



Operational Environmental Management Plan

Sydney Metro City &
Southwest

Information

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Compliance Table

This table displays a description of the requirement and Section Number in outlining how this OEMP evidences its compliance to the CSSI 7400 Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval.

Table 1 Compliance Table

CoA #	Condition Class	Description	Compliance
A2	General	The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the EIS as amended by the documents listed in A1, unless otherwise specified in, or required under, this approval.	OEMP
A5	General	The Proponent must comply with all requirements of the Secretary in relation to: (a) the environmental performance of the CSSI; (b) any document or correspondence; (c) any notification given to the Secretary under the terms of this approval; (d) any audit of the construction or Operation of the CSSI; (e) compliance with the terms of this approval (including anything required to be done under this approval); and (f) the carrying out of any additional monitoring or mitigation measures.	OEMP
A8	General	Without limitation, all strategies, plans, programs, reviews, audits, report recommendations, protocols and the like required by the terms of this approval must be implemented by the Proponent and in accordance with all requirements issued by the Secretary from time to time in respect of them.	OEMP and sub plan
A9	General	Where the terms of this approval require consultation with identified parties, details of the consultation undertaken, matters raised by the parties, and how the matters were considered must accompany the strategies, plans, programs, reviews, audits, protocols and the like submitted to the Secretary.	Each OEMP sub plan
A11	General	The Proponent is responsible for any breaches of the conditions of this approval resulting from the actions of all persons that it invites onto any site, including contractors, sub-contractors and visitors.	OEMP
A12	Staging	The CSSI may be constructed and operated in stages. Where staged construction or Operation is proposed, a Staging Report (for either or both construction and Operation as the case requires) must be prepared and submitted to the Secretary for information. The Staging Report must be submitted to the Secretary no later than one month before the commencement of construction of the first of the proposed stages of construction (or if only staged Operation is proposed, one month before the commencement of Operation of the first of the proposed stages of Operation), or within another timeframe agreed with the Secretary.	OEMP - Confirm only one stage proposed for Operations

CoA #	Condition Class	Description	Compliance
A13	Staging	The Staging Report must: (a) if staged construction is proposed, set out how the construction of the whole of the CSSI will be staged, including general details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence; (b) if staged Operation is proposed, set out how the Operation of the whole of the CSSI will be staged, including general details of work and other activities to be carried out in each stage and the general timing of when Operation of each stage will commence; (c) specify the relevant conditions of approval that apply to each stage and how compliance with those conditions will be achieved across and between each of the stages of the CSSI; and (d) set out mechanisms for managing any cumulative impacts arising from the proposed staging.	Not applicable as only one stage proposed
A25	Acoustics Advisor	A suitably qualified and experienced Acoustics Advisor (AA), who is independent of the design and construction personnel, must be nominated by the Proponent and engaged for the duration of construction and for no less than six (6) months following Operation of the CSSI. The details of the nominated AA must be submitted to the Secretary for approval no later than one (1) month before commencement of works, or within another timeframe as agreed with the Secretary. The Proponent may nominate additional suitably qualified and experienced persons to assist the lead Acoustics Advisor for the Secretary's approval. The Proponent must cooperate with the AA by: (a) providing access to noise and vibration monitoring activities as they take place; (b) providing for review of noise and vibration plans, assessments, monitoring reports, data and analyses undertaken; and (c) considering any recommendations to improve practices and demonstrating, to the satisfaction of the AA, why any recommendation is not adopted.	Operational Noise and Vibration Management Plan
A30	Compliance Tracking Program	The Compliance Tracking Program in the form required under Condition A28 of this approval must be implemented for the duration of construction and for a minimum of one (1) year following commencement of Operation , or for a longer period as determined by the Secretary based on the outcomes of independent environmental audits, Environmental Representative Reports and regular compliance reviews submitted through Compliance Reports. If staged Operation is proposed, or Operation is commenced of part of the CSSI, the Compliance Tracking Program must be implemented for the relevant period for each stage or part of the CSSI.	Addressed in Sydney Metro C&SW Compliance Tracking Program / Environmental Audit Program Staged Operation is not proposed

CoA #	Condition Class	Description	Compliance
A37	Auditing	An Environmental Audit Program for independent annual environmental auditing against the terms of this approval must be prepared in accordance with AS/NZS ISO 19011:2014 - Guidelines for Auditing Management Systems and submitted to the Secretary for information no later than one month before the commencement of construction or within another timeframe agreed with the Secretary.	OEMP – Section 8.2
A38	Auditing	The Environmental Audit Program, as submitted to the Secretary, must be implemented for the duration of construction and Operation .	OEMP – Section 8.2
B10	Complaints Management System	The telephone number, postal address and email address required under Condition B9 of this approval must be published in a newspaper circulating in the local area and on site hoarding at each construction site before commencement of construction and published in the same way again before commencement of Operation . This information must also be provided on the website required under Condition B15 of this approval.	OEMP
D1	Operational Environmental Management	An Operational Management Plan (OEMP) must be prepared in accordance with the Department's Guideline for the Preparation of Environmental Management Plans to detail how the performance outcomes, commitments and mitigation measures made and identified in the EIS as amended by the documents listed in A1 will be implemented and achieved during operation. This condition does not apply if Condition D2 of this approval applies.	OEMP
D2	Operational Environmental Management	An OEMP is not required for the CSSI if the Proponent has an Environmental Management System (EMS) or equivalent as agreed with the Secretary, and can demonstrate, to the written satisfaction of the Secretary, that through the EMS: (a) the performance outcomes, commitments and mitigation measures, made and identified in the EIS as amended by the documents listed in A1, and requirements specified in the conditions of this approval can be achieved; (b) issues identified through ongoing risk analysis can be managed; and (c) procedures are in place for rectifying any non-compliance with this approval identified during compliance auditing, incident management or any other time during operation.	OEMP - MTS have developed an OEMP, therefore this condition is not applicable

CoA #	Condition Class	Description	Compliance															
D3	Operational Environmental Management	<p>Where an OEMP is required, the Proponent must include the following OEMP sub-plans in the OEMP:</p> <table border="1"> <thead> <tr> <th>Required OEMP sub-plan</th> <th colspan="2">Relevant government agencies to be consulted for each OEMP sub-plan</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>Noise and vibration</td> <td>N/A</td> </tr> <tr> <td>(b)</td> <td>Groundwater Management</td> <td>DPI Water</td> </tr> <tr> <td>(c)</td> <td>Traffic and Transport</td> <td>Sydney Coordination Office, Relevant Road Authority and non-private transport operators</td> </tr> <tr> <td>(d)</td> <td>Flooding and hydrology (including emergency response planning)</td> <td>Directly affected landowners, OEH, DPI Water, SES, Sydney</td> </tr> </tbody> </table>	Required OEMP sub-plan	Relevant government agencies to be consulted for each OEMP sub-plan		(a)	Noise and vibration	N/A	(b)	Groundwater Management	DPI Water	(c)	Traffic and Transport	Sydney Coordination Office, Relevant Road Authority and non-private transport operators	(d)	Flooding and hydrology (including emergency response planning)	Directly affected landowners, OEH, DPI Water, SES, Sydney	OEMP - Section 2.3.2
Required OEMP sub-plan	Relevant government agencies to be consulted for each OEMP sub-plan																	
(a)	Noise and vibration	N/A																
(b)	Groundwater Management	DPI Water																
(c)	Traffic and Transport	Sydney Coordination Office, Relevant Road Authority and non-private transport operators																
(d)	Flooding and hydrology (including emergency response planning)	Directly affected landowners, OEH, DPI Water, SES, Sydney																
D4	Operational Environmental Management	Each of the OEMP sub-plans must include the requirements set out in Condition D2 (a), (b) and (c).	<p>Noise and Vibration Management Plan (SMCSWTS2-MTS-CSW-EM-PLN-002106)</p> <p>Groundwater Management Plan (SMCSWTS2-MTS-1NL-EM-PLN-002712)</p> <p>Traffic and Transport Management Plan (under development)</p> <p>Flooding and Hydrology Management Plan (SMCSWTS2-MTS-1NL-EM-PLN-002711)</p>															
D5	Operational Environmental Management	The OEMP sub-plans must be developed in consultation with relevant government agencies as identified in Condition D3. Where an agency's (or agencies') request(s) is not included in an OEMP sub-plan, the Proponent must provide the Secretary justification as to why. Details of all information requested by an agency to be included in an OEMP sub-plan as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant OEMP sub-plan.	N/A															
D6	Operational Environmental Management	The OEMP sub-plans must be submitted to the Secretary as part of the OEMP.	OEMP - Section 2.5															

CoA #	Condition Class	Description	Compliance
D7	Operational Environmental Management	The OEMP or EMS or equivalent as agreed with the Secretary, must be submitted to the Secretary for information no later than one (1) month before the commencement of operation unless another timeframe is agreed with the Secretary.	OEMP - Section 2.5
D8	Operational Environmental Management	The OEMP or EMS or equivalent as agreed with the Secretary, as submitted to the Secretary and amended from time to time, must be implemented for the duration of operation and the OEMP or EMS must be made publicly available before the commencement of operation.	OEMP - Section 2.5
D10	Operational Performance	The ongoing maintenance and operation costs of urban design and landscaping items and works implemented as part of this approval must remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant entity. Before the transfer of assets, the Proponent will maintain items and works to the design standards established in the Station Design and Precinct Plan required by Condition E101.	OEMP – Section 4.3
D11	Operational Performance	Within 15 months of the completion of construction, or any other timeframe as agreed with the Secretary, the Proponent must commission an independent, qualified person or team to undertake an Operational Performance Audit of the CSSI. The independent person or team must be approved by the Secretary before commencement of the Audit. The Operational Performance Audit Report must be submitted to the Secretary within one month of the completion of the Audit or other timeframe agreed with the Secretary. The Audit must: (a) assess compliance with the requirement of this approval; (b) assess the environmental performance of the CSSI against the predictions made and conclusions drawn in the EIS as amended by the documents listed in A1; and (c) review the effectiveness of the environmental management of the CSSI, including any environmental impact mitigation.	OEMP – Section 8.2
D13	Operational Monitoring	The Proponent must prepare an Operational Noise and Vibration Monitoring Program to confirm that the Operational noise and vibration levels meet the CSSI proposed design objectives as determined in the Track Attenuation and Operational Ground-borne Noise Review in Condition D9 following the commencement of Operations .	Noise and Vibration Management Plan
D14	Operational Monitoring - Noise and Vibration	Should the Operational noise and vibration levels exceed the CSSI design objectives, the Proponent is to prepare a report, outlining actions that will be taken so that the CSSI meets the design objectives in the future. The report is to be prepared within three (3)	Noise and Vibration Management Plan

CoA #	Condition Class	Description	Compliance
		months following the identification of the exceedance and be forwarded to the Secretary for information. All recommendations in the report must be implemented within three (3) months of the date of the report or as agreed with the Secretary.	
E1	Suburban & Inter-Urban Rail	The Proponent must manage Operational and asset interface risks to ensure the successful Operational integration of the CSSI and the heavy railway network and the protection of physical and Operational Sydney Trains' assets and services during construction and Operation .	OEMP – Section 4.3
E5	Air Quality	In addition to the performance outcomes, commitments and mitigation measures specified in PIR, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and Operation of the CSSI.	OEMP – Section 4.3
E10	Heritage	The Proponent must not destroy, modify or otherwise physically affect any Heritage item not identified in documents referred to in Condition A1.	OEMP – Section 4.3 Heritage Management Plan (SMCSWTS2-MTS-CSW-HE-PLN-002100)
E19	Heritage	An Unexpected Heritage Finds Procedure must be prepared: (a) to manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Council of NSW or OEH; and (b) by a suitably qualified and experienced heritage specialist. The procedure must be included in the AARD and must be implemented for the life of the project.	Heritage Management Plan (SMCSWTS2-MTS-CSW-HE-PLN-002100) Sydney Metro's Unexpected Heritage Finds Procedure
E26	Heritage	This approval does not allow the Proponent to harm, modify, or otherwise impact human remains uncovered during the construction and Operation of the CSSI, except in accordance with the Exhumation Management Plan (Condition E27).	Heritage Management Plan (SMCSWTS2-MTS-CSW-HE-PLN-002100)
E27	Aboriginal Heritage	An Exhumation Management Plan must be prepared to guide the relocation of recovered human remains. The Exhumation Management Plan must be prepared: (a) in consultation with, and meeting the requirements of, the OEH and NSW Health; and (b) in accordance with the Guidelines for Management of Human Skeletal Remains (NSW Heritage Office, 1998b) and NSW Health Policy Directive – Exhumation of human remains (December, 2013), and other relevant guidelines and standards prepared by the Heritage Council of NSW or OEH. The Exhumation Management Plan must be provided to the Secretary for information before the commencement of excavation works.	OEMP – Section 4.3

CoA #	Condition Class	Description	Compliance
E72	Sustainability	The Proponent must prepare a Sustainability Strategy to be submitted to the Secretary within six (6) months of the date of this approval, or within another timeframe agreed with the Secretary, which must be implemented throughout design, construction and Operation of the CSSI. The Sustainability Strategy must include: (a) details of the sustainability objectives and targets for the design, delivery and Operation of the CSSI; (b) details of the sustainability initiatives which will be investigated and / or implemented; and (c) a description of how the strategy will be implemented for the CSSI.	OEMP – Section 6.1
E73	Sustainability	Opportunities to reduce Operational greenhouse gas emissions must be investigated during detailed design. The sustainability initiatives identified must be implemented, reviewed and updated regularly throughout design development and construction, and annually during Operation .	OEMP – Section 4.3
E74	Sustainability	The Proponent must fully offset the greenhouse gas emissions associated with consumption of electricity during Operation of the CSSI.	OEMP – Section 4.3
E75	Traffic, Transport & Pedestrian Access	The CSSI must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and accessibility of the networks, and facilitate an improved level of service in relation to permanent and Operational changes. Detailed design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken: (a) in consultation with, and to the reasonable requirements of the Traffic and Transport Liaison Group(s) established under Condition E77; (b) in consideration of existing and future demand, connectivity (in relation to permanent changes), performance and safety requirements; (c) to minimise and manage local area traffic impacts; (d) to ensure access is maintained to property and infrastructure; and (e) to meet relevant design, engineering and safety guidelines, including Austroads, Australian Standards, and RMS (RTA) requirements. Copies of civil, structural and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation before the commencement of the relevant works.	Traffic and Transport Management Plan
E77	Traffic, Transport & Pedestrian Access	The Proponent must establish a Traffic and Transport Liaison Group(s) (TTLGs) to inform traffic and transport management measures during construction and Operation of the CSSI. Management measures must be coordinated with and approved by the RMS following endorsement by the Sydney	Traffic and Transport Management Plan

CoA #	Condition Class	Description	Compliance
		Coordination Office and consultation with the Relevant Roads Authority. The TTLG must comprise representatives from the Relevant Road Authority(ies) (including the RMS, relevant Councils, and the Barangaroo Delivery Authority as appropriate), transport operators (including bus and taxi operators), emergency services and Port Authority of NSW as required. The TTLG must be consulted on to inform the preparation of the Construction Traffic Management Plan(s) and Interchange Access Plan(s).	
E78	Traffic, Transport & Pedestrian Access	The Proponent must undertake supplementary analysis and modelling as required by the TTLG to demonstrate that construction and Operational traffic can be managed to minimise disruption to traffic network Operations , public including changes to and the management of pedestrian, bicycle and public transport networks transport services, pedestrian and cyclist movements. Revised traffic management measures, must be incorporated into the Construction Traffic Management Plan(s), Interchange Access Plan(s) and Station Design and Precinct Plan(s).	Traffic and Transport Management Plan
E106	Waste	Waste generated during construction and Operation is to be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.	OEMP – Section 4.3
E107	Water	The CSSI must be constructed and operated so as to maintain the NSW Water Quality Objectives where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW Water Quality Objectives over time where they are not being achieved as at the date of this approval, unless an EPL in respect of the CSSI contains different requirements in relation to the NSW Water Quality Objectives, in which case those requirements must be complied with.	OEMP – Section 4.3
SCW7	Operation - Soils, contamination and water quality	Discharges from the tunnel water treatment plant would be monitored to ensure compliance with the discharge criteria determined in consultation with the NSW Environment Protection Authority.	OEMP – Section 4.3
HR5	Operation	All hazardous substances that may be required for Operation would be stored and managed in accordance with the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005) and Hazardous and Offensive Development	OEMP – Section 4.3

CoA #	Condition Class	Description	Compliance
		Application Guidelines: Applying SEPP 33 (Department of Planning, 2011).	
OpNV4	Operational noise and vibration	Procedural mitigation measures would be implemented to minimise noise emissions from the Sydney Metro Trains Facility South with the aim of meeting the relevant criteria derived from the Industrial Noise Policy (Environment Protection Authority, 2000). This would consider measures such as: <ul style="list-style-type: none"> Minimising the number of trains being cleaned simultaneously Cleaning trains without air conditions systems in use Limit cleaning and start-up Operations during the night-time and early morning periods to the trains stabled furthest from the most affected residences. In the event that procedural measures are not sufficient to achieve compliance with the criteria derived from the Industrial Noise Policy, at-property treatments would be offered to affected receivers. 	Noise and Vibration Management Plan
OpNV5	Operational noise and vibration	Further detailed investigations would be undertaken of the phased Operations once the detail of these changes are determined. This investigation would include determination of the likely change in noise levels at receivers and consideration of the need for any feasible and reasonable mitigation measures taking into consideration the likely duration of the phased Operations .	Noise and Vibration Management Plan
SUS7	Sustainability (Operation)	Sustainability initiatives would be incorporated into the Operation of the project to support the achievement of the project sustainability objectives.	OEMP – Section 4.3
SUS9	Sustainability (Operation)	A workforce development and industry participation strategy would be developed and implemented during Operation .	OEMP – Section 4.3
SUS10	Sustainability (Operation)	100 per cent of the greenhouse gas emissions associated with consumption of electricity during Operation would be offset.	OEMP – Section 4.3
WM5	Waste Management (Operation)	Generation of Operation phase waste would be minimised.	OEMP – Section 4.3
OpT2	Operational Traffic & Transport	Access would be maintained to neighbouring properties.	Traffic and Transport Management Plan
OpT4	Operational Traffic & Transport	Transport for NSW would work with local councils to minimise adverse impacts of Operation on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.	Traffic and Transport Management Plan

1. Introduction

1.1. Scope and Objectives

This Operational Environmental Management Plan (OEMP) has been prepared by Metro Trains Sydney Pty Ltd (MTS) to fulfil the requirements of the CSSI7400 D1 Condition of Approval requirement for the Operation and Maintenance (O&M) phase of the Sydney Metro City & Southwest network from Chatswood to Sydenham (See Figure 1). The project consists of:

- Realignment of T1 North Shoreline surface track within the existing rail corridor between Chatswood Station and Brand Street, Artarmon, including a new bridge for a section of the 'down' (northbound) track to pass over the proposed Chatswood dive structure.
- About 250 metres of new aboveground metro tracks between Chatswood Station and the Chatswood dive structure
- A northern dive structure (about 400 metres in length) and tunnel portal just north of Mowbray Road, Chatswood
- About 15.5 kilometres of twin rail tunnels (that is, two tunnels located side-by-side) between the northern dive structure and Bedwin Road, Marrickville (the Marrickville dive structure)
- A substation (for traction power supply) at Artarmon
- New metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground platforms at Central Station
- A southern dive structure (about 400 metres in length) and tunnel portal north of Sydenham Station and south of Bedwin Road, Marrickville
- A services facility (for traction power supply and an operational water treatment plant) adjacent to the southern dive structure.



Figure 1: The Sydney Metro Chatswood to Sydenham project

MTS is a consortium comprised of MTR Corporation (UK) NRT Ltd, John Holland Sydney NRT Pty Ltd and UGL Rail Services Pty Ltd. This Plan will be implemented and subject to the MTS process of ongoing review and continuing improvement, through the operational life of the Project (Section 9).

The OEMP satisfies the requirements of the:

- Critical State Significant Infrastructure 7400 Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval – Part D

Link to the Approval here: <https://www.planningportal.nsw.gov.au/major-projects/projects/sydney-metro-chatswood-sydenham>

Objectives of this OEMP are to ensure:

- Environmental and sustainability requirements relevant to Operations and Maintenance are clearly identified.
- Outline systems that will be used to support environmental and sustainability management.

- Operations and Maintenance sustainability objectives and targets have been clearly established.
- Initiatives to achieve these targets have been outlined.
- A management and reporting structure to implement and measure the effectiveness of the initiatives/mitigation measures identified for operations.
- To comply with the relevant requirements of the NSW Government *Environmental Management System Guidelines (3rd Edition)* (August 2013).

The OEMP will be used alongside the Operations Phase Environment and Sustainability Management Plan (OPESP) that was written to satisfy the requirements of the:

- Sydney Metro City & Southwest OTS2 Project Deed, Exhibit 1 – Scope & Performance Requirements – Appendix 54 – Project Plan Requirements.

The OEMP and OPESP have been created to satisfy two separate conditions/deeds, however due to the similarity of the requirements, they will share significant amounts of information.

This OEMP also does not address operational [CSSI8256](#) requirements for [Sydenham to Bankstown](#). As this network is still under construction, the Conditions of Approval for CSSI8256 will be addressed in an update to this OEMP.

1.2. Sydney Metro Context

Sydney Metro is Australia's biggest public transport project.

In 2024, Sydney will have 21 metro stations, revolutionising the way Australia's biggest city travels. Metro means a new generation of world class fast, safe, and reliable metro trains easily connecting customers to where they want to go. Customers don't need timetables – they just turn up and go.

When Sydney Metro is extended into the central business district (CBD) and beyond in 2024, metro rail will run from Sydney's booming Northwest (NW) region, under Sydney Harbour, through new underground stations in the CBD and beyond to the city's southwest.

There will be ultimate capacity for a metro service every two minutes in each direction under the city, carrying around 40,000 customers per hour, a level of service never before seen and Sydney and in line with other metro systems worldwide.

Sydney's first phase of the metro and Australia's first driverless railway, the Metro Northwest Line, opened on 26 May 2019. Services at the 13 metro stations currently operate every four minutes in the peak in each direction.

The 30 kilometre City & Southwest extension will run from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through the CBD and on to Bankstown with seven new metro stations and 11 upgraded stations.

This extension will enable a seamless customer experience on the metro, with NRT Group and its Core Contractors, Mass Transit Railway (MTR) Australia as the Integrator and MTS as the Operator & Maintainer Contractor, responsible for delivering an expanded fleet of new metro trains and the core rail systems, as well as operations and maintenance for a period of 15 years.

1.3. The OTS PPP & OTS2

Sydney Metro (the Principal) engaged NRT Pty Ltd (OpCo) and NRT CSW Pty Ltd (OpCo2) to deliver the Sydney Metro Northwest (SMNW) and Sydney Metro City and Southwest (SMCSW) Public Private Partnership (PPP) contracts, respectively.

These two PPP contracts were awarded by government effectively as 'packages', each comprising three separate main entities, OpCo or OpCo2 plus two Core Contractors, each including three distinct roles:

- SMNW PPP (OTS), comprising OpCo (finance), the D&C Contractor (delivery) and the O&M Contractor ('MTS') (operations & maintenance);
- SMCSW PPP (OTS2): OpCo2 (finance), the Integrator (delivery) and MTS (operations & maintenance).

The delivery and the operations & maintenance obligations are 'passed down' virtually in their entirety to the relevant Core Contractor (e.g. to MTS, under the OTS and OTS2 O&M Contracts). SPR obligations of OpCo / OpCo2 are Core Contractor obligations. Accordingly, operation and maintenance obligations of OpCo and OpCo2 for OTS and OTS2 are obligations of MTS.

OTS and OTS2 are currently two separate and distinct PPP contracts in different phases. They effectively 'merge' together at the Incorporation Date (completion of OTS2 Phase 1, City section) from an operations & maintenance perspective and become a single operating railway under a single PPP contract (i.e. OTS2), with MTS responsible for all operations and maintenance obligations.

1.4. Purpose

The OEMP outlines how MTS will detail how the performance outcomes, commitments and mitigation measures made and identified in the CSW EIS (and its amendments) will be implemented and achieved during operation under CSSI7400 Chatswood to Sydenham.

1.5. Integrated management system

MTS must maintain an effective Management System which addresses all its obligations under the Deed, in accordance with the OTS Project Deed, Exhibit 1, Scope and Performance Requirements, Section 5.2.

The Integrated Management System (IMS) named Intalex at MTS integrates all MTS's systems and processes, including those related to rail safety and rail accreditation, quality, environment, sustainability, health and safety. They must accommodate, coordinate, and give effect to the Project Plans.

As improvements are made to the processes and systems, these will be reflected in updates to the relevant Project Plans. All elements of the Integrated Management System reside on Aconex and/or Teambinder as controlled copies.

1.6. Description of operational activities

The activities that will be undertaken during the operation of the Sydney Metro City & Southwest network have been discussed in detail within the relevant Environmental Impact Statements (EIS's) prepared to gain planning approval for the Project.

The tables below detail the anticipated frequency of each activity, and the general times of day that the operation and maintenance and repair works will be required to be undertaken.

The network will operate 24 hours a day, 7 days per week, 52 weeks in the year.

Table 2 Network Wide – Operational Activities & Indicative Frequencies & Hours of Work

Activity	Indicative Frequency	Typical Working Hours
Emergency Works	As occur.	Immediately after incident. All hours.
Infrastructure Maintenance	Nightly.	0100 to 0425 (in between passenger services).
Infrastructure Repair Works (planned)	3 monthly (6 monthly by section, 2x sections).	48hr shutdown. Last service early Saturday morning (1am) to first service Monday.
Infrastructure Repair Works (unplanned)	As required after passenger services cease.	0100 to 0400.
Fire and Life Safety	Constant monitoring. Address incidents as they occur.	All hours. Immediately after incidents.
Safety and Security	Constant monitoring.	All hours. Immediately after incidents.

Activity	Indicative Frequency	Typical Working Hours
	Address incidents as they occur.	
Operation of Stations	Daily.	0400 to 0130 – Open to Commuters. 0130 to 0400 – O&M activities are required.
Operation of Trains	Daily.	0425 to 0100 – Open to Commuters. 0100 to 0425 – O&M activities are required.

Further details of the activities to be undertaken network wide are contained within Chapter 6 of the Chatswood to Sydenham Environmental Impact Statement, the Sydenham to Bankstown EIS and approved under SSI-7400 (2017) and SSI 8256 (2018) documents.

Table 3 SMTF North – Operational Activities and Indicative Frequencies and Hours of Work

Activity	Indicative Frequency	Typical Working Hours
Emergency Works	As occur.	Immediately after incident. All hours.
Maintenance of Trains	Daily.	All hours within Maintenance Building at SMTF North and South. Generally, daytime and evening hours for significant works within the Stabling Yard.
Safety Checks on Trains	Daily, multiple times per day.	Continuously, from 30 minutes prior to the departure of first train until 30 minutes after return of last train.
Stabling of Trains	Daily.	All hours, until last passenger service completes service. 0100 to 0400.
Cleaning of Trains	Soft Clean – Daily. Hard Clean – Every 2/3 days.	All hours including after last passenger service of the day. 0100 to 0400.
Maintenance of SMTF Infrastructure	As required.	Generally, day-time hours, unless required at other times due to rail safety reasons.
Operation of Administrative Facilities (including monitoring, etc)	Daily.	All hours.
Education and Training of Staff and Workforce	As required, including train driving competency	All hours.
Parking for Workforce, Staff	Daily.	All hours.
Deliveries	Daily.	All hours.
Security	Constantly.	24 hrs a day, 7 days per week.

Further detail of the activities to be undertake at the SMTF site are contained in Chapter 7 of the Tallawong Road, Rouse Hill Rapid Transit Rail Facility Environmental Impact Statement (July 2013) and approved under SSI-5931 (15 January 2014) which states at Section 7.3.6 that the SMTF facility will operate 24 hours a day 7 days per week.

2. Planning and approvals

2.1. Statutory approvals context

As discussed above, the Project has been approved under a series of planning approvals, under various parts of the Environmental Planning and Assessment (EP&A) Act 1979.

Approvals which comprise the Project include:

- CSSI 7400 – Sydney Metro City & Southwest – Chatswood to Sydenham (approved 2017).
- CSSI 8256 – Sydney Metro City & Southwest - Sydenham to Bankstown (approved by DP&E 12 December 2018).

This OEMP has been prepared in accordance with the relevant conditions under CSSI7400 Chatswood to Sydenham only. CSSI 8256 conditions will be met once construction has been completed for that project at a later date. A brief discussion of what each of these approvals addressed is included below.

A Compliance Table contained at the beginning of this document details where the relevant conditions under CSSI7400 have been addressed in this OEMP.

2.1.1. SSI 7400 – Sydney Metro City & Southwest – Chatswood to Sydenham

The development of a metro rail network in Sydney is one of the key initiatives in the NSW Government's *Sydney's Rail Future* plan (Transport for NSW, 2012a). With the North West Metro line currently operating, the Chatswood to Sydenham metro line running through the Sydney CBD is the next step to growing the Metro network in order to meet Sydney's growing population and customer demand. The project involves the operation of an underground rail line, about 15.5 kilometres long, and new stations between Chatswood and Sydenham.

2.1.2. SSI 8256 - Sydney Metro City & Southwest -Sydenham to Bankstown

Connecting with the Northwest Metro line and the Chatswood to Sydenham Metro line, the Sydenham to Bankstown Metro line is the next core component of the *Sydney's Rail Future* plan. This involves upgrading the existing 13.5 kilometre rail line and train stations from Sydenham to Bankstown.

2.2. Legal and other requirements

A register of legal and other requirements for the Project will be contained in the Environmental Obligation Register as part of the Integrated Management System (IMS). This register will be maintained throughout the Project and updated as required, including to accommodate such this as:

- Changes in scope of the Project (including extension of the network)
- Legislative changes or
- As a result of management reviews or internal / external audits.

Any changes made to the Environmental Obligations register would be communicated to the wider team where necessary through awareness training and environmental alerts (Section 5.2), specific training and other methods detailed in Section 5.2 of this OEMP.

The complete list of the relevant planning approvals conditions and environmental management measures are included in the Environmental Obligation Register within the Integrated Management System (IMS).

Table 4 Key Legislative Requirements

Legislation	Requirement	How this Act relates to the project
National Greenhouse and Energy Reporting (NGER) Act 2007	The Act created a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations.	MTS undertakes reporting of greenhouse gas emissions and energy consumption under the NGER Act.
Contaminated Land Management Act, 1997	This Act sets out the roles, responsibilities, and accountabilities for managing contamination of land through the EPA	All contamination existing or discovered shall be managed in accordance with this Act.
Environmental Planning and Assessment Act, 1979	Approval granted under this Act	Approval granted under CSSI 7400
Heritage Act, 1977	This Act describes the process of discovering, identifying and conserving Heritage artifacts	All heritage artifacts existing or discovered shall be managed in accordance with this Act.
Protection of the Environment Operations Act, 1997 (PoEO Act)	This Act is in place to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development	MTS conducts scheduled activities under the Environment Protection Licence (EPL)
Sydney Water Act 1994	This Act outlines the requirements of water management through Sydney Water Corporation	MTS manages water management throughout the network.
Waste Avoidance and Recovery Act, 2001	The objects of this Act are to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development.	MTS manages waste management throughout the network.

2.2.1. Approvals, permits and licensing

MTS will obtain all required licences, permits and approvals as required by law, and these will be maintained throughout operation of the network. No conditions of the applicable planning approvals remove the obligation for MTS to obtain, renew or comply with such necessary licences, permits or approvals, except as provided under Section 115ZG of the EP&A Act.

The Environmental Assessment recognised that the following approvals and licences identified in the planning approval process would be obtained or are required for the operation of the Sydney Metro Northwest:

- Project Approval under the EP&A Act and
- Environment Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act) for Rail Systems Activities.

Approvals in place and required for the Project are identified in Table 5.

Table 5 Delivery Phase Environmental Approvals, Permits and Licenses

APPROVAL / PERMIT / LICENCE	REGULATOR Y AUTHORITY	RESPONSIBILITY / TIMEFRAME	STATUS
Instrument of Approval under the EP&A Act	Minister for Planning	The Sydney Metro Authority See Section 2.1 Statutory Approvals Context of this OEMP for details.	Approved.
EPL will be required for activities listed in Schedule 1 of the POEO Act: <ul style="list-style-type: none"> • Railway infrastructure operations • Rolling Stock 	EPA	MTS / Required by start of Operations.	Variation of the Sydney Metro Northwest EPL. Link here: MTS EPL 21247

2.3. Stakeholder consultation

2.3.1. Historic consultation

Stakeholder consultation has been an integral part of the Sydney Metro network since its inception. For the City & Southwest Metro line, engagement with the community and stakeholders began in June 2014 with the announcement of the then Sydney Rapid Transit project as an extension of the then Northwest Rail Link (now Sydney Metro Northwest).

Key activities have included:

- Stakeholder consultation following the announcement in June 2014.
- Project scope consultation and engagement following the announcement of Sydney Metro City & Southwest in June 2015.
- Industry consultation in June and December 2015.
- Engagement following the project update announcement in November 2015.
- Engagement following the announcement of the Waterloo Station location in February 2016.
- Engagement regarding the Blues Point temporary site in February 2016.

Key stakeholders for the project have included:

- State agencies (e.g. Department of Planning and Environment, Roads and Maritime Services, Environment Protection Authority, NSW Office of Water, Port Authority of NSW, Sydney Water and Office of Environment and Heritage).

- Local government (Willoughby, Lane Cove, North Sydney, City of Sydney and Marrickville councils).
- Public utilities, and business and industry groups near the project.
- Directly impacted communities.
- The broader community.

2.3.2. OEMP Consultation

As per Part D of the CSW Conditions of Approval of CSSI 7400, this OEMP and its sub-plans must be consulted with relevant government agencies before final submissions to the Department of Planning, Housing & Infrastructure (DPHI). Table 6 below displays the relevant government agencies each OEMP sub-plan is to be consulted with.

Table 6 OEMP sub-plan and their relevant government agency to be consulted

Required OEMP sub-plan	Relevant government agencies to be consulted for each OEMP sub-plan
(a) Noise and vibration	
(b) Groundwater Management	DPI Water
(c) Traffic and Transport	Sydney Coordination Office, Relevant Road Authority and non-private transport operators
(d) Flooding and hydrology (including emergency response planning)	Directly affected landowners, OEH, DPI Water, SES, Sydney Water and Relevant Council(s)

After this OEMP had been submitted to the Department of Planning, Housing Infrastructure (DPHI) on June 28, 2024, one month before first passenger services, DPHI provided comments back to MTS in regard to the OEMP and its sub-plans.

The comment DPHI raised regarding the OEMP is listed below:

“Further clarity is required regarding the commitments to deliver groundwater treatment and disposal outcomes at Barangaroo Station and the Marrickville Dive Site. Please note that we have provided a draft direction under separate cover with proposed arrangements for discussion with Sydney Metro and the EPA. The final outcome of these discussions will need to be captured in the OEMP before first passenger services”.

To see the response to this comment, please see Section 6.8.3.2 Water Treatment Plants where more information has been provided surrounding commitments to deliver groundwater treatment and disposal outcomes as per the direction from DPHI to Sydney Metro and the EPA.

2.4. Changes to the OEMP and associated documents

The OEMP is reviewed annually or as required due to changes to contract/s, legislation and/or business activities. The Environmental and Sustainability Advisor is responsible for ensuring environmental management processes are maintained and reviewed in accordance with business practices and standards to accurately reflect changes to the working environment. The Head of Safety, Quality, Risk & Environment will ensure changes to IMS will be carried out in a planned manner and will consider:

- The purpose of change and its potential consequence;
- The integrity of IMS;
- Availability of resources;
- Allocation of responsibilities and authorities.

MTS will regularly update and develop the OEMP in order to ensure the documents reflect the actions to ensure it remains consistent with Operational priorities, risk management, client requirements and environmental objectives the following are considered:

- The status and progress of activities.
- Changes in the design, delivery and operations processes and conditions.
- Lessons learnt.
- Changes in other related Project Plans.
- Requirements and matters not covered by the existing Project Plans.
- Changes to Project Plans as directed by TfNSW's Representative under the Deed.
- Changes as a result of audits or Management Reviews.

2.5. OEMP Submission and publication

This OEMP and its sub-plans for CSSI 7400 Chatswood to Sydenham will be submitted to the DPHI for information no later than one (1) month before the commencement of operation unless another timeframe is agreed with the Secretary.

The OEMP will also be made publicly available on the MTS website before the commencement of operation and first passenger services in order to satisfy the requirement of D8 of the CSW Conditions of Approval.

3. Environmental commitments

3.1. Environment and sustainability policy

The principles implemented through the MTS Environment and Sustainability Policy are designed to ensure that the environmental and sustainability performance objectives and targets are met. The Policy is included in Appendix D. The Policy will be displayed at the site office and communicated to staff and other interested parties via inductions and ongoing awareness programs.

The Environment and Sustainability Policy reinforces the commitment to developing strategies and implementing processes and procedures to ensure adaptation to climate change, resource management (including energy, water and waste, procurement, workforce development) and environmental management is integrated seamlessly into the operation of the network, establishing MTS as an industry leader in operational sustainability performance.

The Environment and Sustainability Policy developed with input from key internal stakeholders through integrated cross-disciplinary participation to ensure that the policy aligns with the operation and maintenance requirements and these for environmental management and sustainability.

3.2. Objectives and targets

This section discusses the objectives and targets MTS seeks to achieve over the operational life of the Sydney Metro City & Southwest network regarding environmental management.

Overarching Environmental and Sustainability targets are outlined in Sections 3.2 and 6.4 respectively.

Annual targets for the environmental management of the operation and maintenance of the Sydney Metro City & Southwest network have been outlined in Sydney Metro City & Southwest SPR Appendix 50a section 2.12.2.

These annual targets are the following:

- OpCo2 will use 100% of the renewable energy which is generated from the permanent solar panels and other renewable energy sources which are installed as part of the Foundation Infrastructure Works.
- OpCo2 must not exceed its Operations Phase electricity consumption target as submitted in the Project Plans. These targets are to be updated with actual figures within a year of operating when sufficient data is made available.

- OpCo2 must recycle or beneficially reuse a minimum of 80% of operational waste and 60% of office waste.
- OpCo2 must not exceed its total operational water demand of 49,608.5 kL/yr as submitted in the Project Plans. The target percentage from potable sources and non-potable sources will be outlined within a year of operation once a target has been set.
- OpCo2 must achieve an Operations Phase carbon footprint of less than the targets as submitted in the Project Plans. These targets are to be updated with actual figures within a year of operating when sufficient data is made available.

Objectives for environmental management of the operation and maintenance of the Sydney Metro City & Southwest network have been developed by MTS to address the key environmental risks identified in the risk assessment undertaken during the preparation of this OEMP.

Key risks identified include the following:

- Noise and vibration impacts from Operations (trains, PA systems etc.) and Maintenance activities (Engineering works on the network and activities in the STMF South).
- Contamination of land and waterways due to accidental spills or fuels, oils, etc.
- Discharge of untreated waters, due to failure of water treatments plants.
- Air quality, due to dust during surface works, gas releases, or failure of plant on the network or at the SMTF.
- Wrongful disposal of waste.

Environmental Indicators that will be used to measure the performance of the network are contained in Table 7 below. Management of Change processes shall be utilised with relevant approvals in place prior to making any changes to MTS Environmental and Sustainability Targets and KPIs.

Table 7 Proposed environmental Indicators for Operation

KEY PERFORMANCE INDICATOR	OBJECTIVE	TARGET	TIMEFRAME	ACTIONS TO BE UNDERTAKEN
Noise and Vibration (surface)	Minimise impact to adjacent community	Zero complaints during from sensitive receivers adjacent to works areas and SMTF.	During surface works.	Implement noise and vibration mitigation measures.
Pollution Control	Manage pollution to ensure no harm to the surrounding environment	Zero contamination of off-site land or waterways due to spills.	Always.	Ensure spill kits are located adjacent to all works locations.
Water Discharge	Ensure water discharge occurs only in a controlled manner.	Zero uncontrolled discharges from site.	Always.	Implement discharge procedure and training.
Air Quality	Minimise impacts to air quality around Project alignment.	Zero complaints from sensitive receivers adjacent to works areas and SMTF South.	During Surface works, gas releases and operation of the SMTF South.	Check weather conditions prior to dust generating works (e.g. tamping). Undertake regular maintenance checks of plant and equipment. Notify Authorities and Community for

KEY PERFORMANCE INDICATOR	OBJECTIVE	TARGET	TIMEFRAME	ACTIONS TO BE UNDERTAKEN
				significant gas releases
Waste	Ensure all waste is minimised and disposed of accordingly.	All waste is to be disposed of as per its waste classification (e.g. at licenced recycling or waste facilities).	Always.	Implementation of Waste Management Processes through the OEMP and EMS, including waste dockets.

4. Implementation and operations

4.1. Integrated Management System overview

MTS applies an Integrated Management System (IMS) approach to the various management systems required to meet the needs of the O&M of the Sydney Metro network. It will act as a “one-stop-shop” for monitoring, reporting and managing all aspects of the operational network which will store and maintain all the relevant environment and sustainability documentation required.

The IMS will:

- Store, review and continual improvement of all environmental management plans, maps, processes and procedures.
- Facilitate reporting, including monthly, quarterly, annual, etc.
- Act as a repository of inspection reports, checklists, and monitoring results.

This OEMP and the OPESP forms part of that IMS and provides an overview of the system to manage and control the environmental aspects of the network during operation. It also provides the overall framework for the systems and procedures to ensure environmental impacts are minimised, and legislative and other requirements fulfilled. This OEMP and the OPESP establishes the system for implementation, monitoring, and continuous improvement to minimise impacts from the operation and maintenance of the network on the environment. The IMS complies with the:

- Environmental Documents;
- NSW Government – Environmental Management System Guidelines, Third Edition August 2013.

The IMS consists of the following key components:

- **Governance documentation:** The Environmental and Sustainability Policy and the OPESP explain the principles we apply in operating to achieve our environmental and sustainability performance objectives and targets.
- **OEMP and sub-plans:** This OEMP describes how MTS complies with the Conditions of Approval of the CSW Network. Sub-plans (required by the CoA) identify requirements and processes applicable to specific impacts of the activities. (This OEMP and associated sub-plans.)
- **Procedures and tools:** Procedures & tools provide additional detail to support the OEMP & sub-plans or are used in the implementation of the OEMP. (Section 4.2)
- **Continuous improvement:** Continual improvement is achieved through constant measures and evaluation (including monitoring, inspections), audit and review of the effectiveness of the OEMP and adjustment and improvement of the OEMP, Project environmental outcomes and the IMS. (Section 9).
- **Performance targets:** Objectives and targets have been developed as a means of assessing environmental performance during construction of the Project. (Section 3 and Section 6).

4.1.1. Operational Environmental Management Plan (OEMP)

The OEMP outlines how MTS will detail how the performance outcomes, commitments and mitigation measures made and identified in the CSW EIS (and its amendments) will be implemented and achieved on the City &

Southwest Metro Network under CSSI 7400 Chatswood to Sydenham. It provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The implementation of the OEMP is supported by the remainder of the environmental management system, which sits within the Integrated Management System (IMS).

The OEMP has also been prepared to be consistent with Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004).

4.1.2. Operational Sub-Plans

The SM CSW CSSI 7400 Chatswood to Sydenham CoA requires four sub-plans be prepared to accompany the OEMP, these being:

- Noise and Vibration Management Plan (NVMP);
- Groundwater Management Plan (GMP)
- Traffic and Transport Management Plan (TTMP)
- Flooding and Hydrology Management Plan (FHMP)

4.1.3. Environmental Aspects Maps

An Environmental Aspect Map (EAM) is a document prepared to assist in the planning and management of specific areas. Environmental and socially sensitive areas including vegetation, heritage, sensitive receivers, waterways, etc, may be included on an EAM.

A series of EAMs spanning the area will be created to supplement this OEMP and Rail Operating Manuals (ROMs). The EAM provides a simple but effective tool to identify key risk areas that are near maintenance & repair works, and to promote ongoing communication to O&M personnel throughout the operational life of the network. The EAMs would be document controlled separately to this OEMP through the Integrated Management System (IMS).

4.1.4. Rail Operating Manuals

MTS utilises Rail Operating Manuals (ROMs) as a means of managing the risks associated with the O&M activities of the Sydney Metro network. The ROMs will include a section addressing the relevant environmental risks associated with the activities being undertaken and will identify where those works are proposed to occur within or near environmentally sensitive areas. This section will include protection measures that minimise the risk of impacting the sensitive areas. The requirement for environmental measures to be included in ROMs would be determined by the Environment & Sustainability Advisor for those activities deemed to carry a risk to the environment (e.g. works near waterways).

As a minimum, the environmental management section of each ROM will include:

- Description of the work activity, including any plant and equipment to be used.
- Outline of the sequence of tasks for the activity, including interfaces with other construction activities.
- Identification of any environmental and/or socially sensitive areas, sites or places.
- Identification of potential environmental risks/impacts due to the work activity.
- Mitigation measures to reduce the identified environmental risk, including assigned responsibilities to site management personnel.
- Hold-points requiring sign-off by the Environment & Sustainability Advisor (if required).
- Process for assessing the performance of the implemented mitigation measures.

For new or changed activities a Works Approval Form will be undertaken. Any new or changed environmental management conditions identified during the review are incorporated into the ROMs as required.

4.1.5. Hold points

A "Hold Point" is a point beyond which a work process must not proceed without express written authorisation from the Environment & Sustainability Advisor.

MTS management systems and processes establish internal hold points for key activities that require environmental management measures to be in place. These hold points are identified in Table 8.

MTS will embed these hold-points in the ROMs, ensuring that any activity that requires sign-off by the Environment & Sustainability Advisor is picked up and addressed prior to the commencement of the respective activity.

Table 8 MTS Hold Points

Hold Point	Action/ Permit Required	Document Reference
New Maintenance or Repair Work	Prior to commencement of a new activity, not previously undertaken in a particular area need Environment & Sustainability Advisor approval.	ROM
Water Discharge	Prior to discharge require Environment & Sustainability Advisor approval.	NSW EPA Environmental Protection Licence GMP FHMP
New Waste Stream (or new receiving location)	When a new waste stream is identified, or a change in the existing waste receivers is proposed require Environment & Sustainability Advisor approval. All waste contractors engaged by MTS will have to comply with this OEMP and associated requirements for sustainable procurement.	NSW EPA Environmental Protection Licence
Heritage Fabric	Prior to working on heritage fabric, MTS will comply with procedures outlined in the Heritage Management Plan.	Heritage Management Plan

4.1.6. Subcontractor management

All subcontractors receive and acknowledge in writing that they will adhere to the MTS's environmental & sustainability procedures that are specific to the work that they are undertaking prior to works commencing. These documents are included with contract documentation.

Sub-contractors and their works are to be regularly inspected and observed for environmental and sustainability compliance, as part of an integrated O&M Phase approach, involving regular inspections, monitoring and auditing described in Section 8.

4.2. Environmental aspects, risks and impacts

Environmental aspects and impacts have been identified through review of the EIS, environmental reports, contractual documents, consultation with Sydney Metro Authority and the D&C Contractor and MTS experience.

The environmental risk assessment, included in Appendix E, details the environmental aspects identified for the operation and maintenance of the network, reference to the appropriate document detailing proposed management measures and resulting risk category after appropriate management strategies are considered. A summary of key environmental risks for the O&M Phase of the Project is provided in Section 4.3.

MTS applies a risk management approach throughout the operational life of the Sydney Metro network in line with the Risk Management Plan (SMCSWTS2-MTS-CSW-PM-PLN-002158) to identify, assess, control and review environmental risks and harness opportunities.

The objectives of risk assessment are to:

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

Risk assessments for the Project consider:

- AS/NZS ISO 31000:2018: Risk management – Principles and guidelines. Environmental risks and opportunities will be integrated into the day to day functions and activities of MTS, through the implementation of Rail Operating Manuals (ROMs). ROMs utilised by MTS manage all repair, maintenance and operation activities undertaken during the O&M Phase of the Project.
- They also include details of the processes, procedures and hold points that apply to each activity.

The ROMs include a section on the relevant environment and sustainability requirements for each activity, effectively building Environmental Work Method Statements (EWMS) and other environmental controls into the project-wide system, creating a one-stop-shop for activities. This approach ensures that environment and sustainability is fully integrated into the O&M Phase as business as usual.

Environmental risks, controls and responsibilities are communicated through the preparation and implementation of ROMs and awareness training.

The Environment & Sustainability Advisor (or delegate) is involved in, and holds approval authority, for most risk assessment types listed in Section 4.3 to ensure environmental risks and opportunities are adequately raised and addressed. Section 4.3 of this OEMP contains a brief discussion on each of the environmental risks associated with the operation and maintenance of the network. It also lists all the relevant management plans, processes and procedures that will be implemented by MTS to mitigate each of the identified environmental aspects.

4.3. Environmental management and monitoring

Table 9 below contains a description of each of the environmental aspects that will need to be managed through the operational life of the network, including how each of these are managed along with a risk assessment. The Risk Assessment Scoring Matrix is located in Appendix 7. Note all the plans, processes and procedures discussed below will be maintained separate from this OEMP through the MTS IMS, which will be subject to the ongoing and continual improvement processes for the whole of MTS, the environmental component of which is discussed below in Section 9 of this Plan.

Table 9 Environmental Management and Monitoring

	Description of Potential Risks / Impacts	Risk Rating			Mitigation	Implementation Strategy/ Plan / Process / Procedure	Revised Risk Rating		
		Consequence	Likelihood	Risk Rating			Consequence	Likelihood	Risk Rating
Surface Water, Groundwater and Discharge	<p>Potential impacts include:</p> <ul style="list-style-type: none"> Discharge of untreated water from stations and railways to surrounding waterways. Uncontrolled discharge of water from stations and railways. Failure of water treatment plants leading to discharge of untreated water. Flooding due to significant rainfall (over the 100yr PMF). Changes to groundwater levels. Effects of stormwater and wastewater on natural hydrological attributes (such as volumes, flow rates, management methods and re-use options) and on the conveyance capacity of existing stormwater systems where discharges are proposed through such systems. 	C3	L3	B – High	<p>Environment & Sustainability Advisor monitors the basins and drainage lines downstream of the alignment.</p> <p>Groundwater quality is subject to testing, and where required treatment prior to discharge.</p> <p>Captured groundwater is to be treated at the Barangaroo and Marrickville WTP.</p> <p>All feasible and reasonable opportunities would be identified for the reuse of captured surface water and groundwater.</p> <p>A spill management procedure has been developed and implemented.</p> <p>Treatment measures are applied to water collected on-site.</p> <p>Station specific risk – Barangaroo station – high levels of cyanide content</p> <ul style="list-style-type: none"> Future Water Discharge Impact Assessment and Water Quality Monitoring Program will be developed after the beginning of operation of the CSW network (and when MTS have taken over the Barangaroo WTP) to appropriately test and manage the higher-than-expected cyanide content currently shown in construction water monitoring tests 	<p>OPESP and OEMP (Section 6.8.3).</p> <p>Environment Inspections via Intelx App – See section 8.1</p> <p>Risk Assessment Process.</p> <p>Environmental Aspects Maps.</p> <p>Environment Protection Licence.</p> <p>Trade Waste Licence.</p> <p>WAR Process</p> <p>Incident Management Framework.</p> <p>Future Water Discharge Impact Assessment and Water Quality Monitoring Program for Barangaroo.</p>	C4	L4	C – Medium



		Risk Rating				Revised Risk Rating			
	<p>Groundwater inflow into tunnels.</p> <p>Station specific risk – SMTF South contains a Water Treatment Plant</p> <p>Station specific risk – Barangaroo Water Treatment Plant – Water containing higher than expected cyanide content</p> <p>Station specific risk – Barangaroo station – cooling water discharge</p>			D - Low	<p>Station specific risk – Barangaroo station – cooling water discharge:</p> <ul style="list-style-type: none"> Ongoing maintenance required. MTS to be given handover following testing and commissioning. <p>CSSI 7400 CoA E107 –</p> <p>The CSSI must be constructed and operated so as to maintain the NSW Water Quality Objectives where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW Water Quality Objectives over time where they are not being achieved as at the date of this approval, unless an EPL in force in respect of the CSSI contains different requirements in relation to the NSW Water Quality Objectives, in which case those requirements must be complied with.</p> <p>EIS SCW7 –</p> <p>Discharges from the tunnel water treatment plant would be monitored to ensure compliance with the discharge criteria determined in consultation with the NSW Environment Protection Authority.</p>	<p>EIS SCW7 - Prior to the discharge of water from the detention basins or water treatment plant (s) , these will require Environment & Sustainability Advisor or Maintenance Centre Manager approval in accordance with MTS's EPA EPL. Pollution Incident Response Management Plan NWRL0TS-NRT-ADM-EN-PLN-720416.</p> <p>Groundwater Management Plan</p> <p>Flooding and Hydrology Plan</p> <p>NSW Aquifer Interference Policy (NSW Office of Water, 2012).</p> <p>Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011.</p>			D - Low
Traffic and Transport	Potential impacts include reduced local parking due to workforce and personnel parking on local streets	C4	L4	D - Low	<p>Safe commuter facilities for active transport provided (e.g. cycling and walking).</p> <p>Undertaking of significant maintenance and repair works during night and weekend possessions and</p>	Risk Assessment Process.	C5	L5	D - Low



		Risk Rating					Revised Risk Rating		
	during maintenance and possession works.				overnight between passenger services, to reduce impact on available commuter parking. Access would be maintained to neighbouring properties (EIS ID: OptT2) Metro customers would be provided with a safe and secure service	Provision of adequate parking at SMTF (office and maintenance sites). Provision of significant parking facilities at stations. Traffic and Transport Management Plan Environment Inspections via Intalex App – See section 8.1			
	Nuisance caused by workforce and personnel parking adjacent residents and businesses during maintenance and possession works.	C4	L4	C - Medium	Station Staff to monitor the surrounding areas of the stations to ensure minimised nuisance caused. Any issues are to be raised in the Intalex app.	Environment Inspections via Intalex App – See section 8.1	C5	L5	D - Low
	Increased local traffic due to increased workforce and personnel travelling to / from work around SMTF.	C4	L4	C - Medium	Maximising pedestrian accessibility to the stations. (EIS ID: OpT1) Provision of cycle storage facilities at stations. Provision of commuter car parking at selected stations. Consideration of peak period movements in assigning shift hours and changeover patterns for maintenance staff at the RTRF. Preparation of workplace travel plans for RTRF entities that would provide alternative modes for journeys to/from work.	Environment Inspections via Intalex App – See section 8.1	C5	L5	D - Low
Noise and Vibration	Potential impacts include: Ground borne (regenerated) noise from	C4	L3	C - Medium	Identify actual noise and vibration levels (in accordance with NVMP).	Operational Noise and Vibration Management Plan	C4	L4	C - Medium

		Risk Rating				Revised Risk Rating			
	<p>operation of trains within the tunnels.</p> <p>Airborne noise from train operating along viaduct and at-grade areas of track.</p> <p>Airborne noise around Station Precincts, due to fixed facilities, include carparks, substations, and public announcement system (PAS).</p> <p>Noise and vibration from maintenance and repair works undertaken overnight (between passenger services) and during night and weekend possessions.</p> <p>Airborne noise from O&M activities.</p>				<p>Adjust management measures identified in NVMP in accordance with the findings of the operational assessment where required.</p> <p>Undertake monitoring in response to receiver complaints were considered necessary by Environment & Sustainability Advisor.</p> <p>Environment & Sustainability Advisor may attend possession works to undertake general surveillance of works and may undertake spot checks of noise and vibration levels to better understand the acoustic profile of the works, where required i.e., ongoing complaints or to monitor and assess the impacts of specific works.</p> <p>Ensure that when rail components (e.g. rail dampeners) are replaced during maintenance they are replaced with components with the same or improved acoustic properties.</p> <p>Standard, high and very high track attenuation provided through tunnels.</p> <p>Investigate the option to incorporate silencers in the compressed air lines of the rolling stock.</p> <p>Investigate methods to minimise rolling stock auxiliary noise levels during procurement.</p> <p>Noise sources at stations such as PA systems, air conditioners, substations and mechanical plant would be designed to meet the INP noise criteria.</p> <p>EIS ID: OpNV1 -</p> <p>The height and extent of noise barriers adjacent to the northern surface track works would be confirmed during detailed design with the aim of not exceeding trigger levels from the Rail Infrastructure Noise Guidelines (Environment Protection Authority, 2013).</p>	<p>Risk Assessment Process.</p> <p>Environment Inspections via Intellex App – See section 8.1</p>			

		Risk Rating				Revised Risk Rating			
					<p>At property treatments would be offered where there are residual exceedances of the trigger levels.</p> <p>EIS OpNV2 – Track form would be confirmed during the detailed design process in order to meet the relevant ground-borne noise and vibration criteria from the Rail Infrastructure Noise Guidelines (EPA, 2013) and the Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007a).</p> <p>EIS OpNV3 – Stations and ancillary facilities including train breakout noise from draught relief shafts would be designed to meet the applicable noise criteria derived from the Industrial Noise Policy (EPA, 2000).</p>				
Visual Amenity and Landscaping (including in relation to Heritage)	<p>Potential impacts include: Light intrusion from permanent facilities at stations. Light intrusion from temporary works (maintenance and repair). Poor maintenance of landscaping within LMAs. Poor maintenance of urban design elements within Licenced Maintenance Areas (LMAs), including station finishes, graffiti, etc. Damage to identified Heritage items.</p>	C4	L5	D - Low	<p>Ensure that maintains its orientation to ensure it is directed away from sensitive receivers. Undertake regular inspections of the public areas, rail corridor for cleanliness, condition and graffiti to identify where remedial actions are required. Ensure MTS employees are trained on Heritage Management.</p> <p>CSSI 7400 CoA D10 – MTS will manage the ongoing maintenance and operation costs of the urban design and landscaping items and works implemented by Sydney Metro. MTS will maintain items and works to the design standards established in the Station Design and Precinct Plan</p>	<p>Inspections regarding the public area and rail corridor cleanliness, condition and graffiti, under the Asset Information System and Station Operations Manual (ROM).</p> <p>Environment Inspections via Intellex App – See section 8.1</p> <p>Heritage Management Plan.</p>	C5	L5	D - Low



		Risk Rating				Revised Risk Rating			
	Disrupted operations between Sydney Metro and Sydney Trains causing damage and/or delays				<p>CSSI 7400 CoA E1 – MTS will manage the operational and asset interface risks to ensure successful operational integration of the CSSI and the heavy railway network and the protection of physical and operational Sydney Trains’ assets and services during operation.</p> <p>EIS ID: LV10 – Cut off and direct light fittings (or similar technologies) would be used to minimise glare and light spill onto private property.</p> <p>EIS ID: LV11 – Where feasible and reasonable, vegetation would be provided to screen and visually integrate sites with the surrounding area.</p> <p>EIS ID: LV12 – Identify and implement appropriate landscape treatments for Frank Channon Walk.</p> <p>EIS ID: LV13 – The architectural treatment of Artarmon substation would minimise visual amenity and landscape character impacts.</p> <p>EIS ID: LV14 – The Harbour cycles sculpture at North Sydney would be reinstated at a location determined in consultation with North Sydney Council.</p>	Risk Assessment Process.			

		Risk Rating				Revised Risk Rating			
					<p>EIS ID: LV15 – The P&O Fountain at 55 Hunter Street would be reinstated at a location determined in consultation with City of Sydney Council.</p> <p>EIS ID: LV16 – Opportunities would be investigated to provide a permanent wall for street art at Marrickville dive site in consultation with Marrickville Council.</p> <p>EIS ID: LV17 – Noise barriers would be transparent where they are augmenting existing transparent noise barriers.</p>				
Ecology	<p>Potential impacts include fauna struck by trains and maintenance / repair vehicles.</p> <p>Weed proliferation by repair and maintenance vehicles.</p> <p>Poor vegetation management of landscaped areas (within LMAs).</p> <p>Station specific risk – Potential impacts to marine ecology due to discharge of contaminants (and cooling system water at a sub-optimal temperature) to harbour at Barangaroo</p>	C4	L5	D - Low	<p>Surveillance and inspections of all landscaped areas of the LMAs and ballasted at-grade track areas at regular intervals to ensure weeds are identified managed / removed in an appropriate manner.</p> <p>Include regular watering and vegetation management to ensure vegetated areas within LMAs are maintained.</p> <p>The Sydney Metro Marine Ecology Impact Assessment states “The marine habitats around the discharge point are composed almost entirely of soft silt sediment and rock/reef structures. Sensitive receptors to temperature change and/or anti-fouling discharge would be sessile invertebrates and algal assemblages located on the shoreline wall near to the outlet. Key species that are present are Blue Mussels and the bryozoan B. neritina. However, given the temperature resilience of the species present, the natural variability of ambient water temperature in Sydney Harbour and the limited modelled change in temperature along the shoreline</p>	<p>OPESP and OEMP.</p> <p>Environment Inspections via Intelix App – See section 8.1</p> <p>Risk Assessment Process.</p> <p>Flora & Fauna Management Plan NWRL0TS-NRT-PRD-PM-PLN-000874.</p> <p>Rail Operating Manuals.</p> <p>MTS-CEN-PR-55209 Weed Management Procedure.</p>	C5	L5	D - Low



		Risk Rating				Revised Risk Rating			
					<p>as a result of the proposed discharge, the expected impact to sessile organisms is not considered significant. Similarly, impacts on mobile fauna, included the protected species from the Proposal are also expected to be negligible. No significant impact is predicted from the discharged antifoulant due to its low toxicity, low discharge concentration and short duration of discharge”</p> <p>MTS will continue to work with Sydney Metro to ensure this negligible impact to the flora and fauna remains consistent, and MTS will amend the mitigation measures for this risk if it changes.</p>	Sydney Metro Authority Marine Ecology Impact Assessment			
Heritage	<p>Potential impacts include: Damage to previously unknown heritage items during intrusive maintenance works. Poor maintenance of vegetative screening planted by the Project to protect the significance of adjacent heritage items.</p> <p>Station specific risks – Central and Sydenham station heritage assets</p>	C3	L5	C - Medium	<p>Ensure MTS employees are trained on Heritage Management. Including inductions and heritage specific training for all MTS employees who will work on/near Heritage listed assets i.e. Station staff.</p> <p>CSSI 7400 CoA E10 - The Proponent must not destroy, modify or otherwise physically affect any Heritage item not identified in documents referred to in Condition A1.</p> <p>CSSI 7400 CoA E27 - An Exhumation Management Plan must be prepared to guide the relocation of recovered human remains. The Exhumation Management Plan must be prepared: (a) in consultation with, and meeting the requirements of, the OEH and NSW Health; and (b) in accordance with the Guidelines for Management of Human Skeletal Remains (NSW Heritage Office, 1998b) and NSW Health Policy Directive – Exhumation of human remains (December, 2013), and other relevant guidelines</p>	<p>Heritage Management Plan.</p> <p>Environment Inspections via Intellex App – See section 8.1</p> <p>Risk Assessment Process.</p>	C4	L5	D - Low



		Risk Rating				Revised Risk Rating			
					<p>and standards prepared by the Heritage Council of NSW or OEH.</p> <p>The Exhumation Management Plan must be provided to the Secretary for information before the commencement of excavation works.</p>				
Soil and Contamination	<p>Potential impacts include: Spills of contaminated and / or hazardous materials (e.g. fuel; oil). Importation of contaminated materials to site. Removal and disposal of contaminated material. Contaminated soils. Acid sulphate soils.</p> <p>Station specific risks – SMTF South – Sydney Steel Road - Friable and bonded asbestos, and benzo(a)pyrene TEQ impacted fill soil across the site;</p> <p>Hydrocarbon odour impacted material in the north-eastern portion of the site</p> <p>Station specific risks – SMTF North – 1m x 1m asbestos impacts</p>	C5	L5	D - Low	<p>Ensure all sites identified and remediated / managed during the D&C Phase (as per Contamination Environmental Management Plans), and any sites containing a residual risk, are identified and captured in the Environmental Aspect Maps.</p> <p>Identify any known contaminated sites near to the Project alignment (but not within the Project footprint) are identified in the Environmental Aspect Maps.</p> <p>Implement the Unexpected finds Procedure to ensure that of contamination (solid or liquid) is discovered during the O&M Phase so it gets managed appropriately.</p> <p>In addition to the above, MTS will comply with the REMMs addressed in Appendix C to this OEMP: <i>Spill management procedure will be implemented.</i></p> <p>Station specific risks – SMTF South – Sydney Steel Road: Managed by Environment Management Plan (EMP) (Appendix F)</p> <p>Station specific risks – SMTF North – 1m x 1m asbestos impacts:</p> <ul style="list-style-type: none"> Detailed Site Investigation (DSI) report provided to MTS. 	<p>OPESP and OEMP.</p> <p>Environment Inspections via Intelx App – See section 8.1</p> <p>Risk Assessment Process.</p> <p>Environmental Aspects Maps.</p> <p>Info Docs, including Contamination Reports from D&C Phase, including clearance certificates.</p> <p>EMP (Appendix F).</p> <p>DSI Report.</p> <p>EIS ID: HR5 – All hazardous substances are to be stored and managed according with the correct standards.</p>	C4	L5	D - Low



		Risk Rating				Revised Risk Rating			
	requiring isolation or removal.				EIS ID: HR5 - All hazardous substances that may be required for Operation would be stored and managed in accordance with the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005) and Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011).				
Air Quality	Potential impacts include: Dust from maintenance works and /or operation. Minor quantities of Particulate Matter 10 (PM10) generated in tunnels due to wear of train brake pads, vapourisation of metals due to sparking, wear of steel due to friction between wheels and rail, and recirculation of particulates from tunnel walls.	C5	L5	D - Low	Visual surveillance of areas where surface works (viaduct and at-grade areas) are being undertaken for O&M activities, at times of hot weather / high winds. The engines of all on-site vehicles and plant would be switched off when not in use for an extended period. Plant would be well maintained and serviced to minimise emissions. Emissions from plant would be considered as part of pre-acceptance checks. In addition to the above, MTS will comply with the REMMs addressed in Appendix C to this OEMP. CSSI 7400 CoA E5 – All reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the CSSI.	OPESP OEMP Risk Assessment Process. Rail Operating Manuals. Environment Inspections via Intellex App – See section 8.1	C4	L5	D - Low
Waste and Resource Management	Potential impacts include: Contamination of land due to improper disposal of waste. Excessive volumes of waste going to landfill. Waste streams not properly separated causing	C4	L2	B - High	Provision of individual recycling bins for different waste streams, adjacent to general waste bins where required in stations, offices and maintenance building(s). Separation of waste streams for maintenance and repair work wastes. Specialist wastes must be recycled where practicable.	OPESP OEMP Risk Assessment Process. Waste Management Procedure (NWRLOTS-	C5	L3	C - Medium

		Risk Rating				Revised Risk Rating			
	<p>improper disposal of waste offsite.</p> <p>Waste from stations and maintenance activities being directed to landfill due to the inadequate collection, classification and disposal of waste, which would increase the demand for landfill capacity within the Sydney region.</p> <p>Waste (such as litter) from station buildings being blown into the surrounding environment if adequate bins are not provided or emptied regularly.</p> <p>Disposal of wastewater from tunnels and stations.</p> <p>An increase in vermin from the incorrect storage, handling and disposal of putrescible waste at stations.</p> <p>Excessive amounts of maintenance materials being ordered, resulting in a large amount of left-over, unused resources.</p>				<p>Separation, categorisation of hazardous and contaminated materials from general solid waste, for disposal at appropriately licenced facilities.</p> <p>All waste contractors engaged by MTS will have to comply with this OEMP and associated requirements for sustainable procurement.</p> <p>Use of waste docketts as a means of tracking waste from O&M activities, to ensure appropriate disposal.</p> <p>CSSI 7400 CoA E106 –</p> <p>Waste generated during Operation is to be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.</p> <p>EIS ID: HR5 –</p> <p>All hazardous substances that may be required for operation would be stored and managed in accordance with the Storage and Handling of Dangerous Goods Code of Practice (Workcover NSW, 2005) and Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011).</p> <p>EIS ID: WM5 –</p> <p>Generation of operation phase waste would be minimised.</p>	<p>NRT-ADM-EM-PRO-720471-01)</p> <p>Waste Docketts.</p> <p>Rail Operating Manuals (Hazardous Goods).</p> <p>Environment Inspections via Intellex App – See section 8.1</p> <p>EPL#21247 Condition O8 – Waste Management</p>			



		Risk Rating				Revised Risk Rating			
					In addition to the above, MTS will comply with the REMMs addressed in Appendix C to this OEMP.				
GHG, Climate Change and Energy Use	<p>Potential impacts include: Excessive use of non-renewable energy sources, causing an increased carbon footprint. Inadequate water reuse and recycling.</p> <p>Various plant and equipment unable to meet their operational performance due to rising temperatures, rainfall events, severity of storms, and bushfires</p>	C4	L4	C - Medium	<p>Implementation of the initiatives and strategies identified in Section 6 of this OEMP.</p> <p>In addition to the above, MTS will comply with the REMMs addressed in Appendix C to this OEMP.</p> <p>Minimise GHG emissions through energy reduction and avoidance, energy efficiency and onsite and offsite renewable or low carbon energy.</p> <p>When plant and equipment (i.e. HVAC systems, rail lines, access roads, substations, tunnel ventilation systems and various other types of equipment) are replaced at the end of their design life, a review of observed and expected increase in the effects of climate change are to be undertaken to determine the new design parameters for future plant and equipment.</p> <p>CSSI 7400 CoA E74 – The Proponent must fully offset the greenhouse gas emissions associated with consumption of electricity during Operation of the CSSI.</p> <p>EIS ID: SUS 7 – Sustainability initiatives would be incorporated into the operation of the project to support the achievement of the project sustainability objectives.</p> <p>EIS ID: SUS 8– Periodic review of climate change risks would be carried out to ensure ongoing resilience to the impacts of climate change.</p>	Carbon and Energy Management Plan. TSOM Risk Register. Sustainability Ratings (ISC, Green Building, TfNSW Sustainable Design Guidelines).	C5	L4	D - Low



		Risk Rating				Revised Risk Rating			
				C - Medium	EIS ID: SUS 9 – A workforce development and industry participation strategy would be developed and implemented during operation. EIS ID: SUS 10 – 100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.				
	Excessive use of potable water.	C4	L4	C - Medium	Minimise demand for, and use of potable water.		C5	L4	D - Low

4.4. Community response

MTS will respond to community inquiries and complaints received during the operation and maintenance of the network relating to environmental aspects, including such things as:

- Noise and vibration.
- Water quality.
- Water management (e.g. flooding).
- Air quality (dust).

This Community Response Process is integrated into the MTS Stakeholder and Community Involvement Plan (SCIP, reference SMCSWTS2-MTS-CSW-PM-PLN-002162). Table 10 below covers CoA B10.

Table 10 Community Response Process

An environmental enquiry or complaint is received via TfNSW's Customer Information service on 131 500 and online at www.transport.info .			
Step	Action	Timeframe	
		Operational hours	Engineering hours
1	Initial contact <ul style="list-style-type: none"> • TfNSW notifies MTS of enquiry or complaint (operational hours). • MTS receives complaints where 131 500 is diverted (engineering hours). • SMA/TfNSW-related online enquiry or complaint is received by MTS via Salesforce. 	<ul style="list-style-type: none"> • Immediately. • 131 500 phone calls are entered into Salesforce and responsibility assigned to MTS. • Web-based enquiry or complaint is entered into Salesforce and responsibility assigned to MTS. 	<ul style="list-style-type: none"> • Immediately. • 131 500 passed off to MTS-designated number between 12am – 6am. • Web-based form entries are provided to MTS the next business day by TfNSW.
2	Investigation For complaints, MTS Customer Information Delivery Partner (ISC) investigates and contacts complainant to seek any additional information.	Within 24 hours when only trains are operating.	<ul style="list-style-type: none"> • Within two hours or as agreed with complainant when maintenance and repair works are occurring in Environmental Protection Licence licenced premise. • Within 24 hours when only trains are operating or not within EPL licenced premise.
3	Escalation (Beyond a usual operational issue) Where is cannot be resolved by the MTS SMCIC, DCRC or GMOCE, for dissemination, coordination of Subject Matter Expert or SMA/TfNSW involvement (as required) and response.	Within two business days.	
4	Review SME involvement, review of complaint, investigate work practices and mitigations. Develop response including proposed monitoring and any proposed additional mitigation measures.	Within five business days.	
5	Resolve MTS CRO communicates the resolution with complainant.	Target five business days. Where a complaint requires a detailed investigation, may require significant mitigation* and may take longer than 20 days, the complainant will be kept informed of progress on a regular basis until the matter is resolved.	

* Significant mitigation is defined by MTS to be mitigation that:

- a. has a cost of more than \$10,000; or

b. will require further noise modelling to determine the scope of reasonable and feasible mitigation measures (e.g., height and size of noise barriers, or specifications for at-property treatments).

5. Roles and responsibilities

5.1. Roles and responsibilities

Environmental and Sustainability Performance is the responsibility of all members of the MTS team. Figure 1 below shows the organisational structure of the key environmental and sustainability management roles and responsibilities.

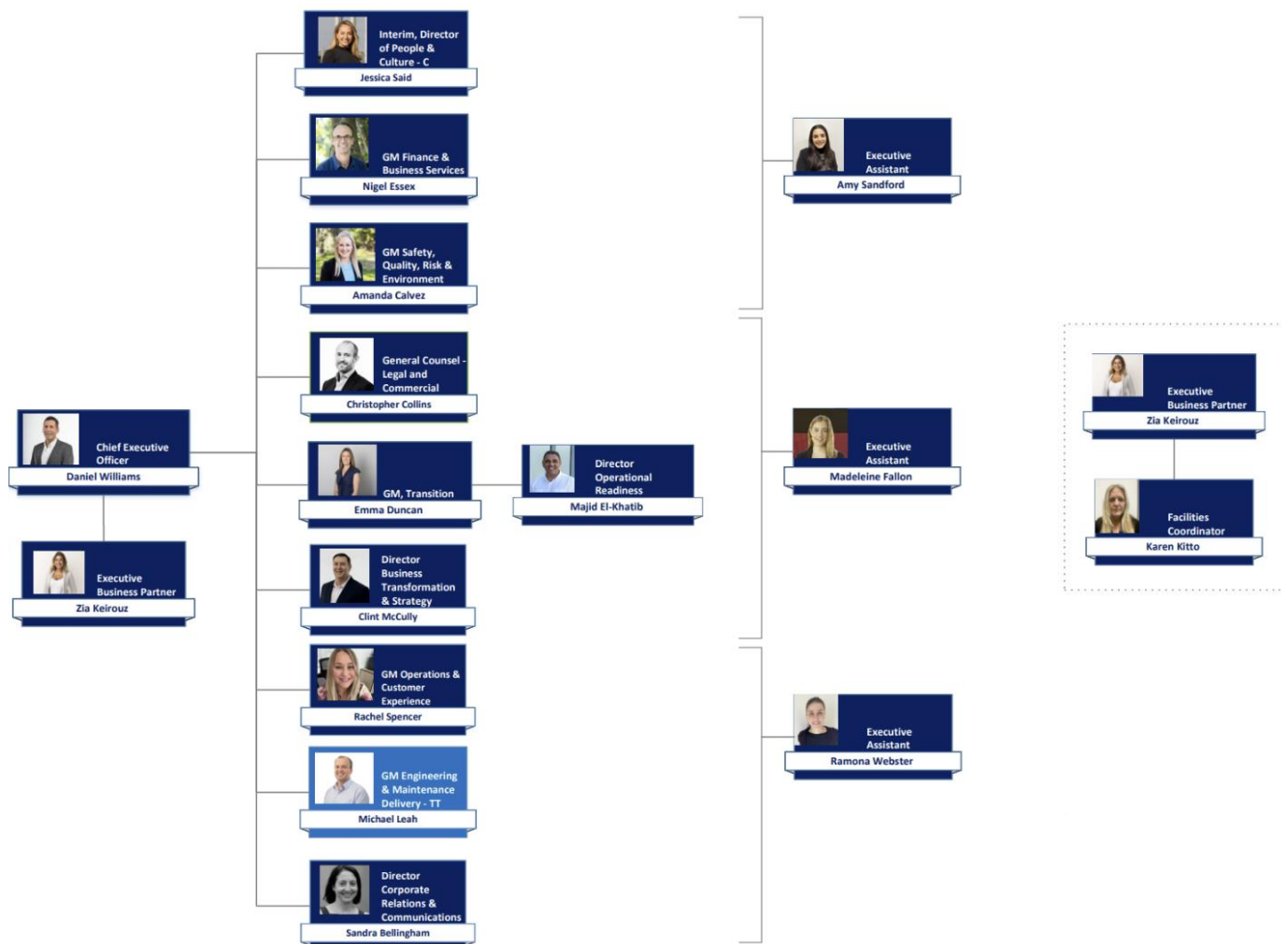


Figure 1 MTS Organisational Chart – Executive Team

The below figures display the hierarchies which contain key personnel directly responsible for all environment & sustainability management functions.

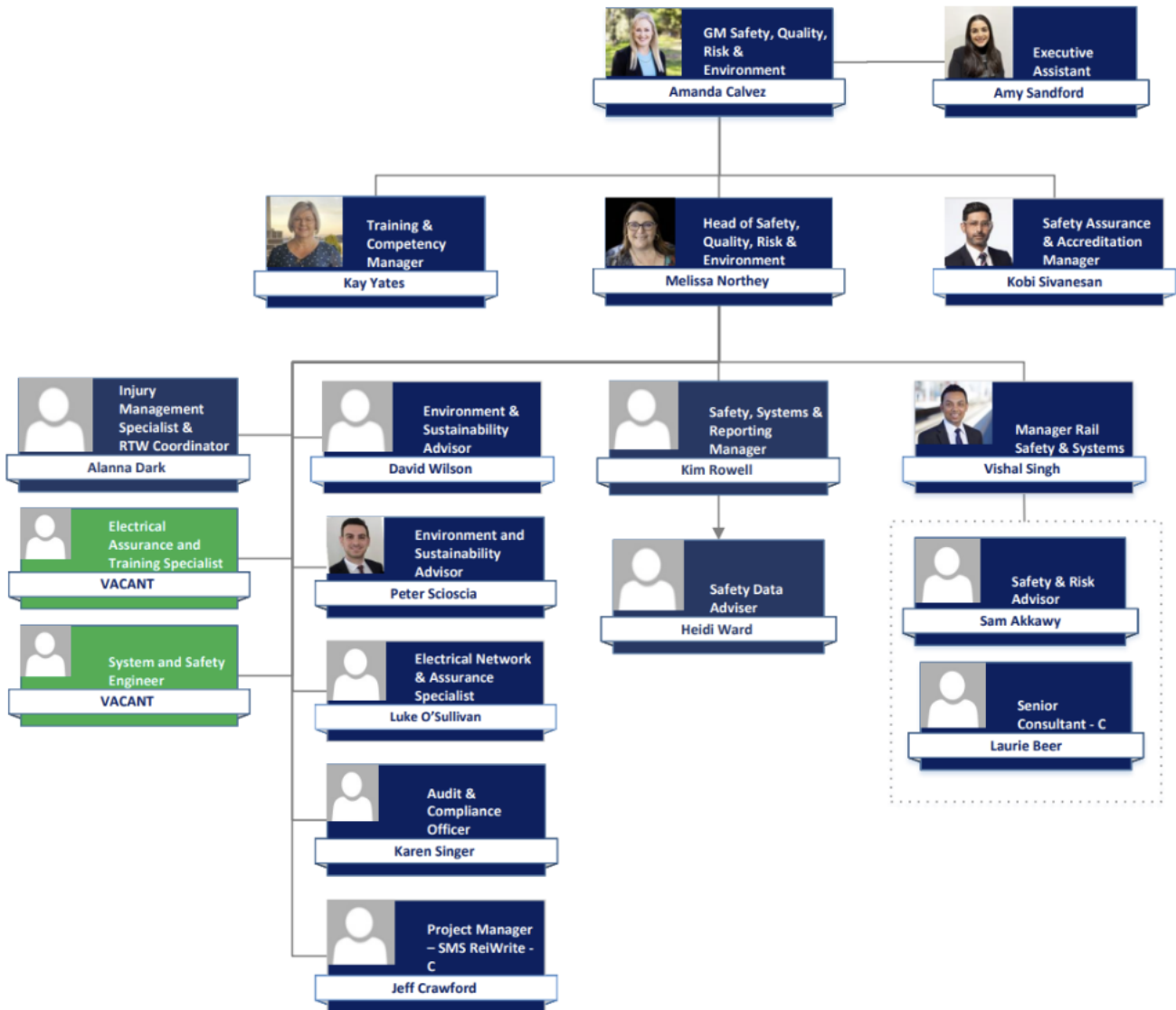


Figure 2 MTS Organisational Chart – Safety, Quality, Risk, Environment and People

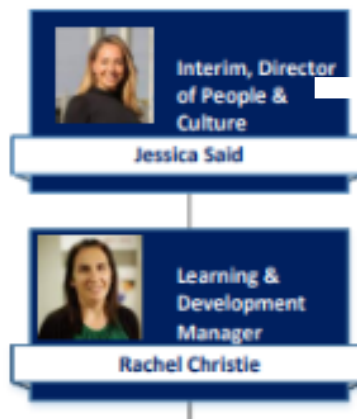


Figure 3 MTS Organisational Chart - People and Culture

The Head of Safety, Quality, Risk & Environment has the final authority in matters relating to the IMS. The Environment & Sustainability Advisor has the responsibility for the IMS documentation content in compliance with the requirements of AS/NZS ISO 14001.

Table 9 below outlines the responsibilities of key members of staff to ensure that the environmental and sustainability obligations of the Project are met, and that all members of staff and workforce are aware to their obligations and the project-wide targets for the Network.

Table 11 MTS Roles and Responsibilities

Role	Responsibilities
Chief Executive Officer (CEO)	<p>The responsibilities of this role include, but are not limited to:</p> <ul style="list-style-type: none"> Provision of O&M input and approves the design of the railway system, and facilities in the mobilisation period. Ensure the readiness of all systems and facilities for the operation of Sydney Metro CSW Network. Development, implementation and continual review of all the management system and related documents, necessary to provide a safe, reliable and efficient operation of the Sydney Metro CSW Network, including the IMS. Responsible for the management of environmental and sustainability issues through compliance with the Environmental and Sustainability Policy and implementation of relevant requirements of MTS environmental management systems. To make decisions on the day-to-day business of MTS and O&M requirements for Sydney Metro CSW Network. <p>Minimum skill level:</p> <ul style="list-style-type: none"> University degree holder in Business Management, Engineering or equivalent. Over 25 years of experience in operating a railway with solid experience in managing multi-discipline organisations and a driverless railway system.
Manager People & Culture	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> Establish and maintain operational training processes and procedures. Responsible for ensuring sustainability Targets regarding workforce diversity are met (section 6). <p>Minimum skill level:</p> <ul style="list-style-type: none"> Minimum bachelor's degree or qualification deemed to be equivalent in HR or, equivalent professional experience.
Learning & Development Manager	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> Establish and maintain operational training processes and procedures. Review and validate training course materials. Manage the planning and delivery of efficient training, competence assurance and administrative functions. Maintaining and monitoring competency records. Work with Environment & Sustainability Advisor to develop training packages addressing environmental risks. Work with Environment & Sustainability Advisor to develop training packages addressing sustainability initiatives. Develop and implement the training delivery schedule for the O&M Phase, including environmental and sustainability aspects. Operate reasonably independently, in accordance with MTS's policies; quality, safety and environmental management systems; processes and relevant legislation. Responsible for ensuring sustainability targets regarding workforce legacy are met. Implement sustainability initiatives for workforce training and diversity. <p>Minimum skill level:</p> <ul style="list-style-type: none"> Minimum bachelor's degree or qualification deemed to be equivalent in professional education and training or a HR-related field, or equivalent professional experience. Certificate IV Training and Assessment.

Role	Responsibilities
Head of Safety, Quality, Risk & Environment	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> • Be an emergency contact and available to be contacted by EPA, DPFI and The Sydney Metro Authority Representatives on a 24-hour basis. • Endorse and support the MTS Environment and Sustainability Policy and this OEMP. • Provide environmental leadership and ensure adequate resources are provided to effectively implement this OEMP. • Provide sustainability leadership ensuring adequate resourcing to ensure targets are met and sustainability ratings are achieved and maintained. • Provide environmental oversight, direction and leadership regarding the environmental and sustainability management of the Project. • Provide sustainability oversight project-wide to ensure initiatives permeate all disciplines (e.g. procurement, training and workforce). • Establishing the IMS in accordance with all legislative and other requirements, including the OEMP. • Assist in establishing ISC rating for the operational network. • To support the CEO-MTS on MTS operations and the management of stakeholders including, The Sydney Metro Authority, EPA and other State and Federal government bodies and other government agencies. • Undertake regular formal reviews of the MTS IMS and update the IMS accordingly. • Review the Project's management systems and key management plans to ensure and maintain compliance with the requirements of the MTS IMS, CoA and EPL. • Ensure environmental incidents are managed and reported (to DPFI, EPA and Parent Companies) in accordance with the planning approval and EPL requirements. • Ensure sustainability initiatives are implemented and targets met. • Foster and maintain a positive environment and sustainability culture. <p>Minimum skill level:</p> <ul style="list-style-type: none"> • Preferably University degree or tertiary education or equivalent. • Over 15 years of experience in railway operations with solid experience in railway safety.
Environment & Sustainability Advisor	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> • Obtain all required approvals to facilitate O&M of the Project, including but not limited to the EPL. • The revision and updates of the OEMP. • Manage the ISC rating for the O&M Phase of the Project. • Develop the O&M Phase IMS for the Project. • Implement the sustainability initiatives required to obtain sustainability ratings (e.g. ISC and Green Star). • Monitor implementation of sustainability initiatives and undertake actions of continual improvement where necessary. • Monitor carbon, energy and potable water use to ensure compliance with sustainability targets. • Undertake environmental risk assessment, and revisit this through the life of the project through continual review and improvement processes within the IMS. • Key point of contact for environmental and planning approvals and sustainability stakeholders, including but not limited to DPFI, EPA; ISC. • Be an emergency contact and available to be contacted by EPA, DPFI and The Sydney Metro Authority Representatives on a 24-hour basis. • Notify MTS, OpCo2 and agencies as required in response to environmental incidents and potential incidents. • Act as the main point of contact for the Sydney Metro Authority environmental and sustainability teams and approval authorities. • Identify and maintain a register of relevant legal, MTS IMS requirements, contractual and other requirements. • Obtain all necessary approvals prior to commencing relevant works. • Ensure the project induction includes appropriate training regarding the requirements of this OEMP, the EPL and any other key obligations. • Ensure identified risks are analysed and evaluated according to agreed criteria. Regularly review identified risks and controls and maintain a risk register. • Ensure regular inspections, observations, monitoring and audits are conducted to check the effectiveness of controls and that compliance is maintained. • Identify, assess and leverage opportunities to achieve sustainability outcomes.

Role	Responsibilities
	<ul style="list-style-type: none"> Review subcontractors' performance and compliance with MTS environmental and sustainability requirements. Enter and close out all environmental incidents in the O&M Phase Reporting System. Identify and implement corrective and preventative actions after incidents and share lessons learned within the MTS team or other projects, as applicable. Provide input to the monthly, quarterly and annual project progress report (as required). <p>Minimum skill level:</p> <ul style="list-style-type: none"> Tertiary qualifications in Environmental Science, Environmental Engineering or related discipline. 10 years of industry experience in construction and / or operation.
GM Safety, Quality, Risk & Environment	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> O&M related investigations, compliance inspections, and data and trend analysis to mitigate safety and environmental risks. Maintain MTS compliance with relevant environmental standards, and legal and regulatory requirements. Support the Head of Safety, Quality, Risk & Environment with the delivery of key O&M milestones in alignment with MTS legal and regulatory requirements, business objectives and key performance indicators. Ensure preventative and corrective actions requested are completed within appropriate timeframes through efficient monitoring. Manage continuous improvement of the risk management process. Develop, maintain and continually improve the MTS IMS. Expected to operate reasonably independently, in accordance with MTS's policies; quality, safety and environmental management systems; processes and relevant legislation. <p>Minimum skill level:</p> <ul style="list-style-type: none"> Tertiary qualifications in Business Management, Engineering, Science or relevant discipline.
GM Engineering & Maintenance Delivery	<p>The responsibilities of this role include, but are not limited to:</p> <ul style="list-style-type: none"> Responsible for establishing and executing O&M asset management strategy and asset management plan in adherence to the OEMP. <p>Minimum skill level:</p> <ul style="list-style-type: none"> University degree or tertiary qualification in Electrical/Electronic and/or Mechanical/ Mechatronics Engineering or equivalent appropriate for admission to the Institute of Engineers Australia.
Head of Asset Management	<p>The responsibilities of this role include, but are not limited to:</p> <ul style="list-style-type: none"> Develop and maintain, in conjunction with Maintenance Centre Manager, Infrastructure Engineer, Infrastructure Delivery and Rolling Stock & Signalling Manager(s), the Asset Replacement Programme and the Asset Obsolescence Plan to drive maximisation of safety, reliability and availability of the asset in accordance with sustainability targets. Explore the use of new technologies to improve the effectiveness of asset maintenance technique, upgrade existing assets, to reduce asset maintenance costs, enhance customer experience and improve sustainability outcomes. Expected to operate reasonably independently in accordance with MTS's policies. SQRE management system, processes, and relevant legislations. <p>Minimum skill level:</p> <ul style="list-style-type: none"> University degree or tertiary qualification in Civil and/or Electrical and/or Mechanical Engineering appropriate for admission to the Institute of Engineers Australia. Post-Graduate qualifications in maintenance or management studies are desirable.
Head of Asset Management	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> Develop and implement efficient planning for the Depot and Rolling Stock asset maintenance activities. Manage consumables, spares, materials, and tools inventory control as well as budget. and resources controls for rolling stock to meet MTS's sustainability objectives. Manage compliance of depot assets and equipment condition with MTS asset performance standards, including sustainability requirements.

Role	Responsibilities
	<ul style="list-style-type: none"> Expected to operate reasonably independently in accordance with MTS’s policies, Integrated Management System, processes, Safety Management System and relevant legislation. <p>Minimum skill level:</p> <ul style="list-style-type: none"> Preferably University degree or tertiary education in Electrical/Electronic and/or Mechanical/ Mechatronics Engineering or equivalent; and Post-Graduate qualifications in maintenance or management studies are desirable.
Infrastructure Engineering Manager	<p>The responsibilities of this role include, but are not limited to:</p> <ul style="list-style-type: none"> Develop and maintain, in conjunction with Maintenance Centre Manager, Infrastructure Delivery and Rolling Stock & Signalling Manager(s), the infrastructure engineering Programme and to drive maximisation of safety, reliability and availability of the network in accordance with sustainability targets. Explore the use of new technologies to improve the effectiveness of infrastructure engineering to reduce costs, enhance customer experience and improve sustainability outcomes. Expected to operate reasonably independently in accordance with MTS’s policies. SQRE management system, processes, and relevant legislations. <p>Minimum skill level:</p> <ul style="list-style-type: none"> University degree or tertiary qualification in Civil and/or Electrical and/or Mechanical Engineering appropriate for admission to the Institute of Engineers Australia. Post-Graduate qualifications in maintenance or management studies are desirable.
Infrastructure Delivery Manager	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> Expected to operate reasonably independently in accordance with MTS’s policies. SQRE management system, processes, and relevant legislations. Manage consumables, spares, materials, and tools inventory control as well as budget and resources control for all infrastructure assets to meet MTS’s business objectives and operational KPI’s, including sustainability obligations. <p>Minimum skill level:</p> <ul style="list-style-type: none"> University degree or tertiary qualification in related area.
Head of Strategy, Corporate Relations & Communications	<p>The environmental responsibilities include, but are not limited to:</p> <ul style="list-style-type: none"> Providing the delivery of internal and external communication (media, government and stakeholder relations). Corporate social responsibility; and Customer and community events. <p>Minimum skill level:</p> <ul style="list-style-type: none"> Tertiary qualifications in communications, marketing, media relations, journalism or related business discipline.

5.2. Training and competency

The Training Management Plan provides the overview and approach to training within MTS.

To ensure that this OEMP is effectively implemented, each level of management is responsible for ensuring that all personnel reporting to them are aware of their obligations under this Plan. The Environment & Sustainability Advisor will assist in the development of environmental training in conjunction with other training and development activities in the wider Training Management Plan. A training schedule will be developed by the Learning & Development Manager, with input from other disciplines, including Environment and Sustainability, and will be updated/amended throughout the life of the Project as training needs are identified.

5.3. Project awareness information

All personnel, subcontractors and visitors will undergo an induction before commencing work on the network. Included in this induction will be a section on environmental and sustainability obligations. This is done to ensure all personnel involved in the operation and maintenance of the network are aware of the requirements of the OEMP and to ensure the universal understanding of relevant environmental risks & controls and management requirements.

Where a formal induction is required, it is to address project-specific environmental and sustainability issues, including, but not limited to:

- MTS Environment and Sustainability Policy.
- Environmental Protection License (NSW EPA)
- Purpose and objectives of the OEMP.
- How the OEMP is implemented.
- Requirements of due diligence and duty of care.
- The conditions of environmental licences, permits and approvals.
- High-risk environmental activities on the Project and their controls.
- What to do when working in or near environmentally sensitive areas.
- Sustainability objectives and requirements.
- What to do in the event of an environmental incident or emergency.

Reporting and notification requirements for pollution and other environmental incidents, including the existence of the Pollution Incident Response Management Plan (PIRMP) and staff responsibilities regarding the PIRMP.

5.3.1. Training and awareness

Toolbox talks would be one method of raising awareness and educating personnel on issues related to all aspects of maintenance and repair activities in an operational rail environment, including environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout the operational life of the network.

Training talks will be tailored to specific environmental issues relevant to upcoming works and will address environmental management measures and obligations for relevant personnel. Relevant environmental issues may include, but are not limited to:

- Noise minimisation measures
- Emergency and spill response.
- Green Travel Plan and active transport initiatives.
- Water and pollution control (e.g. discharge management).
- Weed management (e.g. at surface sites and landscaped areas).
- Dust control (e.g. in ballasted areas).
- Unexpected Finds Procedures, for unknown heritage and contamination.
- Sustainability measures, including supply chain initiatives, water and energy conservation.

Targeted environmental awareness training would be provided to individuals or groups of workers with a specific authority or responsibility for environmental management, or those undertaking an activity with a high risk of environmental impact.

To promote environmental awareness across MTS, environmental alerts or HSE communications would be issued as required. EAMs would be made available or displayed, as appropriate, to promote awareness of environmental constraints affecting maintenance, repair and possession works.

5.3.2. Safety, health and environment alerts

Safety, Health and Environment (SH&E) Alerts are prepared as required for distribution within the MTS network, where appropriate. SH&E Alerts will be raised at the discretion of the Environment & Sustainability Advisor.

The SH&E Alerts include updates specifically related to environmental and sustainability matters, including but not limited to, such things as:

- Sydney Metro environmental incident updates.
- Changes to licencing conditions.
- Changes to statutory requirements.
- Lessons learnt from incidents on other projects/ networks, Updates from parent companies or wider industry.

6. Sustainability

6.1. Introduction

MTS is committed to achieving the operation phase objectives outlined in the MTS Environment and Sustainability Policy and Sydney Metro's [Sustainability Strategy](#).

Key initiatives to achieve the objectives include:

- Integrated environment and sustainability management through operation and maintenance activities.
- On-site renewable energy generation.
- Water resource (potable / non-potable) efficiency.
- Community benefit.
- Waste and materials efficiency.
- Sustainable procurement and supply chain management.

This section of the OEMP addresses environmental and social responsibilities as provided in the Sydney Metro Sustainability Strategy, and other requirements of the Deed, in particular:

- Appendix 23a – Sydney Metro Trains Facility (South);
- Appendix 50a – Sustainability;
- Appendix 53b – Reporting Requirements; and
- Appendix 54 – Project Plan Requirements.

MTS Sydney Metro's Sustainability Strategy outlines performance targets, initiatives and outcomes which will be adopted across key policy areas in the design, construction, and operation stages of the Project. The targets are benchmarked against world best practice on similar infrastructure projects. The strategy articulates how the project team will maximise the delivery and operation of the Project's sustainability requirements. The approach to addressing sustainability for the City & Southwest network is built on that adopted for Sydney Metro Northwest, incorporating lessons learned, and responding to intervening drivers and location-specific opportunities and constraints.

6.2. Sustainability policy

The Environment and Sustainability Policy has been developed to MTS' operational activities, ensuring environment and sustainability aspects are integrated into all aspects of the operational life of the network.

The Environment and Sustainability Policy is provided in Appendix D of this OEMP.

The Policy provides a statement of commitment to promote key sustainability themes of:

- Reducing carbon emissions;
- Resource management (including water and waste);
- Procurement;
- Environmental management;
- Climate Change Adaptation.

The Sustainability commitments within this Policy are integrated in the MTS approach to sustainability and are the driving force behind the approach of the MTS to sustainability throughout the operational life of the Sydney Metro CSW network.

6.3. Sustainability governance

During operation of the network responsibility for sustainability performance will sit with the Environment & Sustainability Advisor, who provides guidance and input into O&M activities to the wider team. The MTS CEO and GM Safety, Quality, Risk & Environment promote integration of sustainability aspects across all other functional areas. Sustainability responsibilities by role is further documented in Section 5 of this Plan.

The Environment & Sustainability Advisor will facilitate the implementation of the Sustainability Governance through:

- Development and review of the OEMP and OPESP;
- Consultation and management to attain an ISC Operations Rating;
- Incorporation of sustainability aspects into O&M activities through such things as contract specifications, procurement and training;
- Monitoring performance, address issues, refine systems and drive continual improvement; and Provide training and awareness to internal staff / subcontractors.

6.3.1. Assurance

Whilst the GRI Report Framework hasn't been achieved to date, MTS's Environmental & Sustainability Advisor has worked collaboratively with members of the Environment & Sustainability Working Group (comprised of specialists from Sydney Metro Authority/Transport for NSW, MTR, OPCO and MTS) and have developed an assurance framework, referred to as a Compliance Matrix and Workplan. The Compliance Matrix addresses the outstanding SPR requirements and the Workplan identifies key tasks that are considered as being able to be achieved within a calendar year. Each year the workplan will be revised to address the next series of targeted projects to ensure that they are achieved in a timely manner.

Processes and procedures will be incorporated in the existing procedures of Section 8 Inspection, Auditing and Reporting. MTS will also work with SM develop, implement and maintain a sustainability assurance framework to identify and track compliance with sustainability targets as per SPR 50A 2.1 (I).

Within six months of the date of the approval

6.4. Sustainability objectives and targets

MTS has identified Sustainability Objectives and has assigned the Targets contained in Appendix 50a of the SPR that are allocated to the O&M Phase to address the policy principles. The intent is to ensure that the principles outlined in the policy are embedded in the day-to-day activities of the Project. Table 12 below identifies each of the proposed MTS Targets against the relevant Policy Objectives.

Table 12 Sustainability Objectives and Targets

Sustainability Objectives	MTS Target
Energy Minimise operational energy consumption and carbon emissions.	OpCo2 will use 100% of the renewable energy which is generated from the permanent solar panels and other renewable energy sources which are installed as part of the Foundation Infrastructure Works. [SM-CSW-TSOM-SPR-A50A-305]
Waste Minimise materials use and minimise waste generation.	80% of operational waste and 60% of office waste to be recycled or beneficially reused.
Water Minimise potable water consumption.	OpCo2 must not exceed a total operational water demand of 49608.5 kL/yr as submitted in the Project Plans. The target percentage from potable sources and non-potable sources will be outlined within a year of operation once a target has been set. Station water demand targets are shown below: Barangaroo Station – 1117.5 kL/yr (100% potable) Crows Nest Station – 4358 kL/yr (53.3% potable) Central Metro Station – N/A Martin Place Station – 7970.7 kL/yr (100% potable) Pitt Street Station – 14,258 kL/yr* (100% potable) Sydenham Metro Station – 270 kL/yr (100% potable) Victoria Cross Station – 15,447.3 kL/yr (97.4% potable)

Sustainability Objectives	MTS Target
	<p>Waterloo Station – 6187 kL/yr (100% potable)</p> <p>* Pitt Street Metro Sustainability Design Report (SMCSWSPS-CUN-STA-SU-REP-000001) states the established target is not deemed achievable due to the major water demand caused by heat rejection system, limiting opportunities to reduce water demand.</p>
<p>Procurement</p> <p>Encourage engagement of SMEs in the supply chain for operation.</p>	<p>Engage 10 Australian and New Zealand Small and Medium Enterprises (ANZSME) in the Operations Phase Supply Chain.</p> <p>Engage three Recognised Aboriginal Businesses in the Operations Phase Supply Chain.</p> <p>Participate in Sydney Metro Aboriginal business forums.</p>
<p>Employment</p> <p>Prioritised local employment.</p> <p>Build workforce diversity.</p>	<p><u>Jobs:</u></p> <p>240 new Sustainable Jobs (equivalent full-time employees).</p> <p>80% of the total project Workforce to consist of new Sustainable Job.</p> <p>40% of the new Sustainable Jobs Workforce to be from Greater Western Sydney.</p> <p><u>Operations Phase Workforce:</u></p> <p>51 personnel from Greater Western Sydney (equivalent full-time employees); and</p> <p>20% of the total Operations Phase Workforce from Greater Western Sydney (% of total Workforce).</p> <p><u>Workforce Diversity:</u></p> <p>60 Workforce Diversity positions (number of equivalent full-time employees).</p> <p>24 (40%) Workforce Diversity positions for Greater Western Sydney (number of equivalent full-time employees); and</p> <p>20% total Operations Phase workforce Diversity positions.</p> <p><u>Operations Phase Workforce Disadvantaged Group:</u></p> <p>9 Operations Phase Workforce Disadvantaged positions (number of equivalent full-time employees).</p> <p>5 (50%) Operations Phase Workforce Disadvantaged positions from Greater Western Sydney (number of equivalent full-time employees).</p> <p>3% total Operations Phase workforce disadvantaged positions.</p>
<p>Workforce Development</p> <p>Workforce skills an employment legacy for Sydney.</p> <p>Prioritisation of procurement from local businesses.</p>	<p>20% of the Operations Phase Workforce completed relevant Workforce Skills Development training, of which:</p> <ul style="list-style-type: none"> 10% of the Operations Phase Workforce must participate in nationally accredited training. This training is in addition to training otherwise required by legislation, associated regulations, standards and accreditations or in the various approvals, licenses, and permits that may be necessary for the OpCo2's Operations Activities. 10% of the Operations Phase Workforce must participate in organisational skills development training, subject to item.
<p>Climate Change Resilience</p> <p>Manage climate change adaptation factors to</p>	<p>Review the climate change projections as they become available.</p> <p>Review climate change projections annually (if not required at more frequent intervals, and update climate change risk assessment as required.</p>

Sustainability Objectives	MTS Target
manage changes around the network.	
<p>Community Benefit</p> <p>Deliver passenger comfort and customer focused service.</p> <p>Enhance community benefits through transport amenity and reliability, healthy living, and community safety.</p>	<p>Ensure damage to public amenities associated with the network, within LMAs is rectified within timeframes required by the Deed.</p> <p>Undertake annual reviews of active transport connections and supporting facilities (e.g. bike storage) to determine usage and performance of initiatives promoting use.</p> <p>Install and maintain at least one Public Information Display (PID) at identified stations. The PIDs must always provide real-time information on energy consumption at the location and general sustainability messaging.</p>
<p>Environmental Management</p> <p>Minimise pollution and environmental harm.</p> <p>Minimise impacts of surrounding communities.</p>	<p>Zero major pollution events.</p> <p>Zero community complaints relating to maintenance and repair works.</p> <p>Provide notification to impacted receivers a minimum of 7 days prior to commencement of maintenance works.</p>

6.5. Sustainability initiative implementation processes and methodologies

MTS has developed an integrated approach to implementation of sustainability across the operation of the network. To ensure the sustainability targets identified above are met, initiatives have been developed across the various disciplines responsible for operating and maintaining the network.

MTS have developed procedures to be used for the operation and maintenance of the network. These procedures are owned by the relevant discipline manager, thereby ensuring interdisciplinary “buy-in” across MTS to ensure our environmental and sustainability obligations are met.

As the network matures and grows, sustainability data will be gathered from our operations and interaction with our customers. Opportunities for improvement will be explored in areas such as energy generation and consumption, water management, waste, recycling, and asset management.

Table 13 below identifies the initiatives identified through consultation across the various operating areas of the network. Table 13 also outlines what procedures govern the implementation of the initiatives (associated with the sustainability targets) and identifies the discipline responsible for the ownership and implementation of each.

Table 13 Sustainability Initiatives and Implementation Methodologies

MTS Target	Initiative to be Implemented	Responsible Discipline
Energy		
OpCo2 will use 100% of the renewable energy which is generated from the permanent solar panels and other	A solar panel installation has been constructed on the roof of the Maintenance Building of the SMTF North, SMTF South and Sydenham Station.	Environment & Sustainability Advisor

MTS Target	Initiative to be Implemented	Responsible Discipline
<p>renewable energy sources which are installed as part of the Foundation Infrastructure Works. [SM-CSW-TSOM-SPR-A50A-305]</p>	<p>MTS will monitor the energy generated at the solar panel locations and compare to the total energy consumed by the operation of the Project to ensure that this target is met.</p> <p>Data will be captured and analysed by the Environment & Sustainability Advisor monthly and reported quarterly.</p> <p>The Environment & Sustainability Advisor will identify changes in consumption patterns and discuss options for management (including potential augmentation) with Sydney Metro Authority as required.</p> <p>The MTS Carbon and Energy Management Plan at Section 9 outlines the management of energy consumption, including auditing and review.</p>	
<p>Waste</p>		
<p>80% of operational waste and 60% of office waste to be recycled or beneficially reused.</p>	<p><u>Waste Management</u></p> <p>Waste management will be undertaken through implementation of the OPE&SP and supporting Waste Procedure. Where performance does not meet waste targets, MTS will review all waste procedures.</p> <p>Station staff and contractors are to receive waste separation training as part of the compulsory induction process.</p> <p>Comingled recycling bins are to be provided adjacent to all general waste bins within all areas accessible by customers, and back of house.</p> <p>Separate bins will be provided for office waste including, putrescible, co-mingled recyclables, food (compostable) waste, as well as printer cartridges, batteries, electronic waste, etc.</p> <p>The condition of all bins is to be monitored using the Bin Register located at each station, with bins inspected on a weekly basis by MTS COL's</p> <p>Any bin maintenance issues are to be documented and rectified within 21 days.</p> <p>Ensure waste signage (on general waste and comingled recycling bins) and public education messaging (to better inform the public regarding what can be recycled) align with current best practice and are clearly legible (i.e. damaged, missing sections, defaced, etc.).</p> <p>The existing station cleaning contract to be updated to include on site sorting of cross contamination between general waster and comingled recycling.</p> <p>Conduct annual reviews of operational waste diversion rates and report results to Sydney Metro.</p> <p><u>Waste Collection</u></p> <p>Cleaning staff are to sort bin contents while emptying station and back of house bins to prevent waste stream cross contamination and increase diversion rate.</p> <p>When possible, customer accessible bins sorting is to take place at front of house, in compliance with all relevant OH&S procedures, to demonstrate</p>	<p>Environment & Sustainability Advisor.</p>

MTS Target	Initiative to be Implemented	Responsible Discipline
	commitment to diversion from landfill and encourage better customer behaviour. Bin rooms must have separate comingled and general waste bins, to be collected by a waste contractor on a daily basis. Specialist waste streams are stored in receptacles / dedicated areas (as applicable) and collection is organised by staff as needed.	
Water		
OpCo2 must not exceed a total operational water demand of 49608.5 kL/yr as submitted in the Project Plans. The target percentage from potable sources and non-potable sources will be outlined within a year of operation once a target has been set.	Total water consumption will be tracked through: Sydney water metering (potable and recycled water sources). Bills from the procurement teams. Water tracking will identify potable and non-potable use and demand. The Environment & Sustainability Advisor will work with the Procurement team to manage monitoring of water consumption.	Environment & Sustainability Advisor Procurement Team

6.6. Sustainable procurement

The Safety Management System (SMS) Element 17: Procurement and Contract Management document provides the overview and approach to procurement within MTS.

The MTS Environment and Sustainability and Procurement Teams have worked collaboratively to ensure that sustainable procurement requirements and initiatives are built into the MTS Procurement Policy, Sourcing Procedure and associated tools. As discussed above, MTS has taken the approach that in order to get the best outcome for sustainability for the asset, sustainability initiatives need to be owned by the various disciplines, not just the Environment and Sustainability Team. As such, sustainable procurement provisions have been built into the Procurement Policy and supporting processes and procedures, to ensure that sustainability is embedded in the business-as-usual activities of MTS Procurement Team.

The Project Procurement Policy includes a commitment to ensure:

“All contractors and suppliers compliant with the MTS Sustainable Procurement Targets provided in the Operational Environmental Management Plan.”

Documents include requirements to:

- Consider the Environmental and Sustainability Targets in this OEMP in the procurement process.
- Utilise the Sustainability Targets as a tool in assessing contracts, including in the supplier risk assessment and scoring matrix.
- Include environmental and sustainability obligations in supplier contracts.
- Include an environmental and sustainability performance assessment for suppliers.
- A line item for environmental and sustainability in the contractor evaluation.

Procurement processes consider the type of materials proposed to be procured, ensuring:

- Replacement products are like-for-like with those originally installed/constructed to support the Sydney Metro City & Southwest environmental and sustainability objectives (e.g. noise control equipment incorporated as part of design is not replaced with product which don't provide similar noise attenuation, water efficient fixtures / fittings are replaced for product of equivalent performance, etc).
- Procurement of materials and products with low life cycle environmental and social impacts.
- Investigate alternative products to ensure targets can be met.

The Procurement processes and procedures include a rating system for contractors and supply chain providers employed by MTS, which includes environmental, social and sustainability criteria. The targets outlined in Table 10 above are included in the contractor selection criteria.

Further details of how these targets will be met and methodologies / initiatives to be implemented by all related stakeholders are contained in the following documents:

- Procurement Policy (NWRLOTS-NRT-SWD-FA-POL-723353).
- SMS Element 17: Procurement and Contract Management.

All Procurement documentation will be stored and maintained in the Management System where they will be subject to the MTS review and continual improvement processes (Section 9 of this OEMP).

Environmental and social criteria that have been built into the procurement selection criteria for contractors includes:

- All contractors and suppliers must be compliant with the MTS Sustainable Procurement Targets provided in the Operations Phase Environment and Sustainability Plan (OPESP) and Operational Environmental Management Plan (OEMP).
- All stakeholders are aware of their environmental legislative obligations, and sustainability commitments through the Procurement Strategy.
- Procurement Selection Process will consider the targets related to the following environmental and sustainability criteria when weighing up preferred contractors:
 - Indigenous representation in the workforce.
 - Ongoing training provided to staff / workforce.
 - Percentage of the workforce residing in Western Sydney.
 - Number of diversity and disadvantaged positions employed.
 - Number of apprentices and trainees employed.
 - Past Environmental performance (e.g. number of PINS / incidents / community complaints).

6.7. Sustainability rating tools

MTS must obtain various ratings under a suite of sustainability rating tools throughout the operational life of the City & Southwest network. These ratings include:

- ISC Operations Rating.
- National Australian Built Environment Rating System (NABERS).

MTS will ensure that the ratings obtained are maintained through the operation and maintenance of the project by implementing initiatives such as:

- Selecting materials and replacement products that have the same or better embodied carbon.
 - do not increase the energy consumption of the built asset and buildings.
 - do not increase the demand for potable water.
- Ensuring all systems and processes in the O&M Phase meet the requirements of the originally built asset as identified in Section 2.6 of Appendix 50 of the SPR.
- In addition to ensuring that the already established ratings are maintained MTS is in the research phase to obtain an Operations Rating from Infrastructure Sustainability Council (ISC) for the combined network, comprising of the Northwest and City Southwest sections of the network, as discussed in Section 6.7.1.

6.7.1. Operational ISC rating

The ISC (IS) Rating Scheme is a comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets. ISC evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development.

The five yearly IS review and validation of the Operation Rating will be managed by the Environment & Sustainability Advisor, who will coordinate with ISC representatives to ensure that the review is undertaken, and rating validated, in accordance with the current IS processes and procedures.

MTS will implement the steps outlined below in order to pursue an Operations Rating.

1. ISC trained Environment and Sustainability advisor, project managers, engineers, and other relevant stakeholders register the Network with ISC.
2. List out all the relevant credits under the current ISC Operation IS Rating and collect data.
3. Conduct a materiality assessment of all relevant credits.
4. Assess the methodology for each relevant credit targeted.
5. Create an initial scorecard to gauge rating.
6. Maintain performance with ongoing monitoring and reporting.

6.7.2. NABERS

SPR App 23a Clause 2.14 (b and c) requires the NABERS ratings to be maintained for the SMTF accommodation building and administration building respectively. NABERS is a performance-based rating system that measures a building's environmental performance during operation, primarily in the areas of energy efficiency, water usage, waste management, and indoor environment quality.

Below shows the steps MTS will take to obtain and maintain a NABERS rating for the SMTF and administration building for the City & Southwest network.

1. **Data Collection:** Collect 12 months of consecutive energy and water consumption data.
2. **Engage an NABERS-accredited assessor** (<https://www.nabers.gov.au/ratings/find-accredited-assessor>) – to conduct the assessment(s) and submission(s) to NABERS for certification.
3. **Lodgement and certification** – a NABERS lodgement fee (https://www.nabers.gov.au/sites/default/files/2023-07/nabers_administration_fees_current.pdf) is payable to certify the rating and the certified rating is valid for one year.
4. **Continuous Monitoring:** The Server Payment Monitoring System (SPMS) should be used to continuously monitor energy and water consumption to identify any anomalies and understanding usage patterns to ensure the minimum ratings can be maintained and improved.
5. **Re-certification** – the certified NABERS ratings are to be re-submitted / certified every 12 Months (Steps 1 – 3 above) to ensure the required NABERS ratings are maintained.

6.8. Review and monitoring

6.8.1. Climate change risk

A Climate Change Risk Register was completed during detailed design and constructions phases for the Sydney Metro City & Southwest Line. These were the most complete and regionally specific climate change projections available at the time. This information guided the design and construction of the Sydney Metro City & Southwest Line, by identifying risks as a consequence of the projected climate data, including such things as future probable maximum flood levels around the asset, enabling adaptation measures to be integrated in the network during design and construction such that Sydney Metro City & Southwest Line will be resilient to the known effects of climate change (at the time) in operation.

As per SUS8 mitigation measure of the Sydney Metro CSW EIS, MTS will continue to monitor and review the currency of the climate change projections and risk assessment as well as associated documents to ensure Sydney Metro City & Southwest Line continues to be resilient to the know effects of climate change during operation. The MTS Environment & Sustainability Advisor will be primarily responsible for undertaking and reviewing the associated tasks. This will be completed when the OEMP and OPESP are updated annually.

Any updates and actions undertaken by MTS to improve the resilience of Sydney Metro City & Southwest Line will be communicated to Sydney Metro Authority via the quarterly or annual report as appropriate. All reviews of the climate change risk register will be conducted in accordance with current climate projections and with the guidance and requirements included in the Australian Green Infrastructure Council Guideline for Climate Change Adaptation (AGIC Revision 2.1: October 2011), the Australian Green Infrastructure Council IS Rating Tool Technical Manual – Climate Change Adaptation chapter and the Department of the Environment and Heritage Australian Greenhouse Office Climate Change Impacts and Risk Management (A Guide for Business and Government 2006).

Frequency of trigger for review

- As updated region-specific climate change projections become available, the current applicable projection data sources are:
 - NARCIIM (NSW / ACT Regional Climate modelling);
<https://www.climatechange.environment.nsw.gov.au/other-climate-projections-available-nsw>
 - CSIRO <https://www.climatechangeinaustralia.gov.au/en/>
- Post significant service disruptions to Sydney Metro City & Southwest Line due to a climate event (e.g. service suspension due to flooding of tunnels).

Gap analysis (climate change projection update triggered review)

- As new climate change projections become available, a gap analysis (existing projections versus the new projections) will be created to identify if there are any significant variations in key climate variable(s) e.g. maximum daily temperature.
- If significant variation in climate variable(s) are identified, then all related risks in the climate change risk register should be reviewed to ensure the risk rating (likelihood and impact) and mitigation measures continue to be appropriate.
- MTS Environment & Sustainability Advisor to coordinate relevant internal stakeholder (i.e., Assets and Safety, engineering, maintenance, etc.) workshop to discuss updates to the risk rating and mitigation measures as required.
- Update risk rating and/or mitigation measures as appropriate to ensure Sydney Metro City & Southwest Line remains resilient to the known effects of climate change.
- All supporting documentations should also be reviewed and updated as appropriate.

Review of existing documents and procedures (climate event driven review)

- Review incident report(s) / review(s) to identify the root cause(s) and impact(s) of the incident.
- If no incident report / review is available, engage with engineering / maintenance teams and undertake desktop analysis and document findings.
- All related risks in the climate change risk register should be reviewed to ensure the risk rating (likelihood and impact) and mitigation measures continue to be appropriate.
- MTS Environment & Sustainability Advisor to coordinate relevant internal stakeholder (i.e. Assets and Safety, engineering, maintenance, etc) workshop to discuss the event, updates to the risk rating and mitigation measures as required.
- Update risk rating and/or mitigation measures as appropriate to ensure Sydney Metro City & Southwest Line remains resilient to the known effects of climate change.
- All supporting documentations should also be reviewed and updated as appropriate.

6.8.2. Carbon foot printing

A Carbon Footprint for the City & Southwest network will be completed after the first year of operation of the Sydney Metro City & Southwest network line as there is currently insufficient Operational data to use.

When sufficient Operational data has been accumulated and analysed, a Carbon Footprint will be completed within the following parameters, requirements and limitations:

- Compliant with ISO14064-2 and ISO14064-3.
- Incorporated direct and indirect emissions associated with:
 - Electricity and fuel consumption;
 - On-site process emissions; and
 - Embodied emissions for all concrete and steel used.

Although no Carbon Footprint is currently completed in the OEMP, the CEMP does use the ECSM to outline a baseline. Refer to the CMP for more information. Below describes the Scope 1, 2 and 3 emissions that MTS will use to create the Carbon footprint.

Scope 1, 2 and 3 emissions

Greenhouse gases

The greenhouse gases that are reported under the NGER Scheme include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆) and specified kinds of hydro fluorocarbons and perfluorocarbons.

When reporting emissions, energy production and energy consumption data, only those activities, fuels and energy commodities for which there are applicable methods under the NGER Scheme are reported.

Greenhouse gas emissions are measured as kilotonnes of carbon dioxide equivalence (CO₂-e). This means that the amount of a greenhouse gas that a business emits is measured as an equivalent amount of carbon dioxide which has a global warming potential of one. For example, in 2015–16, one tonne of methane released into the atmosphere will cause the same amount of global warming as 25 tonnes of carbon dioxide. So, the one tonne of methane is expressed as 25 tonnes of carbon dioxide equivalence, or 25 t CO₂-e.

Scope 1 Emissions

Scope 1 greenhouse gas emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Scope 1 emissions are sometimes referred to as direct emissions. Examples are:

- emissions produced from manufacturing processes, such as from the manufacture of cement;
- emissions from the burning of diesel fuel in trucks;
- fugitive emissions, such as methane emissions from coal mines; or
- production of electricity by burning coal.

Scope 1 emissions are specified under the NGER legislation and must be reported.

Scope 2 Emissions

Scope 2 greenhouse gas emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity. For example, 'indirect emissions' come from the use of electricity produced by the burning of coal in another facility. Scope 2 emissions from one facility are part of the scope 1 emissions from another facility.

For example, a power station burns coal to power its generators and in turn creates electricity. Burning the coal causes greenhouse emissions to be emitted. These gases are attributed to the power station as scope 1 emissions. If the electricity is then transmitted to a car factory and used there to power its machinery and lighting, the gases emitted as a result of generating the electricity are then attributed to the factory as scope 2 emissions.

Scope 2 emissions are specified under the NGER legislation and must be reported.

Scope 3 Emissions

Scope 3 greenhouse gas emissions are not reported under the NGER Scheme but can be used under Australia's National Greenhouse Accounts.

Scope 3 emissions are a classification of indirect emissions that occur in MTS' value chain. They are categorised as follows:

1. **Purchased Goods and Services:** Emissions from the production of goods and services bought by MTS.
2. **Capital Goods:** Emissions from the production of capital goods used by MTS.
3. **Fuel and Energy-Related Activities:** Emissions related to the production of energy that is not directly used by MTS but is related to our value chain.
4. **Upstream Transportation and Distribution:** Emissions from the transportation and distribution of products in the supply chain before they reach MTS.
5. **Waste Generated in Operations:** Emissions from the waste generated by MTS' operations.
6. **Business Travel:** Emissions from the travel of MTS employees for business-related activities.
7. **Employee Commuting:** Emissions from the transportation of employees between their homes and their MTS workplace.
8. **Upstream Leased Assets:** Emissions from the operation of assets not owned by MTS but leased for upstream operations.
9. **Downstream Transportation and Distribution:** Emissions from the transportation and distribution of products after they are sold MTS.
10. **Processing of Sold Products:** Emissions from the processing of products sold by MTS in the value chain.
11. **Use of Sold Products:** Emissions from the end use of goods and services sold by MTS.
12. **End-of-Life Treatment of Sold Products:** Emissions from the disposal of products at the end of their life.
13. **Downstream Leased Assets:** Emissions from the operation of assets not owned by MTS but leased for downstream operations.
14. **Franchises:** Emissions from the operation of franchises.

15. Investments: Emissions related to the investments made MTS.

These categories encompass a wide range of indirect emissions that are not produced by MTS directly but are part of their broader ecological footprint. Companies often assess Scope 3 emissions to understand the full impact of their operations and to identify opportunities for reducing their carbon footprint.

It must be noted that not all Scope 3 categories need to be applicable to the operation of the Sydney Metro City & Southwest line. The following Table is an overview of the methodology (s) to capture Scope 3 emissions data as it currently applies to MTS.

Table 14 Scope 3 emissions summary for MTS

Category #	Category	Applicable to CSW Ops	Method for calculating emissions	Activity data needed	Emission factors needed
1	Purchased goods and services	Yes	Spend-based method – estimates emissions for goods and services by collecting data on the economic value of goods and services purchased and multiplying it by relevant secondary (e.g. industry average) emission factors (e.g. average emissions per monetary value of goods).	Amount spent on purchased goods or services, by product type, using market values (e.g. dollars). Where applicable, inflation data to convert market values between the year of the EEIO emissions factors and the year of the activity data.	Cradle-to-gate emission factors of the purchased goods or services per unit of economic value (e.g. kg CO2e/\$).
2	Capital goods	Yes	Spend-based method – estimates emissions for plant equipment by collecting data on the economic value of plant equipment purchased and multiplying it by relevant secondary (e.g. industry average) emission factors (e.g. average emissions per monetary value of goods).	Amount spent on purchased plant equipment, by product type, using market values (e.g. dollars). Where applicable, inflation data to convert market values between the year of the EEIO emissions factors and the year of the activity data.	Cradle-to-gate emission factors of the purchased goods or services per unit of economic value (e.g. kg CO2e/\$).
3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	Yes	Average-data method, which involves estimating emissions by using secondary (e.g. industry average) emission factors for upstream emissions per unit of consumption (e.g. kg CO2e/kWh).	Quantities and types of fuel consumed. Quantity of electricity consumed from the grid.	Australian National Greenhouse Accounts Factors.
4	Upstream transportation and distribution	No			
5	Waste generated in operations	Yes	Average-data method, which involves estimating emissions based on total waste going to each disposal method (e.g. landfill) and average	Total mass of waste generated in operations. Proportion of this waste being treated by different methods (e.g. percent landfilled, incinerated, recycled).	Average waste treatment specific emission factors based on all waste disposal types. The emission factors should include end-

Category #	Category	Applicable to CSW Ops	Method for calculating emissions	Activity data needed	Emission factors needed
			emission factors for each disposal method.		of-life processes only.
6	Business travel	Yes	Distance-based method, which involves determining the distance and mode of business trips, then applying the appropriate emission factor for the mode used.	<p>Total distance travelled by each mode of transport (air, train, bus, car, etc.) for employees in the reporting year.</p> <p>Where possible, companies should also collect data on:</p> <ul style="list-style-type: none"> Countries of travel (since transportation emission factors vary by country). Specific types of vehicles used for travel (since transportation emission factors vary by vehicle types) from transport providers. The specific passenger vehicle type and the relevant emission factor. 	Emission factors for each mode of transport (e.g. aircraft, rail, metro, bus, taxi, bus), expressed in units of greenhouse gas (CO ₂ , CH ₄ , N ₂ O, HFC, or CO ₂ e) emitted per kilometre or per passenger-kilometre travelled.
7	Employee commuting	Yes	Distance-based method, which involves collecting data from employees on commuting patterns (e.g. distance travelled, and mode used for commuting) and applying appropriate emission factors for the modes used.	<p>Total distance travelled by employees over the reporting period (e.g. passenger-kilometres travelled).</p> <p>Mode of transport used for commuting (e.g. train, subway, bus, car, bicycle).</p>	Emission factors for each mode of transport (usually expressed in units of greenhouse gas (CO ₂ , CH ₄ , N ₂ O, or CO ₂ e) emitted per passenger-kilometres travelled).
8	Upstream leased assets	No			
9	Downstream transportation and distribution	No			
10	Processing of sold products	No			
11	Use of sold products	No			
12	End-of-life treatment of sold products	No			
13	Downstream leased assets	No			
14	Franchises	No			
15	Investments	No			

6.8.3. Water Management

6.8.3.1. Water Monitoring

MTS will monitor potable and non-potable water consumed by mains water supply via the following process:

1. Billing and Meter Reading:

- Monthly Bills: Regularly check Sydney Water bills. It provides a comprehensive breakdown of the amount of water consumed during the billing period.
- Regular Meter Readings: For a more granular understanding. Confirm metering schematics and relevant meter numbers to confirm all data is captured.

2. Install Sub-Meters:

- MTS can also consider installing sub-meters. This helps identify which areas or processes consume the most water, aiding in pinpointing areas of inefficiency.

3. Water Management Software:

- MTS will also consider using software solutions specifically designed to help track and manage water consumption. Integration with water meters to automatically pull in data, provide reports, and even give insights on how to reduce consumption.

4. Regular Maintenance Checks:

- Periodically inspect all water fixtures (faucets, toilets, showers), appliances (dishwashers, washing machines), and processes that use water. Leaks or malfunctions can lead to unnecessary water consumption. Regular maintenance ensures that MTS is only using—and being billed for—the water required.

5. Educate and Engage Employees:

- Ensure that all MTS employees understand the importance of water conservation. MTS will consider running periodic training sessions or workshops.

6. Analyse Consumption Data:

- Periodically review the collected data. This will help identify trends, anomalies, or spikes in water usage. By understanding these patterns, MTS can take targeted action, such as fixing leaks or optimizing processes.

7. Compare with Targets and Benchmarks:

- Based on the analysis, periodically compare to targets set. This will be in the form of a percentage reduction/increase month-over-month.

In order to calculate water consumption from onsite rainwater tanks, MTS will use the following approach:

1. Determine Tank Capacity at all locations.

2. Install Water Level Sensors:

- These devices can give MTS real-time data on how much water is present in the tank.

3. Manual Measurements:

- If MTS do not obtain sensors, manual readings will be taken using a dipstick or a marked pole to measure the water level.

4. Use Flow Meters:

- Flow meters may also be attached to the outlet of the tanks. They measure the quantity of water that flows through them. This provides an accurate reading of how much water is being consumed directly from the tank.

5. Record Consumption Data:

- At quarterly intervals, MTS will record the volume of water in the tank, then subtract the current reading from the previous one to determine the consumption during that interval. Adjust this figure by adding any rainwater collected during the interval.

6. Maintain Records:

- MTS will establish a system for recording all water-related data, whether manual readings or data from sensors. This will help track patterns over time and make more informed decisions about water use.

7. Analyse & Optimize:

- MTS will periodically review the water consumption data. Look for patterns, like increased consumption on certain days or during certain seasons. This analysis can help in identifying any inefficiencies or leaks, guide future business decisions, like the need for additional tanks or water-saving measures and help track Water use targets.

8. Regular Maintenance:

- Ensure that the tanks, sensors, flow meters, and other related systems are regularly checked and maintained. This ensures the accuracy of your readings and the longevity of your equipment.

6.8.3.2. Water Treatment Plants

MTS will also operate the Barangaroo and Marrickville Water Treatment plants that were designed and constructed to manage all water that enters the metro network to comply with CoA E107.

E107 states “The CSSI must be constructed and operated so as to maintain the NSW Water Quality Objectives where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW Water Quality Objectives over time where they are not being achieved as at the date of this approval, unless an EPL in force in respect of the CSSI contains different requirements in relation to the NSW Water Quality Objectives, in which case those requirements must be complied with.”

The NSW Water Quality Objectives (WQO) are the agreed environmental values and long-term goals for NSW’s surface water (DCCEEW, 2006). The WQO describe:

- community values and uses (for example healthy aquatic ecosystem, water suitable for recreation or drinking water) for NSW waterways;
- a range of water quality indicators to assess whether the current condition of the waterway supports these values and uses; and
- recommended guideline levels determined by environmental values.

MTS also commits to deliver long term groundwater treatment and disposal outcomes at the Marrickville Dive Site and short-medium term groundwater treatment and disposal outcomes at Barangaroo Station to a standard approved by the NSW EPA by 1 July 2025. This commitment complies with the direction given by DPHI to Sydney Metro Authority.

Marrickville

The Marrickville WTP is the main water management source for Sydney Metro CSW handling all water entering the network from the Chatswood Dive site to Sydenham Station and the adjacent Marrickville WTP. Water management at the WTP is governed by MTS’ EPL (not the NSW WQO) and the Discharge Criteria is listed in the Table below:

Table 15: Discharge Criteria

Analyte Group / Analyte	Units	Discharge limit	Source and Comment
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Physiochemical			
pH	pH units	7.0 – 8.5	Maintain neutral to slightly basic pH to minimise potential to dissolve minerals within material that comprise drainage or potential suspended sediments. Aligns with WQO (Cooks River estuary)
Turbidity	NTU	25 ²	Discharges should not be visibly turbid, Correlation between total suspended salts (TSS) and turbidity could be determined to allow laboratory assessment of TSS in place of turbidity measures.
Dissolved heavy metals/metalloids			
Copper	µg/L	3	90% SPL (ANZG, 2018)
Zinc	µg/L	12	90% SPL (ANZG, 2018)
Nickel	µg/L	7	90% SPL (ANZG, 2018)
Iron	µg/L	300	Recreational / aesthetics (ANZECC / ARMCANZ, 2000)
Nutrients			
Ammonia-N	µg/L	910	95% SPL (ANZECC / ARMCANZ, 2000)
Nitrate-N	µg/L	10600 ²	95% SPL (Hicky, 2018)

MTS will use an external operator to manage the WTP as a full-time operator is required to operate it. All water quality reports will be sent to MTS' Environment and Sustainability Advisors who will manage any communications/escalations if required, such as water quality outside the above EPL parameters.

Barangaroo

The Barangaroo Water Treatment Plant is required for the short-medium term to treat subsurface water ingress at Barangaroo station until construction on the neighbouring development is underway to provide for a southern station entrance, Water discharge will be adjacent into Sydney Harbour. BESIX Watpac, the construction contractor, commissioned WSP to prepare a Water Discharge Impact Assessment (WDIA) and Water Quality Monitoring Program (WQMP) for the construction phase of the Sydney Metro CSW project. The input sources to the water treatment plant and concentrations of analytes have changed since the construction completion, with treatment of surface construction water and the tunnels access shaft water ingress no longer required. This change in water quality deems an operational WDIA and WQMP be set up for MTS. MTS will develop the new WDIA and WQMP for Barangaroo in Q3 2024, And implement once finalised. All risks and mitigation measures outlined in those documents will be added to this OEMP. MTS is in discussions with the EPA regarding adding the Barangaroo WTP and its discharge criteria to EPL#21247.

6.8.4. Energy consumption

During the Delivery phase of the project, an Electricity Consumption Software Model (ECSM) (SMCSWTS2-MTR-CSW-PM-REP-016810) was produced to be used in forecasting electricity usage on the Sydney Metro City & Southwest Project as per the requirements in SPR Appendix 50A. More detailed information on energy consumption and management is included in the CEP.

The Efficient Baseline Consumption has been produced in hourly, daily, monthly, weekly calculations, following the seasonal and weekday variation of loading profile. Finally, an annual Efficient Baseline Consumption is generated.

The ECSM provides the framework that can be used to calculate Actual Consumption across any reporting period for an Operating Year.

The Efficient Baseline Consumption for the Chatswood to Sydenham line is summarised in the table below (The Sydenham to Bankstown line's data will be outlined at a later date when an ECSM is completed for that section of

the network) (also note, at the time of initial OEMP, the ECSM is still subject to change before the commencement of first passenger service):

Table 16 Efficient Baseline Consumption

	(GWh/annum)
Traction Power (AW3)	195.4
Inverter/Energy Storage Energy Saving in City traction substations	-8.0
Stations/Services Facilities	79.9
PV System Generation	-0.3
Total	267

As shown above, the Electricity Consumption modelling forecasts an Efficient Baseline Consumption of 267 GWh/annum, for both Stations and Traction under SMCSW, subject to several assumptions and qualifications. The ECSM can be used to verify that the completed SMCSW has been constructed and commissioned to meet the Efficient Baseline Consumption by verifying the incorporation of the design features nominated for each design package relevant to electricity consumption minimisation.

Data collection for consumption and generation of electricity is collated in the SPMS from network metering, or indirectly from billing data.

Table 17 identifies the monitoring that is undertaken for electricity consumption and generation for the operation of the network, including frequency of monitoring and form of data collection. The results of monitoring will inform future energy use initiatives.

Table 17 Energy Monitoring

	Method / Source of Data Collected	Monitoring Frequency	Responsible Party	Reporting / Continual Improvement / Actions
Solar Generation	SPMS	Real time	MTS Environment & Sustainability Advisor will coordinate with maintenance building managers to collect monthly meter readings.	Reporting is provided from the SPMS as a live feed to key stakeholders including the SMA and OPCO. SPMS data is reported in monthly, quarterly, and annual reports.
Electricity Consumption	SPMS	Real time	Manager Network Performance will ensure SPMS captures live data from the network meters.	
Fuel Consumption	Fuel invoices (including diesel; petrol; biodiesel; LPG).	Monthly.	MTS Environment & Sustainability Advisor will: liaise with maintenance facility to capture fuel consumption; and liaise with procurement and accounting teams to collect consumption information from invoicing.	
Data Collection from Sub-Contractors	Fuel invoices (including diesel; petrol; biodiesel; LPG). Power bills (gas and electricity as applicable). Details of the source of power	Monthly and quarterly as power bills arrive.	MTS Environment & Sustainability Advisor will liaise with procurement and accounting teams to collect consumption information from subcontractors.	

	Method / Source of Data Collected	Monitoring Frequency	Responsible Party	Reporting / Continual Improvement / Actions
	used (e.g. % renewables, etc).			

7. Incident and emergency response

7.1. Overview

The Pollution Incident Response Management Plan (PIRMP) provides the overview of how Incidents are managed within MTS. The immediate response to all incidents is to make the area safe and undertake measures to prevent further harm to persons, property and the environment. The Environment & Sustainability Advisor, as well as the Head of Safety, Quality, Risk & Environment, should be notified immediately in the event of an environmental incident.

Any environmental incident that might occur will be managed within the MTS Incident Management Framework (IMF). The IMF provides the guidelines and procedures for MTS' response to incidents occurring on its network or in response to incidents as part of a larger multi-agency coordinated response.

The IMF provides details of the types of incidents, including environmental, that could potentially occur and describes the principles behind how MTS will respond to these. Types of environmental incidents applicable to the operation of the network include, but are not limited to:

- Spills of fuels, oils, chemicals and other hazardous materials.
- Unauthorised discharge from detention basins or other containment devices.
- Unauthorised clearing beyond the extent of the Project boundary or premises.
- Unauthorised damage or interference to threatened species, endangered ecological communities or critical habitat (only occurring beyond Project boundaries).
- Unauthorised harm or desecration to unknown Aboriginal objects and Aboriginal places.
- Unauthorised damage or destruction to any State or locally significant relic or heritage item (beyond Project boundaries).
- Potential contamination of waterways or land.
- Any potential breach of legislation, including a potential breach of a condition of an EPL; CoA; or any agency permit condition.
- Works undertaken without appropriate approval or assessment under the EP&A Act 1979.
- Works undertaken that are not in accordance with a Project assessment.
- Unauthorised dumping of waste.

The IMF shows the different management structures for incident response, including four (4) incident severity levels, and criteria for classifying environmental incidents. The Framework includes references to legislation and regulatory requirements and links MTS's incident response documentation to other Rail Agencies' plans and procedures, as well as to other internal documents.

The IMF has been prepared to be consistent with the legislative requirements for environmental incident reporting under the Protection of the Environment Operations (POEO) Act 1997, including the preparation of the Pollution Incident Response Management Plan (PIRMP) (NWRL0TS-NRT-ADM-EN-PLN-720416).

A Severe Weather Conditions Response Plan (MTS-AGN-PL-70102) has been developed and implemented and outlines the seasonal checks and various responses to be implemented to minimise the impacts resulting from severe weather conditions.

MTS are also subscribing to an Environmental Alert Service to cover all of MTS operations to aid the Environment and Sustainability Advisor in notifying MTS operations of any environmental incidents that may affect the metro line.

7.2. Incident notification

CSSI 7400 defines an incident as “an occurrence or set of circumstances that causes, or threatens to cause, material harm to the environment, community or any member of the community, being actual or potential harm to the health or safety of human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial”.

Therefore, any environmental incidents covered under the definition shall be notified:

- Verbally immediately and in writing within 24 hours of an incident occurring to Sydney Metro Authority and to the DPHI By the Environment & Sustainability Advisor or Head of Safety, Security, Quality, Risk & Environment (or delegate); and to the relevant authorities and parent companies of the PPP as required.
- Must include the time and date of the incident, details of the incident and must identify any non-compliance with CSSI 7400
- Any requirements of the Secretary or Relevant Public Authority (as determined by the Secretary) to address the cause or impact of an incident reported in accordance with Condition A41 of CSSI 7400, must be met within the timeframe determined by the Secretary or relevant public authority.
- If statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be provided to the Secretary for information within 24 hours after the notification was given to the EPA.

7.2.1. Notification to EPA and other agencies

Where required in accordance with the Project environment protection licence (EPL), the Protection of the Environment Operations Act 1997 (POEO Act) and the Planning Approval, notification to Environment Protection Authority (EPA) and Sydney Metro Authority will be undertaken for any non-compliances with the conditions of the EPL and for pollution incidents. The Secretary and SMA shall be provided with a full written record of any incident with significance off- site impacts on people or the biophysical environment in accordance with CoA in SSI-7400 (2017) and SSI 8256 (2018)

MTS has prepared a Pollution Incident Response Management Plan (PIRMP) to comply with requirements set out in part 5.7A of the POEO Act and the Protection of the Environment Operations (General) Regulation 2022, which state that holders of an EPL must prepare, implement and test a PIRMP in relation to the activity to which that licence relates. The PIRMP shall be implemented immediately if an incident occurs that threatens or causes material harm to the environment.

If the Environment & Sustainability Advisor (or delegate) determines that an incident causes actual or potential harm to the health or safety of human beings, or to ecosystems that is not minor; or if actual or potential loss or property damage (including costs to prevent, mitigate or make good harm to the environment) associated with a pollution incident exceeds \$10,000, then the relevant agencies and authorities will be notified immediately. Notifications will be undertaken in accordance with the Project’s PIRMP.

7.2.2. Notification to parent companies

The MTS CEO (or delegate) will notify the parent companies that comprise MTS Pty Ltd being, the MTR, John Holland and UGL, as appropriate, in accordance with the severity and status of the incident.

7.3. Incident Reporting and Investigation

7.3.1. Reporting

All incidents will be recorded in MTS’s safety software system (Intelex). Details of environmental incidents and resulting corrective or preventative actions will be included in internal monthly environmental reports. The Environment & Sustainability Advisor will identify trends in incidents and trends in root causes to suggest the nature of preventative actions which are warranted. MTS also commits to reporting all environmental incidents and non-compliances with the planning approval to Sydney Metro Authority.

Incidents will also be included in quarterly compliance reports as discussed in Section 8 of this OEMP.

7.3.2. Incident investigations

Depending on the severity of the event, the location of the incident, as well as any associated plant and equipment, is to be preserved until relevant data and evidence is collected. Environmental incidents, including community complaints, will be entered into and closed out in the incident management system (Intelex).

Incident investigations will be undertaken for all incidents. The level of investigation will be dependent on the classification of the incident. The incident investigation team will be comprised of staff selected by the GM Safety, Quality, Risk and Environment based on the severity of the incident and the availability of experienced personnel.

As part of the incident investigation, corrective and preventative actions will be identified, assigned to the appropriate person and closed out according to set timeframes. Corrective actions will be assigned, tracked and closed out in Intelex. All corrective actions will include reference to the relevant incident record for ease of tracking.

Safety, Health and Environment (SH&E) Alerts will be prepared as required for distribution within the Project or outside of the Project, where appropriate. SH&E Alerts may also be raised at the discretion of the Environment & Sustainability Advisor.

Any requirements of the Secretary or relevant public authorities to address the cause or impact of any incident at the SMTF will be undertaken in accordance with CoA D7 of SSI-5931.

8. Inspections, auditing and reporting

8.1. Environmental inspections

8.1.1. MTS environment and sustainability team

Weekly environmental inspections of the Sydney Metro CSW network (including the work of sub-contractors) would be undertaken as a form of surveillance conducted by station staff and may involve members of the SQRE Team to evaluate the effectiveness of environmental controls. These inspections are conducted via the Intelex Mobile App and any hazards/risks and actions found on the inspection would be recorded in the checklist conducted on the Mobile appl. Larger inspections done by MTS' Environment and Sustainability Advisors will be undertaken for high-risk activities and processes, repair and maintenance work in environmentally sensitive areas and site preparedness for adverse weather conditions in active work areas (i.e. during possessions) or as deemed necessary. Any remedial actions identified during the inspections are recorded on the checklist in the incident management system (Intelex). The form will include a checklist of environmental aspects as prompts to ensure that the inspection considered all possible aspects. It will also include the responsible party and an appropriate timeframe to close out any remedial actions.

8.1.2. Sydney Metro Authority

The Sydney Metro Authority may undertake inspections of works sites (including the work of subcontractors) to evaluate the implementation, effectiveness, and level of compliance of operation with this OEMP. Inspections by other agencies may occur periodically at the request of the agency/authority.

A member of the MTS SQRE Team will participate in all environmental inspections. Deficiencies and remedial actions would be analysed and prioritised at the completion of the inspection. Timeframes for implementation of remedial / corrective actions would be agreed.

8.1.3. Targeted inspections

In addition to the regularly programmed inspections MTS proposes to undertake targeted inspections for areas or activities that are considered to pose higher risks to the environment. These will be identified on a case-by-case basis by the Environment and Sustainability Advisor. An example of such targeted inspections would include the Marrickville Water Treatment Plant to ensure that the water being discharged meets the treatment and discharge specifications and EPL conditions.

Other targeted inspections will be determined through the operational life of the network based on potential risks and impacts on the environment and community.

8.2. Auditing

The Quality Management Plan (SMCSWTS2-MTS-CSW-PM-PLN-002156) defines the overview and approach to Auditing within MTS.

To Comply with CoA A37 and A38, Environmental audits would take a risk-based approach and would be conducted at regular intervals during operation of the network to ensure compliance. Audits will include works undertaken by sub-contractors. Internal and external environmental audits would be undertaken in accordance with AS/NZS ISO 19011:2014 Guidelines for Auditing Management Systems as well as the ISC Operations Rating System.

The Environment & Sustainability Advisor will ensure that auditing is undertaken in accordance with this OEMP and the MTS Intalex system, under which the IMS sits. An auditing program would be prepared. An indicative audit program for environmental and Sustainability Aspects is included in Table 18.

As per CoA D11, within 15 months of the completion of construction, MTS must commission an independent, qualified person or team to undertake an Operational Performance Audit of the CSSI. The Independent person or team must be approved by the secretary before commencement of the Audit. The Operational Performance Audit Report must be submitted to the Secretary within one month of the completion of the Audit or other timeframe agreed with the Secretary. The Audit must:

- (a) assess compliance with the requirement of this approval.
- (b) assess the environmental performance of the CSSI against the predictions made and conclusions drawn in the EIS as amended by the documents listed in A1; and
- (c) review the effectiveness of the environmental management of the CSSI, including any environmental impact mitigation.

For the purposes of the Operational Performance Audit, MTS' Environment and Sustainability Advisor will engage, organise, and manage the independent audit team and ensure compliance with D11 CoA. Therefore they will also get approval from the DPHI for the auditor and submit the audit report to the DPHI.

The environmental auditing outcomes, including corrective actions would be reported on to the Sydney Metro Authority quarterly and annually.

Table 18 Indicative Audit Program

Audit	Details	Timing	Responsibility	Recipient Of Audit Report
Environmental audit	Compliance with approval and legal requirements, Sydney Metro Authority specifications, OPESP and OEMP.	One annually. At least one external audit every 2 years.	Environment & Sustainability Advisor	Sydney Metro Authority MTS Parent Companies
Sustainability audit	Compliance with the OPESP in accordance with OTS Deed and the OEMP	One annually. At least one external audit every 2 years.	Environment & Sustainability Advisor	Sydney Metro Authority MTS Parent Companies
Operation Performance Audit	Compliance with SSI 7400 CoA D11.	Within 15 months of operation.	Environment & Sustainability Advisor	Sydney Metro Authority MTS Parent Companies

8.3. Compliance review

The beginning of this OEMP outlines all the environmental and sustainability requirements and where they have been addressed, including:

- Critical State Significant Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval – Part D
- Sydney Metro City & Southwest OTS2 Project Deed, Exhibit 1 – Scope & Performance Requirements – Appendix 54 – Project Plan Requirements.

In addition to the planning approvals conditions, MTS will track changes to relevant legislation, as listed below, through the MTS IMS, which forms part of the Sydney Metro PMS (See section 4).

Legislation that will be monitored includes relevant sections of the:

- Protection of the Environment Operations Act 1997.
- Protection of the Environment (General) Regulation 2022.
- Protection of the Environment (Clean Air) Regulation 2022.
- Protection of the Environment (Waste) Regulation 2014.
- Sydney Water Act 1994.

Legislation will be reviewed on an annual basis, or as any key changes of legislation and made public. Any changes impacting the operation and maintenance of the Sydney Metro Network will be identified and discussed with Sydney Metro Authority.

Where changes to legislation require changes to processes and / or procedures, MTS documentation will be updated in accordance with the continual improvement and review processes discussed in Section 9.

MTS' Environment and Sustainability Advisor is responsible for the compliance review process. In the first year of operation, the Environment and Sustainability Advisor is to create a register of all the operational compliance actions that are to be complied with and use this to track compliance. Any non-conformances will be entered into Intelex to assign roles and responsibilities for the corrective actions and then follow the process outlined in Section 8.4

8.4. Non-conformance, corrective and preventative actions

The Quality Management Plan defines the overview and approach to the management of non-conformances within MTS. A non-conformance is a failure to comply with a requirement, standard or procedure, such as the CoA, this OEMP or associated documents and is recorded in the safety management software (Intelex). Environmental non-conformances are identified through regular environmental inspections, monitoring, internal or external audits, response to complaints, community consultation, and responses to incidents (refer to Sections 7 and 8). A Sydney Metro Authority Representative and/or a public authority may also raise a non-conformance or issue an improvement notice.

Sustainability non-conformances are identified through regular inspections, monitoring of reportable sustainability data, internal or external audits, community consultation or complaints. A Sydney Metro Authority Representative and/or a public authority may also raise a non-conformance.

All reportable environmental incidents (a breach of EPL conditions) are to be reported to the EPA and SMA within one (1) day of the incident and reported as incidents in the IMS and any corrective actions embedded within the MTS Intelex system and related Operating Procedures and Management Plans.

Sustainability non-conformances are to be reported to the Sydney Metro Authority within one (1) day of the non-conformance being observed and reported as incidents in the IMS and any corrective actions embedded within the MTS Intelex system and related Operating Procedures and Management Plans. Sustainability non-conformances are also to be reported within the Quarterly and Annual Reports.

Following the identification of a non-conformance, corrective and/or preventative actions are identified and assigned to the appropriate person with set timeframes. Timeframes would be set to ensure any chance of recurrence is eliminated as soon as practicable. The MTS IMS is used to assign, track and close out corrective actions.

The IMS is reviewed regularly to ensure actions are being actioned and closed out in a timely manner. The status of corrective actions is reported for review at the monthly management meeting and reported in the Quarterly and Annual Performance Reports.

Note: Records for environmental & sustainability related functions, including monitoring, inspections, audits and rectification works will be collated in the INTELEX system and managed in MTS's Safety Assurance Plan.

8.5. Internal reporting

Additional reporting requirements identified in the Project documents are included in Table 17. Further reporting may be necessary as works progress. In such circumstances, Table 19 would be amended to reflect those changes in accordance with Section 9 for the revision of the OEMP.

Table 19 MTS Environmental and Sustainability Reporting Schedule

Report Name	Frequency	Detail	Responsibility	Report Recipients
Working Group Meetings	Monthly	Stakeholder meetings with SMA, MTR, MTS & OPCO, Environmental & Sustainability representatives. Purpose to discuss/update progress of compliance with SPR requirements and matters arising from the operations of the network and initiatives that can be collaborated on.	Environmental & Sustainability Advisor	Sydney Metro Authority
Quarterly Performance Report	Quarterly	<p>The quarterly performance reports must include reports on environmental and sustainability matters, and include as a minimum:</p> <ul style="list-style-type: none"> • Metro City & Southwest Line's performance against the environmental management requirements of the Operations Phase Environmental and Sustainability Plan. • Management strategies for environmental compliance. • The status of environmental obligations including those identified in MTS's compliance tracking program. • The status of and performance against environmental licences held for MTS's Activities. • MTS's performance against environmental key performance indicators. • Graphical representation of the monthly frequency of environmental issues and incidents each month for the previous 12 months, including an analysis of trends, and what actions are being taken to improve performance. • Details of, environmental incidents or emergencies. • Environmental inspection reports. • The results, findings and any environmentally relevant actions of any internal or external audits carried out. • Reports that include the number of Staff that have received environmental training and what type of training they received. • The sustainability performance of Metro Northwest Line against all sustainability targets specified in Appendix 50. • Data and an analysis of trends including actions to be undertaken to improve performance, for the following: <ul style="list-style-type: none"> – electrical energy consumption and generation, including any on-site renewable energy generation and any renewable energy sourced 	Environment & Sustainability Advisor	Sydney Metro Authority

Report Name	Frequency	Detail	Responsibility	Report Recipients
		<p>for the Operations Activities;</p> <ul style="list-style-type: none"> - carbon emissions; - energy use; - fuel consumption; - volume of potable and non-potable water consumed including details of the sources of potable and non-potable water consumed and harvested and performance against water consumption reduction and water consumption and harvesting targets; - quantities of waste recycled, beneficially re-used or disposed of and performance against waste targets. 		
Annual performance reports	Annually	<p>The annual performance reports must contain a separate section or sub-report on Metro City & Southwest Line’s performance against OEMP, and must include as a minimum:</p> <ul style="list-style-type: none"> • Be suitable for publication on the Sydney Metro Authority’s website. • Detail the overall performance against all sustainability targets relating to the Operation Activities set out in Appendix 50 of the SPR. • Demonstrate continuous improvement of environment and sustainability performance. • Detail the performance against environmental compliance key performance indicators. • Provide Global Reporting Initiatives reporting against the latest Global Reporting Initiatives frameworks available, and evidence that the principles of AA1000 have been applied to sustainability reporting. • Provide any outcomes from independent assurance reports undertaken. • Include environmental compliance reporting including in relation to, but not limited to: <ul style="list-style-type: none"> - reporting under the National Greenhouse Gas and Energy Legislation; - Environment Protection License requirements; - Planning Approval requirements; - Specify the energy intensity per passenger kilometre (kWh per passenger km, and kJ per passenger km). 	Environment & Sustainability Advisor	Sydney Metro Authority

8.6. National greenhouse energy reporting

MTS submits an NGER’s report based on data collected from the operation of the network as well as from the operations of sub-contractors. The report on emissions and energy data is required under the National Greenhouse

and Energy Reporting (NGER) Legislation and submitted between July and October each year. To date MTS has submitted reports in 2020/21 and 2021/22.

The processes for the collection and collation of emissions and energy data have been developed with processes integrated with contractors for the collection of monthly data. One such example of data collection form for NGER's reporting is included as Appendix F.

MTS retains records of its activities that are the basis of OpCo2's Emissions and Energy Data for any financial year, for a period of not less than 7 years from the end of the year in which the relevant activities take place. Records may be reviewed, audited and verified by any persons appointed or authorised for that purpose by Sydney Metro Authority or relevant Authority.

8.7. Global reporting initiative framework

The separate Environment & Sustainability section or sub-report of the Annual Performance Report is prepared such that it is suitable for publication on the project website and publicly available. This report will be prepared using the Global Reporting Initiative (GRI) Framework, incorporating Standard Disclosures from the GRI Sustainability Reporting Guidelines for environmental, social and economic categories including:

- Environmental performance.
- Sustainability performance.
- Labour practices.
- Social inclusion.
- Procurement practices.
- Product responsibility.

The principles for designing report content will be adopted in the preparation of the Environment & Sustainability section or sub-report of the Annual Performance Report. These include:

- **Stakeholder Inclusiveness** - identify the organisation's stakeholders and explain how it has responded to their reasonable expectations and interests.
- **Sustainability Context** - present the organisation's performance in the wider context of sustainability.
- **Materiality** - Reflect the organisation's significant economic, environmental and social impacts or substantively influence the assessments and decisions of stakeholders.
- **Completeness** – coverage of material aspects and their boundaries, sufficient to reflect significant economic, environmental and social impacts, and to enable stakeholders to assess the organisation's performance in the reporting period.

Reporting of Sustainability responsibilities outlines in this OEMP will be undertaken in accordance with the governance structure outlined in GRI 102: GENERAL DISCLOSURES 2016, disclosures 102-18 through 102-39, inclusive.

As illustrated in Figure 2, implementation of sustainability on the Sydney Metro CSW network will be led by the MTS CEO, who will ensure that sustainability processes and procedures are given their due attention and respect by the entire MTS organisation. Figure 2 illustrates the reporting lines, including for the supporting disciplines, necessary to ensure all sustainability responsibilities are reported to the MTS CEO.

The MTS CEO and GM's; Head of Safety, Quality, Risk and Environment; Environment & Sustainability Advisor; Manager People & Culture; Learning & Development Manager and Procurement Manager will be responsible for ensure that the required information reported and documented in the quarterly and annual reports (see Section 9), is then disseminated to:

- OpCo2;
- Parent Companies;
- Sydney Metro Authority; and
- Any other relevant organisation as requested.

Below shows the step-by-step process to guide MTS in implementing the GRI framework for sustainability reporting:

1. Identify and Engage Stakeholders:

- Determine who MTS’ stakeholders are, including employees, Sydney Metro, EPA, NGOs, customers, local communities, and suppliers.
 - Engage with them to understand their concerns and priorities related to MTS’ economic, environmental, and social impacts.
- 2. Determine Report Content:**
 - Use the principle of 'Materiality' to identify what topics are most important to MTS’ stakeholders.
 - Prioritise topics based on their relevance and significance.
 - 3. Choose the Reporting Boundaries:**
 - The reporting boundaries of the framework is the Sydney Metro CSW Network line.
 - 4. Collect Data:**
 - Ensure the data is accurate, consistent, and comparable year-on-year.
 - 5. Select Appropriate GRI Standards:**
 - These standards provide guidelines on how to disclose information on different topics.
 - 6. Draft the Report**
 - 7. Third-Party Verification**
 - 8. Publish and Disseminate:**
 - Make the report publicly available, ideally on MTS’ website.
 - Promote the report through various channels like press releases, social media, webinars, or stakeholder meetings.
 - 9. Feedback and Continuous Improvement:**
 - Gather feedback from stakeholders on the report.
 - Use feedback for continuous improvement in both your sustainability practices and future reports.

8.8. Agency reporting

Additional reporting requirements identified in the Project documents are included in Table 20. Further reporting may be necessary through the operational life of the network. In such circumstances, Table 20 would be amended to reflect those changes in accordance with Section 9 for the revision of the OEMP.

Table 20 External (Agency Reporting)

Report Name	Frequency	Detail	Responsibility	Report Recipients
EPL Annual Return	Annually	Report on compliance with EPL Compliance.	Environment & Sustainability Advisor	EPA
Material harm report	Within seven days of incident causing or threatening material harm	Written details of notification of incidents causing or threatening material harm to the environment (refer also to Section 7 for initial notification).	Environment & Sustainability Advisor	EPA SM DPHI
EPA Requested Report	As requested,	As requested by EPA.	Environment & Sustainability Advisor	EPA
EPL Daily Complaints Report	EPL related complaints	Rolling Daily Complaints Report (excel file) updated for complaints received prior to 12noon business days, report sent by 2pm.	Environment & Sustainability Advisor, with assistance from Senior	EPA

Report Name	Frequency	Detail	Responsibility	Report Recipients
			Communications Manager	

9. Continuous improvement and review

The Quality Management Plan defines the overview and approach to management review and continuous improvement within MTS.

This section discusses the process for continuous improvement that MTS will follow to ensure adequate review of this OEMP, and relevant supporting documentation, is undertaken through the operational life of the Sydney Metro City & Southwest network. It also discusses the processes that will be followed to provide for the revision of the OEMP to reflect any changes resulting from the reviews.

9.1. Management reviews

Management reviews will be undertaken annually or as required as part of the MTS continual improvement process. Reviews will consider the suitability and effectiveness of the environmental management system and effectiveness and proper implementation of this OEMP. This may include the wider management team and a review of systems from other functional areas.

The review will consider:

- opportunities to improve efficiencies of environmental management processes and practices;
- client and agency feedback;
- consideration of non-conformances and deficiencies;
- consideration of effectiveness of corrective and preventative actions; and
- changes or developments in the MTS IMS.

The outcomes of the reviews may result in the amendment of this OEMP or related documents, revision to the IMS, risk assessment review, re-evaluation of the Project’s objectives and targets as well as feed-in into other Project documents. Necessary system improvements would be identified and raised as corrective actions. Any changes to this OEMP would be managed in accordance with Section 9.2.

9.2. Revision of this plan

Continual improvement is achieved through constant measurement and evaluation, audit and review of the effectiveness of the Plan, and adjustment and improvement of the OEMP, Project environmental outcomes and the MTS IMS. Annual management reviews provide specific opportunities to identify improvements in the IMS and/or this OEMP. This OEMP will be updated annually:

- To consider changes to the environment or generally accepted environmental management practices, new risks to the environment, any hazardous substances, contamination, or changes in law.
- Where requested or required by the DPHI or any other Authority.
- In response to internal or external audits or quarterly management reviews.

The updated plan will be endorsed by the Environment & Sustainability Advisor and approved internally by the MTS CEO.

If minor changes are required, the MTS Environment and Sustainability Advisor will notify the Head of Safety, Quality, Risk and Environment and get approval from them to make these minor changes. The Head of Safety, Quality, Risk and Environment would then review and approve the changes. Minor changes would typically include those that:

- 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.
- Are in response to audit findings or periodic reviews.
- Do not compromise the ability of the Project to meet approval or legislative requirements.

A

APPENDIX

Appendix A. Document control

Appendix A1. Document information

Document Number:	SMCSWTS2-MTS-CSW-EM-PLN-002697
Version:	03
Issue Date:	02/08/2024
Network	City & Southwest

Appendix A2. Approval record

Function	Position	Name	Signature	Date
Prepared by:	Environment & Sustainability Advisor	Peter Scioscia		
Reviewed by:	Head of Safety, Quality, Risk and Environment	Melissa Northey		
Endorsed by:	General Manager Safety, Quality, Risk & Environment	Amanda Calvez		
Endorsed by:	A/General Manager Engineering & Maintenance Delivery	Michael Leah		
Approved by:	MTS Chief Executive Officer	Daniel Williams		
Endorsed by:	MTR Representative	Ronnie Tong		
Authorised by:	OpCo2 Delivery Director	Phil Dark		
Approved by:	NRT Chief Executive Officer	Steve Herman		

Appendix A3. Amendment record

Date	Rev	Amendment description	By
22/04/2024	01	Initial draft. Formatting as per MTS branding standards for plans.	Peter Scioscia / Peter Simcic
24/05/2024	01	Final check and release for signature.	Peter Simcic
28/06/2024	02	Updated plan as per SMA's Environmental Representative comments.	Peter Scioscia
28/07/2024	03	Updated plan as per DPHI's comments.	Peter Scioscia

B

APPENDIX

Appendix B. List of acronyms

Acronym	Definition
ANZ SMEs	Australian & New Zealand Small & Medium Enterprises
ARI	Average Recurrence Interval
AS	Australian Standard
CBD	Central Business District (of Sydney)
CCRA	Climate Change Risk Assessment
CCRAAS	Climate Change Risk Assessment & Adaptation Study
CEO	Chief Executive Officer
CEP	Carbon & Energy Management Plan
CLIP	Community Liaison Implementation Plan
CoA	Conditions of Approval
CSW	City and Southwest
CTP	Compliance Tracking Program
D&C	Design & Construction
D&D	Design & Delivery
D&DJV	Design & Delivery Joint Venture
DPHI	NSW Department of Planning, Housing & Infrastructure
DPI	NSW Department of Primary Industries
DPSP	Delivery Phase Sustainability Plan
DSI	Detailed Site Investigation
E&S	Environmental & Sustainability
EAM	Environmental Aspect Map
ECRL	Epping to Chatswood Rail Line
ECSM	Electricity Consumption Software Model
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Emergency Management Plan
EMS	Environmental Management System
EP&A	Environmental Planning & Assessment
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
EWMS	Environmental Work Method Statements
FTE	Full Time Equivalent
GBCA	Green Building Council of Australia
GM	General Manager
GRI	Global Reporting Initiative
HR	Human Resources
HSE	Health, Safety, Environment

Acronym	Definition
HVAC&R	Heating, Ventilation, Air Conditioning & Refrigeration
ICN	Industry Capability Network
IEQ	Indoor Environment Quality
IMF	Incident Management Framework
IMS	Integrated Management System
IR	Industrial Relations
IS Rating Tool	Infrastructure Sustainability Rating Tool
ISC	Infrastructure Sustainability Council of Australia
ISO	International Standards Organisation
kL	Kilolitre
KPIs	Key Performance Indicators
kVa	Kilovolt-ampere
LCA	Life Cycle Assessment
LCC	Life Cycle Cost
LMA	Licensed Maintenance Areas
MCoA	Ministerial Conditions of Approval
MTS	Metro Trains Sydney Pty Ltd
NABERS	National Australian Built Environment Rating System
NCIE	National Centre for Indigenous Excellence
NOW	NSW Office of Water
NRT	Northwest Rapid Transit
NVMP	Operational Noise & Vibration Management Plan
NW	Northwest
NWRL	Northwest Rail Link
O&M	Operation & Maintenance
OEH	NSW Office of Environment & Heritage
OEMP	Operational Environmental Management Plan
OPESP	Operations Phase Environment and Sustainability Management Plan
ONVR	Operational Noise and Vibration Review
OpCo / OpCo2	NRT Group
OTS	Operations, Trains & Systems
PAS	Public Announcement System
PIMS	Project Integrated Management System
PIRMP	Pollution Incident Response Management Plan
PMS	Project Management System
POEA Act	Protection of the Environment Operations Act 1997
PPP	Public Private Partnership
PRL	Parramatta Rail Link
PV	Photo Voltaic

Acronym	Definition
RECS	Renewable Energy Certificates
REF	Review of Environmental Factor
REMMs	Revised Environmental Mitigation Measures
ROMs	Rail Operating Manuals
RTRF	Rapid Transit Rail Facility
SCLP	Stakeholder & Community Liaison Plan
SDG	Sustainable Design Guidelines
SEAG	Skills & Employment Advisory Group
SH&E	Safety, Health & Environment
SQRE	Safety, Quality, Risk and Environment
SJV	Service Joint Venture
SMA	Sydney Metro Authority (an independent agency of TfNSW)
SMTF	Sydney Metro Train Facility
SMS	Safety Management System
SPMS	Server Payment Monitoring System
SQE	Safety, Quality & Environment
SROI	Social Return on Investment
SSI	State Significant Infrastructure
TAFE	Technical & Further Education
TBA	To Be Advised
TfNSW	Transport for NSW
TNA	Training Needs Analysis
VOC	Volatile Organic Compound
WAP	Works Approval Protocol

C

APPENDIX

Appendix C. Related documents

Note: some documents will be closely interconnected and will need to be reviewed when this one is changed. Others are simply related content that supplement the material in this document.

Document Number	Document Title	Review
SMCSWTS2-MTS-CSW-EM-PLN-002107	Carbon and Energy Management Plan	Yes
NWRLOTS-NRT-ADM-EM-PRO-720473-01	Fauna Handling Procedure	Yes
SMCSWTS2-MTS-1NL-EM-PLN-002711	Flooding and Hydrology Plan	Yes
NWRLOTS-NRT-PRD-PM-PLN-000874	Flora & Fauna Management Plan	Yes
SMCSWTS2-MTS-1NL-EM-PLN-002712	Groundwater Management Plan	Yes
SMCSWTS2-MTS-CSW-HE-PLN-002100	Heritage Management Plan	No
SMCSWTS2-MTS-CSW-PM-PLN-002143	Human Resource Plan	No
SMCSWTS2-MTS-CSW-PM-PLN-002145	Incident Management Plan	No
NWRLOTS-NRT-SWD-FA-POL-723353	MTS Procurement Policy	No
SMCSWTS2-MTS-CSW-EM-PLN-002106	Noise and Vibration Management Plan	Yes
NWRLOTS-NRT-ADM-EM-PRO-720474-01	Noise & Vibration Monitoring Procedure	No
SMCSWTS2-MTS-CSW-EM-PLN-002105	Operations Phase Environment and Sustainability Plan	Yes
NWRLOTS-NRT-ADM-EN-PLN-720416	Pollution Incident Response Management Plan	Yes
SMCSWTS2-MTS-CSW-PM-PLN-002156	Quality Management Plan	No
SMCSWTS2-MTS-CSW-PM-PLN-002158	Risk Management Plan	No
NWRLOTS-NRT-SWD-AM-PLN-723029	Severe Weather Conditions Response Plan	No
NWRLOTS-NRT-SWD-RS-FRW-720717	SMS Element 17: Procurement and Contract Management	No
NWRLOTS-NRT-ADM-EM-PRO-720472-01	Spill Management Procedure	Yes
SMCSWTS2-MTS-CSW-PM-PLN-002162	Stakeholder and Community Involvement Plan	No
NWRLOTS-NRT-ADM-PM-PLN-721415	Training Management Plan	No
SMCSWTS2-MTS-CSW-TF-PLN-002803	Traffic and Transport Management Plan	Yes
NWRLOTS-NRT-ADM-EM-PRO-720475-01	Unexpected Heritage Finds Procedure	No
NWRLOTS-NRT-ADM-EM-PRO-720476-01	Unexpected Contaminated Finds Procedure	Yes
NWRLOTS-NRT-ADM-EM-PRO-720471-01	Waste Resource Management Procedure	Yes
NWRLOTS-NRT-ADM-EM-PRO-720478-01	Water Quality Monitoring Program	Yes
NWRLOTS-NRT-ADM-EM-PRO-720479-01	Weed Management Procedure	Yes

D

APPENDIX

Appendix D. Environment & sustainability policy



Environment & Sustainability Policy

Metro Trains Sydney (MTS) purpose is to seamlessly connect our customers through a safe and sustainable railway, with a positive and personal experience satisfying their expectations for service delivery, improved liveability and accessibility. We intend to integrate asset and people safety, governance, environmental, social and economic sustainability consideration in all we do.

Our Environment & Sustainability Objectives

To achieve the above statement, MTS is committed to:

- Minimise impact to surrounding communities
- Prevent pollution and ensure no harm to the surrounding environment
- Ensure water discharge occurs only in a controlled approved manner
- Minimise impacts to air quality
- Ensure all waste is minimised, and disposed of accordingly
- Minimise operational energy consumption and carbon emissions
- Minimise potable water consumption
- Build workforce diversity
- Prioritised local employment
- Workforce skills and generating an employment legacy for North West Sydney
- Encourage engagement of SMEs in the supply chain for operation
- Prioritisation of procurement from local businesses
- Consider climate change adaptation factors to provide a resilient network
- Deliver passenger comfort and customer focused safety, security and service
- Enhance community benefits through transport amenity and reliability, healthy living, and community safety

To provide for this policy, Metro Trains Sydney have established an Integrated Management System (IMS) in line with the requirements of the ISO 14001 standard. Metro Trains Sydney is dedicated to the continual improvement system by:

- Providing a clear focus on priorities by establishing environmental & sustainability objectives, which are reviewed periodically through the management review process
- Implementation of a good governance practices through independent audits to ensure the ongoing internal and contractor suitability and conformity of the IMS
- Attainment of the required sustainability ratings using relevant Infrastructure Sustainability Council of Australia (ISCA) sustainability rating scheme.

Our Commitments

We will make sure:

- Statutory and regulatory requirements are determined, understood and consistently met. Comply with the Project Deed requirements and continually improve our performance in environment and sustainability aspects
- Influence contractors, subcontractors and suppliers to adopt sustainable practices
- Working proactively with key Government Regulatory Agencies, Sydney Metro, TfNSW, Business, Community Stakeholders to identify sustainability issues and opportunities, including ways to deliver the next generation of rail travel to Sydney needs.



Daniel Williams
 Chief Executive Officer
 Metro Trains Sydney
 19 April 2021

CONNECTING THE FUTURE

MTS-ECP-PO-021 | version 1.0 | Effective Date: 23/04/2021 | Next Review Date: 23/04/2021
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E

APPENDIX

Appendix E. Risk assessment

Table 21 Risk assessment matrix

RISK NUMBER	RISK EVENT	CATEGORY	CAUSES	CONSEQUENCES	CONTROLS/TREATMENTS	CONSEQUENCE LEVEL	LIKELIHOOD	RISK RATING
Noise and Vibration								
1	Excessive noise from surface repair or maintenance works.	Surface Works	<p>Repair and maintenance works (including tamping, ballast cleaning, etc) are undertaken without:</p> <ul style="list-style-type: none"> - proper notification to the community; - implementation of mitigation measures. 	<ul style="list-style-type: none"> - Public complaint; - Infringement notice from regulators; - Loss of reputation; - EPA applies stricter requirements to Maintenance & Repair works through the EPL (potentially restricting operating hours). 	<ul style="list-style-type: none"> - Modelling to be conducted to identify possible sensitive receivers, measures to be put in place to mitigate. - Community notification of maintenance and repair works to be undertaken in accordance with EPL provisions and Deed requirements; - Mitigation measures to be implemented, including respite, as determined through noise assessment. Noise and Vibration Management Plan EIS ID: OpNV1 - The height and extent of noise barriers adjacent to the northern surface track works would be confirmed during detailed design with the aim of not exceeding trigger levels from the Rail Infrastructure Noise Guidelines (Environment Protection Authority, 2013). 	C3	L5	Medium

					<p>At property treatments would be offered where there are residual exceedances of the trigger levels.</p> <p>EIS OpNV2 – Track form would be confirmed during the detailed design process in order to meet the relevant ground-borne noise and vibration criteria from the Rail Infrastructure Noise Guidelines (EPA, 2013) and the Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007a).</p> <p>EIS OpNV3 – Stations and ancillary facilities including train breakout noise from draught relief shafts would be designed to meet the applicable noise criteria derived from the Industrial Noise Policy (EPA, 2000).</p>			
2	Vibration from maintenance works within proximity to receivers.	Surface Works	Repair and maintenance works (including tamping, ballast cleaning, etc) are undertaken without:	- Public complaint;	- Modelling to be conducted to identify possible sensitive receivers, measures to be put in place to mitigate.	C4	L5	Low
			- proper notification to the community;	- Cosmetic damage;	- Community notification of repair and maintenance works to be undertaken in accordance with EPL provisions and Deed requirements;			
			- implementation of mitigation measures.	- Structural damage;	Mitigation measures to be implemented, including respite, as determined by Vibration assessment			

				- Infringement notice from regulators;	- Greater separation of vibratory works were possible			
				- EPA applies stricter requirements to Maintenance & Repair works through the EPL (potentially restricting operating hours).	Noise and Vibration Management Plan			
3	Ground borne Noise is greater than the Operational Noise and Vibration models predicted in Noise and Vibration Management Plan	Tunnel Operation	- Modelling used during D&C Phase had incorrect inputs;	- Public complaint;	-Performance criteria established in ROMs	C4	L5	Low
			- The "as built" Project did not meet the design requirements for regenerated noise	- Infringement notice from regulators;	-Operations undertaken in compliance with ROMs			
			- The operation of the railway systems are not as envisaged during design development	- Breach of the MCoA leading to fines or stop works order from DP&E;	Noise and Vibration Management Plan			
				- Loss of reputation;				
				- EPA applies stricter requirements to the operation of the Project;				
				- Requirement to undertake major works to reconstruct the Project to the required standards.				
Soil and Water								
4	Contamination of water through spills of fuels or chemicals.	All Works.	-Plant & equipment failure	- Pollution of watercourse and stormwater;	OPESP and OEMP	C4	L5	Low
			-Accidental spill	- Infringement notice;	- Refuelling Procedures;			
			-Inappropriate storage	- Reputational damage;	- Spill Management Procedure;			

	Station specific risk – SMTF South contains a Water Treatment Plant		-Unapproved release of impacted water	- Clean-up costs.	Provision of Spill Kits at set locations, and mobile Spill Kits for stations			
			-Refuelling not appropriately controlled		- Training of all staff and workforce;			
			-Spill kit not available		- Incident Response Procedures;			
				- Detention Basin Management Procedure; and				
	Station specific risk – Barangaroo contains a Water Treatment Plant			Station specific risks – Barangaroo WTP: <ul style="list-style-type: none"> Higher levels of cyanide now being tested on site. 	- Water quality and watercourse monitoring.			
	Station specific risk – Barangaroo station – cooling water discharge				Station specific risks – SMTF South – Sydney Steel Road: Managed by Emergency Management Plan (EMP) (Appendix F) Station specific risks – Barangaroo WTP: Future WDIA and WQMP to manage this risk EIS ID: SCW7 - Discharges from the tunnel water treatment plant would be monitored to ensure compliance with the discharge criteria determined in consultation with the NSW Environment Protection Authority.			
5	Utility strike (water or sewer) during repair or maintenance works causes a	Surface Works	- Accidental strike of service as located on plan;	- Pollution of watercourse and stormwater;	OPESP and OEMP	C4	L5	Low
			- Utility is marked on plans in the wrong location; or	- Disruption to service provision;	- Excavation permit system to be implemented			

	release of water to the surrounding environment.		- Service not formerly identified by any means of investigation discovered and damaged.	- Infringement notice;	- Spill Management Procedure;			
				- Reputational damage;	- Provision of Spill Kits at set locations, and mobile spill kits for sites outside of the RTRF;			
				- Clean-up costs.	- Training of all staff and workforce;			
					- Incident Response Procedures.			
6	Unforeseen water inflows into the tunnel require additional discharge	Environment and Sustainability	- Settlement and/or damage to tunnel causing additional groundwater inflow	- Delay as WTP operation is amended to allow for increased discharge	- Settlement monitoring previously undertaken	C4	L5	Low
			- Damaged water service draining to tunnel	- Infringement notice from EPA for discharge of water(s) in contravention of the EPL	Work method planning takes into consideration existing services			
				- Stop train operations (depending on volume entering tunnel).	- CCS monitoring performance of pumps and WTP			
7	Impacts to water quality from discharge of untreated groundwater.	Environment and Sustainability	- WTP failure	- Pollution of watercourse and stormwater;	OPESP and OEMP	C4	L5	Low
			- CCS monitoring not identifying water quality impact	- Impacts to aquatic flora and fauna;	- Refuelling Procedures;			
			- Unauthorised discharge	- Infringement notice;	- Spill Management Procedure;			
				- Reputational damage;	- Provision of Spill Kits at set locations, and mobile spill kits for sites outside of the RTRF;			
				- Clean-up costs.	- Training of all staff and workforce;			
					- Incident Response Procedures;			

					- Detention Basin Management Procedure; and			
					- Water quality and watercourse monitoring.			
8	Pollution of watercourses from discharge of sediment laden or otherwise contaminated stormwater runoff.	Environment and Sustainability	Rainfall event larger than the design capacity of the permanent built drainage facilities.	- Impacts to aquatic flora and fauna;	- Refuelling Procedures;	C4	L5	Low
				- Infringement notice;	- Spill Management Procedure;			
				- Reputational damage;	- Provision of Spill Kits			
				- Clean-up costs	- Training of relevant staff and workforce;			
					- Incident Response Procedures;			
					- Detention Basin Management Procedure; and			
					- Water quality and watercourse monitoring.			
9	Ongoing water table drawdown, settlement / ground movement, bed cracking / surface flow loss from previous tunnelling activities & excavations.	Tunnel	- Ongoing settlement of ground and inflows around the project infrastructure	- Flooding of infrastructure assets	- Previous settlement monitoring	C4	L5	Low
				- Impact to natural flow and GDEs	- Site inspection			
					- Watercourse inspections			

10	Impacts from flood risk to stations and other rail infrastructure.	Environment and Sustainability	- Rainfall events beyond the design capacity of the final built infrastructure.	- Flooding of stations and other assets;	- Previous flood assessments	C4	L5	Low
				- Damage to infrastructure;	- Prevent impacts on drainage systems and watercourses through work planning			
				- Impacts on operations;	- Temporary flooding controls./ diversions			
				- Risk to human safety and life;				
11	Uncontrolled water discharge from Operational Water Treatment Plant at SMTF-S.	Environment and Sustainability	Rainfall event larger than the design capacity of the permanent built treatment facilities.	Damage to infrastructure. Impacts to operations Infringement Notice	OPESP OEMP	C3	L5	Medium
Heritage								
12	Identification of unidentified indigenous or non-indigenous objects and places during repair and maintenance works.	Environment and Sustainability	- Previously unidentified heritage item discovered during works	- Damage to heritage item.	Heritage Management Plan	C4	L6	Low
				- Delay to works while item is investigated and properly archived.	- Unexpected Heritage Finds Procedure (including hold point to cease works where archaeological finds are encountered).			
				- Infringement notice.				
				- Reputational damage.				
Traffic and Transport								
13	Potential impacts on the		- Poorly designed precinct roads		Traffic and Transport Management Plan	C4	L4	Medium

	local and regional road network during operation	Traffic & Transport	<ul style="list-style-type: none"> - Traffic volumes during peak periods - Commuter reliance on car use to get to stations 	Complaints	<ul style="list-style-type: none"> - Traffic monitoring (by Sydney Metro TfNSW) - Encourage alternative modes of transport for commuters and staff 			
14	Safety of pedestrians and cyclists within and around the station precincts	Traffic & Transport	<ul style="list-style-type: none"> - Footpaths and corridors access is impacted - Poor connections and signage - Staff not providing access to cyclists 	<ul style="list-style-type: none"> - Complaints - accidents and injuries - reputational damage 	<ul style="list-style-type: none"> - Clear footpaths and corridors for active modes of transport Maintain design and Provision of facilities for cyclists - Lighting and security provisions around stations and managed precinct areas - Maximising pedestrian accessibility to the stations. (EIS ID: OpT1) - Access would be maintained to neighbouring properties (EIS ID: OpT2) 	C4	L5	Low
Air Quality								
15	Dust emissions from repair or maintenance works, in particular those involving the moving of ballast	Surface Works	<ul style="list-style-type: none"> - Improper execution of surface works without appropriate mitigation. - Failure to implement dust suppression during works. - Excessive dry / windy weather rendering the ground and ballast dry and dusty. 	<ul style="list-style-type: none"> - Community complaints; - Visual haze; - Respiratory complaints; - Infringement notice; - Reputational damage. 	<ul style="list-style-type: none"> OPESP and OEMP Dust Management practices EWMS to include dust mitigation methods, including such things as: - inspection and observation for dust during work 	C4	L5	Low

					- Dust suppression to be fitted to equipment as required;			
					- Wash-down of plant and services;			
					- Education program for personnel to instruct on correct mitigation measures;			
					- Street sweepers and water carts to be used to clean hard surfaces where required			
16	Friable and bonded asbestos, and benzo(a)pyrene TEQ impacted fill soil across the site; Hydrocarbon odour impacted material in the north-eastern portion of the site	Surface Works	Improper management of the hazard.	Accidents and Injuries Infringement notice	OEMP EMP (Appendix F)	C4	L5	Low
17	1m x 1m asbestos impacts requiring isolation or removal at SMTF-N	Surface Works	Improper management of the hazard.	Accidents and Injuries Infringement notice	OEMP	C4	L5	Low

Ecology								
18	Impacts to threatened flora species during surface repair and maintenance works.	Surface Works	- Accidental clearing of threatened species;	- Infringement notice;	OPESP and OEMP	C4	L6	Low
			- Damage to root/ drip zone, of threatened tree species.	- Reputational damage.	- Vegetation Management Procedure.			
19	Impacts to threatened fauna species from noise, light spill and collision.	Surface Works	- Impact with maintenance and repair vehicles;	- Impact to health and life of fauna species increasing the chance of extinction.	OPESP and OEMP	C4	L6	Low
			- Impact with trains;	- Infringement notice;	- Fauna Handling Procedure			
			- Light spill affecting the habits of nocturnal species.	- Reputational damage.				
20	Weed invasion .	Surface Works	- Failure to manage weed proliferation within the Operational Project boundaries	Spread of weeds leading to increased maintenance costs.	OPESP and OEMP	C4	L6	Low
					- Weed Management Procedure.			
					- Vegetation Management Procedure			
21	Impacts to aquatic ecosystems from water discharge at SMTF-S Water Treatment Plant	Surface Works	- Release of water that is polluted (highly turbid or containing other pollutants) into natural watercourses.	- Pollution of waterways;	OPESP and OEMP	C4	L5	Low
			- WTP monitoring not identifying pollutants	- Failure to comply with S.120 of the POEO Act;	- WTP processes			
			- WTP failure	- Damage to health/ life of aquatic flora and fauna;				
			- Unauthorised discharge	- Infringement notice;	- EPL;			
				- Reputational damage;	- Waste tracking and disposal			
				- Clean up costs.				

Waste and Resource Management								
22	Excessive waste directed to landfill.	Governance	- Unforeseen major repair or maintenance works requiring substantial demolition of NRT infrastructure.	- Failure to meet Deed requirements;	Compliance with:	C4	L4	Medium
			- Failure to follow waste management protocols for waste management from: offices; maintenance facilities; etc.	- Failure to meet ISC requirements;	OPESP and OEMP			
				- Failure to meet MCoA requirements, resulting in infringement notice;	- Waste and Resource Management Procedure. EIS ID: WM5 – Generation of operation phase waste would be minimised. In addition to the above, MTS will comply with the REMMs addressed in Appendix C to this OEMP.			
				- Reputational damage;				
				- Increased cost associated with purchasing extra water.				
23	Mismanagement of waste materials.	Environment and Sustainability	- Failure to follow waste management protocols for waste management from: offices; maintenance facilities; etc.	- Infringement notice for improper disposal of waste.	Compliance with:	C4	L4	Medium
					- CEMP;			
					- Waste and Resource Management Procedure, including: * Waste classification sampling;			
					* Waste tracking dockets.			

					EIS ID: HR5 – All hazardous substances that may be required for operation would be stored and managed in accordance with the Storage and Handling of Dangerous Goods Code of Practice (Workcover NSW, 2005) and Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011).			
Greenhouse Gas and Climate Change Adaptation								
24	Emissions of greenhouse gases during operation contributing to climate change.		- Increased use of electricity during operation; - Failure to source adequate volumes of green power.	- Contributing to climate change impacts due to increased emissions.	Compliance with: OPESP and OEMP - Procurement Procedures; - Sustainability initiatives for water reuse and energy use (reduce/offset); Carbon & Energy Management Plan	C4	L5	Low
25	Impact of climate change on rail operations and infrastructure.		-Heat sensitive components impacted by increase in hot days - Increase storm events and rainfall intensity		OPESP and OEMP - Procurement Procedures; - Sustainability initiatives for water reuse and energy use (reduce/offset); Carbon & Energy Management Plan	C4	L5	Low

					<p>EIS ID: SUS 7 – Sustainability initiatives would be incorporated into the operation of the project to support the achievement of the project sustainability objectives.</p> <p>EIS ID: SUS 8– Periodic review of climate change risks would be carried out to ensure ongoing resilience to the impacts of climate change.</p> <p>EIS ID: SUS 9 – A workforce development and industry participation strategy would be developed and implemented during operation.</p> <p>EIS ID: SUS 10 – 100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.</p>			
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Figure 4 Risk matrix

Likelihood

SCORING SCHEME	Qualitative	Quantitative
L1 Almost Certain	Expected to occur frequently during the life of the Project	>12 times annually
L2 Very Likely	Expected to occur occasionally during the life of the Project	1-12 times annually or expect this risk to occur monthly
L3 Likely	More likely to occur during the life of the Project than not	1 time per year of Contract
L4 Possible	More likely not to occur during the life of the Project than occur	5 times during the life of the Contract Once every three years
L5 Very Unlikely	Not expected to occur during the life of the Project	3 times during the life of the Contract Once every five years
L6 Almost Unprecedented	No expectation that this risk will occur during the life of the Project	1 time during the life of the Contract Once every 15 years

Scoring Scheme (Matrix)

MATRIX	C6 Insignificant	C5 Minor	C4 Moderate	C3 Major	C2 Severe	C1 Catastrophic
L1 Almost Certain	C	B	B	A	A	A
L2 Very Likely	C	C	B	B	A	A
L3 Likely	D	C	C	B	B	A
L4 Possible	D	D	C	C	B	B
L5 Very Unlikely	D	D	D	C	C	B
L6 Almost Unprecedented	D	D	D	D	C	C

Risk Response

RATING	MTS Response	Sign-Off
A Very High – Generally Intolerable	Should be avoided except in extraordinary circumstances. All A risks should be escalated to the ERR and all available and necessary steps should be taken to reduce the level of these risks. Very High risks should only be accepted in consultation with the CEO who will evidence their understanding of the residual exposure.	Chief Executive Officer
B High - Undesirable	These risks can only be tolerated if it is not reasonably practicable to reduce the level of this risk further and that a SFAIRP argument is evidenced. High risks are to be on the verge of being unacceptable to the business. High risks should only be accepted in consultation with the relevant LT Member who will evidence their understanding of the residual exposure.	Leadership Team Member
C Medium - Tolerable	Medium risks can only be tolerated if it is not reasonably practicable to reduce the level of this risk further and that all WHS and Environmental considerations have been considered. Medium risks should only be accepted in consultation with the relevant Manager or Risk Owner who will evidence their understanding of the residual exposure.	Manager
D Low – Broadly Acceptable	Low risks are expected but MTS remain vigilant in reducing our exposure and that all WHS and Environmental considerations have been considered. The Supervisor / Team Leader will be able to evidence their understanding of the residual exposure.	Supervisor / Team Leader

F

APPENDIX

Appendix F. NGER – Data collection

Figure 5 NGER data collection form

Company Name:				
Name:				
Position:				
Works performed:				
Data capture period:				
		Quantity	Unit of Measure	Data source (invoices, metering, estimation etc.)
Electricity consumption and production				
Electricity consumption (purchased from the grid)				
Electricity production – e.g. diesel generators (if above reporting threshold: 0.5 or more megawatts capacity per generation unit and generates more than 100,000 kWh per unit per reporting year.)				
Natural gas consumption				
Combusted Fuels – Transport				
Registered motor vehicles	Diesel			
	Gasoline / petrol			
	Liquefied Petroleum Gas (LPG)			
	Biodiesel (B20)			
	Ethanol (E10)			
	Liquefied Natural Gas (LNG)			
Combusted Fuels - Stationary				
Fuels used in plant and equipment: Stationary	Diesel			
	Gasoline / petrol			
	Liquefied Petroleum Gas (LPG)			
	Biodiesel (B20)			
	Other (please state): Ethanol (E10)			
	Liquefied Natural Gas (LNG)			
	Acetylene			
	Solvents (mineral turpentine or white spirit)			
	Petroleum based oils – combusted			
	Petroleum based greases – combusted			
	Petroleum based oils – not combusted			
	Petroleum based greases – not combusted			
Other (please provide details of any other potential emissions sources)				