Construction Environment Management Plan - SMTF

Line Wide Works Contract Sydney Metro City & Southwest.

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Revision:	06

Document Approval

Rev.	Date	Prepared by	Reviewed by	Recommended by	Approved by	Remarks
00	12/06/2019	V Tavares	M Billings	M Johnston	J Sharp	For approval
01	30/07/2019	V Tavares	M Billings	M Johnston	J Sharp	Approved
02	03/09/2019			M Billings	J Sharp	Minor Amendment
03	03/02/2020	C Riley		M Billings	J Sharp	Minor Amendment
04	24/09/2020	R Thompson	K Truscott	M Billings	S Hunter	Minor Amendment
05	23/04/2021		K Truscott	M Billings	S Hunter	Minor Amendment
06	4/05/2022		K Truscott	M Billings	S Hunter	Periodic Review
Signature:						

Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this plan is reviewed and approved. The Project Environment Manager is responsible for updating this plan to reflect changes to legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the Project Director and/or client before being distributed / implemented.

Revision Details

Revision	Details
A	Initial Draft issued to Sydney Metro for Comment
B	For stakeholder review - Contains overview of overall scope of works and management system requirements for delivery of Line Wide Works by Systems Connect. This version of the CEMP addresses SSI 5931 CoA. CoA from SSI's 7400 and 8256 will be addressed in subsequent revisions of this CEMP
00	Addressed comments from stakeholder review. Issued for approval.
01	Addressed comments from NSW Department of Planning, Industry and Environment Review. Re-issued for approval.
02	Section 7.2 & 7.3.2 Ancillary Facility Management updated. Section 7.3.3, Facility Assessment removed. The facility is in the location approved under the EIS for the Project. Issued for ER Approval CoA E27(e). Sections 6.2 updated to address SSI 5931 MOD 1.
03	Updates to Section 2.2.1 SMTF Site Location and Description; 3.4 Environment Protection Licence Requirements; Appendix C1 Legal Requirements; Appendix C5 Site Environmental Plans. Issued with Request for Minor Amendment for ER Approval CoA E27(e).
04	Updates to Figure 4 SMTF Area of Work; Section 2.3.1 Portion 1 SMTF Expansion Works; Figure 5 Indicative LW scope of works; Section 2.3.2 Timing of work; Figure 7 Systems Connect Environment and Sustainability team; Appendix C5 Site Environmental Plan – SMTF
05	Updates to Section 6.2 Standard Construction Hours, updates to Element 12: Element 12: Auditing, Review and Improvement
06	Periodic review

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CEMP Compliance Matrix

Sydney Metro Construction Environmental Management Framework		
Condition	**Requirement**	**Reference**
3.2 a	All NWRL Principal Contractors will be required to prepare and implement a Construction Environmental Management Plan (CEMP) relevant to the scale and nature of their scope of works.	This CEMP
3..2 b	The CEMP will cover the requirements of the relevant planning approval documentation, the project approval conditions, the conditions of all other permits and licences, the Contractor's corporate EMS, the environmental provisions of the contract documentation and this Construction Environmental Management Framework.	This CEMP PART A – Section 3
3.2 c	The purpose of the CEMP will be to detail how the project will deliver the environmental requirements and how issues that arise are handled. As a minimum the CEMP will include:	PART A – Section 1
3.2 c i	Project specific environmental policy, key performance indicators, objectives and targets.	PART A – Section 3.8 Appendix C4 Environment Policy
3.2 c ii	Identification of legislative and other requirements.	PART A – Section 3 Appendix C1 Legal Requirements
3.2 c iii	Procedures to identify project specific environmental risks.	PART A – Section 5.2 Element 4: Risk and Opportunity Management
3.2 c iv	Resource requirements, roles and responsibilities, including those of sub-contractors.	PART A – Section 4
3.2 c v	Communication requirements, including liaison with stakeholders and the community	PART A – Section 1.4
3.2 c vi	Induction and training requirements.	Element 7: Training and Competency
3.2 c vii	Identification of project specific environmental risks.	PART A – Section 5.2.1 Appendix C3 Environmental Risk Register
3.2 c viii	Identification of appropriate control measures.	Appendix C3 Environmental Risk Register PART D – CEMP Procedures
3.2 c ix	Procedures for monitoring and evaluating environmental performance.	PART A – Section 5.8 Element 12: Auditing, Review and Improvement
3.2 c x	Reporting requirements	Element 3:Legal and Compliance Requirements Element 12: Auditing, Review and Improvement
3.2 c xi	Procedures for emergency and incident management.	Element 9: Incident Management Element 10: Emergency Planning and Response
3.2 c xii	Procedures for non-compliance control, corrective and preventative actions.	Elements and Expectations
3.2 c xiii	Procedures for audit and review.	Element 12: Auditing, Review and Improvement
3.2 c xiv	Procedures for the control of environmental records.	Element 11: Document and Record Management
3.2 c xv	Development and maintenance of Environmental Management Sub-Plans and site / activity specific environmental procedures	PART A - Section 5

Sydney Metro Construction Environmental Management Framework		
Condition	**Requirement**	**Reference**
3.2. d	The CEMP and associated sub-plans will require the approval of TfNSW prior to any construction works commencing. Depending on the conditions of approval the CEMP and certain sub-plans may also require the approval of Department of Planning and Infrastructure (DP&I), and other government agencies	PART A – Section 1.4 Appendix C9

Department of Infrastructure, Planning and Natural Resources (DIPNR, 2004) Guideline for the Preparation of Environmental Management Plans EMP Content Checklist		
Does your EMP Contain	**YES**	**Reference**
Background (EMP Guideline Section 4.3.1)		
Introduction	✓	PART A – Section 1
Project Description	✓	PART A – Section 1 and Appendix 6 MIRRA Schedule
EMP context	✓	PART A – Section 1.2
EMP objectives	✓	PART A – Section 3.9
Environmental Policy	✓	Appendix C4 Environmental Policy
Environmental Management (EMP Guideline Section 4.3.2)		
Environmental management structure and responsibility	✓	PART A – Section 5
Approval and licensing requirements	✓	PART A – Section 3 Appendix C2 LWW Compliance Matrix
Reporting	✓	PART B - Elements 3,11 and 12
Environmental training	✓	PART B - Element 7, 10.4 and 10.5
Emergency contacts and response	✓	PART B - Element 9 and Element 10
Implementation (EMP Guideline Section 4.3.3)		
Risk Assessment	✓	Appendix C3 Environmental Risk Register
Environmental management activities and controls	✓	PART B and Appendix C3 Environmental Risk Register Appendix C6 MIRRA Schedule
Environmental control plans or Maps	✓	PART A - Section 5.6 and Auditing, Review and Improvement
Environmental schedule	✓	Part B
Monitoring and Review (EMP Guideline Section 4.3.4)		
Environmental monitoring	✓	Element 3
Environmental Auditing	✓	Element 12
Corrective Action	✓	Element 3
EMP review	✓	Element 12

SSI 5931 – Rapid Transit Rail Facility		
Condition	**Requirement**	**Reference**
E28	Prior to the commencement of construction, or as otherwise agreed by the Director General, the Proponent shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI. The Plan shall outline the environmental management practices and procedures that are to be followed during construction and shall be prepared in consultation with the relevant government agencies and in accordance with the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004). The Plan shall include, but not necessarily be limited to:	This CEMP PART A – Section 1.4 Appendix C9

SSI 5931 – Rapid Transit Rail Facility		
Condition	**Requirement**	**Reference**
E28 (a)	a description of activities to be undertaken during construction of the SSI (including staging and scheduling);	PART A - Section 2
E28 (b)	statutory and other obligations that the Proponent is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies;	PART A – Section 3 Appendix C1 Legal Requirements Appendix C2 LWW Compliance Matrix
E28 (c)	a description of the roles and responsibilities for relevant employees involved in the construction of the SSI, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval;	PART A – Section 4 Element 7: Training and Competency
E28 (d)	an environmental risk analysis to identify the key environmental performance issues associated with the construction phase; and	PART A – Section 5.2 Element 4: Risk and Opportunity Management Appendix C3 Environmental Risk Register
E28 (e)	details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan: (ii) compounds and Ancillary Facilities management; (iii) noise and vibration; (iv) traffic and access; (v) soil and water quality; (vi) spoil management; (vii) groundwater management and discharge; (viii) air quality and dust management; (ix) visual amenity; (x) management of Aboriginal and historic heritage; (xi) soil contamination, hazardous material and waste management; (xii) management of ecological impacts; and (xiii) hazard and risk management	PART A – Sections 5.4; 5.5; 5.6 PART B Implementation PART D Environmental Aspect Management
E28	The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or as otherwise agreed by the Director General. The Plan may be prepared in stages, however, construction works shall not commence until written approval has been received from the Director General. The approval of a Construction Environmental Management Plan does not relieve the Proponent of any requirement associated with this SSI approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this SSI approval, the requirements of this SSI approval prevail.	PART A – Sections 1.4; 1.5 Appendix C& Planning Approval Document Delivery Strategy

Note: Additional relevant Project Planning Approval, Revised Environmental Mitigation Measures, Construction Environmental Management Framework, LWW Works Design and Construction Deed, and Scope of Work and Technical Criteria (SWTC) are referenced in Appendix C2 – LWW Compliance Matrix.

Glossary / Abbreviations

Abbreviations	Definition
AA	Acoustic Advisor
Aboriginal	Within NSW, it is preferred to use the term Aboriginal as this reflects the overwhelming majority of the community residents in NSW, with no implied limitation on this applying to persons from the Torres Strait Islands.
Ancillary facility	Temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area.
ANZ	Australian and New Zealand
ANZECC	Australian and New Zealand Environment Conservation Council
Approved	Means a plan approved in Accordance with the Conditions of Approval as the New Intercity Fleet Springwood to Lithgow Rail Corridor Modifications Determination Report and Chapter 5 of the New Intercity Fleet Ten Tunnels Deviation Modifications Determination Report.
Approved Plan	Means a plan approved in Accordance with the Conditions of Approval as the New Intercity Fleet Springwood to Lithgow Rail Corridor Modifications Determination Report and Chapter 5 of the New Intercity Fleet Ten Tunnels Deviation Modifications Determination Report.
ASS	Acid sulfate soils
C2S	Chatswood to Sydenham
CAP	Construction Area Plan
CCM	Community Complaints Mediator
CCS-SMTF	Community Consultation Strategy Sydney Metro Train Facility
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CIMIC	Construction Infrastructure Mining & Concessions
CMP	Contract Management Plan
CMS	Construction Management System
CNVMP	Construction Noise and Vibration Management Plan
CoA	Conditions of Approval as per State Significant Infrastructure Planning Approvals as issue by the NSW Department of Planning and Environment, relevant staging reports and as listed in Schedule E3 of the Line Wide Works Contract, (ITC 600)
Compliance audit	Verification of how implementation is proceeding with respect to a construction environmental management plan (CEMP) (which incorporates the relevant approval conditions).
CPB	CPB Contractors Pty Limited
CSS	LWW Community and Stakeholder Strategy
CTMP	Construction Traffic Management Plan
CWMP	Construction Waste Recycling and Spoil Management Plan
DPI	Department of Primary Industries (including Agriculture NSW, Fisheries NSW and NSW Office of Water)
DPIE	NSW Department of Planning Industry & Environment (formally Department of Planing and Environment)
Ecological sustainable development	Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992).
EIA	Environmental Impact Assessment
EMS	Environmental Management System (integrated as part of the PMS)

Abbreviations	Definition
Environment Policy	Statement by an organisation of its intention and principles for environmental and sustainability performance.
Environmental aspect	Defined by AS/NZS ISO 14001:2004 as an element of an organization's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2004 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental incident	An occurrence or set of circumstances, as a consequence of which pollution (air, water, noise, and land) or an adverse environmental impact has occurred or is likely to have occurred.
Environmental Issue	An occurrence or set of circumstances where Environmental Harm or Non-compliance could occur if not rectified.
Environmental Non-compliance	A breach of an Environmental Requirement originating from Planning Approvals, Environment Protection Licenses, lease agreements, and other requirements documented in environmental management plans.
Environmental objective	Defined by AS/NZS ISO 14001:2004 as an overall environmental goal, consistent with the Environment Policy, that an organisation sets Line Wide to achieve.
Environmental Representative (ER)	The environmental responsibilities of the Environmental Representative include (but are not limited to) the following (under SSI 5931): - evaluate and advise on compliance with environmental requirements - monitor the implementation of environmental management plans for the Project or related activities - approve/reject minor amendments to the Construction Environment Management Plan
Environmental target	Defined by AS/NZS ISO 14001:2004 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
Environmental team	Members of the Continuum Alliance's staff including sub-contractors authorised by the Environmental Manger to work on environmental issues related to the Project
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ERP	Emergency Response Plan
ESCP	Erosion and Sediment Control Plan
ESD	Ecological sustainable development Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992).
Hold Point	Activities which are not to proceed without objective review and approval by the nominated authority.
IC	Independent Certifier
ISCA	Infrastructure Sustainability Council of Australia
ITP	Inspection and Test Plans
LDP	Land Disturbance Permit
LWW	Line-Wide Works (contract scope under ITC 0600)
MTS	Metro Trains Sydney (operator at SMTF)
NOW	(NSW) Office of Water
NRT	Northwest Rapid Transit
NSW Heritage Council	Heritage Council of NSW or its delegate.
OEH	(NSW) Office of Environment and Heritage
OOHW	Out of Hours Works

Abbreviations	Definition
PMS	Project Management System
REMM	Revised Environmental Mitigation Measures
RMS	(NSW) Roads and Maritime Services
S2B	Sydenham to Bankstown
SC Project Environmental Representative	Refers to Systems Connect Environment Manager or someone delegated by him to perform a task, release a hold point or approve a document
SDS	Safety Data Sheets
SEP	Site Environment Plan
SH&E	Safety, Health & Environment
SM	Sydney Metro
SMCSW	Sydney Metro City & Southwest
SMNW	Sydney Metro North West
SMTF	Sydney Metro Train Facility (formerly known as Rapid Transit Rail Facility)
SMTF South	Sydney Metro Train Facility South
SSI 5931	Approval of Application SSI 5931 provided for construction and operation of The Rapid Transit Rail Facility, now known as the Sydney Metro Train Facility (SMTF). SMTF
SSI 7400	Approval of application SSI 7400 provides for construction and operation of a metro line approximately 16.5 kilometers long (of which approximately 15.5 is in underground rail tunnels) between Chatswood and Sydenham (C2S) including construction of a tunnel under Sydney Harbour, links with the existing rail network, seven metro stations and associated ancillary infrastructure. The proposal is declared as Critical State Significant Infrastructure (CSSI)
SSI 8256	Approval of application SSI 8256 provides for construction and operation of a metro line, approximately 13 kilometres long between Marrickville and Bankstown (S2B), including ten metro stations and associated infrastructure
SWMS	Safe Work Method Statement
SWTC	Scope of works and technical criteria
TfNSW	Transport for New South Wales
UGL	UGL Engineering Pty Limited

PART A – OVERVIEW

1. Plan Overview

1.1 Purpose and application

This Construction Environmental Management Plan (CEMP) defines environmental obligations and describes how Systems Connect will achieve environmental outcomes throughout the delivery of the Line-Wide Works contract scope (LWW). Line-Wide (LW), also referred to as the project, will be delivered by Systems Connect (a CPB Contractors Pty Limited and UGL Engineering Pty Limited joint venture). Environmental compliance will be achieved via the implementation of the project Environmental Management System (EMS).

The elements of the EMS, including this plan, have been developed in accordance with;

- Framework of AS/NZS ISO 14001:2016 EMS
- Systems Connect EMS which is accredited under ISO 14001:2015
- New South Wales Environmental Management Systems Guidelines (Edition 3)
- SM Construction Environmental Management Framework (Version 1.2 2012)
- The Department of Infrastructure, Planning and Natural Resources (DIPNR, 2004) Guideline for the Preparation of Environmental Management Plans.

Implementation of this Plan will:

- Identify the environmental obligations and the hazards and risks associated with LWW
- Help prevent unauthorised environmental harm
- Fulfil Sydney Metro environmental requirements as detailed in LWW Deed (ITCC 0600) and Scope of Works and Technical Criteria (SWTC)
- Ensure Systems Connect complies with the Minister for Planning's Project Planning Approval
- Ensure Systems Connect obtains and complies with relevant Licences and other approvals, including the Environment Protection Licence (EPL) if required
- Comply with all relevant environmental legislation
- Minimise negative impacts on the community that relate to the environmental impacts of the LWW
- Identify and implement feasible opportunities to reduce the environmental impact of the LWW that are beyond contractual and compliance requirements.

The CEMP is an overarching project specific document that incorporates or references EMS, aspect and areas specific management documents. The CEMP is applicable to all staff and sub-contractors associated with the construction of the LWW.

This document sets out how Systems Connect will specifically address compliance obligation as defined in the Sydney Metro Staging Report (May 2019) for State Significant Infrastructure (SSI) Planning Approval 5931. The CEMP, associated Sub Plans and Procedures apply to delivery of LWW Portion 1 Sydney Metro Train Facility (SMTF) Expansion at Rouse Hill. An overview of the Scope of Portion 1 is provided in Section 2.3

Portions 2,3 & 4 of LWW will be delivered under SSI 7400 and SSI 8256 respectively. Subsequent revisions of this CEMP will address all relevant obligations associated with delivery of Portion 2,3 and 4.

1.2 CEMP Context

The CEMP forms a part of the Integrated Management Plan framework for Systems Connect as described in the Contract Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000001) Appendix A. For the delivery phase, the Management Plan Hierarchy in Appendix A of the Contract Management Plan displays the integrated relationship between each project plan and the Systems Connect – Project Management Systems (PMS) procedures.

The relationship between the statutory requirements, the CEMP and the Environmental and Sustainability Management System is described in figure 1. A detailed structure of the project Environmental Management Systems documentation is provided in section 5.1.

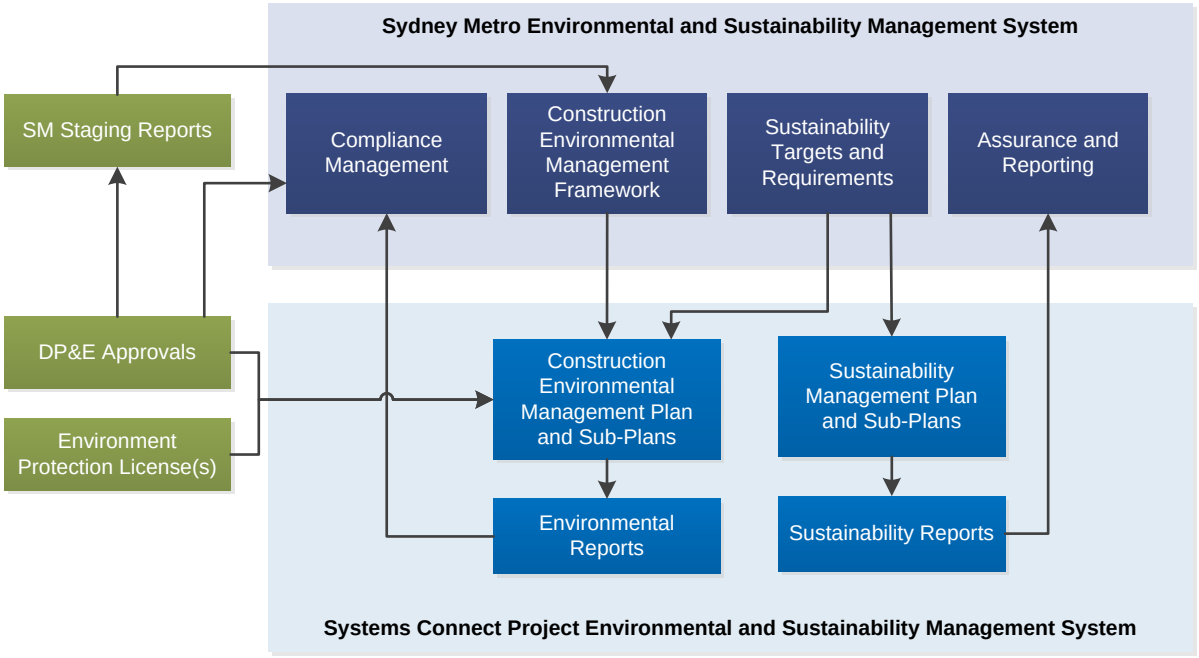


Figure 1 CEMP Context

1.3 CEMP Structure

The structure of the CEMP is set out in Table 1, below.

Table 1 CEMP structure

Plan Structure	Details
Part A: Overview	This Part defines: **Section 1** Purpose, Scope and application of the CEMP **Section 2** Project Description a summary of Line Wide Works, objectives targets and Key Performance Indicators **Section 3.** A summary of Compliance, legislative and contract requirements and the strategy for delivery of Planning Approval compliance **Section 4** Roles and responsibilities of Systems Connect environmental personnel, specialist consultants and contractors and our approach to working with Sydney Metro, the Environment Representative, Independent Certifier and other key stakeholders **Section 5**. An explanation of the structure and role of the Systems Connect Environmental Management System. **Section 6.** An overview of key environmental aspects and impacts and Systems Connect approach staged management and mitigation measures
Part B: Implementation Plan	This section outlines in detail the key processes and systems to support implementation of environmental management outcomes for the project. • Expectations • How they will be met • Responsibilities • Associated deliverables
Part C: Appendices	This section provides systems information relevant to the CEMP including: C1 – Legal Requirements, C2 – Environmental Obligations Compliance Matrix C3 - Environmental Risk Register C4 - Environment Policy

	C5 - Site Environmental Plans C6 - Monitoring Inspection Reporting Review and Audit (MIRRA) Schedule C7 - Planning Approval Document Delivery Strategy C8 - CEMP Aspect Specific Procedures C9 - Consultation Records
Part D CEMP Procedures	**Procedures** developed to manage environmental aspects and their potential impacts upon the environment and community and to address Staging Report obligations; • Air Quality • Soil, surface water and ground water • Heritage • Flora, Fauna and Biodiversity • Waste, spoil and recycling • Visual amenity • Ancillary Facilities • Noise and Vibration (Sub Plan) • Traffic (sub Plan)

1.4 Consultation

The *Guideline for the Preparation of Environmental Management Plans* (DIPNR, 2004), states that;

"*agency consultation undertaken during the preparation of the CEMP should be limited to that required by specific conditions*"

To address this requirement the Line Wide Contractor has undertaken consultation in accordance with the requirements of SSI 5931 and the Sydney Metro Trains Facility Staging Report (May 2019).

To address the intent of CoA E27 and Line Wide Contract obligations the CEMP was issued to the ER and Sydney Metro for consultation. A record of consultation is contained in Appendix C9. Consultation required to address CoA E29 (b) and CoA E29 (c) is respectively included in the CNVMP and CTMP.

Consultation requirements for each document or aspect are also defined within the Staging Report developed by Sydney Metro for delivery of LWW Portion 1 under SSI 5931. Where the Staging Report prescribes a procedure in place of a sub plan, consultation with external stakeholders will occur at the discretion of Sydney Metro.

The CEMP, sub plans and associated procedures developed in consultation with the prescribed stakeholders are as detailed in Table 2.

Section 3.3 and Appendix C7 Planning Approval Document Delivery Strategy, provides details of the process that will be followed to ensure that document development, consultation and approval occurs in accordance with Planning Approval requirements. Appendix C7 also includes design documents that require consultation with external stakeholders to address Planning Approval obligations.

Table 2 Summary of reviews, endorsements and approvals of plans.

Plan	SSI	Contractors Internal Review & Approval	Sydney Metro Review	ER Review & Endorsement prior to Secretary Submission	Traffic and Transport Liaison Group	DPIE Secretary Review & Approval	ER Approval of Minor Amendments
Construction Environment Management Plan	**5931**	✓	✓	✓		✓	✓
Noise & Vibration Management Sub-Plan	**5931**	✓	✓	✓		✓	✓
Construction Traffic Management Plan	**5931**	✓	✓	✓	✓*	✓	✓

✓* *Construction Traffic Management plan is reviewed and endorsed by stakeholder members of the TTLG including Blacktown Council, RMS and the Sydney Coordination Office*

Consultation with stakeholders includes desk top reviews of draft plans and meetings to discuss development of plans. Records of meetings, written correspondence and reviews are maintained by Systems Connect. The project team will address stakeholder comments and amend plans as required. Where required, evidence of consultation, endorsement and /or approval is included within documents annexures (including Appendix C9 of this CEMP).

Consultation with prescribed stakeholders will occur, as required, for the duration of delivery of the LWW.

1.5 Revision and update of the CEMP

The review process ensures that EMS documents, including this CEMP, are updated as required to manage specific works that are occurring on site. The management review process described in Element 12 forms part of the EMS document review process.

Amendments would typically include those that:

- Are required to address compliance requirements prior to commencement of an activity
- Are editorial in nature e.g. staff and agency/authority name changes
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively
- Do not compromise the ability of LWW to meet approval or legislative requirements
- Do not result in new environmental impacts.

Details of the CEMP, Sub Plan and procedure revisions that will occur to address Planning Approval compliance requirements, across the delivery of all portions of LWW, are provided in Section 3.3 Planning Approvals Document Delivery Strategy.

Minor amendments to the CEMP will be submitted to the Environmental Representative (ER) and Sydney Metro for review and approval. Minor amendments to the CEMP and associated environmental management system are those that:

- are editorial in nature (e.g. staff and agency/authority name changes);
- are in response to audit findings or periodic reviews;
- are not considered to contradict the project planning approval and associated conditions;
- do not significantly alter the outcomes of the project such that a planning modification would be required by the Department;
- are not considered to carry significant environmental risk, in excess of those outlined in the project EIS; and will not impact surrounding communities”

Where the change will have the potential to result in an additional environmental or community impact that the ER cannot approve, then the plan would be submitted to DPIE for review and approval.

Where necessary, amendments to the CEMP will also be provided to relevant stakeholders for review and comment and/or forwarded for approval. The project team will also be communicated of any relevant CEMP updates for their scope of works.

1.6 Distribution

The CEMP, sub plans and associated procedures are available to all Systems Connect personnel and contractors via the Systems Connect document control management system, TeamBinder.

A document is uncontrolled when printed. One controlled hard copy of the CEMP, sub plans and associated procedures will be maintained by the Project Director at the project office.

The CEMP and relevant Planning Approval document are also accessible via the project website.

2. Project overview

2.1 Sydney Metro City & Southwest Project Scope and Delivery.

The Sydney Metro City & Southwest (SMC&S) project will extend Sydney Metro Northwest to the CBD and beyond to Bankstown. The project is being delivered through a suite of contracts for the tunnels, stations, line-wide infrastructure and systems. Line Wide is a key component of the SMC&S, with works taking place over the full length of the project as described in Figure 2.

As outlined below, to facilitate operation of the Sydney Metro, LWW incorporates expansion of the SMTF which was constructed for operation of Sydney Metro North West (SMNW). SMTF expansion is also referred to as Portion One and is the first location where LW will initiate construction activities.

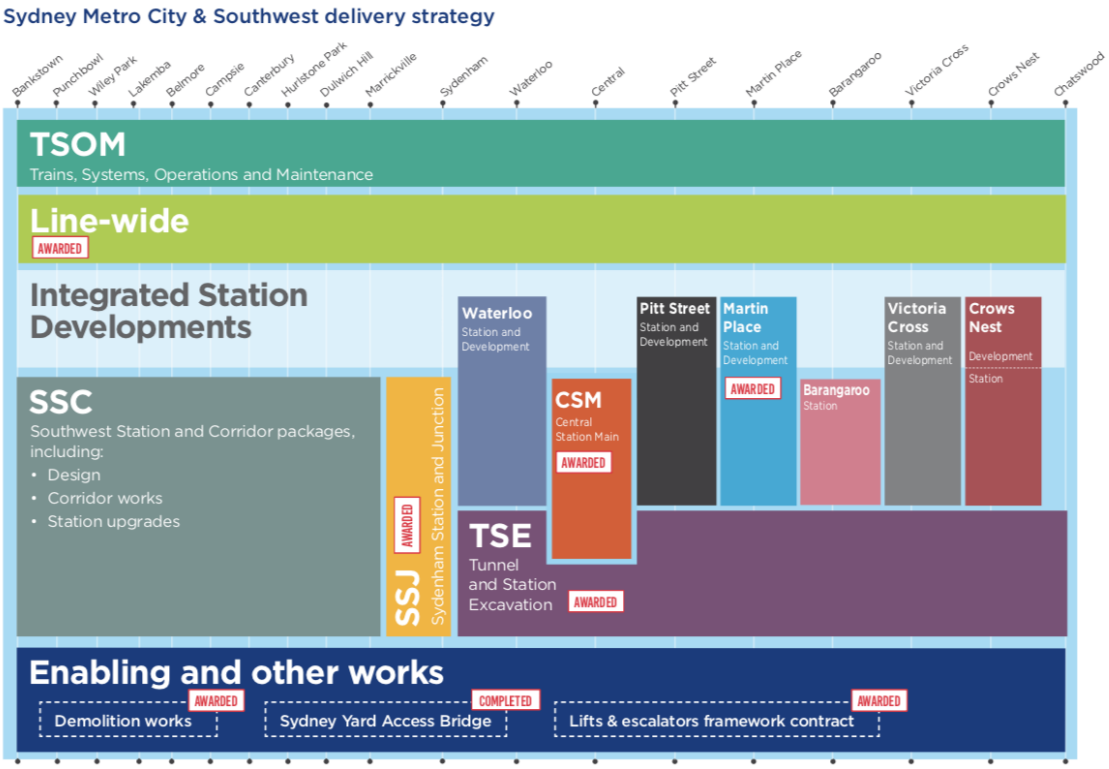


Figure 2 SMC&S works packages

2.2 Line Wide Works project locations.

Figure 3 shows the locations of works to be delivered by Systems Connect under LWW. This CEMP has been developed to initially address construction activities occurring at SMTF and will evolve to address further LW Works between Chatswood and Bankstown, as detailed in section 3.3.3.

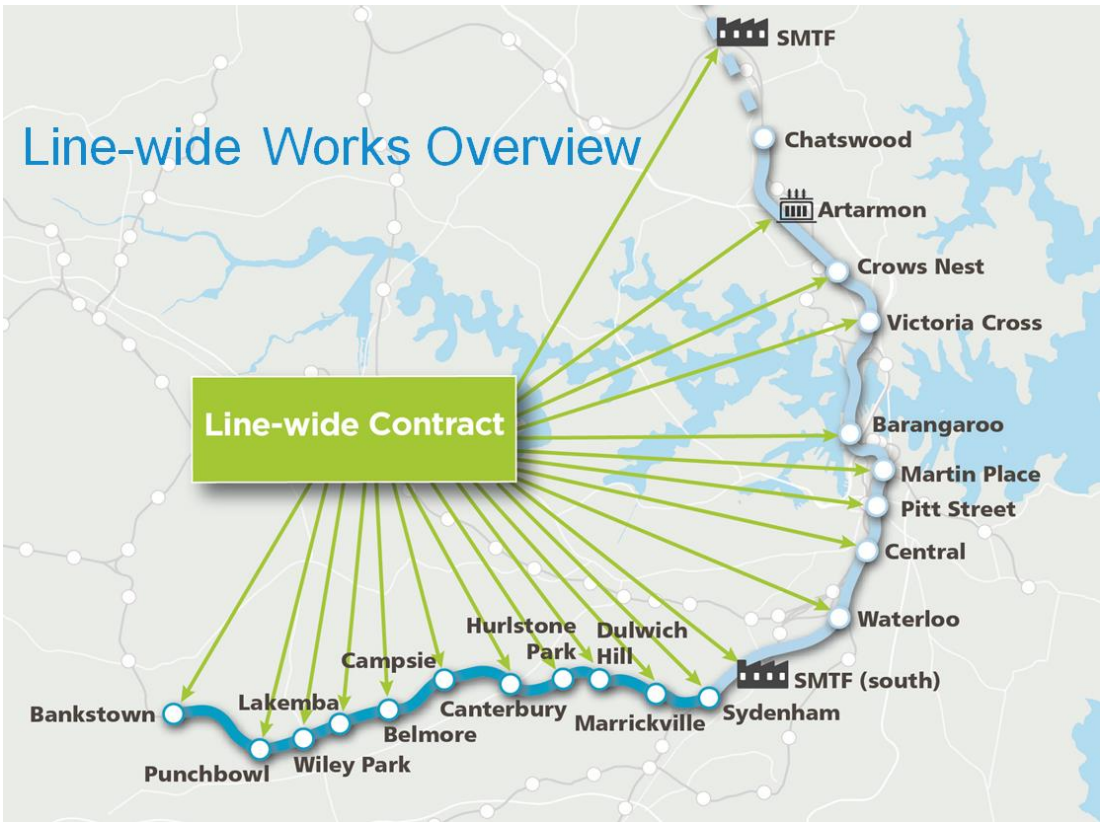


Figure 3 LWW Location

2.2.1 SMTF Site location and description

The SMTF is a specialised train stabling and maintenance facility located on a 35-hectare site generally bounded by Tallawong Road, Schofields Road, First Ponds Creek and Oak Street in Rouse Hill. In addition, the SMTF extends eastwards along the Sydney Metro rail corridor for approximately 250m beyond Tallawong Road. It has facilities for stabling, cleaning and washing trains as well as train maintenance that are needed to support train operation.

The areas bordering the site north of Schofields Road have been predominantly semi-rural residential properties on large acreages. Residential sub-division and construction in this area is progressing. Schofields Road has recently been widened to cater for increased residential development including the Ponds housing estate to the south of Schofields Road.

Figure 4 SMTF area of work

2.3 Line Wide Works Scope of Works

LWW includes design and construction of permanent systems, services and building works within, adjacent, or required for rolling stock to travel through the SMC&S Tunnels and Trackway. The scope of work being delivered by Systems Connect is defined in Schedule C1 Scope of Works and Technical Criteria (SWTC) of ITCC 600 and summarized below:

- 31 kilometres of underground railway track to be laid in the twin railway tunnels from Chatswood to Sydenham;
- 31 kilometres of overhead power equipment and 11 new substations to power the metro from Chatswood to Bankstown;
- Installation of over 350km of high voltage, low voltage and tunnel services cables;
- The expansion of the Sydney Metro Trains Facility at Rouse Hill to accommodate 37 new six car Sydney Metro trains for Sydney Metro City & Southwest;
- The construction of the Sydney Metro Trains Facility (South) at Marrickville to provide stabling for 16 six car Sydney Metro trains;
- Installation of tunnel equipment such as track systems, overhead wiring, ventilation, drainage and emergency evacuation and monitoring equipment; as well as the fit out of the tunnel ventilation and high voltage equipment in the seven new underground stations.
- Delivery of bulk power feeds to meet the Sydney Metro City & Southwest high voltage reticulation and traction power requirements between Chatswood and Bankstown
- The open northern dive works to tie Sydney Metro City & Southwest into the Sydney Metro Northwest at Chatswood
- The Southern dive works at Sydenham

LWW will be delivered in 4 distinct portions. This plan addresses environmental management obligations associated with delivery of Portion 1 - SMTF expansion. An overview of the scope of Portion 1 is provided in Section 2.3.1.

2.3.1 Portion 1. SMTF Expansion Works

The facility is being expanded and modified to accommodate 37 additional six car trains and to allow for a future expansion, by others, to accommodate eight car trains.

LWW Portion One covers:

- Design and construction of a new test track, turnouts, cross-overs and stabling roads, and
- Construction of an expansion to the existing maintenance building including fit-out of some sheds/rooms, overhead wiring fitouts, installation of a new gantry crane and modifications to some existing roads.

Temporary construction compounds will be required to support the expansion of the SMTF. These facilities include:

- Site office
- Light vehicle parking
- Amenities
- Laydown and storage areas
- Material and chemical storage

Management of Ancillary Facilities is addressed in Part D section 7 of this Plan and the figure in Appendix C5.

Figure 5 below provides an indicative view of the LW Stage scope of works:

Figure 5 Indicative LW scope of works

2.3.2 Timing of work

The planning approach for SMTF takes into consideration that it is an operational stabling yard and Line-wide Works will be segregated as much as possible.

The key elements include:

- Site establishment commences in August 2019
- Construction of the new test track, internal roads and the maintenance building starts in September 2019
- Overhead wire (OHW) structures alongside the live rail may require rail possessions
- All other construction work can be conducted without any impact on operations

- The new test track connections to the existing overhead wire (OHW) and tracks take place over a weekend possession, currently around the first week in May 2020
- Construction of new test track and stabling roads is scheduled for completion in March 2021
- Construction of expansion to the maintenance building is scheduled for completion in February 2022.

3. Compliance Requirements

Section 3 provides an overview of compliance requirements that Systems Connect must address during delivery of LWW. This section also provides guidance on how Systems Connect will ensure regulatory and contract compliance.

3.1 Legislative requirements

Legislation relevant to delivery of LWW is included in the register in Appendix C1. The register is reviewed at regular intervals using Systems Connect's online subscription to EnviroLaw and updated with any applicable changes. (refer to Part B Element 3 Legal and Compliance Requirements). Any changes made to the legal requirements register will be communicated to the wider team as required.

3.2 Project Planning Approval Requirements

Portion one of LWW has been assessed and approved via application under the Environmental Planning and Assessment Act 1979 (EP&A Act) SSI 5931. Rapid Transit Rail Facility.

Detailed environmental assessments have been carried out to gain the necessary planning approval. An overview of the Planning Approval provided below.

Sydney Metro has developed a Staging Report in accordance with CoA B9. The Staging Report defines the Conditions of Approval (CoA), Revised Environmental Management Mitigation Measures (REMM's) and The Construction Environmental Management Framework (CEMF) requirements that Systems Connect must address to deliver works at SMTF under SSI 5931. Staging report compliance requirements are managed via the project compliance tracking program.

Systems Connect's approach to compliance with Planning Approval Conditions and other regulatory requirement is provided in Section 3.3 Planning Approvals Document Delivery Strategy, and summarised in Appendix C7.

Appendix C2 contains a copy of the project compliance matrix which includes all Conditions of Approvals, associated compliance requirements, and controls and mitigation measures to be implemented. The matrix forms part of the project compliance tracking program. The Compliance Tracking Program (CTP) is maintained by the Environmental Manager and is reviewed prior to the commencement of construction and/or stages of construction and at regular intervals during construction. CEMP, Sub Plans and associated management systems documentation also include relevant reference to Conditions of Approval compliance requirements.

Portions 2,3 & 4 of LWW will be delivered under SSI 7400 and SSI 8256 respectively. Subsequent revisions of this CEMP will address all relevant obligations associated with delivery of Portion 2,3 and 4.

3.2.1 SSI 5931. Rapid Transit Rail Facility. (SMTF)

Approval of Application SSI 5931 provided for construction and operation of The Rapid Transit Rail Facility, now known as the Sydney Metro Train Facility (SMTF). SMTF currently includes a train stabling and maintenance facility, a section of track for testing, administration staff and training facilities including an Operations Control Centre for Sydney Metro Northwest. An EIS was prepared for the construction and operation of the RTRF and approval was granted by the Minister for Planning and Infrastructure on 15 January 2014.

SMTF is substantially complete and will be operational when access is required by Systems Connect. Systems Connect scope of works under LWW includes expansion of the existing infrastructure at the SMTF to accommodate 37 new six car Sydney Metro trains for Sydney Metro Northwest and City & Southwest.

The scope of work Systems Connect will deliver under SSI 5931 is described in Section 2.3.1.

The appendices of the SMTF Staging Report define the applicability of the Planning Approval conditions and associated compliance documents to LWW.

3.3 Planning Approvals Document Delivery Strategy

The Planning Approvals define construction activities and activities that are deemed Low Impact (that may be completed for site establishment or design investigations) and may be completed

without an approved CEMP in place. The definitions within the Planning Approval also allow for the staged delivery of project works and compliance obligations.

The Systems Connect Planning Approval Delivery Strategy has been developed to address both the staging of construction and Planning Approval obligations. The strategy for delivery of Planning Approval obligations, including document development, stakeholder consultation, document submission and approval, is outlined in Appendix C7. The strategy addresses:

- Planning Approval document developed and ownership
- Stakeholder consultation, review and approval
- Timing for submissions

Element 3: in PART B of this plan provides details of documents and processes that will be used to address Planning Approval obligations during delivery of Line-Wide Works. The development of management documentation (e.g. plans and/or procedures) as a control for each environmental aspect will be based on the risk level and in line with the Staging Report (as listed in section 3.2). As the project progresses through each portion EMS documents will be reviewed and updated. Detailed risk levels and controls are outlined in Appendix C3 – Environmental Risk Register.

3.3.1 Staged development of the LWW CEMP, Sub Plans and Aspect Specific Plans and Procedures

As noted in Section 3.2 Staging Reports have been developed by Sydney Metro, which define LWW obligations under each Planning Approval. Documents developed to address staged delivery of LWW under each Planning Approval are defined in Section 6 Table 15. An explanation of how the structure of this CEMP addresses Planning Approval obligations for delivery of works under SSI 5931 is provided in section 3.3.2. An explanation of how the structure of this CEMP will evolve to address Planning Approval obligations for delivery of works and under SSI 7400 and 8256 is provided in section 3.3.3.

3.3.2 The initial LWW CEMP and EMS documents for SSI 5931

The structure of this CEMP, as described in section 1.3 has been developed to address the requirements of the SMTF staging report.

Where a CEMP Procedure or CEMP section is required to address staging report requirements in place of a Sub Plan, the procedures are included in PART D this CEMP.

Each CEMP environmental procedure in PART D will provide context for the procedure and will include for each environmental aspect:

- A summary of the existing environment
- A summary of the aspect and potential impacts
- Management and Mitigation measures required to prevent harm to the environment and impact on the community surrounding the project.

To support the CEMP procedures and Sub-Plans, Aspect Specific workflow procedures have also been developed. The workflow procedures define responsibility, actions, monitoring and reporting requirements associated with management of each aspect at a site level. The aspect specific work flow procedures are included in Appendix C8.

In line with the staging report requirements for SSI 5931, Aspect Specific Plans have been developed for Construction Noise and Vibration Management and Construction Traffic Management. Sustainability Management Sub Plans have also been developed for Carbon and Energy and Materials Management.

3.3.3 The LWW CEMP and EMS Documents for SSI 7400 and 8256

As noted above this CEMP addresses requirements for delivery of works under SSI 5931. Following submission and approval the CEMP, the Plan, associated Sub Plans, aspects specific plans and procedures will, in subsequent revisions, be updated to incorporate requirements under SSI 7400 and 8256. (refer to Section 6 Table 15)

Existing aspect specific plans for noise and vibration and traffic management will be updated.

Existing procedures (in part D of the CEMP) will be developed into sub plans to address the risks associated with delivery of LWW under SSI 7400 and 8256. Sub plans will be developed to manage, heritage, soil and water (including ground water) waste, spoil and recycling, visual

amenity, air quality and ancillary facilities. Aspect specific work flow procedures developed for the initial CEMP will be retained within the EMS and updated to address Planning Approval and construction delivery as required. Where relevant aspect specific procedures will be included in plan and sub plan appendices.

Sub plans and aspect specific Plans developed to address SSI 7400 and 8256 will have the same format as the CEMP and existing aspect specific Plans:

- Part A includes details of overall scope, requirements, roles and responsibilities and a summary of aspects and impacts;
- Part B provides details of implementation of the EMS associated with the aspect;
- Part C the appendices include compliance requirements;
- Part D will be retained and will include a summary of aspects and impacts as well as procedures for management of flora, fauna and biodiversity.

3.3.4 Stakeholder Consultation Review and Approval of stages CEMP, Sub Plans and EMS documents.

Each revision of the CEMP will be issued to stakeholders for review, comment, approval and/or information in accordance with Planning Approval Conditions or Staging Report requirements.

Sub Plans and aspect Specific Plans will also be issued to stakeholders for review, comment, approval and/or information as they are developed and in accordance with Planning Approval Conditions.

Where a procedure is developed in place of a sub plan or aspect specific plan, Systems Connect will issue it to stakeholders in accordance with the requirements of the Planning Approval staging report. As noted above aspect specific procedures are listed in the CEMP and included for information in the CEMP or a specific sub plan.

3.3.5 Timing for Stakeholder review and approval

Systems Connect will always meet the minimum obligations for submission of documents for review and approval by stakeholders. Systems Connect will issue document for review as follows;

- To Sydney Metro and the ER for initial review
- To all external stakeholders for concurrent review
- To Sydney Metro for final review
- To the Department of Planning, Industry and Environment for information and/or approval (as required)[1]

To meet with contract and stakeholder expectations Systems Connect allows for a minimum of 15 working days for external review, and additional 10 working days to confirm any comments have been addressed by Systems Connect.

Systems Connect will meet Planning Approval obligations for submission of documents to DPIE for review and approval prior to commencement of construction.

3.4 Environment Protection License Requirements

Activities required to be undertaken under an Environment Protection License (EPL) are defined under the *Protection of the Environment Operations Act 1997*. (POEO Act). Refer to Appendix C1 Legal Requirements. Reference to Licensing requirements are also included in the Planning Approvals (refer to Appendix C2 Compliance Matrix).

Following consultation with the EPA (attached in Appendix C9) it has been determined that an EPL is not required for the delivery of Portion 1 of the LWW – SMTF expansion works. The scope of works at SMTF does not trigger “Railway Systems Activities” defined within Clause 33 of Schedule 1 of the POEO Act, as the longest length of railway track to be constructed will be less than 600 meters.

The SMTF expansion includes works within the Sydney Metro rail corridor, as described in Section 2.2.1 and Figure 4 of this CEMP. That work area falls within the premises of the existing EPL for the Sydney Metro Rail Network (EPL 21247, Licensee: MTS). The scope of work within the

[1] Documents developed by Systems Connect will be issued to the DPIE by Sydney Metro.

Premises of EPL 21247 entails upgrades and alterations of existing rail infrastructure to facilitate operation of the expanded SMTF, and as such is within the definition of maintenance activities under EPL 21247. All work within the premises of EPL 21247 will be carried out in accordance with the applicable conditions of that EPL.

3.5 Roads and Maritime (RMS) and other Road Authority Compliance Requirements

Systems Connect will obtain the consent of the appropriate roads authority in accordance with the Roads Act 1993, to erect a structure, carry out work in, on or over a public road, or dig up or disturb the surface of a public road. Road occupancy permits will be sought in accordance with Construction Traffic Management Plan requirements.

3.6 Sydney Metro Compliance Requirements

The project Deed (ITCC 600 and SWTC) specifies environmental requirements. The CEMP compliance Matrix in the preamble identifies specific requirements and provides references to where they are addressed within this Plan and associated sub plans. The compliance matrix in Appendix C2 includes additional environmental compliance requirements from the Deed. Requirements from the Deed are also addressed in the relevant aspect specific Plans.

3.7 Systems Connect Compliance Requirements.

The Systems Connect EMS documentation defines both project and individual obligations to manage compliance. Refer to Section 0 and part B for details of the project EMS and associated compliance requirements

3.8 Relevant Guidelines

This plan has been prepared in accordance with:

- ISO 14001 Environmental Management System – Requirements with Guidelines for Use
- Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning & Natural Resources, 2004)
- NWRL Construction Environmental Management Framework (2012);
- New South Wales Government Environmental Management System Guidelines (3rd Edition) (August 2013);
- Management and mitigation measures from ECRL Environmental Impact Assessment.

The above is in line with Section 2.4 of the SM Construction Environmental Management Framework that summarises the publications, guidelines, codes of practice and standards that are applicable to the LWW.

Aspect specific publications, guidelines, codes of practice and standards are included in the relevant Environmental Aspect Management section in PART D of this plan or Aspect Specific Sub-plans.

3.9 Objectives and Targets

The key objective of this Plan is to set in place an EMS for the Systems Connect LWW which addresses all relevant environmental and planning requirements. Key environmental objectives and targets for the project are provided in Table 3.

Table 3 - Environmental Objectives and Targets

Objective	Target	Measurement tool
Construction of the project in accordance with environmental approvals.	Full compliance with statutory approvals.	Audits, construction compliance reporting, management view.
Compliance with all legal requirements, permits and licenses	No regulatory infringements	No formal regulatory warning-audits, construction compliance reporting, management view.

Objective	Target	Measurement tool
Implement a rigorous and comprehensive EMS that meets the requirements of AS/NZS ISO 14001.	Address non-compliances and corrective actions within specific timeframes.	Audits, management reviews.
Continuously improve environmental performance. through collaboration with SM**, regulatory agencies and other key stakeholders**	Develop and maintain a program of Ongoing environmental training and Consultation Capture lessons learnt From environmental incidents to minimise repeat issues. Encourage and reward innovation and Effort throughout the works force.	Construction compliance report, management review, endorsed Induction Program.

Lead key performance indicators of LWW environmental performance are:

- Provision of comprehensive environmental training based on environmental risks and the qualifications and experience of the Systems Connect workforce
- 100% of scheduled inspections of environmental controls occur
- Minimum of two toolbox/pre-start meetings with an environmental focus per quarter (note this will apply following the commencement of construction in accordance with the Project Planning Approval)

Lag key performance indicators for LWW environmental performance are:

- No Class 1 or 2 incidents.
- Score from quarterly survey with Environmental Representative, EPA official and Heritage Council (as applicable) to achieve an average of 95% or above;
- No major non-compliances identified in audits;
- All environmental observations and actions raised in inspections and audits are closed out within agreed timeframes;
- Evidence of attendance of senior leadership team at agreed inspections.

The performance indicators listed above are aligned with Schedule F6 of the Contract.

Aspect specific objectives and targets are defined in respective Sub-plans and Aspect Specific Plans.

Note: incident classifications are set out in the project Emergency Response Plan (SMCSWLWC-SYC-1NL-PM-PLN-000748).

4. Roles and Responsibilities

4.1 Collaboration and consultation with SM

Figure 6 describes the relationship between Systems Connect and the key Planning Approval delivery stakeholders: Sydney Metro, key regulatory stakeholders, the Environmental Representative (ER), the Community Complaints Mediator (CCM) and the Independent Certifier.

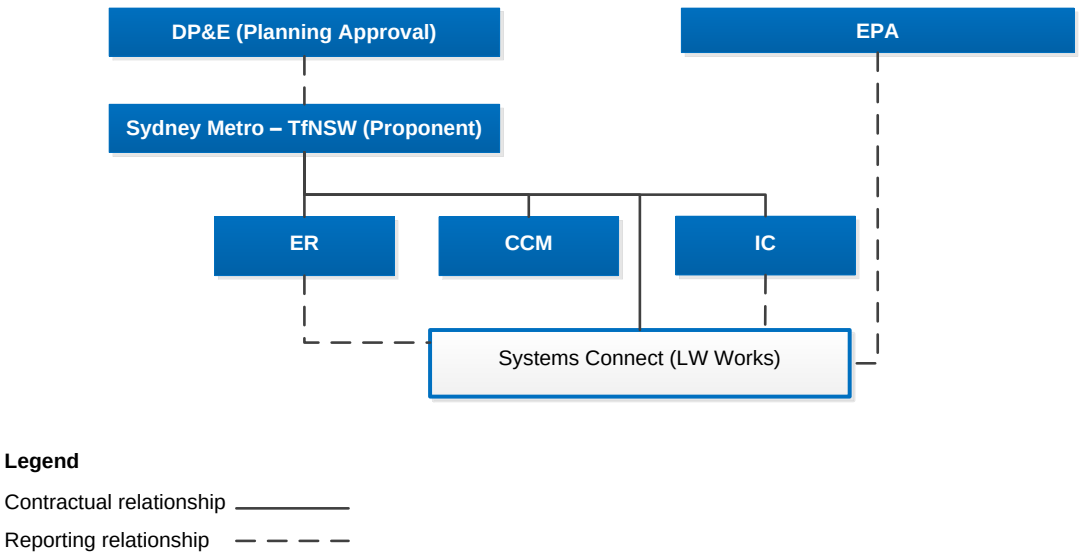


Figure 6 Systems Connect Key Stakeholder Relationships

4.2 Systems Connect Environment and Sustainability teams

The Environment Manager will lead the overall delivery of environmental performance and compliance with planning approvals for the duration of the project. The Sustainability Manager will oversee the implementation of sustainability performance and objectives during the delivery of the design. The environment and sustainability managers are supported by a team of environmental and sustainability advisors and coordinators across work areas. In addition, specialist environmental consultants are engaged to support the management of specific environmental aspects. The team will work with the design, construction, commercial, quality, safety, planning & community teams. The organisational structure of the environmental team is shown in Figure 7.

Figure 7 Systems Connect Environment and Sustainability team

Key roles and responsibility of environmental team personnel are provided in Table 4 to Table 8 below:

Table 4 Environmental Manager - Key role and responsibilities

Environmental Manager	
Role	Accountable for managing all aspects of environmental management, sustainability and compliance across delivery of Line Wide Works
Responsibility	• Lead the creation of a consultative and proactive culture that ensures environmental compliance and "*One HSE Culture*" as a driver of work behaviors • Develop and manage a team of planning, environmental and sustainability personnel and specialist consultants that are able and capable of leading contemporary innovative approaches and practices • Effectively lead and manage the development and implementation of a risk based environmental and sustainability management system for the Line Wide Works, including review and continual improvement of this Plan • Ensure adequate environmental and sustainability participation at value engineering workshops • Provide strategy advice, manage and oversee the granting and implementation of all required environmental and planning approvals and Licences governing the Line Wide Works • Provide specialist environment, planning and sustainability advice to the Project Director and other functional managers to facilitate design and construction • Oversee the development, implementation, assessment and verification of sustainability measures for all Line Wide Works • Oversee proactive identification, assigning of responsibility, monitoring and review of environmental, sustainability and planning risks and performance expectations, goals and standards for managing all potential adverse impacts • Oversee the environmental management and sustainability induction and training program • Oversee the preparation of environmental assessments on design changes and obtain any necessary planning approvals • Oversee the environmental site monitoring, inspections and audits • Oversee investigation and close out of any environmental complaints • Oversee compliance tracking and reporting • In consultation with the Project Director, Construction Manager and where relevant the Lead Safety Manager manage, oversee investigation, corrective action and reporting of any environmental incidents.
Authority	• Appointed by the Project Director • Authorised to produce any correspondence and documentation necessary for approvals and environmental management • All correspondence and documentation that has legal, commercial or contractual impact must be viewed and agreed upon, by the Project Director • Authorised to require all reasonable steps to be taken to achieve environmental compliance
Lines of communication	• Reports to the Project Controls Manager • Principal's Representative's, Environmental Representative's, Acoustic • Advisor's, Community Complaints Mediator primary contact on environmental and sustainability matters • Primary government agency contacts for planning approvals, environmental management and sustainability.
Minimum skill level	• Tertiary qualification in environmental science and/or planning discipline or equivalent • Recent relevant experience in environmental management on project similar to the LWW Contractor's Activities • At least 15 years environmental management experience, with extensive experience in the preparation and implementation of environmental management systems and plans • In depth knowledge of current and emerging environmental issues contemporary environmental management practices and processes

Environmental Manager	
	• Understand whole-of-business issues as they apply to environmental and sustainability systems at all levels
Interface with Project organisational structure	• Member of the Systems Connect Senior leadership /Management Team • Attends environment, sustainability, design, safety, quality and construction meetings as required

Table 5 Sustainability Manager - Key role and responsibilities

Sustainability Manager	
Role	Accountable for sustainability performance for all Line Wide Works
Responsibility	• Member of the project team that has central responsibility for managing sustainability • Report annually on the implementation of sustainability initiatives and policy to senior management • Respond to legislative changes • Establish program controls and reporting systems across project for performance monitoring against targets • Demonstrate continuous improvement to management systems as a result of senior management reviews • Ensure environmental, social and economic risks and opportunities are assessed and addressed • Ensure sustainability objectives, targets and/or indicators are reflected in project contracts • Report on compliance and assurance including independent peer reviews • Provide sustainability training for procurement team and participate in industry engagement: holding forums with key suppliers to discuss the sustainability targets and commitments for the project • Provide advice to the sustainability team on delivery method implications • Provide leadership and technical direction to design, construction, commercial and operational personnel in relation to sustainability issues • Develop and implement the Sustainability Management Plan SMCSWLWC-SYC-1NL-PM-PLN-000024 (including the Carbon and Energy and Materials Management Sub Plans) so that it is consistent with other plans (e.g. the Construction Environmental Management Plan (CEMP)) • Develop and deliver the sustainability training program for relevant project personnel and contractors • Interface with, and report to, key project stakeholders in relation to sustainability issues, including Sydney Metro, Infrastructure Sustainability Council of Australia (ISCA) and the Green Building Council of Australia (GBCA) • Manage sustainability performance and reporting, including performance tracking against the ISCA IS Rating Tool, TfNSW Sustainable Design Guidelines and any other relevant sustainability rating tools • Drive the achievement of the project's Sustainability Objectives and Targets and associated Key Performance Indicators • Manage the development and implementation of the Sustainability Management Plan SMCSWLWC-SYC-1NL-PM-PLN-000024and associated sub-plans • Work collaboratively with procurement, design and construction leads to embed sustainability initiatives across the project•
Authority	Appointed by the Project Director
Lines of communication	• Reports to the Project Controls Manager • Primary contact for Principal's Sustainability Representatives • Environmental Representatives primary contact on sustainability matters • Primary government agency contact for sustainability • Coordinates with the Environment Manger and other functional managers to ensure the project's sustainability objectives and targets are achieved
Minimum skill level	• At least 5 years' sustainability management experience, with previous experience in the provision of sustainability advice on the design and construction of engineering

Sustainability Manager	
	• ISCA IS Accredited Professional • Previous experience applying the TfNSW Sustainable Design Guidelines to transport projects • Understanding of life cycle analysis, including life cycle costing • Previous experience applying the ISCA IS Rating tool to infrastructure projects • In depth knowledge of current and emerging sustainability issues, practices and processes • Understand whole-of-business issues as they apply to sustainability systems at all levels
Interface with Project organisational structure	Attends environment, sustainability, design and construction meetings as required

Table 6 Environmental Advisor - Key role and responsibilities

Environmental Advisor	
Role	Assists the Environment Manger in the day to day environmental management of LWW
Responsibility	• Accountable for implementation of all aspects of environmental management across LWW • Functions as a key member of the construction team • Assist the Project Environment Manger in the development and implementation of site specific environmental documents and EPL applications and variations (where applicable). • Develop and manage the environmental coordinators and graduates • Assist the Project Environment Manger in implementing the environmental management induction program • Assist Systems Connect staff with environmental inquires • Assist in the implementation of site environmental controls • Undertake environmental monitoring and inspections • Assist the Project Environment Manger in audits • Assist the Project Environment Manger in the investigation and close out of environmental complaints
Authority	Appointed by the Environment Manger
Lines of communication	• Functional reporting to the Environment Manger • Line reporting to Construction Manager
Minimum skill level	• Possesses a relevant recognised qualification • At least 5 years' experience working on major infrastructure projects • Knowledge of current and emerging issues and practices
Interface with Project organisational structure	Attends environment, and construction meetings and client and stakeholder meetings as required

Table 7 Environmental Coordinator - Key role and Responsibilities

Environmental Coordinator	
Role	Assist the Environmental Advisors in the day to day management of LWW
Responsibility	• Assist the Environmental Advisor in the development and implementation of site-specific EMS, Planning Approval and EPL requirements (where applicable) • Assist the Environment Advisor in implementing the environmental management induction program • Assist LWW staff with environmental inquires • Assist in the implementation of site environmental controls • Undertake environmental monitoring and inspections

Environmental Coordinator	
	• Assist the Environment Advisors in audits, investigations and close out of environmental complaints.
Authority	Appointed by the Environment Manger
Lines of communication	• Functional reporting to Environmental Advisor • Line reporting to Construction mangers
Minimum skill level	• Possess a relevant recognised qualification • At least three years relevant experience • Familiarity with current and emerging environmental issues
Interface with Project organisational structure	Attends environment, and construction meetings as required

Table 8 Environment and sustainability graduates - Role and responsibilities

Environment and Sustainability undergraduates /graduates	
Role	Assist the Environment Manager or Sustainability Manager in the delivery of LWW
Responsibility	• Collection of environmental samples and monitoring and associated reporting • Organising monitoring equipment servicing • Co-ordinate periodic environment and sustainability reporting • Co-ordinate quarterly compliance tracking • Prepare meeting agendas, organise meetings and note taking. • Assist in document preparation (daily complaint reports, audit reports, plans, general reports, including reviews, formatting and updating management plans) • Assist the Project Sustainability Manager in preparing the IS design and as built submissions • Participate in environment and sustainability inspections and audits • Assists the Project Environment Manger and the Sustainability Manager in delivering the environment and sustainability section of the Project Induction
Authority	Appointed by the Environment and/or Sustainability Manger
Lines of communication	Reports to the Project Sustainability Manager or Environment Manager
Minimum skill level	University qualification in environmental science and/or sustainability or equivalent
Interface with Project organisational structure	Attends environment, sustainability, design and construction meetings, client and stakeholder meetings as required

The role, authority and responsibility of other key Systems Connect personnel with respect to Environment and sustainability are shown in Table 9.

Table 9 Systems Connect Key personnel - Environmental Responsibility and Authority

Systems Connect Role	Responsibility and Authority
Project Director	• Managing the delivery of the Line Wide Works including overseeing Planning Approval and environmental management, including implementation of this CEMP • Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts • Act as the Contractor's Representative.

Systems Connect Role	Responsibility and Authority
Commercial Manager	• Ensure relevant sustainability requirements are considered in procuring materials and services
Engineering Manager	• Ensure relevant environmental and planning requirements are addressed in design development • Provide input to and review consistency of assessments on design changes
Integration and interface Manager	• Ensures that relevant Planning and contract requirements are addressed via the interface process
Project Controls Manager	• Ensures planning and systems required for delivery of Environmental and Sustainability obligations are developed and maintained
Traffic Engineer	• Ensure relevant environmental and Planning obligations are addressed during design and delivery
Safety Manager	• Ensure environmental and planning requirements are addressed in relevant safety documents • Collaborative incident management and reporting in the event of safety incidents with a potential to cause environmental impact.
Construction Manager	• Lead and manage the delivery of the construction process, in relation to environmental management across all sites in conjunction with the Environment and sustainability Managers • Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts • Ensure enough resources are allocated to environmental and sustainability management.
Stakeholder and Community Relations Manager	• Assist the Environment and Sustainability Manager in consulting regulatory agencies • Communicate sustainability initiatives and potential environmental impacts to the surrounding community • Work collaboratively with the Environment and Sustainability Manager and Project Environment and Sustainability Manger to resolve environmental complaints.
HR Manager	• Ensuring the provision of appropriate training in environment and sustainability aspects for relevant project personnel in consultation with the Environment and Sustainability Manager.
Construction (Area) Managers	• Manage construction in relation to environmental management for their work activity in conjunction with the Project Environment Manger, Environment Advisor and environment coordinators • Ensure compliance with this Plan, Sub Plans and Aspect Specific Management Plans and procedures.
Site Superintendents	• Construction delivery in relation to environmental management and compliance in conjunction with the Environment Manger • Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts.
Project Engineers **Site engineers** **Supervisors**	• Implement and monitor onsite environmental management and compliance measures across all sites in conjunction with environmental coordinators • Undertake site inspections, provide support to report on environmental performance.

Specialist consultants engaged to provide aspect specific support throughout delivery of LWW are provided in Table 10. Where required to manage unexpected or emerging issues Systems Connect will seek advice from other specialists.

Table 10 Specialist consultants - Scope and responsibility

Aspect	Scope

Contamination	Assist with management of unexpected finds of Potential and actual contamination. Preparation Contamination Investigations including required field sampling, analysis and reporting
Noise and Vibration	Assist in the preparation and implementation the Construction Noise and Vibration Management Plan.
Soil and Water	Assist in the preparation and implementation of the Construction Soil, Water and Groundwater Management documentation including providing expert advice in planning and implementing site water management strategies and training on soil and water management measures specific to the Line Wide Works.
Heritage	Provide support to the project team in the event of an unexpected heritage find. Prepare and implement the Construction Heritage Management documentation including any archival recording, archaeological investigations and excavations.
Flora and Fauna	Provide support to the delivery team in the event of an unexpected find of Flora or Fauna.
Traffic Management	Assist in the preparation and implementation of the Construction Traffic Management Plan.

4.3 Sub-contractors

Environmental and sustainability requirements and responsibilities are to be specified to sub-contractors in the contract documentation. As part of the selection process, consideration will also to be given to their past environmental performance. Sub-contractors are required to work in accordance with the approved CEMP.

Sub-contractors are also required to attend Project and site inductions, where the requirements and obligations of the CEMP are communicated. A record of all sub-contractors inducted will be maintained as part of the Project induction and training register.

A standard monitoring form will be developed that will be used to assess;

- the sub-contractor's general work practices
- the effectiveness of the sub-contractor's environmental protection measures
- the sub-contractor's compliance with the requirements of this CEMP
- the maintenance of environmental measures.

4.4 Interface Contractors

Interface contractors are responsible for management of environmental aspects and impacts associated with their own scope of works. In line with the Interface Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000040) and relevant contract requirements, Systems Connect will facilitate interface meetings, at all levels within project delivery teams, to ensure that requirements for compliance with environmental obligations are understood, agreed, implemented, monitored and maintained by Interface contractors working within LWW delivery areas.

Systems Connect delivery teams will, when working in Interface Contractors delivery areas, maintain any processes or controls impacted by LWW.

Key elements of interface agreement, with regard to environment and community, include;

- Timing for handover of site and which contractor is principal over a given site.
- Requirements for interface contractors to work under Principal Contractor's management systems
- Requirements for working under existing EPLs
- Requirements for coordination and resolution of issues

Systems Connect will commence interface coordination meeting with interface contactors prior to access of any project site to determine the detailed requirements for coordination of environmental management associated with the site (or sites)

4.5 Transport for NSW (Sydney Metro)

Transport for NSW (TfNSW) is the Proponent under the EP&A Act with ultimate responsibility to DPIE for compliance with the Project Planning Approvals. Personnel from Sydney Metro Project Delivery will ensure compliance with the Project Planning Approvals and Revised Environmental Mitigation Measure and obligations held by TfNSW, as set out in Schedule E3 of the Contract.

Systems Connect will report to Sydney Metro as required to comply with regulatory approvals, statutory obligations and in accordance with the contract.

4.6 Environmental Representative

Environmental Representatives (ER) are engaged by the Proponent in accordance with Planning Approval requirements.

The role of the ER is to:

- be the principal point of advice in relation to the environmental performance of the SSI;
- monitor the implementation of environmental management plans and monitoring programs required under this approval and advise the Proponent upon the achievement of these plans and programs;
- have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and other licences and approvals related to the environmental performance and impacts of the SSI;
- ensure that environmental auditing is undertaken in accordance with the Proponent's Environmental Management System(s);
- be given the authority to approve/ reject minor amendments to the Construction Environment Management Plan. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan (condition E28);
- be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts; and
- be consulted in responding to the community concerning the environmental performance of the SSI where the resolution of points of conflict between the Proponent and the community is required.

The relationship between Systems Connect, the ER and Sydney Metro is shown in Figure 6 Systems Connect Key Stakeholder Relationships**.** Systems Connect's obligation to the ER are defined in Schedule E3 of the Contract.

To support the ER Systems Connect will;

- provide SM with all information, documents, details and data relating to the LWW Contractor's Activities that could relate to the approved ER's functions and obligations; and
- facilitate any actions necessary for the ER to carry out its functions and obligations
- provide suitable company vehicles and staff for ER inspections

4.7 Independent Certifier

The role of the Independent Certifier (IC) with respect to the environmental management of LWW is set out in the Independent Certifier Deed. The IC will oversee implementation of environmental controls and monitoring in accordance with this Plan and relevant aspect specific management plans.

The IC will report concurrently to Systems Connect and Sydney Metro with respect to environmental monitoring.

The relationship between Systems Connect, the IC and Sydney Metro shown in Figure 6.

4.8 Other key environment and planning stakeholders

4.8.1 Department Planning, Industry & Environment

The Department of Planning, Industry and Environment (DPIE, Major Infrastructure Assessments) is responsible for assessing compliance with the Project Planning Approval and any documents which need the specific approval of a representative of the Department. As shown in Figure 6

Systems Connect Key Stakeholder Relationships, communications with the DPIE is managed through Sydney Metro as they are the representative of the Proponent under the EP&A Act.

Systems Connect will need to be fully involved in any communication with DPIE about approvals and compliance with Project Planning Approval Conditions relevant to delivery of LLW.

4.8.2 Environment Protection Authority

The Environment Protection Authority (EPA) is responsible for issuing CPB Contractors with an Environment Protection Licence (EPL) for required LWW. EPA will also monitor compliance with any applicable EPL. As shown in Figure 6 Systems Connect Key Stakeholder Relationships, communication between Systems Connect and the EPA is direct, and Sydney Metro will be kept informed of the progress of Licence applications via the Planning, Environment and Sustainability Co-ordination Meetings (refer Part B Element 2.4).

As detailed in section 3.4 an EPL is not required for SMTF expansion works. Planning Approval documentation will be issued to the EPA for consultation and review as required by the Planning Approval and Sydney Metro Trains Facility – Staging Report (May 2019).

5. Environment Management System and Documentation

5.1 Environmental Management System Overview

Systems Connect will deliver LWW using the CPB Environmental Management System (EMS) which has been developed in accordance with the business and legislative requirements set out in the CPB Management System (CMS). The CPB EMS is certified to comply with AS/NZS ISO 14001:2015 Environmental Management Systems – Requirements with guidance for use. An overview of the project EMS documents and their relationships is illustrated in Figure 8.

A project tailored Environmental and Sustainability Policy has been developed to meet the project requirements as attached in Appendix C4.

The EMS comprises the following components:

- **Environment and Sustainability Policy:** A statement of strategic intent and commitment. It defines the mandatory requirements expected at all levels of the organisation.
- **Management Plans.** The CEMP and Sub-Plans outline how the LWW will be managed. Plans provide detail project requirements and of the process and procedure that make up the EMS that will be implemented throughout delivery of LWW.
- **Procedures and Work Instructions**: Procedures and Work Instructions specify how to undertake and control specific activities by Systems Connect. They define roles and accountabilities and list the tools or knowledge documents to be used.
- **Tools:** Tools are pre-formatted documents such as forms and templates that are required to be completed as part of a Procedure.
- **Knowledge documents**: Knowledge documents are reference material to provide context, additional information or guidance to a Policy or Procedure.
- **Business Applications:** Business Applications are the software tools used to manage and support delivery of LWW.

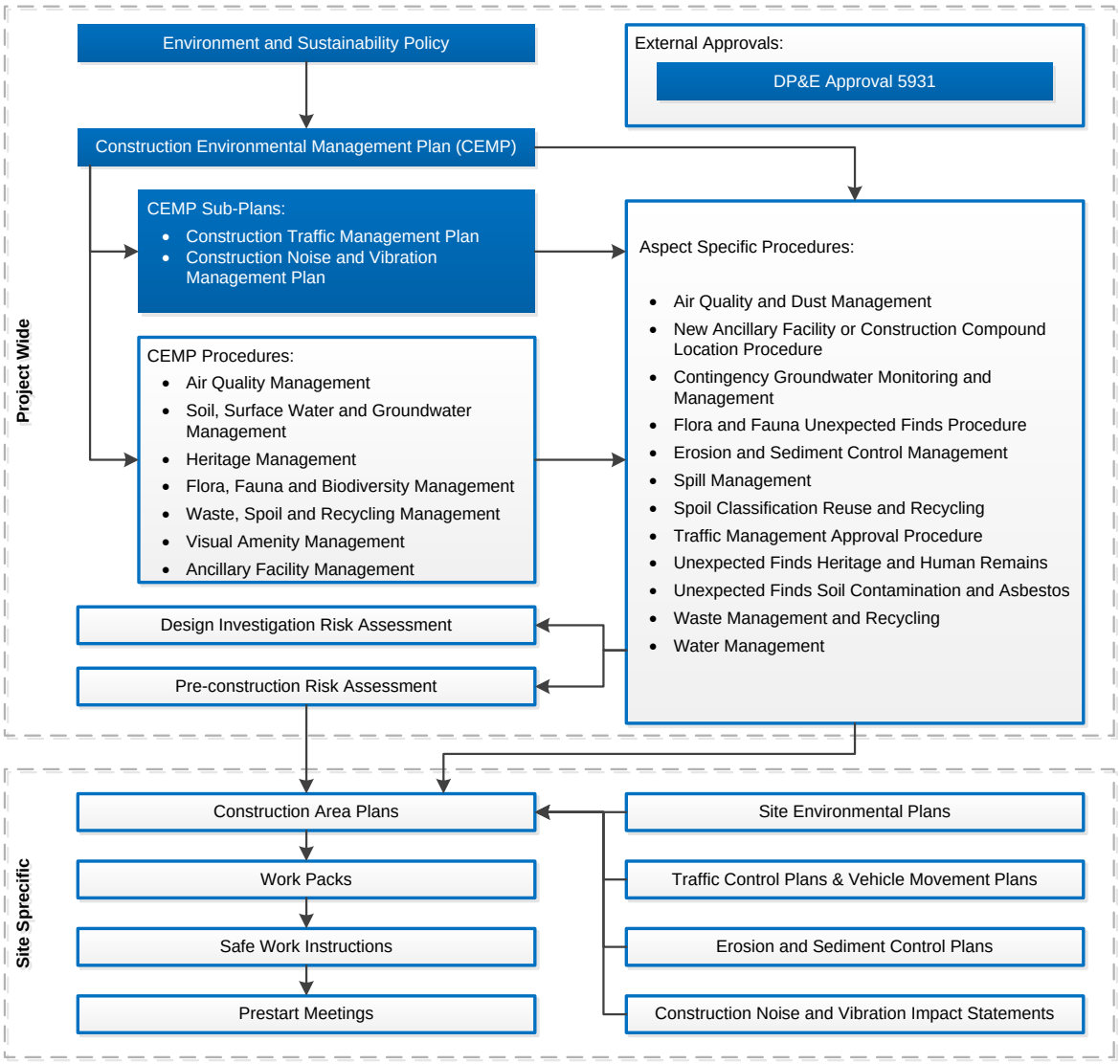


Figure 8 Overview of environmental management system documents

5.2 Environmental Risk Management

5.2.1 Project Environmental Risk Assessment

The objectives of risk assessments are to:

- identify activities, events or outcomes that have the potential to adversely affect the local
- environment and/or human health/property
- qualitatively evaluate and categorize each risk item
- assess whether risk issues can be managed by environmental protection measures
- Qualitatively evaluate residual risk with implementation of measures.

Project risk assessment outcomes are included in the PMS documentation.

A Project Principal Environmental risk assessment has been undertaken to identify key risks, mitigation measures and primary controls, including this CEMP, sub plans, procedures and site investigations and is included as Appendix C3.

The Project Principal Environmental Risk Assessment is based on review of the EIS; associated technical studies completed as part of the Planning Approvals process and construction methodology and timing.

Environmental risks assessments are completed at each stage of project planning and during delivery. This staging ensures that controls are identified that will prevent or mitigate harm to the community and environment. Each level of risk assessment is periodically reviewed. The procedures that govern environmental risk assessment include processes to ensure that the requirements for implementation are understood by project personnel and to confirm that controls are established and maintained.

Part B Element 4, Risk and Opportunity Management provides a complete overview of environmental risk assessment procedures that will be implemented on the project.

5.3 Hold Points

The activities below are not to proceed without objective review and approval by the nominated authority and are considered hold points. Table 11 lists the hold points relevant to environmental management for the project.

Table 11 Environmental hold points

Hold Point Details	Responsibility	Timing
Air Quality management		
Stop work immediately if visible dust is leaving site. Dust must be minimised to the greatest extent practicable. Refer to the Air Quality and Dust Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO 00392)	Site Supervisor Environment Coordinator	During Works
Heritage management		
Stop work immediately if unexpected heritage finds, including human remains, are discovered. Contact site Supervisor immediately and install temporary exclusion fencing. Project Director is to notify SM. Refer to Unexpected Finds Heritage and Human Remains Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000389)	Site Supervisor Environmental coordinator Project Director Environmental coordinator	During Works
Noise and Vibration Management		
Any work to be undertaken outside of Standard Construction Hours will require the completion of an Out of Hours Work Approval form. This requires approval from the Construction Manager, Stakeholder and Community Relations Manager, Environment Manager and might require endorsement by the ER based on the criteria detailed in the CNVMP. Where the works are predicted to potentially generate significant impacts, then a Noise and Vibration Impact Statement may be required to be completed and approved by the EPA and ER.	Project Engineer Environment Coordinator Construction Manager Stakeholder and Community Relations Manager Acoustic Advisor Environmental Representative	During works
Spoil and Waste management		
Materials brought onto site requires certificates/testing results to be provided to the Environmental Team to determine material meets EPA requirements. All waste taken off-site must be taken to an appropriately licensed facility and for natural material, may require a waste classification. Refer to the Waste Management and Recycling Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000399) and Spoil Classification, Reuse and Recycling Procedure (SMCSWLWC-SYC1NL-EM-PRO-000461)	Project Engineer Environment Coordinator	During Works
Spills management		
Spills must be contained and cleaned-up immediately. All spills must be reported to the environment team regardless of quantity or location. Refer to the Spill Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000387)	Site Supervisor Environment Coordinator	During Works
Soil and Water management		

Hold Point Details	Responsibility	Timing
Detailed, staged Erosion and Sediment Control Plans (ESCPs), including details of temporary stockpiles locations and management, must be developed and implemented prior to commencement of ground disturbance. Refer to the Erosion and Sediment Control Procedure SMCSWLWC-SYC-1NL-EM-PRO-000390)	Environment Coordinator Project Engineer Site Supervisor	
Dewatering to be undertaken in accordance with the Water Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000384) No water will be discharged from the site without written approval of the Project Environmental Manager (or delegate). All water will be tested (and treated if required) prior to discharge from the site to ensure compliance.	Project Environment Manager	During Works
Stop work if presence of potential contamination is discovered. Prevent further activity in the area. Notify the Site Supervisor and Environment Coordinator and cordon off area (to be marked on the SEP). Refer to the Unexpected Finds Soil Contamination and Asbestos Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000388)	Site Supervisor Environment Coordinator	During Works
Flora and Fauna Management		
A Pre-clearing inspection must be conducted by a qualified ecologist A Pre-clearing and Grubbing Checklist must be completed prior to clearing any vegetation and signed off by the Environmental Team and Construction Team. Clearance area are to be delineated. Vegetation on site identified for retention, e.g. for screening purposes will be delineated, and removal of such vegetation required approval from the Project Environmental Manager. An erosion and Sediment Control Plan must be completed as per Erosion and Sediment Control Procedure (SMCSWLWC-SYC-1NL-EMPRO-000390). If any unexpected Flora and Fauna finds are encountered refer to the Flora and Fauna Unexpected Finds Procedure (SMCSWLWC-SYC1NL-EM-PRO-000386).	Environment Coordinator Project Engineer Site Supervisor	Prior to and during works

Additional hold points may be developed as required during delivery of the LWW. Hold Points are also identified in the aspect specific procedures and SEPs (where required).

5.4 CEMP, Sub Plans and CEMP Procedures

This CEMP, Sub-Plans and CEMP Procedures provide the system to manage and control the environmental aspects of the project during pre-construction and construction. They identify all requirements applicable to activities described in Section 2, as well as associated controls based on the risk register in Appendix C3.

The strategies defined in the CEMP, Sub-Plans and CEMP Procedures have been developed to address Legislative requirements, Planning Approval obligations, mitigation measures and the LW Contract as described in Section 3.3.2. This CEMP establishes the system for implementation, monitoring and continuous improvement to minimize environmental impacts from the LWW at SMTF.

The relationship between the Planning Approval obligations associated with Sub-plans is described in Appendix C7.

Table 12 identifies the documents required to manage environmental aspects associated with delivery of LWW Portion 1 under SSI 5931 (first Submission) according with Sydney Metro's Staging Report for SMTF. The right column of Table 12 provides a list of documents developed by SC to address the respective Staging Report requirements. Where a sub-plan is not required by the Staging Report, PART D of this CEMP provides management procedures (also identified as CEMP Procedures) detailing the process used to manage the aspects and any potential impact.

Table 12 - Key EMS Documents for Staged Delivery of LWW.

Environmental Management Category	SMTF - SSI 5931 Staging Report Requirement (First Submission)	LWW Compliance Document for SMTF (First Submission)
CEMP	CEMP (SMTF)	CEMP (SMTF)
Spoil	CEMP Procedure[2]	Waste, Spoil and Recycling Management Procedure – CEMP Part D
Groundwater	CEMP[3]	Soil, Surface Water and Groundwater Management Procedure – CEMP Part D
Traffic	CEMP Sub-plan[1]	Construction Traffic Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000377)
Noise & Vibration	CEMP Sub-plan[1]	Construction Noise and Vibration Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000371)
Heritage	CEMP[3]	Heritage Management Procedure – CEMP Part D
Flora & Fauna / Biodiversity	CEMP[3]	Flora, Fauna and Biodiversity Management Procedure – CEMP Part D
Visual Amenity	CEMP[3]	Visual Amenity Management Procedure – CEMP Part D
Soil & Water	CEMP Procedure[2]	Soil, Surface Water and Groundwater Management Procedure – CEMP Part D
Air Quality	CEMP Procedure[2]	Air Quality Management Procedure – CEMP Part D
Waste (and Recycling)	CEMP Procedure[2]	Waste, Spoil and Recycling Management Procedure – CEMP Part D
Ancillary Facility	CEMP[3]	Ancillary Facility Management Procedure – CEMP Part D

[1]CEMP Sub Plan – To be addressed in a standalone sub-plan document.

[2]CEMP Procedure – Procedure to be included in the CEMP.

[3]CEMP – To be addressed in a section of the CEMP.

5.5 Aspect Specific Procedures

Aspect specific procedures have been developed to guide implementation of risk management processes identified in the CEMP, Sub-Plans and CEMP Procedures.

These procedures have been developed for use on site by the construction workforce and provide step by step instruction for management and mitigation of potential environmental impacts, including:

- Flowchart diagrams for any required processes or steps to be undertaken and provide an easy reference point for all site personnel;
- Detail the ‘how to’, ‘dos’ and ‘don’ts’ and hold points for the implementation of controls;
- Define management and mitigation measures;
- Define monitoring and reporting requirements;
- Reference to relevant checklists and forms which are fully electronic to reduce reliance on paper systems and ensure data capture.

They provide a comprehensive and informative means of communicating environmental management requirements to site personnel.

The Project Environment Manager will review internal hold points identified in the aspect specific procedures and if required develop forms for the release of hold points. The procedures will be

revised and updated as construction progresses and in response to any issues identified during implementation.

Additional aspect specific procedures may be developed as required during delivery of the LWW. Details of initial procedures developed are provided in Table 13.

Table 13 Aspect Specific Environmental Procedures

Document Number	Procedure title
SMCSWLWC-SYC-1NL-WR-PRO-000383	Out of Hours Work (refer to Construction Noise and Vibration Management Plan)
SMCSWLWC-SYC-1NL-EM-PRO-000384	Water Management
SMCSWLWC-SYC-1NL-EM-PRO-000386	Flora and Fauna Unexpected Finds
SMCSWLWC-SYC-1NL-EM-PRO-000387	Spill Management
SMCSWLWC-SYC-1NL-EM-PRO-000388	Unexpected Finds Soil Contamination and Asbestos
SMCSWLWC-SYC-1NL-EM-PRO-000389	Unexpected Finds Heritage and Human Remains
SMCSWLWC-SYC-1NL-EM-PRO-000390	Erosion and Sediment Control Management
SMCSWLWC-SYC-1NL-EM-PRO-000392	Air Quality and Dust Management
SMCSWLWC-SYC-1NL-EM-PRO-000398	Contingency Groundwater Monitoring and Management
SMCSWLWC-SYC-1NL-EM-PRO-000399	Waste Management and Recycling
SMCSWLWC-SYC-1NL-EM-PRO-000461	Spoil Classification, Reuse and Recycling
SMCSWLWC-SYC-1NL-EM-PRO-000460	New Ancillary Facility or Construction Compound Location

5.6 Environment Management Tools

5.6.1 Site Environment Plans

Site Environment Plans (SEPs) are prepared using Systems Connect Geographic Information System (GIS). SEPs provide site-specific detail and draw the relevant and specific information from the plans, studies and procedures discussed above. An initial Site Environment Plan been prepared for the SMTF and is included in Appendix C5. SEPs highlight environmental constraints at a worksite, and detail key elements of the site set-up including environmental controls.

SEPs are progressively updated to provide clear and practical mitigation and management measures for each specific construction worksite as works progress. Each SEP will define site boundaries and include illustrative and descriptive management and control measures, e.g. haulage routes and sensitive receivers etc., and reference relevant procedures that provide the comprehensive details into certain management controls/ measures in a clear step-by-step process.

Site-specific Erosion and Sedimentation Control Plans (ESCPs) and Construction Noise and Vibration Impact Statements (CNVIS) will also inform SEPs and set out additional management and control measures to be applied for activities with the potential to result in high noise generation or pollution of waters.

5.6.2 Environment Checklist and Forms

In addition to the Management Plans, Sub-Plans and Procedures, checklists and forms (tools) will continually be developed and implemented to assist the monitoring and record keeping requirements of the CEMP. A list of initial forms and checklists is provided below:

- Environmental Inspection Checklist
- Permit to Dewater
- Daily Site Report (Daily Diary)
- Vegetation Clearance Checklist
- Permit to Clear Land or Vegetation
- New Ancillary Facility Checklist
- Materials Tracking Form
- Unexpected Finds Record Form
- Permit to Excavate and Penetrate
- Out of Hours Works Application Form
- Noise Monitoring Form
- Permit to Enter Protected or No-Go Areas

Tools are used during construction to ensure compliance with environmental obligations and commitments. Checklists and forms are tailored specifically to the requirements of Line-Wide Works. Forms are referenced in the Environmental Procedures and on the Site Environmental Plans (SEP). Tools are developed in a specific format required for the appropriate recording of monitoring data.

5.7 Integration of the EMS with other project systems and documentation

The EMS form a part of the Project Management System (PMS). As such this CEMP is part of an integrated set of project management plans.

The CEMP has been developed in line with the Contract Management Plan (CMP) (SMCSWLWC-SYC-1NL-PM-PLN-000001) which is established in accordance with Systems Connect's "One HSE Culture" framework and is the key document that integrates Systems Connect Policy requirements and Client requirements.

The management plans (including the CEMP) used on the project have been developed to meet the requirements of the Contract and specifically Schedule C1, SWTC, Appendix F2 – Project Administration and those used across CPB Contractors and UGL Engineering. The CMP provides an overview of the project and the management system. The structure of the plans required for this project is shown in Appendix A of the Contract Management Plan. The specific linkages that exist between management plans are also addressed in Section 3.4 of the CMP.

5.8 Environmental Monitoring

The Monitoring, Inspections, Reporting, Review and Audit Schedule (MIRRA) in Appendix C6 MIRRA Schedule provides an overview of actions that will be taken to monitor and review environmental performance. Details of aspect specific monitoring are also included within each relevant CEMP Procedure (refer to PART D), Sub-Plans and specific workflow procedures.

5.9 Ongoing environmental risk identification and management in construction

Risk identification and management processes are a key focus in developing and implementing all EMS documentation. The objective of these processes is to confirm that the LWW are designed and constructed within acceptable limits of risk to personnel and the environment. Ongoing environmental risk and opportunities identification are a key consideration during all project risk assessments as per the Risk Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021), including:

- The Principal Risk Assessment conducted at tender stage for major tangible risks
- Value Engineering Workshops conducted throughout the delivery of the LLW
- Project Risk Register
- Construction Area Plan (CAP) risk assessments

- Work Pack Risk Assessment
- Safe Work Method Statements (SWMS), which also address environmental risks
- Pre-start Meetings.

As noted in Section 5.2.1, to assist in the initial risk identification, a Project Preliminary Risk Assessment has been undertaken and is contained in Appendix C3. This Preliminary Risk Assessment has been utilised to inform the preparation of this Plan, Sub Plans and Aspect Specific Management Plans, and input to the Project Risk Register developed in accordance with the Risk Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021). The Project Risk Register is a dynamic document that will be reviewed and updated as design and construction planning progresses.

The risk assessment and planning documents detailed in Table 14 will be prepared to ensure the LWW will be constructed safely, minimise environmental impacts, and will comply fully with the requirements of the Deed, SWTC and Project Planning Approval. Our robust process includes cross functional review and sign off at key stages.

Table 14 Key Planning documents for SWMS development

Key Planning Document	Description
Construction Area Plan (CAP)	The planning document for Construction precinct is a Construction Area Plan. The CAP includes overall construction approach and methodology, CAP risk assessment (CAPRA), constructability reviews and associated Work Pack listing.
Work Pack (WPK)	A Work Pack (WPK) is a document containing all the information required to manage an activity. There will be multiple WPKs referenced in each CAP. Each WPK includes a step by step breakdown of the activity to be undertaken, work method statement, sequencing, inspection and test plans (ITPs), Safe Work Method Statements (SWMS), relevant drawings, and environmental controls. Work Packs will be developed to provide an integrated approach to the management of safety, quality and environmental risks as set out in the Construction and Site Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021). During construction planning for each work area work methods will be reviewed, the risks identified during the design phase will be re-assessed and new risks identified and recorded in the Work Pack for communication to field staff. All controls necessary to ensure compliance will be included in the Work Packs which will reference the relevant SEPs, procedures, checklists and forms. Work Packs may identify the need for amendment to an existing SEP or preparation of a new SEP. The Work Packs will be approved by the Project Environmental Manager or delegate prior to the commencement of works described in their scope. The relevance and adequacy of environmental controls identified in the Work Packs will be reviewed and where required updated.
Safe Work Method Statement	Safe Work Method Statements (SWMSs) description of the methodology required to complete the activity. It describes the prescriptive sequence of tasks to be undertaken. Depending on the complexity of the activity or, if the same activity is being repeated elsewhere, the work method statement may be a separate document included in the Work Pack. A SWMS will be conducted and formally recorded for relevant activities prior to their commencement. It will include environmental hazards and their mitigation for that task. The purpose of communicating task methodology in detail to the workplace personnel who are completing the task. Field staff will review and sign onto the SWMS, including the risk assessment and safe work systems, as part of a pre-start briefing. SWMS task-specific information includes work steps (in sequence) with work step precautions, associated hazard(s) and hazard control(s), specific personal protective equipment, equipment available onsite, responsibilities, competencies and where applicable permit conditions. The environmental context of a SWMS is included to prompt consideration in the task steps, to address the positive actions of environmental care, i.e. dust control, erosion prevention, waste recycling,

Key Planning Document	Description
	and address negative actions that may introduce an environmental impact, i.e. contamination, pollution.
Prestart	A pre-start meeting is a review of work progress and activities planned for the incoming shift focused on creating a positive environment, safety and quality culture and continually improving work habits, generating greater workforce involvement and increasing accountability. It will: Identify any changes that are to be made to the work or work environment including impacts of nearby or interfacing work. Include of any environment or safety hazards reported and incidents that where reported on previous shifts. The Senior Project Managers and Area Manager will ensure that Site Supervisors conduct daily pre-start meetings with all members of the work team prior to commencement of work for each shift. These meetings will typically be conducted by a supervisor or his/her approved delegate with individual work crews. Attendance at the pre-start meeting will be mandatory. The content of the pre-start meeting is to be recorded including any issues raised as well as attendance at those meetings. Pre-start meetings are held to ensure all workers are informed about hazards in their work area prior to the start of the work. It is used in conjunction with the SWMS document to ensure current on-site conditions (and hazards) are considered with those identified in the SWMS document, particularly looking for what conditions have changed (e.g. new workers, weather, changed materials etc.) since the work was previously undertaken i.e. the day or shift before. The pre-start meeting contributes to implementing a safe work habit of checking the immediate surroundings and workplace conditions before starting, including consideration of potential environmental impacts.

The Project Environment Manager or delegate has approval authority for all risk assessment types (except for SWMSs and Pre-start Meetings – these must be signed by Supervisors) to ensure environmental risks and opportunities are adequately raised and addressed. In addition, the Sub-Plans include a section which identifies key aspects and potential environmental impacts, which has also been utilised to inform the development of specific management strategies to be applied across LWW. Environmental risks, controls and accountabilities identified will be communicated to all relevant personnel through the preparation and communication of the Environmental Procedures, Site Environment Plans, WAPs, Work Packs, SWMSs, toolbox talks, and prestart meetings.

5.10 Environment, Sustainability and the design development process.

Workshops were held during tender development with the design and construction teams to ensure that environmental and sustainability requirements were identified, considered and fully integrated into the tender design and construction methodology.

Technical studies will inform design development and the LWW Environment and Sustainability Team will provide input into requirements and environmental risk identification and design development at all phases.

Value Engineering Workshops will be attended by representatives from the LWW Environment and Sustainability Team and will include consideration of environment and sustainability requirements. Initiatives will be incorporated into the design where practicable. Any additional initiatives and compliance with environment and sustainability requirements will be documented within the Design Reports.

An Improvements and Innovation Register has been developed for LWW project to capture innovation ideas. A Continual Improvement Working Group (CIWG) has been created, including representatives from Sydney Metro. Regular meetings are scheduled to review and progress innovation ideas to implementation. There is also a monthly ‘Da Vinci Award’ to recognise the best the best idea each month.

5.11 Consideration of Environment and Sustainability in procurement

As set out in Part B – Element 8, Subcontractors will be provided with the Subcontractor Requirements which will address environmental and sustainability targets and requirements including:

An overview of Systems Connect EMS for the LWW including Environment and Sustainability Policies and documentation

- Key environmental risk identification methodology
- Sustainability initiatives
- Systems Connect and subcontractor roles and responsibilities including the requirement for all
- subcontractors to work under Systems Connect EMS

Reporting requirements, including the requirement to immediately report any incidents to Systems Connect monthly reporting of environment and sustainability data including National Greenhouse and Energy Reporting (NGER) data. Further detail on environment and sustainability consideration in procurement is provided in Sustainability Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000024).

6. Environmental Aspect and Impact Management

6.1 Key Environmental Aspects and Impacts

As outlined in sections 3.3 above delivery of LWW will occur in a staged manner. This Section of the CEMP has been developed to ensure that;

- All key environmental aspects are identified, and potential impacts are addressed across the staging of delivery in accordance with the staging reports;
- That there is a clear linkage between the aspects and impacts and the EMS documents used to manage and mitigate potential and actual harm to the environment and the community during delivery of LWW.;
- Address other requirements not covered under the key environmental aspects management.

Appropriate management measures have been identified through the review and analysis of Compliance documentation including; Planning Approval documents, contractual documents, community and legal compliance requirements relating to the project, the Project Principal Environmental Risk Assessment and professional experience.

Table 15 provides a summary of key environmental aspects and risks associated with LW Works at SMTF, as well as the primary EMS documents to support adequate management of each aspect.

Table 15 Environmental Aspects and associated Environmental Management requirements

Environmental Hazards (Aspect)	Associated Significant Environmental Impact (Risk)	EMS Document (Control /Mitigation measure)
Air Quality	Dust and air pollution affecting public health, property, native species and visibility on surrounding roads.	CEMP Part D Air Quality Management • Air Quality and Dust Management Procedure
Soil and Water	Soil contamination; Pollution of water.	CEMP Part D. Soil Surface Water and Ground Water Management. • Erosion and Sediment Control Management Procedure • Water Management Procedure • Unexpected Finds Soil Contamination and Asbestos Procedure • Spill Management Procedure
Groundwater	Damage to groundwater dependent ecosystems; Contamination of Groundwater.	CEMP Part D. Soil, Surface Water and Ground Water Management • Contingency Groundwater Monitoring and Management Procedure
Heritage and Aboriginal Heritage	Loss or damage to Heritage items or areas	CEMP Part D. Heritage Management • Unexpected Finds Heritage and Human Remains Procedure
Noise and Vibration	Reduced wellbeing in surrounding receivers; Impacting surrounding commercial activities causing loss of business. Damage to buildings or other structures.	Construction Noise and Vibration Management Plan
Flora, Fauna and Biodiversity	Loss of or harm to flora or fauna and habitats.	CEMP part D Flora, Fauna and Biodiversity Management • Flora and Fauna Unexpected Finds Procedure
Waste and Recycling	Inadequate waste processing and disposal causing environmental harm and potential harm to public health; Depletion of raw materials.	CEMP Part D Waste Spoil and Recycling Management • Waste Management and Recycling Procedure

Environmental Hazards (Aspect)	Associated Significant Environmental Impact (Risk)	EMS Document (Control /Mitigation measure)
Spoil	Spoil generation; Air, water and land pollution.	CEMP Part D Waste Spoil and Recycling Management • Spoil Classification, Reuse and Recycling Procedure
Traffic Management	Disruption to public roads traffic; Damage to property, structures or members of the public getting injured.	Construction Traffic Management Plan
Visual Amenity	Light spill affecting surrounding receivers; Visual sensitivity.	CEMP Part D Visual Amenity
Ancillary Facility	Affecting land use in the surroundings; Harm to flora and fauna; Damage to heritage.	CEMP Part D Ancillary Facility Management • New Ancillary Facility or Construction Compound Location Procedure

6.2 Standard Construction Hours

Construction activities under SSI 5931 are to be undertaken during the following standard construction hours:

- 7:00am to 6:00pm Mondays to Fridays;
- 8:00am to 1:00pm Saturdays;
- at no time on Sundays or public holidays.

Construction works outside of the standard construction hours may be undertaken in the following circumstances:

- construction works that generate airborne noise that is:

  (i) no more than 5 dB(A) above rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009);

  (ii) no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive receivers;
- Where a negotiated agreement has been reached with affected receivers, where the prescribed noise and vibration levels cannot be achieved;
- for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons;
- where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm;
- construction works approved in accordance with the Out of Hours Work (OOHW) Protocol included as part of a Construction Noise & Vibration Management Plan as required by Condition E29(b) of this approval;
- works approved through an EPL; and
- Works may be undertaken from 1 pm to 6 pm on Saturdays and from 7 am to 6 pm on Sundays and public holidays while the Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days) Order 2021 is in force provided that: No rock breaking, rock hammering, sheet piling, pile driving or similar activities are undertaken. Separate approval to conduct works under COVID-19 Order must be obtained from Sydney Metro.

Except as expressly permitted by an EPL or for works approved through the OOHW Protocol activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:

(a) between the hours of 8:00 am to 5:00 pm Monday to Friday;

(b) between the hours of 8:00 am to 1:00 pm Saturday; and

(c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

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

Any work outside of the above hours must have an Out of Hours Work (OOHW) Approval. Further details about management of OOHW are provided in the CNVMP.

6.3 Impacts on Property

The environmental aspects and impacts associated with the SMTF expansion, as set out in Table 17, have the potential to impact private or public property. All aspects and impacts will be managed in accordance with the control / mitigation measures summarised in Table 17 in order to eliminate or minimise any potential impacts on property and to prevent any damage.

Any property damage that does occur as a result of the SMTF expansion works will be rectified or the property owner compensated, within a reasonable timeframe, with the costs borne by Systems Connect.

Access to private properties will be maintained at all times during construction. As the construction works will take place within SMTF boundaries there are no anticipated impacts on other properties access. Further details are provided in the CTMP (SMCSWLWC-SYC-1NL-PM-PLN-000377).

6.4 Damage or Disruption to Utilities and Services

Construction activities have the potential to impact upon existing utilities, services and other infrastructure assets. Within and around the SMTF these may include in-ground services such as water, electricity, telecommunications and drainage services, and railway infrastructure.

Systems Connect has in place a suite of management procedures, plans and tools for managing and controlling activities which have potential to damage, disrupt or otherwise impact upon utilities, services and similar assets. These are aimed at protecting both assets and people, and include:

- Procedures for managing work on or around services
- Procedures for working in and around mobile plant
- Construction Area Plans
- Work Packs
- Permit to Excavate or Penetrate
- Safe Work Method Statements

The above management documents and tools incorporate processes for:

- Identifying and documenting utilities, services and other potentially affected infrastructure
- Contacting and consulting with the owner or provider of any such assets that may be affected
- Determining and implementing all requirements for safely accessing, diverting and/or protecting such assets as applicable

It should be noted that the risk of adverse impacts upon utilities, services or similar assets during the SMTF expansion is low, as all construction work will be taking place within the boundary of the SMTF. The expansion work is not being carried out in the vicinity of any incoming or outgoing services. The SMTF expansion will entail work on existing in-ground and overhead services, including water, drainage, electrical and rail infrastructure, for purposes of extending, re-routing or tying into. All such work forms part of the SMTF expansion work scope, and will be managed in accordance with the procedures, plans and tools listed above.

The cost of all arrangement and tasks associated with identifying, accessing, diverting, protecting and safely working on and around all utilities, services and other infrastructure assets will be borne by Systems Connect.

Disruptions to services are not planned or anticipated as part of the SMTF expansion. If this does become necessary, then Systems Connect will ensure that any disruption is minimised and will advise any affected local residents and businesses in advance of any planned disruption.

6.5 Stakeholder and Community Consultation

The Community Communications Strategy SMTF (SMCSWLWC-SYC-1NL-CL-PLN-000080) provides an overview of stakeholder communications and liaison. Generally, it covers the following aspects:

- Procedures, processes and strategies for the management of community liaison issues and dealing with stakeholders;
- Community liaison reporting and process;
- Development and implementation of community and consultation tools;
- Community and stakeholder consultation and the procedures, processes and timeframes for undertaking consultation;
- Processes for the management of enquiries and complaints;
- Processes for crisis management.

This strategy sits under the Sydney Metro Overarching Community Communications Strategy (SMCSWLWC-SMD-1NL-CL-PLN-000362).

The Environment team will work closely with the Community and Stakeholder Relations Manager assist with the following:

- Responding to environmental complaints;
- Inform whenever construction activities (e.g. OOH, high noise, traffic changes, etc.) might affect properties, residences and business requiring previous consultation and notification;
- Identify measures to minimise potential impacts on sensitive receivers near the construction area, within the scope of this CEMP and associated Sub-Plans.

PART B: IMPLEMENTATION

Elements and Expectations

Part B of this Plan explains how the Systems Connect EMS will be implemented. It is based on a set of 12 Elements that describe the requirements for environmental management in accordance with IS 14001:2015. Compliance with all elements of the EMS will minimise the likelihood of causing unauthorised environmental harm and maximise the uptake of opportunities to reduce environmental impact in delivering LWW.

Part B contains the following:

Environmental Elements and Expectations: These describe what is required of Systems Connect to implement the objectives of the Environment and Sustainability Policy Statement:

- **Element** Key aspects for managing this function in delivering the LWW
- **Expectation** The outcomes achieved as part of each Element.

Requirements: These are the specific actions required to demonstrate compliance with the Elements and Expectations.

Responsibility and Key Contributor: Designation of responsibility for achieving compliance with the stated Expectation. Key contributors assist/contribute to achieving compliance.

Deliverables: Tangible outcomes produced to demonstrate compliance with the environmental Elements and Expectations.

Element 1: Leadership, Accountability and Culture

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
1.1 Environmental accountabilities, roles and responsibilities for managers, staff, employees and subcontractors are clearly defined, documented and communicated	**Roles and Responsibilities** Environmental responsibilities are included in all Position Descriptions. Roles that carry specific environmental accountabilities (e.g. those that supervise or manage work with specific environmental risks) are included in Section 4. The environmental responsibilities contained in Position Descriptions are communicated to each person by their immediate supervisor upon commencing in their role.	**Project Director** **HR Manager** Environmental Manager Relevant functional managers	Position Descriptions
1.2 Environmental leadership and commitment is demonstrated through measurable participation in environmental management	**Participation and Measurement** All personnel in leadership roles on the project participate in environmental management activities, including observations, incident reviews and HSE committee meetings. In addition, project management will: • Regularly review environmental performance against project KPIs and raise corrective actions to maintain or improve environmental performance as necessary; • Address pertinent environmental matters at communication forums.	**Project Director** Functional Managers Supervisory staff Environment Manger	Measurement system output to include: Observation records, Incident reviews, HSE Committee meeting attendance (minutes), delivering toolbox talks
1.3 Environmental expectations are clearly defined with appropriate reward and disciplinary processes in place.	**Environmental Policy** The Systems Connect Environmental and Sustainability Policy (Appendix C4) will be communicated in project inductions and prominently displayed at the Project Office. The Project Director and all personnel in leadership roles will participate in environmental management activities, including toolbox talks, and raising any environmental issues observed during inspections and incident reviews.	**Project Director** Environment Manger Sustainability Manager Construction Manager Senior Project Managers Relevant functional Managers	Environmental policy displayed and communicated in site inductions Observation records Incident reviews Delivering toolbox talks

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Project Environmental Procedures Environmental Procedures are as detailed in Section 5.5. The procedures will be communicated to the Systems Connect workforce and will be reviewed as set out in this CEMP and the relevant Sub Plans and Aspect Specific Management Plans. Any person who fails to undertake works in accordance with the procedures will be managed in accordance with Systems Connect requirements for counselling, discipline and, if needed, termination.	**All personnel**	Environmental procedures
	Managing Personal Performance Environmental performance objectives will be set for individuals with environmental leadership roles during the performance and development review process. Performance and development reviews will be undertaken every six months and include an assessment of performance against any individual environmental goals in addition to project environmental objectives and targets.	**Human Resources (HR) Manager** *Environment Manager*	Performance Reviews
	Performance Targets and objectives Environmental performance targets for the project have been identified in Part A. Section 3.9 of this document and in relevant Procedures, Sub Plans and Aspect Specific Management Plans.	**Project Director** Environment Manager	Targets and Objectives communicated in site inductions Monthly reports
	Managing Personal Performance Environmental performance goals will be set and reviewed for individuals with environmental leadership roles (refer to Element 1.1 above) during the performance and development review process.	**Human Resources Manager** **Environment Manager** Functional Managers	Performance and development reviews

Element 2: Planning

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
2.1 Adequate resources are provided to effectively implement the EMP	**Resources** The project budget includes sufficient allowances to implement the CEMP, including people, technical environmental expertise, equipment, materials, training, plant, and infrastructure. The Environment Manager is consulted in setting and revising (forecasting) the project budget. Sufficient people are appointed to the project to implement the CEMP.	**Project Director** Commercial Manager Environment Manager HR Manager	Project budget Project forecasts Organisational structure Training matrix
	Environmental Monitoring The Environment Manger is accountable for developing the Environmental Monitoring Schedule(s) (MIRRA) prior to any works commencing on the project. The Environment Manager will identify all equipment, equipment maintenance (including calibration) and personnel required to implement the schedule and ensure necessary allowances in the project budget and forecasts. All environmental monitoring on the project is planned according to the requirements of the Knowledge document Environmental Monitoring and is defined where relevant in the Environmental Sub-Plans, within Appendix C6 of this Plan and within each Environmental Procedure in PART D of this plan.	**Environment Manager**	Environmental Monitoring Schedule(s) Environmental Sub-Plans Environmental input into Project budget Project forecasts
2.2 systems are defined and established	**Define and set up IT Systems** Applications required to management environment on the project are defined and established prior to works commencing. Systems to be used include: • **Synergy** - Reporting and recording all environmental incidents, environmental issues, non-compliances, audit results and corrective actions • **Synergy** - To schedule all inspections and environmental monitoring activities and track completion of scheduled activities • **SHE Risk Register** – To manage environmental risk registers • **JD Edwards** (NGER module) to capture energy use and emissions, and water and waste data • **Environmental Monitoring Spreadsheets**– To capture and analyze all environmental monitoring data. • **Teambinder -** Project Document Management System	**Project Controls Manager** **Environment Manager**	Applicable business systems
2.3 Environmental Planning is managed to meet with	**Identify Significant Environmental Hazards (SEH)** Significant environmental hazards (aspects and Impacts) relating to the projects activities have been identified through the review and analysis of environmental reports, contractual documents, and community and legal compliance requirements relating to	**Environment Manager**	Significant Environmental Hazards and Environmental Sub-Plans listed in Part A

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	project delivery timeframes	the project and supported by professional experience of the assessor. The project SEH list in Part A Section 6 is reviewed by the Environment Manager at a minimum of 6 monthly intervals. The review should be supported by the current environmental risk and opportunities identification and analysis assessment and project environmental performance.		Sub-Plans contained in Part C
		Environmental Sub-Plans and Aspect specific Procedures Environmental Sub-Plans, Aspect specific Procedures (Part D) and work flow procedures (appendix C8) are reviewed for on-going relevance and accuracy by the Environment Manager. The frequency of review is triggered by incident history, changes to the project, including contract variations, and management review requirements. Reviews are documented, and records retained in the project document management system.	**Environment Manger**	Reviews of Sub-Plans Aspect Specific Plans and workflow procedures
		Approvals delivery Strategy The Systems Connect Planning Approval Delivery Strategy has been developed to address both the staging of construction and Planning Approval obligations. This CEMP, Sub Plans, aspect specific management plans, environmental procedures (PART D) aspect specific management procedures (Appendix C8) and tools to address the minimum requirements of the staging report. This CEMP will be progressively developed to support delivery of LWW Portions by Systems Connect. Appendix C7 Planning Approval Document Delivery Strategy details the planned delivery strategy.	**Environment Manger**	Reviews and updates of CEMP, environmental Sub-plans and Procedures
2.4	2.4 Appropriate management forums specific to environment, planning and sustainability are established	**Environment and Planning Co-ordination Meetings** Environment and Planning Co-ordination meetings attended by representatives from the Systems Connect Approvals, Environment and Sustainability Team, ER, IC and representatives from Sydney Metro will be held fortnightly (unless otherwise agreed) to discuss: • Environment Planning Approval documentation and approvals progress • Any observations, issues and trends arising from the ER Inspections (refer to Element 3.5) • The management of any environmental complaints • Any non-compliance notices (refer to Element 3.5) • Upcoming works. This meeting is to be an 'open' forum for discussions of environment and planning related items. Comments made by SM are for information only. Only the Principal's Representative or the ER can give directions and any directions are to be provided in writing in accordance with the D&C Deed.	**Environment Manager** *Project Environment Manager* *Project Sustainability Manager* *Environmental Representative* Representatives from SM	Meeting Minutes

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Working Groups Systems Connect will also hold separate forums on the management review timeframes. These forums will be held on a needs basis in planning and delivering the LWW. of key environmental issues such as contamination, heritage and construction noise and vibration. Systems Connect will invite SM, the ER, IC and Systems Connect's specialist environmental consultants to attend these forums. The purpose of these forums is to provide a proactive and comprehensive understanding of issues.		

Element 3: Legal and Compliance Requirements

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
3.1 Relevant legal, contractual and other requirements are identified and maintained	**Identifying Environmental Obligations** Requirements are identified in PART A - Section 3 of the CEMP, sub plans and aspect specific procedures. A Compliance Matrix is included in each plan. The compliance matrix identifies where requirements are addressed.	Environment Manager Project Director	CEMP Sub Plans Aspect specific Plans
3.2 All necessary environmental approvals are obtained prior to commencing relevant works and surrendered on completion	**Environment and Planning Approvals Delivery Strategy** Strategy for efficient and effective delivery of required approvals is detailed in PART A - Section 3.	Environment Manager Engineers Project Director	Environmental approvals in program
3.3 Work is planned and executed to ensure compliance	**Planning for Compliance** The Environment Manager (or delegate) is consulted upon commencement of development of all Construction Area Plans (CAPs) and Work Packs, and throughout their development. All controls necessary to ensure compliance are included in the CAPs and Work Packs and in the Environmental Sub-Plans and Procedures (Part D and Appendix C8 of this Plan). CAP's and Work Packs should include SEPs that clearly show the controls to be implemented. The project program is updated to include new approvals determined to be necessary following the review of work plans. CAPs and Work Packs are reviewed by the Environment Manager (or delegate) prior to the commencement of works described in their scope. Section 0 provides further details on how environmental management requirements are imbedded into construction management documentation.	**Construction Manager** **Senior Project Managers** Supervisors Engineers Environment Manager Engineering Manager	Reviewed WAPs and Work Packs by Project Environmental Rep Update project program
3.4 Environment and sustainability Monitoring is performed to establish baseline data and to ensure compliance is maintained	**Environmental and Sustainability Monitoring** Environmental and sustainability monitoring is carried out to establish pre-construction benchmarks, confirm compliance with the conditions of environmental approvals and laws, and to provide early indication of potential adverse impacts to the environment or community. The Project Environment Manager is accountable for managing environmental monitoring as required under this Plan, Sub Plans, Aspect Specific Management Plans and the Environment Procedures. Results of environmental and sustainability monitoring will be used for:	**Project Environment Manager** **Project Sustainability Manager** **Environmental Coordinators**	Environmental Monitoring Schedule Monitoring records Calibration records Corrective actions

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	• The evaluation of performance relative to legal, regulatory, contract, permit, licence and other commitments • The prompt identification and correction of incidents or possible incidents • Providing feedback on this CEMP and associated plans, including progress against targets • Providing the basis of internal and external reporting. An indicative summary of environmental and sustainability monitoring to be carried out for the LWW is included in Appendix C6 MIRRA Schedule. All monitoring is planned and conducted according to the requirements of the procedure Environmental Monitoring and as detailed in the Environmental Procedures (PART D of this plan) and Aspect Specific Sub-Plans. Environmental monitoring results are interpreted to identify actual and potential non-compliances and events that may result in nuisance, environmental harm, and unacceptable loss of amenity or community complaints. Corrective actions are taken immediately or are raised and managed using Synergy.		
3.5 Inspections, observations and monitoring are performed to ensure compliance is maintained	**Implementing Controls** Controls required to achieve compliance, as detailed in the CAPs and Work Packs, will be implemented before relevant works commence. **Hold Points** SEPs and Procedures will clearly identify all 'Hold Points' established to ensure all required approvals, management and mitigation are in place and where relevant sign-off is required prior to works/ actions commencing or recommencing. The Environmental compliance matrix contains an explanation, or link to EMS documents or an explanation of how compliance with each listed requirement is to be achieved and how the project will regularly demonstrate compliance with the requirement (if relevant).	**Supervisors** Engineers Environment Manager	Engineered (physical) and administrative controls (e.g. procedures, forms, training) in place

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	The following activities will be undertaken to monitor compliance throughout the project: • Inspections and Observations • Daily inspections • Weekly inspections • Start up and shout down inspections • ER inspections • EPA and DPIE inspections Controls are to be inspected regularly to ensure their ongoing suitability and effectiveness. Inspections and observations are planned and conducted according to the requirements of the Workplace Hazard Inspections and Observations Procedures. Inspections and observations are scheduled using Synergy and detailed in Appendix C6. The outcomes of inspections are captured on the inspection checklists. Corrective actions are raised, tracked and closed out in the Synergy – Action Plan Module or through the inspection records for all controls found to be inadequate.	**Supervisors** Engineers Environment Manager Inspection attendees	Observation records Inspection schedules Inspection checklists Corrective actions in Synergy – Action Plan Module or inspection records
3.6 All non-compliances are reported as incidents	**Environmental or sustainability non-compliance** An environmental or sustainability non-compliance can generally be defined as a failure to comply with: • Relevant environmental legislation • Project Planning Approval • Environment Protection Licence (where applicable) • Deed • Relevant Environmental Management Plans Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process. **Corrective and Preventative Actions** Corrective actions will be identified as follows: • Where an issue is identified and raised, the Environment Manager or delegate will liaise with the appropriate Systems Connect personnel or qualified person(s) to determine the most appropriate corrective action to implement.	**Systems and Safety Assurance Manager** **Environment Manager** All personnel	Inspection records Audit reports Non-compliance reports Incident reports

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	• Where assessed by Environment Manager to be appropriate, the corrective action will be actioned through Synergy as an Event. Preventive actions will be identified as follows: – Relevant incidents, complaints, audit findings, environmental issues and non-compliances are discussed at the Environment and Sustainability Coordination Meetings (see Element 2.4). – Trends relating to environmental incidents and non-compliance findings are reviewed at these meetings to identify any reoccurring issues that are indicative of the need to take preventative action. Any member of the Systems Connect team, including subcontractors can contribute and provide suggestion to any required or appropriate preventative action. • Where assessed by Environment Manager as necessary, a preventive action will be raised and action undertaken through Synergy as an Event.		
	Reporting Non-Compliances Non-compliances will be recorded and reported. This includes events involving an action being taken against the project by a Regulator raised as the result of an identified issue from an environmental inspection, complaint investigation or audit. Where considered appropriate, by agreement of Systems Connect, ER, IC and SM representatives, Environmental Issues identified during an environment inspection, complaint or incident investigation or audit will be closed out as part of the inspection, investigation or audit reporting process. Non-compliances will be documented as an Event in Synergy, which details the following information: • Date raised and by whom • Description of the system deficiency (non-compliance) • Cause and proposed remedy and action to prevent recurrence • Reinspection information • Date closed and by whom Details included in non-compliance reports will be specific to the event that has taken place. In the event that repetitive observations are made i.e. if non-corrected low risk site improvement actions are not corrected within the agreed timing for actions (for more than a month in most cases) the Environment Manager and/or ER will request that an Environmental Issue or Non-compliance to be raised. In the event that the ER requested Environmental Issue/Non-compliance is disputed, the ER may raise a Correct Action Request (CAR) for action by Systems Connect. Environmental related non-compliances are raised with the Environment Manager to determine appropriate actions and dates. On completion of agreed actions, the Environment Manager shall sign-off the Event Report to signify close-out and provide a copy to SM. Any	**Environment Manager** **Quality Manager** Superintendent Site supervisors Engineers ER	Event reports Incident reports

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	changes to operations or practices resulting from actions are to be communicated to employees and sub-constructors as required. **SM Raised Non-compliance, Corrective Action and Preventative Action** SM may raise an Environmental Non-compliance or CAR, however before formal issue Systems Connect and SM will meet and discuss the issue, whereby Systems Connect can elect to address the proposed issue. Upon issue, Systems Connect must address the non-compliance or corrective action under its own system.		
3.7 All energy and greenhouse data are collected and entered into JDE	**Greenhouse and Energy** All subcontractor fuel use to be collated and entered into the JDE NGER Module at the site level. Projects will track subcontractor energy reporting. All relevant records relating to the reporting of NGER data will be retained with project records for seven years. Any NGER data to be reported to the Client will be extracted from JDE using the Business Intelligence Tool. All energy (fuels, oils, greases, gases, electricity, solvents) purchased by Systems Connect and processed through JDE are captured centrally at the Group level.	**Environment Manager** Commercial Manager Project Director	NGER subcontractor register NGER data checklist Completed NGER subcontractor records Monthly HSE Statistical reports
3.8 Personnel on the site have access to current versions of relevant legislation, standards and codes of practice	**Updates to Legislation, Standards and Codes of Practice** Access to all relevant legislation will be available to personnel via EnviroLaw or other online resources (e.g. state or Commonwealth government websites or www.austlii.edu.au). Updates to legislation, standards and codes of practice will be reviewed to determine relevance. Work practices, the Environmental Sub-Plans attached to this CEMP, and Environmental Obligations Register will be altered where appropriate to ensure compliance and all affected personnel informed in a timely manner. Regulatory approvals will be obtained or amended as necessary, work practices altered to ensure compliance and all affected personnel informed in a timely manner.	**Business Unit** **Environmental Representative** **Environment Manager**	Updates distributed
3.9 Compliance tracking and reporting is performed as per contract requirements	**Compliance Tracking and Reporting** Tracking of compliance against planning, licensing and permit conditions held by Systems Connect will be undertaken in accordance with SM's Compliance requirements. Sydney Metro has developed a Compliance Tracking Report to incorporate the LW Works under SSI 5931. Compliance will entail population (by Systems Connect) of SM's Compliance Tracking Report template each quarter. This completed template will be forwarded to the ER	**Environment Manager**	Compliance Tracking Report

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	for endorsement (and submission to the Director General) through the project Document Management System. In accordance with the contract requirements, LWW will provide the SM with: (A) all the information, documents, details and data relating to the LWW's Activities to enable the SM to comply with condition of approval D5; (B) participate in any activities necessary under the Compliance Tracking Program.		

Element 4: Risk and Opportunity Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
4.1 Systematic processes are defined and implemented for identifying environmental risks and opportunities at all stages of the Project	**Identifying Environmental Risks** The risk management process is outlined in Section 5.2. Environmental risks associated with activities, products and services of the project are identified, recorded and tracked in the Project Principal Risk register. The Risk Register is maintained as part of the EMS. Environmental risks are considered during all subsequent project risk assessments as per the Contract Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000001). This includes: • Risk Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021) • The Principal Risk Assessment conducted at bid stage for major tangible risks; • Safety/Environment-in-Design workshops conducted throughout the project; • Construction Area Plan (CAP) risk assessments; • Work Pack risk assessments; • Project Prestart Meeting. **Sub Plans and Aspect Specific Management Plans and Procedures** Sub Plans and/or Aspect Specific Management Plans and procedures have been prepared to address the project environmental impacts as detailed in Sections 5.4 and 5.5. These Plans and procedures have been developed based on the Initial Environmental Risk Assessment attached in Appendix C3 Environmental Risk Register, and to address requirements of the Staging reports developed for delivery under the Planning Approval **Construction Area Plans, Work Packs and SWMS** Environmental risks and controls associated with a work areas or activity are drawn down from Plans and procedures in the CAPS, WPKs and SWMS and reviewed prior to implementation. Environmental risks and opportunities are considered during all subsequent project risk assessments as detailed in Section 5.2.	**Project Director** **Risk and Opportunities Manager (R&O)** Environment Manger Engineering Manager Engineers Supervisors	Environmental Risk and Opportunity Register Construction Area Plan Risk Assessments Work Pack risk assessments Project Prestart Meeting
4.2 Identified risks and opportunities are analysed and evaluated according to agreed criteria and recorded in a risk register	**Analysing Environmental Risks** Each environmental risk and opportunity will be evaluated and assigned a rating which is determined using the consequence and likelihood criteria in the Risk Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021). The influence of existing controls is considered in determining the risk rating. For each environmental risk: • An owner is assigned by the Project Director, • Existing controls are recorded, including the owner of that control, and • The residual risk will be evaluated.	**Project Director** **Risk and Opportunities Manager (R&O)** Risk owners Environment Manager Engineers	Environmental Risk and Opportunity Register Work Area Plan risk assessments Project Prestart Meeting

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Advice is sought from the Environment Manager as necessary by the project team to ensure CAP, Work Pack and SEP risk assessments are as informed and accurate as possible.		
4.3 Environmental controls appropriate to the level of risk are identified, documented and implemented	**Identifying Adequate Controls** If the risk rating returns a result of 'medium' or above, then additional controls sufficient to reduce the risk rating to 'low' or an alternative acceptable level using cost effective designs and engineering and/or administrative controls are to be utilised. Residual risks with a high or extreme risk rating will be considered 'significant' and must be controlled using appropriate systems of work, including Environmental Sub-Plans and project work procedure, along with available "hard controls". Approval to proceed is required prior to commencing Accountability for the implementation of each control is assigned in the respective Sub plan, Procedure and SEPs. Timing is set for its implementation as appropriate. Controls are selected in consultation with the Environment Manager to achieve the following, in order of preference: • Eliminate the risk by not performing the relevant activity • Substitute by performing the relevant activity in a way that presents a lower risk • Implement physical (engineered) controls (e.g. sediment basins, check dams) • Implement administrative controls (e.g. procedures, training, inspections).	**Risk and Opportunities Manager (R&O)** **Risk owners** Environment Manager Project Director Project Engineers	Controls agreed (engineered or administrative)
	Implementing Controls Controls are implemented by the accountable person as specified in the Sub Plan, Procedure or SEP by the due date. No activity is commenced until all relevant controls are implemented.	**Risk owners**	Controls in place (engineered or administrative)
4.4 Feasible opportunities are implemented	**Implementing Opportunities** Opportunities identified and for which a business case has been developed, are submitted to the appropriate member of the project leadership team for approval. Once approved, accountability for implementation of the opportunity is assigned and the opportunity is implemented. Environmental and cost benefits are recorded and reported in monthly reporting.	**Project Director** **Risk and Opportunities Manager (R&O)** Opportunity Owner	Monthly reports Case studies
4.5 Identified environmental risks and controls are communicated to	**Communications in line with Construction Planning** The environmental risks, controls and accountabilities identified are communicated to all relevant personnel. This is achieved through the preparation and communication of the construction methodology, CAPs, Work Packs, SEPs, the conduct of Safety/Environment-in-Design workshops.	**Project Director** Engineers Environment Manager	Toolbox talk content and attendee records Pre-start meeting content Records of communications and meetings

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
all relevant personnel	**HSE Communications** Environmental risks, controls and accountabilities are also communicated through delivery of HSE communications, including HSE Committee meetings, toolbox talks and pre-start meetings.	**Engineers** Supervisors Environment Manager Project Director Safety Manager	Site induction content Toolbox talk content and attendee records Pre-start meeting content Records of communications and meetings
	Communication through Training Nominated administrative controls, including procedures and training, will be communicated through the delivery of training in their requirements. The planning and delivery of this training is provided according to the requirements of Workforce Development and Industry Participation Plan (SMCSWLWC-SYC-1NL-PM-PLN-000028).	**Environment Manager** HR Manager	Training schedule Training matrix Training records
4.6 Regular inspections and monitoring are conducted to check effectiveness of controls	**Inspections, Observations and Monitoring** The processes for inspections, observations and monitoring are described in Part A section 3 and Part D of the CEMP and detailed in Appendix C6.	**Environment Manager** Project Director Engineers Supervisors	Observation records Inspection schedules Inspection checklists Corrective actions in Synergy
4.7 Environmental risks and controls are regularly reviewed.	**Risk Review** The relevance and adequacy of environmental risks and controls identified in this CEMP, the Principal Risk Assessment, CAP and Work Pack risk assessments are reviewed and updated according to Contract Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000001).	**Project Director** **Risk and Opportunities Manager (R&O)** Environment Manager Engineers	Environmental Risk Register Updated risk registers in ARM, CAPs and Work Packs

Element 5: Change Management

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
5.1	Changes to the design are assessed	**Design Changes** Scope changes might occur during the delivery of LWW. This section has been prepared to address this additional scope of work without the need for additional updates. During delivery, Systems Connect will assess the consistency of design and or construction methodology changes with the Project Planning Approval in accordance with: • Section 115ZI of the EP&A Act in consultation with SM and the ER. • Applicable Planning Approval conditions for the scope of works at each stage. **Consistency Assessments** will be prepared in accordance with Sydney Metro Planning Approval Consistency Assessment. Once Consistency Assessments are complete, they will be submitted to SM for ER review under Project Planning. SM will provide copies of approved assessments to the ER and Systems Connect. If required, this Plan or other relevant environmental and planning documents will be revised to incorporate additional commitments or mitigation measures and the ER will review and endorse these changes in accordance with the project. A register of all design changes approved for implementation on the LWW will be maintained by SM with input from Systems Connect. SM is responsible for assessing and obtaining any necessary approvals for changes it instigates unless otherwise specified in the Modifications.	**Engineering Manager** **Design Team Manager** **Environment Manager** Sustainability Manager Construction Manager ER SM	Consistency Assessment
5.2	Changes to planned operations that have potential environmental consequences are identified	**Identifying Change** Personnel promptly report any ‘medium’ or ‘major’ changes that could affect the environment and/or community A ‘medium’ or ‘major’ change could result from a change to design, plant (fixed and mobile), systems, personnel and work methods such that the absence of a considered review could compromise the project’s ability to comply with its obligations and/or result in an inadequate range of controls which could lead to an incident or result in community nuisance. A ‘medium’ change is one which includes permanent changes to Work Pack methodology or work conditions. A ‘major’ change is one which is site-wide or requires a revision of CAP’s. Personnel have received appropriate training to identify changes and apply change management processes. This includes all supervisory staff being informed of the need to have changes approved prior to commencing relevant works.	**Project Director** Environment Manager Engineering Manager Engineers Supervisors	Change Requests Training matrix Training records
5.3	Risks associated with identified changes are	**Risks Associated with Change** All proposed changes are documented, including the assessment of risks relating to the change. Key personnel affected by the change are involved in the risk assessment. All	**Project Director** Modifications Manager	Change Requests Revised risk assessments

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
assessed and controlled before changes are implemented	changes are requested or sponsored by a supervisor or manager, who then becomes the change owner. Input from environmental personnel is sought as necessary. The approach to risk assessment and the implementation of controls will follow the requirements of Element 4 of the EMP.	Supervisors Environment Manager	
5.4 All changes with environmental consequences are authorised before they are implemented	**Approvals of Change** All change requests are approved by the supervisor or manager of the change owner, or as otherwise required by the project delegations, before any relevant work commences and a record is maintained. This must include any approvals associated with revised CAPs and Work Packs by the Environment Manager (or delegate).	**Project Director** Construction Manager Engineering Manager Environment Manager	Change Requests
5.5 Controls associated with change are communicated to all affected personnel	**Communication of Change** Affected personnel will be consulted and understand the effects of change before the relevant works commence. This is achieved through toolbox talks, daily pre-start meeting, HSE committees or forums arranged to specifically address changes.	**Modifications Manager** Supervisors	Toolbox talk material Pre-start meetings Attendance records Meeting minutes

Element 6: Communication and Consultation

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
6.1 Internal Culture of Collaboration	The Systems Connect Environment and Sustainability Team will work collaboratively with the commercial, design, construction and communication teams to formulate integrated management strategies. Interdisciplinary meetings will be held on key multidisciplinary issues.	**Project Director** **Environment Manager** Stakeholder and Community Relations Manager Commercial Manager Design Manager Construction Manager	Integrated Management Strategies
6.2 External environmental stakeholders are identified	**Identifying External Stakeholders** A comprehensive stakeholder analysis will be performed to identify external stakeholders and their interests in the environmental management of the project. This will include community members and others who could be affected by the project works, as well as government and environmental lobby groups. The Environment Representative will be involved in the analysis process.	**Community & Stakeholder Relations Manager** Environment Manager	Stakeholder register or database Stakeholder Analysis
6.3 Relationships with external stakeholders are effectively managed	**Managing Relationships** Activities performed to effectively manage relationships with external stakeholders include: • Identifying environmental risks that relate to stakeholder interests by considering the impacts to stakeholders (documented in Environmental Risk Register) • Determining suitable controls and activities to mitigate risks (general controls and activities documented in Environmental Risk Register, details in Environmental Sub-Plans, CAPs, and WPKs). • Performing inspections, audits, stakeholder engagement and monitoring activities to assess the effectiveness of controls Actively engaging stakeholders through open communication and involvement.	**Environment Manager** Community & Stakeholder Relationsd Manager Project Director	Principal Environmental Risk Register Risk assessments in CAPs, Work Packs, Environmental Sub-Plans and Procedures Audit reports Monitoring results Communications material Forums and opportunities for stakeholder engagement
6.4 Internal consultative forums are established with regular meetings scheduled, conducted,	**Consultative Forums** A schedule of communication forums will be developed which includes: • Managers' meetings that are to address environmental matters at least monthly; • Regular Environmental Toolbox Talks; • Pre-start meetings prior to commencing a shift;	**Project Director** Environment Manager Safety Manager	Minutes of meetings Toolbox Talks Pre-Start meetings Attendance records

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
documented and communicated	The Project Director will establish appropriate environmental interfaces with the Client and regulatory bodies. Records will be kept of all HSE communication activities (e.g. attendance records). The effectiveness of the meeting outcomes will be reviewed as required.		
	Actions from Consultative Forums Actions arising from consultative forums are assigned and communicated to a responsible person and confirmed as being completed. The project will identify, track and complete environmental related actions using Synergy – Action Plans Module.	**Community & Stakeholder Relations** Environment Manager	Synergy – Action Plans Module
	HSE Signs and Notice Boards Dedicated HSE notice boards will be prominently located and maintained with current environmental information.	**Environment Manager** Environment Coordinators	Signs and notice boards installed with current environmental content
6.5 Environmental complaints and enquiries are recorded and responded to appropriately	**Responding to Complaints and Enquiries** All environmental related complaints will be classified according to the Incident Classification Matrix and recorded in Synergy. Complaints are treated as an incident and managed according to Element 9 of the CEMP. Corrective actions are agreed and implemented, with accountabilities and time frames assigned. The complainant or enquirer is notified of the intended project response once approved by the Project Director.	**Community & Stakeholder Relations Manager** Environment Manager Project Director	Incident records Records of communications
	Changes to Environmental Monitoring Environmental monitoring programs will be reviewed to address matters raised through valid complaints and consultations with stakeholders. Amendments to the monitoring program will be adequate to allow early identification of conditions that are likely to result in further complaints and/or exceedances. Data will be analysed to identify actual and potential impacts to the community, and corrective actions implemented.	**Environment Manager** Community & Stakeholder Relations Manager	Monitoring schedule Monitoring records Corrective actions in Synergy
	Client and Internal Notifications The Business Unit Environment and Approvals Manager and Corporate Communications Manager are notified of complaints that have or are likely to generate media interest. The Client is notified according to the conditions outlined in the Contract.	**Project Director**	Record of communication
6.6 The effectiveness of internal and external	**Evaluation of Internal and External Communications**	**Project Director**	Meeting minutes

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
stakeholder engagement is evaluated and improved.	The effectiveness of internal communication and consultation activities will be formally reviewed as required. The effectiveness of external communication and consultation activities will be formally reviewed as required. The Environment Manager participates in both of these reviews, which are led by the Project Director and include the Community and Stakeholder Manager and Safety Manager. The Environment Manager will also regularly attend and review the effectiveness of forums and recommend changes to the scheduling or style of forum.	Community & Stakeholder Relations Manager Environment Manager Safety Manager	
6.7 Share knowledge	**Knowledge sharing** Systems Connect will ensure knowledge sharing, internally to the LWW, and where considered necessary, with parent companies and key stakeholders and the wider infrastructure industry in order to ensure that lessons learnt are implemented across the LW worksites, contribute to knowledge and capacity building and assist in a larger market.	Project Sustainability Manager	Environmental alerts Meeting minutes Conference presentations

Element 7: Training and Competency

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
7.1 All personnel have completed an induction containing relevant environmental information before they are authorised to work on the Project	**Inductions** All personnel, subcontractors and visitors will undergo an induction before commencing work on-the project. The induction addresses general and project-specific environmental issues, including: • Systems Connect's environmental policy; • How the CEMP will be implemented on-site; • High-risk environmental activities on the project and their controls; • What to do in the event of an environmental incident. An assessment will be conducted upon completion of the induction. Induction materials are reviewed at least annually and amended to reflect changes to project environmental risks, the status of community relations and the occurrence of incidents. There are a number of induction types as listed below: • Project Office Induction • Site inductions and toolbox • Visitor inductions In line with the CEMF requirements site inductions will also include: • Training purpose, objectives and key issues; • Systems Connect key performance indicators; • Due diligence, duty of care and responsibilities; • Relevant conditions of any environmental licence and the relevant conditions of approval; • Site specific issues and controls including those described in the environmental procedures; • Reporting procedure for environmental hazards and incidents • Communication protocols	**Environment Manager** HR Manager Safety Manager	Induction materials Training attendance records Completed induction assessments
7.2 A training plan is developed and documented	**Identifying Training Needs** Relevant environmental training needs (including specialist training) required to deliver this CEMP are identified and documented within the project's training matrix. In populating the training matrix, the environmental training requirements for each role are addressed, including competency, needs and capability.	**Environment Manager** HR Manager	Training matrix Performance and Development management plans Subcontractor agreements

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	The Environment Manager will contribute to the development of the training matrix. The performance and development management process provides an opportunity to identify and plan the delivery of training needs not provided in the training matrix, or that are necessary to aid in the development of the individual. Subcontractor training and competency responsibilities will be included in subcontractor agreements.		Subcontractor Start-Up Meeting minutes
	Scheduling Training Needs A project training schedule will be developed to plan the delivery of training needs identified in the training matrix. Refresher training intervals will also be defined where applicable.	**HR Manager** Environment Manager	Training schedule Training records
7.3 Personnel are trained and assessed according to the training plan	**Provide Training Resources** All resources for delivering the training schedule, including personnel, equipment, funding and materials, will be allowed for in the project budget.	**Project Director** Environment Manager	Project budget
	Delivery of Training All training identified in the training matrix will be delivered according to the training schedule. Training and development needs identified through the performance and development process will be achieved as per time frames nominated in individual plans. Personnel delivering environmental training must be deemed competent by the Environment Manager or Business Unit Environment and Approvals Manager. Where specialist training is required, the appropriate training course or qualified persons will be sourced to deliver the training.	**Project Director** HR Manager Environment Manager	Training records
	Training Evaluation and Review Training assessments and evaluation forms will be used to assess the effectiveness of training. Training evaluation and feedback will be reviewed and used to improve the quality of environmental training delivered on the project. The training matrix and schedule will be completely reviewed at least annually or prior to the commencement of major new tasks.	**HR Manager** Environment Manager	Training evaluation forms Training matrix
7.4 Regular toolbox talks and pre-starts will be delivered	**Toolbox Talks** Toolbox talks will be held on a regular basis in order to provide a project or site wide update and refresh environmental awareness including: • Key or recurring environmental issues; • Following a relevant incident; • Relevant site procedures;	**Environment Manager**	Toolbox records

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	• Following relevant changes on the CEMP and associated documents. Relevant changes include any that might impact the way environmental aspects are to be managed on site **Pre-Starts** Pre-start meetings will be held on site on a regular basis in order to discuss key risks and controls for the activities being undertaken, ensure all personnel understands their responsibilities and who to report any issues during the works.		
7.5 Training records are maintained and accessible to relevant personnel.	**Training Records** Records of all training activities, including inductions, will be maintained. Records will include the name and role of the attendee, the name of the course and, where applicable, reference to the document controlled version of the material presented, and a copy of the assessment completed. Internal training records will be signed off by the attendee.	**HR Manager** Environment Manager	Training records

Element 8: Subcontractor Relationships

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
8.1 Selection processes ensure that subcontractors meet Systems Connect's minimum environmental requirements	**Subcontractor Selection and Engagement** Subcontractors engaged on the project are required to undergo a thorough assessment prior to selection. The Environment Manager will be consulted on environmental requirements of subcontracts and the adequacy of proposed conditions. Subcontractors will be made aware of Systems Connect's environmental requirements during the tender process and Start-Up meetings.	Commercial Manager **Engineers** Environment Manager	Subcontractor Agreements
8.2 Planning requirements of all subcontractor work scopes are completed and communicated prior to commencing work	**Identify, Complete and Communicate Planning Requirements and Documentation** The scope of work to be performed by each subcontractor is reviewed to determine whether it includes works for which project planning and environmental risk assessments have been completed. If so, the subcontractor is formally informed of all relevant risks and existing project documents, systems and procedures to be followed prior to commencing works (in addition to having been informed of these during the tendering process). These may include the contents of the construction methodology, CAPs, Work Packs, SEPs, and Environmental Sub-Plans in this CEMP. If the scope of works includes activities not already addressed in project planning and risk assessment, then an appropriate risk assessment is performed and either existing documentation is revised or new documentation produced. The Environment Manager should review this new documentation to ensure it meets project requirements. In either case, the subcontractor must be formally informed of all requirements prior to commencing works.	**Engineers** Environment Manager Commercial Manager	Construction Area Plans (CAPs) Work Packs SEPs Records of subcontractor notification
8.3 Compliance requirements for high risk environmental activities are identified and enforced	**Compliance requirements** For high risk environmental activities, the Environment Manager will review the subcontractor's scope of works with the supervising Engineer and: • Identify any new issues relevant to the subcontractor's scope of works; • Identify any additional compliance requirement not captured; • Identify necessary approvals not already in place and obtain those approvals prior to any works commencing; • Update the relevant Environmental Sub-Plans, SEPs, and Environmental Obligations Register with details new approvals and their conditions. The Environment Manager will review the CAP and Work Packs, for high risk environmental issues. The subcontractor will be informed of all relevant environmental issues/risks and controls, procedures and documents to be followed and implemented in order to	**Engineers** Environment Manager Commercial Manager	Records of subcontractor notification

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	achieve compliance during the tendering process. This will be reinforced during the Start-Up meeting. The subcontractor will be informed of the requirement to provide all relevant data relating to their works as per the National Greenhouse and Energy Reporting Act 2007 (Cth).		
8.4 Subcontractor documentation is submitted and reviewed to meet Project requirements	**Documentation Preparation and Review** The subcontractor will provide Systems Connect with all required environmental documentation prior to commencing work on the project as described in the executed agreement, including any requirement to produce an Environment Management Plan. Any further requirements will be agreed by the Commercial Manager and the Environment Manager.	Environment Manager **Engineers** Commercial Manager	Subcontractor environmental documentation
8.5 Changes to the scope of work are managed as a Project change	**Manage Changes/Variations** Changes and variations to subcontractor scopes of work will be assessed as a change according to the requirements of Element 5 of the CEMP. Documentation will be amended accordingly.	Commercial Manager **Engineers**	Change Requests
8.6 Subcontractors actively participate in environmental management and training on the Project	**Subcontractor Environmental Participation** Subcontractors will participate in HSE communication forums and monitoring activities, as a minimum, including: • Project induction; • Scheduled HSE management meetings, toolbox talks, pre-start meetings, HSE committees (as required); • HSE observations, inspections and audits; • Incident investigations (as required); • Development or review of safe work systems and SEPs (as required).	**Commercial Manager** Environment Manager Subcontractors Engineers	Attendance records Monitoring records
	Subcontractor Training Subcontractors will undergo all necessary environmental training including any required by the project. The required training will be determined by reviewing the training matrix relative to the scope of work and roles being filled or supplied by the subcontractor. The delivery and management of training will be as per Element 7 of the CEMP.	**Subcontractor** Environment Manager HR Manager	Subcontractor training records
8.7 Subcontractors are reviewed to assess their performance and compliance with our	**Subcontractor Audits and Reviews** Subcontractors will be regularly inspected and observed for environmental performance as per Element 3.4 of this CEMP.	Environment Manager **Engineers** Supervisors	Audit reports Inspection and monitoring records

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
minimum environmental requirements.			

Element 9: Incident Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
9.1 All incidents are followed by appropriate response and notification	**Incident Response** The immediate response to all incidents is to make the area safe and undertake measures to prevent further environmental harm. An assessment will be made in consultation with the Environment Manager to ensure that responses do not result in further harm. **Initial Incident Notification** The Project Director, Construction Manager and Environment Manager are to be notified immediately of the following incidents: • All Level 1 and Level 2 environmental incidents, and PL1 and PL2. • The Environment Manager is also to be notified of any actual Class 3 environmental incident, procedural or legal breach. • For Level 1 and Level 2 incidents and PL1 and PL2, the Project Director will immediately notify the Business Unit General Manager and the Business Unit Environment and Approvals Manager. The Project Director will also notify the Business Unit General Manager of the need to activate the Project's Emergency Response Procedure and the Group Crisis Management Plan if necessary. The Client will be notified of all environmental incidents as per the agreed contractual arrangements. The ER will also be notified within 24 hours of the incident occurring. LWW will immediately advise SM of any notifiable incident as per CoA D6. Any incident with significant off-site impacts on people or the biophysical environment must be reported to DPIE within 48 hours. Environmental incidents will also be reported to regulators in accordance with the requirements of local, state and federal government regulations, also refer to the Emergency Response Plan (SMCSWLWC-SYC-1NL-PM-PLN-000748). **Preserve the Incident Scene** Scenes of environmental Level 1 and 2 incidents and PL1's are to be preserved until the incident investigation team has collected relevant data and evidence (see below).	**Project Director** Construction Manager Environment Manager Community & Stakeholder Relations Manager Engineers Supervisors	Records of incident notifications\ ERP
9.2 All incidents are entered and managed in Synergy	**Incident Classification and Reporting** Environmental incidents will be classified using the Incident Classification Matrix by the Environment Manager in consultation with the Project Director. All environmental incidents, including community complaints, will be reported using the Synergy within three calendar days.	Environment Manager Project Director	Incident records Root cause coding

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Root causes will be identified and recorded in Synergy for all Class 1, 2 incidents and HPIs (and optionally for Class 3 incidents). All statutory notices received from regulators, including penalty notices and fines, will be entered as Environmental Legal Issue incidents upon receipt.		
9.3 Incident investigations are conducted appropriate to the type of incident	**Project Incident Investigations** All incidents will be investigated according to company procedures. The level of investigation needed will depend on the incident classification. Corrective actions, including those required to help prevent future incident occurrences, are a key outcome of incident investigations. Incident investigation reports are to be uploaded to Synergy. **Statutory Authority Investigations** Before any staff member is questioned by officers of a statutory authority they will endeavor to consult the Project Director to determine whether Legal Counsel is needed. Regulatory inspectors must be given appropriate assistance during their own investigations.	**Project Director** Environment Manager Environment Advisor Supervisors Engineers	Incident investigation reports
9.4 All personnel conducting incident investigations are trained to competently perform the task	**Incident Investigation Teams Competent and Trained** The selection of the investigation team will be up to the Project Director and will depend upon the severity of the incident, and the availability of experienced personnel. However, the investigation team does need to have a mix of both Operational and HSE Staff. The following should be considered when selecting an investigation team: • Statutory requirements; • Systems Connect Corporate requirements; • Technical specialists with an understanding of the work process; • Administrative Support; • Mix of skills and experience; • Potential conflict of interest for any proposed member.	**Project Director** HR Manager	
9.5 Corrective and preventive actions are taken after incidents and lessons are shared with other projects	**Corrective & Preventive Actions** Following an incident, corrective and preventive actions will be identified, assigned to the appropriate person/s and closed out according to set time frames. Time frames are set to ensure damage incurred is rectified and any chance of recurrence is eliminated as soon as practicable. Corrective actions will also address requirements set by DPIE following a notifiable incident.	**Project Director** Environment Manager	Corrective action records on Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Synergy will be used to assign and track corrective actions. All corrective actions will include reference to the relevant incident record for ease of tracking.		
	HSE Alerts HSE Alerts will be submitted for all Class 1 and 2 incidents and HPIs to the Project Director and Business Unit Environment and Approvals Manager for distribution outside of the project team. HSE Alerts will also be raised for all other incident types at the discretion of the Environment Manager, Project Director or Business Unit Environment and Approvals Manager.	**Environment Manager** Project Director	HSE Alerts
9.6 High potential and repeat incidents are regularly reviewed by the project management team	Each month the Environment Manager will, as a minimum, identify trends in incidents (as a minimum, all Class 1 and 2 incidents and HPIs) and trends in root causes to suggest the nature of preventative actions which are warranted. The Project Director will approve actions to address incident occurrences and incident and root cause trends. Actions will be managed using the Synergy.	**Environment Manager** **Construction Manager** **Project Director**	Monthly project reports Corrective actions

Element 10: Emergency Planning and Response

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
10.1 Potential emergencies are identified using a formal risk assessment process	**Identifying Potential Emergencies** Risk assessments conducted in accordance with Element 4 of the CEMP are used to identify potential emergencies on the project. Activities found to have an environmental consequence of 4 or 5 as per the definitions for environmental consequence contained within the Systems Connect Risk Management Protocol will be considered potential emergencies.	**Project Director** Environment Manager R&O Manager	Environmental Risk Register Principal Risk Assessment
10.2 Emergency response plans and procedures are developed and regularly reviewed	**Emergency Response Plan** An Emergency Response Plan (SMCSWLWC-SYC-1NL-PM-PLN-000748) that addresses all identified potential environmental emergencies with specific emergency procedures for each different potential emergency will be developed. The plan will address or include the following: • Nominated and trained emergency coordinator and emergency wardens; • Explanation of communications to be performed during an emergency; • Categories of environmental emergencies and incidents; • Explanation of what a crisis is as compared to an emergency and what to do in the event of a crisis; • The details of emergency services contacts; • Emergency assembly locations; • A detailed location map showing the site in relation to local public roads; • A detailed site layout diagram; • Information about personnel and facilities available to help emergency services; • Specific emergency procedures for each potential emergency identified that aim to protect human health and environmental values, including assessment of resources required to respond to that emergency; • Notification protocols; • Post-emergency actions. The ERP will be updated at least annually or when there are significant changes to project activities or in response to revised and new risk assessments.	**Project Director** Construction Manager Environment Manager Safety Manager	Emergency Response Plan and procedures ERP
10.3 Adequate resources are provided to effectively implement emergency response plans and procedures	**Emergency Response Plans Adequately Resourced** Resources required to implement the Emergency Response Plan will be available on the project and be maintained. Necessary resources include but are not limited to: • An emergency coordinator and emergency wardens; • Spill response kits; • Firefighting equipment;	**Project Director** **Construction Manager** Environment Manager Safety Manager	Project resources for Emergency Response Plan and procedures

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	• Barricading; • Vehicles.		
10.4 Environmental emergency response drills are conducted	**Environmental Emergency Response Drills** Environmental emergency response drills will be conducted at least every six months. The emergency scenario of the drills will be rotated to avoid repetition and be relevant to the activities occurring at the time. Records will be kept of the results for all drills. Where testing and evaluation shows a deficiency in either emergency preparations or the Emergency Response Plan, appropriate corrective and preventive actions are taken and raised and managed using Synergy.	**Project Director** Construction Manager Environment Manager Safety Manager	Emergency response drill records Corrective action records in Synergy
10.5 Employees, contractors and visitors are given appropriate emergency response training.	**Emergency Training** Emergency coordinators and wardens are trained to implement the emergency response plans. Specific training requirements will be identified and captured within the training matrix and will be delivered according to company procedures. Visitors are informed of requirements during the visitors' induction. **General Workforce Training and Awareness** All personnel and subcontractors will receive training to inform them of their roles and responsibilities in the event of an emergency. This training and awareness will be provided during project induction.	**HR Manager** Environment Manager Safety Manager	Training matrix Training schedule Training and induction records

Element 11: Document and Record Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsibilities Key Contributor	Deliverables
11.1 Current versions of all relevant documents and records are available and controlled.	The project must ensure that all documents and records referred to and required to implement the CEMP, including the plan are controlled and maintained according to Systems Connect requirements. This includes but is not limited to all: • Management plans & Procedures • Knowledge and Tools • Templates (e.g. audit template, training matrix) • All electronic records saved in electronic databases such as Synergy, ChemAlert etc. **Document Types** The types of records to be generated on the project that are to be stored and maintained include: • Environmental monitoring results - 30 years from the date of any incident or completion of the project, whichever is later • Complaints and enquiries received - 7 years from completion of the project • Notifications received by regulators - 30 years after the completion of the project • Audit reports - 7 years from completion of the project • Completed inspections and observations - 30 years from the creation of the record • Waste tracking certificates - 7 years from the creation of the record • Training records - 7 years from the end of the employee's employment • Incident reports - 30 years from the creation of the record • Calibration records for monitoring equipment • Monthly reports and Meeting minutes - 7 years from completion of the project or from the date on which work was last performed on the project • Records as required under the National Greenhouse and Energy Reporting Act 2007 - 7 years from the creation of the record • HSE Alerts Any editing and access restrictions to environmental documents and records and who has authority to dispose of nominated documents and records comprise: • Environment Manager to authorise the disposal of any environmental documents or records.	**Environment Manager** Project Director	Controlled and maintained documents and records
11.2 Relevant documents and records will be maintained using corporate business applications and systems	Relevant environmental documents and records generated on the project will be stored and managed using Teambinder with the following exceptions: • Environmental monitoring data will be managed and stored using the project drive • Systems Connect environmental performance data will be managed and stored in JDE or Synergy, including Water, Waste and Energy and Greenhouse Gases • Incident reports and corrective actions will be stored and managed using Synergy	**Project Director** **Document Control Manager**	Controlled and maintained documents and records

Expectations	How we will meet the Expectations (minimum requirements)	Responsibilities Key Contributor	Deliverables
	• Risk registers will be retained in excel spreadsheet.		

Element 12: Auditing, Review and Improvement

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
12.1 Environmental performance trends are identified and corrective actions are implemented as required	**Performance Trends** Environmental performance will be reviewed and reported at least monthly to identify trends. Performance will be assessed against both lead and lag measures and relative to specific targets agreed as per Section 3.9 of the CEMP, in the procedures in Part D and the aspect specific Sub-plans. Action plans will be developed to improve performance as required, corrective and preventative actions will be managed using the Synergy – Action Plan Module.	**Project Director** Environment Manager	Monthly reports Corrective & Preventative actions in Synergy – Action Plan Module
12.2 A monthly environmental report is produced and distributed	**Monthly Reporting** A monthly environment report will be prepared for the Project Director for inclusion in the monthly project report. This report will include the following: • Analysis of performance against project, business unit and corporate environmental targets as per Section 3. Part A of this CEMP • Analysis of performance against targets set in the Environmental Sub-Plans, including monitoring results • Details of each environmental incident on the project for that period including actions taken and outstanding • Confirmation that the CEMP is compliant with the Systems Connect EMS by referring to the number and results of inspections, audits, observations and monitoring • Confirmation that the NGER procedure has been implemented during the month • Any environmental innovations implemented on the project	**Environment Manager**	Monthly environment report
	The Monthly HSE Statistical Report in Synergy will be completed and approved by the Project Director. This includes reporting on the currency of the CEMP, compliance with the CEMP and issues and initiatives arising during the period	**Project Director**	Monthly HSE Statistical Report
12.3 Regular management reviews are conducted to determine the continuing suitability, adequacy and effectiveness of the Environmental Management System	The project must conduct formal management reviews to assess the adequacy of the Environmental Management System as part of its annual management system reviews. The outputs of the review will be incorporated into the CEMP. That review must take into account the results of: • Audits undertaken; • Communication, participation and consultation; • Relevant communication including complaints from external stakeholders; • The performance of the project; • The extent to which the objectives and targets have been met; • The outcomes of incident investigations and any corrective actions; • Changes to legislation;	**Project Director** Project Leadership Group **Environment Manager**	Management review report Actions in Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	• Actions from previous management reviews and recommendations for improvement.		
12.4 Audits are undertaken to ensure compliance with the requirements of the EMP	**Compliance with Environmental Management Plan** Regular audits and reviews will be conducted to confirm compliance with the CEMP and associated Obligations. A schedule of audits and reviews will be developed and maintained, and may include: • Project planning/Start Up reviews (conducted by Business Unit HSE Manager or delegate) • Project mobilisation audits (conducted by Business Unit HSE Manager or delegate) • Subcontractor audits (for subcontractors performing high risk activities) • High-risk activity audits • Environmental Management Plan audits (conducted by Business Unit Environment and Approvals Manager or delegate) • Compliance and Legislative audits (conducted by BUEM or competent 3rd party). Action plans will be developed to improve performance as required. Necessary corrective actions will be managed using Synergy.	**Project Director** Business Unit Environmental Management Representative Business Unit HSE Manager	Audit reports Corrective actions in Synergy
12.5 All audits are undertaken by suitably qualified and experienced personnel	**Auditor Competency** Persons conducting audits and reviews will be suitably experienced and qualified. There are two levels of internal auditor that can be obtained, these being Auditor and Lead Auditor. A mix of general education, specific auditor training and work experience are considered in determining the level of auditor. Auditors must be approved by the Business Unit Environment and Approvals Manager.	**Business Unit Environmental Management Representative**	Training records

PART C: APPENDICES

Appendix C1 Legal Requirements

Legislation	Key requirements	Relevance to LWW
Commonwealth Requirements		
Environment Protection and Biodiversity Conservation Act, 1999	National environment law that provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the Act as matters of national environmental significance.	The project would not impact on any matters of NES or Commonwealth land
National Greenhouse and Energy Reporting (NGER)Act 2007 (Cth)	emissions and energy consumption and production and: Inform policy-making and the Australian public Meet Australia's international reporting obligations, and Provide a single national reporting framework for energy and emissions reporting.	Systems Connect will undertake reporting of the LWW greenhouse gas emission and energy production and consumption under the NGER Act, inclusive of 'material' Subcontractors.
NSW Requirements		
Biosecurity Act, 2015	Under the Biosecurity Act 2015, public authorities are required to control noxious weeds which are likely to spread to adjoining land. Four Weeds of National Significance were recorded in the project site.	Appropriate management methods would be implemented during construction – refer to Part D and Appendix C8 Flora, Fauna and Weed Management
Contaminated Land Management Act, 1997	The main objective of the Contaminated Land Management Act is to establish a process for notifying, investigating and remediating land Section 60 of the Act outlines the circumstances in which notification of the Environment Protection Authority (EPA) is required in relation to the contamination of land.	If contaminated land is uncovered during delivery of LWW, it must be assessed and managed in accordance with the Contaminated Land Management Act 1997. The Construction, Soil Water and Groundwater Management Procedure in Part D of this CEMP identifies areas of potential contamination and mitigation measures.
Environmental Planning and Assessment Act, 1979	Planning Approval granted under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act). Approval of reports, studies and plans as required by the Project Planning Approvals.	Approval granted for; Works within the RTRF at Tallawong Road. Application number SSI 5931.
Fisheries Management Act 1994	The relevant objectives of this Act are to conserve threatened species, populations and ecological communities and promote sustainable development. Section 199 of the Act requires a public authority to notify the Minister prior to carrying out dredging or reclamation (defined by section 198A).	Works Assessed under Part 5.1 of EP&A Act therefore permits not required. Systems Connect contract scope (under SSI 8256) does not include dredging or reclamation works

Legislation	Key requirements	Relevance to LWW
Heritage Act, 1977	The Heritage Act makes provisions for the conservation of NSW's non Aboriginal environmental heritage. Section 146 requires that the Heritage Council be notified if a relic is uncovered, where it is reasonable to believe that the Heritage Council is unaware of the location of the relic	Heritage impact in accordance with the Heritage Act 1977 is assessed under Part 5.1 of the EP&A Act, therefore permits are not required. Part A Section 6, Part D and Appendix C8 of the CEMP identifies areas of potential impact and mitigation measures. The Heritage Council would be notified in writing (by SM) of relics uncovered during construction, in accordance with the requirements of section 146.
National Parks and Wildlife Act, 1974	The National Parks and Wildlife Act provides for the protection of Aboriginal objects (sites, objectives and cultural material) and Aboriginal places. Aboriginal Heritage sites are managed under this Act by the Office of Environment and Heritage (OEH). Unexpected finds of Heritage require stop work proceedings and approval through OEH to disturb site.	Assessed under Part 5.1 of the EP&A Act, therefore permits are not required. Permit would be required for works under Part 5 of the EP&A Act for any unexpected finds.
Biodiversity Conservation Act 2016	For the purposes of the EP&A Act, the Minister for Planning and Infrastructure is the consent authority for any development application made under that Act for any clearing of native vegetation that requires development consent because of this Act. Requires any threatened plant or animal species, populations or ecological communities associated with a proposed development to be identified and that acceptable recovery and management strategies are implemented if a likely significant impact would occur	Impacts on native vegetation have been assessed under Part 5.1 of the EP&A Act and Part A Section 6, Part D and Appendix C8 of the CEMP identifies areas of potential impact and mitigation measures associated with management of Flora and Fauna. No impacts on threatened plant or animal species, populations or ecological communities are identified in the EIS (as relevant to LWW contract scope).
Protection of the Environment Administration Act 1991	Outlines principles of Ecologically Sustainable Development	The project and all associated activities must be consistent with the principles of Ecologically Sustainable Development – refer to Sustainability Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000024)
Protection of the Environment Operations Act, 1997 (PoEO Act)	Activities as defined under Schedule 1 of the Protection of the Environment Operations Act, 1997 require and Environmental Protection Licence.	Requirements for an Environment Protection Licence (EPL) for scheduled activities have been assessed against the scope of works at SMTF and an EPL is not required. Works entailing upgrade and alteration of existing rail infrastructure will be carried out within the premises of existing EPL 21247. That work will be carried out in accordance with the applicable conditions of that EPL.
Roads Act 1993	Section 138 requires approval from the relevant roads authority to impact, or carry out work on or over, a public road. Clause 5(1) of Schedule 2 to the Roads Act exempts public authorities from this requirement, except in relation to works on or over classified and Crown roads	Systems Connect will obtain the consent of the appropriate roads authority under section 138 of the Act. As required, road occupancy permits will be sought in accordance with the Construction Traffic Management Plans.

Legislation	Key requirements	Relevance to LWW
Sydney Water Act 1994	Approval to discharge wastewater to sewer under a Trade Waste Agreement	Systems Connect will obtain approval to connect to sewer for any construction site.
Transport Administration Act 1988	This Act created TfNSW and defines its principal role. TfNSW is the proponent of the project under the EP&A Act.	TfNSW (Sydney Metro) is the proponent of the project.
Waste Avoidance and Recovery Act, 2001	The Waste Avoidance and Recovery Act promotes waste avoidance and resource recovery.	A project-specific Waste Management Procedure in Part D and Appendix C8 of the CEMP.
Water Management Act 2000 and Water Act, 1912	The Water Management Act 2000 (WM Act) provides for the sustainable and integrated management of water resources. Aquifer interference approval requirements under the WM Act have not yet commenced, and regulation is managed under Part 5 of the Water Act 1912.	Groundwater is unlikely to be encountered during the works, and the works are therefore unlikely to impact upon water resources. A licence would be sought under Part 5 of the Water Act if extraction of more than three megalitres of groundwater per year is required to construct the project. Part A Section 6, Part D and Appendix C8 of the CEMP addresses management of interaction with ground water

Appendix C2 LWW Compliance Matrix

C2.1. LWW Applicable Condition of approval requirements

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
C6			Except as may be provided by an EPL, the SSI shall be constructed and operated to comply with section 120 of the Protection of the Environment Operations Act 1997, which prohibits the pollution of waters.	P	PART D – Section 2
C7			The SSI shall be designed, to the extent that is feasible and reasonable, to not worsen existing flooding characteristics in the vicinity of the SSI. Not worsen is defined as:	A	Appendix C5 – Erosion and Sediment Control Plan - SMTF
C7	(d)		the Proponent shall design and construct stormwater detention basins to maintain pre-development peak flows in First Ponds Creek, with a minimum volume of 12,750m^3 stormwater detention capacity on the site, unless otherwise agreed by the Director-General.	A	
C11			The Proponent shall design and construct the SSI as far as is feasible and reasonable, in a manner that minimises impacts to groundwater hydrology including capture, drawdown and quality.	A	PART D – Section 2.4.6
C12			The management of groundwater and surface water ingress, including the design of capture, treatment and discharge methods shall be undertaken in consultation with the EPA. All intercepted groundwater and surface water shall be treated to ensure that relevant ANZECC water quality guidelines are met, prior to discharge.	A	PART D – Section 2.4
C16			Dangerous goods, as defined by the Australian Dangerous Goods Code, shall be stored and handled strictly in accordance with:	A	PART D – Section 2.4.7
C16	(a)		all relevant Australian Standards;	A	
C16	(b)		for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and	A	
C16	(c)		the Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin (Environment Protection Authority, 1997).	A	
C16			In the event of an inconsistency between the requirements listed from (a) to (c) above, the most stringent requirement shall prevail to the extent of the inconsistency.	A	
C17			All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	A	PART D – Section 5.4.8

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
C18			Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.	A	PART D – Section 5.4.6
C19			All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2009), or any superseding document.	A	PART D – Section 5.4.2
C20			Utilities, services and other infrastructure potentially affected by construction and operation shall be identified prior to construction effecting the item, to determine requirements for access to, diversion, protection, and/or support. Consultation with the relevant owner and/or provider of services that are likely to be affected by the SSI shall be undertaken to make suitable arrangements for access to, diversion, protection, and/or support of the affected infrastructure as required. The cost of any such arrangements shall be borne by the Proponent, unless otherwise agreed by the utility or service provider. The Proponent shall ensure that disruption to any service is minimised and shall be responsible for advising local residents and businesses affected prior to any planned disruption of service.	A	PART A – Section 6.4
C25			The Proponent shall undertake regular consultation with the RMS to negotiate road access during construction of the SSI in conjunction with the establishment of the signaled intersection of Schofields/Tallawong Road.	A	CTMP
C26			Without limiting the outcomes of the Construction Traffic Management Plan for the SSI, construction traffic shall be scheduled, to the greatest extent practicable, to outside of AM and PM peak traffic periods, and special events. Methods used to limit construction traffic outside of peak traffic periods shall be incorporated into the Construction Traffic Management Plan (condition E29(c)).	A	CTMP
D5			The Proponent shall develop and implement a Compliance Tracking Program to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and operate for a minimum of one year following commencement of operation. The Program shall include, but not necessarily be limited to:	A	Element 3: Legal and Compliance Requirements Element 12: Auditing, Review and Improvement
D5	(a)		provisions for the notification of the Director General prior to the commencement of construction of the SSI (including prior to each stage, where works are being staged);	A	
D5	(b)		provisions for periodic review of the compliance status of the SSI against the requirements of this approval;	A	
D5	(c)		provisions for periodic reporting of compliance status to the Director General, including a Pre-	A	

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
			Compliance Report, during construction reporting, and a Post-Construction Compliance Report;		
D5	(d)		a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and I or Environmental Management Systems Auditing;	A	
D5	(e)		mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;	A	
D5	(f)		provisions for reporting environmental incidents to the Director General and	A	
D5	(g)		procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and	A	
D5	(h)		provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	A	
D6			The Proponent shall notify the Director General of any incident with significant off-site impacts on people or the biophysical environment within 48 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director General within seven days of the date on which the incident occurred.	A	Element 9: Incident Management
D7			The Proponent shall meet the requirements of the Director General to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition D6 of this approval, within such period as the Director General may require.	A	Element 9: Incident Management
E1			The SSI shall be constructed in a manner that minimises dust emissions from the site, including wind blown and traffic-generated dust and tracking of material onto public roads. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	A	PART D – Section 1
E2			The clearing of native vegetation shall be minimised with the objective of reducing impacts to any threatened species or EECs to the greatest extent practicable.	A	PART D - Section 4
E3			The SSI shall be constructed in a manner that minimises visual impacts resulting from construction sites, including retaining, where feasible and reasonable, existing vegetation around the perimeter of construction sites, providing temporary landscaping where appropriate to soften views of	A	PART D – Section 6

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
			the construction sites, minimising light spillage, and incorporating architectural treatment and finishes within key elements of temporary structures that reflect the context within which the construction sites are located.		
E16			Soil and water management measures consistent with Managing Urban Stormwater - Soils and Construction Vols 1 and 2, 4th Edition (Landcom, 2004) shall be employed during the construction of the SSI to minimise soil erosion and the discharge of sediment and other pollutants to land and/or waters.	A	PART D – Section 2
E17			Where available, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources shall be used in preference to potable water for construction activities, including concrete mixing and dust control.	A	PART D – Section 2
E18			Access to private property shall be maintained during construction unless otherwise agreed with the property owner in advance. A landowner's access that is physically affected by the SSI shall be reinstated to at least an equivalent standard, in consultation with the property owner.	A	PART A - Section 6.3
E19			Any damage caused to property as a result of the SSI shall be rectified or the property owner compensated, within a reasonable timeframe, with the costs borne by the Proponent. This condition is not intended to limit any claims that the property owner may have against the Proponent.	A	PART A - Section 6.3
E25			Unless otherwise approved by the Director General, the location of Ancillary Facilities shall:	A	PART D – Section **Error! R eference source not found.** Appendix C5 Site Environment Plans
E25	(a)		be located more than 50 metres from a waterway;	A	
E25	(b)		be located within or adjacent to land where the SSI is being carried out;	A	
E25	(c)		have ready access to the road network;	A	
E25	(d)		be located to minimise the need for heavy vehicles to travel through residential areas	A	
E25	(e)		be sited on relatively level land;	A	
E25	(f)		be separated from nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant);	A	
E25	(g)		not require vegetation clearing beyond that already required by the SSI;	A	
E25	(h)		not impact on heritage items (including areas of archaeological sensitivity) beyond those already	A	

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
			impacted by the SSI;		
E25	(i)		Not unreasonably affect the land use of adjacent properties;	A	
E25	(j)		be above the 20 ARI flood level unless a contingency plan to manage flooding is prepared and implemented; and	A	
E25	(k)		provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours.	A	
E25			The location of the ancillary facilities shall be identified in the Construction Environmental Management Plan (condition E28) and include consideration of the above criteria. Where the above criteria cannot be met for any proposed ancillary facility, the Proponent shall demonstrate to the satisfaction of the Director General that there will be no significant adverse impact from that facility's construction or operation. Such assessment(s) can be submitted separately or as part of the Construction Environmental Management Plan.	A	
E26			All Ancillary Facilities shall be rehabilitated to at least their pre-construction condition, unless otherwise agreed by the landowner where relevant.	A	PART D – Section 7
E27			Prior to the commencement of construction of the SSI, or as otherwise agreed by the Director General, the Proponent shall nominate for the approval of the Director General a suitably qualified and experienced Environment Representative(s) that is independent of the design and construction personnel. The Proponent shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Director General. The Environment Representative(s) shall:	A	PART A - Section 4.6
E27	(a)		be the SM point of advice in relation to the environmental performance of the SSI;	A	
E27	(b)		monitor the implementation of environmental management plans and monitoring programs required under this approval and advise the Proponent upon the achievement of these plans/ programs;	A	
E27	(c)		have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and other licences and approvals related to the environmental performance and impacts of the SSI;	A	
E27	(d)		ensure that environmental auditing is undertaken in accordance with the Proponent's Environmental Management System(s);	A	
E27	(e)		be given the authority to approve/ reject minor amendments to the Construction Environment Management Plan. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan (condition E28);	A	

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
E27	(f)		be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts; and	A	
E27	(g)		be consulted in responding to the community concerning the environmental performance of the SSI where the resolution of points of conflict between the Proponent and the community is required.	A	
E28			Prior to the commencement of construction, or as otherwise agreed by the Director General, the Proponent shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government agencies and in accordance with the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004). The Plan shall include, but not necessarily be limited to:	A	This Plan PART A – Section 1.4 Appendix C9 Consultation Records
E28	(a)		a description of activities to be undertaken during construction of the SSI (including staging and scheduling);	A	PART A - Section 2
E28	(b)		statutory and other obligations that the Proponent is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies;	A	PART A - Section 3
E28	(c)		a description of the roles and responsibilities for relevant employees involved in the construction of the SSI, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval;	A	PART A - Section 4 Element 7: Training and Competency
E28	(d)		an environmental risk analysis to identify the key environmental performance issues associated with the construction phase; and	A	Appendix C3 Environmental Risk Register
E28	(e)		details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan:	A	This Plan and Environmental Sub Plans (PART A – Section 5.4)
E28	(e)	(i)	stormwater and flooding management;	A	PART D – Section 2.4
E28	(e)	(ii)	compounds and Ancillary Facilities management;	A	PART D – Section 7
E28	(e)	(iii)	noise and vibration;	A	PART D – Section 8 CNVMP
E28	(e)	(iv)	traffic and access;	A	PART D – Section 9

CoA			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
					CTMP
E28	(e)	(v)	soil and water quality;	A	PART D – Section 2
E28	(e)	(vi)	spoil management;	A	PART D – Section 2; PART D – Section 5
E28	(e)	(vii)	groundwater management and discharge;	A	PART D – Section 2
E28	(e)	(viii)	air quality and dust management;	A	PART D – Section 1
E28	(e)	(ix)	visual amenity;	A	PART D – Section 6
E28	(e)	(x)	management of Aboriginal and historic heritage;	A	PART D – Section 3
E28	(e)	(xi)	soil contamination, hazardous material and waste management;	A	PART D – Section 2; PART D – Section 5
E28	(e)	(xii)	management of ecological impacts; and	A	PART D – Section 4
E28	(e)	(xiii)	hazard and risk management.	A	Element 4: Risk and Opportunity Management
E28			The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or as otherwise agreed by the Director General. The Plan may be prepared in stages, however, construction works shall not commence until written approval has been received from the Director General. The approval of a Construction Environmental Management Plan does not relieve the Proponent of any requirement associated with this SSI approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this SSI approval, the requirements of this SSI approval prevail.	A	PART A - Section 1.4; 1.5

C2.2. LWW Applicable Revised Environmental Mitigation Measures

REMM	Requirement	Staging Report Applicability	Reference
Soils, Groundwater and Contamination			
SG14	In the event of discovery of previously unidentified area(s) of potentially contaminated material, all work would cease in the vicinity of the discovery and not recommence until the extent of contamination has been assessed and if necessary, a Remediation Action Plan or similar has been prepared and endorsed by an accredited Site Auditor.	A	PART D - Section 2.4.8
SG16	Bunds around fuel depots and stockpile areas would be installed to minimise the risk of contaminants reaching the water table.	A	PART D - Section 2.4.7
SG27	Where water salinity is found to be too high for discharge to creeks, brackish water reverse osmosis would be undertaken.	A	PART D – Section 2.4.6 Appendix C8 Aspect Specific Procedures
SG28	Dissolved iron would typically be removed from discharge water by oxidising the Ferric ion (Fe3+) to Ferrous (Fe2+) which enables precipitation and physical removal.	A	
SG29	Water turbidity would typically be treated by settling / filters.	A	
SG30	Iron reducing bacteria in discharge water would be typically treated by biocide dosing.	A	
SG34	Appropriate soil salinity mitigation measures would be adopted in accordance with Western Sydney Regional Organisation of Council's Draft Salinity Code of Practice and the former Department of Infrastructure, Planning and Natural Resources' Guidelines to Accompany Map of Salinity Potential in Western Sydney (2002). These mitigation measures would be included within Sub-Plans to the CEMP at all sites within areas of known risk of soil salinity.	A	PART D – Section 2.4.9
SG41	Excavation for offsite disposal will be subject of additional assessments for waste classification with particular focus on Areas of Environmental Concern including above-ground storage tanks, farm dams and asbestos in buildings.	A	PART D – Section 2.4.8; 5.4.2
SG48	Retaining walls will be designed to be free draining.	A	No retaining walls are being designed as part of this scope of works
Surface Water and Flooding			
SW3	Construction equipment (or excess material) would be removed from flood prone areas (being the 100 year ARI flood extent) if wet weather is approaching and at the completion of each day's work activity. Stockpile sites would be located outside the Probable Maximum Flood.	A	PART D – Section 2.2.8
SW14	Water quality mitigation measures would be implemented in accordance with relevant requirements of: - Landcom Managing Urban Stormwater - Soils and Construction Volumes 1 and 2 (2009). - NOW Guidelines for Controlled Activities.	A	PART D – Section 2.4; 2.6

REMM	Requirement	Staging Report Applicability	Reference
	- ANZECC Guidelines for Fresh and Marine Water Quality. - ANZECC Guidelines for Water Quality Monitoring and Reporting. - Water Management Act 2000. - Applicable Environment Protection Licences.		
SW15	Treatment measures would be applied to water collected in sediment basins, including settling of coarse sediments, the use of flocculation for finer sediments and pH correction.	A	PART D – Section 2.4.4; 2.4.5
SW16	As a first preference, treated surface water collected in sediment basins would be reused onsite, eg for dust suppression. Additional opportunities for re-using water on site or for construction would be investigated and implemented where feasible and reasonable.	A	PART D – Section 2.4.4
SW17	Exclusion zones would be designated on construction sites to limit disturbance.	A	PART D – Section 2.4.3
SW18	Re-vegetating or stabilising disturbed areas would occur as soon as feasible.	A	PART D – Section 2.4.3
SW20	Appropriate erosion control measures would be installed such as sediment fencing, check dams, temporary ground stabilisation, diversion berms or site regrading.	A	PART D – Section 2.4.3
SW21	Clean water runoff would be diverted away from the works or disturbed areas wherever possible.	A	PART D – Section 2.4.4
SW22	Temporary sediment basins would be installed as appropriate. The exact size and layout of sediment basins would be determined as part of the CEMP in accordance with the requirements of the relevant Environment Protection Licence.	A	PART D – Section 2.4.4 Appendix C5
SW26	Surface controls to promote ground stability, limit run-off lengths and reduce run-off velocities within the work sites would be implemented.	A	PART D – Section 2.4.4
SW27	Ground stability would be re-established as soon as practicable following the completion of construction.	A	PART D – Section 2.3
SW28	Installation of any permanent scour protection measures required for the operational phase would occur as soon as practical.	A	Appendix C8 – Water Management Procedure
SW32	Where water is released into local creeks, outlet scour protection and energy dissipation would be implemented. The discharge point would be at the upstream end of a large pool where feasible and reasonable, to allow for slowing of water.	A	PART D – Section 2.4
SW37	Temporary stockpile locations for both site establishment and earthworks operations would be specified prior to the commencement of construction activities. Diversion drains and erosion and sediment control measures would be in place prior to the commencement of any stockpiling activities. Material would only be stockpiled in designated stockpiling areas.	A	PART D – Section 2.4 Appendix C5 Site Environment Plans
SW38	Site specific controls would be developed to reduce the potential for environmental releases of potentially harmful chemicals and to reduce the risk of any such releases entering local waterways. Storage of hazardous materials such as oils, chemicals and refuelling activities would occur in bunded areas.	A	PART D – Section 2.4.7

REMM	Requirement	Staging Report Applicability	Reference
SW40	A qualified environmental officer would be employed to advise on appropriate controls and to monitor the implementation and maintenance of mitigation measures.	A	PART A – Section 4.2
SW41	All site staff would be engaged through toolbox talks or similar with appropriate training on soil and water management practices.	A	PART D – Section 2.4.2
SW43	Surface water and water quality monitoring would be carried out periodically and after rainfall events. Monitoring would examine a range of appropriate indicators in accordance with standard guidelines.	A	PART D – Section 2.4.2; 2.5
SW44	Inspection of water quality mitigation controls (e.g. sediment control fences, sediment basins) would be carried out regularly and following significant rainfall to detect any breach of performance.	A	PART D – Section 2.5
OpSW6	The RTRF would be located above the 100 year ARI flood level.	A	PART D – Section 2.2.8
OpSW14	Water quality treatment measures (including a combination of swales, bioretention systems, water quality basins, gross pollutant traps) would be integrated into the drainage system to mitigate impacts to waterways.	A	Design and Landscape Plan
OpSW15	A holistic approach to water quality and stormwater management would be adopted that incorporates Water Sensitive Urban Design principles to minimise impacts on the existing hydrologic regime. Such measures would include: - Managing total runoff volumes through the use of rainwater tanks and measures that promote stormwater infiltration. - Minimising increases in peak flows through the use of detention and retention measures as appropriate. - Preserving and enhancing the amenity of waterways by maintaining or providing natural vegetated measures. - Treating stormwater through a range of at source and end point measures that are integrated with the urban landscape.	A	Design and Landscape Plan
Ecology			
E1	The ecological component of the site induction would include information on: - Sensitivity of surrounding vegetation (particularly threatened vegetation). - Sensitivity of threatened fauna species (birds and bats). - Site environmental procedures (vegetation management, sediment and erosion control, protective fencing, weed control). - Emergency and incident response/ spill management (chemical spills, fire, injured fauna).	A	PART D – Section 4.3.2
E2	Pre-clearing surveys would be undertaken to identify the presence of: - Hollow bearing trees and other habitat features - Threatened flora and fauna.	A	PART D – Section 4.3.2
E6	Trees containing hollows would be felled using “Slow drop” technique (or similar as agreed with OEH). The slow-drop technique involves nudging and shaking the tree, followed by a controlled lowering of the tree to the ground.	A	PART D – Section 4.3.2

REMM	Requirement	Staging Report Applicability	Reference
E7	Where feasible and reasonable, topsoil and habitat elements (eg logs and felled trees) from sites that have few weed species would be stored and reused onsite.	A	PART D – Section 4.3.2
E10	Construction sites would be revegetated using endemic native plant species where appropriate.	A	PART D – Section 4.3.2
E12	To prevent establishment or spread of weeds: - Machinery would be cleaned before entering work sites - Weeds would be removed from within the mapped native vegetation areas at least 10m from the edge of the construction footprint (where access allows). - Cleared weed material would be disposed of at a site licensed to receive green waste.	A	PART D – Section 4.3.2
E22	Where native vegetation is to be retained adjacent to or within construction sites, protective fencing and signage would be maintained in accordance with Australian Standard 4970 – 2009 Protection of Trees.	A	PART D – Section 4.3.2
Visual Amenity			
V1	Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.	A	PART D – Section 6.3.2
V2	Cut-off and directed lighting would be used to ensure glare and light trespass are minimised.	A	PART D – Section 6.3.2
V4	Regular maintenance of site hoarding and perimeter site areas would be undertaken, including the prompt removal of graffiti.	A	PART D – Section 6.3.2
V5	Visual mitigation would be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.	A	PART D – Section 6.3.2
V10	Hoardings would be designed to visually recede in more rural or bushland settings.	A	PART D – Section 6.3.2
OpV2	Cut–off and directed lighting would be used to ensure glare and light spill on surrounding existing and future residents are minimised.	A	PART D – Section 6.3.2
OpV3	The colour and materials of service facility buildings would be selected to blend into adjacent bushland setting.	A	Design and Landscape Plan
OpV10	High quality landscape and urban treatments would be used in and around the RTRF including: - Landscaping around detention ponds. - Landscaping along the Tallawong Road frontage. - Tree planting along the southern embankment. - Landscaping and tree planting along the Hambledon Road frontage to form a green buffer to retaining walls. - Retaining walls to be coloured in a muted natural tone or use natural materials (such as stones). - Buildings to consider use of a muted natural tone with landscaping to their northern elevations. - Integrated landscaping and security fencing.	A	Design and Landscape Plan

REMM	Requirement	Staging Report Applicability	Reference
	- Landscaping and tree planting along the northern frontage to form a green buffer to retaining walls		
Air Quality			
A1	Working face and areas of open excavation would be kept to a minimum, where feasible and reasonable.	A	PART D – Section 1.3.5
A2	Water suppression would be used for active earthwork areas, stockpiles, gravel roads and loads of soil being transported to reduce wind-blown dust emissions.	A	PART D – Section 1.3.5
A3	The amount of excavated material held on site would be minimised.	A	PART D – Section 1.3.5
A5	Areas of exposed earth would be minimised by staging construction activities and progressively landscaping and vegetating completed areas as the construction activities proceed, where feasible and reasonable.	A	PART D – Section 1.3.5
A6	Enclosed rubble chutes and conveyors would be used where feasible and reasonable. Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment would be minimised and/or water used to suppress dust emissions from such equipment.	A	PART D – Section 1.3.5
A7	Cutting, grinding or sawing equipment would only be used in conjunction with suitable dust suppression techniques such as water sprays or local extraction.	A	PART D – Section 1.3.5
A9	Dust generating activities would be assessed during periods of strong winds and rescheduled, where required.	A	PART D – Section 1.3.5
A10	All vehicles carrying loose or potentially dusty material to and/or from the site would be covered.	A	PART D – Section 1.3.5
A11	Stockpiles would be located away from sensitive receivers, where feasible and reasonable, and protected from the elements through barriers, covering or establishing a cover crop.	A	PART D – Section 1.3.5
A12	Longer term and/or heavily used haul roads would generally be sealed. The criteria for sealing haul roads would be defined during detailed construction planning. Sealed haul roads would be regularly cleaned.	A	PART D – Section 1.3.5
A13	Unsealed haul roads would be regularly damped down with fixed or mobile sprinkler systems.	A	PART D – Section 1.3.5
A14	Vehicular and foot traffic would be restricted to designated areas.	A	PART D – Section 1.3.5
A15	Appropriate site speed limits would be imposed and signed on haul routes.	A	PART D – Section 1.3.5
A16	Wheel-wash facilities or rumble grids would be provided and used near site exit points, and a street- cleaning regime would be implemented to remove any dirt tracked onto roads.	A	PART D – Section 1.3.5
A20	Debris screens or sheeting would be used to screen buildings, where dust-producing activities are taking place.	A	PART D – Section 1.3.5
A22	Asbestos handling and management would be in accordance with: - NSW Occupational Health & Safety Act 2000. - NSW Occupational Health & Safety Regulation 2001. - Code of Practice for the Safe Removal of Asbestos 2nd edition (NOHSC, 2005).	A	PART D – Section 2.2.1

REMM	Requirement	Staging Report Applicability	Reference
	- Code of Practice for the Management and Control of Asbestos in Workplaces (NOHSC, 2005). - NSW Protection of the Environment Operations (Waste) Regulation 2005: 'Section 42 Special Requirements Relating to Asbestos Waste'. - AS2601:1991 Demolition of Structures.		
A23	Engines of on site vehicles and plant would be switched off if left idling for extended periods of time.	A	PART D – Section 1.3.5
A24	Low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices would be used, where feasible and reasonable.	A	PART D – Section 1.3.5
A25	Plant would be well maintained and serviced in accordance with manufacturers' recommendations.	A	PART D – Section 1.3.5
A26	Haul routes and plant (including generators) would be sited away from sensitive receivers, such as dwellings and schools, where feasible and reasonable.	A	PART D – Section 1.3.5
OpA2	Location and design of air ventilation, car parks and kiss and ride facilities to consider avoidance of air quality impacts on sensitive receivers.	A	PART D – Section 1.3.5
OpA3	Dedicated painting, degreasing, cutting, grinding, welding and similar such areas to be fitted with effective fume extraction systems to protect workers adequately, and if necessary filtration to ensure that no excessive impacts occur at nearby receptors.	A	PART D – Section 1.3.5
Waste Management			
W1	All waste would be assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (DECC, 2008).	A	PART D – Section 5.3
W2	All waste materials removed from the sites would only be directed to a waste management facility lawfully permitted to accept the materials.	A	PART D – Section 5.4.8
W3	Excavated material and spoil would be beneficially reused on the NWRL project site or other sites, where feasible and reasonable, in accordance with the NWRL spoil use hierarchy.	A	PART D – Section 5.4.4
W4	Appropriate storage, treatment and disposal procedures would be implemented for any contaminated spoil.	A	PART D – Section 5.4.7; 5.4.8
W5	Cleared site vegetation would be mulched for reuse in rehabilitation and landscaping works. Topsoil generated during site preparation activities would be stockpiled for reuse in landscaping activities.	A	PART D – Section 5.4.3; 5.4.4
W6	Initial and ongoing education would be provided to staff and sub-contractors regarding the importance of appropriately managing waste.	A	PART D – Section 5.4
W7	Recyclable wastes, including paper at site offices, would be stored separately from other wastes. Storage facilities would be secure and recyclables collected on a regular basis.	A	PART D – Section 5.4.3; 5.4.6
W8	Reusable materials would be stored separately, in secure facilities.	A	PART D – Section 5.4.3; 5.4.6

REMM	Requirement	Staging Report Applicability	Reference
W9	Worksites would be free of litter and good housekeeping would be maintained.	A	PART D – Section 5.4.6
W10	Vermin proof bins would be utilised onsite.	A	PART D – Section 5.4.6
W11	Waste oil, other liquid wastes and spillages would be collected and stored in bunded areas.	A	PART D – Section 5.4.6
W13	Waste truck loads would be covered, and tailgates secured prior to trucks leaving the worksite.	A	PART D – Section 1.3.5
W14	Centralised reporting and auditing of waste volumes and disposal destinations would be employed.	A	PART D – Section 5.4.9
W15	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	A	PART D – Section 5.4.3
W16	Materials such as (noise hoarding, site fencing, and so on) would be reused or shared, between sites and between construction contractors where feasible and reasonable.	A	PART D – Section 5.4.3
Hazardous Goods			
DG1	All dangerous goods stored at the site would be below the screening thresholds set out in Applying SEPP 33 for potentially hazardous development.	A	PART D – Section 2.4.7

C2.3. LWW Applicable Construction Environmental Management Framework

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
2.1			Table 1.1 below identifies key NSW environmental legislative requirements and their application to the construction of the NWRL current as at the date of this document. TfNSW and its Contractors should regularly review their legislative requirements. Table 1.2 identifies key Commonwealth environmental legislative requirements and their application to the construction of the NWRL current as at the date of this document. TfNSW and its Contractors should regularly review their legislative requirements	A	PART A – Section 3.1 Appendix C1 Legal Requirements
2.2			The NWRL meets the definition of a number of scheduled activities under Schedule 1 of the *Protection of the Environmental Operation Act 1997* (POEO Act) and as such must obtain an Environment Protection Licence (EPL).	A	PART A – Section 3.4
2.2	a		Where required NWRL Principal Contractors will be required to: • Hold an EPL which covers their scope of works as necessary under the POEO Act. • Undertake their scope of works in accordance with the conditions of the applicable EPL/s as issued by the EPA.	A	PART A – Section 3.4
2.4			Numerous environmental publications, standards, codes of practice and guidelines are relevant to the NWRL construction and are referenced throughout this Construction Environmental Management Framework. A summary of these applicable standards and guidelines is provided in Table 1.3.	A	PART A – Section 3.8
3.1	a		All NWRL Principal Contractors will be required to have a corporate Environmental Management System certified under ISO 14001.	A	PART A – Section 5.1
3.1	b		All NWRL Principal Contractors will be required to develop an Environmental and Sustainability Management System for the project. The E&SMS must:	A	PART A – Section 5.1
3.1	b	i	Be consistent with the principles of *ISO 14001 Environmental Management Systems – Requirements with Guidelines for Use;*	A	PART A – Section 5.1
3.1	b	ii	be consistent with the NWRL Sustainability Strategy and NWRL Environment and Sustainability Policy;	A	Appendix C4 Environment Policy
3.1	b	iii	include specific procedures to address the following: * Identification of and compliance with legal and regulatory obligations, environmental provisions of the contract documentation, relevant approval documentation, their own corporate requirements	A	PART B - Elements and Expectations

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
			and this Construction Environmental Management Framework. * Identification and assessment of environmental aspects. * Identification of environmental risks and development of appropriate control measures to be implemented to provide environmental protection. * Tracking and monitoring of design and construction sustainability targets. * Assurance frameworks to audit the sustainability program.		
3.1	b	iv	include provision to produce monthly reports.	A	PART A – Section 3 Element 12: Auditing, Review and Improvement
3.1	c		All sub-contractors engaged by the Principal Contractor will be required to work under the Principal Contractor's E&SMS.	A	PART A – Section 4.3 Element 8: Subcontractor Relationships
3.1	d		The relationship between key documents within the NWRL Environment and Sustainability Management System and the Principal Contractor's Environment and Sustainability Management System is shown in Figure 2. Notably:	A	PART A – Section 1.2
3.1	d	i	the Construction Environment Management Plan and its sub plans will capture the construction environmental requirements emerging from the EISs, subsequent planning approvals and the NWRL Sustainability Strategy.	A	
3.1	d	ii	The Sustainability Plan and its sub plans will capture governance and design requirements as well as social sustainability initiatives as required by the NWRL Sustainability Strategy	A	
3.1	d	iii	These plans vary in scope across different delivery packages.	A	
3.2	a		All NWRL Principal Contractors will be required to prepare and implement a Construction Environmental Management Plan (CEMP) relevant to the scale and nature of their scope of works.	A	This Plan
3.2	b		The CEMP will cover the requirements of the relevant planning approval documentation, the project approval conditions, the conditions of all other permits and licences, the Contractor's corporate EMS, the environmental provisions of the contract documentation and this Construction Environmental Management Framework.	A	This Plan PART A – Section 3
3.2	c		The purpose of the CEMP will be to detail how the project will deliver the environmental requirements and how issues that arise are handled. As a minimum the CEMP will include:	A	PART A – Section 1

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.2	c	i	Project specific environmental policy, key performance indicators, objectives and targets.	A	PART A – Section 3.8 Appendix C4 Environment Policy
3.2	c	ii	Identification of legislative and other requirements.	A	PART A – Section 3 Appendix C1 Legal Requirements
3.2	c	iii	Procedures to identify project specific environmental risks.	A	PART A – Section 5.2 Element 4: Risk and Opportunity Management
3.2	c	iv	Resource requirements, roles and responsibilities, including those of sub-contractors.	A	PART A – Section 4
3.2	c	v	Communication requirements, including liaison with stakeholders and the community	A	PART A – Section 1.4
3.2	c	vi	Induction and training requirements.	A	Element 7: Training and Competency
3.2	c	vii	Identification of project specific environmental risks.	A	PART A – Section 5.2.1 Appendix C3 Environmental Risk Register
3.2	c	viii	Identification of appropriate control measures.	A	PART A – Section 6 Appendix C3 Environmental Risk Register PART D – CEMP Procedures
3.2	c	ix	Procedures for monitoring and evaluating environmental performance.	A	PART A – Section 5.8 Element 12: Auditing, Review and Improvement

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.2	c	x	Reporting requirements	A	Element 3:Legal and Compliance Requirements Element 12: Auditing, Review and Improvement
3.2	c	xi	Procedures for emergency and incident management.	A	Element 9: Incident Management Element 10: Emergency Planning and Response
3.2	c	xii	Procedures for non-conformance control, corrective and preventative actions.	A	Elements and Expectations
3.2	c	xiii	Procedures for audit and review.	A	Element 12: Auditing, Review and Improvement
3.2	c	xiv	Procedures for the control of environmental records.	A	Element 11: Document and Record Management
3.2	c	xv	Development and maintenance of Environmental Management Sub-Plans and site /	A	PART A - Section 0
3.2	d		The CEMP and associated sub-plans will require the approval of TfNSW prior to any construction works commencing. Depending on the conditions of approval the CEMP and certain sub-plans may also require the approval of Department of Planning and Infrastructure (DP&I), and other government agencies	A	PART A – Section 1.4
3.3	a		Where required, the Principal Contractor will prepare issue-specific environmental sub-plans to address each of the relevant environmental impacts at a particular site or stage of the project. Issue specific sub-plans will include:	A	PART A – Section 5.4
3.3	a	i	Spoil management	A - CEMP sub-plans will be prepared in	PART D – Section 5
3.3	a	i	Groundwater management		PART D – Section 2

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.3	a	ii	Soil and water management	accordance with Table 6 of staging report.	PART D – Section 2
3.3	a	iii	Traffic and transport management.		PART D – Section 9 CTMP
3.3	a	iv	Noise and vibration management.		PART D – Section 8 CNVMP
3.3	a	v	Heritage management.		PART D – Section 3
3.3	a	vi	Flora and fauna management.		PART D – Section 4
3.3	a	vii	Visual amenity management.		PART D – Section 6
3.3	a	viii	Carbon and energy management		SMP
3.3	a	ix	Air quality management.		PART D – Section 1
3.3	a	x	Waste Management		PART D – Section 5
3.4	a		The Principal Contractor will prepare and implement site and / or activity specific environmental procedures. These procedures may include method statements, control maps or other documents as required by the Principal Contractor.	A - Procedures will be prepared for all environmental categories identified with Procedure plus any procedures required for categories identified with CEMP, SMP or Sub-plan in accordance with Table 6 of staging report	PART A – Section 5.4
3.4	b		The procedures will include:	A	Appendix C8 Aspect Specific Procedures ; PART D
3.4	b	i	A breakdown of the work tasks relevant to the specific activity and / or activity	A	
3.4	b	ii	Potential impacts associated with each task	A	
3.4	b	iii	A risk rating for each of the identified potential impacts	A	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.4	b	iv	Mitigation measures relevant to each of the work tasks	A	
3.4	b	v	Responsibility to ensure the implementation of the mitigation measures	A	
3.4	b	vi	Constraints maps and / or drawings as appropriate to each site and / or activity	A	
3.4	c		Relevant workers will be trained in the requirements of and will sign off the procedures prior to commencing works on the specific site and / or activity.	A	Element 7: Training and Competency
3.5			A number of works may require additional environmental assessment to be undertaken, eg the provision of high voltage power supply to a number of the construction sites.	A	Element 5: Change Management
3.5	a		Where the requirement for an additional environmental assessment is identified, this will be undertaken prior to undertaking any physical works. The environmental assessment will include:	A	
3.5	a	i	A description of the existing surrounding environment	A	
3.5	a	ii	Details of the ancillary works and construction activities required to be carried out including the hours of works	A	
3.5	a	iii	An assessment of the environmental impacts of the works, including, but not necessarily limited to, traffic, noise and vibration, air quality, soil and water, ecology and heritage	A	
3.5	a	iv	Details of mitigation measures and monitoring specific to the works that would be implemented to minimise environmental impacts	A	
3.5	a	v	Identification of the timing for completion of the construction works, and how the sites would be reinstated (including any necessary rehabilitation).	A	
3.6			Principal Contractors will offer condition surveys, in writing, to all relevant land and infrastructure owners (those where the works have potential to cause cosmetic or structural damage). If accepted, the Principal Contractor must produce a comprehensive written and photographic condition report prior to relevant works commencing.	A	CNVMP
3.7	a		TfNSW and NWRL Principal Contractors will identify hold points, beyond which approval is required to proceed with a certain activity. Examples activities include vegetation removal and water discharge. Hold points will be documented in relevant CEMPs.	A	PART A – Section 5.3
3.7	b		Table 1.4 provides the structure for the register of hold points as well as a preliminary list of hold points which will be implemented.	A	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.8	a		Principal Contractors will be responsible for determining the training needs of their personnel. As a minimum this will include site induction, regular toolbox talks and topic specific environmental training as follows:	A	Element 7:Training and Competency
3.8	a	i	The site induction will be provided to all site personnel and will include, as a minimum: * Training purpose, objectives and key issues; * Contractor's environmental policy and key performance indicators; * Due diligence, duty of care and responsibilities; * Relevant conditions of any environmental licence and the relevant conditions of approval; * Site specific issues and controls including those described in the environmental procedures; * Reporting procedure for environmental hazards and incidents * Communication protocols.	A	
3.8	a	ii	Toolbox talks will be held on a regular basis in order to provide a project or site wide update, including any key or recurring environmental issues	A	
3.8	a	iii	Topic specific environmental training, eg erosion and sediment control training, will be undertaken for relevant site personnel as determined by the Principal Contractor.	A	
3.9	a		Principal Contractors will develop and implement a Pollution Incident Response Management Plan, in accordance with the requirements of the POEO Act. Contractors' emergency and incident response procedures will also be consistent with any TfNSW procedures and will include:	A	Element 9:Incident Management Element 10:Emergency Planning and Response
3.9	a	i	Categories for environmental emergencies and incidents	A	
3.9	a	ii	Notification protocols for each category of environmental emergency or incident, including notification of TfNSW and notification to owners / occupiers in the vicinity of the incident. This is to include relevant contact details.	A	
3.9	a	iii	Procedures for the immediate notification of each relevant authority when the incident results in material harm to the environment.	A	
3.9	a	iv	Identification of personnel who have the authority to take immediate action to shut down any activity, or to affect any environmental control measure (including as directed by an authorised officer of the EPA).	A	
3.9	a	v	On-site rectification actions.	A	
3.9	b		The Contractor will make all personnel aware of the plan and their responsibilities.	A	Element 7:Training and Competency

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.10	b		TfNSW will engage Independent Environmental Representatives (ERs) to undertake the following, along with any additional roles as required by the project approval conditions:	A	PART A – Section 4.6
3.10	b	i	i. Review, provide comment on and endorse (where required) any relevant environmental documentation to verify it is prepared in accordance with relevant environmental legislation, planning approval conditions and relevant standards	A	
3.10	b	ii	Monitor and report on the implementation and performance of the above mentioned documentation and other relevant documentation	A	
3.10	b	iii	Provide independent guidance and advice to TfNSW and the Contractors in relation to environmental compliance issues and the interpretation of planning approval conditions	A	
3.10	b	iv	Be the principal point of advice for the DP&I in relation to all questions and complaints concerning the environmental performance of the project	A	
3.10	b	v	Ensure that environmental auditing is undertaken in accordance with all relevant project requirements	A	
3.10	b	vi	Recommend reasonable steps, including 'stop works', to be taken to avoid or minimise adverse environmental impacts.	A	
3.10	c		NWRL Principal Contractors will be responsible for all aspects of environmental management relevant to their scope of works. This will include:	A	This Plan
3.10	c	i	Development and implementation of the Environmental Management and Sustainability System, Construction Environmental Management Plan, sub-plans and procedures.	A	
3.10	c	ii	Compliance with the environmental considerations of the contract and this Construction Environmental Management Framework.	A	
3.10	c	iii	Obtaining all necessary approvals, permits and licences required for its works (in addition the planning approval).	A	
3.10	c	iv	Compliance with relevant approval, permit, licence and legislative conditions	A	
3.10	d		Principal Contractors must employ an Environmental Manager with relevant experience	A	Part A – Section 4.2
3.10	e		All sub-contractors engaged by the Principal Contractor will be required to operate within the EMS documentation of that Principal Contractor.	A	Part A – Section 4.3

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.11	a		Principal Contractors will develop and implement procedures to ensure the works are compliant with the environmental considerations of the contract documentation, the project approval, and all other permits and licences.	A	This Plan
3.11	b		Issue specific environmental monitoring will be undertaken as required by the subsequent sections of this Construction Environmental Management Framework or as additionally required by approval, permit or licence conditions.	A	Part A – Section 5.8
3.11	c		The results of any monitoring undertaken as a requirement of the EPL will be published on the Principal Contractor's, or a project specific, website within 14 days of obtaining the results.	A	
3.11	d		Environmental inspections will include:	A	PART A – Section 5.8 Appendix C6 MIRRA Schedule PART D – Section 1.3.6; 2.5; 3.4; 4.4; 5.5; 6.3.3; 0
3.11	d	i	Surveillance of environmental mitigation measures by the Site Foreman. This will be documented in the Foreman's Site Diary.	A	
3.11	d	ii	Periodic inspections by the Principal Contractor's Environmental Manager (or delegate) to verify the adequacy of all environmental mitigation measures. This will be documented in a formal inspection record.	A	
3.11	d	iii	Regular site inspections by the ERs at a frequency to be agreed with the Principal Contractor.	A	
3.11	e		Principal Contractors will be required to undertake internal environmental audits of their EMS. Internal audits will include:	A	Element 12:Auditing, Review and Improvement
3.11	e	i	Compliance with approval, permit or licence conditions;	A	
3.11	e	ii	Compliance with the Contractor's EMS, CEMP, sub-plans and procedures;	A	
3.11	e	iii	Community consultation and complaint response;	A	
3.11	e	iv	Environmental training records;	A	
3.11	e	v	Environmental monitoring and inspection results.	A	
3.11	f		TfNSW (or its representative) will also undertake periodic audits of the Principal Contractor's EMS and compliance with the environmental aspects of contract documentation, including this Construction Environmental Management Framework. As a minimum this will occur annually.	A	Appendix C6 MIRRA Schedule

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.11	g		Mandatory audits may also be required by the EPA if the EPA reasonably suspects that an activity has been or is being carried out by the EPL holder in an environmentally unsatisfactory manner.	A	Noted
3.12	a		Principal Contractors will document and detail any non-conformances arising out of the above monitoring, inspections and audits. TfNSW will be made aware of all non-conformances in a timely manner.	A	Element 3:Legal and Compliance Requirements
3.12	b		Principal Contractors will develop and implement corrective actions to rectify the nonconformance and preventative actions in order to prevent the re-occurrence of the nonconformance. Contractors will also maintain a register non conformances, corrective actions and preventative actions.	A	Element 3:Legal and Compliance Requirements
3.13	a		Principal Contractors will maintain appropriate records of the following:	A	Element 11:Document and Record Management
3.13	a	i	Site inspections, audits, monitoring, reviews or remedial actions;	A	
3.13	a	ii	Documentation as required by performance conditions, approvals, licences and legislation;	A	
3.13	a	iii	Modifications to site environmental documentation (eg CEMP, sub-plans and procedures);	A	
3.13	a	iv	Other records as required by this Construction Environmental Management Framework.	A	
3.13	b		Records will be retained onsite for the duration of works.	A	
3.13	c		Additionally records will be retained by the Principal Contractor for a period of no less than 7 years in total. Records will be made available in a timely manner to TfNSW (or their representative) upon request.	A	
3.13	d		Compliance reports regarding each internal and external audit (refer to Section 3.11) will be undertaken. Compliance reports will be produced by the Principal Contractor's Environmental Manager or delegate and submitted to TfNSW.	A	Element 11:Document and Record Management
3.14	a		NWRL Contractors will ensure the continual review and improvement of the CEMP, sub-plans and procedures. This will generally occur in response to:	A	PART A – Section 1.5
3.14	a	i	Issues raised during environmental monitoring, inspections and audits	A	
3.14	a	ii	Significant environmental incidents.	A	
3.14	a	iii	Environmental non-conformances.	A	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
3.14	b		A formal review of the CEMP and sub-plans by the Principal Contractor's management team will also occur on a six monthly basis, as a minimum.	A	Appendix C6 MIRRA Schedule
5.1	a		The majority of the station and above ground construction activities will be undertaken between 7am – 6pm on weekdays and 8am – 1pm on Saturdays.	A	PART A – Section 6.2 CNVMP
5.1	b		Some activities will need to be undertaken outside these hours (as identified in Table 1.5).	A	
5.1	c		As the TBMs operate continuously, the tunnelling works and associated support activities will be undertaken up to 24 hours per day and seven days per week.	A	
5.1	d		Other works which can be undertaken outside of standard construction hours without any further approval include:	A	
5.1	d	i	Works which are determined to comply with the relevant Noise Management Level at the nearest sensitive receiver;	A	
5.1	d	ii	Works required to be undertaken during rail possessions	A	
5.1	d	iii	The delivery of materials outside of approved hours as required by the Police or other authorities (including RMS) for safety reasons;	A	
5.1	d	iv	Where it is required to avoid the loss of lives, property and / or to prevent environmental harm in an emergency;	A	
5.1	d	v	Where written agreement is reached with all affected receivers.	A	
5.1	e		With the exception of emergency and tunnelling works, activities will not take place outside standard hours without prior discussion with and / or notification of local residents, businesses and the OEH / EPA.	A	
5.2			Principal Contractors will consider the following in the layout of construction sites:	A	PART D – Section **Error! Reference s ource not found.** CNVMP
5.2	a	i	The location of noise intensive works and 24 hour activities in relation to noise sensitive receivers;	A	
5.2	a	ii	The location of site access and egress points in relation to noise and light sensitive receivers, especially for sites proposed to be utilised 24 hours per day;	A	
5.2	a	iii	The use of site buildings to shield noisy activities from receivers;	A	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
5.2	a	iv	The use of noise barriers and / or acoustic sheds where feasible and reasonable for sites proposed to be regularly used outside of daytime hours;	A	
5.2	a	v	Aim to minimise the requirement for reversing, especially of heavy vehicles.	A	
5.3	a		Mitigation measures for reinstatement will be produced in consultation with TfNSW, the community and stakeholders.	A	PART D – Section 7.3.2
5.3	b		Mitigation measures required for reinstatement will be incorporated into the CEMP and will include as a minimum:	A	
5.3	b	i	NWRL Contractors will clear and clean all working areas and accesses at project completion	A	
5.3	b	ii	At the completion of construction all plant, temporary buildings or vehicles not required for the subsequent stage of construction will be removed from the site;	A	
5.3	b	iii	All land, including roadways, footpaths, loading facilities or other land having been occupied temporarily will be made good	A	
5.3	b	iv	Reinstatement of community spaces, infrastructure and services will occur as soon as possible after completion of construction.	A	
6.1	a		The following spoil management objectives will apply to the construction of the project:	A	PART D – Section 5.3.1
6.1	a	i	The beneficial reuse of spoil from the project will target 100 per cent reuse or recycling (on or off-site) of usable spoil.	A	
6.1	a	ii	Spoil will be managed with high consideration to minimising adverse traffic and transport related issues.	A	
6.1	a	iii	Potential contamination of land or water from contaminated spoil will be avoided.	A	
6.1	a	iv	Spoil will be managed with consideration of the impacts on residents and other sensitive receivers.	A	
6.1	a	v	Site contamination will be effectively managed to limit the potential risk to human health and the environment.	A	
6.2	a		Principal Contractors will develop and implement a Spoil Management Plan for their scope of works. The Spoil Management Plan will include as a minimum:	Partial – Procedure only	
6.2	a	i	The spoil mitigation measures as detailed in the environmental approval documentation	Partial – Procedure only	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
6.2	a	ii	The responsibilities of key project personnel with respect to the implementation of the plan;	Partial – Procedure only	PART D – Section 5
6.2	a	iii	Spoil management monitoring requirements.	Partial – Procedure only	
6.2	a	iv	Compliance record generation and management.	Partial – Procedure only	
6.2	b		Spoil management measures will be included in regular inspections undertaken by the Contractor, and compliance records will be retained. These will include:	Partial – Procedure only	PART D – Section 5.5
6.2	b	i	Records of inspections in relation to spoil management.	Partial – Procedure only	
6.2	b	ii	Records detailing the beneficial re-use of spoil either within the project or at off-site locations;	Partial – Procedure only	
6.2	b	iii	Waste dockets for any spoil disposed of to landfill sites (refer to Section 17.2 for more detail).	Partial – Procedure only	
6.3			Examples of spoil mitigation measures include: * Implementing the spoil re-use hierarchy. * Handling spoil to minimise potential for air or water pollution. * Minimise traffic impacts associated with spoil removal.	A	PART D – Section 5.3
7.1	a		The following groundwater management objectives will apply to the construction of the project:	A	PART D – Section 2.4.1
7.1	a	i	Reduce the potential for drawdown of surrounding groundwater resources	A	
7.1	a	ii	Prevent the pollution of groundwater through appropriate controls;	A	
7.1	a	iii	Reduce the potential impacts on groundwater dependent ecosystems	A	
7.2	a		Principal Contractors will develop and implement a Groundwater Management Plan for their scope of works. The Groundwater Management Plan will include as a minimum:	Partial – Addressed in CEMP	PART D – Section 2
7.2	a	i	The groundwater mitigation measures as detailed in the environmental approval documentation;	Partial – Addressed in CEMP	
7.2	a	ii	The requirements of any applicable licence conditions. The NSW Office of Water will be consulted during the development of the Groundwater Management Plan in relation to dewatering and licensing arrangements.	Partial – Addressed in CEMP	
7.2	a	iii	The responsibilities of key project personnel with respect to the implementation of the plan	Partial – Addressed in CEMP	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
7.2	a	iv	Procedures for the treatment, testing and discharge of groundwater from the site.	Partial – Addressed in CEMP	
7.2	a	v	A groundwater monitoring plan	Partial – Addressed in CEMP	
7.2	a	vi	Compliance record generation and management.	Partial – Addressed in CEMP	
7.2	b		The Groundwater Monitoring Plan will:	Partial – Addressed in CEMP	PART D – Section 2.4.6
7.2	b	i	Outline the parameters to be monitored (field parameters and laboratory parameters) and the sample frequency.	Partial – Addressed in CEMP	
7.2	b	ii	Include details of a groundwater monitoring network to monitor groundwater levels and groundwater quality throughout the constriction phase. The groundwater monitoring network will contain monitoring wells along the whole NWRL route intersecting groundwater in both the Ashfield Shale and Hawkesbury Sandstone.	Partial – Addressed in CEMP	
7.2	c		NWRL Contractors will retain compliance records of all groundwater monitoring undertaken.	Partial – Addressed in CEMP	
7.3			Examples of groundwater mitigation measures include: * Implementing all feasible and reasonable measures to limit groundwater inflows to stations and crossovers. * Undertaking groundwater monitoring during construction (levels and quality) in areas identified as 'likely' and 'potential' groundwater dependant ecosystems.	NA	PART D – Section 2.4
10.1	a		The following heritage management objectives will apply to the construction of the project:	A	PART D – Section 3.3.1
10.1	a	i	Minimise impacts on items or places of heritage value	A	
10.1	a	ii	Avoid accidental impacts on heritage items;	A	
10.1	a	iii	Maximise worker's awareness of indigenous and non-indigenous heritage.	A	
10.2	a		Principal Contractors will develop and implement a Heritage Management Plan which will include as a minimum:	Partial – Addressed in CEMP	
10.2	a	i	The heritage mitigation measures as detailed in the environmental approval documentation		

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
10.2	a	ii	The responsibilities of key project personnel with respect to the implementation of the plan		PART D – Section 3
10.2	a	iii	Procedures for undertaking any recordings of heritage items prior to works commencing		
10.2	a	iv	Procedures for unexpected heritage finds		
10.2	a	v	Heritage monitoring requirements.		
10.2	a	vi	Compliance record generation and management		
10.2	b		The Contractor's regular inspections will include checking of heritage mitigation measures.		PART D – Section 3.4
10.2	c		Compliance records will be retained by the Contractor. These will include:		PART D – Section 3.4
10.2	c	i	Inspections undertaken in relation to heritage management measures;		
10.2	c	ii	Archival recordings undertaken of any heritage item;		
10.2	c	iii	Unexpected finds and stop work orders;		
10.2	c	iv	Records of any impacts avoided or minimised through design or construction methods.		
10.3			Examples of heritage mitigation measures include: * Any heritage item not affected by the works will be retained and protected throughout construction. * Prior to the commencement of construction undertake professional archaeological excavation, investigation and reporting of any historical Indigenous heritage sites of state significance which will be affected. * Undertake archival recordings of all non-Indigenous heritage items affected by the works prior to commencement of works. * Implement unexpected heritage find procedures for Indigenous and non-Indigenous heritage items.	A	PART D – Section 3.3
11.1	a		The following flora and fauna management objectives will apply to the construction of the project:	A	PART D – Section 4.3.1
11.1	a	i	Minimise impacts on flora and fauna;	A	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
11.1	a	ii	Design waterway modifications and crossings to incorporate best practice principles;	A	
11.1	a	iii	Retain and enhance existing flora and fauna habitat wherever possible; and	A	
11.1	a	iv	Appropriately manage the spread of weeds and plant pathogens.	A	
11.2	a		Principal Contractors will develop and implement a Flora and Fauna Management Plan which will include as a minimum:	Partial – Addressed in CEMP	PART D – Section 4
11.2	a	i	The ecological mitigation measures as detailed in the environmental approval documentation;	Partial – Addressed in CEMP	
11.2	a	ii	The responsibilities of key project personnel with respect to the implementation of the plan;	Partial – Addressed in CEMP	
11.2	a	iii	Procedures for the clearing of vegetation	Partial – Addressed in CEMP	
11.2	a	iv	Ecological monitoring requirements	Partial – Addressed in CEMP	
11.2	a	v	Compliance record generation and management.	Partial – Addressed in CEMP	
11.2	b		Vegetation Management Plan(s) will be prepared for sites where native vegetation is proposed to be retained and for reaches of riparian zones that intersect with the construction footprint.;	Partial – Addressed in CEMP	Noted - NA for LWW SMTF Expansion
11.2	c		Principal Contractors would undertake the following ecological monitoring as a minimum:	Partial – Addressed in CEMP	PART D – Section 4.3
11.2	c	i	A pre-clearing inspection will be undertaken prior to any native vegetation clearing by a suitable qualified ecologist and the Contractor's Environmental Manager (or delegate). The pre-clearing inspection will include, as a minimum: * Identification of hollow bearing trees or other habitat features; * Identification of any threatened flora and fauna; * A check on the physical demarcation of the limit of clearing; * An approved erosion and sediment control plan for the worksite; * The completion of any other pre-clearing requirements required by any project approvals, permits or licences. * The completion of the pre-clearing inspection will form a HOLD POINT requiring sign-off from the Contractor's Environmental Manager (or delegate) and a qualified ecologist.	Partial – Addressed in CEMP	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
11.2	c	ii	The Principal Contractor's regular inspections will include a check on the ecological mitigation measures and project boundary fencing.	Partial – Addressed in CEMP	
11.2	d		The following compliance records would be kept by the Principal Contractor:	Partial – Addressed in CEMP	PART D – Section 4.4
11.2	d	i	Records of pre-clearing inspections undertaken;	Partial – Addressed in CEMP	
11.2	d	ii	Records of the release of the pre-clearing hold point; and	Partial – Addressed in CEMP	
11.2	d	iii	Records of ecological inspections undertaken.	Partial – Addressed in CEMP	
11.3			Examples of flora and fauna mitigation measures include: * Areas to be retained and adjacent habitat areas will be fenced off prior to works to prevent damage or accidental over clearing. * Clearing will follow a two-stage process as follows: • Non-habitat trees will be cleared first after sign-off of the pre-clearing inspection. • Habitat trees will be cleared no sooner than 48 hours after non-habitat trees have been cleared. A suitably qualified ecologist will be present on site during the clearing of habitat trees. Felled habitat trees will be left on the ground for 24 hours or inspected by the ecologist prior to further processing. * Weed management is to be undertaken in areas affected by construction prior to any clearing works in accordance with the Noxious Weeds Act 1993.	NA	NA
12.1	a		The following visual and landscape management objectives will apply to the construction of the project:	A	PART D – Section 6.3.1
12.1	a	i	Minimise impacts on existing landscape features as far as feasible and reasonable;	A	
12.1	a	ii	Ensure the successful implementation of the Landscape Design;	A	
12.1	a	iii	Reduce visual impact of construction to surrounding community.	A	
12.2	a		Principal Contractors will implement visual and landscape management as part of the CEMP and sub-plans. As a minimum, the following would be covered:	Partial – Addressed in CEMP	PART D – Section 6

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
12.2	a	i	The visual mitigation measures as detailed in the environmental approval documentation for construction;	Partial – Addressed in CEMP	
12.2	a	ii	The responsibilities of key project personnel with respect visual management;	Partial – Addressed in CEMP	
12.2	a	iii	Monitoring requirements	Partial – Addressed in CEMP	
12.2	a	vi	Compliance record generation and management.	Partial – Addressed in CEMP	
12.2	b		Visual and landscape measures will be incorporated into the Principal Contractor's regular inspections including checking the health of retained vegetation around site boundaries, checking the condition of any site hoarding and acoustic sheds, and checking the position and direction of any sight lighting.	Partial – Addressed in CEMP	PART D – Section 6.3.3
12.2	c		The Contractor will retain compliance records of any inspections undertaken in relation to visual and landscape measures.	Partial – Addressed in CEMP	PART D – Section 6.3.3
12.3			Examples of visual amenity mitigation measures include: * Wherever feasible and reasonable, vegetation around the perimeter of the construction sites will be maintained. * Temporary construction works will be designed with consideration of urban design and visual amenity as per Section 4.4. * Temporary site lighting, for security purposes or night works will be installed and operated in accordance with AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting.	A	PART D – Section 6.3
15.1	a		The following soil and water management objectives will apply to the construction of the project:	A	PART D – Section 2.4.1
15.1	a	i	Prevent pollution of surface water through appropriate erosion and sediment control	A	
15.1	a	ii	Maintain existing water quality of surrounding surface watercourses;	A	
15.1	a	iii	Source construction water from non-potable sources, where feasible and reasonable.	A	
15.2	a		Principal Contractors will develop and implement a Soil and Water Management Plan for their scope of works. The Soil and Water Management Plan will include as a minimum:	Partial – Procedure only	PART D – Section 2
15.2	a	i	The surface water and flooding mitigation measures as detailed in the environmental approval documentation;	Partial – Procedure only	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
15.2	a	ii	The requirements of any applicable EPL conditions;	Partial – Procedure only	
15.2	a	iii	The responsibilities of key project personnel with respect to the implementation of the plan;	Partial – Procedure only	
15.2	a	iv	Procedures for the development and implementation of progressive Erosion and Sediment Control Plans;	Partial – Procedure only	
15.2	a	v	Identification of locations where site specific Stormwater and Flooding Management Plans are required; and	Partial – Procedure only	
15.2	a	vi	Procedures for the treatment, testing and discharge of water from the site.	Partial – Procedure only	
15.2	a	vii	Procedures for spill response.	Partial – Procedure only	
15.2	a	viii	Soil and water monitoring requirements.	Partial – Procedure only	
15.2	a	ix	Compliance record generation and management	Partial – Procedure only	
15.2	b		Principal Contractors will develop and implement Progressive Erosion and Sediment Control Plans (ESCPs) for all active worksites in accordance with Managing Urban Stormwater: Soils & Construction Volume 1 (Landcom, 2004) (known as the "Blue Book"). The ESCPs will be approved by the Contractor's Environmental Manager (or delegate) prior to any works commencing (including vegetation clearing) on a particular site. Copies of the approved ESCP will be held by the relevant Contractor personnel including the Engineer and the Site Foreman. ESCPs will detail all required erosion and sediment control measures for the particular site at the particular point in time and be progressively updated to reflect the current site conditions. Any amendments to the ESCP will be approved by the Contractor's Environmental Manager (or delegate)	Partial – Procedure only	PART D – Section 2.4.3
15.2	c		Principal Contractors will develop and implement Stormwater and Flooding Management Plans for the relevant construction sites. These plans will identify the appropriate design standard for flood mitigation based on the duration of construction, proposed activities and flood risks. The plan will develop procedures to ensure that threats to human safety and damage to infrastructure are not exacerbated during the construction period.	Partial – Procedure only	PART D – Section 2
15.2	d		Principal Contractors will undertake the following soil and water monitoring as a minimum:	Partial – Procedure only	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
15.2	d	i	Weekly inspections of the erosion and sediment control measures. Issues identified would be rectified as soon as practicable;	Partial – Procedure only	PART D – Section 2.5; 2.5.1
15.2	d	ii	Additional inspections will be undertaken following significant rainfall events (greater than 20 mm in 24 hours);	Partial – Procedure only	
15.2	d	iii	All water will be tested (and treated if required) prior to discharge from the site in order to determine compliance with the parameters of the EPL. No water will be discharged from the site without written approval of the Contractor's Environmental Manager (or delegate). This is to form a HOLD POINT.	Partial – Procedure only	
15.2	e		The following compliance records will be kept by the Principal Contractors:	Partial – Procedure only	PART D – Section 2.5
15.2	e	i	Copies of current ESCPs for all active construction sites;	Partial – Procedure only	
15.2	e	ii	Records of soil and water inspections undertaken;	Partial – Procedure only	
15.2	e	iii	Records of testing of any water prior to discharge;	Partial – Procedure only	
15.2	e	iv	Records of the release of the hold point to discharge water from the construction site to the receiving environment.	Partial – Procedure only	
15.3			Examples of surface water and flooding mitigation measures include: * Clean water will be diverted around disturbed site areas, stockpiles and contaminated areas. * Control measures will be installed downstream of works, stockpiles and other disturbed areas. * Exposed surfaces will be minimised, and stabilised / revegetated as soon feasible and reasonable upon completion of construction. * Dangerous good and hazardous materials storage will be within bunded areas with a capacity of 110 per cent of the maximum single stored volume. * Spill kits will be provided at the batch plants, storage areas and main work sites.	A	PART D – Section 2.4
15.4			The following water resources management objectives will apply to the construction of the project: * Minimise demand for, and use of potable water. * Maximise opportunities for water re-use from captured stormwater, wastewater and groundwater. Examples of measures to minimise potable water consumption include: * Water efficient controls, fixtures and fittings in temporary facilities. * Collecting, treating and reusing water generated in tunnelling operations, concrete batching and casting facility processes. * Using recycled water or treated water from onsite sources in the formulation of concrete	A	PART D – Section 2.4.1

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
			* Harvesting and reusing rainwater from roofs of temporary facilities. * Using water from recycled water networks. * Collecting, treating and reusing groundwater and stormwater. * Using water efficient construction methods and equipment. * Providing designated sealed areas for equipment wash down.		
16.1	a		The following air quality management objectives will apply to the construction of the project:	A	PART D – Section 1.3.1
16.1	a	i	Minimise gaseous and particulate pollutant emissions from construction activities as far as feasible and reasonable;	A	
16.1	a	ii	Identify and control potential dust and air pollutant sources.	A	
16.2	a		Principal Contractors will develop and implement an Air Quality Management Plan which will include, as a minimum:	Partial – Procedure only	PART D – Section 1
16.2	a	i	The air quality mitigation measures as detailed in the environmental approval documentation;	Partial – Procedure only	
16.2	a	ii	The requirements of any applicable EPL conditions;	Partial – Procedure only	
16.2	a	iii	Site plans or maps indicating locations of sensitive receivers and key air quality / dust controls;	Partial – Procedure only	
16.2	a	iv	The responsibilities of key project personnel with respect to the implementation of the plan;	Partial – Procedure only	
16.2	a	v	Air quality and dust monitoring requirements;	Partial – Procedure only	
16.2	a	vi	Compliance record generation and management.	Partial – Procedure only	
16.2	b		Air quality and dust monitoring will involve the following as a minimum:	Partial – Procedure only	PART D – Section 1.3
16.2	b	i	Meteorological conditions will be monitored and appropriate responses will be organised and undertaken periodically by the Principal Contractor;	Partial – Procedure only	
16.2	b	ii	Regular visual monitoring of dust generation from work zones;	Partial – Procedure only	
16.2	b	iii	Monitoring emissions from plant and construction vehicles to ensure they have appropriate emission controls and are being maintained correctly.	Partial – Procedure only	
16.2	c		The following compliance records will be kept by the Principal Contractor:	Partial – Procedure only	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
16.2	c	i	Records of any meteorological condition monitoring;	Partial – Procedure only	PART D – Section 1.3.6
16.2	c	ii	Records of any management measures implemented as a result of adverse, windy weather conditions; and	Partial – Procedure only	
16.2	c	iii	Records of air quality and dust inspections undertaken.	Partial – Procedure only	
16.3			Examples of air quality mitigation measures include: * Plant and equipment will be serviced and maintained in good working order to reduce unnecessary emissions from exhaust fumes. * Water suppression will be used for active earthwork areas, stockpiles, unsurfaced haul roads and loads of soil being transported to reduce wind blown dust emissions. * Wheel-wash facilities or rumble grids will be provided and used near the site exit points, as appropriate. * Dust extraction and filtration systems will be installed for tunnel excavation works and deep excavation with limited surface exposure.	A	PART D – Section 1.3
17.1	a		The following waste objectives will apply to the construction of the project:	A	PART D – Section 5.3.1
17.1	a	i	Minimise waste throughout the project life-cycle; and	A	
17.1	a	ii	Waste management strategies will be implemented in accordance with the Waste Avoidance and Resource Recovery Act 2001 management hierarchy as follows: * Avoidance of unnecessary resource consumption; * Resource recovery (including reuse, reprocessing, recycling and energy recovery); * Disposal.	A	
17.1	a	iii	Targets for the recovery, recycling or reuse of construction waste, and beneficial reuse of spoil will be provided by the Principal Contractor.	A	
17.2	a		Principal Contractors will develop and implement a Waste Management and Recycling Plan which will include as a minimum:	Partial – Procedure only	PART D – Section 5
17.2	a	i	The waste management and recycling mitigation measures as detailed in the environmental approval documentation;	Partial – Procedure only	
17.2	a	ii	The responsibilities of key project personnel with respect to the implementation of the plan;	Partial – Procedure only	
17.2	a	iii	Waste management and recycling monitoring requirements;	Partial – Procedure only	

CEMF			Requirement	Staging Report Applicability	Reference
Clause ID	Clause Letter	Clause Sub-Letter			
17.2	a	iv	Compliance record generation and management.	Partial – Procedure only	
17.2	b		Principal Contractors will undertake the following waste monitoring as a minimum:	Partial – Procedure only	PART D – Section 5.5
17.2	b	i	Weekly inspections will include checking on the waste storage facilities on site;	Partial – Procedure only	
17.2	b	ii	All waste removed from the site will be appropriately tracked from 'cradle to grave' using waste tracking dockets.	Partial – Procedure only	
17.2	c		Principal Contractors will report all necessary waste and purchasing information to TfNSW as required for TfNSW to fulfil their WRAPP reporting requirements.	Partial – Procedure only	PART D – Section 5.5
17.2	d		Compliance records will be retained by the Principal Contractors in relation to waste management including records of inspections and waste dockets for all waste removed from the site.	Partial – Procedure only	PART D – Section 5.5
17.3			Examples of waste management and recycling mitigation measures include: * All waste will be assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (DECC, 2008). * All waste materials removed from the sites will be directed to an appropriately licensed waste management facility. * The use of raw materials (noise hoarding, site fencing, etc...) will be reused or shared, between sites and between construction contractors where feasible and reasonable * Recyclable wastes, including paper at site offices, will be stored separately from other wastes.	A	PART D – Section 5.3

Appendix C3 Environmental Risk Register

Risk assessment criteria

The risk assessment criteria has been developed as per the Risk Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000021). Qualitative measures are used to estimate the consequence or impact of an event, along with the estimate of likelihood, to produce consistent risk rankings across the identified risks. These values are described in Table 16 and Table 17 below.

Table 16 Likelihood criteria

Risk Likelihood Table						
Rating	**L6**	**L5**	**L4**	**L3**	**L2**	**L1**
Descriptor/ Definition	**Almost Unprecedented**	**Very Unlikely**	**Unlikely**	**Likely**	**Very Likely**	**Almost Certain**
Qualitative Expectation	Not expected to ever occur during time of activity or project	Not expected to occur during the time of activity or project	More likely not to occur than occur during the time of activity or project	More likely to occur than not occur during time of activity or project	Expected to occur occasionally during time of activity or project	Expected to occur frequently during time of activity or project
Quantitative Frequency	Less than once every 100 years	Once every 10 to 100 years	Once every 1 to 10 years	Once each year	1-10 times every year	10 times or more every year

Table 17 Consequence criteria

Consequence Table		
Rating	**Descriptor**	**Environment Consequence**
C6	**Insignificant**	No appreciable changes to environment and/or highly localised event
C5	**Minor**	Change from normal conditions within environmental regulatory limits and environmental effects are within site boundaries
C4	**Moderate**	Short term and/or well contained environmental effects. Minor remedial actions probably required
C3	**Major**	Impacts external ecosystem and considerable remediation is required
C2	**Severe**	Long-term environmental impairment in neighboring or valued ecosystems. Extensive remediation required.
C1	**Catastrophic**	Irreversible large-scale environmental impact with loss of valued ecosystems.

A Risk Matrix (Table 18) is used to evaluate the severity of the risk for each environmental aspect. As shown, the matrix axis are those of likelihood and consequence using the measures given above. A scale of consequences from A to D is used to indicate decreasing severity. The consequences are potential outcomes as a result of a hazard occurring.

Table 18 Risk matrix

Risk Matrix Evaluation Table								
Risk Ratings A = Very High (31 – 36) B = High (22 – 30) C = Medium (11 – 21) D = Low (1 – 10)			**Consequence**					
			Insignificant	Minor	Moderate	Major	Severe	Catastrophic
			C6	C5	C4	C3	C2	C1
Likelihood	Almost Certain	L1	20	22	29	32	34	36
	Very Likely	L2	14	18	23	28	31	35
	Likely	L3	9	12	16	24	27	33
	Unlikely	L4	6	7	11	17	25	30
	Very Unlikely	L5	3	4	8	13	19	26
	Almost Unprecedented	L6	1	2	5	10	15	21

A preliminary environmental risk assessment has been undertaken for the Project. This assessment is provided in the following page.

Appendix C3 Environmental Aspects and Impacts - Preliminary Risk Assessment

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E1	**Environment**	Planning Approvals and Licences	Non Compliance with Regulatory instruments or Legislation (inc. Planning Approval conditions)	Inadequate management practices; Lack of competency/knowledge; Contractor management gaps	Regulatory action (prosecution, pins). Delay to subsequent approval requests, (delay to program) Contractual Breach Reputation Damage Non-compliance with sustainability certification	• Implementation of CEMP • Induction included summary of regulatory obligations • Supplier contracts included details of regulatory obligations • Suitably qualified environment representative in delivery team	6 (Low)
E2	**Environment**	Planning Approvals and Licences	Commencing work without approvals	Inadequate planning	Regulatory action (prosecution, pins). Delay to subsequent approval requests, (delay to program) Contractual Breach	• Approvals on master program • Low impact / early works approval Procedure • Change Management Procedure • Suitably qualified environment representative in delivery team	7 (Low)
E3	**Environment**	Planning Approvals and Licences	New approvals requirements due to scope change	New approvals requirements due to scope change	Regulatory action (prosecution, pins). Delay to subsequent approval requests, (delay to program) Contractual Breach	• Approvals on master program • Low impact / early works approval Procedure • Change Management Procedure • Suitably qualified environment representative in delivery team (in design review)	7 (Low)
E4	**Environment**	Biodiversity and Ecology	Clearing without a permit and/or pre-clearance survey	Inadequate management of environmental aspects; Lack of competency/knowledge	Regulatory action (prosecution, pins); Contractual Breach; Non-compliance with sustainability certification; Impact to existing flora and fauna communities	• Flora, Fauna and Biodiversity Management (in PART D of CEMP) • Inductions included details of flora and fauna management requirements • Toolbox training on management of flora and fauna during construction • Site Environment Plan (SEP) developed (Appendix C5) • Suitably qualified environment representative in delivery team	7 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
						• Specialist consultant for Flora/ Fauna Management	
E5	**Environment**	Biodiversity and Ecology	Weed management	Poor site delineation Not complying with weed management strategy incorrect topsoil used incorrect wash down techniques/ areas incorrect disposal of weeds	Additional weed management Unusable topsoil and mulch Damage to EEC	• Defined wash down area on SEP (Appendix C5) • Pre-clearing checklist and survey • Waste Management Procedure includes source segregation • Weed management within Flora, Fauna and Biodiversity Management in CEMP (PART D) • Inductions included details of flora and fauna management requirements • Toolbox training on management of flora and fauna during construction	7 (Low)
E6	**Environment**	Biodiversity and Ecology	Damage to existing flora and fauna (including threatened populations)	Construction activities impacting existing vegetation due to poorly demarcated site	Regulatory action (prosecution, PINs) Breach of deed requirements Reputation Non-compliance with sustainability certification Impact to existing flora and fauna communities	• No-go fencing is to be installed and clearly defined on SEP • Flora, Fauna and Biodiversity Management in CEMP (PART D) • Inductions included details of flora and fauna management requirements • Toolbox training on management of flora and fauna during construction	7 (Low)
E7	**Environment**	Biodiversity and Ecology	Grass fire	Hot works conducted without required controls or permits in place	Damage to existing environment	• Emergency Response Plan • Construction Safety Management Plan • Hot work restrictions • TOBAN exemption Procedure • Induction and Training	7 (Low)
E8	**Environment**	Biodiversity and Ecology	Unexpected flora and fauna finds (including aquatic species)	Pre-clearance checks not undertaken Inadequate site delineation Inadequate erosion and sediment controls	Impact to flora and fauna communities	• Flora, Fauna and Biodiversity Management in CEMP (PART D) • Inductions included details of flora and fauna management requirements • Toolbox training on management of flora and fauna during construction	7 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E9	**Environment**	Transport and Traffic	Changed traffic conditions in the neighbourhood or increased traffic	Traffic entering/leaving construction sites and compounds	Increased local traffic Changes to local traffic conditions Air quality impacts Noise impacts	• Construction Traffic Management Plan and TCP's • CCS-SMTF • Project induction included Traffic management obligations • Site Inductions and Truck Driver training included site specific requirements • Road Act Approvals • Air Quality Management in CEMP (PART D) • Construction Noise and Vibration Management Plan	7 (Low)
E10	**Environment**	Transport and Traffic	Increased heavy vehicles traffic	Haulage	Increased local traffic Changes to local traffic conditions Air quality impacts Noise impacts	• Construction Traffic Management Plan • TCP's and VMPs • CS-SMTF • Road Act Approvals • Air Quality Management in CEMP (PART D) • Construction Noise and Vibration Management Plan • Site Inductions and Truck Driver training included site specific haulage routes	7 (Low)
E11	**Environment**	Transport and Traffic	Road closure - for heavy delivery	Heavy deliveries	Changes to local traffic conditions Increased local traffic Community complaints	• Construction Traffic Management Plan • CCS-SMTF. • Site Induction and tool box training included any requirements for road closure	7 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E12	**Environment**	Noise and Vibration	Unapproved works outside hours	Inadequate planning Not complying with the out of hours approval process and requirements	Regulatory action (prosecution, pins). Contractual Breach Reputation Community complaints	• Out of Hours Works on delivery program • Construction Noise and Vibration Management Plan • OOHW Procedure • Induction included reference to obligations for management of OOHW • Tool box training on management OOHW • Suitably qualified environment representative in delivery team to assess and monitor	6 (Low)
E13	**Environment**	Noise and Vibration	Cumulative / daytime construction noise	Construction activities not allowing for respite periods; Inadequate planning and consultation; Not complying with the noise management requirements	Community complaints Reputation	• Out of Hours Works on delivery program • Construction Noise and Vibration Management Plan • OOHW Procedure • Induction included reference to obligations for management of noisy activities, standard working times and OOHW. • Tool box training on management of noise and vibration • Suitably qualified environment representative in delivery team to assess and monitor • Community Communications Strategy SMTF	6 (Low)
E14	**Environment**	Noise and Vibration	Vibration impacts of heavy plant	Heavy plant movements and activities	Community complaints Damage to existing infrastructure	• Construction Noise and Vibration Management Plan • Induction included reference to obligations for vibration management • Tool box training on management of vibration • Suitably qualified environment representative in delivery team to assess and monitor vibration • Community Communications Strategy SMTF	6 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E15	**Environment**	Heritage and Archaeology	Unexpected archaeological finds	Unexpected find(s) Inadequate demarcation of site Location of known site(s) not referenced in site plans and communicated to personnel. Not following unexpected finds protocol	Delay to program Damage to relics	• Heritage Management in CEMP (PART D) • Unexpected Finds Heritage and Human Remains Procedure • Inductions included reference to obligations with regard to unexpected finds • Tool box training on management of unexpected finds • Specialist consultant to manage unexpected finds	6 (Low)
E16	**Environment**	Soil and Water	Sediment run-off	Inadequate sediment control Not complying with sediment control plans	Pollution of water Impact on aquatic ecology Sedimentation of waterways Regulatory action Delay to program Community impacts	• Construction Soil and Water Management Procedures. • Erosion and Sediment Control Plan • Induction includes reference to obligations associated with management of spoil and water during construction • Toolbox training on management of ERSED and de-watering • Suitably qualified environment representative in delivery team • Specialist consultant for ERSED development and review	13 (Medium)
E17	**Environment**	Soil and Water	Unapproved discharge of water from site	Poor planning of construction activity Not obtaining or working in accordance with an issued water discharge permit (as per de-watering procedure)	Pollution of water Impact on aquatic ecology Sedimentation of waterways Regulatory action Delay to program Community impacts	• Construction Soil and Water Management Procedures. • Erosion and Sediment Control Plan • Induction includes reference to obligations associated with management of spoil and water during construction • Toolbox training on management of ERSED and de-watering • Suitably qualified environment representative in delivery team • Specialist consultant for ERSED development and review	13 (Medium)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E18	**Environment**	Soil and Water	Unexpected finds of contaminated soil or hazardous materials	Unexpected finds during construction activities Not following unexpected finds protocol	Additional cost for assessment and disposal Program delay Soil contamination from inadequate disposal	• Construction Soil and Water Management Procedures. • Unexpected Finds Soil Contamination and Asbestos Procedure (Appendix C8) • Waste Management and Recycling Procedure (Appendix C8) • Induction includes reference to obligations associated with management of waste, unexpected finds, contamination and hazardous materials. • Toolbox training on management of contamination and unexpected finds • Suitably qualified environment representative in delivery team • Specialist consultant for contamination management	7 (Low)
E19	**Environment**	Soil and Water	Chemical / hazardous materials storage and use	Unapproved use of materials on-site Inappropriate use or storage Inadequate storage and containment controls	Pollution of water Pollution of soil	• Construction Safety Management Plan • Emergency Response Plan • Site Environment Plan includes designated storage areas • Refuelling procedures • Tool box training substance storage and management • Induction reference substance storage obligations	7 (Low)
E20	**Environment**	Soil and Water	Interception of ground water	Not following soil and water management plan Insufficient geotechnical data	Pollution of waters Delay to program Salinity impacts on infrastructure	• Construction Soil and Water Management Procedures • Induction included reference to groundwater management obligations • Toolbox training delivered included management of Groundwater during construction	6 (Low)
E21	**Environment**	Visual Amenity	Visual impacts	Not cordoning off the worksite with fencing, shade cloth in accordance with contract requirements	Light pollution Temporary hoarding Graffiti	• Visual Amenity Management in CEMP (PART D). • CCS-SMTF	7 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
E22	**Environment**	Social and Economic Impacts	Local economy	Construction activities impacting local businesses	Impact on businesses Local employment	• Sustainability Management Plan • Sustainable Workforce Target	7 (Low)
E23	**Environment**	Greenhouse Gas and Climate Change	Increased energy usage	Poor planning of construction activity Not following greenhouse gas management plans	Increased costs Increased greenhouse GHG emissions Contributing to climate change	• Carbon and Energy Management Sub Plan • Materials Management Sub Plans • Construction programming	7 (Low)
E24	**Environment**	Air Quality	Dust generation	Poor planning of construction activity Not complying with the air quality, management plan, working in windy conditions, not covering loads Delays in stabilisation of disturbed land	Community impacts Regulatory action Air pollution	• Air Quality Management in CEMP (PART D) • Soil and Water Management Procedures • Induction includes air quality management requirements • Toolbox Training of workforce on management of air quality during construction	9 (Low)
E25	**Environment**	Air Quality	Exhaust emissions	Poor planning of construction activity Not complying with the air quality management plan; Inadequate plant management	Community impacts Regulatory action Air pollution	• Air Quality Management in CEMP (PART D) • Induction included air quality management requirements • Toolbox Training of workforce on management of air quality during construction;	9 (Low)
E26	**Environment**	Waste	Incorrect disposal of waste	Poor planning of construction activity Not following waste management plan	Regulatory action (prosecution, PINs)	• Waste, Spoil and Recycling Management in CEMP (PART D) • Induction included waste management requirements	7 (Low)

Risk ID	Category	Activity	Hazard/Aspect	Cause	Consequence /Impact	Current Controls	Risk Score
						• Toolbox training of workforce on waste management	
E27	**Environment**	Waste	Excess waste generation	Poor planning of construction activity Not following waste management plan	Non-compliance with sustainability certification	• Waste, Spoil and Recycling Management in CEMP (PART D) • Induction included waste management requirements • Toolbox training of workforce on waste management • Waste reduction initiatives to be implemented as per the sustainability management plan	7 (Low)

Appendix C4 Environment Policy

Environment and Sustainability Policy

Systems Connect will work collaboratively with Sydney Metro to ensure sustainable outcomes through integration of environmental, social and governance factors into everything we do.

Employees, subcontractors, suppliers and consultants will strive together to identify and implement excellence and innovation throughout design, procurement and construction of Line-wide Works.

Systems Connect will:

- Demonstrate leadership through visible commitment to and active participation in implementation of project environment and sustainability objectives.
- Promote a culture of accountability for sustainability outcomes and improve the sustainability knowledge and skills of employees.
- Investigate sustainability initiatives that meet or exceed client expectations, provide value for money, and leave net positive legacies for users, the environment and communities.
- Drive the efficient use of energy, water and materials in the delivery of the project to meet or exceed the projects objectives and targets.
- Minimise waste generation, reduce pollution and enhance the natural environment.
- Place value on cultural heritage and respect traditional land owners.
- Enhance the projects resilience to climate change.
- Engage with stakeholders, the community and traditional land owners to consider impacts and identify opportunities in the decision-making process.
- Integrate environmentally, socially and economically responsible sourcing and governance factors into the projects operating and procurement processes.
- Embed procurement and supply chain principles and objectives outlined in the City & Southwest Sustainability Strategy into procurement processes through the development of a Sustainability Procurement Policy.
- Where possible procure services and materials locally to reduce transport emissions, support local businesses and provide jobs and upskilling of local labour forces.
- Regularly monitor, review, audit and report on the performance of the environment and sustainability management systems to ensure targets and objectives are on track and to identify areas for improvement.
- Ensure that all personnel understand their legal obligations with regard to the prevention of harm to the environment.
- Recognise and reward initiatives and innovations that achieve the best outcomes and drive positive change.
- Investigate any environmental events to identify contributing factors and preventative actions.
- Seek opportunities to collaborate with the supply chain to drive innovation and create mutual value.

15th May 2019

Mathew Billings	Julian Sharp	James Logie
Environment Manager	Project Director	Sustainability Manager

Sydney Metro City & Southwest Line-wide Works

Environment and Sustainability Policy - SMCSWLWC-SYC-1NL-SU-PLN-000062

Appendix C5 Site Environment Plans

Good Housekeeping is the key to everything!!

RECYCLE

Do not litter

PLEASE KEEP NOISE TO A MINIMUM

NOISE

PLEASE RESPECT OUR NEIGHBORS

Always use Rumble Grid when Exiting

Always Maintain ERSED Controls as per ESCP

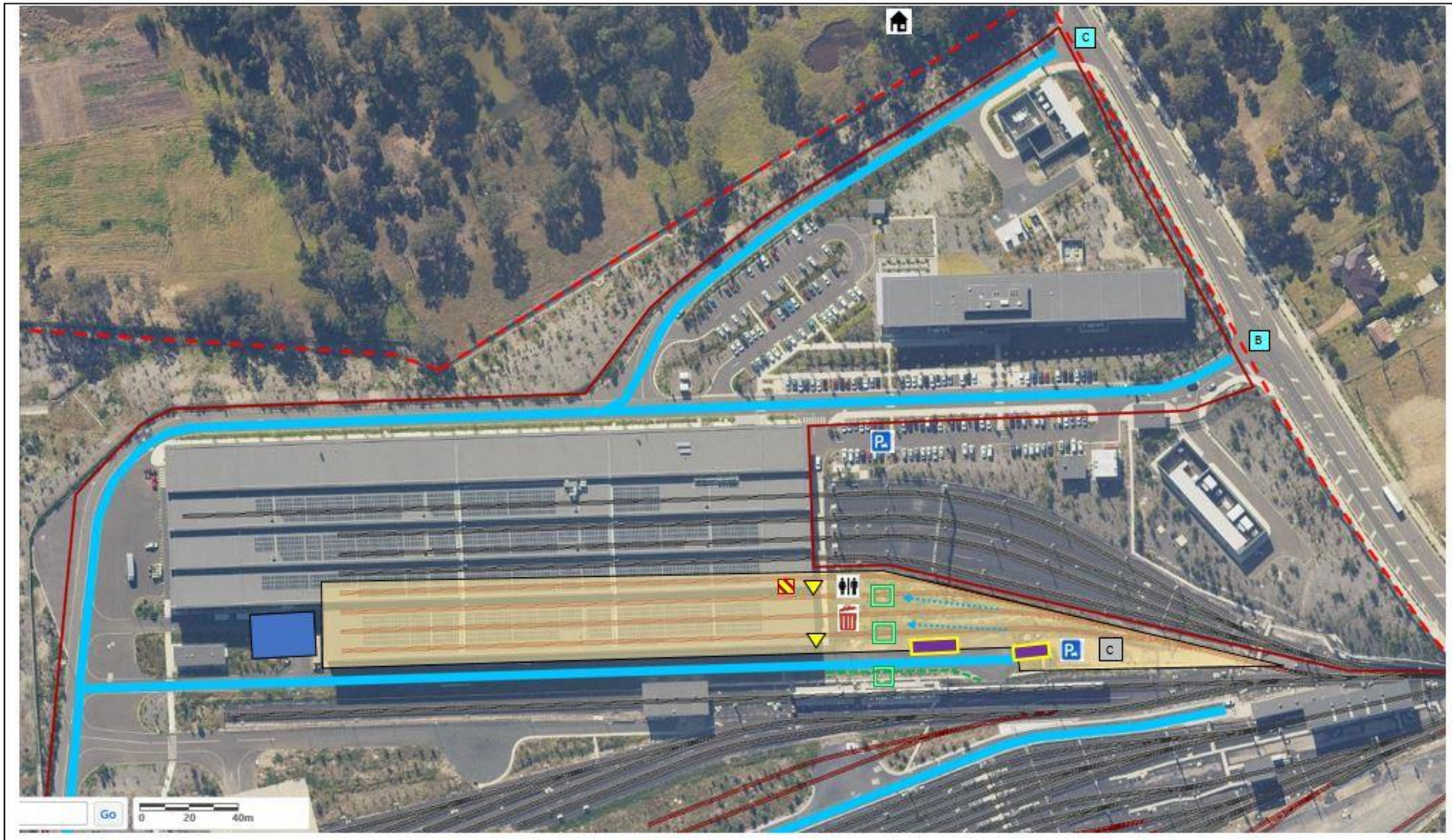
CARE FOR OUR WILDLIFE

Always control dust

LEGEND (NR = None Required)

Sydney Metro Project Boundary	Flow Direction	Parking	Refuelling Area
LWW Site Boundary	Clean Water Diversion	Site Compound	Spill Kit
Protected Area Boundary (NR)	Dirty Water Diversion	Construction Area	Hazardous Chemical Store
Water Course	SB Sediment Basin	Site Office / Amenities	Waste and Recycling Bins
No-Go Zone (NR)	Sediment Basin Discharge Point	Laydown Area	W Wheel Cleaning Facility
Tree Protection (NR)	A Access Gate	Stockpile / Spoil Placement	Sensitive Receivers
Sediment Barriers	Access / Haul Road	C Concrete Washout	Weather Monitoring Station

Key Contacts	
Mathew Billings	Environment & Sustainability Manager
Kate Truscott	Senior Environmental Advisor
Chris Riley	Environmental Coordinator
Helena Orel	Stakeholder & Community Relations Manager
Paul Doyle	Safety Advisor
Luke Wagstaff	Area Manager
John McCosker	Superintendent
Trevor Reilly	Senior Supervisor
Alex Wynne	Senior Project Engineer
Ryan Smith	Senior Project Engineer
Morgan Lees	Project Engineer
Isaac Harris	Site Engineer



Good Housekeeping is the key to everything!!

LEGEND

Sydney Metro Project Boundary	Flow Direction	Stabilised access point	
LWW Site Boundary	Vegetation protection delineation	Sensitive Receivers	
Access / Haul Road	Drain Protection (double layer)	Portable toilet	
A Access Gate	Spill Kit		
Parking	Hazardous Chemical Storage		
Site Office / Amenities	Waste and Recycling Bins		
Construction Area	C Concrete Washout		

Key Contacts	
Mathew Billings	Environment & Sustainability Manager
Kate Truscott	Senior Environmental Advisor
Chris Riley	Environmental Coordinator
Tahneal Tantos	Stakeholder & Community Relations Place Manager
Paul Doyle	Safety Advisor
Luke Wagstaff	Area Manager
John McCosker	Superintendent
Trevor Reilly	Senior Supervisor
Alex Wynne	Senior Project Engineer
Mathew Tamburini	Project Engineer
Campbell Jirgens	Site Engineer
Isaac Harris	Site Engineer

SEP Scope

This SEP defines the environmental management measures relevant to:

Sydney Metro City & Southwest Line Wine Works – SMTF Expansion

The work scope includes the following elements:

Site establishment
New test track, new roads 24 to 35
SER Building

Key Potential Environmental Impacts

- Noise & vibration
- Air quality
- Soil and water
- Waste
- Traffic
- Contaminated Soil
- Flora and Fauna
- Cultural Heritage

Work Permits

Work Activity	Permit Requirement
Work or access outside of the project boundary	Not permitted
Any work beyond the LWW Site Boundary:	Permit to Enter Protected or No-Go Areas
Any entry into Environmental Protected Area:	Permit to Enter Protected or No-Go Areas
Any out of hours work:	Out of Hours Work (OOHW) Application
Any discharge of water:	Permit to Dewater
Any vegetation clearing	Permit to Clear Land or Vegetation

Hold Points	Refer to Environmental Procedure
Start of construction	Erosion and Sediment Control
Excavation / earthworks	Erosion and Sediment Control
Water discharge or re-use	Water Management
Significant rain events	Water Management
Visible dust leaving site	Air Quality and Dust Management
Average wind above 30km/h	Air Quality and Dust Management
Re-use of spoil	Spoil Classification, Reuse and Recycling
Heritage item find	Unexpected Finds Heritage and Human Remains
Soil contamination find	Unexpected Finds Soil Contamination & Asbestos

Environmental Management Plans and Procedures

SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environmental Management Plan
SMCSWLWC-SYC-1NL-PM-PLN-000371	Construction Noise and Vibration Management Plan
SMCSWLWC-SYC-1NL-PM-PLN-000377	Construction Traffic Management Plan
SMCSWLWC-SYC-1NL-EM-PRO-000384	Water Management Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000386	Unexpected Finds Flora and Fauna Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000387	Spill Management Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000388	Unexpected Finds Soil Contamination and Asbestos
SMCSWLWC-SYC-1NL-EM-PRO-000389	Unexpected Finds Heritage and Human Remains
SMCSWLWC-SYC-1NL-EM-PRO-000390	Erosion and Sediment Control Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000392	Air Quality and Dust Management Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000398	Contingency Groundwater Monitoring and Management
SMCSWLWC-SYC-1NL-EM-PRO-000399	Waste Management and Recycling Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000461	Spoil Classification, Reuse and Recycling Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000807	Out of Hours Work Procedure

Soil and Water

Water Management

- Sediment basin water must be tested, and treated if necessary, prior to discharge off-site or re-use on site
- Water must not be discharged or re-used without a Permit to Dewater

Erosion and Sediment Control Plans (ESCPs)

- ESCPs must be in place and current copies on site for all work areas
- ESCPs must be progressively updated to reflect current site conditions
- All ERSED controls must be installed and maintained as per ESCPs

Mud and Sediment Tracking

- Mud or sediment must not to be tracked off the site
- Suitable wheel cleaning facilities must be provided and used at site exits – such as wheel wash tanks, rumble grids, rock pads, pressure washing hoses
- A street-cleaning regime must be in place to remove any mud tracking

General mitigation measures include:

- Spill kits must be in place as per this SEP
- Hazardous substances must be in bunded storage to prevent spills
- Refuelling station to be set up to prevent soil and water contamination
- No refuelling within 30m of a watercourse or drain
- Disturbed areas should be re-vegetated or stabilised as soon as feasible
- Stockpiles, site compounds and haul road surfaces to be stabilised to minimise sediment run-off
- Do not dispose of any substance into any drainage pit or swale
- Concrete washout must be used for rinsing concrete trucks, pumps, chutes and other concreting tools & equipment. Must be maintained and emptied as needed.

Applicable Procedures:

SMCSWLWC-SYC-1NL-EM-PRO-000384: Water Management Procedure
SMCSWLWC-SYC-1NL-EM-PRO-000390: Erosion and Sediment Control Procedure

Noise and Vibration

Work outside of Standard Hours may only be carried out with an approved OOHW Application in accordance with the Project Approval Conditions.
Community notifications must be delivered prior to commencing OOHW when required.
Standard Construction Hours are:

- 7am - 6pm Monday – Friday
- 8am - 1pm Saturdays
- No work on Sundays or Public Holidays

High noise impact works such as rock hammering or piling are only allowed:

- 8am - 5pm Monday - Friday
- 8am - 1pm Saturday
- In blocks not exceeding 3 hrs each with respite of 1 hr between blocks

Standard noise mitigation measures include:

- Minimise plant & equipment running times – shut down when not in use
- All site vehicles and plant must be fitted with non-tonal movement alarms
- Noise levels of plant & equipment must not exceed the levels in the CNVMP
- Avoid simultaneous operation of noisy plant close to sensitive receivers
- Maximise distance between stationary plant and sensitive receivers
- Use acoustic screens, earth bunds or hoarding to shield high impact noise works and noise sources such as pumps, compressors, generators etc.
- No swearing or unnecessary shouting or loud stereos / radios
- No dropping of materials from height, throwing of items or slamming of doors

Applicable documents:

SMCSWLWC-SYC-1NL-PM-PLN-000371: CNVMP
SMCSWLWC-SYC-1NL-EM-PRO-000807: Out of Hours Work Procedure

Waste

Waste Targets:

- 95% of inert and non-hazardous construction waste to be recycled or reused
- 60% of office waste is to be recycled or beneficially reused
- 100% of reusable spoil is to be beneficially reused

Waste minimisation measures

- Timber pallets, crates and cable drums are to be returned to suppliers for reuse where feasible
- Construction materials such as formwork, hoarding and fencing are to be reused or shared between sites where feasible
- Recyclable wastes are to be segregated and stored separately from other wastes and from each other – paper & cardboard, bottles and cans, metals, green waste etc

Compliance

- Littering is not acceptable – anyplace, anytime
- Do not dispose of any waste into any drains
- All loads leaving the site must be covered
- All waste leaving the site must be assessed, classified, tracked, and recycled or disposed of at a licenced waste facility
- No waste is to be received onto the site for any purpose

Applicable Procedures:

SMCSWLWC-SYC-1NL-EM-PRO-000399: Waste Management & Recycling Procedure

Air Quality

There must be no visible dust emissions from the site.
Suitable dust and fume emission mitigation measures must be in place and used:

- Avoid dust generating activities during high winds.
- Avoid dry cutting of concrete
- Water carts, sprinkler system etc during earthworks and truck movements
- Regularly sweep and clean hard surfaces and sealed access roads
- Stable surfaces on site access roads – bitumen spray seal, road base or rock
- Diesel equipment must have catalytic converters or other diesel particulate filters
- Turn plant and equipment off when not in use
- Exposed surfaces and stockpiles must be minimised, covered where feasible, compacted, wetted down or sprayed with dust suppression polymer
- All loads leaving the site must be covered

Applicable Procedures:

SMCSWLWC-SYC-1NL-EM-PRO-000392: Air Quality and Dust Management

Unexpected Finds

Unexpected finds may include:

- Contaminated soil
- Asbestos
- Flora and fauna
- Items of cultural heritage

In event of any unexpected find:

- Stop all work in the immediate area and prevent any further access
- Advise the Superintendent and Environmental Coordinator
- Refer to the applicable procedure and proceed accordingly

Applicable Procedures:

SMCSWLWC-SYC-1NL-EM-PRO-000386: Unexpected Finds Flora and Fauna
SMCSWLWC-SYC-1NL-EM-PRO-000388: Unexpected Finds Soil and Asbestos
SMCSWLWC-SYC-1NL-EM-PRO-000389: Unexpected Finds Heritage

INSTRUCTIONS

BACKGROUND

The details shown on this drawing are erosion and sediment control requirements only relevant to the earthworks stage of the project. Erosion and sediment controls will need to be re-assessed as works progress and revised plans will be required (or these plans can be updated).

This Erosion and Sediment Control Plan (ESCP) has been prepared in accordance with best-practice principles, generally following the guidelines contained in the Blue Book Volume 1.

Erosion Hazard Assessment:
RUSLE = R x K x LS x P x C

- A = soil loss (tonnes per hectare per year)
- R = rainfall erosivity (2,410 for this site)
- K = soil erodibility (0.05 assumed for this site - imported/unknown soil material)
- LS = slope length and gradient (0.54 for the disturbed areas of this site, assuming 5% and 20m)
- P = soil conservation practices (1.3 adopted for the disturbed areas of this site, assuming compacted ground)
- C = ground cover (1.0 adopted for the disturbed areas of this site, assuming no cover).

At this site, RUSLE has been calculated as 84 t/ha/yr (Soil Loss Class 1; very low erosion hazard).

SEDIMENT CONTROL DESIGN STANDARD

Based on the requirements in Blue Book, sediment basins are required if the total soil loss exceeds 200 tonnes per year.

The total disturbed area for this stage/catchment of works is approximately 8.73ha. Therefore, based on the above, the potential soil loss is 733 t/yr and a sediment basin/s is required.

OTHER DESIGN ASSUMPTIONS

- Sediment basin design (where relevant) is for 5-day, 85th percentile event for Blacktown: 32.2mm
- Assumed soil hydrological group: D (high runoff, low permeability)
- Volumetric runoff coefficient: 0.64
- C10 runoff coefficient = 0.9
- Soils are considered as imported/unknown with an assumed K-factor of 0.05

INSTRUCTIONS

1. Install erosion and sediment controls as noted on this ESCP.
2. Works are to be staged as noted.
3. Ensure erosion and sediment controls are in place prior to any ground disturbance or construction earthworks. Note that minor disturbance is permitted in order to install the erosion and sediment controls, but it is to be kept to a minimum.
4. Compound surfaces are to be formed and maintained in a stable condition.
5. Where possible, existing stabilised batters are to be maintained undisturbed. Where this is not feasible new or modified batters are to be vegetated or stabilised and maintained as per SD 5.2.
6. Sediment basins are to be installed and managed in accordance with the 'Sediment Basin' notes and Standard Drawing SD 6-4.
7. Wherever possible, reuse existing roads/tracks for access.
8. In addition to those controls noted, undertake dust suppression as required to minimise the risk of dust rise from the site.
9. Slope lengths across all exposed/disturbed surfaces are to be maintained at the following maximum intervals during rainfall: 80m for areas with slopes up to 2% and 20m for areas with slopes greater than 2%. Provide slope breaks as earth contour berms, low-flow earth banks (SD 5-5), sandbag bunds, mulch bunds or similar prior to rainfall to achieve this. Note that if slope lengths are naturally less than those required, slope breaks are not required. Also note slope breaks are not required to be in place during earthworks when it is not raining.
10. Stockpiling is to be undertaken in accordance with SD 4-1.
11. Haul roads (access roads) are to be maintained in a trafficable condition by re-grading and applying road base, a heavy duty trafficable soil stabiliser or similar as necessary.
12. Undertake inspections of erosion and sediment controls at least once a week, and before and after rainfall of 5mm or more in 24 hours.
13. The site will be monitored closely following rainfall to ensure controls are sufficient and where necessary on-site measures will be modified to address any concerns.
14. Repair and/or clean out controls as required.
15. Any dewatering is to be undertaken in accordance with the 'Dewatering and Discharge Requirements' notes.
16. Undertake progressive stabilisation of lands as final earthworks are complete in each area in accordance the stabilisation/landscaping plans (rather than waiting until the completion of works). Refer to Table 1 for timing and cover requirements.
17. As surfaces are stabilised (at least 90% of any finished area has at least 70% ground cover) and permanent drainage measures are installed, temporary erosion and sediment control structures and water management structures can be removed (e.g. mulch bunds and diversion drains).

SEDIMENT BASINS

- Sediment basin location and sizing details are shown on the plans
- Dewatering from sediment basins is to be undertaken in accordance with the 'Dewatering and Discharge Requirements' notes.
- All disturbed areas that do not drain to the sediment basin will be managed with alternative sediment controls such as mulch bunds, sediment fences, sumps or similar.
- If so desired, dirty water accumulating in excavations/cut sections/low points can be pumped or carted to a sediment basin providing adequate capacity is available and the basin won't overflow as a result - the available basin capacity and weather forecasts are to be monitored to ensure this. Note that the 5-day maintenance requirement for basins to be emptied still applies (see below).
- Within 5 calendar days of the conclusion of any rainfall causing runoff, the sediment basins are to be empty, ready for the next rainfall event. This might include testing water, treating (e.g. flocculating), de-watering and de-silting basins. If rainfall (causing runoff) occurs again within 5 days of the previous rain event, the 5-day requirement re-sets.
- Dirty water accumulated in sediment basin can be used on site for dust suppression or construction purposes. If this occurs it does not need to be treated first. Water is to be checked for pH and oil & grease prior to reuse – Refer to Dewatering Procedure / Permit.
- The design rainfall event for the sediment basins is 32.2mm (85th %'ile). It is possible that the basins might overflow in an event of more than 32.2mm over any 5-day period.
- The sediment basin must include an outlet (weir overflow/spillway).
- Additional volume can be provided in sediment basins for storing water if so desired (i.e. they can be made bigger than is required by this ESCP). Markers will need to be installed within basins to indicate the various volumes.
- A marker peg (or similar) is to be included in every basin showing the top level of the Sediment Storage volume.
- Sediment basins are to be de-silted whenever sediment accumulates to more than 60% of the Sediment Storage Volume. Sediment removed from the basin can be taken to a stockpile area, buried onsite or used as general fill. Ensure sediment removed from basins is not placed where it could wash, blow or fall offsite.

DEWATERING AND DISCHARGE REQUIREMENTS

- Any active discharge of water from the project (i.e. where water is moved offsite via direct action such as pumping rather than flowing off the project as a result of heavy rainfall) is to achieve:
  - 50mg/L or less TSS (Total Suspended Sediment); and
  - pH 6.5 to 8.5; and
  - <10mg/L oil and grease and no visible trace.
- Adequate water quality can be achieved by using gypsum at a rate of approximately 30 kg/100 m3 of stormwater. Alternative flocculating agents can only be used if allowed under the project EPL. Refer to manufacturers guidelines for dosage details.
- Spread the treatment agent evenly over the entire pond surface for proper treatment of water.
- These de-watering requirements apply to dirty water accumulating in any sort of excavation, sump, or other ponded water body on the project.
- If the water is going to be used within the construction site for dust-suppression or construction purposes and will drain back into the sediment capture system, it does not require treatment.

TABLE 1 MAXIMUM ACCEPTABLE C-FACTORS AT NOMINATED TIMES

LANDS	MAXIMUM C-FACTOR	REMARKS
Soil Class 6 lands and any other areas subject to concentrated flows: • Table drains • All lands within 20m of a natural watercourse; and • All lands below the 2yr ARI flood level	0.05 (i.e. 70% cover	Applies after ten working days from completion of formation and before they are allowed to carry any concentrated flows
Stockpiles and batters, post-construction	0.10 (i.e. 60% cover)	Applies after ten working days from completion of formation. Maximum C-factor of 0.10 equals 60% ground cover.
All lands, including waterways and stockpiles and batters during construction and operation	0.15 (i.e. 50% cover)	Applies after 20 working days of inactivity, even though works might continue later. Maximum C-factor of 0.15 equals 50% ground cover.
All land post-construction	0.1 / 0.05 (i.e. 60% / 70% cover)	0.1 (60%) applies after 20 working days of completion of works. 0.05 (70%) applies after 60 days of completion of works.

REV	DATE	DES.	DRN.	APP.	REVISION DETAILS
01	02/09/19	A.T.	A.T.	A.J.T.	REVISIONS FOR ADDITIONAL/MODIFIED SITE AREA
00	05/08/19	A.T.	A.T.	A.M.	FINAL – ISSUE FOR USE
A	19/07/19	A.T.	A.T.	A.M.	DRAFT – FOR CONSULTATION

DRAWING STATUS: FINAL
DESIGN BY: A.T.
DRAWN BY: A.T.
FINAL APPROVAL: A.M.
SCALE (on A3 Original): N/A
North

CLIENT: SYSTEMS CONNECT

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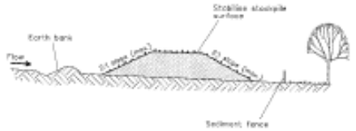
PROJECT TITLE: LINE–WIDE WORKS SMTF EXPANSION ROUSE HILL

DRAWING TITLE: ESCP INSTRUCTIONS AND TABLE 1

PROJECT NO.	SUB–PR NO.	DRAWING NO.	REV
19000212	P01	ESCP101	01.3

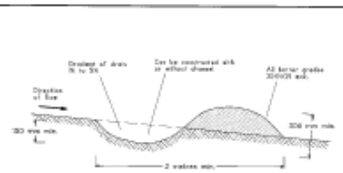
Plot Date: Monday, September 2, 2019 3:47:20 PM CAD File Name: T:\19000212 Line–Wide Works – Sydney Metro\Drawings\19000212_P01_ESCP_REV 01.dwg



Construction Notes

1. Place stockpiles more than 2 (preferably 10) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

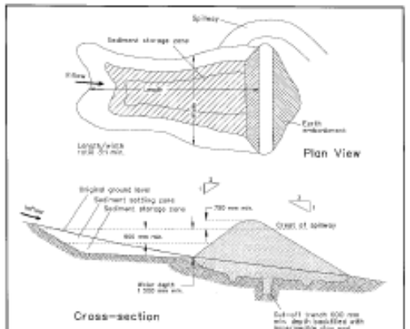
STOCKPILES SD 4-1



Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible – work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

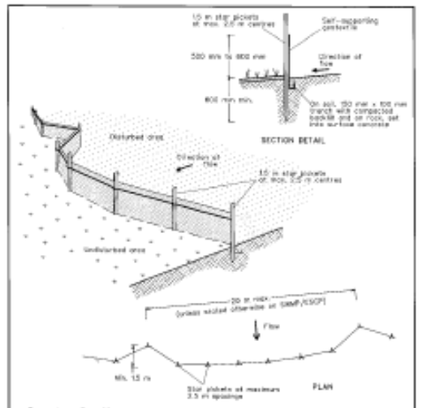
EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 600 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and compact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

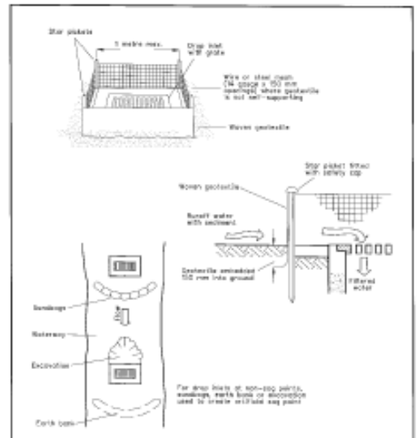
EARTH BASIN - WET SD 6-4
(APPLIES TO TYPE D AND TYPE F BASIN ONLY)



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with ends returning as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated in one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically prefaced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

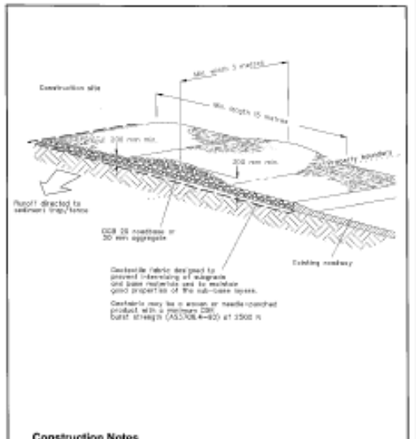
SEDIMENT FENCE SD 6-8



Construction Notes

1. Fabricate a sediment barrier inside from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geotextile. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER SD 6-12



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 20-mm aggregate.
4. Ensure the structure is at least 15 metres long or in building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence.

STABILISED SITE ACCESS SD 6-14

SD 4-1, SD 5-1, SD 5-5, SD 6-4, SD 6-8, SD 6-12 & SD 6-14 ARE FROM LANDCOM (2004)

REV	DATE	DES.	DRN.	APP.	REVISION DETAILS
01	02/09/19	A.T.	A.T.	A.J.T.	REVISIONS FOR ADDITIONAL/MODIFIED SITE AREA
00	05/08/19	A.T.	A.T.	A.M.	FINAL – ISSUE FOR USE
A	19/07/19	A.T.	A.T.	A.M.	DRAFT – FOR CONSULTATION

DRAWING STATUS

DESIGN BY	A.T.
DRAWN BY	A.T.
FINAL APPROVAL	A.M.
SCALE: (on A3 Original)	N/A

FINAL

North:

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PROJECT TITLE
LINE–WIDE WORKS
SMTF EXPANSION
ROUSE HILL

DRAWING TITLE
ESCP
BLUE BOOK
STANDARD DRAWINGS

PROJECT NO.	SUB–PR NO.	DRAWING NO.	REV
19000212	P01	ESCP102	01.3

Plot Date: Monday, September 2, 2019 3:47:25 PM CAD File Name: T:\19000212 Line–Wide Works – Sydney Metro\Drawings\19000212_P01_ESCP_REV 01.dwg

INSTALLATION

THE FOLLOWING A GENERAL INSTALLATION REQUIREMENTS. OPERATORS SHOULD OBTAIN INSTALLATION INSTRUCTIONS FROM THE GULLY BAG MANUFACTURER OR DISTRIBUTER.

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.

3. INSTALL SEDIMENT TRAP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

4. ENSURE THAT NO SEDIMENT-LADEN INFLOW IS ALLOWED TO BYPASS THE GULLY BAG UNTIL THE BAG IS EITHER FULL OF SEDIMENT, OR THE INFLOW EXCEEDS THE HYDRAULIC CAPACITY OF THE BAG.

5. INSTALL APPROPRIATE SEDIMENT AND/OR FLOW CONTROLS ON THE SIDE-ENTRY SLOT (IF ANY).

6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

MAINTENANCE

1. INSPECT ALL SEDIMENT TRAPS DAILY AND IMMEDIATELY AFTER RUNOFF-PRODUCING RAINFALL. MAKE REPAIRS AS NEEDED.

2. REMOVE AND REPLACE THE GULLY BAG WHEN IT IS EITHER FULL OF SEDIMENT, OR IS LIKELY TO BE FULL OF SEDIMENT BEFORE THE NEXT INSPECTION, OR THE HYDRAULIC CAPACITY OF THE FILTER BAG IS EXCESSIVELY REDUCED.

3. DISPOSE OF THE SEDIMENT AND FILTER BAG IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

4. ENSURE SEDIMENT DOES NOT ENTER THE STORMWATER DRAIN DURING DE-SILTING OPERATIONS AND MAINTENANCE OF THE TRAP.

5. SEDIMENT ON THE ROAD MUST BE REMOVED IMMEDIATELY IF IT REPRESENTS A SAFETY HAZARD.

REMOVAL

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

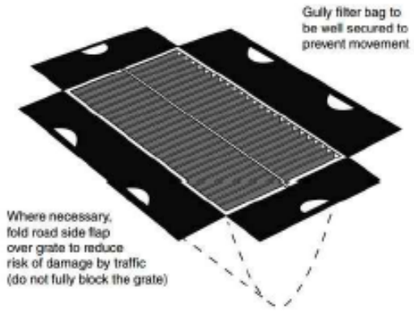

Figure 1 - Gully filter bag

Drawn	Date		
GMW	Dec-09	Gully Filter Bag	GB-01

STANDARD DRAWING GB-01 IS COPYRIGHT CATCHMENTS AND CREEKS AND REPRODUCED FROM IECA (2008).

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A	19/07/19	A.T.	A.T.	A.M.	DRAFT – FOR CONSULTATION

DRAWING STATUS

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DRAWN BY	A.T.
FINAL APPROVAL	A.M.
SCALE: (on A3 Original)	N/A

FINAL

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PROJECT TITLE: LINE–WIDE WORKS SMTF EXPANSION ROUSE HILL

DRAWING TITLE: ESCP IECA STANDARD DRAWINGS

PROJECT NO.	SUB–PR NO.	DRAWING NO.	REV
19000212	P01	ESCP103	01.3

Plot Date: Monday, September 2, 2019 3:47:29 PM CAD File Name: T:\19000212 Line–Wide Works – Sydney Metro\Drawings\19000212_P01_ESCP_REV 01.dwg

LEGEND

- CONTAINMENT/DIVERSION BUND
- SEDIMENT FENCE (SD 6-8), COIR LOG BUND OR SIMILAR
- CLEAN WATER DIVERSION
- DIRTY WATER DIVERSION
- EXISTING DRAINAGE LINE / CREEK
- SEDIMENT BASIN - (INDICATIVE FOOTPRINT ONLY)-(SEE DETAILS ON PLANS FOR SEDIMENT BASIN VOLUME REQUIREMENT)
- SEDIMENT SUMP - REFER TO PLAN FOR DETAILS
- EXISTING STORMWATER PIPE
- PROPOSED STORMWATER PIPE
- EXISTING STABILISED BATTERS - NOT TO BE DISTURBED
- STABILISED COMPOUND AREA - SURFACES MUST BE MAINTAINED STABLE AND CLEAN AT ALL TIMES
- EARTHWORKS AREA
- SITE EXTENTS
- CLEAN FLOW DIRECTION
- DIRTY FLOW DIRECTION
- STABILISED SITE ACCESS (SD 6-14)
- LINED BASIN SPILLWAY/OVERFLOW DIRECTED INTO STORMWATER DRAINAGE
- STABLE TRAFFICABLE MOUND/DISH
- STABLE ACCESS ROAD
- PIT PROTECTION (DRAIN WARDENS (SD GB-01) OR SD 6-12)
- SEDIMENT FILTER - COIR LOG BUND, ROCK FILTER BUND WRAPPED IN GEOFABRIC OR SIMILAR
- SPOIL REUSE AREA (REFER TO SD4-1 FOR STOCKPILE MANAGEMENT)

SEDIMENT BASIN SB1 SIZING

SEDIMENT STORAGE VOLUME	= 100m³
SETTLING (WATER) VOLUME	= 1,800m³
TOTAL SEDIMENT BASIN VOLUME	= 1,900m³

SPILLWAY DETAILS:

BASE WIDTH	= 3.5m
DEPTH/FREEBOARD	= 0.75m
SIDE WALL SLOPE	= 2:1 (H:V)

THE SPILLWAY FREEBOARD MUST BE PROVIDED ABOVE (IN ADDITIONAL TO) THE TOTAL SEDIMENT BASIN VOLUME.

SPILLWAY LINING - GEOTEXTILE (BIDIM A34 MIN.) AND ROCK (D_{50} = Φ200mm). ALTERNATIVELY THE SPILLWAY CAN BE CONCRETED.

REFER TO ESCP101-103 FOR INSTRUCTIONS AND STANDARD DRAWINGS.

STABILISED COMPOUND AREA. MAINTAIN EXISTING CRUSHED ROCK/AGGREGATE SURFACE AND DRAINAGE SYSTEM IN A STABLE CONDITION, INSTALL STANDARD PIT PROTECTION (E.G. DRAIN WARDENS OR SD 6-12) AROUND PITS AND USE TO DRAIN RUNOFF FROM THIS AREA.

SEDIMENT SUMPS TO BE PROVIDED AT THE DOWNSTREAM ENDS OF THE PROPOSED INTERTRACK DRAINAGE SYSTEMS. ONSITE DIRTY WATER IS TO BE COLLECTED WITHIN THESE SEDIMENT SUMPS AND PIPED INTO SB1.

PROVIDE COVERED/STABLE BUNDS (E.G. GEOFABRIC WRAPPED EARTH BUNDS OR SANDBAG/COIR LOG BUNDS) AROUND THE EDGE OF THE EARTHWORKS AREA AS REQUIRED SO DIRTY WATER CANNOT ENTER THE EXISTING RAIL TRACKS. LOCATIONS MAY CHANGE AS WORKS PROGRESS AND LEVELS CHANGE.

EARTHWORKS SURFACES TO DRAIN INTO THE SEDIMENT SUMPS AS SHOWN. GENERALLY IN A WESTERLY DIRECTION, DRAINAGE TO BE VIA SURFACE RUNOFF OR AS WORKS PROGRESS VIA THE INTERTRACK AND TRUNK DRAINAGE SYSTEM.

EXISTING KERB AND GUTTER ALONG TALLAWONG ROAD DIVERTS CLEAN WATER AWAY FROM THE SITE WORKS.

A WHEEL WASH CLEANING FACILITY IS TO BE PROVIDED AT THIS STABLE ACCESS POINT. ALL VEHICLES ARE TO EXIT THE SITE VIA THIS POINT AND ONTO THE STABLE ACCESS ROAD SHOWN.

PROVIDE A PIPE/DRAIN SYSTEM (MIN. 300Φ PIPE TO TAKE ONSITE DIRTY WATER FROM THE ONSITE SEDIMENT SUMPS INTO SB1.

AS MUCH AS POSSIBLE GRADE EARTHWORKS SURFACES IN THIS AREA TO FALL BACK TOWARDS THE SEDIMENT SUMP SO FLOWS CAN BE DIRECTED INTO SB1. INSTALL EARTH BUNDS AROUND THE EDGE OF THE WORKING PLATFORM PRIOR TO RAINFALL TO HELP ACHIEVE THIS.

EXISTING KERB TO BE MAINTAINED TO CONTAIN ONSITE WATER

SB1

EXISTING STORMWATER DETENTION BASIN

SMALL UPSLOPE AREA TO BE DIVERTED AROUND THE MAIN WORKS AREA AND INTO THE SEDIMENT BASIN VIA A STABLE DIVERSION.

LINED DIVERSIONS PROVIDED AROUND LOWER SIDES OF COMPOUND AREA TO DIRECT CLEAN WATER RUNOFF FROM COMPOUND INTO THE EXISTING DRAINAGE ALONG SCHOFIELDS ROAD.

LINED UPSLOPE CLEAN WATER DIVERSION IS TO BE PROVIDED WHERE UPSLOPE RUN-ON IS PRESENT.

DUAL PIT PROTECTION SYSTEM TO BE PROVIDED AROUND EXISTING PITS AS DRAIN WARDENS (SD GB-01) OR SD 6-12 AND AN ADDITIONAL SEDIMENT FILTER (E.G. COIR LOG BUND, GEOFABRIC WRAPPED ROCK BUND OR SIMILAR).

OVERFLOWS AND TREATED WATER FROM SB1 TO BE DIRECTED ACROSS THE DRAIN GOING INTO THE EXISTING STORMWATER DETENTION BASIN AND INTO THE EXISTING DRAINAGE SWALE ALONG SCHOFIELDS ROAD. CONSTRUCT A BASIN SPILLWAY TO ACHIEVE THIS. ENSURE THE SEDIMENT BASIN OVERFLOWS ARE SEPARATED FROM THE INLET DRAINAGE FLOWS INTO THE DETENTION BASIN.

SEE DETAIL A

STABILISED COMPOUND AREA. FORM AND MAINTAIN STABILISED SURFACES (E.G. GRAVEL CAPPING AND ROAD BASE, AGGREGATE OR SIMILAR) AS QUICKLY AS POSSIBLE.

DURING THE COMPOUND FORMATION WORKS AND UNTIL SURFACES ARE STABILISED/SEALED, EXPOSED SOILS ARE TO BE LOCKED DOWN WITH A TEMPORARY SOIL POLYMER IF SIGNIFICANT RAINFALL IS FORECAST (>50% CHANCE OF RAINFALL > 15mm).

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A	19/07/19	A.T.	A.T.	A.M.	DRAFT - FOR CONSULTATION

DRAWING STATUS	
DESIGN BY	A.T.
DRAWN BY	A.T.
FINAL APPROVAL	A.M.
SCALE: (on A3 Original)	1 : 2000
FINAL	

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PROJECT TITLE: LINE-WIDE WORKS SMTF EXPANSION ROUSE HILL

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.	SUB-PR NO.	DRAWING NO.	REV
19000212	P01	ESCP104	01.3

Plot Date: Monday, September 2, 2019 3:47:40 PM CAD File Name: T:\19000212 Line-Wide Works - Sydney Metro\Drawings\19000212_P01_ESCP_REV 01.dwg

Appendix C6 MIRRA Schedule

Name	Detail	Frequency	By Whom	Resources
MONITORING				
Noise and vibration monitoring	As per Construction Noise and Vibration Management Plan (CNVMP)	As per CNVMP	Environment Coordinator Specialist consultant	Noise and Vibration Specialist
Traffic and access monitoring	As per Construction Traffic Management Plan (CTMP)	As per CTMP	Environment Coordinator	Specialist consultant
Biodiversity monitoring	As per Flora and Fauna Procedure in this CEMP	Daily	Environment coordinator Site supervisor	Specialist consultant
Air quality monitoring	As per Air Quality Management Procedure in this CEMP	Daily	Environment Coordinator Site supervisor	Specialist consultant
Soil and water monitoring	As per Soil, Surface Water and Groundwater Management Procedure in this CEMP	Daily	Environment Coordinator Site supervisor	Specialist consultant
Waste and resources monitoring	As per Waste, Spoil and Recycling Management Procedure in this CEMP	Daily	Environment Coordinator Site supervisor	Specialist consultant
Visual Amenity	As per Visual Amenity Management in this CEMP	Weekly	Environment Coordinator	Specialist consultant
INSPECTIONS				
Pre-start Inspections	An inspection will be carried out and will include a check of relevant environmental controls and resources required to ensure effective operation and maintenance. Works are not to commence unless inspections are found to be satisfactory.	Prior to the commencement of works on each shift	Site Supervisor	Foreman
Environment and sustainability Site Inspections	Evaluate the effectiveness of environmental controls. Environmental manager will record inspection findings on an inspection checklist form. If any maintenance and/or deficiencies in environmental controls or in the standard of environmental performance are observed, they will be recorded on the checklist form. Records will also include details of any maintenance required, the nature of the deficiency, any actions required and an implementation priority.	Weekly Prior to and following rainfall event	Environmental Coordinator	Environmental Manager
ER inspection	Monitor the implementation of environmental management plans and monitoring programs required under this CoA SSI 5931 and advise the Proponent upon the achievement of these plans / programs;	Determined by the nature of activities being undertaken and their associated environmental risks	ER	Alternate
REPORTING				

Name	Detail	Frequency	By Whom	Resources
Monthly environmental report	Environmental statistics (i.e. incidents, regulatory action, complaints on environmental issues), regulatory and authority considerations, monitoring program performance and key environmental issues	Monthly	Environment team	Environmental Manager
Daily Complaints Reports	A report to SM that provides details of all complaints received in relation to construction activities regulated by the licence on the telephone complaints line.	As soon as practical, (within 24 hours)	Community Consultation manager / Place Manger	Environmental Manager
Environmental risk assessment	Assessment of risks conducted for each possession	Prior to each possession	Engineers	Environmental Manager, Construction Manager
Monitoring results	Report on monitoring data recorded and potential exceedances against criteria.	As required	Environmetnal coordinators and advisor	Environmental Manager,
Incident reports	Environmental Incident reports will be provided to SM's Representative and the Environmental Representative within 24 hours of the incident occurring, including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident.	Within 24 hours of the incident occurring	Project Director	Environmental Manager, Environmental Coordinator (s)
REVIEW				
Management reviews	▪ Identification of areas of opportunity for improved environmental performance ▪ Analysis of the causes of non-compliances and deficiencies ▪ Environment inspections and audits ▪ Verification of the effectiveness of corrective and preventative actions ▪ Highlighting any changes in procedures resulting from process improvement.	Quarterly	Management team	The review is initiated by the Environmental Manager and includes relevant Project team members review environmental management issues for the Project.
Environment group review	▪ A review of the aspects and impacts register, legal register and environmental induction ▪ Consideration of monitoring, inspection and audit results ▪ Consideration of incidents and any lessons learnt ▪ Consideration of any new regulatory issues or any proposed CEMP updates ▪ A review of the effectiveness of erosion and sediment controls ▪ Consideration of changes in operational needs such as resourcing	Quarterly	Management Team	Environmental Manager

Name	Detail	Frequency	By Whom	Resources
	▪ Feedback from management reviews			
CEMP formal review	▪ Full review of CEMP and sub-plans ▪ Update CEMP and sub-plans based on relevant changes, issues, incidents or non-compliances.	Six Monthly	Management Team	Environmental Manager
Executive Review	▪ Effectiveness of environmental management documentation implementation. ▪ Management effectiveness ▪ Potential improvements to the environmental management documentation ▪ Adequacy of resources ▪ Findings of audits ▪ Environmental objectives and targets ▪ Environmental performance ▪ Compliance with legal and other requirements ▪ Critical non-compliance or repeated non-compliances ▪ Organisation changes ▪ Effectiveness of training and inductions	Annually	CPB/ UGL Business Unit	Management team
AUDIT				
Internal audit	Review of CEMP compliance to Systems Connect EMS/ ISO14001 Verify compliance with approval and legal requirements and construction documentation, where required	The first audit within three months of the commencement of construction and then at six monthly intervals there-after. The final submitted within five working days of contract completion date.	Internal EMS Auditors	Environmental Manager/SHEQ Team
External independent audit	Verify compliance with approval and legal requirements, construction documentation and any other commitments	Six monthly		TBC

Appendix C7 Planning Approval Document Delivery Strategy

LWW -Planning Approval Document delivery strategy																																							
		MCOA						Consultation/Review																									Approval				Timing		
Document Title	Document type	SMTF SSI-5931	C2S SSI 7400	S2B 8256	Responsibility			Sydney Metro/TFNSW	Urban Growth NSW	EPA	DPE	DEP Land Release	Chamber of Commerce	OEH	Heritge Council	DPI	NOW	BCC	Relevant Councils	RMS	TTLG	Sydney Coordination Office	SES	NSW fire and rescue	Community	Registered Aboriginal Parties	Acoustic Advisor	Independent Property IAP	**ER**	Director General	Secretary of DP&E	Endorsed by IDRP	Publicaly available			
Staging Report	R	B9	A12	A12			SM																						EEE	I				BCC		1MPtoC
Storm Water and Flood Management Plan	P	C8			SM						C			C				C																			
Soil Salinity Report	R	C9			SM												C																				
Design and landscape Plan	P	C23			LWW							C						C	C	C					C					A		E	Y				
Community Conmmunications Strategy **	S		B1-4	B1-4		LWW	LWW	R																				EE		A					1MPtoC	1MPtoC
Community and Stakeholder Involvement Plan	P	D1			LWW																								A				BCC			
Complaints Management System and Enquiries procedure	P	D2	B6	B5	SM	SM	SM																										BCC	BCC	BCC
Project Website- (Provision of Electronic information)		D4	B15	B14	LWW	LWW	LWW																											BCC	BCC
Compliance Monitoring (Tracking) and reporting Program#	PRO	D5	A28	A28	SM	SM	SM																					EE	A	A	I		BCC	BCC	BCC
Environmental Independent Audit Program#	PoP		A37	A33		SM	SM																					E		I	I			1MPtoC	
Land Use Survey	R	E5		E18			LWW																												BCC
Road Dilapidation Reports	R	E22	E90	E49	LWW	LWW	LWW												I*I*														BCC	BU	BUU
Building Condition Survey Reports	R		E59			LWW													C						C			E						BCC	
Construction Environmental Management Plan	P	E28	C1	C1	LWW	LWW	LWW																					CEE	A	AA			1MPtoC	1MPtoC	1MPtoC
Construction Compound and Ancillary Facilities Management Plan	SP	E29(a)	A17		SM	LWW	LWW			C									C									CE	A	A			1MPtoI	1MPtoI	
Construction Noise and Vibration Strategy	S		E32			SM																								A			1MPtoC	1MPtoC	
Construction Noise and Vibration Management Plan	SP	E29(b)	C3(a)	C3(a)	LWW	LWW	LWW			C									CC							E		CRR	A	A			1MPtoC	1MPtoC	1MPtoC
Construction Noise and Vibration Impact Statement	R		E33	E27		LWW																			C		E								
Out Of Hours Work Protocol	PRO		E47	E25*#		SM	SM																							A			BCC		
Construction Traffic management Framework	S		E81			SM																													
Construction Traffic Management PlanS (for each site or low impac	SP	E29(c)	E82	E47	LWW	LWW	LWW											C*		C*AA	CC	E C						C	A	II			1MPtoC	BCC	BCC
Temporary Transport Management Plan	P			E48			LWW																												1MPtoIm
Construction Soil and Water Management Plan	SP	E29(d)	C3(d)	C3(b)	SM	LWW	LWW							CC		CC	C	C	C				C	C					CEE	A	AA			1MPtoC	1MPtoC	1MPtoC
Construction Waste and Spoil management Plan	SP			C3c			LWW												C									E		A					1MPtoC
unexpected Contaminated land and Asbestos finds procedure	PRO		E70	E39		LWW	LWW																					E						BCC	BCC
Construction heritage Management Plan	SP	E29(e)	C3(g)	C3 d	SM	LWW	LWW								CCC			C	CCC							C		EEE	A	AA			1MPtoC	1MPtoC	1MPtoC
Unexpected Heritage Finds and human remains Procedure	PRO		E19	E15		SM	LWW								C														I					1MPtoC
Heritage Interpretation Strategy	S			E13			SM								C														I					BCC
Heritage Interpretation Plan	P		E21	E14	LWW	LWW	SM								CC				C							C		E		II				BCC	BCC
Heritage Archival Recording Report	R		E13	E10		SM	LWW																												FC
Excavation Directors Report	R			E11			SM																												FC
Exhumation Management Plan	P		E27			SM																						E		I				BCC	
Construction Flora and Fauna Management Plan	SP	E29(f)			SM														C									C	A	I			1MPtoC		
Construction Air quality Management Plan	SP	E29(g)	C3(c)		SM	LWW																						CE	A	A			1MPtoC		
Biodiversity Management Sub Plan	SP		C3(b)		LWW	LWW								C				C										E		A					
Station Design and Precinct Plan	PP		E101	E56	LWW	LWW	lWW		C		C		C						CC						CC					A	R			BCPAW	
Ecological Monitoring program	MoP	C1			SM																														
Construction Water Quality Monitoring Program	MoP	C10	C9(c)	C8(b)	LWW	LWW	LWW			C						C	C		CC									EE		AA			1MPtoC	1MPtoC	1MPtoC
Construction Noise and VibrationMonitoring Program	MoP		C9(a)	C8(a)	LWW	LWW	LWW			C									CC									EE		AA			1MPtoC	1MPtoC	1MPtoC
Tree Report	R		E64	E5		LWW	LWW												CC									EE		AI				PtoR	PtoR
Business Management Plan	P		E64	E37		LWW	LWW																					E						BCC	BCC
Utilities Management Strategy	S			E71			LWW																							A					1MPtoC

KEY
Document Type
S - strategy
P - Management Plan
SP - Management Plan Sub-Plan
R - Report
MoP - Monitoring Program
PRO - Procedure
Planning Approval Requirement
SSI 5931 SMTF
SSI 7400 Chatswood to Sydenham
SSI 8256 Sydenham To Bankstown
SM- Sydney Metro to provide to Systems connect
Consultation review and approval requirements
A- Submitted for Approval
I- Submitted for Information
C/R-Issued for consultation and/or review
E - Endorsed or verification
* issue to relevant authority
** SM to draft overarching document. LWW to draft project specific Version
# LW to provide information to SM
*# documents as approved under SSI 7400
Timing for delivery
BU copies provide to RC within 3 weeks of completion and no later than one month before use of local road
BUU Copies provided to RC within 4 weeks of completion and at least 2 week before the road is used by HV
BCC before construction commences/ prior to commencement of Construction
BCPAW- before commencement of permanent aboveground work
W6M- within 6 months of the date of the approval
1MPtoC. Submitted to director/secretary one month prior to construction
1MPtoI Submitted for approval one month prior to installation
1MPtoIm One month prior to implementation
PtoR Submitted before removal
FC Following Completion of the work

Appendix C8 Aspect Specific Procedures

AIR QUALITY AND DUST MANAGEMENT PROCEDURE

RESPONSIBILITY | **ACTION**

Site Supervisor, Environmental Coordinator

All personnel attend **site inductions and on-going Toolbox Talks** which will include requirements for management of air quality on site.

Site Supervisor, Project Engineer, Environmental Coordinator

Prior to the works starting the following must be in place**:**

- **Site Environmental Plans (SEP)** must identify and assess the risk, including potential impact to sensitive receivers. If there is any significant change to the work activity the SEP must be updated.
- **Assessment of the design, location and operation of dust controls**

The implementation of dust and emission controls will be progressive and continual during the various stages of construction at LW Worksites.

Site Supervisor, Environmental Coordinator

Stop work or change work practice immediately **if visible dust is leaving site or winds exceed 30 km/h on average over 1h**. The Environmental Inspection Checklist is to be completed and signed by an Environmental Coordinator and Site Supervisor before works can re-commence.

HOLD POINT

Site Supervisor, Project Engineer, Plant Manager, Environmental Coordinator

Air Quality and Dust Control Implementation

Dust and emission control mitigation measures to be implemented and enforced include:

- Turn vehicles off when not in use or idling for long periods of time;
- Ensure all vehicle exhaust systems are effective. Contact the Site Supervisor if there are any defective emission controls on plant items;
- Minimise areas of exposed surfaces and stabilise as soon as possible;
- Dry material stockpiles are to be covered (where feasible) and is the possibility of fine material being blown away;
- Use a water cart, hoses or sprinkler systems to help wet down access tracks and problematic areas (use of rain water will be considered in advance of potable water);
- Covering truck loads is mandatory and where required tailgates should be swept clean before leaving site;
- During wet conditions, inspect vehicle wheels and clean where required;
- Provide a stabilised base on site access roads and access points, wheel wash and/or rumble grids (where required) on exit points to avoid tracking dirt onto local roads;
- **Avoid dust generating activities during high wind periods. When winds exceed 30 km/hr reassess works with Environmental Coordinator;**
- If you uncover odorous soils – cover to minimise odour complaints. Then contact the Environmental Coordinator for testing and assessment. Also see Unexpected Finds Soil Contamination and Asbestos Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000388);
- **Prior to any demolition works, biological debris (such as bird nests and droppings) would be bagged and removed or damped down**

NOTE: Any onsite reuse of water requires Permit to Dewater.- refer to the Water Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000384)

Site Supervisor, Plant Manager, Environmental Coordinator

Monitor Environmental Controls

- Ensure dust control mitigation measures are maintained and plant exhaust devices are effective;
- Any observations will be kept in a site diary and significant issues are to be raised with an Environmental Coordinator;
- The Environmental Coordinator will undertake regular inspections to ensure air quality mitigation measures are effective and being implemented;
- The Plant Manager is to monitor the effectiveness of emission controls on plant equipment.

NOTES

Monitoring

- Daily monitoring of wind conditions and weather forecast conducted by the Site Supervisor or Environmental Coordinator to provide warnings of adverse meteorological conditions using data obtained from onsite weather stations
- The Site Supervisor, Project Engineer or Environmental Coordinator will visually monitor daily construction activities (including dust generating activities, emissions from plant equipment and any excessive odours) to ensure dust and emission controls are effective.
- During periods of excessive wind and/or when dust has been noted to leave site (Hold Point), stop work or modify construction methods.

Recording

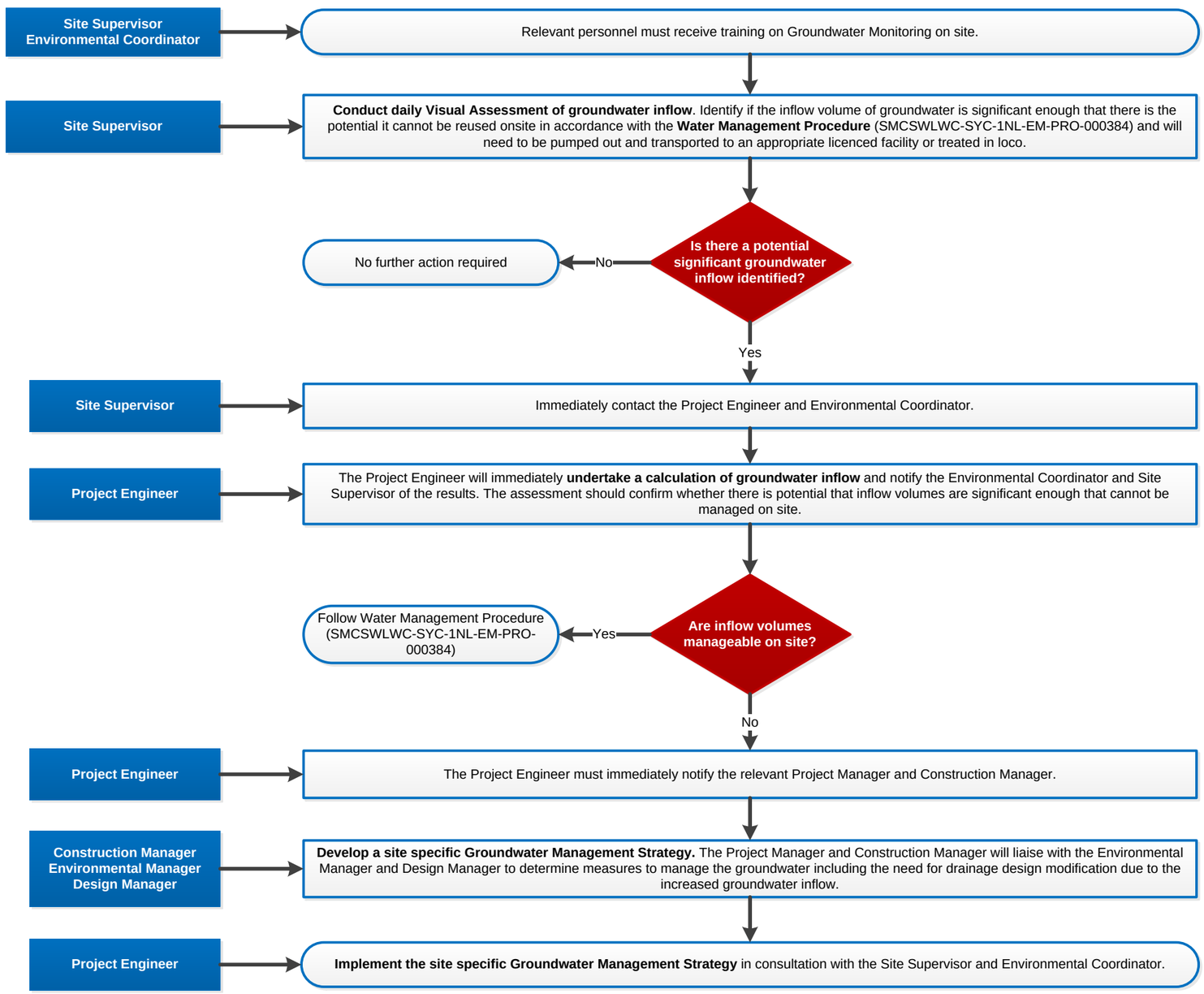
- Site Supervisor will keep a record of any problematic dust generating activities and control measures implemented.
- As part of regular environmental inspections the Environmental Coordinators will inspect dust and plant emission controls onsite recording their effectiveness and any actions that need to be raised.
- Plant Manager is to keep records of all servicing of plant and construction equipment to ensure effective maintenance of emission control devices.
- Records of weather observations from site weather station.

Potential Impacts

- Dust can reduce visibility when disturbed and therefore have negative aesthetic impacts and increase the risk of personal harm on work sites.
- Dust can cause damage to personal and public property. This may lead to extensive cleaning requirements.
- Increased levels of dust and vehicle emissions can have health impacts on humans and fauna, such as causing breathing and eye irritation.
- Dust and vehicle emissions can result in odours that some people may be sensitive to.

Note: For further details refer to the Air Quality Management Procedure in the part D of the CEMP (SMCSWLWC-SYC-1NL-PM-PLN-000370)

CONTINGENCY GROUNDWATER MONITORING AND MANAGEMENT PROCEDURE



NOTES

Notes:

- Where water salinity is found to be too high for discharge to creeks, brackish water reverse osmosis would be undertaken.
- Dissolved iron would typically be removed from discharge water by oxidising the Ferric ion (Fe3+) to Ferrous (Fe2+) which enables precipitation and physical removal.
- Water turbidity would typically be treated by settling / filters.
- Iron reducing bacteria in discharge water would be typically treated by biocide dosing.

Monitoring

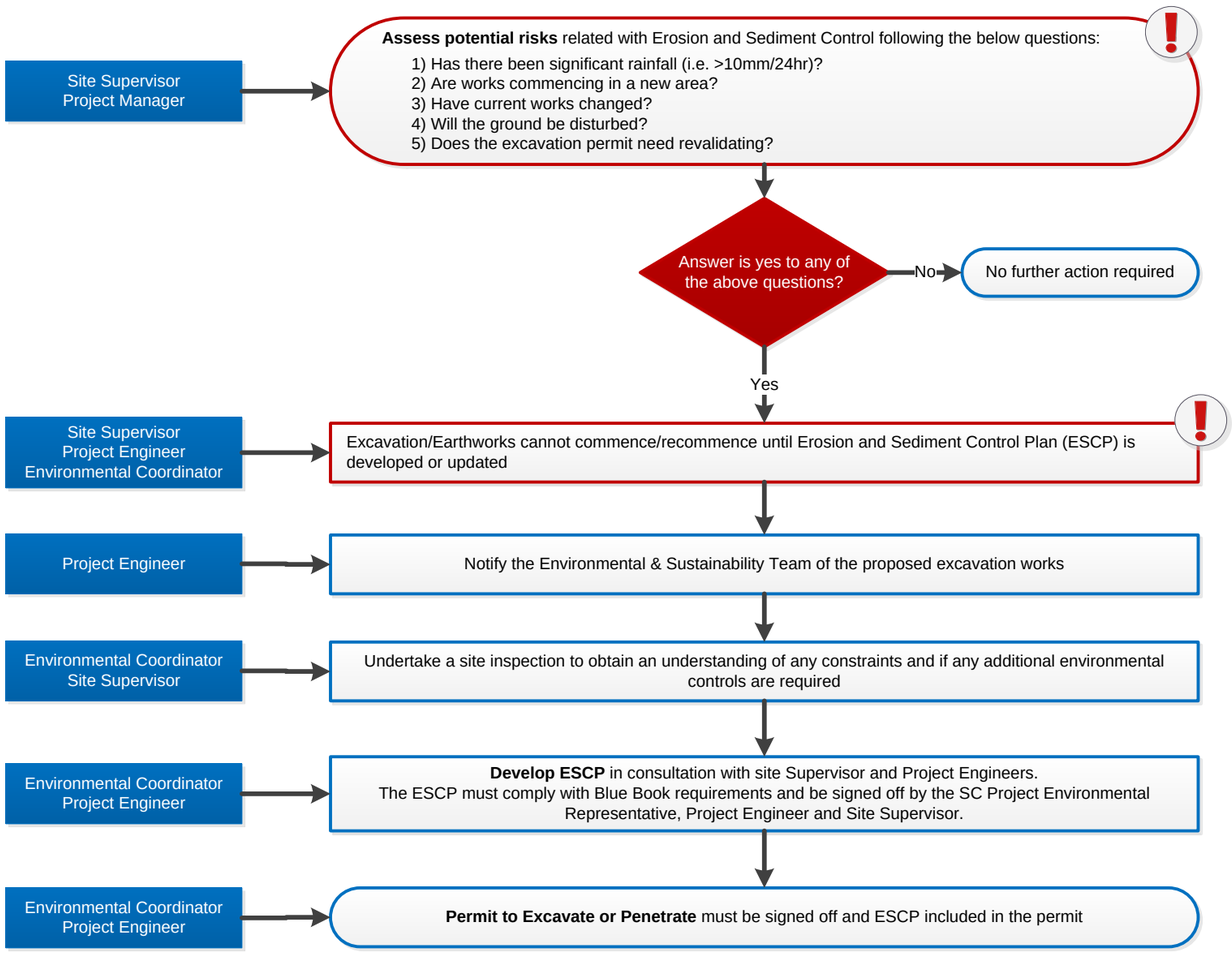
- Visual assessment of actual or potential groundwater inflow
- Dewatering volumes monitored as per Water Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000384)

Recording

- Records of visual inspections in site diaries and Environmental Inspection Checklists
- Records of flow rates and modelling
- Records of any disposal off site

For Additional information on the requirements for management of ground water refer to Part D of the CEMP (SMCSWLWC-SYC-1NL-PM-PLN-000370).

EROSION AND SEDIMENT CONTROL MANAGEMENT PROCEDURE



HOLD POINT

HOLD POINT

NOTES

ERSED Principles

- The implementation of temporary erosion and sediment controls will be progressive and continual.
- Minimal disturbance at all times and "No Disturbance Zones" are to be enforced where practical. If works in these areas are required, obtain a Permit to Enter Protected or 'No-Go' Zones.
- Sediment control measures will be designed so that they are as close as possible to the potential source of sediment.
- Any temporary controls (e.g. slope breaks, cross drains) will be reinstated at the end of each day.
- After rainfall events (>10mm in 24hrs), sediment and erosion controls will be inspected to ensure performance is as designed.
- If a sediment basin is at or near capacity works that direct water towards the basin cannot be undertaken.

Hold Point for Erosion and Sediment Control

Erosion and Sediment Control Plans (ESCP) will be developed for each work area prior to the start of construction works. These will be signed off by the Environment Coordinator and Site Supervisor.

Monitoring

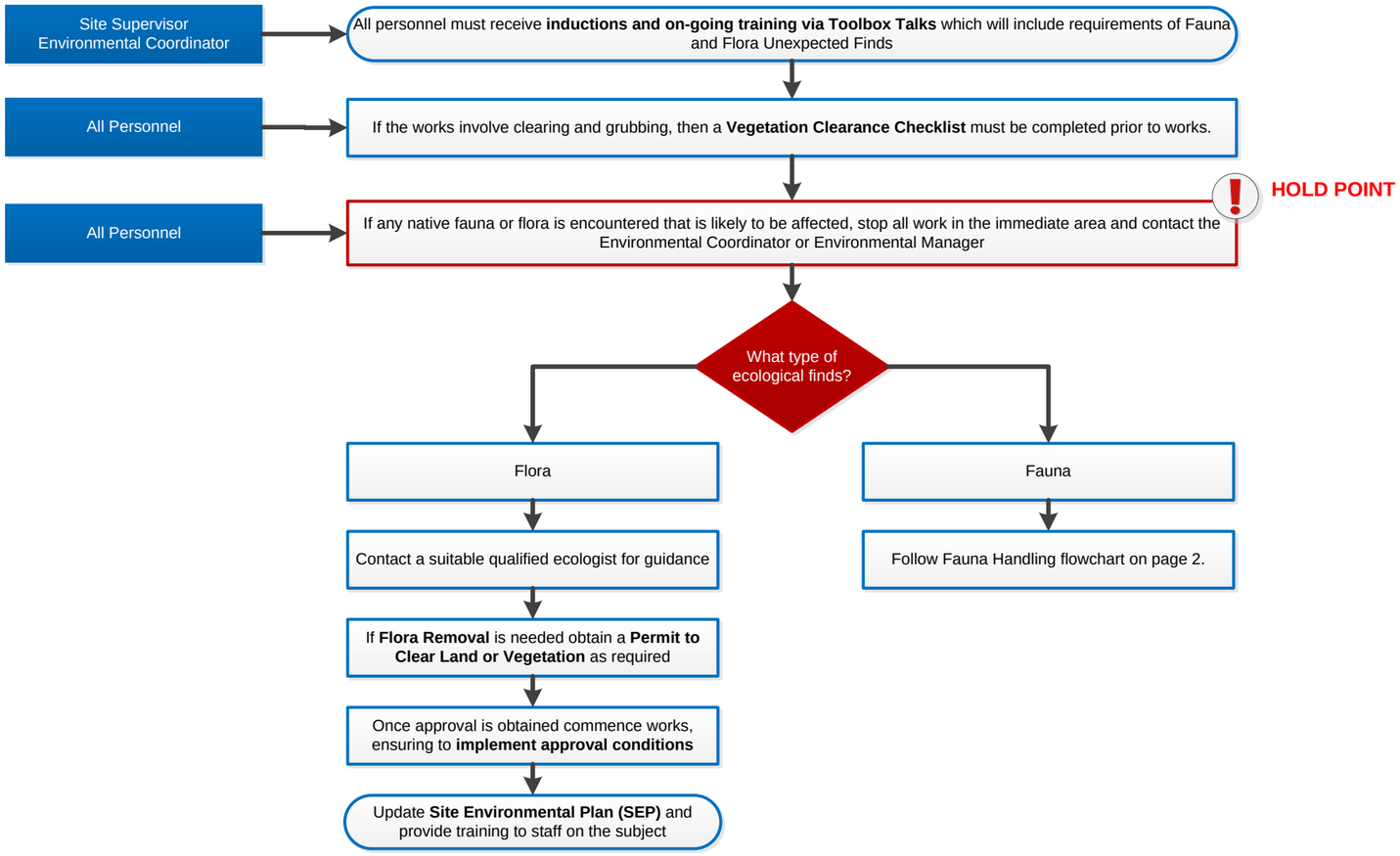
- Site conditions following rainfall events
- Daily pre start site inspections by supervisors to review controls and advise on any changes to ESCP
- Regular site inspection by environmental representatives to review status of controls

Recording

- Site Supervisor will check that ERSED controls are in place and record in the Daily Site Report (Daily Diary).
- Records on monitoring
- Records of controls on ESCPs and in permits

FLORA AND FAUNA UNEXPECTED FINDS PROCEDURE

RESPONSIBILITY | **MANAGEMENT OF ECOLOGICAL UNEXPECTED FINDS**



Protected or 'No-Go' Areas

- If works in these areas are requir

Monitoring

- Workers inspect work areas prior

Recording

- Records of unexpected finds on s and any reports from wildlife han
- Relocation areas are identified or

For further details refer to the Flora an (SMCSWLWC-SYC-1NL-PM-PLN-000

FLORA AND FAUNA UNEXPECTED FINDS PROCEDURE

RESPONSIBILITY

FAUNA HANDLING

All Personnel

Unexpected Fauna encountered on site

Environmental Coordinator
Environmental Manager

For **snakes and bats** that are seriously injured and require immediate attention, the appropriate rescue agency, ecologist or snake handler will be called immediately. All personnel to be excluded from the vicinity. Animal must ONLY be handled by specialist.

For **all other native fauna**, agreement will be made with the rescue agency if the animal will be collected or taken to animal hospital.

Injured fauna?

Yes

No

Environmental Coordinator
Environmental Manager
Site Supervisor

Record the exact location of the animal and provide it to the specialist attending site. Depending on the type of animal, **contact relevant specialist** as below:

- **Snakes** - contact the snake handler (where required). The snake handler will relocate all snakes to a suitable location.
- **Bats** - contact a suitable qualified ecologist to relocate the bat to the relocation area identified on the Site Environment Plan (SEP).

Snake or Bat?

Yes

No

All personnel and/or subcontractors are to be excluded from the vicinity.

Once the snake handler or ecologist arrives on site they are responsible for the fauna. Any decisions regarding the care of the animal will be made by them.

Environmental Coordinator
Environmental Manager

Contact suitable qualified ecologist for guidance.

In case the fauna can be released, follow any specialist advice and **proceed with the release into a suitable area.** If the species is nocturnal, release should be carried out at dusk.
If the fauna requires to be rescued, contact relevant rescue agency to collect it or deliver the animal to the agency as soon as practically possible.

To **minimise stress to native fauna during relocation** the below steps are to be followed (except snakes and bats):

- Ensure appropriate PPE (e.g. leather gloves) prior to attempting to handle injured or distressed fauna.
- Cover larger animals with a towel or blanket and place in a cardboard box and/or hessian bag.
- Place smaller animals in a cotton bag, tied at the top; and keep the animal in a quiet, warm, ventilated and dark place away from noisy construction activities.

Environmental Coordinator
Environmental Manager
Site Supervisor

Records of any fauna handling must be documented and monthly reported in LW Management System

NOTES

Monitoring

- Workers inspect work areas prior to star of work each day

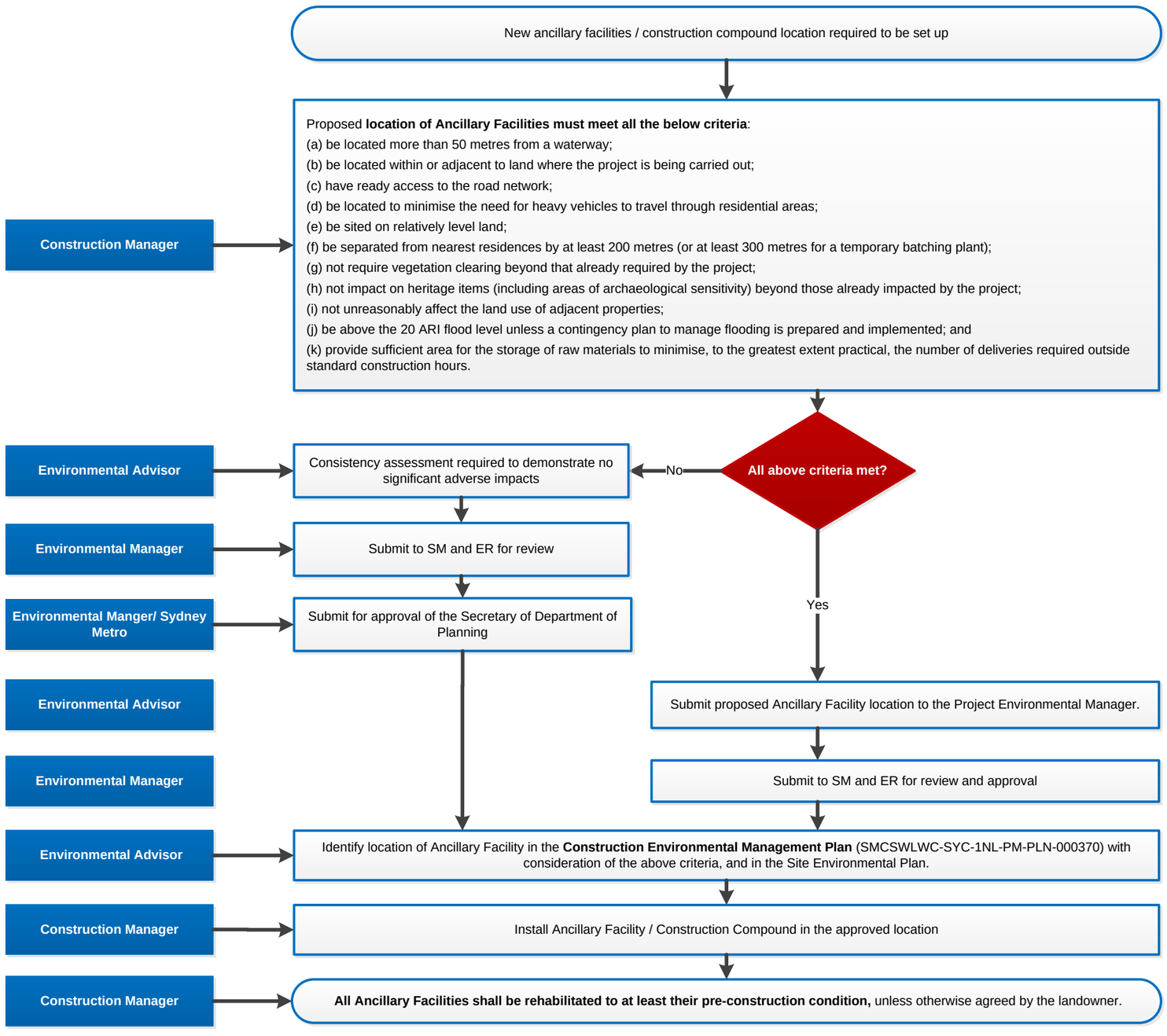
Recording

- Records of unexpected finds on site are documented on the Unexpected Finds Form and any reports from wildlife handler
- Relocation areas are identified on SEP.

For further details refer to the Flora and Fauna Management Procedure in the part D of the CEMP. (SMCSWLWC-SYC-1NL-PM-PLN-000370)

New Ancillary Facility or Construction Compound Location Procedure

NEW ANCILLARY FACILITIES OR CONSTRUCTION COMPOUND LOCATION PROCEDURE



NOTES

Definitions:

Ancillary Facility - Temporary facility for construction, not identified in the documents listed in CoA 81 (b) and (c) of SSI 5931, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area.

Notes:

- This Procedure is applicable for Ancillary Facilities required within SSI 5931 scope.
- For further details about the management of Ancillary Facilities refer to the Construction Environmental Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000370).

Spill Management Procedure

SPILL MANAGEMENT PROCEDURE

RESPONSIBILITY	ACTIONS	RESPONSIBILITY
Operator	Initial assessment of the spill: determine the **type of spill kit** to be used based on the substance spilled. Refer to Safety Data Sheet for details.	
	Containable spill?	
	No → Contact the HAZMAT (NSW Fire Brigade: Ph. 000) if the spill is of a hazardous nature or not manageable with the resources available on site.	Site Supervisor
	Notify site warden, evacuate the area and cordon off. Refer to Site Emergency Response Plan.	Site Supervisor
	Activate PIRMP (if required under EPL).	Site Supervisor
	Yes	
Operator	**Locate closest spill kit.** Spill kits are available in the following locations: • Site Supervisor's utes and site trucks • Site locations as shown in Site Evacuation Plans	
All attending the spill	Wear adequate **PPE for the type of spill**. As a minimum the following must be worn (refer to spill kit instructions and SDS): • Gloves • Protective footwear • Face mask where required	
	Stop the source of the spill/leak if safe to do so.	
	Contain the spill and protect any drains/waterways channels near the spill.	
	Notify site supervisor as soon as practicable.	
	Clean up the spill using absorbent materials from the spill kit.	
	Place used spill kit materials and any spill generated waste in the waste bag found within the spill kit. Dispose in designated bin. Spilled liquid waste to be placed into a labelled sealed container. The container is to comply with Australian/ New Zealand Standards.	
Site Supervisor	Transport and disposal by EPA approved licensed contractor (if required) to a licenced facility. Refer to Waste, Recycling and Spoil Management Procedure within the CEMP (SMCSWLWC-SYC-1NL-PM-PLN-000370).	
Site Supervisor	Replace spill kit equipment used immediately after the event.	

NOTES

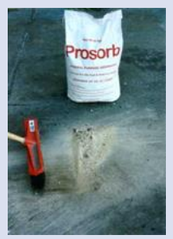
Spill Kit Materials:

Booms

Deploy booms first to contain spill. Floating booms to be used for spills in waterways to prevent spreading. If there is a possibility of contamination of a waterway floating booms are to be installed before starting work.

Granules / Particulate

If the booms alone cannot absorb the spill/ leak, then use absorbent granules to soak up spilled liquid. Absorbent granules are best for small spills/ leaks.



Pillows

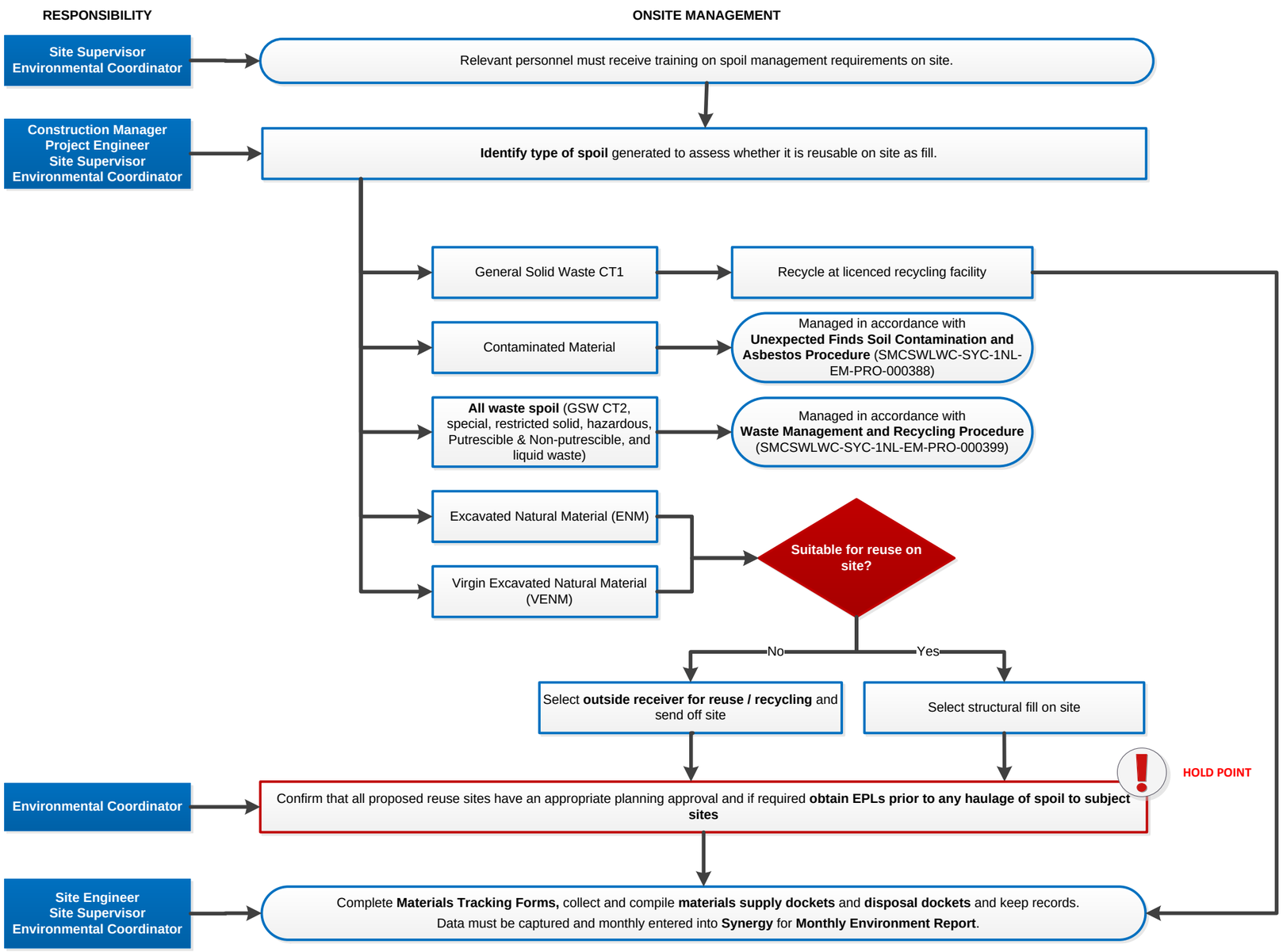
Cushion shaped products containing absorbent fibres, used directly under a leak or drip.

Pads

Thin absorbent mats place over spill and used like blotting paper.

Spoil Classification, Reuse and Recycling

SPOIL CLASSIFICATION, REUSE AND RECYCLING PROCEDURE



NOTES

Notes:

Where ENM or VENM does not meet criteria for a specific use it may be used as General Fill. ENM or VENM that meets criteria for a specific use but is surplus to requirements may also be used as General Fill.

ENM reuse offsite is subject to the requirements of "The excavated natural material exemption 2014" under the provisions of the Protection of the Environment Operations (Waste) Regulation 2014 – General Exemption under Part 9, Clause 91 and 92.

VENM reuse is subject to the sampling, testing and certification requirements of the receiving site or facility.

Protected or 'No-Go' Areas

If works in these areas are required, obtain a Permit to Enter Protected or 'No-Go' Areas

Unexpected Finds Heritage and Human Remains

UNEXPECTED FINDS HERITAGE AND HUMAN REMAINS PROCEDURE

RESPONSIBILITY	MANAGEMENT ACTIONS
Site Supervisor Environmental Coordinator	All personnel must receive **inductions and on-going Toolbox Talks** which will include heritage and unexpected finds requirements.
Site Supervisor Construction Manager Environmental Manager Project Director	**Potential Heritage Item Encountered** For any unexpected heritage find, including uncovering suspected human remains, works will stop immediately in that area. The Site Supervisor is to be contacted immediately and temporary exclusion fencing to be erected. Environmental Manager is to notify Sydney Metro and the ER. **HOLD POINT**
Environmental Manager Heritage Consultant	**Skeletal Material** • The Environmental Manager is to notify NSW Police. • Works are not to recommence until clearance is received from the Police. • If the remains are confirmed to be of heritage potential Project Environmental Manager to contact heritage consultant. **Aboriginal or Historic Heritage Potential** The Project Environmental Manager will assess and, if necessary, contact heritage consultant for identification and assessment of the significance of heritage items.
Environmental Manager	**Notification and Consultation** Upon confirmation the heritage find is genuine, the Project Environmental Manager notifies and consults with the relevant authorities (e.g. DP&I, OEH Cultural Heritage Unit for Aboriginal heritage, and OEH Heritage Branch for historic heritage). NOTE: If Aboriginal heritage, consult with Registered Aboriginal Parties
Environmental Manager Heritage Consultant	**Assessment of Significance & Management** On confirmation of a genuine item/site/relic: • Record and assess the find, and determine any required mitigation measures. Assess any new impacts for consistency with the findings of EIS. • Salvage any items, if required, in accordance with the *National Parks and Wildlife Act 1974*, the principles of the Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999), and other relevant guidelines.
Environmental Manager Site Supervisor Project Engineer	**Construction to Recommence** Works are not to recommence until written consent is given by the Environmental Manager, OEH and DP&I, where required. NOTE: Possible with inspection by heritage consultant (if it is considered a high potential to uncover further heritage items as a result of construction).
Environmental Manager Heritage Consultant	**Close Out and Finalise Reporting** Report to be finalised and submitted to Office of Environment and Heritage and other relevant authorities / organisations, including registering the new site in OEH's Aboriginal Heritage Information Management System (AHIMS) register. Details of any items salvaged in implementing this procedure will be provided to Sydney Metro for consideration in heritage interpretation works to be undertaken as part of the Project.

NOTES

Protected or 'No-Go' Areas

- If works in these areas are required, obtain a Permit to Enter Protected or 'No-Go' Areas

Monitoring

- Workers inspect work areas prior to start of work each day

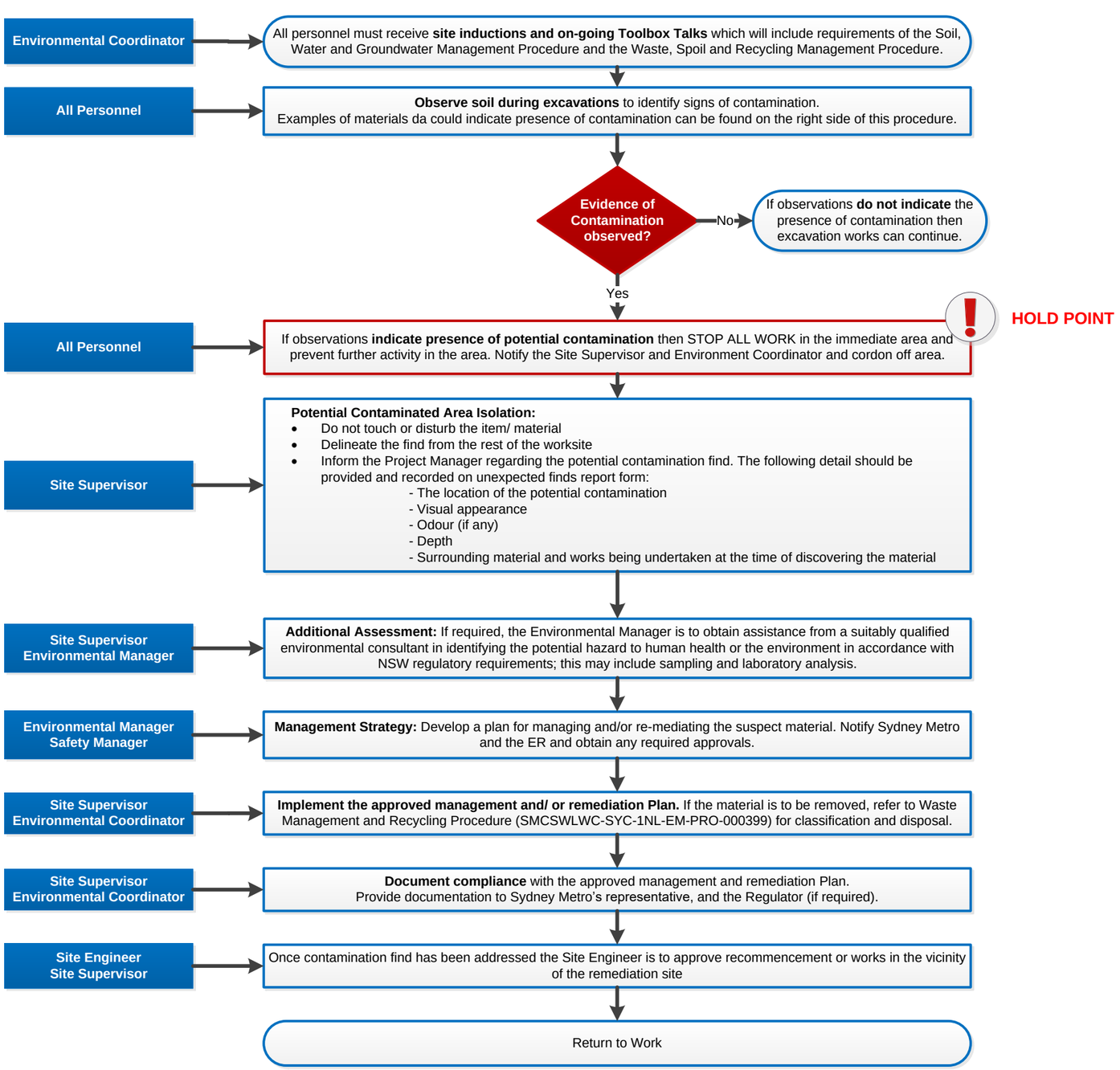
Recording

- Unexpected Finds Record Form
- Consultant reports on confirmed heritage or human remains
- Location of unexpected finds on SEP/ site register
- Records of tool box talks and inductions

Note: Additional information on management of heritage and unexpected finds in part D of the CEMP (SMCSWLWC-SYC-1NL-PM-PLN-000370).

Unexpected Finds Soil Contamination and Asbestos

UNEXPECTED FINDS SOIL CONTAMINATION AND ASBESTOS PROCEDURE



NOTES

Indicators of Contamination:

Examples of materials that could indicate the presence of contamination include (but are not necessarily limited to):

- Asbestos cement fragments or other potentially asbestos containing materials • Odorous or stained soil;
- Buried chemical drums or containers;
- High proportion of waste materials or building debris;
- Tarry or ashy material;
- Brightly or unusually coloured material;
- A yellow and/or red mottling in the soil profile indicates there may be Acid Sulphate Soils (ASS);

Asbestos:

An unexpected find occurs when Asbestos Containing Materials (ACM) not identified in the Asbestos Register is found on site. Asbestos finds are to be managed in accordance with the **Project Health and Safety Management Plan** (SMCSWLWC-SYC-1NL-PM-PLN-000010).

Acid Sulphate Soils (ASS)

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

If ASS is encountered, possible management strategies include:

- Modifying the Project to avoid the area of ASS;
- Delineation and removal to a suitably licenced facility;
- Onsite treatment to neutralise the ASS, which could include the application of lime in accordance with recommendations of the Environmental Consultant.

Note: The management of any ASS needs to include appropriate erosion and sedimentation controls to minimise the potential for pollution to waters.

Protected or 'No-Go' Areas

- If works in these areas are required, obtain a Permit to Enter Protected or 'No-Go' Areas

Monitoring

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

Recording

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

Additional information on Contamination management is included in;

- **Part D of the Project CEMP** (SMCSWLWC-SYC-1NL-PM-PLN-000370)
- **Waste Management and Recycling Procedure** (SMCSWLWC-SYC-1NL-EM-PRO-000399)

WASTE MANAGEMENT AND RECYCLING PROCEDURE

RESPONSIBILITY	WASTE MANAGEMENT AND MONITORING ACTIONS
Site Supervisor Project Engineer Environmental Coordinator	All waste generated must be **assessed, classified and managed** in accordance with DECCW's **Waste Classification Guidelines** prior to despatching the waste offsite – follow flow chart on Page 2.
Site Supervisor Project Engineer Environmental Coordinator	Waste management is to be undertaken in accordance with the **Waste Management Hierarchy** from the *Waste Avoidance and Resource Recovery Act 2001* which describes the most desirable action to least desirable action. This being to **REDUCE, REUSE, RECYLE and DISPOSE** as the last measure.
Site Supervisor	**Segregate waste onsite** as general solid waste (putrescible), general construction waste, green waste, steel, and contaminated. Where this is not practical a one bin system will be used and segregation will be undertaken off site by the waste contractor. • Spoil is to be managed in accordance with the **Spoil Classification, Reuse and Recycling Procedure** (SMCSWLWC-SYC-1NL-EM-PRO-000461)**.** • Contaminated material is to be managed in accordance with the **Unexpected Finds Soil Contamination and Asbestos Procedure** (SMCSWLWC-SYC-1NL-EM-PRO-000388). • Asbestos is to be managed in accordance with the **Unexpected Finds Soil Contamination and Asbestos Procedure** (SMCSWLWC-SYC-1NL-EM-PRO-000388) and the **Project Health and Safety Management Plan** (SMCSWLWC-SYC-1NL-PM-PLN-000010).
Site Supervisor	Ensure that facilities used for the receiving of waste from the LW Works are appropriately licenced to accept the classified waste type.
Site Supervisor	Waste generated outside the site will not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site unless expressly permitted under an EPL.
Site Supervisor Environmental Coordinator	Monitor onsite waste management as part of the Environmental Inspections of the work areas.
Site Supervisor Environmental Coordinator	**Materials Tracking Form** must be kept for all waste sent off site. Waste data must be captured and monthly entered into **Synergy**. Monitoring of all waste and associated volumes will be carried out for the duration of the LW Works.

Objective

- To correctly classify waste that is produced dur or disposal to an appropriately licenced facility. minimised during construction.

Targets

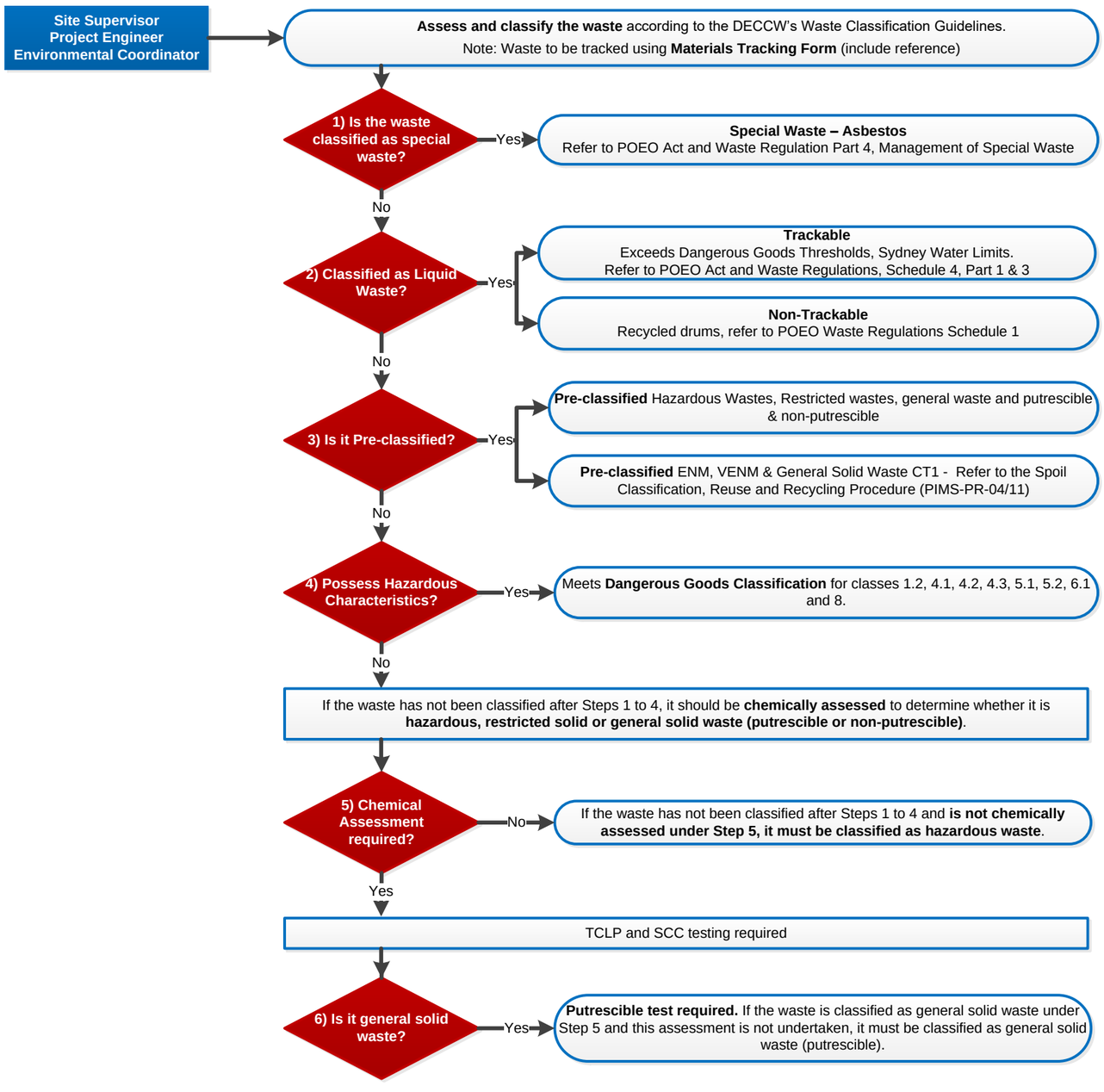
- 95% of inert and non-hazardous construction a or alternatively beneficially reused.
- 60% of office waste is recycled or alternatively
- 100% of reusable spoil is beneficially reused.

Waste Stream
Rubble, rock, sand, asphalt, road base, cor
Green w aste
Timber w aste / off cuts
General recyclables (glass, cans, paper, cardboard)
Metal w aste/ off cuts (i.e. steel reinforceme
Wire w aste / off cuts
PVC w aste/ off cuts (e.g. piping and condu
Waste oil
Non-destructive Digging Waste
Potentially contaminated spoil
Potentially contaminated w ater (i.e. septic)

RESPONSIBILITY

Site Supervisor
Project Engineer
Environmental Coordinator

WASTE CLASSIFICATION PROCESS



NOTES

1) Special Waste

'Special waste' is a class of waste that has unique regulatory requirements. Special waste means any of the following:

- clinical and related waste
- asbestos waste
- waste tyres
- anything classified as special waste under an EPA gazettal notice.

2) Liquid Waste

Liquid waste means any waste (other than special waste) that:

- has an angle of repose of less than 5 degrees above horizontal
- becomes free-flowing at or below 60 degrees Celsius or when it is transported
- is generally not capable of being picked up by a spade or shovel
- is classified as liquid waste under an EPA gazettal notice.

3) Pre-Classified Waste

Some commonly generated waste types have been pre-classified as hazardous waste, general solid waste (putrescible) or general solid waste (non-putrescible). These pre-classifications are contained in the definitions of those classifications in Schedule 1 of the POEO Act.

All currently gazetted special, liquid and pre-classified wastes are listed on the EPA website at: https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste

4) Hazardous Characteristics

If a waste has not been classified under Steps 1–3, it must be classified as 'hazardous waste' if it is a dangerous good under any of the following classes or divisions of the Transport of Dangerous Goods Code:

- Class 1: Explosives
- Class 2: Gases (compressed, liquefied or dissolved under pressure)
- Division 4.1: Flammable solids (excluding garden waste, natural organic fibrous material and wood waste, and all physical forms of carbon such as activated carbon and graphite)
- Division 4.2: Substances liable to spontaneous combustion (excluding garden waste,
- natural organic fibrous material and wood waste, and all physical forms of carbon such
- as activated carbon and graphite)
- Division 4.3: Substances which when in contact with water emit flammable gases
- Class 5: Oxidising agents and organic peroxides
- Division 6.1: Toxic substances
- Class 8: Corrosive substances.

6) Putrescible or Non-putrescible Waste

General solid waste may only be classified as non-putrescible if:

- it does not readily decay under standard conditions, does not emit offensive odours and does not attract vermin or other vectors (such as flies, birds and rodents), or
- it has a specific oxygen uptake of less than 1.5 milligrams O2 per hour per gram of total organic solids at 20 degrees Celsius, or
- it is such that, during composting (for the purpose of stabilisation), the mass of volatile solids in the organic waste has been reduced by at least 38%, or
- it has been treated by composting for at least 14 days, during which time the temperature of the organic waste must have been greater than 40 degrees Celsius and the average temperature greater than 45 degrees Celsius.

Non-putrescible materials typically do not:

- readily decay under standard conditions
- emit offensive odours
- attract vermin or other vectors (such as flies, birds and rodents).

For further details refer to the DECCW's **Waste Classification Guidelines**.

WATER MANAGEMENT PROCEDURE

RESPONSIBILITY

WATER REUSE AND DISCHARGE MANAGEMENT

Site Supervisor
Environmental Coordinator

All personnel must receive **site inductions and on-going Toolbox Talks** which will include requirements of Water Management on site.

Site Supervisor
Project Engineer
Environmental Coordinator

Reduce the volume of water in excavations / concrete washouts by diverting surface runoff around excavations/ concrete wash-outs using cut-off drains, temporary pipe drains, earth mounds etc.

HOLD POINT

Site Supervisor
Environmental Coordinator

DISCHARGE OFF THE PREMISES

Testing and, where necessary, **treatment** of all water must be undertaken prior to discharge from the premises (refer to Water Treatment for Discharge Off Premises flowchart on page 2). This may occur from sediment basin. Prior to any water discharge from the premises contact the Environmental Coordinator or delegated authority who will issue a **Permit to Dewater** once water is suitable for discharge.

Once water has been tested and meets all the criteria it may be discharged. Refer to adjacent table *Water Quality Criteria for discharging off premises.*

Ensure appropriate **scour protection** of the offsite discharge location is in place to ensure that erosion does not occur.

Visual inspection is required for the duration of the discharge operation to ensure sediment from the bottom is not pumped out. Inlet hoses are to be floated and pumps monitored at all times while running. Syphons may be used to dewater sediment basins to minimise reliance on pumps.

Record all details of discharge on the Permit to Dewater

Site Supervisor
Environmental Coordinator

WATER REUSE WITHIN THE PREMISES

Water can be reused for dust suppression on site or other purposes as approved in the Permit to Dewater. **Visual inspection** of the receiving area is required to ensure the criteria for reuse within the premises is met. Refer to adjacent table *Water Quality Criteria for reuse within premises.*.

Site Supervisor

WATER CART FOR DUST SUPPRESSION

Water cart drivers to be toolboxed on requirements to ensure

HOLD POINT

ALL OTHER ONSITE REUSE
(Including transfer between ponds)

Prior to any water reuse on the premises contact the

Note:

Sediment Basins. Basin design is base

Should rainfall received within a 5 day may discharge naturally over their spill TSS, pH or the presence of oil and gre

It should also be noted that other types that repair work will be undertaken whe safe to do so.

Safety Requirements

- Always wear appropriate PPE
- Always ensure personal safety
- Avoid eye and skin contact with
- DO NOT breathe gases or preservatives in sample bottles
- Maintain high standards of per sampling and ALWAYS wash h
- Do not enter sediment basins d

Monitoring

- Water quality monitoring and vi
- Regular inspection of controls a
- Inspection of receiving areas pr

Recording

- Records of water quality analys
- Records of water reuse
- Records of inspections includin diaries
- Records of tool box talks

Water Quality Criteria for dis

Parameter and Criteria
TSS (<50mg/L)
pH (6.5 -8.5)
Oil and Grease (< [illegible])

Water Quality Criteria for re

Parameter and Criteria

WATER MANAGEMENT PROCEDURE

WATER MONITORING AND SEDIMENT CONTROL ACTIONS

RESPONSIBILITY	
Environmental Coordinator	**Weekly inspections** are to be conducted to monitor erosion and sediment controls in active worksites. Weekly inspections must be documented on the **Environmental Inspection Form**.
Site Supervisor Environmental Coordinator	Water monitoring must be conducted using **calibrated monitoring equipment** or a **visual assessment** depending on the parameter / criteria required (refer to Water Quality Criteria tables on page 1). Equipment calibration records must be kept.
Site Supervisor Environmental Coordinator	**Monitoring of rainfall** is to be carried out as described in the **Soil and Water Management Procedure in the CEMP** (SMCSWLWC-SYC-1NL-PM-PLN-000370).
Site Supervisor Environmental Coordinator	**Following a significant rainfall event** (i.e. >10 mm/ 24 hours) the following steps must be undertaken: • Environmental Inspection Form must be completed by the Environment Coordinator or Site Supervisor or ERSED crews. • Review Erosion and Sediment Control Plans (ESCP) prior to commencing work. ESCP must also be reviewed if a sediment basin is at or near capacity and works that direct water towards the basin cannot be undertaken (see Erosion and Sediment Control Procedure).
Site Supervisor Environmental Coordinator	**All discharges within or off premises must be documented** on Permit to Dewater

HOLD POINT

WATER TREATMENT FOR DISCHARGE OFF PREMISES ACTIONS

RESPONSIBILITY: Site Supervisor, Environmental Coordinator

Prior to discharging the following parameters must be tested and met:
- TSS < 50mg/L
- pH (6.5 – 8.5)
- Oil and Grease < 10mg/L and no visible trace

Is pH outside allowed range?

Yes:

Treatment to Lower pH
If pH > 8.5 acid is used to lower pH at a dosage rate of 500 ml of acid lowers 7000 L of water by approximately 1.5 pH.

Treatment to Raise pH
If pH < 6.5 a base is added to raise pH. Usually Caustic e.g. Builders Lime.

No:

Is turbidity above allowed limit? (TSS levels)

Yes:

Water needs to have the **sediment settled out**:
- Treating the water with Alum, Gypsum or other suitable flocculent;
- Apply evenly on water and wait for the sediment to settle out;
- Application rates should be based upon the Blue Book and / or manufacture's specifications.

Note that even application over the captured water is essential for effective flocculation.

No:

Is oil and grease above allowed limit?

Yes:

Deploy adequate treatment to remove oil and grease from surface in consultation with the Environmental Coordinator

No:

RESPONSIBILITY: Site Supervisor, Environmental Coordinator

If any treatment was applied water re-testing is required to **ensure water quality criteria has been met**. Refer to table *Water Quality Criteria for discharging off premises* in page 1.

Once testing results meet quality criteria the water is compliant for discharging off site. Follow Water Reuse and Discharge Management flowchart on page 1.

Appendix C9 Consultation Records

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

Suit 2.06, Level 2
29-31 Solent Circuit
Norwest NSW 2153

Tel: 61 (02) 9659 5433
e-mail: hbi@hbi.com.au
Web: www.hbi.com.au

Stuart Hodgson
Director
Environment Planning and Sustainability
Sydney Metro
Transport for NSW
PO Box K659
HAYMARKET NSW 1240

16 June 2019

Our Ref: SM-CSW LW-CEMP

Dear Stuart

RE: Endorsement of Line Wide Construction Environmental Management Plan – Sydney Metro Train Facility Sydney Metro City & Southwest

I refer to the following document provided for Environmental Representative (ER) review.

- Construction Environment Management Plan, Line Wide Works Contract Sydney Metro City and Southwest, Revision 00 dated 12/06/2019.

This document is provided to address Condition E28 of the Rapid Transit Rail Facility (now known as Sydney Metro Train Facility (SMTF)) Approval (SSI 5931 dated January 15 2014). It sets out how Systems Connect will address compliance obligations as defined in the Sydney Metro Staging Report (May 2019) for SSI 5931. The CEMP applies to delivery of Line Wide Works (LWW) Portion 1 SMTF Expansion at Tallawong.

As an approved ER for the Sydney Metro City & Southwest project, and as requested by Sydney Metro in accordance with Table 7 of the Staging Report, City and South West Sydney Metro Trains Facility dated 6 May 2019, I have reviewed this document and I endorse the referenced document as being suitable for submission to Department of Environment and Planning (DPE) for approval.

Yours sincerely

Peter Hatton
Environmental Representative, Sydney Metro – City and South West

Leaders in Environmental Consulting

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

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29-31 Solent Circuit
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Mr Mathew Billings
Environment and Sustainability Manager,
Line Wide Works Project
Systems Connect
Level 3, 116 Miller Street
NORTH Sydney NSW 2060

28 April 2021

Ref: 170108(m) CEMP Rev05

Dear Mathew

RE: Approval of Minor Amendments to SMTF (North) CEMP Construction Environmental Management Plan

Thank you for providing, for Environmental Representative (ER) review and approval in accordance with MCoA E27 (e) of SSI 5931, the amended Construction Environmental Management Plan (CEMP) titled *Construction Environmental Management Plan, Sydney Metro Trains Facility*, Document No SMCSWLWC-SYC-1NL-PM-PLN-000031 Revision 05 of 23/04/21 (the CEMP).

As an approved ER for the Sydney Metro City South West project, I have reviewed the following sections of the CEMP which are being amended under this RfMA:

Section 6.2 Standard Construction Hours
Addition of an additional dot point as follows:

- *Works may be undertaken from 1 pm to 6 pm on Saturdays and from 7 am to 6 pm on Sundays and public holidays while the Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days) Order 2021 is in force provided that: No rock breaking, rock hammering, sheet piling, pile driving or similar activities are undertaken. Separate approval to conduct works under COVID-19 Order must be obtained from Sydney Metro.*

Element 12.3 – Auditing Review and Improvement.
Delete the following

- *A formal review of the CEMP and sub-plans must also be undertaken on a six monthly basis, in line with CEMF requirements.*

In my opinion, the proposed changes are minor amendments as defined in Section 1.5 of the Construction Environmental Management Plan – SMTF Rev03. On this basis, I approve the revised *Construction Environmental Management Plan, SMTF*, Revision 05 of 23 April 2021.

Yours sincerely

Peter Hatton
Environmental Representative – Sydney Metro, City and South West

From: Claire Miles <Claire.Miles@epa.nsw.gov.au>
Sent: Monday, 22 July 2019 2:36 PM
To: Billings, Mathew <Mathew.Billings@sclww.com.au>
Cc: Doczy, Tracey <Tracey.Doczy@cpbcon.com.au>; Sharp, Julian <Julian.Sharp@sclww.com.au>; Stuart, Adam <Adam.Stuart@sclww.com.au>; Truscott, Kate <Kate.Truscott@sclww.com.au>
Subject: RE: Systems Connect EPL Application POEOA916

Thank you Matthew.

I acknowledge receipt of your email and intent to withdraw the licence application at SMTF. I look forward to speaking with you regarding the Sydenham to Chatswood component of the works.

Regards,

Claire Miles

Unit Head - Metropolitan Infrastructure

Metro, NSW Environment Protection Authority

Ph: 02 9995 5167 Mob: 0436 682 226

claire.miles@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

Please send all official correspondence to metropolitan.transport@epa.nsw.gov.au

From: Billings, Mathew <Mathew.Billings@sclww.com.au>
Sent: Thursday, 11 July 2019 6:44 AM
To: Claire Miles <Claire.Miles@epa.nsw.gov.au>
Cc: Doczy, Tracey <Tracey.Doczy@cpbcon.com.au>; Sharp, Julian <Julian.Sharp@sclww.com.au>; Stuart, Adam <Adam.Stuart@cpbcon.com.au>; Truscott, Kate <Kate.Truscott@sclww.com.au>
Subject: RE: Systems Connect EPL Application POEOA916

Hi Claire,

Thanks for the call yesterday.

Given the amendments to Schedule 1 of the POEO Act, CPB will withdraw application POEOA916.

The longest length of railway track at SMTF is approximately 590m

I will follow up with EPA Admin to process the withdrawal.

I will be in touch in a few weeks regarding licensing of the Chatswood to Sydenham section of the Project.

Regards

Mat Billings

33 Railway activities—railway infrastructure construction

(1) This clause applies to ***railway activities—railway infrastructure construction***, meaning the following:

(a) the construction of railway infrastructure (including the widening or rerouting of existing railway infrastructure) and any related tunnels, earthworks and cuttings,

(b) any extraction of materials necessary for that construction,

(c) any on site processing (including crushing, grinding or separating) of any extracted materials or other materials used in that construction.

(2) The activity to which this clause applies is declared to be a scheduled activity if the activity results in one or more of the following:

(a) the extraction or processing (over the life of the construction) of more than:

(i) 50,000 tonnes of materials in the case of premises in the regulated area or in the local government areas of Bega Valley, Eurobodalla, Goulburn Mulwaree, Queanbeyan-Palerang Regional or Snowy Monaro Regional, or

(ii) 150,000 tonnes of material in any other case,

(b) the construction of new railway track that is:

(i) in the metropolitan area—3 kilometres or more in length, or

(ii) outside the metropolitan area—5 kilometres or more in length

(3) For the purposes of calculating the length of a railway track, individual tracks constructed alongside one another are not to be added together.

(4) In this clause:

railway infrastructure includes, but is not limited to, the following:

(a) railway tracks,

(b) sleepers and ballasts,

(c) embankments, bridges, tunnels and over track structures,

(d) signalling equipment.

Regards

Mathew Billings

Environment Manager - Systems Connect

Sydney Metro City & Southwest Line-wide Works

Level 3, 116 Miller Street,, North Sydney, NSW 2060, Australia

T +61294143459 **M** 0428 781 599

E Mathew.Billings@sclww.com.au

REVIEW COMMENTS SHEET

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	1	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Cover Page		Change pdf document properties: "Template Instructions - Management Plan" to something more appropriate.	Observation	Y
											file name corected with doc number and revision to C	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	2	20/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Figure. 4 (pg. 21)		Add SSI 5931 boundary	Observation	Y
											figure updated to add SSI boundary	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	3	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Figure. 5 (pg. 22)		This diagram looks like as if the new test track will be outside of the current SMTF boundary - please confirm or revise diagram accordingly.	Partial Non-Compliance	Y
											figure updated to add SSI boundary	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	4	20/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	2.3.2 (Pg. 23)		Spelling	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	5	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.2 (Pg. 24)		5931	Observation	Y
											Corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	6	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.2 (Pg. 24)		Capital letters? Add (CTP)	Observation	Y
											Reference to Complaicne Tracking program added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	7	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.2 (Pg. 24)		Add this para into introduction - section 1.1	Observation	Y
											Moved to section 1.1	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	8	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.2.1 (Pg. 24)		37 additional trains? Above it states 24 new trains. There are already 22 Trains in operation. Check for consistency	Observation	Y

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
											Changed to 37 as stated in Contract Management Plan	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	9	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.2.1 (Pg. 24)		Not just C&S - these trains will also operate in norhtwest - reword.	Observation	Y
											Updated	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	10	21/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.3 (Pg. 25)		Please check capitalisation of terms for consistency throughout document	Observation	Y
											checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	11	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 3 (Pg. 27)		Typo? - If 3 refers to notes then put in superscript	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	12	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 3 (Pg. 27)		Superscript?	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	13	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 3 (Pg. 27)		Italic	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	14	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.5 (Pg. 27)		What part of the scope does this refer to?	Observation	Y
											comment noted - refers to deliveries that may be required under any part of the SMTF scope.	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	15	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 4 (Pg. 28)		SM - check entire doc for consistency	Observation	Y
											checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment	B	RVW	16	22/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.9 (Pg. 28)		As per SM Env incident classification?	Observation	Y

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
	Management Plan												
											Noted - classification is alined with SM Environmental Incident and Non-compliance Reporting Procedure	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	17	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	5.6.1 (pg. 44)		Is this referring to Environmental Control maps (ECMs)? Can this be re-named throughout the document for consistency across SM?	Observation	Y
											Noted. No change will be made. SEP is a Systems Connect management systems document.	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	18	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	5.11 (Pg. 47)		Capital letters for consistency	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	19	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Appendix C2.1. Clause E28 (Pg. 93)		Check	Observation	Y
											link checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	20	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Appendix C2.3. Clause 3.2d (Pg. 105)		Check	Observation	Y
											link checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	21	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Appendix C2.3. Clause 15.2d (Pg. 118)		Check	Observation	Y
											link checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	22	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	Part D 1.2.1 (Pg. 172)		Mean?	Observation	Y
											corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	23	31/05/2019	SM	CBERG	SMCSWLWC-SYC-1NL-PM-PLN-000031	End Page		Check	Observation	Y

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
											checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	24	31/05/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Glossary/Abbreviations (pg. xii)		What does BMRC Mean? Not described in list of terms or acronyms	Observation	Y
											Reference Removed	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	25	31/05/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Glossary/Abbreviations (pg. xii)		This is not correct - ER does not have approval for environmental management plans for SSI 5931. MCoA E27 describes the role for the EMR.	Observation	Y
											ER role updated to freflect E27	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	26	31/05/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Glossary/Abbreviations (pg. xii)		Check the acronym - I think it is North West Rapid Transit	Observation	Y
											Reference corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	27	29/05/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	2.3.2 (pg. 23)		Should final commissioning date be 2021?	Observation	Y
											Commissioning date checked and corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	28	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 4 (pg. 28)		Include ER Inspection reports	Observation	Y
											> No change required. ER inspection reports are one of many types of "construction compliance reports" a llsit of report sis provided in the MIRRA schedule in Appendix 6	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	29	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 4 (pg. 28)		Include endorsed Induction Program	Observation	Y
											Reference to induction added	Can be closed	

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	30	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	3.9 (pg. 28)		Minimum of two - specific circumstances or construction events may require additional meetings with environmental focus to address emerging issues	Observation	Y
											reference to minimum of 2 added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	31	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 11 (pg. 36)		And erosion and sediment control plans	Observation	Y
											No change required. ESCP's are covered by the statement "the preparation and implementation of the Construction Soil, Water and Groundwater Management documentation"	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	32	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	4.6 (pg. 38)		Including providing suitable company vehicle and staff for ER inspections	Observation	Y
											reference added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	33	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 17 (pg. 49)		Might also affect visibility on surrounding roads	Observation	Y
											reference added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	34	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 17 (pg. 49)		And habitat	Observation	Y
											reference to habitit added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	35	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Table. 17 (pg. 49)		Also potential harm to public health	Observation	Y
											reference to public health added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	36	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 2.4 (pg. 56)		And non-compliance notices	Observation	Y
											section updated to included non-compliance. Reference to "non-conformance" removed	Can be closed	

REVIEW COMMENTS SHEET

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	37	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 3.6 (pg. 60)		And conformance	Observation	Y
											Change not required - all "non-conformance" references removed to align with SM Environmental Incident and Non-compliance Reporting Procedure. All should be captured as compliance/non-compliance	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	38	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 3.6 (pg. 60)		See comment below - non-conformance and non-compliance are not synonymous and cannot be interchanged. This section needs to clearly distinguish between them.	Observation	Y
											Reference updated to non-compliance to align with definition	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	39	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 3.6 (pg. 60)		See the Glossary / Abbreviations section - this is the definition of non-compliance (not non-conformance)	Observation	Y
											Glossary updated - removed "non-conformance" references to align with SM Environmental Incident and Non-compliance Reporting Procedure. Updated the defenition of "non-compliance" to align with SM.	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	40	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 3.6 (pg. 60)		See previous comments relating to difference between non-conformances and non-compliances. This section is headed 'Reporting Non-Compliances' but paragraphs below discuss non-conformances. Please clarify this section and be consistent with the use of terms.	Observation	Y
											section updated to non-compliance as clarified in above comments	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	41	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 8.3 (pg. 75)		As previously noted - need to be clear if referring to compliance of conformance documents	Observation	Y

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
											No change required. Reference to compliance requirements aligns with new defenition as mentioned above	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	42	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 9.1 (pg. 77)		Note Appendix C6 MIRRA Requirements - Reporting re reporting incidents to ER	Observation	Y
											Reference to ER reporting requirements added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	43	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Element 12.4 (pg. 84)		As previously noted - this should be non-conformance	Observation	Y
											No change required. Definition of "non-compliance" updated as mentioned above	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	44	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Appendix C1 - Legal Requirements (pg. 87)		Native Vegetation Act 2003 has been repealed - replaced by Biodiversity Conservation Act 2016	Observation	Y
											reference corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	45	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Appendix C1 - Legal Requirements (pg. 88)		Threatened Species Conservation Act 1995 has been repealed - replaced by biodiversity Conservation Act 2016	Observation	Y
											reference corrected	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	46	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Pg. 135 (Air Quality)		Vehicles not to be left idling	Observation	Y
											reference added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	47	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Pg. 135 (Noise and Vibration)		Vehicles and machinery regularly used to be fitted with non-tonal (quacker) warning beepers	Observation	Y
											reference added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	48	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	Pg. 135 (Traffic)		All vehicles to enter/exit side by driving forward - no reversing in/out	Observation	Y

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
											reference not changed. This action will be subject to requirements of TMP	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	49	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	1.2 (pg. 172)		Vehicle movement along unsealed roads	Observation	Y
											no change - - covered under first dot point	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	50	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	4.5 (References - pg. 200)		This is not a current or repealed NSW Act (Flora and Fauna Act 1977)	Observation	Y
											reference removed	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	51	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	4.5 (References - pg. 200)		Native Vegetation Act 2003 (NV Act) repealed and replaced by Biodiversity Conservation Act 2016 as above	Observation	Y
											Reference updated	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	52	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	4.5 (References - pg. 200)		Pesticides Act 1999 repealed and replaced by Biosecurity Act 2015	Observation	Y
											Reference updated	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	53	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	7.2 (pg. 167)		Include refueling facility	Observation	Y
											Reference added	Can be closed	
SMCSWLWC-SYC-1NL-PM-PLN-000031	Construction Environment Management Plan	B	RVW	54	7/06/2019	ER	PHATTON	SMCSWLWC-SYC-1NL-PM-PLN-000031	7.5 (pg. 215)		Threatened Species Conservation Act 1995 has been repealed - replaced by biodiversity Conservation Act 2016	Observation	Y
											Reference corected	Can be closed	

PART D – CEMP Procedures

1. Air Quality Management

1.1 Scope

This procedure of the CEMP describe how Systems Connect will manage air quality during delivery of LWW at SMTF to prevent or mitigate impacts to the environment and/or community.

This procedure meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoAs, REMMs and the CEMF requirements. (refer to Appendix C2)

This Procedure also addresses applicable legislation and contractual requirements.

Activities conducted on the project that have the potential to impact air quality are provided below. These have been extracted from the project work flow, including activities and materials used.

Table 19 Activities, Hazards and Risks associated with Air Quality

Project Activity	Environmental Hazard	Environmental Risk
Earthworks stripping, trenching, excavation, loading and transporting soils and quarry materials, vehicle movements	Dust	Reduction in local air quality
Stockpiling Exposed surfaces and stockpiles during periods of high winds	Dust	Reduction in local air quality
Construction vehicles and plant movement	Exhaust emissions from construction vehicles and plant	Reduction in local air quality

1.2 Background

This Procedure has been developed with consideration of the comprehensive assessment and analysis work performed for the EIS that cover LWW scope of works. Specifically, Tallawong Road, Rouse Hill Rapid Transit Rail Facility Environmental Impact Statement.

The SMTF Expansion Worksite is located mid-way along Schofields Road, and is bounded by Schofields Road to the south, Tallawong Road to the east, First Ponds Creek to the west and property boundaries to the north (Figure 9).

Figure 9 SMTF Expansion Works site location

Land to the north, east and west of the subject site is predominately characterised by a mix of rural residential and agricultural uses, the rezoning of the Area 20 precinct to the east and the Riverstone precinct to the west for urban uses.

The local topography surrounding the site is characterised as relatively flat with slight undulations in the terrain. The local topography does not appear to contain any significant terrain features which would influence wind dispersion patterns, beyond the normal pattern of winds in the north-western Sydney Basin.

Construction at the site has the potential to impact on ambient air quality in the vicinity of the project site. Activities and aspects which may potentially impact on air quality include:

- Earthworks – including stripping, trenching, excavation, loading and transporting soils and quarry materials, vehicle movements.
- Exposed surfaces and stockpiles during periods of high winds
- Exhaust emissions from construction vehicles and plant

1.2.1 Local Climate

Long-term climatic data from the Bureau of Meteorology (BoM) weather stations at Prospect Reservoir (Site No. 067019) and Richmond RAAF (Site No. 067105) were used to characterise the local climate in proximity of the project. The Prospect Reservoir station is located approximately 14km south of the project site and the Richmond RAAF is located approximately 15km northeast of the project site.

Table 21 presents a summary of data from Prospect Reservoir collected over an approximate 47-year period. *Table 20* presents a summary of data from Richmond RAAF collected over an approximate 19-year period.

The data indicates that January is the hottest month with mean maximum temperatures of 28.4°C and 30.0°C respectively at the Prospect Reservoir and Richmond RAAF stations. July is the coldest month with mean minimum temperatures of 6.1°C and 3.6°C.

Rainfall peaks during the summer months and declines during winter at both stations. The data indicates that February is the wettest month at both Prospect Reservoir and Richmond RAAF.

September is the driest month at Prospect Reservoir and August is the driest month at Richmond RAAF.

Wind speeds during the warmer months tend to have a greater spread between the 9am and 3pm conditions compared to the colder months at Prospect Reservoir, however the difference between 9 am and 3 pm wind speed is relatively constant at Richmond RAAF across the year.

Table 20 Monthly climate statistics summary - Richmond RAAF

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Temperature													
Mean maximum temperature (°C)	30.4	29.3	27.1	24.2	20.9	18.0	17.7	19.8	22.9	25.3	27.1	28.9	24.3
Mean minimum temperature (°C)	17.9	17.7	15.8	11.7	7.5	5.3	3.5	4.4	8.0	11.2	14.2	16.2	11.1
Rainfall													
Mean rainfall (mm)	83.2	110.1	80.3	57.0	44.3	56.5	27.5	32.0	43.2	50.2	77.6	70.0	728.4
Decile 5 (median) rainfall (mm)	67.4	99.2	70.2	38.9	34.0	43.0	22.8	16.8	27.0	32.8	73.6	62.8	693.9
Mean number of days of rain ≥ 1 mm	7.7	8.0	8.2	6.0	5.0	5.8	3.9	3.5	4.6	5.7	7.4	6.8	72.6
9am Conditions													
Mean 9am temperature (°C)	22.1	21.3	19.1	17.0	13.1	10.0	8.9	11.4	15.4	18.3	19.2	20.9	16.4
Mean 9am relative humidity (%)	72	78	80	76	82	83	80	69	63	58	68	68	73
Mean 9am wind speed (km/h)	9.1	8.1	6.6	6.9	5.7	6.3	5.9	8.1	9.9	10.3	9.9	8.9	8.0
3pm Conditions													
Mean 3pm temperature (°C)	28.5	27.4	25.8	23.0	19.7	17.0	16.5	18.7	21.5	23.5	25.2	27.5	22.9
Mean 3pm relative humidity (%)	47	52	52	49	53	53	48	39	39	40	46	44	47
Mean 3pm wind speed (km/h)	16.6	15.6	14.7	14.4	12.6	13.5	14.3	17.7	19.4	19.1	19.0	17.7	16.2

Source: Bureau of Meteorology 2019

Table 21 Monthly climate statistics summary - Prospect Reservoir

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Temperature													
Mean maximum temperature (°C)	28.6	28.0	26.4	23.8	20.4	17.4	16.9	18.8	21.5	24.0	25.6	27.6	23.2
Mean minimum temperature (°C)	17.7	17.8	16.2	13.0	9.8	7.5	6.1	6.8	9.4	12.1	14.4	16.4	12.3
Rainfall													
Mean rainfall (mm)	95.6	96.1	98.7	76.1	69.4	77.2	55.7	50.4	45.9	59.1	72.9	76.1	875.0
Decile 5 (median) rainfall (mm)	73.2	73.1	78.3	56.2	38.2	50.0	32.9	30.9	40.2	43.2	60.1	58.0	861.7
Mean number of days of rain ≥ 1 mm	8.0	8.1	8.4	7.0	6.3	7.0	5.6	5.7	6.1	6.8	7.3	7.6	83.9
9 am conditions													
Mean 9am temperature (°C)	21.3	21.0	19.6	16.9	13.5	10.7	9.6	11.1	14.5	17.4	18.4	20.6	16.2
Mean 9am relative humidity (%)	75	79	79	77	80	79	76	70	65	65	70	70	74
Mean 9am wind speed (km/h)	7.5	7.0	7.3	8.0	7.7	8.0	8.1	9.2	9.6	10.0	8.5	8.2	8.3
3 pm conditions													
Mean 3pm temperature (°C)	26.8	26.3	24.8	22.4	19.2	16.5	15.9	17.4	19.6	22.1	23.4	25.9	21.7
Mean 3pm relative humidity (%)	52	54	55	52	57	55	50	45	45	46	50	49	51
Mean 3pm wind speed (km/h)	12.7	12.4	12.0	11.5	10.3	12.3	12.4	14.3	15.3	15.4	14.4	14.5	13.1

Source: Bureau of Meteorology 2019

1.2.2 Existing and Surrounding Environment

The main sources of air pollution in the wider area of the project may include agricultural activities, emissions from local anthropogenic activities such as motor vehicle exhaust and domestic wood heaters, urban activity and various other commercial and industrial activities. This section reviews the ambient monitoring data collected from a number of NSW EPA monitoring stations in the general area of the project.

Table 22 summarises the air quality goals that are relevant to this study as outlined in the New South Wales Environment Protection Authority (NSW EPA) document "*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*" (NSW DEC, 2005). The air quality goals for total impact relate to the total dust burden in the air and not just the dust from the proposed modification. Consideration of background dust levels needs to be made when using these goals to assess potential impacts.

Table 22 NSW EPA air quality impact assessment criteria

Pollutant	Averaging Period	Impact	Criterion
TSP	Annual	Total	90µg/m³
PM10	Annual	Total	30µg/m³
	24-Hour	Total	50µg/m³
PM2.5	24- Hour	Total	25µg/m³
	Annual	Total	8µg/m³
Deposited Dust	Annual	Incremental	2g/m²/month
		Total	4g/m²/month

The air quality monitoring data collected from January 1, 2018 to December 31, 2018 from the Richmond, St Marys, Vineyard and Prospect monitoring stations have been reviewed.

1.2.3 PM_{10} and $PM_{2.5}$ Monitoring

Review of the data indicated that the annual average PM_{10} levels recorded at the sites in 2018 is below the criterion of 30 µg/m³ specified by the National Environment Protection Measure (NEPM) goals (NEPC, 1988).

The data indicates that annual average $PM_{2.5}$ levels recorded at the various monitoring sites are below the advisory reporting standard of 25µg/m³ for 24-hour average levels.

Table 23 Annual averages PM10 and PM2.5

Annual Averages PM_{10} & $PM_{2.5}$		
Initial Data	PM10.AA 24H	PM2.5. AA24H
Station	PM10 annual average [µg/m³]	PM2.5 annual average [µg/m³]
RICHMOND	18.7	8.1
ST MARYS	NR	7.8
VINEYARD	NR	NR
PROSPECT	21.9	8.5

Source: Office of Environment and Heritage 2019

1.2.4 Potential Sensitive Receivers

The immediate areas surrounding SMTF contain a mix of rural and residential land use. The following table summarises potential impacts to sensitive receivers from works at the SMTF Expansion works site.

Table 24 Description of existing and surrounding environment, and identification of potentially sensitive receivers

Worksite	Existing/Surrounding Characteristics	Activities Potentially Affecting Air Quality	Potentially Sensitive Receivers
SMTF	The SMTF Expansion Worksite is located mid-way along Schofields Road, and is bounded by Schofields Road to the south, Tallawong Road to the east, First Ponds Creek to the west and property boundaries to the north	Establishment of work site e.g. vegetation removal, construction of access tracks, establish site compound. General earthworks – stripping, grading, filling, stockpiling. Trenching and excavation associated with drainage and service installation Vehicle and plant movements including import and export of materials, and on-site vehicle/plant movement Placement and spreading of quarry materials such as crushed rock, ballast etc. Exhaust emissions from operation of construction vehicles and plant	The nearest sensitive receivers are the high-density residential receivers set immediately to the south east of the worksite. Commuters using Schofields Road Low density residential receivers to the north and west

1.3 Management Strategy

1.3.1 Project Air Quality Objectives

Systems Connect's objectives for management of Air Quality during delivery of scope at SMTF are aligned with the CEMF which states that, the following management objectives will apply to construction:

- *Minimise gaseous and particulate pollutant emissions from construction activities as far as feasible and reasonable; and*
- *Identify and control potential dust and air pollutant sources.*

Based on the requirements defined in the previous sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions:

Table 25 Air Quality LWW targets

Metric/Measure	Objective	Timeframe	Accountability
Number of non-compliant monitoring results	Zero	At all times	Area Manager

1.3.2 Controls Used to Manage Air Quality

Controls that are adequate to minimise air quality issues and to reduce risk to the lowest acceptable rating achievable are implemented before any relevant works commence. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Controls used on this project are detailed in the sections below.

An Air Quality and Dust Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000392) has been developed for the LWW. The procedure will be available at all sites during construction works, at all times. The procedure outlines:

- Training via inductions and tool box talks
- Air quality and dust control implementation
- Visual assessment procedures

- Requirement to undertake an environment inspection and stop work or modify work practices if:
  - Visible dust is leaving the site
  - Winds exceed 30 km/hr on average over 1hr

All site personnel will receive induction training about air quality and dust management, including:

- Potential sources of dust
- Impacts to the environment and surrounding community
- Mitigation measures
- Hold Points (no visible dust to leave site)

Toolbox training will be held regularly during site establishment and construction operations and will also reinforce and reiterate information from inductions. Toolboxing will be undertaken on the Air Quality and Dust Management Procedure.

1.3.3 Meteorological Monitoring

Meteorological factors that need to be considered when evaluating the risk of dust generation include:

- Wind Direction – determines whether dust and suspended particles are suspended and transported in the direction of the sensitive receivers
- Wind Speed – governs the potential suspension and drift distance of particles
- Soil Moisture – increased soil moisture reduces soil or dust erosion potential
- Rainfall or Dew – rainfall or heavy dew which wets the surface of the soil.

These factors will substantially influence the day-to-day risk of dust generation and suspension. Accordingly, they are to be considered by the Project Engineer, in consultation with the Environmental Coordinators, to ensure appropriate mitigation measures are adopted.

A project weather station will be utilised to collect and distribute real-time observations and up-to-date forecasts for wind, temperature, humidity and precipitation.

This data will be accessible by computer and smartphone and will include an alarm function to send updates when predetermined thresholds are exceeded. In alarm mode, the weather station will generate email and SMS alerts for operational staff, including the Project Manager, Environmental Coordinators and Site Supervisors. The alerts will contain current observations and forecast data to enable implementation of additional mitigation measures as detailed in Table 26.

Onsite weather data will be supplemented with daily weather conditions and forecasts obtained from the Bureau of Meteorology website (http://www.bom.gov.au/places/nsw/rouse-hill/). In the absence of electronic meteorological information, the Site Supervisor, Site Engineers and Environmental Coordinator will monitor and interpret local wind conditions onsite against the Beaufort Wind Scale.

Table 26 Meteorological monitoring program

Event	Criteria	Response
Wind event	Average wind speeds exceeding 30 km/h over a 1-hour period	Inspect all active work areas including any exposed areas and stockpiles.
Rain event	>10mm in 24 hours	Inspect rumble grid and wheel-wash facilities Inspect adjacent roads for signs of mud tracking

Environmental Inspection Record will be used to report on the effectiveness of dust mitigation measures and any actions that may need to be implemented during adverse meteorological conditions.

1.3.4 Plant and Equipment Management and Maintenance

The main impacts from plant and vehicle emissions include an increase in greenhouse gases and a general reduction in air quality. The main compounds associated with diesel combustion in plant and equipment include carbon monoxide, sulfur dioxide and nitrogen dioxide. The potential reduction of air quality from plant and vehicle emissions associated with SMTF Expansion Works is not considered significant in isolation, however, the accumulated impact in conjunction with other adjacent sources (i.e. motor vehicle emissions, commercial businesses, domestic sources, vegetation burning, and dust storms etc.) has the potential to diminish air quality in the immediate vicinity and region of the SMTF Expansion Worksite.

To minimise the impacts on local and regional air quality, the exhausts of all major plant shall be fitted with suitable exhaust emission cleaners, such as catalytic converters, maintained in accordance with the manufacturers' recommendations. Mechanical inspections of plant and vehicles will be undertaken to ensure all equipment have appropriate emission control devices and are in good working order.

Vehicles and construction plant and equipment will be maintained in good condition and regularly serviced so that vehicular emissions remain within air quality standards set by the EPA/OEH. Engines will be switched off when vehicles are not in use and refuelling areas will be located away from areas of public access and sensitive receivers wherever possible.

In addition to emission control devices, mechanical inspections and emissions testing, regular site inspections will be undertaken by Site Supervisors and Environmental Coordinators to monitor and reduce any unnecessary running of plant and vehicles. These inspections will also be used to detect any plant or vehicles emitting excessive fumes or smoke.

1.3.5 Air Quality and Dust Mitigation Measures

The key air quality and dust mitigation measures to be implemented during the SMTF Expansion Works are listed in *Table 27* below. These are the key mitigation measures for the overall management of air quality during the SMTF Expansion Works.

Table 27 Air quality management and mitigation measures

Management and Mitigation Measures	Responsibility
Pre-Construction	
Identify sensitive land uses/sensitive receivers in Site Environment Plans (SEPs), prior to works commencing.	Environment Manager
Incorporate information on dust sources, impacts and mitigation measures into Site Induction and on-going Toolbox Talks.	Project Engineers Environmental Coordinators
Site Establishment	
Waste or any other material must not be burnt on construction sites.	Site Supervisors Project Environment Manager Project Engineers
Temporary spoil stockpiles during site establishment are to be maintained, e.g. hosed down or covered as required.	Project Engineers Site Supervisors
Wind breaks, which may include site hoardings, may be constructed where construction works are in close proximity to sensitive receivers (where feasible and reasonable).	Environmental Coordinators Project Engineers
General Construction	
Undertake on-going monitoring for dust (e.g. site inspections) to assess the effectiveness of mitigation measures.	Environmental Coordinator

Management and Mitigation Measures	Responsibility
A sweeper will be used to clean dirt tracked on hardstand, pavements, or roads.	Site Supervisors
Water sprays and/or water carts to be used as required for dampening exposed surfaces to control dust generation.	Project Engineers
Burning or incineration is not permitted at any of the LWW sites.	Site Supervisors Environmental Coordinator Project Engineers
Silt accumulated in sediment control devices (e.g. silt fences and spoon drains) to be removed on a regular basis to prevent dust generation.	Site Supervisors
Dust complaints will be handled by the Stakeholder and Community Relations Manager and the Project Environment Manager, in accordance with the complaints handling process in the Community Liaison Implementation Plan.	Project Environment Manager Stakeholder and Community Relations Manager
Dust suppression measures, such as water lines, will be used if concrete/rock cutting is required.	Site Supervisors
Enclosed rubble chutes and conveyors will be used where feasible and reasonable. Drop heights from conveyors, loading shovels, hoppers, and other loading or handling equipment will be minimised and/or water used to suppress dust emissions from such equipment.	Site Supervisors
Cutting, grinding or sawing equipment must only be used in conjunction with suitable dust suppression techniques, such as water sprays or local extraction.	Site Supervisors
Dust generating activities would be assessed during periods of strong winds and rescheduled, where required.	Site Supervisors Environmental Coordinators Project Engineers
Exhaust systems of construction plant, vehicles, and machinery to be maintained to minimise exhaust emissions to the atmosphere. All equipment and vehicles are to be regularly maintained and records kept of maintenance.	Project Engineers
Engines will be switched off when vehicles are not in use, and refueling areas will be away from areas of public access and sensitive receivers.	Site Supervisors
Minimise idling of onsite vehicles and plant (< 3 minutes).	Site supervisors
Low emission vehicles and plant fitted with catalysts, diesel particulate filters, or similar devices are to be used, where feasible and reasonable.	Construction Manager
Plant must be well maintained and serviced in accordance with manufacturers' recommendations.	Construction Manager Site Supervisors
Haul routes and plant (including generators) to be sited away from sensitive receivers, such as dwellings and schools, where feasible and reasonable.	Project Engineers Site Supervisors
Workers will be encouraged to use public transport and consider other modes of transport such as car-pooling (refer to Construction Traffic Management Plan).	Construction Manager

Management and Mitigation Measures	Responsibility
Precautions would be implemented to prevent the occurrence of smoke emissions or fumes from site plant or stored fuel oils.	Project Engineers
Areas of exposed earth would be minimised by staging construction activities and progressively landscaping and vegetating completed areas as the construction activities proceed, where feasible and reasonable.	Project Engineers
Excavation and Earthworks	
Working face and areas of open excavation to be kept to a minimum, where feasible and reasonable.	Project Engineers Site Supervisors
Water suppression to be used for active earthwork areas, stockpiles, gravel roads to reduce wind-blown dust emissions.	Site Supervisors
The amount of excavated material stored on site is to be minimised.	Project Engineers
All vehicles carrying loose or potentially dusty material to and/or from the site must be covered.	Site Supervisors Environmental Coordinators Project Engineers
Spoil handling, storage and transport	
Site access roads will be stabilised, and rumble grids and wheel washers used where appropriate, to minimise tracking of dirt.	Project Engineers Site Supervisors
Designated site tracks with spoil haulage vehicles to stay on the designated clean areas.	Project Engineers Site Supervisors
Any dirt tracked or spilt onto public roadways resulting from construction vehicles exiting the worksite(s), to be removed and appropriately disposed of using brooms or a street sweeper as required.	Site Supervisors
Trucks carrying spoil onto or off site are to be covered. Tailgates, under-rigs, wheels and towing apparatus of all trucks to be checked to ensure they are clean and secure, prior to leaving the worksite.	Project Engineers Site Supervisors
Stockpiles will be located away from sensitive receivers, where feasible and reasonable, and protected from the elements through barriers, covering, or establishing a cover crop.	Site Supervisors Project Environment Manager Project Engineers
Unsealed haul roads must be regularly damped down with fixed or mobile sprinkler systems.	Project Engineers Site Supervisors
Appropriate site speed limits will be imposed and signed on haul routes.	Senior Project Manager
Wheel-wash facilities or rumble grids to be provided and used near site exit points, and a street-cleaning regime would be implemented to remove any dirt tracked onto roads.	Project Engineers Site Supervisors

Management and Mitigation Measures	Responsibility
Longer term and/or heavily used haul roads to generally be sealed. The criteria for sealing haul roads would be defined during detailed construction planning. Sealed haul roads would be regularly cleaned.	Senior Project Manager
Extreme Weather Conditions	
Reprogramming of dust generating activities during site establishment is to occur during periods when control of dust cannot be achieved to reduce nuisance to neighbouring properties.	Site Supervisors Project Environment Manager Project Engineers

1.3.6 Monitoring, Auditing and Review

Systems Connect will regularly review the LWW sites to ensure compliance with this Procedure. A regular inspection program for air quality monitoring will be conducted as follows:

- Details of daily inspections undertaken by the Site Supervisor will be logged in their respective site diaries.
- Routine weekly inspections are to be conducted to monitor air quality and dust mitigation measures in active worksites. Weekly inspections will be documented in System Connect's electronic system.
- Environment inspections are to be completed by the Environment Coordinator and/or Superintendents/ Site Supervisor, and works are to be stopped or modified if:
  - Visible dust is leaving the site
  - Winds exceed 30 km/hr on average over 1hr

Monitoring the impacts from dust generating activities will be undertaken in conjunction with the prevailing and forecasted metrological conditions as detailed in Meteorological Monitoring section. This risk-based approach will highlight the effectiveness of implemented dust controls and the need for any additional measures.

An Air Quality non-compliance can generally be defined as a failure to comply with the Project Planning Approval and/or associated documentation.

Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this chapter will be updated if required.

1.3.7 Monitoring plant and vehicle emissions

Inspections of plant and construction vehicles will be undertaken to ensure that they have appropriate emission controls that are being maintained correctly. The following monitoring requirements will be implemented:

- The Plant Manager will ensure that mechanical inspections of plant and vehicles will be undertaken for all new plant/equipment coming on to site and regularly during use on the SMTF Expansion Works. This will ensure all equipment have appropriate emission control devices and are in good working order. The Plant Manager will maintain records of plant/ equipment and maintenance undertaken.

- Site Supervisors, Project Engineers and Environmental Coordinators will undertake visual inspections of plant and haulage trucks to ensure there is no unnecessary running of plant and vehicles or any excessive emission of fumes or smoke.

1.4 References

Key legislation relevant to air quality management includes:

- Protection of the Environment Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (Clean Air) Regulations 2010

Additional guidelines and standards relating to the management of air quality include:

- AS 3570 - Automotive Diesel Fuels
- Safe Work Australia 2013 - Workplace Exposure Standards for Airborne Contaminants
- BS6164:2001 - British Standard Code of Practice for Safety in Tunnelling in the Construction Industry
- WorkCover NSW 2006 - Code of practice: Tunnels under construction
- National Environment Protection Council 1998 - Ambient Air: National Environment Protection Measure for Ambient Air Quality
- NSW EPA 2016 - Approved Methods for the Modelling and Assessment of Air Pollutants in NSW

2. Soil, Surface Water and Ground Water Management

2.1 Scope

This chapter of the CEMP describes how Systems Connect will manage Soil, Water and Groundwater during delivery of LWW at SMTF to prevent or mitigate impacts to the environment and/or community.

Systems Connect will manage Soil, Water and Groundwater in accordance with the requirements of relevant Minister for Planning's Conditions of Approval (CoA), the Revised Environmental Mitigation Measures (REMMs), applicable legislation, the Environmental Impact Statements (EIS), contractual requirements including Schedule C1 Scope of Works and Technical Criteria (SWTC) of ITC 600. Further details about the above-mentioned compliance requirements are provided in Appendix C2 LWW Compliance Matrix.

A copy of this CEMP which includes processes for Soil, Water and Groundwater Management, must be kept at the worksite.

Activities conducted on the project that have the potential to impact soil and water quality and/or water quantity are provided below. These have been extracted from project risk assessments:

Table 28 Activities, Hazards and Risks associated with Soil, Surface Water and Groundwater

Project Activity	Environmental Hazard	Environmental Risk
Clearing and grubbing	Increased sediment load in run-off waters	Impacts to aquatic fauna and flora
Excavation	Damage to watercourse/waterway Interaction with groundwater	Impacts to aquatic fauna and flora
Concreting	Discharge of contaminated water	Soil and water quality negatively impacted
Storage and use of flammable and combustible liquids and solids	Spills	Soil and water quality negatively impacted
Dust suppression and testing and commissioning	Use of water	Unnecessary load on water resources contributing to resource availability
Dewatering	Uncontrolled discharge	Impact on water quality, and aquatic flora and fauna

2.2 Background

Management of soil, water and groundwater at SMTF is based on a review of the Staging Report for SSI 5931. The Staging report takes into consideration technical reports developed to inform the EIS for the Planning Approval in context with work already completed and the status of the site at the time of handover to the LWW Contractor.

Systems connect will occupy and further develop sections of the approve construction impact area of SMTF defined under SSI 5931.

The LWW will potentially impact soil, water and groundwater during the civil construction works. These potential impacts will require management and mitigation in accordance with relevant state legislation and government policies.

All construction works will occur within the existing operational facility. The construction site within the facility consist of a layer of engineered fill and natural ground. The fill consists of both site won and imported material. The site is underlain by the Blacktown Soil Landscape, these soils are moderately reactive, highly plastic and generally poorly drained. These alluvial soils are classified

as a high erosion hazard. Civil works required to install new track drainage is expected to intersect the existing sub soil layers below the engineered fill.

2.2.1 Contamination

All contamination identified during the development of the SMTF to date has been cleared. Given the previous and existing land use and previous contamination of the site there is some potential for Systems Connect to encounter contaminated material within the site e.g. asbestos and hydrocarbon contaminated spoil.

2.2.2 Groundwater

Concentrations of Contaminants of Potential Concern (CoPC) in groundwater samples analysed were generally typical of background concentrations. One borehole located immediately adjacent to Tallawong Road showed exceedances of the assessment criteria for Nickel, Zinc and Copper. It is highlighted that concentrations of Nickel and Copper are below the typical values for road run-off, and that concentrations of metals in groundwater meet the Sydney Water's trade waste acceptance standards. In the same borehole, concentrations of sodium, chloride and TDS were reported above the adopted criteria but are considered to be representative of slightly saline groundwater conditions typical in the formations in Sydney.

2.2.3 Acid Sulphate Soils

ASS risk mapping for the area undertaken by the former Department of Land and Water (DLWC) in 1998 show that the project lies within areas designated as 'no known risk' of ASS or PASS.

2.2.4 Soil Salinity

Soil salinity has been identified as a growing problem in the Western Sydney region. Salinity potential maps prepared by the former Department of Infrastructure, Planning and Natural Resources (DIPNR, 2002) identify the potential risk of soil salinity. Based on these maps, areas around First Ponds Creek show moderate salinity potential.

Geotechnical investigations and laboratory testing conducted by NRT contractors indicated the soil pH is ranging from 5.1 to 6.6 at a depth of <3.0m and 8.1 to 8.4 at a depth >3.0m with low sulphate and chloride and predominately low concentrations of magnesium. The test data indicates the groundwater has a pH of 6.0 with low sulphate concentrations. The concentration of chloride in the groundwater is 76 mg/l indicating a low level of salinity of the groundwater at the test location within SMTF boundary.

2.2.5 Groundwater Dependent Ecosystems

Groundwater dependent ecosystems (GDEs) are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater. GDEs can occur across both the surface and subsurface landscapes ranging in area from a few metres to many kilometers. Existing GDEs in the area of the proposed SMTF Expansion include surface water environments (as surface water is often linked to groundwater regimes) and forest zones occurring with ground water within close proximity to the ground surface. Given the scope of work for SMTF expansion it is not envisaged that delivery of LWW at SMTF will interact directly with Groundwater.

2.2.6 Rainfall and Evaporation

The proposed SMTF Expansion site's climate is characterised by high summer and autumn and low winter and spring rainfall with average monthly rainfall ranges from approximately 70 to 120 millimetres in the summer and autumn months to approximately 40 to 110 millimetres in the winter and spring months. Average monthly evaporation in the region ranges from less than 100 millimetres in the winter months to over 400 millimetres in the summer months.

2.2.7 Surface Water

2.2.7.1 Catchments

The proposed SMTF Expansion site is located within the First Ponds Creek catchment, part of the wider Hawkesbury and Nepean catchment. First Ponds Creek flows through a culvert beneath Schofields Road, approximately 300 metres west of the proposed SMTF Expansion site, before flowing northerly to its confluence with a tributary of First Ponds Creek (the tributary) approximately 250 metres to the north of Schofields Road. First Ponds Creek continues to flow north/north-west beyond the proposed SMTF Expansion site.

The south west edge of the proposed SMTF Expansion site borders the tributary, which drains a catchment area of approximately 55 hectares up-gradient of Schofields Road. First Ponds Creek drains a catchment area of approximately 300 hectares at the confluence with the tributary. The catchment currently consists of both rural and medium density residential areas. It is estimated that the catchment is currently approximately 11 % impervious which will most likely increase as the North Western Growth Centre expands.

2.2.7.2 Waterways

First Ponds Creek is a second order stream under the Strahler method and has a Category 2 classification. The First Ponds Creek Tributary is a first order stream.

2.2.7.3 Surface Water Quality

The Hawkesbury-Nepean River Environmental Monitoring Program (DECC 2009) describes current water quality within the wider Hawkesbury-Nepean River System as poor due to sewage treatment plant discharges as well as uncontrolled pollution from urban and agricultural runoff. Water quality monitoring in First Ponds Creek collected between 2008 and 2011 by Blacktown City Council at the Windsor Road Bridge in Riverstone (approximately 4.2 kilometres northwest and down gradient of the proposed SMTF Expansion site) was compared with ANZECC (2000) water quality trigger values for the protection of fresh water ecosystems in lowland rivers in eastern Australia. This data is summarised in Table 29 .

Table 29 Blacktown City Council water quality data summary

Parameter	Units	ANZECC 2000 Trigger Value or acceptable limits1	Dataset	Mean	Minimum	Maximum
Electrical Conductivity	uS/cm	125 – 2200	Sep 2008 – Sep 2011	1510	**0**	**3349**
Turbidity	NTU	6 – 50	Sep 2008 – Sep 2011	29	**1.1**	**83.2**
Dissolved Oxygen	%	90-110	Sep 2008 – Sep 2011	**78**	**38**	110
pH		6.5-8.0	Sep 2008 – Sep 2011	7.3	**5.7**	**8.8**
Total Nitrogen	ug/L	500	Oct 2010 – Sep 2011	**2008**	500	**4900**
Total Phosphorus	ug/L	50	Oct 2010 – Sep 2011	**427**	**80**	**990**

1 ANZECC 2000 default trigger values for physical and chemical stressors for south-east Australia for slightly disturbed ecosystems

2 **Bold** values indicate data which exceeds adopted trigger values or is outside the adopted acceptable limits

2.2.8 Flooding

Flood mapping for First Ponds Creek has been carried out by AECOM (2012) using hydrologic and hydraulic modelling software. This modelling is considered current and adequate for the purposes of the current study. The modelled flood extents adjacent to the proposed SMTF Expansion site include the 100 year Average Recurrence Interval (ARI) and Probable Maximum Flood (PMF), which are shown in *Figure 10*. The First Ponds Creek 100 year ARI flood extent is shown to have a variable width of between 140 to 250 metres adjacent to the proposed SMTF Expansion site with a typical width of approximately 160 metres. The 100 year ARI flood extent is wider than the riparian corridor and slightly encroaches within the south western corner of the SMTF Expansion site and runs along the north western boundary of the SMTF Expansion site. The PMF extent ranges in width between approximately 200 and 300 metres adjacent to the proposed SMTF Expansion site with a typical flood width of 210 metres. The PMF has been shown to cross into the proposed SMTF Expansion site at the north western and south western extents of the SMTF Expansion site.

Figure 10 Flood mapping for First Ponds Creek

Construction equipment (or excess material) will be located within the construction compound areas or open construction areas which are outside flood prone areas. Stockpile areas will also be located adjacent to the site compound as shown in the SEP (refer to Appendix C5 Site Environment Plans) and located outside the PMF.

2.3 Potential Climate Change Impacts on Flooding

Due to the broad nature of the floodplain relative to magnitude of flow, flood levels are relatively insensitive to increased rainfall intensities (AECOM 2012). It is predicted that a 30% increase in rainfall intensity as a result of climate change would only lead to an increase of between 0.04 and 0.17 meters in the 100 year ARI peak flood level.

2.4 Management Strategy

2.4.1 Project Objectives

Systems Connect's objectives for management of Soil, Water and Groundwater during delivery of scope at SMTF are aligned with the CEMF which states that, the following management objectives will apply to construction:

- Reduce the potential for drawdown of surrounding groundwater resources
- Prevent the pollution of groundwater through appropriate controls; and

- Reduce the potential impacts of groundwater dependent ecosystems
- The following soil and water management objectives will apply to construction:
- Minimise pollution of surface water through appropriate erosion and sediment control;
- Maintain existing water quality of surrounding surface watercourses; and
- Source construction water from non-potable sources, where feasible and reasonable.

Based on the requirements defined at the above sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions:

Table 30 LWW targets for Soil, Water and Groundwater

Metric/Measure	Objective	Timeframe	Accountability
Incidents of environmental harm as a result of discharge off site	Zero	At all times	Project Director
No complaints from the Regulators as a result of the works undertaken	Zero Complaints	At all times	Project Director

2.4.2 Controls Used to Manage Soil, Water and Groundwater Quality

Controls that are adequate to minimise water use, to ensure compliance, and to reduce risk to the lowest acceptable rating achievable are implemented before any relevant works commence. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Controls used on this project are detailed in the sections below.

Procedures have also been developed to address for management of soil, water and ground water. (refer to appendix C8).

- Water Management (dewatering) (SMCSWLWC-SYC-1NL-EM-PRO-000384) – includes water treatment for discharge
- Spill Management (SMCSWLWC-SYC-1NL-EM-PRO-000387)
- Unexpected Finds Soil Contamination and Asbestos (SMCSWLWC-SYC-1NL-EM-PRO-000388)
- Erosion and Sediment Control Management (SMCSWLWC-SYC-1NL-EM-PRO-000390)
- Contingency Groundwater Monitoring and Management (SMCSWLWC-SYC-1NL-EM-PRO-000398)
- Spoil Classification Reuse and Recycling (SMCSWLWC-SYC-1NL-EM-PRO-000461)

All site personnel will receive induction training about the management strategy of Soil, Water and Groundwater at SMTF construction site, including:

- Legislative requirements (POEO Act, EPL etc.) including Section 120;
- Erosion and sedimentation control planning and hold points;
- Duty to notify of environmental harm (or the potential for it) including chain of reporting;
- Spill containment and management procedure;
- Storage and use of hazardous substances;
- Water Reuse and Discharge procedure;
- Unexpected Soil Contamination procedure;
- Maintenance of environmental controls (e.g. erosion and sediment controls).

Toolbox training will be held regularly during site establishment and construction operations and will also reinforce and reiterate information from inductions.

Detailed training will be provided to key personnel regarding erosion and sediment control. This training will include:

- Legislation as it applies to erosion and sediment control;
- Basics of soil management, handling and stockpiling;
- Sediment basin management and dewatering;
- Appropriate use, installation and maintenance of various erosion and sediment control techniques;
- Effective site rehabilitation and stabilisation;
- Use of erosion control techniques such as geotextiles, organic fiber mats, mulches and soil polymer stabilisers;
- Preparing, reading and interpreting Erosion and Sediment Control Plans.

2.4.3 Erosion and Sediment Control

Site-specific Erosion and Sediment Control Plans (ESCPs) will be progressively developed for each of the SMTF Expansion Worksites. The Indicative Erosion and Sedimentation Control Strategy will be used as a guide by Site Environmental staff in conjunction with Project Engineers and Construction staff in developing and implementing ESCPs. All ESCPs will require sign-off by the Environment Coordinator and Site Supervisor prior to implementation. The Soil Conservationist will conduct regular reviews of all ESCPs developed for the SMTF Expansion to ensure they meet best-practice (i.e. the NSW Blue Book).

An Erosion and Sediment Control Procedure has been developed for LWW (refer to appendix C8).

Any exclusion zone requirements to limit disturbance related to surface water should be included in the ESCP. An exclusion zone will also be maintained around drainage lines on site.

Any areas disturbed during construction will be remediated in accordance with the Design and Landscape Plan or the Blue Book and as soon as feasible.

2.4.4 Sediment Basins

Two sediment basins are currently located on site and have already been designed and built to capture water runoff from the whole site area once the construction works are finalized. These basins are managed through the Operational Environmental Management Plan (OEMP) by the current SMTF operator.

A temporary sediment basin will be built on site to manage water runoff from the LW construction areas during SMTF expansion works. Design calculations for this basin will be undertaken in accordance with the Blue Book. Any modifications required will be undertaken in consultation with a Soil Conservationist and in accordance with the design calculations. The intention would be to utilise any runoff contained in this temporary basin for dust suppression to maintain sufficient capacity in the basin. Where immediate emptying of the basin is required in anticipation of a rainfall event a water treatment system will be utilised to treat water to required standards for discharge to stormwater systems or waterways. Treatment will involve removal of coarse sediment, chemical flocculation and pH correction. Should the temporary basin be insufficient to contain site runoff supplementary sediment basins or sumps will be constructed and utilised.

A draft version of the Site Erosion and Sediment Control Plan (refer to Appendix C5) provides further details of the planned temporary basin.

2.4.5 Sediment Basin and/or Excavation Discharge Criteria

Testing and where necessary treatment of any construction water from sediment basins and/ or excavations will be undertaken in accordance with the aspect specific Water Management Procedure.

Water quality will be sampled prior to any controlled discharges from the SMTF Expansion Works to confirm that the discharge criteria as detailed in *Table 31* are met prior to the controlled discharge. Discharge of sediment basins and excavations will occur via a permit process as described in the Water Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000384).

The design rainfall event for the sediment basins are 32.2mm (85th percentile) or 24.6mm (80th Percentile). It is assumed that the basins will overflow in an event of more than 32.2mm/24.6mm over any 5 day event.

It should also be noted that other types of sediment controls may also be overwhelmed during such an event and that repair work will be undertaken when it has been determined by the Site Supervisor that it is safe to do so.

Table 31 Offsite discharge water quality criteria

Parameter	Measurement and Assessment			Discharge Criteria[1]
	Percentile Concentration Limit	**Sample Method & Frequency**	**Units**	
pH	100	Probe/ grab sample Prior to discharge	pH	6.5-8.5
Total Suspended Solids	100	Probe/ grab sample Prior to discharge	mg/L	<50
Oil and Grease	100	Visual Prior to discharge	mg/L	<10 and no visible trace

[1]*Criteria based on the ESCP*

2.4.6 Groundwater Management

Groundwater is not expected to be intercepted or to require management during SMTF Expansion works. The Contingency Groundwater Monitoring and Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000398) has been developed to address any unexpected interaction with groundwater.

Construction activities are not expected to impact the groundwater table or the local groundwater hydrology. Potential impacts on groundwater quality were considered and managed through the site Erosion and Sediment Control Plan (Appendix C5) as well as the spill management procedure (SMCSWLWC-SYC-1NL-EM-PRO-000387).

2.4.7 Chemicals, Refuelling and Spill Management

Chemicals, hazardous substances and dangerous goods will be stored and used onsite in accordance with the Chemicals Management Procedure and the following protocols:

- Hazardous substances will be stored onsite in lockable containers, in their original receptacles.
- All chemicals and fuels will be clearly labelled and will have Safety Data Sheets affixed or available nearby.
- All chemical storage facilities will be designed and constructed in accordance with:
    - all relevant Australian Standards
    - for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
    - Storing and Handling Liquids: Environmental Protection - Participants Manual
    - Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation
    - Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin (Environment Protection Authority, 1997
    - storage locations for non-liquids must be identified that are away from stormwater drains, easily accessible for maintenance and spill clean-up in the event of a rupture
    - bunding maintenance must be undertaken to ensure capacity is maintained

In the event of an inconsistency between the requirements listed from (a) to (c) the most stringent requirement will prevail to the extent of the inconsistency

- Bunds will be constructed in such a way as to reduce the accumulation of rainwater and a blind sump installed for easy dewatering. Dewatering of bunds will be undertaken in accordance with the Water Reuse and Discharge Management Procedure.
- Mobile bunds to be inspected after rain and where required dewatered in accordance with the Water Reuse and Discharge Management Procedure.
- Storage and handling of flammable or combustible liquids will be in accordance with OEH guidelines for Bunding and Spill Management, as well as AS 1940-1993 – The Storage and Handling of Flammable and Combustible Liquids.
- An up-to-date register of hazardous substances will be kept onsite at all times.
- Hazardous substances will only be used onsite as required, in accordance with the manufacturer/supplier instructions. Use inside tunnels will be minimised as much as possible.
- Any substances with the potential to impact water quality will be assessed by the Project Environment Coordinator to determine what environmental safeguards or procedures are required for that substance to minimise the risk of environmental harm.
- The use of any hazardous substance that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds.
- Any refueling undertaken on site shall be undertaken in designated areas only. Where this is not practicable i.e. large immobile plant, small equipment items such as pumps, small generators etc. refueling will be undertaken away from stormwater drains. Appropriate bunds or drip maps will be used for refueling and a fully stocked spill kit will be on site during refueling.
- All spills or leakages will be immediately contained and absorbed.
- In the event of a spill the spill will be managed in accordance with the Spill Management Procedure and the Emergency Management Plan.
- All dangerous goods stored at the site would be below the screening thresholds set out in Applying SEPP 33 for potentially hazardous development.

2.4.8 Contamination Management and Unexpected Finds Protocol

Contaminated soils are not expected to be encountered during the SMTF Expansion works. Any potentially contaminated soils will be managed as per the Unexpected Finds Soil Contamination and Asbestos (Refer to Appendix C8). The procedure includes provisions for the following:

- Induction and training
- Observations during excavation for:
  - Odorous or stained soil
  - Buried chemical drums or containers
  - High proportion of waste materials or building debris
  - Tarry or ashy material
  - Brightly or unusually colored material
- Stopping work and notifying the site Environmental Representative when potential contamination is uncovered
- Contacting a contaminated land consultant to assess and, if required, to determine an appropriate management strategy.

In case any contaminated soil requires to be stockpiled on site, this will be done in a way that minimises the risk of contaminants reaching the water table as described in Section 5.4.7.

2.4.9 Soil Salinity

The scope of works by Systems Connect for SMTF Expansion does not include excavation of soils in areas of moderate salinity adjacent to first Ponds Creek. If required, further additional investigation into the deeper soils and/or groundwater (if intersected) would be undertaken around First Ponds Creek.

As earthworks during SMTF expansion stage are not expected to exceed 2.9 meters of depth and considering the testing results described in Section 2.2.4, soil salinity is expected to be low risk.

Should any soil salinity be identified, appropriate soil salinity mitigation measures will be adopted in accordance with Western Sydney Regional Organisation of Council's Draft Salinity Code of Practice and the former Department of Infrastructure, Planning and Natural Resources' Guidelines to Accompany Map of Salinity Potential in Western Sydney (2002). If required, a plan will be developed to manage soil salinity areas unexpectedly identified.

2.5 Monitoring, Auditing and Review

Systems Connect will regularly review the LWW to ensure compliance with this procedure. A regular inspection program for soil and water will be conducted as follows:

- Details of daily inspections undertaken by the Site Supervisor will be logged in their respective site diaries.
- Routine weekly inspections are to be conducted to monitor erosion and sediment controls in active worksites. Weekly inspections will be documented in Systems Connect electronic system.
- Environmental inspection to be completed following significant rainfall events. Inspections following significant rainfall (i.e. > 10 mm/ 24 hours) by the Environment Coordinator and/or Superintendents/ Site Supervisor.

Where monitoring or inspections determine non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in the Systems Connect system. Further details of corrective actions procedures are provided in Elements and Expectations section of this CEMP.

A soil and water non-compliance can generally be defined as a failure to comply with the Project Planning Approval conditions.

Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this chapter will be updated if required.

The quantity of water used from potable supplies or water obtained under an extraction licence or other regulatory authority or agreement, including recycled water obtained from outside the project, will be captured and reported in JDE. Where the information is not available from an invoice, other processes will be put in place to obtain the data and the information entered manually.

2.5.1 Meteorological Monitoring

Meteorological data adequate to allow the interpretation of monitoring data to assess compliance and identify potential non-compliances will be collected. Data will be sourced from an on site weather station.

2.5.2 Water Quality Monitoring

Water quality monitoring will be undertaken for active discharge (pumping) of ponded water to watercourses and stormwater drainage to ensure compliance with discharge criteria defined in Section 2.4.5. Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

There is no formal water quality monitoring program required for LWW at SMTF as per the Sydney Metro Trains Facility -Staging Report May 2019). Water quality will be monitored to ensure discharge from the construction impact area is in accordance with regulatory guidelines and to identify potential non-compliances before they occur. SC will liaise and coordinate with MTS to provide any monitoring data requested.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

2.6 References

Key legislation relevant to soil, water and groundwater management includes:

- Environmental Planning and Assessment Act 1979
- *Contaminated Land Management Act 1997*
- *Protection of the Environment Operations Act 1997*
- *Water Management Act 2000*

The POEO Act defines waters as the whole or any part of:

- Any river, stream, lake, lagoon, swamp, wetlands, unconfined surface water, Natural or artificial watercourse, dam or tidal waters (including the sea), or
- Any water stored in artificial works, any water in water mains, water pipes or water channels, or any underground or artesian water.

Additional guidelines and standards relating to the management of soil and water, that have been considered and incorporated into the procedure include:

- Landcom (2009). Managing Urban Stormwater - Soils and Construction Volumes 1 and 2
- DECC (2008). Managing Urban Stormwater: Soils and Construction. Volume 2D: Main Road Construction. (Volume 2D of the 'Blue Book').
- ANZECC (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality (collectively known as the 'ANZECC Guidelines').
- ANZECC (2000). Australian and New Zealand Guidelines for Water Quality Monitoring and Reporting (collectively known as the 'ANZECC Guidelines').
- ASSMAC (1998). Acid Sulfate Soil Manual. Acid Sulfate Soil Management Advisory Committee, NSW.
- Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin (Environment Protection Authority, 1997
- Western Sydney Regional Organisation of Council's Draft Salinity Code of Practice;
- Former Department of Infrastructure, Planning and Natural Resources' Guidelines to Accompany Map of Salinity Potential in Western Sydney (2002).

3. Heritage Management

3.1 Scope

This chapter describes how Systems Connect will manage any potential impacts on Heritage during the delivery of Line Wide Works (LWW) at the Sydney Metro Trains Facility (SMTF).

The present Heritage Management chapter meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoA's, REMMs and the CEMF requirements. The below sections also address applicable legislation and contractual requirements.

Activities conducted on the project that have the potential to impact heritage values are listed below.

Table 32 Activities, Hazards and Risks associated with Heritage

Project Activity	Environmental Hazard	Environmental Risk
Worksite establishment – civil works for compound layout	Exposing unexpected heritage artifacts	Damage heritage artifacts
Earthworks – trenching and spoil management	Encountering unexpected heritage finds	Damage heritage artifacts

The heritage management strategy has been developed to address the likelihood of encountering artefacts on site and the consequences for management of artefacts by Systems Connect, and includes;

- A summary of site risk;
- Key mitigation measures;
- Training;
- Inspection, monitoring and reporting requirements.

3.2 Background

This procedure has been developed following a review of the Staging Report for SSI 5931. The Staging report takes into consideration technical reports developed to inform the EIS for the Planning Approval in context with work already completed and the conditions of the site at the time of handover to Systems Connect.

The LWW will potentially impact heritage during the civil construction works. These potential impacts will require management and mitigation in accordance with relevant state legislation and government policies.

Systems Connect will occupy and further develop sections of the approved construction impact area of SMTF defined under SSI 5931.

All heritage investigations, clearance and reporting required under SSI 5931 has been completed by other contractors prior to Systems Connect taking control of the site. There are no known heritage sites within the LWW construction impact area.

The LWW construction site within the facility consist of a layer of engineered fill and natural material. As such the is some (limited) potential for artefacts to be encountered during construction either within the imported material.

3.3 Management Strategy

3.3.1 Objectives

Systems Connects objectives for management of heritage during delivery of scope at SMTF are aligned with the CEMF which states that, the following heritage management objectives will apply to construction:

- Embed significant heritage values through any architectural design, education or physical interpretation;
- Minimise impacts on items or places of heritage value;
- Avoid accidental impacts on heritage items; and
- Maximise worker's awareness of indigenous and non-indigenous heritage.

Based on the requirements defined at the above sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions:

Table 33 Heritage LWW targets

Metric/Measure	Objective	Timeframe	Accountability
Incidents of damage to heritage items, places or values	Zero	At all times	Project Director
No complaints from the Regulators or traditional owners as a result of the works undertaken	Zero Complaints	At all times	Project Director

3.3.2 Controls Used to Manage Heritage

Controls that are adequate to manage Heritage and to reduce risk to the lowest acceptable rating achievable are implemented before any relevant works commence. The heritage mitigation measures to be implemented during the SMTF Expansion Works are listed in Table 34 below:

Table 34 Controls used to manage Heritage

Control	Accountability
Construction Area Plan and Work pack includes requirements for management of heritage	Construction Manager
Unexpected Finds Heritage and Human Remains Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000389) has been developed for management of heritage artefacts	Environmental Manager
Formal documented engagement will be maintained with relevant heritage groups or traditional owners throughout the project.	Environmental Manager
Training	
Inductions must include: • Information on potential heritage of the site • Requirements for management of unexpected finds of potential artefacts • Hold points (stop works in the event of an unexpected find of a potential artefact)	Environmental Manager

Toolbox training will be conducted on management of heritage. This will reinforce and reiterate information from inductions.	Environmental Coordinators

An Unexpected Heritage Finds and Human Remains Procedure has been developed to manage the risk to impact on Heritage at SMTF (refer to Appendix C8 Aspect Specific Procedures). The procedure will be available at all sites during construction works, at all times. The procedure outlines:

- Training via inductions and toolbox talks
- Management of potential heritage finds
- Consultation
- Assessment of the findings
- Reporting

3.4 Monitoring, Auditing and Review

Systems Connect will regularly review the LWW sites to ensure compliance with legal and contract requirements and to identify potential non-compliances before they occur, as below:

- Site inspection checklist will include reference to heritage artefacts
- Details of inspections undertaken by the Site Supervisor will be logged in their compliance report

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in the Synergy. Further details of corrective actions procedures are provided in Elements and Expectations section of this CEMP.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this chapter will be updated if required.

3.5 References

The key NSW legislation relevant to heritage management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Heritage Act 1977
- National Parks and Wildlife Act 1974 (NPW Act)

The principles of the Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999) provide the foundation for all assessments of Aboriginal and historic heritage.

Additional guidelines and standards relating to the management of historic heritage include:

- NSW Heritage Manual (Heritage Office and Department of Urban Affairs & Planning 1996)
- Altering Heritage Assets (Heritage Office and Department of Urban Affairs & Planning 1996)
- Heritage Curtilages (Heritage Office and Department of Urban Affairs & Planning 1996)
- Conservation Areas (Heritage Office and Department of Urban Affairs & Planning 1996)
- 12 NWRLOTS-NRT-PRD-PM-PLN-000878-06
- Photographic Recording of Heritage Items Using Film or Digital Capture (Heritage Office, Department of Planning, 2006)
- Assessing Significance For Historical Archaeological Sites and ‘Relics’ (Heritage Branch, Department of Planning, 2009)

- Historical Archaeology Code of Practice (Heritage Office, Department of Planning 2006)
- Skeletal Remains; Guidelines for Management of Human Skeletal Remains (Heritage Office 1998)
- Managing risk with heritage trees (Heritage Office 2010)
- Street trees in NSW: Guidelines for conservation and management (Department of Planning 1990)
- Additional guidelines and standards relating to the management of Aboriginal heritage include:
- Aboriginal cultural heritage consultation requirements for proponents (DECCW 2010)
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010)
- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)
- Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC 2005).

4. Flora, Fauna and Biodiversity

4.1 Scope

The Flora and Fauna Management Procedure describes how Systems Connect will manage any potential impacts on flora and fauna during the delivery of Line Wide Works (LWW) at the Sydney Metro Trains Facility (SMTF).

This procedure meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoA's, REMMs and the CEMF requirements.

This Procedure also addresses, applicable legislation and contractual requirements.

Activities conducted on the project that has the potential to impact flora and fauna is provided below.

Table 35 Activities, Hazards and Risks associated with Flora and Fauna

Project Activity	Environmental Hazard	Environmental Risk
Earthworks and soil movements in and out of site	Ground disturbance	Spread of weeds, pests and pathogens.
Worksite establishment – civil works for compound layout, vegetation clearance.	Unexpected native fauna and flora encountered	Disturbance of native fauna and flora habitats
General construction activities and handling of fuels and hazardous materials	Intrusion in areas of grassland and waterways	Contamination of existing habitats affecting surrounding flora and fauna

4.2 Background

This procedure has been developed following a review the Staging Report for SSI 5931. The Staging report takes into consideration technical reports developed to inform the EIS for the Planning Approval in context with work already completed and the status of the site at the time of handover to Systems Connect.

Systems connect will occupy and further develop sections of the approved construction impact area of SMTF defined under SSI 5931.

All flora and fauna investigations, clearance and reporting required under SSI 5931 has been completed by other contractors prior to Systems Connect taking control of the site. There are no known flora and fauna sites within the LWW construction impact area.

4.3 Management Strategy

4.3.1 Project Objectives

Based on the requirements defined at Section 1.1.2 (above), the findings of project risk management processes and the potential impacts to the community, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions:

Table 36 Fauna and Flora Management LWW targets

Metric/Measure	Objective	Timeframe	Accountability
Number of native fauna injured	Zero	At all times	Project Director
Area of vegetation cleared without approval	Zero	At all times	Project Director
Number of actions taken by regulators and/or client	Zero	At all times	Project Director

4.3.2 Controls Used to Manage Flora & Fauna

Controls that are adequate to manage flora & fauna risks and to reduce risk to the lowest acceptable rating achievable are implemented before any relevant works commence. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Controls used on this project include:

Table 37 Flora & Fauna controls

Control	Accountability
Prior to any disturbance, clearing or grubbing activities in any locations the following must be in place; • A Land Disturbance Permit (or equivalent) • No-go Zones for native or significant flora and fauna must be established, fenced/flagged and sign posted prior to commencement of clearing. • A wildlife catcher/spotter or the SC Project Environmental Representative needs to conduct a search for any wildlife that may need to be removed and relocated.	Environmental Manager
Pre-clearing surveys will be undertaken to identify the presence of: • Hollow bearing trees and other habitat features; • Threatened flora and fauna.	Environmental Manager
If a threat to an animal is evident onsite you must contact your supervisor and/or SC Project Environmental Representative immediately. Works may need to cease if the animal is in danger or harmed until it has been relocated.	Site Superintendent
The site speed limits must be obeyed at all times, especially areas where vehicle/fauna interactions are identified as high risk.	Site Superintendent
All plant should remain on haul roads as much as possible so as to minimise damage to vegetation.	Site Superintendent
No-go zones must be obeyed at all times without a Permit to Enter No-go Zone. Any damage to no-go zone fencing or signage must be reported to your supervisor or SC Project Environmental Representative immediately.	Site Superintendent
Cleared/removed vegetation will be beneficially used either on or off the project where possible (e.g. for habitat, chipped for mulch and reused).	Construction Manager
Where possible revegetation activities will preferentially use only species that are indigenous to the area.	Design Manager
Boundaries of allowable disturbance areas on the project are clearly marked and delineated.	Construction Manager
Weed Management	
To prevent establishment or spread of weeds: • Machinery will be cleaned before entering work sites;	Site Superintendent

Control	Accountability
• Weeds will be removed from within any mapped native vegetation areas at least 10m from the edge of the construction footprint (where access allows); • Cleared weed material will be disposed of at a site licensed to receive green waste.	
Training	
Induction must include information about: • Flora and fauna on site • Requirements for management of unexpected finds • Sensitivity of threatened fauna species (birds and bats) • Weed control • Emergency and incident response / spill management (chemical spills, fire, injured fauna).	Environmental Manager
Toolbox training on management of Fauna and Flora that will reinforce and reiterate information from inductions.	Environment Coordinators
Training in the Ecological Unexpected Finds Procedure developed for the management of Flora and Fauna encounters, including hold points.	Environmental Manager

The Flora and Fauna Unexpected Finds Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386) has been specifically developed to address the risks associated with management of flora and fauna at the site.

The procedure will be available at all sites during construction works, at all times. The procedure outlines:

- Training via inductions and tool box talks
- Vegetation clearance process
- Stop works procedure in the event of unexpected find
- Fauna handling
- Notification, consultation and reporting requirements in the event of an unexpected find of a potential or actual flora and fauna

4.4 Monitoring, Auditing and Review

Systems Connect will regularly review the LWW sites to ensure compliance with legal and contract requirements and to identify potential non-compliances before they occur, as below:

- Site inspection checklist will include reference to flora and fauna;
- Details of inspections undertaken by the Site Supervisor will be logged in their respective site diaries.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in LWW electronic system. Further details of corrective actions procedures are provided in Elements and Expectations section of this CEMP.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

Audits will be performed in accordance with the Elements and Expectations (Part B) of this CEMP and this procedure will be updated if required.

4.5 References

Key legislation relevant to air quality management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act)

- National Parks and Wildlife Act 1974 (NPW Act)
- Biodiversity Conservation Act 2016 (BC Act) (the BC Act began on 25 August 2017 and replaces the Threatened Species and Conservation Act 1995 and amendments (TSC Act)) and Native Vegetation Act 2003 (NV Act))
- Noxious Weeds Act 1993 (NW Act)
- Biosecurity Act 2015 (replaced Pesticides Act 1999)
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

Additional guidelines and standards relating to the management of flora and fauna include:

- A Field Manual for the Surveying and Mapping of Nationally Significant Weeds (McNaught, I., Thackway, R., Brown, L. and Parsons, M 2008)
- Asparagus Weeds Best Practice Management Manual
- Australian Standard 4970–2009 Protection of trees on development sites
- Best Practice Guidelines for Blue Gum High Forest (DECC 2008)
- Best Practice Guidelines Sydney Turpentine-Ironbark Forest (DECC 2008)
- Best Practice Management Guidelines for *Phytophthora cinnamomi* within the Sydney Metropolitan Catchment Management Authority Area (Suddaby, T. and Liew, E. 2008).
- Control Manual for Lantana (Van Oosterhout 2004)
- Cumberland Plain Recovery Plan (DECCW 2011)
- Guidelines for Threatened Species Assessment (DEC and Department of Primary Industries, 2005)
- Noxious and Environmental Weed Control Handbook, 4th Edition, NSW Industry & Investment Management Guide
- Protection and Restoring Blue Gum High Forest (DECC 2008)
- Recovering Bushland on the Cumberland Plain. Best practice guidelines for the management and restoration of bushland (DECC 2005)
- Survey Guidelines for Australia's Threatened Frogs (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010)
- Threatened Biodiversity Survey and Assessment Guidelines (working draft, DEC, 2004)
- Weed Management Guide, Weed of National Significance Madiera Vine (*Andrederacordifolia*) Caring for Our country (http://www.weeds.org.au/WoNS/madeiravine/)

5. Waste, Spoil and Recycling Management

5.1 Scope

The Waste, Spoil and Recycling Management Procedure describes how Systems Connect will manage impacts associated with construction waste and recycling during the delivery Line Wide Works (LWW) at the Sydney Metro Trains Facility (SMTF)

This procedure meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoAs, REMMs and the CEMF requirements.

This Procedure also addresses applicable legislation and contractual requirements.

Activities conducted on the project that have the potential to generate waste are provided below. These have been extracted from the project work flow, including activities and materials used.

Table 38 Activities, Hazards and Risks associated with Waste, Recycling and Spoil Management

Project Activity	Environmental Hazard	Environmental Risk
Construction, testing and commissioning	Generation of waste product	Soil and water contamination Waste going to landfill instead of recycling
Plant maintenance	Generation of waste oil	Soil and water contamination
Operation and maintenance of offices, crib huts and camp facilities	Generation of general wastes	Unnecessary load on landfill availability
Waste storage and stockpiling	Litter Pests from putrescible waste Odour	Waste litter entering environment outside the project site Spread of vermin causing disruptions in ecosystem Social impacts in surrounding community
Spoil stockpiling	Sediment laden runoff	Water contamination
Earthworks	Spoil excavation	Increased erosion potential Spread of weeds

5.2 Background

The LWW will generate a number of different types of waste and spoil during the civil construction works which will require management and disposal in accordance with relevant state legislation and government policies.

Potential waste streams to be generated during delivery of the works include:

- Spoil from general earthworks activities and trenching works
- General construction waste including concrete waste, timber formwork, scrap metal, steel, cable and packaging materials.

- General waste from office and crib rooms including general non-recyclable and putrescible waste (such as food waste from rubbish bins), recyclable wastes such as plastics and aluminium cans, office waste including paper, plastics and printer cartridges.
- Waste from operation and maintenance of vehicles and machinery including adhesives, lubricants, waste fuels and oils, engine coolant, batteries, hoses and tyres.
- Wastewater from other sources including dust suppression and wash down and grey water from construction compounds, and testing and commissioning.

Waste management on the LWW will be prioritised according to the principles of the resource management hierarchy embodied in the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

5.3 Management Strategy

5.3.1 Project Objectives

Systems Connect's objectives for management of waste, spoil and recycling during delivery of scope at SMTF are aligned with the CEMF which states that, the following management objectives will apply to construction:

- Minimise waste throughout the project life-cycle
- Waste management strategies will be implemented in accordance with the Waste Avoidance and Resource Recovery Act 2001 management hierarchy as follows:
  - Avoidance of unnecessary resource consumption
  - Resource recovery (including reuse, reprocessing, recycling and energy recovery); and
  - Disposal.
- Targets for the recovery, recycling or reuse of construction waste, and beneficial reuse of spoil will be provided by the Principal Contractor.
- Minimise spoil generation where possible;
- The project mandate 100% reuse or recycling (on or off-site) of usable spoil;
- Spoil will be managed with consideration to minimising adverse traffic and transport related issues;
- Spoil will be managed to avoid contamination of land or water;
- Spoil will be managed with the consideration of the impacts on residents and other sensitive receivers; and
- Site contamination will be effectively managed to limit the potential risk to human health and the environment.

Based on the requirements defined at previous sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set for managing waste on the project. Any deviance from the targets will result in Project Management immediately implementing corrective actions.

Table 39 Waste Management LWW targets

Metric/Measure	Objective	Timeframe	Accountability
% of waste quantified in waste management reports	100%	At all times	Environmental Manager
% of regulated/hazardous wastes for which transfer certificates are retained	100%	At all times	Environmental Manager
Number of enforcement notices and penalties received from regulators and/or client	Zero	At all times	Environmental Manager
Recycle or reuse of inert and non-hazardous construction and demolition recyclable waste, excluding spoil	95%	At all times	Environmental Manager

Metric/Measure	Objective	Timeframe	Accountability
Recycle or reuse of office waste	60%	At all times	Environmental Manager
Beneficially reuse of reusable spoil (on or offsite)	100%	At all times	Environmental Manager

5.4 Controls Used to Manage Waste

Controls that are adequate to ensure compliance and to reduce risk to the lowest acceptable rating achievable are planned before any relevant works commence. Elimination of the waste is the first preference of control, followed by reuse and recycling. Controls used on this project are detailed in the sections below.

The following aspect specific procedures have been developed to manage waste, spoil and recycling processes during construction. The procedures will be available at all sites during construction works, at all times.:

- Waste Management and Recycling Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000399)
- Spoil Classification Reuse and Recycling Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000461)

All site personnel will receive induction training about Waste, Spoil and Recycling management, including:

- Waste segregation and disposal;
- Spoil classification and management;
- Importance of appropriately managing waste.

Toolbox training will be held regularly during site establishment and construction operations and will also reinforce and reiterate information from inductions. Toolboxing will be undertaken on the abovementioned Procedures.

5.4.1 Waste Hierarchy

During delivery of the LWW waste will be prioritised according to the principles of the resource management hierarchy embodied in the WARR Act. As listed below:

1. Avoidance of unnecessary resource consumption;
2. Resource Recovery (including reuse, reprocessing, recycling and energy recovery);
3. Disposal.

Incorporation of the Waste Classification Guidelines in the process for materials classification prior to despatching the waste offsite will ensure that all materials are correctly managed and that the maximum quantities of materials will be available for reuse and recycling either on or off site. Use of the guideline will also ensure that waste is directed to the correct facility for processing.

5.4.2 Waste Classification

All liquid and non-liquid waste generated on the site must be assessed and classified. Waste Classification will be undertaken in accordance with Waste Classification Guidelines, Part 1: Classifying Waste (EPA November 2014).

Where spoil is proposed to be taken off site, classification of spoil will be undertaken in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA, November 2014). Sampling and analysis of spoil will be undertaken in accordance with the guidelines, and any applicable general exemption under the Protection of the Environment Operations (Waste) Regulation 2005. The type of spoil will be classified as follows:

- Virgin Excavated Natural Material (VENM) – VENM may require additional analysis to determine specific characteristics prior to acceptance for use at some sites. Specific analysis parameters will be determined in consultation with the intended receiver prior to removal from site

- Excavated natural material (ENM) – Material that does not meet the definition of VENM will be assessed in accordance with the General Exemption 'Excavated natural material exemption 2012'
- Waste material as defined in clause 49 of Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act):
  - Special waste
  - Liquid waste
  - Hazardous waste
  - Restricted solid waste
  - General solid waste (putrescible)
  - General solid waste (non-putrescible).

5.4.3 Waste Avoidance and Minimisation

5.4.3.1 Reuse and Recycling Initiatives

To ensure the highest percentage of demolition and construction waste is re-used or recycled, Systems Connect will engage with subcontractors to emphasise System Connect's waste management and diversion targets. Mixed construction waste will be sorted for recyclables on site where feasible or off site (at recycling yard) when using mixed recycling bins. Paper and cardboard recycling will be contained separately from other waste materials.

Site facilities and existing assets will be reused where practical between LWW teams throughout the duration of LW. Office waste receptacles i.e. printer cartridges, paper and cardboard, mixed recyclables, coffee pods etc. will be provided to maximise office waste recycling. Cleared/removed vegetation will be beneficially used either on or off the project where possible (e.g. for habitat, chipped for mulch and reused). Materials such as (noise hoarding, site fencing, and so on) will be reused or shared, between sites and between construction contractors where feasible and reasonable.

Systems Connect will continue to investigate opportunities for recycling and reuse of other non-putrescible general solid wastes, other than construction and demolition waste, and office waste. This may include onsite reuse of green waste, and recycling of items such as soft plastics, used oil, cigarette butts, and disposable ear plugs. Spoil reuse opportunities will be sought and maximised, targeting 100% reuse of reusable spoil generated during delivery of the LW.

5.4.3.2 Purchasing and Procurement

Reusability and capacity for recycling will be considered in the selection of construction materials and other products purchased for the LWW project. Bulk purchases will be preferred to minimise packaging received on site and precise quantities will be ordered to prevent ordering an excess of materials.

5.4.3.3 Hazardous Waste

As per the EPA's Waste Classification Guidelines the following waste types (other than special waste or liquid waste) have been pre-classified by the EPA as 'hazardous waste':

- Containers, having previously contained a substance of Class 1, 3, 4, 5 or 8 within the meaning of the Transport of Dangerous Goods Code, or a substance to which Division 6.1 of the Transport of Dangerous Goods Code applies, from which residues have not been removed by washing or vacuuming;
- Coal tar or coal tar pitch waste (being the tarry residue from the heating, processing or burning of coal or coke) comprising of more than 1% (by weight) of coal tar or coal tar pitch waste;
- Lead-acid or nickel-cadmium batteries (being waste generated or separately collected by activities carried out for business, commercial or community services purposes);
- Lead paint waste arising otherwise than from residential premises or educational or child care institutions;
- Any mixture of the wastes referred to above.

Systems Connect will endeavour to avoid the production of hazardous waste. This will involve

implementing strategies such as:

- Avoiding the procurement and use of hazardous chemicals where benign alternatives are available;
- Where use of hazardous chemicals cannot be avoided, they are to be procured in sizes and types of container that will minimize material losses;
- Minimising the risk of spills and leaks through implementation of adequate controls.

5.4.4 Spoil Reuse

5.4.4.1 Reuse Hierarchy

The spoil reuse hierarchy adopted for the LWW is listed below. The target for spoil recycling or reuse for the project is 100%.

1. Reuse within the Project
   - reuse as construction material as fill or for landscaping and urban design
   - reuse for restoration of contaminated sites
2. Environmental works (off site)
   - reuse for restoration works on identified environmental initiatives
3. Reuse on other development projects
   - reuse as construction material on projects within a viable distance of the site
4. Offsite land restoration
   - reuse to fill disused facilities, e.g. mines and quarries, to enable either future development or ecological rehabilitation
5. Landfill management
   - reuse to cap completed landfill cells.

Spoil would be reused on site in accordance with the National Environment Protection Council (NEPC) - National Environment Protection (Assessment of Site Contamination) Amended Measure No.1 2013 (NEPAM, 2013). These investigation levels are derived from toxicity of substances and estimated exposure of humans to the soil under various land use scenarios.

5.4.4.2 Identification of possible reuse opportunities

This section documents the detailed assessment and evaluation Systems Connect has undertaken for spoil reuse opportunities for the LWW. An overview of the assessment methodology utilised is provided below:

- Consideration of likely spoil characteristics
- Identification of possible reuse sites within the approved construction footprint
- Screening of possible reuse opportunities – this assessment considered the following criteria:
  - spoil management hierarchy
  - distance from the work sites for off-site reuse options
  - land use, Planning Approval status and relevant licence conditions
  - availability of sites to accept spoil from the LWW sites
  - practicality of the method of reuse
  - cost.

5.4.4.3 Reducing excess spoil during design phase

The design review process has been used to:

- Minimise the quantity of material requiring excavation to accommodate the design footprints
- Identify the location of spoil suitable for reuse on site
- Identify opportunities to maximise reuse of site-won spoil
- Maximise the quantity of spoil available for reuse on site
- Identify areas of contamination that may be avoided or require additional management measures

- Identify opportunities and locations for reuse of spoil off site.

The current calculations a surplus of material for SMTF expansion works, so the above measures will reduce the requirement for costly importation of materials. Material will only be removed from site if it is contaminated above the site criteria limits and cannot be reused on site or otherwise deemed to be unsuitable for any on-site re-use.

5.4.5 Spoil Importation

Any spoil imported would be tested to ensure it meets the site criteria and classifications below in accordance with the relevant requirements:

- VENM
- Recycled materials from a licensed certified provider

This will be verified by the Environment Manager or delegate prior to the importation of material.

5.4.6 On-site Storage of Waste

General waste and recyclables will be disposed of in containers/ bins and collected on a regular basis. Vermin proof bins will be utilised in site where needed. Worksites will be free of litter and good standards of housekeeping will be maintained throughout construction. Regular inspections by both the Environment and Sustainability Team and the Safety Team will be undertaken to ensure a high standard is maintained.

Where spoil is to be stockpiled, stockpiles will be managed and segregated to avoid cross contamination between, topsoil/fill, spoil containing asbestos/restricted/hazardous waste, GSW, ENM and VENM.

Waste classified as ‘special waste’ or ‘hazardous waste’ (EPA, 2014) will be carefully segregated (or excavated and placed as separate stockpiles) at demarcated and contained locations. These areas would be appropriately bunded and stockpiles would be covered with anchored geotextile or impermeable plastic sheeting. Where practicable hazardous waste will be stored in an appropriate container (e.g. a waste skip). Should the hazardous waste have the potential to produce contaminated leachate, the material will be stored in an area with an appropriate leachate collection system.

Further details are contained within the site-specific Contamination Assessments (where applicable). Waste fuel, oils and other liquid wastes will be stored in well ventilated, bunded areas prior to removal by licensed waste contractors. Where material has been classified as compensable contamination the extent of the material (or stockpile) will be labelled on-site and training provided on management requirements for the material.

Waste generated outside the site will not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site unless expressly permitted under an EPL.

5.4.7 Storage and Stockpiling of Spoil

Different types of spoil will be segregated as far as practicable and stored separately to prevent mixing and cross-contamination.

All stockpiles will be managed in accordance with the requirements of the ‘Blue Book’ to prevent erosion and minimise the potential for pollution. Water based organic polymers will be used for short term control of risks associated with erosion and pollution.

Stockpiles would be located away from sensitive receivers, where feasible and reasonable, and protected from the elements through barriers, covering or establishing a cover crop.

Spoil that is to be stockpiled for an extended period will be managed to prevent erosion and minimise the potential for pollution. Typically, water-based polymers or vegetative stabilisation will be used. Stockpiles must not be placed in drainage lines, channels or paths.

Stockpiling locations for each worksite will be selected and developed in accordance with the Construction Ancillary Facilities Management Plan, Site Environment Plans (SEPs) and the ESCPs. Stockpiles located on land outside the Construction Site are subject to the land owner's and occupier's written consent, compliance with the law, consent of relevant Authorities and compliance with the Project Approval.

Materials which are not suitable for incorporation in the LWW would be removed from the Construction Site and disposed of at a construction waste recycling facility, or alternatively re-used, to the maximum extent possible

Where practical, contaminated material will be removed directly to a licensed facility. Where contaminated material is stored on site, stockpiles will be segregated and isolated in accordance with relevant health, safety and environmental regulations, codes and guidelines.

Spoil that is classified as special waste (containing asbestos) will be stockpiled on site in accordance with the relevant regulations and codes of practice prior to disposal to a licensed facility by a licensed contractor.

5.4.8 Waste and Spoil Transportation and Disposal

All waste required to be disposed of offsite will be undertaken by licensed contractors and taken to facilities licensed to accept that waste. All waste disposal undertaken by licensed contractors will be tracked by the receipt of waste disposal dockets to ensure correct disposal of waste materials. Contractors will be required to report waste quantities to Systems Connect for tracking and sustainability requirements. Specialist licensed waste contractors may only be used when removing 'special waste' or 'hazardous waste' in accordance with the Protection of the Environment Operations (Waste) Regulation 2005. All waste disposal facilities must be licensed to accept that waste type.

Systems Connect will ensure all spoil and fill are suitable for their proposed end use, based on the relevant EPA guidelines and exemptions.

5.4.9 Waste Tracking and Reporting

All waste disposal undertaken by licensed contractors will be tracked by the receipt of waste disposal dockets. Quantities and types of wastes and the reuse or disposal will be collated in a Waste Tracking Register. The Waste Tracking Register will include the following information:

- Date transported
- Haulage contractor
- Material type
- Waste classification
- Quantity
- Waste receival location
- Truck registration
- Docket numbers (haulage, receival, weighbridge)

Waste dockets associated with removal and disposal of waste (including spoil) from the LWW sites are to be retained and referenced in the Waste Tracking Register. Soil classification reports are also to be retained. In addition, waste reporting requirements (including reporting of spoil reuse and recycling statistics) are addressed in the Sustainability Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000024).

Systems Connect will supply data on waste and recycling to Sydney Metro in the agreed Sustainability Reporting template and within an agreed timeframe. Please note, reporting will be undertaken with a one-month lag to ensure the accuracy of data.

5.4.10 Waste Streams

The following waste streams and waste classifications have been identified on Line Wide Works Contract Sydney Metro City & Southwest.

Table 40 Expected waste streams and respective classification

Waste Stream	Waste Classification
Rubble, rock, sand, asphalt, road base, concrete	General Solid Waste (not putrescible)

Waste Stream	Waste Classification
Green waste	General Solid Waste (not putrescible) / Exempt Waste
Timber waste / off cuts	General Solid Waste (not putrescible)
General recyclables (glass, cans, paper, cardboard)	General Solid Waste (not putrescible)
Metal waste/ off cuts (i.e. steel reinforcement)	General Solid Waste (not putrescible)
Wire waste / off cuts	General Solid Waste (not putrescible)
PVC waste/ off cuts (e.g. piping and conduits)	General Solid Waste (not putrescible)
Waste oil	Liquid Waste
Non-destructive Digging Waste	Liquid Waste
Potentially contaminated spoil	Depends on contamination levels. Maybe be classed as General Sold Waste or Restricted Solid Waste or Hazardous Waste.
Potentially contaminated water (i.e. septic)	Depends on contamination levels. Maybe be classed as Liquid Waste or Hazardous Liquid Waste.
Asbestos	Special Waste (Asbestos Waste)
Food waste, sanitary products	General Solid Waste (Putrescible)
General mixed construction waste	General Solid Waste (not putrescible)
Waste tyres	Special Waste

Prior to reuse on site or disposal off site, all materials used will be classified in accordance with the *Waste Classification Guidelines, Part 1*. No waste would be permitted to be received on site, unless permitted by an EPL.

5.5 Monitoring, Auditing and Review

Systems Connect will regularly review the LWW to ensure compliance with this Plan. A regular inspection program for waste and spoil management will be conducted as follows:

- Details of daily inspections undertaken by the Site Supervisor will be logged in their respective site diaries;
- Routine weekly inspections are to be conducted to monitor waste, spoil and recycling management measures in active worksites. Weekly inspections will be documented in Systems Connects electronic system;
- Environment inspections are to be completed by the Environmental Coordinator and/or Superintendents/ Site Supervisor.

Waste removed from the worksite will be appropriately tracked from ‘cradle to grave’ using waste tracking dockets where required.

As outlined in the section Waste Tracking and Reporting, waste and spoil data is collected on the project to allow monthly reporting of the following:

- The quantity of each type of waste sent to landfill;
- The quantity of each type of waste recycled;
- The quantity of each type of waste reused;
- The quantity of each type of hazardous/regulated waste generated on the project and:

  - Its method of treatment and disposal
  - The location of treatment and disposal
  - Copies of records confirming the legal transport, treatment and disposal
- Measurement of any reduction in waste generation that has been achieved

The quantity of waste in each solid waste stream is measured by weight and liquid waste stream by volume, with records provided by the waste transport contractor. Alternative measures may only be used when an economical alternative is not available. All relevant information is included in the project environmental monthly report.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this procedure and/or associated documents will be updated if required.

A waste and spoil management non-compliance can generally be defined as a failure to comply with the Project Planning Approval and/or associated documents. Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

Corrective and Preventative Actions may also be raised in accordance with this CEMP. Procedures for corrective actions are addressed in the Elements and Expectations section of this CEMP.

5.6 References

The key legislation relevant to waste, recycling and spoil management includes:

- Environmental Planning and Assessment Act 1979
- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2005
- Waste Avoidance and Resource Recovery Act 2001

Additional guidelines and standards relating to the management of waste, spoil and recycling include:

- Waste Classification Guidelines, Part 1: Classifying Waste (EPA November 2014)
- NSW Government's Waste Reduction and Purchasing Policy
- Environmental Best Practice Guidelines for Concreting Contractors (DEC 2004)
- Local government guidelines for waste/recycling as appropriate
- Australian Dangerous Goods Code 7th Edition (ADG7) (National Transport Commission, October 2011)
- TfNSW Standard Requirements TSR E1 – Environmental Management
- General resource recovery exemptions under Part 6, Clause 51 and 51A of the Protection of the Environment Operations (Waste) Regulation 2005
- Government Resource Efficiency Policy (GREP)
- Additional guidelines and standards relating to the management of spoil include:
- Waste Classification Guidelines, Part 1: Classifying Waste (EPA, November 2014)
- Waste Classification Guidelines, Part 4: Acid Sulphate Soils (DECC August 2009)
- Australian and New Zealand Guidelines for Assessment and Management of Contaminated Sites (ANZECC/NHMRC 1992)
- Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (EPA 1998)
- Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (EPA 1997a)
- Contaminated Sites: Sampling Design Guidelines (EPA 1995b)
- Acid Sulfate Soil Manual (NSW Acid Sulphate Soil Management Advisory Committee 1998)

6. Visual Amenity

6.1 Scope

The present Visual Amenity chapter describes how Systems Connect will manage Visual Amenity during the LW expansion works at SMTF. Any Visual Amenity requirements associated with landscaping and design will be delivered in accordance with the Design and Landscape Plan.

This chapter meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoAs, REMMs and the CEMF requirements.

This Procedure also addresses applicable legislation and contractual requirements.

Activities conducted on the project that have the potential to generate Visual Amenity impacts are provided below. These have been extracted from the project work flow, including activities and materials used.

Table 41 Visual Amenity Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Site lighting during construction and operational processes	Light spill	Affecting wildlife and surrounding community
Temporary hording and site fencing	Visual Impacts	Graffiti Urban design integration

6.2 Background

This Visual Amenity chapter has been developed following a review of the Staging Report for SSI 5931. The Staging report takes into consideration technical reports developed to inform the EIS for the Planning Approval in context with work already completed and the status of the site at the time of handover to Systems Connect.

Systems connect will occupy and further develop sections of the approved construction impact area of SMTF defined under SSI 5931.

The character of the site is influenced by Schofields Road and Tallawong Road which form the southern and eastern boundaries of the site, the riparian corridor to the west and rural properties to the north. This area has been changing the character from rural setting to an urban and suburban character.

Areas to the south of Schofields Road have recently been developed for residential neighbourhoods. The area to the east of Tallawong Road is planned to become a town centre. Areas to the north and west of the site are being planned for low to medium density residential. The areas directly adjacent to the north and south of the site would be zoned for employment uses. This represents a dramatic transformation of the locality.

The SMTF area itself has changed considerably since the original approval, as significant development has occurred with the construction of the first stage of the SMTF and associated car parking areas. The facility is also currently fenced and starting operation. Considering this background, LWW construction impact area is not expected to have significant visual amenity impacts.

6.3 Management Strategy

6.3.1 Project Objectives

Systems Connect's objectives for management of Visual Amenity during delivery of scope at SMTF are aligned with the CEMF which states that, the following management objectives will apply to construction:

- Minimise impacts on existing landscape features as far as feasible and reasonable;
- Ensure the successful implementation of the Landscape Design; and
- Reduce visual impact of construction to surrounding community.

Based on the requirements defined in previous sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set for managing visual amenity on the project. Any deviation from the targets will result in Project Management immediately implementing corrective actions.

Table 42 - Visual Amenity Management LWW targets

Metric/Measure	Objective	Timeframe	Accountability
Successful implementation of approved landscape design	100%	At all times	Construction Manager
No complaints related with visual amenity from the Regulators as a result of the works undertaken	Zero Complaints	At all times	Project Director

6.3.2 Controls Used to Manage Visual Amenity

Controls that are adequate to ensure compliance and to reduce risk to the lowest acceptable rating achievable are planned before any relevant works commence.

Controls used on this project include:

Table 43 Visual Amenity Management Controls

Control	Accountability
Wherever feasible and reasonable, vegetation around the perimeter of the construction sites will be maintained to act as a visual screen	Construction Manager
Temporary construction works will be designed with consideration of urban design and visual amenity as per Design and Landscape Plan	Design Manager
Temporary site lighting, for security purposes or night works will be installed and operated in accordance with AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting	Construction Manager
Regular maintenance of site hoarding and perimeter site areas, including the prompt removal of graffiti.	Site Superintendent
Visual mitigation will be implemented as soon as feasible and reasonable, and remain for the duration of the construction period.	Construction Manager
Hoardings to be designed to visually recede in more rural or bushland settings	Design Manager
Integrated landscaping and security fencing	Construction Manager
Lighting	

Temporary site lighting, for security purposes or night works will be installed and operated in accordance with AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting	Construction Manager
Cut-off and directed lighting used to ensure glare, light trespass and light spill are minimized	Construction Manager
Training	
Induction must include information about general visual amenity requirements and housekeeping.	Environment Coordinators
Toolbox training on Visual Amenity that will reinforce and reiterate information from inductions.	Environment Coordinators

6.3.3 Monitoring, Auditing and Review

Monitoring will be incorporated into the regular site inspections including checking the health of retained vegetation around site boundaries, checking the condition of any site hoarding and acoustic sheds, and checking the position and direction of any sight lighting.

Compliance records of any inspections undertaken in relation to visual and landscape measures will be retained and relevant information is to be included in the project environmental monthly report.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this chapter and/or associated documents will be updated if required.

A Visual Amenity non-compliance can generally be defined as a failure to comply with the Project Planning Approval and/or associated documents. Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in Systems Connect electronic system. Further details of corrective actions procedures are provided in Elements and Expectations section of this CEMP.

Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

It is the accountability of the Environmental Manager to ensure all monitoring is performed according to these requirements.

6.4 References

The key legislation relevant to visual amenity management includes:

- Environmental Planning and Assessment Act 1979
- Additional guidelines and standards relating to the management of visual amenity include:
- Crime Prevention through Environmental Design (CPTED) principles
- NWRL Style Guidelines (Co-branding) (TfNSW, November 2012)
- AS 4282-1997 Control of the obtrusive effects of outdoor lighting
- Guidelines for landscape character and visual impact assessment, EIA-N04, Version 1.0 (RTA, March 2009).

7. Ancillary Facility Management

7.1 Scope

The present chapter describes how Systems Connect will manage any Ancillary Facilities or Construction Compounds required during the LW expansion works at SMTF.

This chapter meets Systems Connect's obligations as defined in the Staging Report prepared by Sydney Metro to address the requirements of the SSI Planning Approval 5931 (CoA B9). The Staging Report allocates responsibility to LWW towards CoAs, REMMs and the CEMF requirements.

This chapter also addresses applicable legislation and contractual requirements.

Activities conducted on the project that have the potential to generate ancillary facilities related impacts are provided below. These have been extracted from the project work flow, including activities and materials used.

Table 44 Ancillary Facilities Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Setting up of ancillary facilities or construction compounds	Noise and Dust Erosion and sediment generation, Spills Vegetation clearing	Affecting community wellbeing Soil and water contamination Damage to fauna and flora
Laydown area	Traffic management from delivery of materials	Impacting surrounding community
Vehicle parking	Oil spills	Ground contamination

7.2 Background

The Ancillary Facilities chapter has been developed following a review of the EIS for SSI 5931.

Systems connect will establish an Ancillary Facility within the approved construction impact area of SMTF. The area that will be used as an Ancillary Facility by Systems Connect is the same as that describes in Section 7.1 and figure 26 of the EIS.

The site layout for the Ancillary Facility is shown in the Appendix C5, and will include:

- Construction compound with sufficient office and amenities for all staff and work force;
- Car parking for all light vehicles on hard stand;
- Laydown area;
- Storage area and containers;
- Hazardous goods storage area;
- Refueling Facility.

7.3 Management Strategy

7.3.1 Project Objectives

Systems Connect's objectives for management of Ancillary Facilities during delivery of scope at SMTF are aligned with the contract requirements, Project Planning Approval (SSI 5931) and applicable REMMs, and include:

- Ensure that construction site areas are managed according to statutory requirements.
- Define a process for evaluating any ancillary sites or facilities required during construction.

Based on the requirements defined at previous sections, the findings of project risk management processes and the potential impacts to the community, the following targets have been set for managing ancillary facilities on the project. Any deviance from the targets will result in Project Management immediately implementing corrective actions.

Table 45 - Ancillary Facilities Management LWW targets

Metric/Measure	Objective	Timeframe	Accountability
No non-compliances associated with commissioning and operation of ancillary facilities	Zero non-compliances	At all times	Construction Manager
No complaints from the Regulators as a result of the ancillary facilities location or usage	Zero Complaints	At all times	Project Director

7.3.2 Controls Used to Manage Ancillary Facilities

Controls that are adequate to ensure compliance and to reduce risk to the lowest acceptable rating achievable are planned before any relevant works commence.

Controls used on this project include:

Table 46 Ancillary Facilities and Construction Compounds Management Controls

Control	Accountability
All ancillary facilities utilized for LWW at SMTF must meet the requirements of CoA E25	Environmental Manager
If additional ancillary facilities are identified as being required during construction, they will be assessed against the criteria set in CoA E25	Environmental Manager
Site Environmental Plans (SEPs) identifying location of ancillary facilities and construction compounds will be developed for SMTF and updated as required. (refer to Appendix C5 Site Environment Plans)	Environmental Manager
Site sheds will be maintained and established at locations that minimise impact as set in CoA E25.	Environmental Manager
Temporary site facilities will meet sustainability requirements of the project and will be maintained free of graffiti	Construction Manager
Regular inspections will be conducted on all temporary site facilities	Environmental Coordinators
Work will be undertaken during periods specified in the Planning Approval conditions. Any work outside these periods will be subject to risk assessment and environmental approval if relevant.	Environmental Manager Site Superintendent
Waste generated will be managed in accordance with the Waste, Spoil and Recycling Management Procedure in section 5, Part D of this CEMP.	Site Superintendent
Full decommissioning of worksites will be undertaken by Systems Connect once LW scope of works have been completed. Compound sites will be progressively rehabilitated in accordance with the Design and Landscape Plan and in consultation with Sydney Metro.	Construction Manager
At the completion of construction all plant, temporary buildings or vehicles not required for the subsequent stage of construction will be removed from the site;	Construction Manager

Training	
All personnel working on site will receive inductions training relating to the use of construction compounds and ancillary facility sites, including: • SEPs; • Working hours; • Management of waste and recycling; • Emergency requirements i.e. pollution events, major spills, etc.; • Hazardous substances storage and bunding; • Refueling processes and practices; • General housekeeping.	Environment Coordinators
Toolbox training on Ancillary Facilities management and maintenance that will reinforce and reiterate information from inductions.	Environment Coordinators

A procedure for New Ancillary Facility or Construction Compound (SMCSWLWC-SYC-1NL-EM-PRO-000460) location has been developed to manage the case where a new ancillary facility needs to be set up during construction. The procedure will be available at all sites during construction works, at all times. (refer to Appendix C 8)

The SEP in Appendix C5 provides further details of the location of Ancillary Facilities and its proximity to sensitive receivers, waterways and access roads.

The SEP in Appendix C5 provides further details of the location of ancillary facilities and its proximity to sensitive receivers, waterways and access roads.

7.4 Monitoring, Auditing and Review

Monitoring will be incorporated into the regular site inspections including checking general housekeeping, facilities maintenance, waste management practices and storage of substances.

Compliance records of any inspections undertaken in relation to Ancillary Facilities will be retained and relevant information is to be included in the project environmental monthly report.

Audits will be performed in accordance with the Elements and Expectations section of this CEMP and this chapter and/or associated documents will be updated if required.

An Ancillary Facility related non-compliance can generally be defined as a failure to comply with the Project Planning Approval. Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process.

Corrective and Preventative Actions may also be raised in accordance with this CEMP. Procedures for corrective actions are addressed in the Elements and Expectations section of this CEMP.

7.5 References

The key legislation relevant to construction compound and ancillary facilities management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Protection of the Environment Operations Act 1997 (POEO Act)
- Contaminated Land Management Act 1997 (CLM Act)
- Biodiversity Conservation Act 2016 (BC Act) (the BC Act began on 25 August 2017 and replaces the Threatened Species and Conservation Act 1995 and amendments (TSC Act)) and Native Vegetation Act 2003 (NV Act))
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Heritage Act 1977
- Work Health and Safety Act 2011

Additional guidelines and standards relating to the management of visual amenity include:

- Managing Urban Stormwater: Soils and Construction. Volume 2D: Main Road, DECC (2008)
- Managing Urban Stormwater: Soils and Construction. Volume 1 of the 'Blue Book'), Landcom (2004)
- Crime Prevention through Environmental Design (CPTED) principles
- NWRL *Style Guidelines (Co-branding)* (TfNSW, November 2012).

8. Construction Noise and Vibration Management

Management of Construction Noise and Vibration shall be undertaken as defined in the Construction Noise and Vibration Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000371).

9. Construction Traffic Management

Traffic Management shall be undertaken as defined in the Construction Traffic Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000377)