approval.
A43	Any requirements of the Secretary or Relevant Public Authority (as determined by the Secretary) to address the cause or impact of an incident reported in accordance with Condition A41 of this approval, must be met within the timeframe determined by the Secretary or relevant public authority.
A44	If statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be provided to the Secretary for information within 24 hours after the notification was given to the EPA.

17.2.1 State Matters

All notifiable events must be classified and reported in accordance with Sydney Metro's *Environmental Incident and Non-compliance Notification Report (SM-17-00000105)*. A notifiable event is defined in the procedure as *any environmental incident or issue that triggers a specific statutory requirement to notify a regulatory authority.*

The EPA must be notified immediately of all pollution incidents that cause or threaten material harm to the environment.

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 Regional Environmental Manager and the Head of Legal.

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 131 555.

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; and
- 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)
- City of Sydney Council – (02) 9265 9333; and
- 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. Impact must be used to record contact with the regulatory authorities.

17.2.2 Commonwealth Matters

All notifiable events must be classified and reported in accordance with Sydney Metro's *Environmental Incident and Non-compliance Notification Report (SM-17-00000105)*.

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

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

- Migratory bird species
- Listed marine species; and
- Threatened species or listed ecological community (includes taking).

17.3 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.

Public Complaints shall be logged into the Complaints Register maintained by the Community Relations Team and are to be responded to in accordance with the Sydney Metro Community Communication Strategy (CCS). Environmental Management related complaints will be forwarded to the Environment Manager.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Environmental Management System – Corrective and Preventative Action.

Corrective and preventive actions may include:

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

18. Environmental Management System Audit

Auditing of the project Environmental Management System will be carried out in accordance with Environmental Management System Requirements and in accordance with AS/NZS ISO 19011:2014 -Guidelines for Auditing Management Systems. The project Environmental Management System will be audited on a 12-monthly basis by an Independent External Auditor engaged by Sydney Metro. LOR will also separately undertake an internal audit within the first three months from commencement of construction and then annually for the CEMP and related sub-plans. An internal audit schedule will be developed by LOR to align with LOR's EMS requirements. As such, the audit schedule will allow for flexibility where necessary to not coincide with external audits. The audit will evaluate compliance with this CEMP and associated documentation including:

- Compliance with any approval, permit or licence conditions
- Compliance with the E&SMS, CEMP, SMP, sub-plans and procedures
- Community consultation and complaint response
- Environmental training records; and
- Environmental monitoring and inspection results.

The Environmental Audit Program required by conditions A37 to A40 will be managed by TfNSW. Laing O'Rourke will participate in these audits as required by the audit schedule and include the Environmental Manager and Environmental Representative.

The first Central Station Main (CSM) Works External Audit was conducted on 26 October 2018. The first Central Station Main (CSM) Works Internal Audit was conducted on 18 October 2018. In accordance with the annual audit frequency, audits will generally be conducted in October for the duration of the project or as otherwise required.

19. Management Review

The Project Management Team will check the status and adequacy of the CEMP to ensure that it meets current Sydney Metro and Laing O'Rourke requirements as well as relevant environmental standards. LOR will undertake an internal audit within the first three months from commencement of construction and then annually thereafter for the CEMP and associated sub-plans.

The Plan and an analysis of key environmental risks as defined in Appendix C will be reviewed 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; and
- Opportunities for improvement or deficiencies in the project system are identified.

Although the LOR HSEQ re-launch process occurs in 6 monthly intervals – requiring update of all management plans, review and update of the Environmental Management Plans will occur on an annual basis.

20. Environmental Schedules

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

- Weekly Environmental Inspection
- Incident/Complaint form as required
- Erosion and Sediment Control Plans to be included as part of, or separate to Environmental Control Maps (ECM's)
- ECMs
- Waste records; and
- Internal and external audit reports.

Appendix A – 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 and Laing O'Rourke'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).	**Medium Relevance** The City of Sydney Council (the Local Government body for this area) has number powers to control local issues including Development Applications (other than state significant development).
Roads Act 1993 *Roads (General) Regulation 2000*	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 is mostly an administrative Act for RMS and has medium relevance to carrying out CSM works.
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 no relevance as the CSM works 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 significant" cultural and natural resources, protected wildlife and protected plants without Approval.	**No Relevance** This Act is of no relevance to CSM works as it has been determined not to trigger the provisions of the act.

Central Station Main Works Project
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Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
Biodiversity Conservation Act 2016, Local Land Services Act 2013, and State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017	This Act and Regulation provide for the conservation and management of Native Vegetation by requiring Development Consent to be obtained for the clearing of Native vegetation. Section 12 of the *Native Vegetation Act 2003* excludes the clearing of land carried out in accordance with consent under Division 3 of Part 9 of the *Roads Act 1993*. Clearing of native vegetation required for construction of the work under the contract would be covered by such consent. The Native Vegetation Regulation 2013 allows for the development of self-assessable codes for clearing of feral species, clearing of invasive species, environmental works, thinning native vegetation, clearing of paddock trees, and clearing of mulga.	**Low Relevance** Clearing of native vegetation is not required as part of the CSM works.
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 cover matters 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 Laing O'Rourke were prosecuted for an Environmental Offence. It may also be relevant in the event that civil enforcement proceedings or judicial review proceedings were brought relevant to CEMP.
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 is a registered entity under this act. As such, where Laing O'Rourke 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. Laing O'Rourke does have Operational Control of the CSM Works site.

Central Station Main Works Project
Construction Environmental Management Plan

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
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.	**High Relevance** The relevance of this Act to the contractor will be in the event suspected or potentially contaminated ground is found during construction activities. Contaminated land is likely to be present at the CSM Works project.
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 Laing O'Rourke 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 CSM Works 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.

Central Station Main Works Project
Construction Environmental Management Plan

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
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. Laing O'Rourke will need to review and ensure Dangerous Goods requirements are addressed where transported by its vehicles, plant and equipment.
Water Management Act 2000 *Water Management (General) Regulation 2004*	This Act is the main piece of water legislation in NSW and amongst other things governs the management of groundwater resources under groundwater sharing plans (of which the Project is within a groundwater sharing plan area) and the extraction of water from any excavation.	**Medium Relevance** While separate project approval under this Act is not required the project will be undertaken with regard to the objectives of the Act by encouraging best practice management and use of water on the site.
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 Management Act 2016 and State Environmental Planning Policy (Coastal Management) 2018	This Act establishes a strategic framework and objectives for managing coastal issues in NSW. The Act and SEPP provide support to Councils when assessing planning proposals in their area.	**No Relevance** The project is not located in areas associated with this Act or SEPP.
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. (Refer to the notes under the Threatened Species Conservation Act for more information)	**Medium Relevance** No identified aboriginal artefacts have been identified within the construction area. The only relevance would be if new previous unknown artefacts were discovered during construction
Biodiversity Conservation Act 2016	This Act and Regulation provide for the conservation and management of Native Vegetation by requiring Development Consent to be obtained for the clearing of Native vegetation.	**Low Relevance** No native vegetation will be cleared as part of the CSMW project.

Central Station Main Works Project
Construction Environmental Management Plan

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
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. This legislation further requires permit to be obtained for certain activities concerning protected species or other fisheries areas.	**Low Relevance** Along with the POEO Act water discharging from the site must not pollute the adjacent streams or watercourses.
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 not located adjacent to state waters and will not involve the use of applicable vessels.
Biosecurity Act 2015	This Act provides for the classification and control of noxious weeds. Declared noxious weeds are classified as Class 1, State Prohibited Weeds; Class 2, Regionally prohibited Weeds, Class 3 Regionally Controlled Weeds, Locally Controlled Weeds and Class 5 Restricted Plants. The characteristics of each class is given in Section 8 (2) of the Noxious Weeds Amendment Act 2005. Class 1, 2 & 5 weeds are referred to in the Act as “Notifiable Weeds”.	**Low Relevance** The Act applies to owners or occupiers of land including public authorities. No noxious weeds have been identified on the Project.
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. This Act requires a duty to notify the discovery of any relics.	**High Relevance** Works will be undertaken within the State Heritage Registered Central Station Railway Group and adjacent to the listed Mortuary Station.

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Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
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 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. The Act also has a duty to notify discovery of Aboriginal remains.	**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.

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Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
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 CSM project will initially be completed under the Sydney Trains EPL until Laing O'Rourke obtain an EPL for the project.
Sydney Water Act 1994	This Act establishes the Sydney Water Corporation as a statutory State-owned corporation. The functions of the Sydney Water Corporation are to supply and store water, provide sewerage services, provide stormwater drainage and dispose of waste water within its area of operations.	**Medium Relevance** Coordination may be required with Sydney Water during the works
Water NSW Act 2014	This Act defines the functions and objectives of Water NSW, including ensuring works in declared catchment areas protect water quality, public health and safety and protection of the environment.	**Low Relevance** This project will not impact on areas regulated by Water NSW.
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 Laing O'Rourke.
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 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.	**High Relevance** The relevance of the Act to this project is to implement the 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).

Appendix B – 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 15_7400	09/01/2017	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 of Stage 1 - to which the approval applies	LOR Project Environmental Manager	Relevant requirements will be briefed to project personnel as per the requirements
Protection of Environment Operations Act 1997							
The Project will be completed under an Environment Protection Licence, as required under Protection of Environment Operations Act 1997	Yes	Sydney Trains EPL 12208 Project specific EPL EPL 21148 EPL specific to waste transporter or facility	pre- construction (April 2018) Construction (commencing November 2018)	N/A	EPL surrender requirements will be managed directly by Sydney Trains. Once construction of the Project is finished, LOR compliance and surrender requirements will be closed out as required.	Project Environmental Manager	Relevant EPL requirements will be briefed to project personnel as per the requirements stated in Section 9 of this CEMP

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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
			Construction (commencing Aug 2018)		LOR will review EPL's of facilities and transporters prior to removing waste. Refer to Appendix A-D of the CSM Waste and Recycling Management Plan		
Water Act 1912							
Section 10 Surface Water Licence	No						
Part 5 Section 112 Groundwater Licence	No						
Part 8 Division 3 Approval of controlled work	No						
Water Management Act 2000							
Section 56 Access Licences	No						
Section 89 Water use approvals	No						
Section 90 Water management work approvals	No						

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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
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	LOR Subcontractors may work under these approvals –	Details to be confirmed once the approval is in	Details to be confirmed	Details to be confirmed	Project Construction Manager	Requirements will be briefed to project

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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
		copies of approvals to be obtained upon engagement of subcontractors and this register will be updated accordingly	place on the Project				personnel as per the requirements stated in the Section 9 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	LOR 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	LOR Subcontractors will work under these approvals – copies of approvals to be obtained upon engagement of subcontractors and	Details to be retained on project server	Details to be retained on project server	Details to be retained on project server	Project Environmental Manager	Requirements will be briefed to relevant project personnel

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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
		this register will be updated accordingly					
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					
Occupational Health and Safety Regulation 2001							
Section 174ZS Notification to WorkCover	Yes	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	Details to be retained on project server	Details to be retained on project server	Details to be retained on project server	Asbestos Removal Work Notification will be undertaken by LOR Subcontractors where required during	Details to be retained on project server

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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
		this register will be updated accordingly				construction phase	
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							

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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
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 C – Risk Assessment

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

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

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

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	3	Moderate	– Localised irreversible habitat loss or effects on habitat, species or environmental media – Reportable incident to the relevant environmental regulator or other authority.

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		or has occurred nationally within the Australian Business.			– 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 – Reasonable to expect that the consequence will not occur on the Project. – Has occurred in industry but not in Business Unit.	2	Minor	– Localised degradation of habitat or short-term impacts to habitat, species or environmental media. – 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

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		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, poor community relations and reputational loss.	**3**	**3**	**9**	Review the project EIS and statutory documentation for requirements relevant to the CSM works. Identify and implement approval requirements within sub-plans. Check contract documentation. Identify and implement requirements from the Contract. Identify areas or works outside of project boundary and prepare Consistency Assessment to assess impact and / or requirement for further Planning Assessment.	**2**	**3**	**6**	
Noise									
Noise from general construction activities resulting in impact to residents and businesses.	Disturbance to residents or neighbouring businesses. Potential for complaints.	**5**	**3**	**15**	Control measures as detailed in the CSM CNVMP are to be implemented. Operate during hours as specified by the CoAs. Prepare monthly OOH noise assessments to ensure works are consistent with CNVIS and to provide appropriate mitigation measures based on predicted impact. Respond to community enquiries and complaints in accordance with Sydney Metro requirements and Community & Stakeholder Manager (SM), 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.	**2**	**3**	**6**	

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					Validate prediction within the monthly OOH noise assessments by undertaking noise monitoring as the works progress at receiver locations. Provide periods of respite for high noise generating activities. 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.	5	3	15	Implement additional 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.	2	3	6
Vibration								
Vibration intensive activities undertaken on the site such as impact piling, vibratory rolling, etc.	Disruption, annoyance and nuisance to residents. Potential damage to Central Station, adjacent residential and commercial residences and structures. Disruption to businesses as a result of vibration nuisance	4	3	12	Control Measures as per CSM CNVMP and CNVIS are to be implemented. Undertake dilapidation surveys of potentially effected surrounding buildings and structures 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	3	6

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X C =		Risk		P X C =		Risk
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. Potential impact on traffic safety. Potential for sediment laden runoff during rainfall. Potential for generation of dust. Fines for non-compliant water escaping site.	**3**	**3**	**9**	Control Measures as per the CSM Soil and Water Management Plan to be implemented. Install stormwater drainage protection within the project area. Conduct regular inspection of drains and replace protections where required. 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. Implement additional controls as identified through site observations Ensure WTP is working efficiently and at capacity	**1**	**3**	**3**
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**	Limited existing vegetation on site. Vegetation will be mulched and immediately removed from site. Utilise appropriate locations for stockpiling (away from waterways, watercourses, drains). Minimise stockpiling / Use temporary stockpiling Cover stockpiles if left for extended periods.	**1**	**3**	**3**

Central Station Main Works Project
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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
Non-compliant water from construction works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria).	3	3	9	Control Measures as per the CSM Soil and Water Management Plan to be implemented. Groundwater treated on site prior to reuse or discharge. Induction and toolbox talks Toolbox training on site procedures for water discharge (see Appendix I) Educate site staff on licence conditions and consequences of prosecution Environmental Manager/representative to approve all water discharges from site in accordance with Appendix I. ERSED training for relevant staff. Ensure WTP is operating at capacity, dewatering site is at capacity.	1	3	3	
Works with the potential to intercept Groundwater table	Groundwater entering excavations without appropriate safeguards onsite could lead to ground water contamination.	3	3	9	Control Measures as per the CSM Groundwater Management Plan to be implemented. Groundwater treated on site prior to discharge. Induction and toolbox talks Toolbox training on site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution Environmental Manager/delegate to approve all water discharges from site	1	3	3	

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					Ensure WTP is operating at capacity, dewatering site is at capacity. Reduce probability of non-compliant discharge			
Flooding								
Flooding of Central Station and surrounds	Contamination of floodwaters by sewage, fuels and/or chemicals onsite Potential for floodwaters to impact works within Central Station Potential re-direction of flood waters beyond work site as a result of works at Central Station	2	2	4	Control Measures as per the CSM Soil and Water Management Plan to be implemented. Install stormwater drainage protection within the project area. Conduct regular inspection of drains and replace protections where required. 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. Reduce Probability of flooding by following controlled overflow strategy as documented in the CSWMP	1	2	2
Waste								
Waste disposal during construction.	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	3	2	6	Implement Sydney Metro's City and Southwest Sustainability Strategy. Implement Construction Waste Management and Recycling Plan. Identify opportunities to incorporate recovered materials into the permanent works.	1	2	2

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					Provide facilities on site for source separation and recycling. Ensure accurate waste records are retained including waste tracking dockets. 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 (EPA, 2014).			
Earthworks spoil disposal.	Incorrect classification of waste (spoil) resulting in incorrect / illegal disposal/re-use.	**4**	**3**	**12**	Control Measures as per the CSM Spoil Management Plan to be implemented. Inductions, toolbox talks and training on recycling facilities and waste segregation practices. Separation of waste on site. Tracking of disposal processes. All contamination hotspots would be clearly marked in the field.	**1**	**3**	**3**
Spoil re-use objectives	Project requirements of 100% of spoil re-use or recycling not being met.	**3**	**4**	**12**	Control Measures as per the CSM Spoil Management Plan to be implemented.	**1**	**3**	**3**

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Noise from spoil transportation activities resulting in impact to residents and businesses.	Disturbance to residents or neighbouring businesses. Potential for complaints.	3	4	12	Control Measures as per the CSM Spoil Management Plan and Noise and Vibration Management Plan to be implemented. Implement additional mitigation measure if required based on validation of predictions.	1	3	3
Dust from spoil transportation activities resulting in impact to residents and businesses.	Disturbance to residents or neighbouring businesses. Potential for complaints.	2	3	6	Control Measures as per the CSM Spoil Management Plan and Air Quality Management Plan to be implemented.	1	2	4
Spoil 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.	2	3	6	Control Measures as per the CSM Spoil Management Plan and Traffic Management Plan to be implemented.	1	2	2
Washout of concrete in undesignated areas.	Sediment laden/alkaline water polluting surrounding stormwater system / watercourses.	4	2	8	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
Contamination								
Management of contaminated or untreated materials	Non-compliant material and contaminated water entering surrounding waterways. Decrease in health of nearby ecosystems.	4	3	12	Implement Site Contamination Reports Develop contamination management procedures and protocols. Identify any contamination hotspots and incorporate procedures for these locations into construction documentation.	2	3	6

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					Develop unexpected finds procedures. Induct personnel on unexpected finds procedure.			
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. Classification of spoil is changed, and disposal options altered, costs incurred associated with disposal of higher classification of waste.	3	3	9	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. Development and implementation of a Remediation Action Plan (RAP). 6 Monthly Validation Reports and quarterly site inspection by the Site Auditor.	1	3	3
Encountering asbestos / contaminated material on site.	Transfer of material into previously uncontaminated area (outside work site) causing new contamination.	4	3	12	Completion of HazMat surveys. 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. Stockpile materials separately. Contaminated (special, hazardous or restricted waste) stockpiles and concrete washouts with the potential to leach to be located on either hardstand or bunded with non-permeable plastic.	2	3	6

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
Discharge of contaminated water from within site boundary during rainfall	Contamination of receiving waters Contamination of soils downstream of site	4	3	12	Contaminated (special, hazardous or restricted waste) stockpiles and concrete washouts with the potential to leach to be located on either hardstand or bunded with non-permeable plastic. All potentially contaminated water directed through a water treatment or disposed to a licenced treatment facility off site. Implement recommendations of the Contamination Assessment Reports.	2	3	6	

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
Hazardous Materials									
Storage of hazardous substances, leaking plant and equipment and spillage from refuelling.	Localised ground contamination / pollution of stormwater requiring clean-up and/or receiving fines. Contamination of watercourse, riparian environment and groundwater ecosystems 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. No bulk fuels to be stored on site. Storage areas to be away from sensitive areas and appropriately bunded. SDS approved prior to bringing hazardous substances on site including risk assessment.	1	3	3	

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					Plans showing storage locations and associated controls e.g. spill kits, etc. (Environmental Control Maps). Training in use of spill kits. 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. Ensure hazardous materials are stored in 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). Any fuel or chemical spills associated with construction have the potential to impact habitats, particularly downstream aquatic habitats via stormwater systems or waterways.	3	3	9	All storm water drains should be identified prior to works and controls implemented. No bulk fuels to be stored on site. 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. Training in use of spill kits.	1	3	3

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Aspect	Potential Environmental Impact	Initial Risk Rating				Control Measures	Residual Risk Rating			
		P	X	C =	Risk		P	X	C =	Risk
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	Limited existing vegetation on site. Induction and toolbox 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 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. Preclearing checklist to be completed before any clearing of vegetation.	1	3		3
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	Limited existing vegetation and native fauna on site. Trees identified in the Sydney Metro Tree Report to be managed as recommended. 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.	2	2		4

Aspect	Potential Environmental Impact	Initial Risk Rating P	X	C =	Risk	Control Measures	Residual Risk Rating P	X	C =	Risk
						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. Preclearing checklist to be completed before any clearing of vegetation and fauna inspections to be completed prior to clearing.				
Demolition and construction activities.	Fauna injury or mortality is most likely to occur during vegetation clearing activities, but also may result from collisions with construction vehicles or plant, or accidental entrapment in plant, trenches or other earthworks. Increased movement of people, vehicles, machinery, vegetation waste and soil may also facilitate the introduction or spread of weeds. The buildings/structures currently on site offer limited habitat features to native fauna, although they may support potential roosting habitat for microchiropteran bats.	2	2	4		Limited existing vegetation and native fauna on site. Trees identified in the Sydney Metro Tree Report to be managed as recommended. Preclearing checklist to be completed before any clearing of vegetation and fauna inspections to be completed prior to clearing. Recommendations from the Bat Assessment to be followed.	1	2	2	
Air Quality										

Central Station Main Works Project
Construction Environmental Management Plan

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X C =		Risk		P X C =		Risk
Dust from the construction works (including site establishment, excavations, piling)	Potential pollution of waterways and air Dust activity in close proximity to residential and commercial premises, complaints received.	3	2	6	Toolbox training on Dust and Air Quality Management. Provide dust mitigation measures through water sprays/misting as required. If required (i.e. visual assessment or complaint indicates high dust levels), dust monitoring will be completed to assess total suspended particulates in conjunction with Occupational Health, Hygiene and Wellness Management Plan. Erosion and Sediment Control Plans approved before works commence.	2	2	4
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-compliant vehicles removed from site / repaired. Construction Traffic Management Plan. No idling of plant.	2	2	4
Heritage								
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	4	3	12	Specific heritage site inductions for all personnel on the Project. General inductions toolbox training on heritage management protocols. Label any known heritage items on Environmental Control Maps.	2	3	6

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P	X C =	Risk		P	X C =	Risk
					If suspected heritage item encountered. Works to stop immediately and Environment Manager contacted. Works not to recommence until clearance provided by Heritage Consultant. Clearly highlight no-go zones on the ECM and communicate requirements to construction personnel during pre-start briefs, inductions and toolbox talks.			
Impact to Central Railway Station Group	Damage to Central Railway Station Group fabric by CSM works and construction traffic. Visual impacts.	4	3	12	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 CSM CNVMP. Undertake vibration compliance monitoring as per the CSM CNVMP. Clearly highlight no-go zones on the ECM and communicate requirements to construction personnel during pre-start briefs, inductions and toolbox talks. Demarcation of worksites and communicate clearly with all construction personnel. Independent review of the CSM design (detailed design) by appropriately qualified and experienced heritage architect.	2	3	6
Acid Sulphate Soils								

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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
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	There is a low risk of acid sulphate soils on the CSM site. Awareness training in the identification and management of ASS. Ensure ASS material is left under the water table, disposed off-site or appropriately treated in a bunded area with sump.	1	2	2	
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 Develop Traffic Management Plan / Traffic control procedures. Implement Construction Traffic Management Plan. Encourage site personnel to use public transport.	2	2	4	
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 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.	2	2	4	

Central Station Main Works Project
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Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
					Approved Traffic Management Plans in consultation with relevant authorities. Detour routes to be advertised/ notified. Implement Construction Traffic Management Plan. 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.	**4**	**3**	**12**	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. Implement Construction Traffic Management Plan. Implement Construction Noise and Vibration Management Plan.	**2**	**2**	**4**	

Central Station Main Works Project
Construction Environmental Management Plan

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Truck deliveries out of normal working hours (un-approved).	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. Planning and staging of works in approved hours as much as practical. Implement Construction Traffic Management Plan.	2	2	4
Resources and Energy Use								
Energy consumption by construction plant & operation of site compound facilities.	Inappropriate energy use, waste of energy recourses, energy wastage costs, increased greenhouse gas emissions.	3	2	6	Control Measures as per the CSM Sustainability Management Plan, Construction Waste Management Plan, Construction Materials Plan and the Carbon and Energy Management Plan to be implemented. Inductions and toolbox training on waste management and energy saving practices in construction plant and equipment and during office work. No idling of plant equipment where possible onsite. Equipment / plant equipment inspections must be undertaken prior to use on site.	2	2	4

Central Station Main Works Project
Construction Environmental Management Plan

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			
		P	X C =	Risk		P	X C =	Risk	
Water usage during construction activities.	Excess usage of potable water for site activities leading to wastage	2	2	4	Control Measures as per the CSM Sustainability Management Plan to be implemented. Include water re-use, conservation measures and verifiable targets. Capture and reuse rainfall and runoff for site activities where possible	1	2	2	
Resource usage (e.g. building materials, water, fuels, packaging), waste generation and disposal	Depletion of resources due to wastage (e.g. wastage of water / no recycling, poor management of procurement, ineffective removal of off-cuts, waste, i.e. no recycling).	2	3	6	Control Measures as per the CSM Sustainability Management Plan and the Carbon and Energy Management Plan to be implemented. Inductions and toolbox talks on recycling facilities and waste segregation, training/education on how to recycle. Procurement of materials (selection of materials) to be considered. Subcontractor's agreements to include project compliant waste management principles. Waste management undertaken in accordance with the Waste Avoidance and Resource Recovery Act 2001.	2	2	4	
Visual Amenity									
Temporay storage containers Plant and equipment movement Lighting Landscape Design	Surrounding aesthetic temporary altered during construction Lighting towers used during out of hours works may spill on nearby residents Poor integration of landscape design	3	3	9	The work area shall be maintained in an orderly manner Any graffiti on outward facing elements of site hoarding or noise barriers will be removed in a timely manner Lighting required during night works shall be directed towards the work area and away from adjacent sensitive receivers	2	3	6	

Central Station Main Works Project
Construction Environmental Management Plan

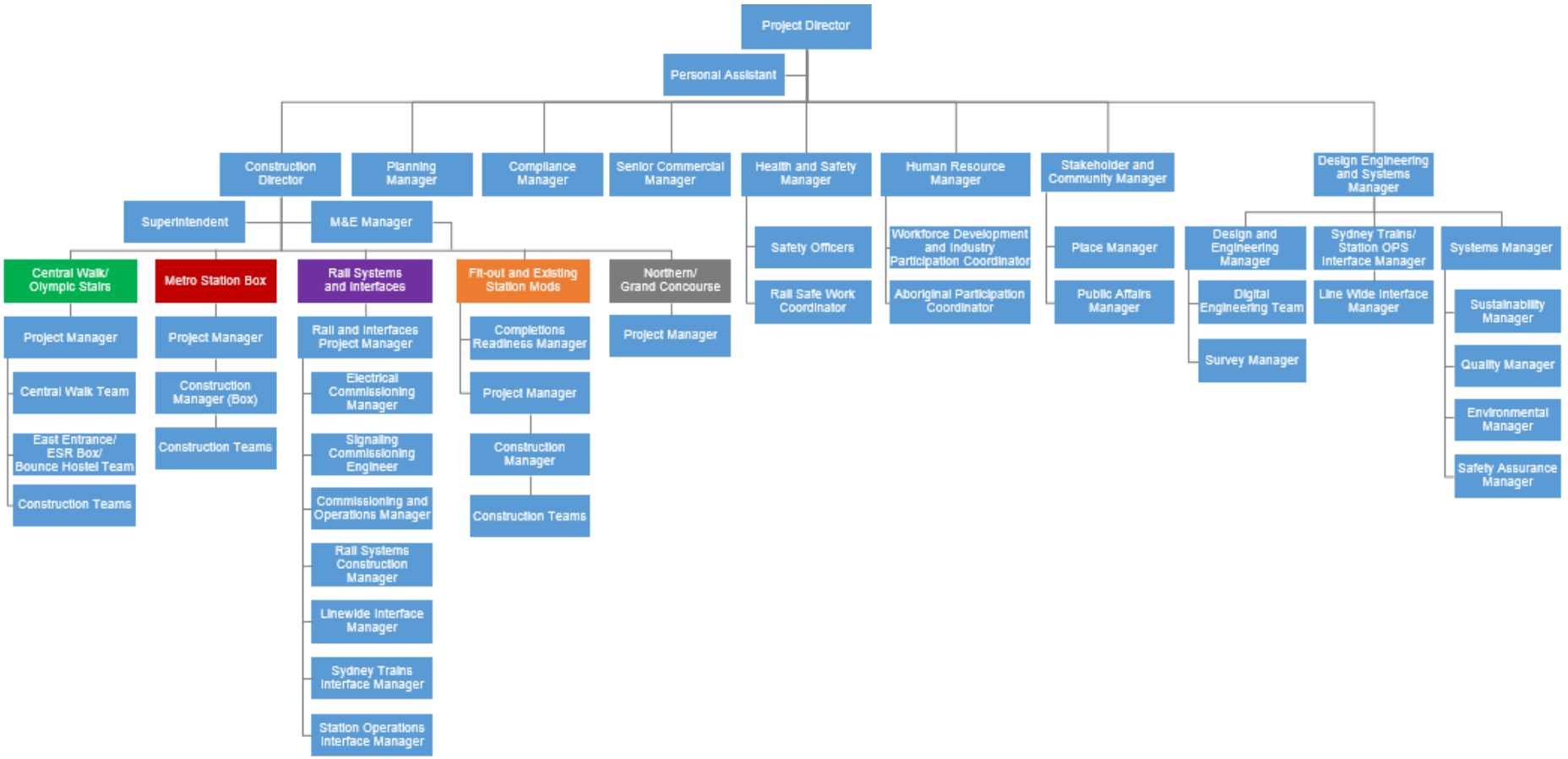
Aspect	Potential Environmental Impact	Initial Risk Rating				Control Measures	Residual Risk Rating			
		P	X	C =	Risk		P	X	C =	Risk
	Poor Environmental Design for the prevention of crime.					Apply the principles of AS 4282-1997 Control of the obtrusive effects of outdoor lighting Incorporation of the principles of Crime Prevention Through Environmental Design Weekly Inspections				
CSM Site Compound										
Appropriate management of the CSM site compound under approval CSSI 15_7400	Inadequate assessment of impacts to surrounding business and residential receivers and environmental receptors. Potential for complaints.	**2**	**3**	**6**		Any CSM 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: • minimal 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 • minimal 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 15_7400. • Site compound managed in accordance with relevant components of the following sub-plans: Construction Noise and Vibration; Construction Traffic	**1**	**3**	**3**	

Central Station Main Works Project
Construction Environmental Management Plan

Aspect	Potential Environmental Impact	Initial Risk Rating				Control Measures	Residual Risk Rating			
		P	X	C =	Risk		P	X	C =	Risk
						Management; and Construction Visual Amenity and Landscape; Construction Air Quality.				

Central Station Main Works Project
Construction Environmental Management Plan

Appendix D – Organisation Chart



Central Station Main Works Project
Construction Environmental Management Plan

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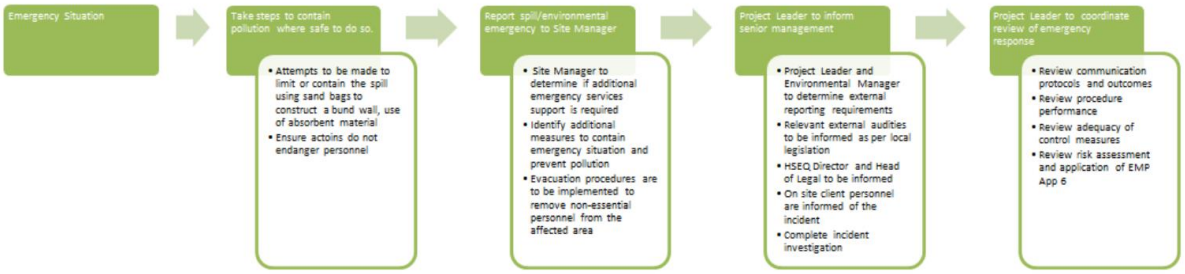
Appendix E – Emergency Preparedness and Response

The types of environmental emergencies that could occur on this site are tabulated below.



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.

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 Superintendent until adverse conditions subside. – Deploy additional mitigation measures to exposed areas, stockpiles (with an extended duration) and other dust generating items will be water sprayed or covered.	Site Superintendent PEM
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 – 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 – Erect appropriate signage	Occupational Hygienist Project Leader Site Supervisor PEM Safety Manager

Central Station Main Works Project
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Emergency	Preparation	Response	Responsibility
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: – 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	– 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 Superintendent PEM
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 Superintendent PEM

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Emergency	Preparation	Response	Responsibility
Spill of hazardous or toxic substance (< 20L)	– Awareness training of appropriate response and procedures to be incorporated into Project Induction – SDS on site for all materials and kept up to date – Adequate supply of absorbent materials available around the site compound and on vehicles at work location – Training in use of spill kits	– Report spills immediately to Site Manager and/or the Project Environment Representative – Attempts to be made to limit or contain the spill using sandbags 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. – Ensure spills are reported to TfNSW and EPA as required.	Site Superintendent PEM

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Emergency	Preparation	Response	Responsibility
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 – Adequate supply of absorbent materials available around the site compound and on vehicles in work location – 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 – Training in use of spill kits	– 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. – 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 Laing O'Rourke personnel assisting as required. – Commence data gathering and investigation once emergency is contained. – Ensure spills are reported to TfNSW and EPA as required.	Project Director Site Superintendent PEM

Central Station Main Works Project
Construction Environmental Management Plan

Emergency	Preparation	Response	Responsibility
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 – 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 Superintendent PEM
Vibration causing structural damage	– Choose correct plant when working near structures; minimise size and impact – Use safe working distances during planning phase – Implement vibration monitoring at commencement of vibration generating works to ensure compliance with standards	– 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. – A structural assessment to be undertaken; and if any damage is associated with construction, rectification work would be agreed.	PEM Project Director

Central Station Main Works Project
Construction Environmental Management Plan

Emergency	Preparation	Response	Responsibility
Unapproved clearing / damage to protected vegetation – threatened/endangered species	– Preclearing checklist to be completed before any clearing of vegetation. – 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.	– Immediately cease activities – Engage consultant to assess damage to vegetation and presence of any endangered or threatened communities.	Site Superintendent PEM
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 – 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 Superintendent PEM
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 an Unexpected Finds Procedure – 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.	PEM Excavation Director / Archaeologist

Emergency	Preparation	Response	Responsibility
Damage / destruction of European heritage	– Ensure site investigations detail any heritage items on or in proximity to the site. – Ensure exclusion zones / mitigation measures are implemented around heritage structures as detailed in the Heritage Management Plan. – Work within Safe Working Distances as detailed in the CSMW CNVMP – Undertake vibration monitoring as detailed in the CSMW CNVMP – 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. Contact an archaeologist to assess the significance and archaeological potential of the uncovered feature.	PEM Excavation Director / Archaeologist

Central Station Main Works Project

Construction Environmental Management Plan

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Appendix F – Environmental Inspection Report

Enabling Process | Project Team (Delivery) | 2257 – Environmental Compliance | Template [1]

Environment Inspection

E-T-8-1227 ENVIRONMENTAL INSPECTION REPORT

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

A = ACCEPTABLE   AR = ACTION REQUIRED   NA = NOT ASSESSED

No.	ITEM	CONFORMANCE A	AR	NA	RISK CLASS	DESCRIPTION OF NON-COMPLIANCE/ CORRECTIVE ACTION	CORRECTIVE ACTION REQUIRED	RESPONSIBLE	TARGET DATE
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 >10 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 open vats 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 in 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, front cut 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 stored 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 onsite is draining to them?								
33	Is there evidence of sediment tracking on external public roads?								
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									

Appendix G – Environmental Incident Investigation Guidelines

Incident Investigation

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 in situ 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, CEMP sub-plans, 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, internal and external reporting documents.

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.

Figure 20-1: Class 1 and 2 Incident Management Flow Chart

Note – NSW - Immediate regulatory reporting requirement for incidents involving material harm

There are additional authorities to be notified including the following:

- The Ministry of Health - Public Health Unit - 02 9391 9000)
- WorkCover (13 10 50)
- City of Sydney Council
- Fire and Rescue NSW on 000

Actual or Potential Class 1 Environmental Incident Occurs

↓

Ensure that the incident cause has been rectified where safe to do so and that any spill or result of the incident minimises environmental harm. Ensure the safety of personnel or public

↓

Assess risks

↓

Ensure site has been secured

↓

Report the incident immediately to the HSE Director and Head of Legal.

Role	Name	Number
HSE General Manager	Richard Colman	M: 0419 317 278
Head of Legal	Annabel Crookes	M: 0414 702 817
Environment Manager	Babak Rajaeian	M: 0404 937 288

↓

Is Client reporting required?

Yes →

Reporting requirements as per the contract are as follows:

- **Initial notification**
- **Verbal notification**
- **Written report**

↓

Document factual reporting to Client in strict accordance with the contract

No →

Report to EPA 131555 and other nominated authorities

Cooperate with the local authorities.

↓

Notification to the external environmental regulators to be recorded.

↓

Brief Management / Investigation Team

↓

LOR Lead Incident Investigator to coordinate the collection of evidence

↓

Consider the need for resources and operations

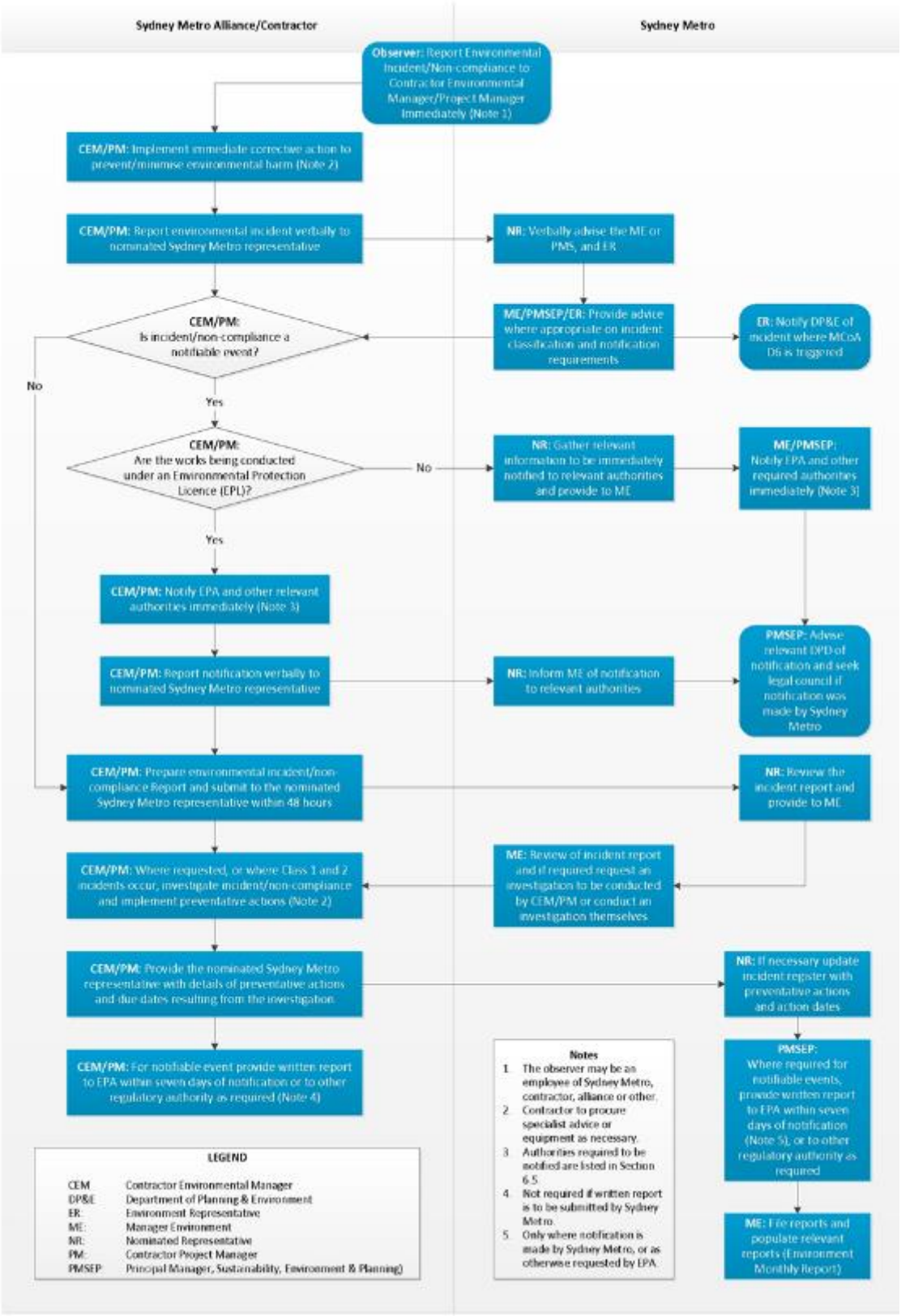
↓

Inform workforce and other stakeholders

↓

Debrief witnesses

Figure 20-2: TfNSW Environmental incident/non-compliance reporting procedure



Central Station Main Works Project
Construction Environmental Management Plan

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Appendix H – Sydney Metro City and Southwest Environmental and Sustainability Reporting Templates

Sydney Metro City & Southwest **Sustainability Reporting Template** sydney METRO

Contract:	Sydney Yard Access Bridge (SYAB)			
Instructions:	The Contractor must provide the sustainability performance data specified below to TfNSW on a monthly basis			
Reporting month/year:	(Contractor to complete)			
Metric	Type	Unit	Cumulative total to date	Monthly total
Electricity consumed	-	kWh		
Electricity Offsets purchased	Contractor to specify	Contractor to specify		
Volume of fuel consumed	Petrol	kL		
	Diesel	kL		
	Other (Contractor to specify)	kL		
Types and Quantity of waste generated	Hazardous waste	tonnes		
	Construction and demolition waste	tonnes		
	Other non-hazardous waste	tonnes		
	Other (Contractor to specify)	tonnes		
Types and Quantity of waste reused or recycled	Construction and demolition waste	tonnes		
	Other non-hazardous waste	tonnes		
	Other (Contractor to specify)	tonnes		
Quantity of waste disposed to landfill	Hazardous waste	tonnes		
	Construction and demolition waste	tonnes		
	Other non-hazardous waste	tonnes		
	Other (Contractor to specify)	tonnes		
Quantity of spoil generated	Total	tonnes		
	Disposed to landfill	tonnes		
	Beneficially reused	tonnes		
	Percentage beneficially reused	%		
Greenhouse gas emissions	Scope 1	tCO2-e		
	Scope 2	tCO2-e		
	Scope 3	tCO2-e		
Quantities of materials used	Steel	tonnes		
	Concrete	tonnes		
Portland cement	Percentage replaced by supplementary cementitious materials	Percentage averaged across mixes		
Quantity of water consumed	Quantity of mains (potable) water consumed	kL		
	Quantity of water consumed from other sources	kL		
	Total water consumed	kL		

Central Station Main Works Project
Construction Environmental Management Plan

Appendix I – K51 Water Discharge and Reuse Approval Form

(consistent with Sydney Metro M ES-PW-309 Water Discharge and Reuse Approval Procedure)

K51 - Water Discharge or Reuse Approval Form

Form Reference	F1.91712
Owned By	Lucas Dobrolot (LORA Rail South)
Date	20/09/2019 09:39:52
Status	Opened
Project Name	K51 - Central Station Main Works
Project Reference	K51
Location	K51 - Central Station Main Works

Form Location	K51 - Central Station Main

Details

Project	
Project No.	
Date:	

Location, Quantity of water and proposed action

#	Check Item	Result
1	Location of water to be removed:	
2	Reference No:	
3	Proposed Discharge/resuse: (Discharge to waters / Discharge to land / Reuse on site)	
4	Quantity (L)	
5	Details of discharge/reuse: (method, location, controls etc)	
	Approval request by:	

Test Method

#	Check Item	Result	If NO state why:
1	Probe/meter : Equipment calibration prior to test:		
2	Grab sample: Test record/Laboratory report no:		
3	Equipment calibration prior to test:		
	Test record / Laboratory report No:		

Test results

#	Location (Specific descriptor)	Date	Time	Is this a retest?	Oil & grease Visible (Y/N)	PH 6.5-8.5 Reading	TSS/Turbidity <50mg/L/ ____NTU1 Reading	Option 2 A,B,C,D,E	Notes, actions or treatment required
	Test performed/sample collected by:								

1. Criteria for turbidity must be determined from site specific correlation between TSS and turbidity- ref to SM ES-PW-309 Water Discharge and Reuse Procedure for details.
2. Select one: A= Remove to licensed facility B= Reuse on site C= Discharge to land D= Discharge to waters E= Treat and re-test

Option A: Remove to licensed facility

#	Check Item	Result
1	Water to be collected and removed from site by:	
2	Water to be transported to (name & location of the licensed facility):	

Option B: Re-use on site (including into holding pits/tanks,dust suppression)

#	Check Item	Result:	If it is NO, consider a different option
1	Re-use will be applied to an area that is effectively secured with appropriate downstream sediment controls and will not generate off-site run off:		

Option C: Discharge to land

#	Check Item	Result:	If it is NO, consider a different option.
1	Discharge location has complete ground cover, such that erosion will not occur, and sufficient infiltration capacity to receive quantity of water. (If YES, proceed to next question.)		
2	Will discharge generate any runoff or create the potential for runoff to reach any watercourse (on or offsite)?		

Option D: Discharge to waters

#	Check Item	Result:	If it is NO, consider a different option.
1	From visual inspection the quality of the water to be discharged is equally good or better than the quality of the receiving water?		
2	Flow from outlet can be directed onto a non-erodible surface and will not cause scouring or erosion:		
3	Could the water come into contact with any exposed soil or potential contaminants before it reaches the water course or discharge point?		

Appendix J – 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.

Sydney Metro – Integrated Management System (IMS)

(Uncontrolled when printed)

sydney METRO

Sydney Metro City & Southwest Sustainability Objectives

Theme	Objective
Governance	Demonstrate a high level of performance against objectives and appropriate benchmarks.
	Demonstrate leadership by embedding sustainability objectives into decision making.
	Be accountable and report publicly on performance
Carbon & Energy Management	Improve the shift toward lower carbon transport.
	Reduce energy use and carbon emissions during construction
	Reduce energy use and carbon emissions during operations
	Support innovative and cost effective approaches to energy efficiency, low-carbon / renewable energy sources and energy procurement.
Pollution Control	Reduce sources of pollution and optimise control at source to avoid environmental harm
Climate change resilience	Infrastructure and operations will be resilient to the impacts of climate change
Resources – Water Efficiency	Minimise use of potable water.
	Maximise opportunities for reuse of rainwater, stormwater, wastewater and groundwater.
Resources – Waste & Materials	Minimise waste through the project lifecycle.
	Reduce materials consumption.
	Consider embodied impacts in materials selection
	Maximise beneficial reuse of spoil
Biodiversity Conservation	Protect and create biodiversity through appropriate planning, management and financial controls
Heritage Conservation	Protect and promote heritage through appropriate design, planning, and management controls.
Liveability	Promote improved public transport patronage by maximising connectivity and interchange capabilities.
	Provide well designed stations and precincts that are comfortable, accessible, safe and attractive.
Community Benefit	Make a positive contribution to community health and well-being.
	Ensure community and local stakeholder engagement and involvement in the development of the project.
	Contribute to the delivery of legacy projects to benefit local communities.
	Create opportunities for local business involvement during the delivery and operations phases.
	Consider community benefit of residual land development.
	Minimise negative impacts on the community and local businesses during construction and operation.
Supply Chain	Influence contractors, subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement.
Workforce development	Increase opportunities for employment of local people, participation of local businesses, and participation of SME's.

Theme	Objective
	Enable targeted and transferable skills development which resolves local and national skills shortages, supports industry to compete in home and global markets, and embeds a health and safety culture within all induction and training activities, promoting continuous improvement.
	Increased workforce diversity and inclusion, targeting indigenous workers and businesses, female representation in non-traditional trades, and long term unemployed.
	Inspire future talent and develop capacity in the sector, engaging young people via education and work experience, collaborating with higher education institutions to provide programs responding to rapid transit and other infrastructure requirement, and supporting vocational career development through apprenticeships and traineeships.
Economic	Consider adopting a Whole of Life Costing model to maximise sustainability benefits.
	Optimise development opportunities for residual land.
	Capture sustainability benefits in the business case for the project.

Appendix K – Stakeholder Consultation Details

Stakeholder consultation details accompany the relevant sub plans.

Central Station Main Works Project
Construction Environmental Management Plan

Appendix L – Environmental Control Map

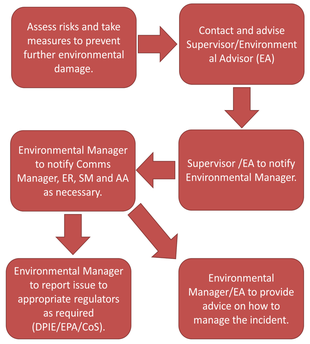
Central Station Main Works - Environmental Control Plan (Central Walk)

LAING O'ROURKE

Construction Activity/Areas

- Excavation and FRP of Grand Concourse
- North-south concourse
- ESR and Ghost Platform
- Eastern Entrance – breakthrough and construction of Devonshire St tunnel
- Suburban platform modifications

Incident and Complaints Procedure



Don't discharge water without Environmental Manager's approval!!

Delivery and Storage of Chemicals

- Ensure Safety Data Sheets (SDS) are available on site for all fuels, oils, chemicals and dangerous goods.
- The SDS and material risk assessment including any specific control measures are to be submitted where required to the Safety Manager for every substance to be brought on to site.
- Chemicals, fuels and oils must be stored in a securely bunded area with appropriate signage.
- Chemicals fuels, oils and chemicals to be stored inside impervious bunds to contain 110% of the stored volume. Bunded areas must be located undercover to prevent ingress of rain.
- Drivers must be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water must be removed by an appropriately licensed contractor.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines (inside Waste Disposal Bags and into the general waste skip).
- Spill kits must be located on site.

Sustainability And Climate Change Requirements

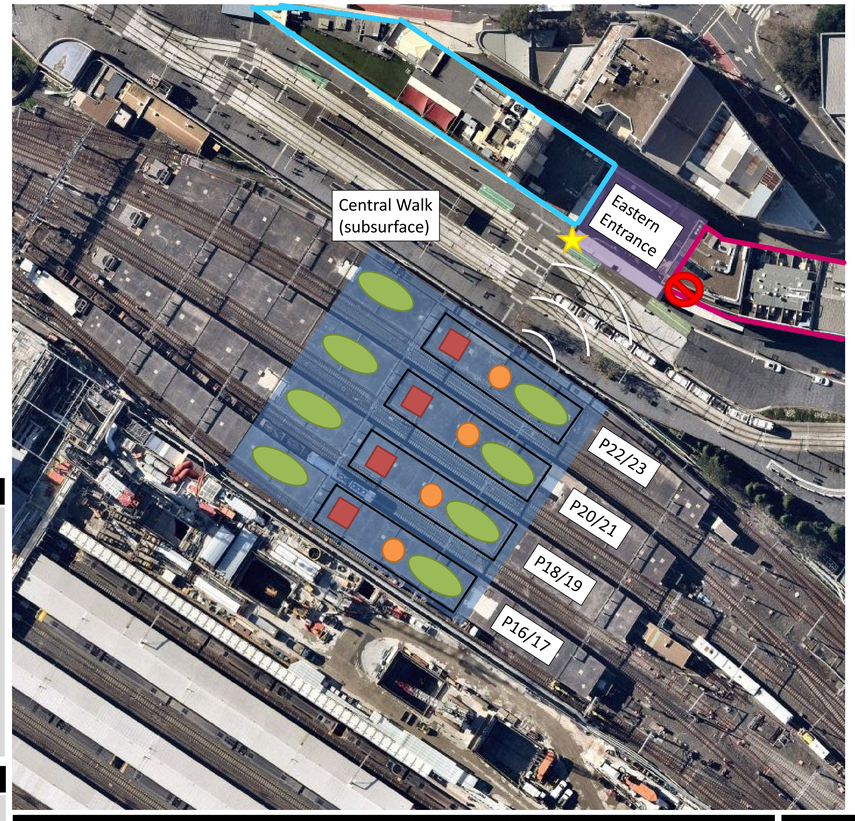
- A target of 5% bio diesel mix is set for all diesel-powered plant and equipment and a target of 10% blended ethanol mix for all petrol-powered plant and equipment.
- The works are to utilise low Volatile Organic Compounds paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products.
- Concrete used in the construction of the Works and the Temporary Works must be supplied by members of the Cement Concrete and Aggregate Association of Australia (CCAA) or a similar international association or organisation.
- Steel used in the construction of the Works and the Temporary Works must be supplied by suppliers that are certified under the Australian Certification Authority for Reinforcing Steels (ACRS) or a similar international association or organisation.
- Fabricated steel products are specified in accordance with AS 5131 Fabrication & Erection of Steelwork and certified through the National Structural Steelwork Compliance Scheme.
- PVC used in the construction of the Works and Temporary Works is supplied by suppliers that meet the "Best Practice Guidelines for PVC in the Built Environment"
- Timber products used in the Works and Temporary Works are from either re-used timber, post-consumer recycled timber or from Forest Stewardship Council Australia, certified timber suppliers.
- Use EPA resource recovery exceptions to avoid waste to landfill and ensure 100% of spoil is diverted from landfill.
- Repurpose heritage bricks to reduce waste material generated.

Contact Information	
Environmental Manager – Lucas Dobrolot	0422 417 385
Construction Director – Greg Cook	0409 780 896
Independent Environmental Representative – Michael Woolley	0409 492 197
TfNSW Construction Response Line	1800 775 465
TfNSW Info Line	1800 684 490
EPA Environmental Line / Pollution Incident Response Line	131 555
Emergency	000 or 112

ER Endorsement:

Date:

Revision B



Symbol	Legend
	Central Walk area (subsurface)
	Eastern Entrance
	New escalators
	New lifts
	Guards rooms
	Hoarding (changes based on scope)
	Chalmers St Noise Logger
	Residential buildings
	Sydney Dental Hospital
	Sensitive Receiver
	Noise direction towards sensitive receiver

Hazardous/Contaminated Material

- The Unexpected Finds Protocol must be employed in the instance that any foreign material is uncovered. This may include material that exhibits an odd texture, emits a foul odour, or exhibits a strange colour. If discovered;
  - Immediately cease work and contact the Site Supervisor,
  - Demarcate the 'unexpected find' to prevent access and install appropriate environmental and safety controls,
  - Project Leader to contact the client representative,
  - Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground,
  - Capture and manage any surface runoff contaminated by exposure to contaminated ground.

Waste

- Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.
- Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines.
- Licensed waste contractors will be utilised to remove waste.
- Retain waste disposal permits and figures on the amount of waste that has been removed from site.

Plant Item	Rating/Description	Safe Working Distance – metres (m)	
		Cosmetic Damage (BS 7385)	Human Comfort (the NSW Vibration Guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	n/a
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure

Trade Waste

- Personal effluent disposal into STA bus sewer
- Washout not permitted onsite. Brushes and empty paint tins are to be dried and disposed in the general waste skip.
- Trade waste and other prohibited substances will not be discharged into stormwater drains or sewerage system without approval from the Environmental Manager.

Archaeology and Heritage

- For detailed control measures, please refer to the Construction Heritage Management Plan.
- Undertake archaeological testing within portions of the Metro Station Box where natural sand has been identified by geotechnical investigations.
- Avoid impacts to non-Aboriginal items outside of the construction boundary.
- Should suspected heritage or archaeological items including human remains be found, begin the Unexpected Finds Protocol:
  1. Work is to cease in the area immediately
  2. Notify Sydney Metro
  3. The object is to be left in place
  4. Engage heritage specialist to determine significance of the find
  5. Do not recommence works until heritage specialist has given approval to do so.

Dust and Air Quality

- Ensure surface excavation footprints are minimised to limit potential dust creation from exposed areas.
- Waste or any other material must not be burnt on construction sites.
- Temporary soil stockpiles during site establishment are to be maintained, e.g. hosed down or covered.
- Stockpiling for prolonged periods of time should be avoided
- Demolition and excavation must be managed to minimise dust generation e.g. water dust suppression.
- The engines of all on-site vehicles and plant should be switched off when not in use for an extended period.
- Plant must be well maintained and serviced to minimise emissions.
- All vehicles carrying loose or potentially dusty material to or from the site must be fully covered.
- Spray exposed work areas to suppress dust using water carts.
- Remove dirt from haul vehicles prior to entering public roads.
- Remove any spit dirt by construction equipment or vehicles on public roads immediately.
- Reprogram dust generating work during periods of high wind or when fugitive dust emissions cannot be controlled.

Water Quality Management

- Before undertaking any construction work (including any earthmoving or vegetation removal works), implement all soil and water management works. See Soil and Water Management and Erosion and Sediment Control Plans.
- Enviro pods are to be installed and maintained across all drains on site.
- Water discharge must be approved by the Environmental Manager. Discharge quality must comply with:
  - TSS: ≤ 50mg/L.
  - pH: Between 6.5 and 8.5.
  - No oil or grease
- Erosion and Sediment Control devices are to be maintained when their capacity has been reduced to 25%.
- Maintain existing drainage infrastructure wherever possible.
- Undertake progressive rehabilitation and/or stabilisation of completed areas to minimise erosion hazard.
- Construction plant, vehicles and equipment will be refueled off site or in designated refueling areas away from drainage lines or waterways where possible.
- Hazardous substances that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds.
- Conduct regular inspections and maintenance of all erosion and sediment controls to ensure they are effective.

Noise and Vibration

- Construction activities will be restricted to the hours of Monday to Friday 7:00 am to 6:00pm; Saturday 8:00am to 1:00pm and at no time on Sundays and public holidays.
- The following activities may be undertaken 24/7 subject to out of hours work approval:
  - Tunneling and associated support activities (excluding cut and cover tunneling)
  - Excavation within an acoustic enclosure
  - Excavation at Central Walk without an acoustic enclosure (excluding Central Walk works at Eastern Entrance)
  - Station and tunnel fit out
  - Haulage and delivery of spoil and material
- No work will be undertaken outside the agreed hours without prior approval. See the Environmental Manager.
- Delivery operations must be undertaken during construction hours, unless specifically required by Police or RMS requirements.
- Where practical, avoid the use of multiple noisy plant close together or adjacent to sensitive receivers.
- High efficiency mufflers must be fitted to all plant and equipment.
- All plant must be maintained in accordance with the manufacturer's requirements.
- Noise generating equipment must be oriented away from sensitive areas with tonal alarms turned off.
- The safe working distances are defined for both cosmetic damage (BS 7385) and human comfort (the NSW Vibration Guideline). See the Environmental Manager if you need to work within these distances.

Central Station Main Works - Environmental Control Plan
Eastern Entrance

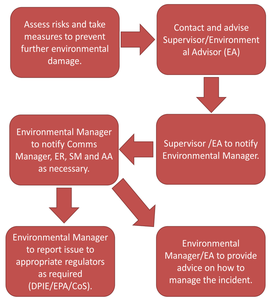
LAING O'ROURKE

Construction Activities

- Demolition of the Bounce Hotel
- Perimeter piling for the new Eastern Entrance
- Short term closure of Randle Lane to permit piling activities include capping beam construction.
- Excavation of the Eastern Entrance and load out of spoil from Randle Lane
- Canopy tube installation
- Station construction and fit out

Contact Information	
Environmental Manager – Lucas Dobrolot	0422 417 385
Construction Director – Greg Cook	0409 780 896
Independent Environmental Representative – Michael Woolley	0409 492 197
TfNSW Construction Response Line	1800 775 465
TfNSW Info Line	1800 684 490
EPA Environmental Line / Pollution Incident Response Line	131 555
Emergency	000 or 112

Incident and Complaints Procedure



Don't discharge water without Environmental Manager's approval unless it is going to the Water Treatment Plant

Archaeology and Heritage

- All Archaeology at the Eastern Entrance (EE) has been salvaged to date.
- Should suspected heritage or archaeological items be found, begin the Unexpected Finds Protocol:
  1. Work is to cease in the area immediately
  2. Notify Sydney Metro
  3. The object is to be left in place
  4. Engage heritage specialist to determine significance of the find
  5. Do not recommence works until heritage specialist has given approval to do so.

Biodiversity

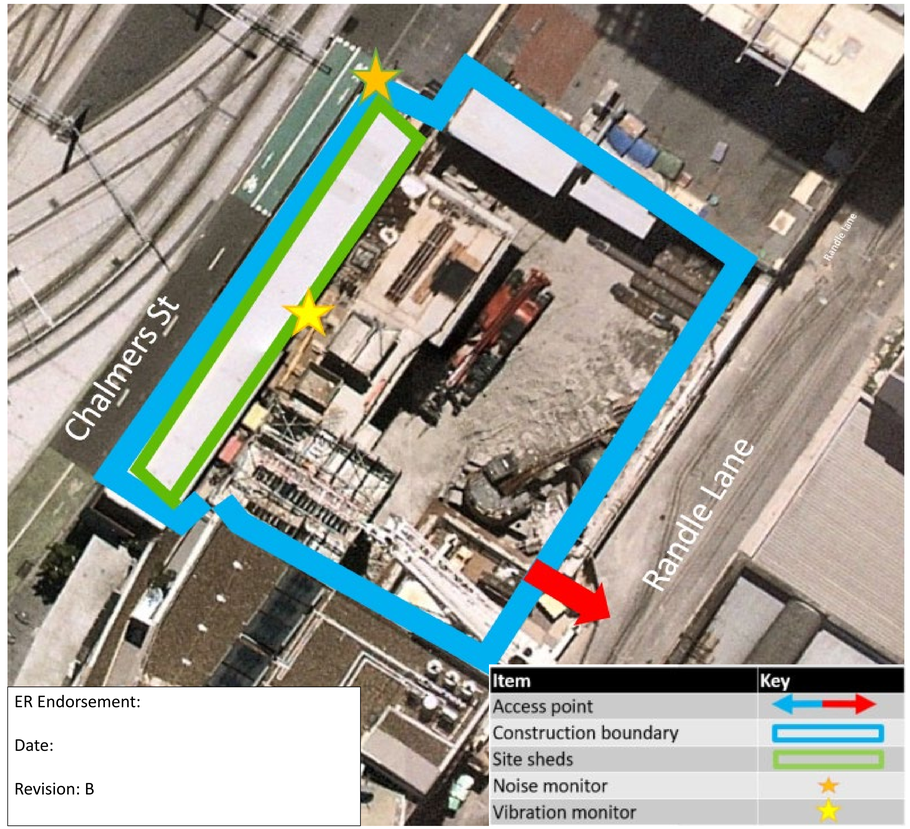
- The EE Construction site has no biodiversity value.
- If any fauna is encountered – stop works and engage the Environmental Team who may contact a Fauna Handler.

Traffic Management

- Traffic may be temporarily held for a maximum of 15 minutes on Randle Lane while loading occurs.
- There will be no construction parking in non-approved zones or parking areas.
- Ensure pedestrian access ways are clearly defined.
- Haulage routes used must align to those approved in the CTMP.
- During slit trenching: Traffic control to direct bike riders to dismount and walk around area of excavation.

Waste

- Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.
- Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines.
- Licensed waste contractors will be utilised to remove waste.
- Retain waste disposal permits and figures on the amount of waste that has been removed from site.



ER Endorsement:

Date:

Revision: B

Plant Item	Rating/Description	Safe Working Distance – metres (m) Cosmetic Damage (BS 7385)	Human Comfort (the NSW Vibration Guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	n/a
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure

Noise and Vibration

- Construction activities will be restricted to the hours of Monday to Friday 7:00 am to 6:00pm; Saturday 8:00am to 1:00pm and at no time on Sundays and public holidays.

*Due to COVID-19 – Government Gazette Notice No. 75– there may be extended construction hours with the **exception of high noise impact activities**.*

- High Noise Activities such as rock breaking, rock hammering, jack hammering and saw cutting shall be scheduled between:
  - 8.00 am to 6pm Monday to Friday;
  - 8.00 am and 1.00 pm Saturdays

High noise impact activities should not occur for more than 3 hours continuously. Ensure 3-hour blocks of work are separated by a minimum of 1 hour respite.

- Delivery operations must be undertaken during construction hours, unless specifically required by Police or RMS requirements.
- Where practical, avoid the use of multiple noisy plant close together or adjacent to sensitive receivers.
- High efficiency mufflers must be fitted to all plant and equipment.
- All plant must be maintained in accordance with the manufacturer's requirements.
- Noise generating equipment must be oriented away from sensitive areas with tonal alarms turned off.
- The safe working distances are defined for both cosmetic damage (BS 7385) and human comfort (the NSW Vibration Guideline). See the Environmental Manager if you need to work within these distances.
- 24Hr Noise and Vibration monitoring loggers to be installed on site to monitor impacts of construction activities to sensitive receivers.

Water Management

- The Eastern Entrance site is an open excavation–causing all site water to collect within the site boundary.
- Collected site water will be captured in IBCs for treatment at the Water Treatment Plant at the Sydney Yard (CSM main site).
- Water discharge must be approved by the Environmental Manager. Discharge quality must comply with:
  - TSS: ≤ 50mg/L.
  - pH: Between 6.5 and 8.5.
  - No oil or grease
- Site has been designed to prevent the ingress of clean water from the surrounding hardstand into the construction site in accordance with erosion and sediment control measures detailed in the CSWMP.
- Construction plant, vehicles and equipment will be refueled off site or in designated refueling areas away from drainage lines or waterways where possible.
- Drains in Randle lane will be protected by sandbag bunds and regularly maintained.
- During slit trenching: sandbags to be placed around drains in Chalmers street. Clean water is to be diverted away from excavation area and the work site covered at the end of each shift.
- During slit trenching/saw cutting: wet vac or sandbags to be used to contain any slurry and to prevent run off.

Hazardous/Contaminated Material

- Waste Classification Analysis has indicated that the area of excavation has low potential for contamination. However, the Unexpected Finds Protocol must be employed in the instance that any foreign material is uncovered. This may include material that exhibits an odd texture, emits a foul odour, or exhibits a strange colour. If discovered;
  - Immediately cease work and contact the Site Supervisor,
  - Demarcate the 'unexpected find' to prevent access and install appropriate environmental and safety controls,
  - Project Leader to contact the client representative,
  - Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground,
  - Capture and manage any surface runoff contaminated by exposure to contaminated ground.

Dust and Air Quality

- Plant must be well maintained and serviced to minimise emissions.
- All vehicles carrying loose or potentially dusty material to or from the site must be fully covered.
- Stockpiling for prolonged periods of time should be avoided.
- Any stockpiles must be managed appropriately (covering/wetting down)
- Excavation must be managed to minimise dust generation.
- Spray exposed work areas to suppress dust.
- All construction vehicles exiting site must be inspected so as not to track material onto Randle Lane.
- Reprogram dust generating work during periods of high wind.
- The engines of all on-site vehicles and plant should be switched off when not in use for an extended period.
- During slit trenching: water to be used throughout saw cutting of hardstand. Slurry to be contained using wet vac or sandbags.

Sustainability And Climate Change Requirements

- A target of 5% bio diesel mix is set for all diesel-powered plant and equipment and a target of 10% blended ethanol mix for all petrol-powered plant and equipment.
- The works are to utilise low Volatile Organic Compounds paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products.
- Concrete used in the construction of the Works and the Temporary Works must be supplied by members of the Cement Concrete and Aggregate Association of Australia (CCAA) or a similar international association or organisation.
- Steel used in the construction of the Works and the Temporary Works must be supplied by suppliers that are certified under the Australian Certification Authority for Reinforcing Steels (ACRS) or a similar international association or organisation.
- Fabricated steel products are specified in accordance with AS 5131 Fabrication & Erection of Steelwork and certified through the National Structural Steelwork Compliance Scheme.
- PVC used in the construction of the Works and Temporary Works is supplied by suppliers that meet the "Best Practice Guidelines for PVC in the Built Environment"
- Timber products used in the Works and Temporary Works are from either re-used timber, post-consumer recycled timber or from Forest Stewardship Council Australia, certified timber suppliers.

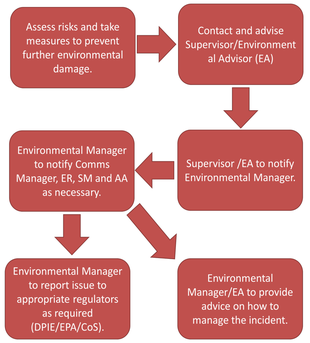
Delivery and Storage of Chemicals

- Ensure Safety Data Sheets (SDS) are available on site for all fuels, oils, chemicals and dangerous goods.
- The SDS and material risk assessment including any specific control measures are to be submitted where required to the Safety Manager for every substance to be brought on to site.
- Chemicals, fuels and oils must be stored in a securely bunded area with appropriate signage.
- Chemicals fuels, oils and chemicals to be stored inside impervious bunds to contain 110% of the stored volume. Bunded areas must be located undercover to prevent ingress of rain.
- Drivers must be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water must be removed by an appropriately licensed contractor.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines (inside Waste Disposal Bags and into the general waste skip).
- Spill kits must be located on site.

Central Station Main Works - Environmental Control Plan (Sydney Yard)

Contact Information	
Environmental Manager – Lucas Dobrolot	0422 417 385
Construction Director – Greg Cook	0409 780 896
Independent Environmental Representative – Michael Woolley	0409 492 197
TfNSW Construction Response Line	1800 775 465
TfNSW Info Line	1800 684 490
EPA Environmental Line / Pollution Incident Response Line	131 555
Emergency	000 or 112

Incident and Complaints Procedure



Don't discharge water without Environmental Manager's approval!!

Noise and Vibration

- Construction activities will be restricted to the hours of Monday to Friday 7:00 am to 6:00pm; Saturday 8:00am to 1:00pm and at no time on Sundays and public holidays.
- The YHA is a sensitive receiver on Platform 0.
- The following activities may be undertaken 24/7 subject to out of hours work approval:
  - Tunneling and associated support activities (excluding cut and cover tunneling)
  - Excavation within an acoustic enclosure
  - Excavation at Central Walk without an acoustic enclosure (excluding Central Walk works at Eastern Entrance)
  - Station and tunnel fit out
  - Haulage and delivery of spoil and material
- No work will be undertaken outside the agreed hours without prior approval. See the Environmental Manager.
- Delivery operations must be undertaken during construction hours, unless specifically required by Police or RMS requirements.
- Where practical, avoid the use of multiple noisy plant close together or adjacent to sensitive receivers.
- High efficiency mufflers must be fitted to all plant and equipment.
- All plant must be maintained in accordance with the manufacturer's requirements.
- Noise generating equipment must be oriented away from sensitive areas with tonal alarms turned off.
- The safe working distances are defined for both cosmetic damage (BS 7385) and human comfort (the NSW Vibration Guideline). See the Environmental Manager if you need to work within these distances.

Hazardous/Contaminated Material

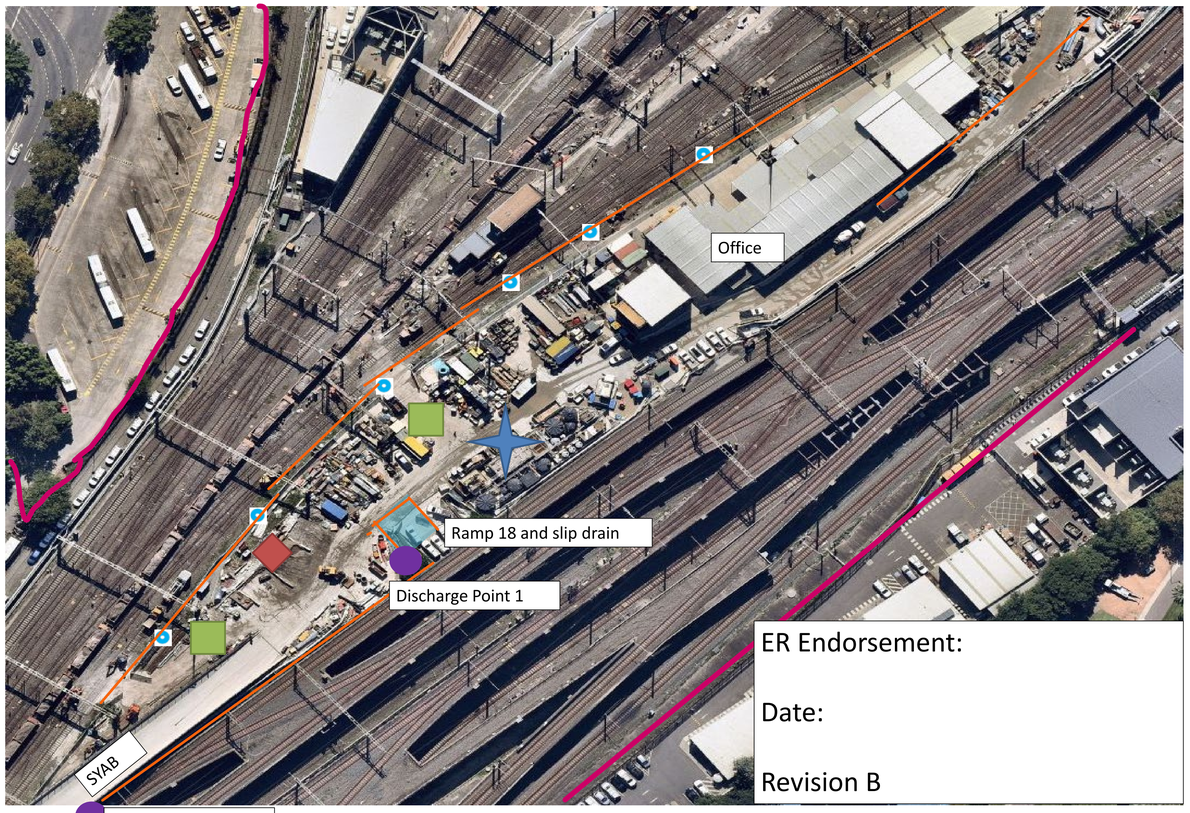
- The Unexpected Finds Protocol must be employed in the instance that any foreign material is uncovered. This may include material that exhibits an odd texture, emits a foul odour, or exhibits a strange colour. If discovered;
  - Immediately cease work and contact the Site Supervisor,
  - Demarcate the 'unexpected find' to prevent access and install appropriate environmental and safety controls,
  - Project Leader to contact the client representative,
  - Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground,
  - Capture and manage any surface runoff contaminated by exposure to contaminated ground.

Waste

- Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.
- Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines.
- Licensed waste contractors will be utilised to remove waste.
- Retain waste disposal permits and figures on the amount of waste that has been removed from site.

Traffic Management

- Refer to the CSMW Construction Traffic Management Plan, detailing the route to the site, signage, and traffic control measures.
- There will be no queuing due to construction related traffic on any roads adjacent to the site.
- There will be no construction parking in non-approved zones or parking areas.
- Ensure pedestrian access ways are clearly defined and maintained.



Plant Item	Rating/Description	Safe Working Distance – metres (m)	
		Cosmetic Damage (BS 7385)	Human Comfort (the NSW Vibration Guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	n/a
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure

Delivery and Storage of Chemicals

- Ensure Safety Data Sheets (SDS) are available on site for all fuels, oils, chemicals and dangerous goods.
- The SDS and material risk assessment including any specific control measures are to be submitted where required to the Safety Manager for every substance to be brought on to site.
- Chemicals, fuels and oils must be stored in a securely bunded area with appropriate signage.
- Chemicals fuels, oils and chemicals to be stored inside impervious bunds to contain 110% of the stored volume. Bunded areas must be located undercover to prevent ingress of rain.
- Drivers must be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water must be removed by an appropriately licensed contractor.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines (inside Waste Disposal Bags and into the general waste skip).
- Spill kits must be located on site.

Trade Waste

- Personal effluent disposal into STA bus sewer
- Washout not permitted onsite. Brushes and empty paint tins are to be dried and disposed in the general waste skip.
- Trade waste and other prohibited substances will not be discharged into stormwater drains or sewerage system without approval from the Environmental Manager.

Symbol	Legend
	Water Treatment Plant
	Stockpile area
	Drains (not live)
	Discharge points
	Spill kits (subject to change)
	Fence
	Project boundary

Biodiversity

- Vegetation in Sydney Yard adjacent to Track 16 is to be removed in accordance with Section 6 of the Biodiversity Management Plan and offset. No other vegetation is to be trimmed or removed.
- No access to the Mortuary Station gardens is permitted.
- The local WIRES group/veterinarian would be contacted if any fauna are injured on site or require capture/relocation
- Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds.

Dust and Air Quality

- Ensure surface excavation footprints are minimised to limit potential dust creation from exposed areas.
- Waste or any other material must not be burnt on construction sites.
- Temporary soil stockpiles during site establishment are to be maintained, e.g. hosed down or covered.
- Stockpiling for prolonged periods of time should be avoided
- Demolition and excavation must be managed to minimise dust generation e.g. water dust suppression.
- The engines of all on-site vehicles and plant should be switched off when not in use for an extended period.
- Plant must be well maintained and serviced to minimise emissions.
- All vehicles carrying loose or potentially dusty material to or from the site must be fully covered.
- Spray exposed work areas to suppress dust using water carts.
- Remove dirt from haul vehicles prior to entering public roads.
- Remove any spit dirt by construction equipment or vehicles on public roads immediately.
- Reprogram dust generating work during periods of high wind or when fugitive dust emissions cannot be controlled.

Water Quality Management

- Before undertaking any construction work (including any earthmoving or vegetation removal works), implement all soil and water management works. See Soil and Water Management and Erosion and Sediment Control Plans.
- Enviro pods are to be installed and maintained across all drains on site.
- Water discharge must be approved by the Environmental Manager. Discharge quality must comply with:
  - TSS: ≤ 50mg/L.
  - pH: Between 6.5 and 8.5.
  - No oil or grease
- Erosion and Sediment Control devices are to be maintained when their capacity has been reduced to 25%.
- Maintain existing drainage infrastructure wherever possible.
- Undertake progressive rehabilitation and/or stabilisation of completed areas to minimise erosion hazard.
- Construction plant, vehicles and equipment will be refueled off site or in designated refueling areas away from drainage lines or waterways where possible.
- Hazardous substances that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds.
- Conduct regular inspections and maintenance of all erosion and sediment controls to ensure they are effective.

Sustainability And Climate Change Requirements

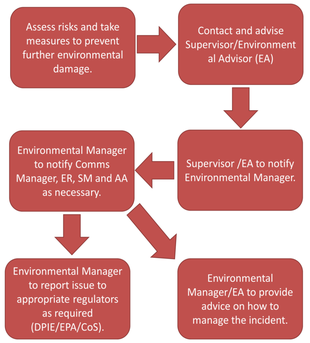
- A target of 5% bio diesel mix is set for all diesel-powered plant and equipment and a target of 10% blended ethanol mix for all petrol-powered plant and equipment.
- The works are to utilise low Volatile Organic Compounds paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products.
- Concrete used in the construction of the Works and the Temporary Works must be supplied by members of the Cement Concrete and Aggregate Association of Australia (CCAA) or a similar international association or organisation.
- Steel used in the construction of the Works and the Temporary Works must be supplied by suppliers that are certified under the Australian Certification Authority for Reinforcing Steels (ACRS) or a similar international association or organisation.
- Fabricated steel products are specified in accordance with AS 5131 Fabrication & Erection of Steelwork and certified through the National Structural Steelwork Compliance Scheme.
- PVC used in the construction of the Works and Temporary Works is supplied by suppliers that meet the "Best Practice Guidelines for PVC in the Built Environment"
- Timber products used in the Works and Temporary Works are from either re-used timber, post-consumer recycled timber or from Forest Stewardship Council Australia, certified timber suppliers.
- Use EPA resource recovery exceptions to avoid waste to landfill and ensure 100% of spoil is diverted from landfill.
- Repurpose heritage bricks to reduce waste material generated.

Central Station Main Works - Environmental Control Plan (Metro Box)

LAING O'ROURKE

Contact Information	
Environmental Manager – Lucas Dobrolot	0422 417 385
Construction Director – Greg Cook	0409 780 896
Independent Environmental Representative – Michael Woolley	0409 492 197
TfNSW Construction Response Line	1800 775 465
TfNSW Info Line	1800 684 490
EPA Environmental Line / Pollution Incident Response Line	131 555
Emergency	000 or 112

Incident and Complaints Procedure



Don't discharge water without Environmental Manager's approval!!

Noise and Vibration

- Construction activities will be restricted to the hours of Monday to Friday 7:00 am to 6:00pm; Saturday 8:00am to 1:00pm and at no time on Sundays and public holidays.
- The YHA is a sensitive receiver on Platform 0.
- The following activities may be undertaken 24/7 subject to out of hours work approval:
  - Tunneling and associated support activities (excluding cut and cover tunneling)
  - Excavation within an acoustic enclosure
  - Excavation at Central Walk without an acoustic enclosure (excluding Central Walk works at Eastern Entrance)
  - Station and tunnel fit out
  - Haulage and delivery of spoil and material
- No work will be undertaken outside the agreed hours without prior approval. See the Environmental Manager.
- Delivery operations must be undertaken during construction hours, unless specifically required by Police or RMS requirements.
- Where practical, avoid the use of multiple noisy plant close together or adjacent to sensitive receivers.
- High efficiency mufflers must be fitted to all plant and equipment.
- All plant must be maintained in accordance with the manufacturer's requirements.
- Noise generating equipment must be oriented away from sensitive areas with tonal alarms turned off.
- The safe working distances are defined for both cosmetic damage (BS 7385) and human comfort (the NSW Vibration Guideline). See the Environmental Manager if you need to work within these distances.

Hazardous/Contaminated Material

- The Unexpected Finds Protocol must be employed in the instance that any foreign material is uncovered. This may include material that exhibits an odd texture, emits a foul odour, or exhibits a strange colour. If discovered;
  - Immediately cease work and contact the Site Supervisor,
  - Demarcate the 'unexpected find' to prevent access and install appropriate environmental and safety controls,
  - Project Leader to contact the client representative,
  - Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground,
  - Capture and manage any surface runoff contaminated by exposure to contaminated ground.

Waste

- Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.
- Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines.
- Licensed waste contractors will be utilised to remove waste.
- Retain waste disposal permits and figures on the amount of waste that has been removed from site.

Traffic Management

- Refer to the CSMW Construction Traffic Management Plan, detailing the route to the site, signage, and traffic control measures.
- There will be no queuing due to construction related traffic on any roads adjacent to the site.
- There will be no construction parking in non-approved zones or parking areas.
- Ensure pedestrian access ways are clearly defined and maintained.

Plant Item	Rating/Description	Safe Working Distance – metres (m) Cosmetic Damage (BS 7385)	Human Comfort (the NSW Vibration Guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	n/a
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure

Symbol	Legend
	Mole holes 1-5
	Temporary stockpile area
	Air extraction unit
	Fish tank
	Spill kits (subject to change)

ER Endorsement:

Date:

Revision B

Delivery and Storage of Chemicals

- Ensure Safety Data Sheets (SDS) are available on site for all fuels, oils, chemicals and dangerous goods.
- The SDS and material risk assessment including any specific control measures are to be submitted where required to the Safety Manager for every substance to be brought on to site.
- Chemicals, fuels and oils must be stored in a securely bunded area with appropriate signage.
- Chemicals fuels, oils and chemicals to be stored inside impervious bunds to contain 110% of the stored volume. Bunded areas must be located undercover to prevent ingress of rain.
- Drivers must be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water must be removed by an appropriately licensed contractor.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines (inside Waste Disposal Bags and into the general waste skip).
- Spill kits must be located on site.

Trade Waste

- Personal effluent disposal into STA bus sewer
- Washout not permitted onsite. Brushes and empty paint tins are to be dried and disposed in the general waste skip.
- Trade waste and other prohibited substances will not be discharged into stormwater drains or sewerage system without approval from the Environmental Manager.

Archaeology and Heritage

- For detailed control measures, please refer to the Construction Heritage Management Plan.
- Undertake archaeological testing within portions of the Metro Station Box where natural sand has been identified by geotechnical investigations.
- Avoid impacts to non-Aboriginal items outside of the construction boundary.
- Should suspected heritage or archaeological items including human remains be found, begin the Unexpected Finds Protocol:
  1. Work is to cease in the area immediately
  2. Notify Sydney Metro
  3. The object is to be left in place
  4. Engage heritage specialist to determine significance of the find
  5. Do not recommence works until heritage specialist has given approval to do so.

Biodiversity

- Vegetation in Sydney Yard adjacent to Track 16 is to be removed in accordance with Section 6 of the Biodiversity Management Plan and offset. No other vegetation is to be trimmed or removed.
- No access to the Mortuary Station gardens is permitted.
- The local WIRES group/veterinarian would be contacted if any fauna are injured on site or require capture/relocation
- Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds.

Dust and Air Quality

- Ensure surface excavation footprints are minimised to limit potential dust creation from exposed areas.
- Waste or any other material must not be burnt on construction sites.
- Temporary soil stockpiles during site establishment are to be maintained, e.g. hosed down or covered.
- Stockpiling for prolonged periods of time should be avoided
- Demolition and excavation must be managed to minimise dust generation e.g. water dust suppression.
- The engines of all on-site vehicles and plant should be switched off when not in use for an extended period.
- Plant must be well maintained and serviced to minimise emissions.
- All vehicles carrying loose or potentially dusty material to or from the site must be fully covered.
- Spray exposed work areas to suppress dust using water carts.
- Remove dirt from haul vehicles prior to entering public roads.
- Remove any spit dirt by construction equipment or vehicles on public roads immediately.
- Reprogram dust generating work during periods of high wind or when fugitive dust emissions cannot be controlled.

Water Quality Management

- Before undertaking any construction work (including any earthmoving or vegetation removal works), implement all soil and water management works. See Soil and Water Management and Erosion and Sediment Control Plans.
- Enviro pods are to be installed and maintained across all drains on site.
- Water discharge must be approved by the Environmental Manager. Discharge quality must comply with:
  - TSS: ≤ 50mg/L.
  - pH: Between 6.5 and 8.5.
  - No oil or grease
- Erosion and Sediment Control devices are to be maintained when their capacity has been reduced to 25%.
- Maintain existing drainage infrastructure wherever possible.
- Undertake progressive rehabilitation and/or stabilisation of completed areas to minimise erosion hazard.
- Construction plant, vehicles and equipment will be refueled off site or in designated refueling areas away from drainage lines or waterways where possible.
- Hazardous substances that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds.
- Conduct regular inspections and maintenance of all erosion and sediment controls to ensure they are effective.

Sustainability And Climate Change Requirements

- A target of 5% bio diesel mix is set for all diesel-powered plant and equipment and a target of 10% blended ethanol mix for all petrol-powered plant and equipment.
- The works are to utilise low Volatile Organic Compounds paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products.
- Concrete used in the construction of the Works and the Temporary Works must be supplied by members of the Cement Concrete and Aggregate Association of Australia (CCAA) or a similar international association or organisation.
- Steel used in the construction of the Works and the Temporary Works must be supplied by suppliers that are certified under the Australian Certification Authority for Reinforcing Steels (ACRS) or a similar international association or organisation.
- Fabricated steel products are specified in accordance with AS 5131 Fabrication & Erection of Steelwork and certified through the National Structural Steelwork Compliance Scheme.
- PVC used in the construction of the Works and Temporary Works is supplied by suppliers that meet the "Best Practice Guidelines for PVC in the Built Environment"
- Timber products used in the Works and Temporary Works are from either re-used timber, post-consumer recycled timber or from Forest Stewardship Council Australia, certified timber suppliers.
- Use EPA resource recovery exceptions to avoid waste to landfill and ensure 100% of spoil is diverted from landfill.
- Repurpose heritage bricks to reduce waste material generated.

Central Station Main Works - Environmental Control Plan
Eastern Entrance

LAING O'ROURKE

Construction Activities

- Demolition of the Bounce Hotel
- Perimeter piling for the new Eastern Entrance
- Short term closure of Randle Lane to permit piling activities include capping beam construction.
- Excavation of the Eastern Entrance and load out of spoil from Randle Lane
- Canopy tube installation
- Station construction and fit out

Contact Information	
Environmental Manager – Lucas Dobrolot	0422 417 385
Construction Director – Greg Cook	0409 780 896
Independent Environmental Representative – Michael Woolley	0409 492 197
TfNSW Construction Response Line	1800 775 465
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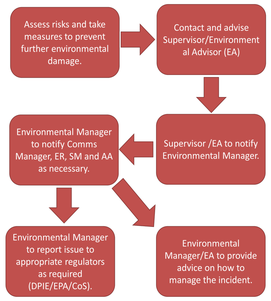


Don't discharge water without Environmental Manager's approval unless it is going to the Water Treatment Plant

Archaeology and Heritage

- All Archaeology at the Eastern Entrance (EE) has been salvaged to date.
- Should suspected heritage or archaeological items be found, begin the Unexpected Finds Protocol:
  1. Work is to cease in the area immediately
  2. Notify Sydney Metro
  3. The object is to be left in place
  4. Engage heritage specialist to determine significance of the find
  5. Do not recommence works until heritage specialist has given approval to do so.

Biodiversity

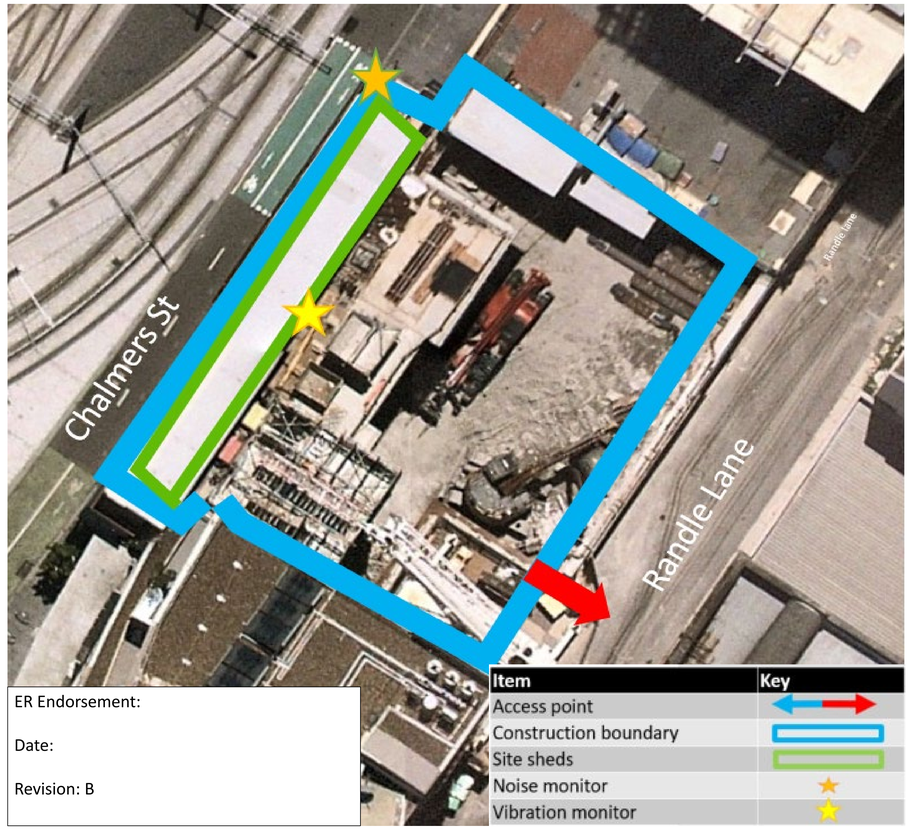
- The EE Construction site has no biodiversity value.
- If any fauna is encountered – stop works and engage the Environmental Team who may contact a Fauna Handler.

Traffic Management

- Traffic may be temporarily held for a maximum of 15 minutes on Randle Lane while loading occurs.
- There will be no construction parking in non-approved zones or parking areas.
- Ensure pedestrian access ways are clearly defined.
- Haulage routes used must align to those approved in the CTMP.
- During slit trenching: Traffic control to direct bike riders to dismount and walk around area of excavation.

Waste

- Use skip bins and ensure there are an adequate number of bins on site to hold all waste generated.
- Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines.
- Licensed waste contractors will be utilised to remove waste.
- Retain waste disposal permits and figures on the amount of waste that has been removed from site.



ER Endorsement:

Date:

Revision: B

Plant Item	Rating/Description	Safe Working Distance – metres (m) Cosmetic Damage (BS 7385)	Human Comfort (the NSW Vibration Guideline)
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Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	n/a
Jackhammer	Hand held	1 m (nominal)	Avoid contact with structure

Noise and Vibration

- Construction activities will be restricted to the hours of Monday to Friday 7:00 am to 6:00pm; Saturday 8:00am to 1:00pm and at no time on Sundays and public holidays.

*Due to COVID-19 – Government Gazette Notice No. 75– there may be extended construction hours with the **exception of high noise impact activities**.*

- High Noise Activities such as rock breaking, rock hammering, jack hammering and saw cutting shall be scheduled between:
  - 8.00 am to 6pm Monday to Friday;
  - 8.00 am and 1.00 pm Saturdays

High noise impact activities should not occur for more than 3 hours continuously. Ensure 3-hour blocks of work are separated by a minimum of 1 hour respite.

- Delivery operations must be undertaken during construction hours, unless specifically required by Police or RMS requirements.
- Where practical, avoid the use of multiple noisy plant close together or adjacent to sensitive receivers.
- High efficiency mufflers must be fitted to all plant and equipment.
- All plant must be maintained in accordance with the manufacturer's requirements.
- Noise generating equipment must be oriented away from sensitive areas with tonal alarms turned off.
- The safe working distances are defined for both cosmetic damage (BS 7385) and human comfort (the NSW Vibration Guideline). See the Environmental Manager if you need to work within these distances.
- 24Hr Noise and Vibration monitoring loggers to be installed on site to monitor impacts of construction activities to sensitive receivers.

Water Management

- The Eastern Entrance site is an open excavation–causing all site water to collect within the site boundary.
- Collected site water will be captured in IBCs for treatment at the Water Treatment Plant at the Sydney Yard (CSM main site).
- Water discharge must be approved by the Environmental Manager. Discharge quality must comply with:
  - TSS: ≤ 50mg/L.
  - pH: Between 6.5 and 8.5.
  - No oil or grease
- Site has been designed to prevent the ingress of clean water from the surrounding hardstand into the construction site in accordance with erosion and sediment control measures detailed in the CSWMP.
- Construction plant, vehicles and equipment will be refueled off site or in designated refueling areas away from drainage lines or waterways where possible.
- Drains in Randle lane will be protected by sandbag bunds and regularly maintained.
- During slit trenching: sandbags to be placed around drains in Chalmers street. Clean water is to be diverted away from excavation area and the work site covered at the end of each shift.
- During slit trenching/saw cutting: wet vac or sandbags to be used to contain any slurry and to prevent run off.

Hazardous/Contaminated Material

- Waste Classification Analysis has indicated that the area of excavation has low potential for contamination. However, the Unexpected Finds Protocol must be employed in the instance that any foreign material is uncovered. This may include material that exhibits an odd texture, emits a foul odour, or exhibits a strange colour. If discovered;
  - Immediately cease work and contact the Site Supervisor,
  - Demarcate the 'unexpected find' to prevent access and install appropriate environmental and safety controls,
  - Project Leader to contact the client representative,
  - Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground,
  - Capture and manage any surface runoff contaminated by exposure to contaminated ground.

Dust and Air Quality

- Plant must be well maintained and serviced to minimise emissions.
- All vehicles carrying loose or potentially dusty material to or from the site must be fully covered.
- Stockpiling for prolonged periods of time should be avoided.
- Any stockpiles must be managed appropriately (covering/wetting down)
- Excavation must be managed to minimise dust generation.
- Spray exposed work areas to suppress dust.
- All construction vehicles exiting site must be inspected so as not to track material onto Randle Lane.
- Reprogram dust generating work during periods of high wind.
- The engines of all on-site vehicles and plant should be switched off when not in use for an extended period.
- During slit trenching: water to be used throughout saw cutting of hardstand. Slurry to be contained using wet vac or sandbags.

Sustainability And Climate Change Requirements

- A target of 5% bio diesel mix is set for all diesel-powered plant and equipment and a target of 10% blended ethanol mix for all petrol-powered plant and equipment.
- The works are to utilise low Volatile Organic Compounds paints, finishes, sealants and adhesives and low emission formaldehyde composite wood products.
- Concrete used in the construction of the Works and the Temporary Works must be supplied by members of the Cement Concrete and Aggregate Association of Australia (CCAA) or a similar international association or organisation.
- Steel used in the construction of the Works and the Temporary Works must be supplied by suppliers that are certified under the Australian Certification Authority for Reinforcing Steels (ACRS) or a similar international association or organisation.
- Fabricated steel products are specified in accordance with AS 5131 Fabrication & Erection of Steelwork and certified through the National Structural Steelwork Compliance Scheme.
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- Timber products used in the Works and Temporary Works are from either re-used timber, post-consumer recycled timber or from Forest Stewardship Council Australia, certified timber suppliers.

Delivery and Storage of Chemicals

- Ensure Safety Data Sheets (SDS) are available on site for all fuels, oils, chemicals and dangerous goods.
- The SDS and material risk assessment including any specific control measures are to be submitted where required to the Safety Manager for every substance to be brought on to site.
- Chemicals, fuels and oils must be stored in a securely bunded area with appropriate signage.
- Chemicals fuels, oils and chemicals to be stored inside impervious bunds to contain 110% of the stored volume. Bunded areas must be located undercover to prevent ingress of rain.
- Drivers must be in attendance at all times when the unloading of fuel, oil or chemicals takes place on site.
- No water to be discharged from bunded areas into site drainage system. Contaminated water must be removed by an appropriately licensed contractor.
- Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines (inside Waste Disposal Bags and into the general waste skip).
- Spill kits must be located on site.

HBI Healthy Buildings International Pty Ltd
A.C.N. 003 270 693 A.B.N. 39 003 270 693

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Baulkham Hills NSW 2153

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Carolyn Riley
Director Environment Sustainability and Planning
Sydney Metro
Transport for NSW
PO Box K659
HAYMARKET NSW 1240

18 August 2022

Ref:CSMW CEMP Rev 11

Dear Carolyn

RE: Endorsement of CSMW Construction Environmental Management Plan (CEMP Rev 11) – Sydney Metro City & Southwest

Thank you for providing the following documents for Environmental Representative (ER) review as required by the Conditions of Approval A24 (j) of the Sydney Metro City & Southwest project (SSI – 15_7400 January 9 2017).

- Sydney Metro City & Southwest Construction Environmental Management Plan SMCSWSMC-LOR-SMC-EM-PLN-000001 Revision 11 dated August 2022) (the Plan).

The Plan was originally developed to address the Condition C2 of the project approval. Rev 11 amends the Plan by:

a. Including minor updates identified as part of a review conducted by LOR in 2022.
b. Removing discussion regarding altered hours of construction in line with COVID Orders.
c. Updating the CEMP with changes to working hours as defined in Modification 9 to SSI – 15_7400.

As an approved ER for the Sydney Metro City & Southwest project, I have reviewed the revised document and consider the amendments minor and consistent with the terms of the Infrastructure Approval. On this basis the CEMP Rev 11 is approved in accordance with Condition A24(j).

Yours sincerely

Michael Woolley
Environmental Representative – Sydney Metro – City and South West