Appendix B9

Construction Waste and Resources Management Sub-plan

M12 Motorway – Central

January 2025

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Document control

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Plan reviewed by:	Plan endorsed by:
[redacted]	[redacted]
Seymour Whyte Environmental Site Representative	Seymour Whyte Project Manager
18/01/2025	18/01/2025
	

Revision history

Revision	Date	Description
A	18/02/2022	First draft for TfNSW review
B	29/04/2022	Updated in response to TfNSW review
C	29/06/2022	Updated in response to TfNSW review
D	27/07/2022	Updated in response to TfNSW and ER review
E	14/08/2023	Updated in response to TfNSW review
F	18/01/2025	Updated in response to OCEMP update

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Glossary/Abbreviations

Abbreviations	Expanded text
AEIs	Areas of Environmental Interest
AMP	Asbestos Management Plan
AR	Amendment Report
ARSR	Amendment Report Submissions Report
ASS	Acid Sulfate Soil
CCLMP	Construction Contaminated Land Management Sub-plan
CFFMP	Construction Flora and Fauna Management Sub-plan
CMS	Complaints Management System
CoA	Conditions of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out prior to the approval of the OCEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix B of the Infrastructure Approval and approved under an environmental management plan(s) in accordance with Condition A24.
CSSI	Critical State Significant Infrastructure
CTTMP	Construction Transport and Traffic Management Plan
CWRMP	Construction Waste and Resources Management Sub-plan
CWSMP	Construction Soils and Water Management Plan
DAWE	Former Commonwealth Department of the Water, Agriculture and Environment (now Commonwealth Department of Climate Change, Energy, the Environment and Water)
DECCW	Former Department of Environment, Climate Change and Water
DPI	Department of Primary Industries
DPE	Former NSW Department of Planning and Environment
EES	Former Environment, Energy and Science Group
EIS	Environmental Impact Statement
EHG	Environment and Heritage Group (a part of NSW DPE)

Abbreviations	Expanded text
ESCP	Erosion and Sediment Control Plan
EMS	Environmental Management System
ENM	Excavated Natural Material, as defined in *The excavated natural material exemption*

Environmental Assessment Documentation	The set of documents that comprise the Division 5.2 Approval: • Roads and Maritime Services (October, 2019) M12 Motorway, Environmental Impact Statement (EIS) • Transport for NSW (October, 2020) M12 Motorway, Submissions Report (the Submissions Report) • Transport for NSW (October, 2020) M12 Motorway, Amendment Report (AR) • Transport for NSW (December, 2020) M12 Motorway, Amendment Report submissions report (ARSR) • Transport for NSW (March, 2021) The M12 Motorway Amendment Report Submissions Report – Amendment (ARSR amendment) • WSP (October, 2021) M12 Motorway – West Package Detailed Design Consistency Assessment • GHD (October, 2021) M12 Motorway – Central Package Detailed Design Consistency Assessment • Arcadis (June, 2022) M12 Motorway – Sydney Water Crossings Consistency Assessment • Arcadis (July, 2022) M12 Motorway – Design Boundary Changes Consistency Assessment • Arcadis (August, 2022) M12 Motorway – Minor Consistency Assessment for Proposed Change to the M12 Motorway Project (M12 Central) • Arcadis ([TA1][TB2]rSeptember, 2023) M12 Motorway – Devonshire Road Temporary Roundabout Consistency Assessment • WSP (September, 2023) M12 Motorway – Elizabeth Drive Connections Consistency Assessment • TfNSW (September, 2023) M12 Motorway – Minor Consistency Assessment M12 West demolition of structures at 752 Luddenham Road • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East AF9 Power Supply • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Cecil Road Laydown Area • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Temporary Construction Signage • Arcadis (December, 2023) M12 Motorway – East Site 48, 50 and 51 Boundary Changes Minor Consistency Assessment • Arcadis (January, 2024) M12 Motorway – Minor Consistency Assessment M12 Central Water Tower Access Road The documents that comprise the EPBC referral:

Abbreviations	Expanded text
	• Submission #3486 – The M12 Motorway Project between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham, NSW Notification of referral decision and designated proponent - controlled action; date of decision 19 October 2018; ID: 2018-8286.
Environmental Representative	A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. A key point of contact for the Planning Secretary in relation to environmental performance of the CSSI.
ESR	Environmental Site Representative
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection Licence
ERG	Environmental Review Group
ESM	TfNSW Environment and Sustainability Manager
ESR	Environmental Site Representative (Seymour Whyte)
EWMS	Environmental Work Method Statements
FCC	Fairfield City Council
GHG	Greenhouse Gas
GREP	NSW Government Resource Efficiency Policy
HBM	Hazardous Building Materials
ISC	Infrastructure Sustainability Council
IS	Infrastructure Sustainability
LBP	Lead Based Paint Systems
LCC	Liverpool City Council
LCD	Lead Containing Dust
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
OCEMP	Overarching Construction Environmental Management Plan
OCS	Overarching Communication Strategy

Abbreviations	Expanded text
OCWRMP	Overarching Construction Waste and Resources Management Sub-Plan
OEH	NSW Office of Environment and Heritage
PCBs	Polychlorinated Biphenyls
PCC	Penrith City Council
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Planning Secretary	Secretary of the NSW Department of Infrastructure, Planning and Environment, or delegate
Primary CoA/REMM	CoA/REMM that are specific to the development of this Plan
Project, the	The CSSI as approved by the Minister for Planning and Public Spaces on the 23 April 2021 (SSI 9364)
RAP	Reclaimed asphalt pavement
REMM	Revised Environmental Management Measures
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the M12 Central package
RID Squad	Regional illegal dumping squad
Roads and Maritime	Former NSW Roads and Maritime Services. Now Transport for NSW
RMS	Resource Management Strategy
SCM	Supplementary Cementitious Material
SEARs	Secretary's Environmental Assessment Requirements
Secondary CoA/REMM	CoA/REMM that are related to, but not specific to, the development of this Plan
SEMP	Site Establishment Management Plan
SEO	Senior Environment Officer
SMF	Synthetic Mineral Fibres
SMP	Spoil Management Plan
tCO_2-e	Tonnes of CO_2 equivalent
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services (RMS))
VENM	Virgin Excavated Natural Material
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)

Abbreviations	Expanded text
Work	Any physical work to build or facilitate the building of the CSSI, including low impact work, environmental management measures and utility works. However, it does not include activities that inform or enable detailed design of the CSSI and generate noise that is no more than 5 dB(A) above the rating background level at any sensitive receiver.
WRAPP	Waste Reduction and Purchasing Policy
WSIA	Western Sydney International Airport
WSP	Western Sydney Parklands
WUC	Works Under Contract

1 Introduction

1.1 Context

This Construction Waste & Resources Management Sub-plan (CWRMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – Central package.

This CWRMP has been prepared under the Overarching Construction Environmental Management Plan (OCEMP) and relevant sub-plans developed for M12 Motorway (the Project), to address the requirements of the Minister's Conditions of Approval (CoA), Revised Environmental Management Measures (REMMs) listed in the Environmental Impact Statement (EIS), Submissions Report, Amendment Report, and Amendment Report Submissions Report (ARSR), ARSR Amendment Report, all applicable legislation, and Transport for New South Wales (TfNSW) specifications.

1.2 Background

1.2.1 M12 Motorway (the Project)

TfNSW is planning to construct and operate the M12 Motorway (the Project) to provide direct access between the Western Sydney International Airport (WSIA) at Badgerys Creek and Sydney's motorway network. The M12 Motorway will run between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham for about 16 kilometres (km) and is expected to be opened to traffic prior to opening of the WSIA.

Key features of the Project include:

- An east-west 16 km motorway between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham
- A motorway built for four lanes (with provision for up to six lanes) with a median to separate opposing traffic flows
- A direct connection to Western Sydney International Airport
- A new connection to The Northern Road with traffic lights
- A motorway-to-motorway interchange at the M7 Motorway
- Provision for a future interchange connecting Mamre Road and Devonshire Road at the M12 Motorway.

A detailed Project description is provided in Section 2.1 of the CEMP.

1.2.2 Statutory Context

The Project is subject to an approval under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as Critical State Significant Infrastructure (CSSI). The Project is also a controlled action under Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), requiring a separate approval from the Australian Minister for the Environment.

The Project was assessed as part of an EIS, Submission Report, Amendment Report, ARSR and ARSR Amendment Report which are herein referred to as the Environmental Assessment Documentation. REMMs are nominated in these assessments to manage the identified impacts.

Approval for the Project under the EP&A Act was granted by the Minister for Planning on 23 April 2021 (CSSI 9364). Approval for the Project under the EPBC Act was granted by the Australian Minister for the Environment on 3 June 2021 (EPBC 2018/8286).

1.2.3 M12 Motorway Delivery Strategy

The Project will be constructed in three separate stages under separate construction contracts:

- **M12 West**– between The Northern Road, Luddenham and about 250 metres east of Badgerys Creek
- **M12 Central** (the subject of this Plan) – between about 500 metres west of South Creek and the Western Sydney Parklands at Duff Road, Cecil Park
- **M12 East** Elizabeth Drive connections at, Cecil Park
- **M12 East**– the M7/M12 interchange.

Each package of work is to be delivered under separate contracts on behalf of the proponent TfNSW. While the packages will commence at different times there will be periods during which the packages works will overlap. Co-ordination between the contractors will be required to manage cumulative impacts.

1.3 M12 Central

Seymour Whyte has been engaged to deliver the M12 Central package. Construction of the M12 Central package involves building 7.5 km of motorway from west of Badgerys Creek to the Water Tower Access Road within Western Sydney Parklands.

The M12 Central package will provide a dual carriageway with a wide median to allow for future widening to six lanes. Safety barriers will be provided along the length of the package. Emergency stopping bays and emergency crossovers will also be provided at regular intervals. A shared user path with lighting will provide an active transport link along the motorway and eastward to the M7.

The M12 Central package includes the following bridges:

- Twin bridges over South Creek
- A bridge for Clifton Avenue over the M12 Motorway
- Twin bridges over Kemps Creek
- Twin bridges over Elizabeth Drive near Mamre Road
- Twin Bridges over Range Road
- A bridge for the Water Tower Access Road over the M12 Motorway
- A private property access bridge in University of Sydney land.

Retaining walls will be provided around Range Road to help limit Project impacts on Range Road. Adjustments will be made to local roads including Clifton Avenue and Salisbury Road.

The M12 Central package also requires relocation of utility services including electricity, water, gas, and telecommunications. Urban design features of this package include Aboriginal artwork on bridges, rest areas on shared user paths, interpretive signage and landscape planting.

A detailed description of the M12 Central package is provided in Section 2.3 of the CEMP.

1.4 Scope of the Plan

The scope of this CWRMP is to describe how potential waste and resource impacts will be managed during construction of the M12 Central package. This Plan has been prepared under and consistent with the OCEMP, and in particular the Overarching Construction Waste and Resources Management Sub-Plan (OCWRMP) considering relevant issues and construction activities. In the preparation and ongoing implementation of this Plan, SMART (Specific, Measurable, Achievable, Realistic and Timely) principles are to be considered and applied.

This Plan is applicable to all activities during construction of the M12 Central package, including all areas where physical works will occur or areas that may otherwise be impacted by the construction works, and under the control of Seymour Whyte. All Seymour Whyte staff and sub-contractors are required to operate fully under the requirements of this Plan and related environmental management plans, over the full duration of the construction program.

A copy of this CWRMP will be kept on the premises for the duration of construction.

Operational waste and resources management does not fall within the scope of this CWRMP and therefore are not included within the processes contained within this Plan.

1.5 Environmental Management Systems overview

The Environmental Management System (EMS) for the M12 Central package is described in Section 3 of the CEMP. The EMS is consistent with the overarching EMS described in Section 3 of the OCEMP.

To achieve the intended environmental performance outcomes, Seymour Whyte have established, implemented, maintained and continually improved an EMS in accordance with the requirements of ISO14001:2015. The Seymour Whyte EMS will be adopted as the guiding environmental management framework for the M12 Central package.

The EMS consists of governance documentation, incorporating environmental management plans, policies, procedures and tools including:

- **M12 Central Environment and Sustainability Policy**. Outlines the commitments and intentions established by Seymour Whyte to ensure environmental performance and sustainability objectives and targets are achieved (Appendix A3 of the CEMP)
- **CEMP**. Details the processes and procedures to be implemented during the M12 Central package to comply with applicable CoA, REMMs, Environment Protection Licence (EPL), legislative obligations and contractual requirements. The relevant compliance obligations are detailed in Appendix A1, with a cross reference to where they are met in this Plan
- **Environmental Management Sub-plans**. These documents describe procedures and controls for specific environmental aspects requiring more rigorous management strategies
- **Monitoring Programs**. Details the monitoring regime to be implemented during construction to compare the actual performance of construction against the objectives outlined in the relevant Plan, including setting specific triggers and associated responses
- **Waste Management Register**. Provides a record of wastes generated by and imported to the M12 Central package, including waste types, volumes and destinations
- **Environmental Work Method Statements (EWMS)**. Management measures identified in this Plan may also be incorporated into site or activity specific Environmental Work Method Statements (EWMS). EWMS incorporate appropriate mitigation measures and controls and identify key procedures to be used concurrently with the EWMS

- **Sensitive Area Plans (SAPs)**. A series of maps providing key features of the alignment and relevant environmental constraints. Features include waterways, heritage, biodiversity contamination and sensitive receivers amongst other site relevant features
- **Spoil Management Plan (SMP)**. Provides specific details for the management of spoil as a result of the construction of the M12 Central package (Appendix C)
- **Coal Tar Management Plan (CTMP)**. To be prepared if coal-tar is encountered during construction of the M12 Central package. The CTMP will provide a detailed methodology for the investigation, testing, handling, removal and disposal of coal tar along with practical measures to minimise potential impacts. If prepared, it will be appended to this Plan
- Procedures, strategies and protocols. Detailed procedures for inclusion in work packs.

1.5.1 CWRMP preparation, endorsement and approval

The OCWRMP has been prepared to address the NSW CoA's in relation to management of waste and resource during construction of the Project, particularly NSW CoA E100-E104 and subsequently provided to the Planning Secretary for information. This stage-specific CWRMP for the M12 Central package has been developed under and consistent with the OCWRMP.

This CWRMP and Spoil Management Plan (Appendix C) will be reviewed by the TfNSW Environment and Sustainability Manager (ESM) (or delegate) and the independent Environmental Representative (ER) to confirm they are consistent with, and incorporate, all relevant elements of the approved OCEMP, prior to submission to the Planning Secretary for information. Construction of the M12 Central package will not commence until the CWRMP and Spoil Management Plan has been reviewed to the satisfaction of the TfNSW ESM and ER and provided to the Planning Secretary for information.

1.5.2 Interactions with other management plans

This Plan has the following interrelationships with other management plans and documents:

- Site Establishment Management Plan(s) (SEMP) include details of specific waste management locations as well as site specific management requirements
- Construction Soil and Water Management Plan (CWSMP) addresses the erosion and sedimentation impacts associated with waste storage and handling as well as procedures for minimising water usage and managing wastewater and any contaminated waste including Acid Sulfate Soils (ASS) encountered during construction works
- Construction Contaminated Land Management Plan (CCLMP) provides details for pre- and post-construction waste found within the construction footprint and disposal methods for any contaminated waste, including asbestos
- Construction Flora and Fauna Management Plan (CFFMP) and Clearing and Grubbing EWMS addresses reuse and recycling of green wastes generated from vegetation clearing
- Construction Transport and Traffic Management Plan (CTTMP) addresses the transportation and traffic impacts of waste transport and disposal
- Overarching Project Sustainability Strategy sets out a framework covering energy management, workforce travel, resource use and procurement and water reuse
- The Construction Water Strategy sets out a framework to address the Environment Assessment Documentation and Infrastructure Sustainability Council (ISC) requirements
- M12 Central Construction Sustainability Management Plan and the Seymour Whyte Procurement Procedure (SWC-QP-130) which will support negotiation with prospective

suppliers and subcontractors around opportunities to avoid waste that can be incorporated into subcontractor agreements.

- M12 Central Communication and Stakeholder Engagement Strategy, developed under the Overarching Communication Strategy (OCS), and details procedures and processes for community notification, consultation and complaints management.

1.6 Consultation

The OCWRMP and associated overarching Spoil Management Plan has been prepared as part of the OCEMP. This stage-specific CWRMP has been prepared under and consistent with the OCWRMP and therefore no further consultation is required as part of the preparation of this Plan.

Ongoing consultation between TfNSW, Seymour Whyte, neighbouring Project packages, other construction projects, stakeholders, the community and relevant agencies regarding the management of waste and resources will be undertaken during the construction of the M12 Central package as required. The process for the consultation will be consistent with the OCS and as described in the M12 Central Communication and Stakeholder Engagement Strategy.

2 Purpose and objectives

2.1 Purpose

The purpose of this CWRMP is to describe how Seymour Whyte will manage waste and protect resources during construction of the M12 Central package.

2.2 Objectives

The key objective of this CWRMP is to ensure that waste is minimised in accordance with the waste hierarchy and to appropriately manage resource use throughout construction of the M12 Central package. To aid in achieving this objective all CoA, REMMs and licence/permit requirements relevant to waste and resources are described, scheduled and assigned responsibility as outlined in:

- Environmental Assessment Documentation
- Infrastructure Approval CoA (SSI 9364)
- Environment Protection Licence
- TfNSW Quality Assurance (QA) Specifications
- TfNSW Sustainability Strategy 2019-2023
- All relevant legislation and other requirements described in Section 3 of this Plan.

2.3 Targets

TfNSW and Seymour Whyte are committed to ensuring the responsible management of unavoidable waste and promoting the reuse of such waste in accordance with the resource management hierarchy principles outlined in the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). The targets established for the management of waste and resources impacts for the M12 Central package are consistent with these resource management hierarchy principles, which are, in order of priority:

- Avoid the unnecessary production of waste during construction
- Resource recovery (including reuse, reprocessing, recycling and energy recovery)
- Dispose of waste materials in accordance with legislative requirements.

By adopting the above principles, Seymour Whyte aims to efficiently reduce resource use, costs, and environmental harm in accordance with the principles of ecologically sustainable development.

The following additional targets have been established for the management of waste impacts during construction of the M12 Central package:

- Minimise energy use and greenhouse gas emissions
- Optimise resource efficiency and waste management
- Efficiently manage water
- Minimise pollution generated by construction.

Additionally, the M12 Central package will achieve the Project waste reuse / recycling targets nominated in Table 2-1 based on TfNSW Sustainability Strategy 2019-2023 for resource use and waste management targets (TfNSW, 2021).

Table 2-1: Construction waste streams and targets

Construction activity	Material	Minimum TfNSW Target	Target description
Demolition	Uncontaminated non-spoil (clean concrete and asphalt)	100% of clean concrete will be beneficially reused 100% of clean reclaimed asphalt pavement will be recycled	Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible Minimise the quantity of waste disposed to landfill
Excavation	Usable spoil	100% of uncontaminated VENM will be reused on site An average of 95% of usable spoil (non-VENM) will be reused and/or recycled across Project packages	
Construction	Concrete	An average of 10% cement replacement material in concrete (by mass), whilst maintaining specified quality and whole-of-life costs, will be used	Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible Minimise the quantity of waste disposed to landfill Procure goods, services, materials and works for infrastructure development and maintenance Projects that over their lifecycle deliver value for money and contribute to the environmental, social and economic wellbeing of the community
	Road base, sub-base	An average of 40% of recycled material used in granular base and sub base will be used (refer to TfNSW QA Specification 3051)	
	Steel	Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation	
Vegetation clearance	Uncontaminated material	Green waste will be reused and/or recycled where possible	Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible Minimise the quantity of waste disposed to landfill
Energy use	Electricity	An average of 6% of energy use will be offset (in accordance with the Australian Government National Carbon Offset Standard) An average 10% improvement in energy efficiency versus a business-as-usual baseline	Minimise energy use and reduce carbon emissions without compromising the delivery of services to our customers

Construction activity	Material	Minimum TfNSW Target	Target description
Water use	Potable water	An average of 33% of non-potable water will be used An average of 5% water (rainwater, stormwater, wastewater, groundwater) will be collected and reused / recycled / reclaimed	Minimise noise, water and land pollution from TfNSW construction, operation and maintenance activities

The M12 Central Sustainability Management Plan and overarching Project Sustainability Strategy embeds sustainability objectives, commitments and targets into the M12 Central package delivery management systems. The M12 Central Sustainability Management Plan complements the purpose, objectives and targets of this CWRMP.

Section 8.6 of this CWRMP outlines the monitoring and reporting guidelines and reporting timeframes.

3 Environmental requirements

In accordance with NSW CoA A7, references in the terms of this Plan to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in at the date of the Infrastructure Approval (CSSI 9364).

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to waste and resource management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Protection of the Environment Operations Act 1997 (*POEO Act*)*
- *Protection of the Environment Operations (General) Regulation 2009*
- *Protection of the Environment Operations (Waste) Regulation 2005*
- *Waste Avoidance and Resource Recovery Act 2001 (*WARR Act*)*
- *Dangerous Goods (Road and Rail Transport) Act 2008 (NSW)*
- Dangerous Goods (Road and Rail Transport) Regulation 2014 (NSW)
- *Contaminated Land Management Act 1997*
- *National Greenhouse and Energy Reporting Act 2007 (*NGER Act*)*
- *Biosecurity Act 2015*
- *Environmentally Hazardous Chemicals Act 1985.*

Relevant provisions of the above legislation are identified in the register of legal requirements included in Appendix A1 of the CEMP.

3.1.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this CWRMP include:

- NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (Environment Protection Authority (EPA), 2014)
- *Waste Classification Guidelines* (EPA, 2014)
- *Construction and demolition waste: a management toolkit (EPA, 2019)*
- *NSW Government Resource Efficiency Policy* (Office of Environment and Heritage, 2014)
- *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2008)
- *Environmental Sustainability Strategy 2019-2023* (Roads and Maritime, 2021)
- *Management of wastes on TfNSW land* (TfNSW, 2014)
- *Management of road construction and maintenance wastes* (TfNSW, 2016)
- *Technical Direction: Legal offsite disposal of TfNSW waste* (TfNSW, 2015)
- *Technical Direction: Coal tar asphalt handling and disposal* (TfNSW, 2015)

- *Stockpile Site Management Guideline (TfNSW, 2011)*
- *Greenhouse Gas Protocol* (World Business Council for Sustainable Development and World Resources Institute, 2004)
- Transport for NSW waste fact sheets:
  - Waste Fact Sheet 1 - Virgin Excavated Natural Material
  - Waste Fact Sheet 2 - Excavated Natural Material
  - Waste Fact Sheet 3 - Excavated Public Road Materials
  - Waste Fact Sheet 4 - Recovered Aggregates
  - Waste Fact Sheet 5 - Asbestos Waste
  - Waste Fact Sheet 6 - Waste Sampling
  - Waste Fact Sheet 7 - Reclaimed Asphalt Pavement
  - Waste Fact Sheet 9 - Re-use of Waste Off-site.
- NSW EPA orders and exemptions, including:
  - Compost Exemption 2016
  - Effluent Exemption 2014
  - Pasteurised Garden Organics Exemption 2016
  - The Excavated Natural Material Exemption 2014
  - The Excavated Public Road Material Exemption 2014
  - The Mulch Exemption 2016
  - The Recovered Aggregate Exemption 2014
  - The Blast Furnace Slag Exemption 2014
  - The Reclaimed Asphalt Pavement Exemption 2014
  - Treated Drilling Mud Exemption 2011
  - Stormwater Exemption 2014.
- PS311 – Environmental Design and Compliance, specifically:
  - M12 Motorway – Central Package, Sustainability Management Plan (GHD, 2021)
  - M12 Motorway - Central Package, Detailed Design 100% Detailed Design Report (GHD, 2021)
  - M12 Motorway Central - Detailed Design Contamination Investigation Report M12CDD-GHDA-ALL-CT-RPT-000010 (GHD, 2021).

3.2 Minister's Conditions of Approval

There are no primary NSW CoA relevant to the development of this Plan. Secondary conditions relevant to this Plan have been listed in Appendix A.

3.3 Revised Environmental Management Measures

The primary REMMs relevant to the development of this Plan are listed in Table 3-1. Secondary REMMs relevant to this Plan are listed in Appendix A. A cross reference is also included to indicate where the REMM is addressed in this Plan or other Project documents.

Table 3-1: Environmental management measures relevant to this CWRMP

ID	Measure/requirement	Timing	CWRMP Reference
W01	A Construction Waste and Resources Management Plan (CWRMP) will be prepared for the Project and outline appropriate management procedures. It will include, but not be limited to:	Prior to construction	OCWRMP This Plan
	• Identification of the waste types and volumes that are likely to be generated by the Project		Section 4.1
	• Adherence to the waste minimisation hierarchy principles of avoid/reduce/ reuse/recycle/dispose		Section 5.1
	• Waste management procedures to manage the handling and disposal of waste, including unsuitable material or unexpected waste volumes		Section 5
	• Identification of reporting requirements and procedures for tracking of waste types and quantities		Section 8.6
	• A Resource Management Strategy (RMS) detailing the process to identify reuse options for surplus materials		Section 6
	• A procurement strategy to minimise unnecessary consumption of materials and waste generation in accordance with relevant legislation and guidelines.		Section 7, WR11, WR12, WR13

ID	Measure/requirement	Timing	CWRMP Reference
W02	A Spoil Management Plan (SMP) will be prepared for the Project as part of the CWRMP and in line with the CSWMP. The SMP will outline appropriate management procedures for the generation and importation of spoil. It will include, but not be limited to: • Procedures for classification of spoil	Prior to construction	Appendix C
	• Identification of spoil reuse measures		
	• Spoil stockpile management procedures		
	• Spoil haulage routes		
	• Spoil disposal and reuse locations		
	• Imported spoil sources and volumes		

3.4 Environment Protection Licence

The M12 Central package is subject to an EPL (21596) as a Scheduled Activity for 'road construction'. The primary license conditions relevant to the development of this Plan are listed in Table 3-1. The EPL includes clauses requiring the licensee to minimise and appropriately manage waste from the premises. The M12 Central package will be constructed so as to meet the waste management requirements identified in the EPL.

Table 3-2: EPL Licence conditions relevant to this CWRMP

ID	Measure/requirement	Timing	CWRMP Reference
O5.1	The licensee must prepare and provide to the EPA a Construction Waste Management Plan (CWMP) prior to the commencement of licensed activities. The CWMP must include (at a minimum):	Pre-construction	This CWRMP

ID	Measure/requirement	Timing	CWRMP Reference
	a) the proposed quantities of each waste type generated on the premises for the duration of the project;		Section 4.1
	b) the anticipated waste classification of each type of waste generated at the premises for the duration of the project in accordance with the *Waste Classification Guidelines Part 1: Classifying waste (EPA, 2014)*;		Section 4.1
	c) details of how and where the waste is anticipated to be reused, recycled, stockpiled or disposed of;		Section 5.1.3 Section 5.3
	d) the proposed location(s) for all waste anticipated to be stockpiled at the premises, if different from source location;		Section 5.1.3
	e) details of proposed sampling and testing methods; and		Section 5.2 Section 5.5
	f) the licensee must consider the guidance in *Construction and demolition waste: a management toolkit (EPA, 2019)* when preparing and implementing the CWMP.		Section 3.1.2
O5.2	The licensee must keep detailed records of waste generated, received or removed from the premises that includes (at a minimum):	Construction	Section 5.4
	a) the addresses and facility/business names of destination location(s) for all waste generated and transported off the premises for any purpose (including recycling, reuse, processing, treatment and disposal);		Section 5.4
	b) written confirmation from each place of disposal that they can lawfully receive the types of waste proposed to be transported there;		Section 5.4
	c) the location for all waste stored at the premises, if different from source location;		Section 5.4

ID	Measure/requirement	Timing	CWRMP Reference
	d) details of all waste received on the premises or transported off the premises that is subject to a Resource Recovery Order and/or Exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*, and demonstration that the waste meets the requirements of the Order and/or Exemption;		Section 5.4
	e) legible copies of all documents/records evidencing that all waste transported from the premises was taken to a facility/premises that lawfully accept that waste type; and		Section 5.4
	f) records of all compliance checks conducted under condition O5.4.		Section 5.4 Section 8.5 Section 8.6
O5.3	The CWMP must be implemented for the duration of licensed activities, and records must be updated as licensed activities progress, with the following information (at a minimum):	Construction	Section 1.4
	a) comparisons showing the proposed waste quantities and waste types against the actual waste quantities and waste types; and		Section 5.4
	b) intended reuse, recycling or disposal locations against actual reuse, recycling and disposal locations.		Section 5.1.5
	Note: A copy of an up-to-date CWMP and records must be kept on the premises for the duration of the licence and provided to an EPA officer upon request.		
O5.4	The licensee must conduct monthly compliance checks of the CWMP while it is in effect (being while the licensed activities are occurring and not after) to ensure that all waste is being managed, transported, reused, recycled or disposed in a lawful manner. The compliance checks must take the form of:	Construction	Section 8.5
	a) desktop investigations (such as contacting reuse, recycling or disposal facilities directly, reviewing waste disposal dockets, reviewing exemption requirements against particular loads of waste, reviewing environment protection licences);		

ID	Measure/requirement	Timing	CWRMP Reference
	b) site inspections to reuse, recycling or disposal locations; and/or		
	c) any other method approved in writing by the EPA.		

3.5 TfNSW QA Specifications

The TfNSW QA Specifications set out the minimum requirements for the detailed outcomes in terms of quality or performance expected in the finished product for construction projects and are relevant to various construction activities on work sites to minimise impacts to the environment.

This CWRMP incorporates the relevant requirements to waste and resource management from the TfNSW QA Specifications prepared for the *M12 Motorway (Central), Construction between Badgerys Creek and the Water Tower Access Road, Cecil Hills* including:

- TfNSW G36 – Environmental Protection
- TfNSW R178 – Vegetation
- TfNSW R179 – Landscape Planting
- TfNSW G1 Annexure L – Sustainability Requirements
- TfNSW G3051 – Granular Pavement Base and Subbase Materials.

The specifications set out environmental protection requirements, including Hold Points and Witness Points that must be complied with during construction of the M12 Central package. A Hold Point is a point beyond which a work process must not proceed without express written authorisation from TfNSW. Witness Points are an identified point in the process where TfNSW request to, review, witness, inspect method and/or process of work. The activities, however, may proceed. For processes under the CEMP, the request for release of Hold Points and Witness Points is to be made through the TfNSW ESM (or delegate).

Details of the Hold Points and Witness Points relevant to this Plan are outlined in Section 8.4.

Cross references are included in Appendix A, to indicate where the relevant TfNSW QA specifications have been addressed in this Plan or other Project document.

3.6 TfNSW Design documentation

The planning and design stages provide significant opportunities to minimise resource use and waste through optimising material requirements, balancing earthworks and developing sustainable specifications. Following the development of the Environmental Assessment Documentation, detailed design has progressed which included further environmental assessment. This additional assessment information has informed the development of this Plan, including:

- M12 Motorway – Central Package, Sustainability Management Plan (GHD, 2021)
- M12 Motorway – Central Package, 100% Detailed Design Report (GHD, 2021)
- M12 Motorway – Central Package, Materials and Water Re-use and Management Plan, M12CDD-GHDA-ALL-EV-PLN-000010 (GHD, 2021)
- M12 Motorway Central – Detailed Design Contamination Investigation Report, M12CDD-GHDA-ALL-CT-RPT-000010 (GHD, 2021).

3.7 Infrastructure Sustainability Council

The M12 Central package will employ an integrated approach to sustainability to ensure effective implementation and tracking of initiatives. This approach includes the identification of requirements

in Plans for clarity of objectives and transparency in implementation. While the M12 Central Sustainability Management Plan details the overall requirements and targets for the M12 Central package, Table 3-3 summarises the sustainability requirements for waste to demonstrate compliance with Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) Version 1.2 Rating Tool credit benchmarks.

Table 3-3: Waste specific sustainability targets

ISC Reference	Commitment	Document reference
Was-1	Predictions for waste quantities and types have been developed for construction and operation.	Section 4.1
Was-1	Measures to minimise waste during construction and operation have been identified and implemented	Section 7
Was-1	A Waste Management Plan (or similar) must demonstrate that the waste hierarchy was applied: 1.Avoid; 2.Reduce; 3.Reuse; 4.Recycle; 5.Disposal If an option less favourable than the first option is selected, then justification for not selecting options higher on the hierarchy must be provided.	This Plan Section 5.1
Was-1	Monitoring of all wastes is undertaken during construction and operation.	Section 8.3
Was-1	The monitoring needs to be regular (e.g. monthly) throughout the relevant rating phases as well as showing totals for the whole rating period.	Section 8.3 and 8.6
Was-1	Monitoring of waste should include the waste types generated, quantities (volumes) and destinations during construction. Summaries of (a) spoil, (b) inert and non-hazardous, and (c) office waste groups should be provided.	Section 8.6 Appendix B
Was-1	Waste monitoring and management must be managed, reviewed or audited by a suitably qualified professional.	Section 8.3
Was-1	If review or audit is undertaken, it should be at least annually for construction or at least once for durations less than one year. The review or audit should cover both systems and data i.e. the systems used to manage waste and the data recording and reporting. The scope of the waste review/audit should include an objective assessment of the accuracy and completeness of reported waste information with the aim to provide confidence that the reported information represents a faithful, true, and fair account of waste management practices and performance.	Section 8.5

ISC Reference	Commitment	Document reference
Was-1	Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals. Auditing to final destination must be undertaken at least 6 monthly for construction. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill. The audit should include a physical/visual verification of waste destinations. The audit need only focus on the significant waste streams and each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period. 'Significant' waste streams are to be justified taking into account the volume and nature of the wastes.	Section 8.5 Section 8.5
Was-2	All of the following targets for landfill diversion have been achieved or bettered: >100% by volume of spoil >90% by volume of inert and non-hazardous waste >60% by volume of office waste material	Section 2.3 Section 8.6
Lan-2	Conservation of topsoil and subsoil has been considered.	Section 2.3 Appendix C
Lan-2	All subsoil and topsoil impacted by the project is separated and protected from degradation, erosion or mixing with fill or waste;	Appendix C
Lan-2	95% of all topsoil (by volume) retains its productivity and is beneficially re-used on or nearby to the project	Appendix C
Lan-2	Opportunities to improve topsoil productivity of previously disturbed areas have been identified and incorporated into the project.	Appendix C

4 Environmental aspects and impacts

4.1 Construction waste streams

Waste generated during construction will primarily be from civil works associated with site preparation, relocation of utilities, construction of road infrastructure and landscaping.

The following construction related waste streams were identified within the Environmental Assessment Documentation and confirmed by Seymour Whyte:

- Surplus construction material including fencing, geofabrics, sediment, concrete, steel, timber and sand bags
- Excavated materials including spoil
- Vegetation waste from the removal of trees, shrubs and ground cover
- Excavated spoil unsuitable for reuse including contaminated spoil
- Contaminated water
- Demolition materials including concrete, bricks, road base, tiles, timber (untreated and treated), metals, plasterboard, carpets, electrical and plumbing fittings and furnishing (doors, windows). May also include tyres, asbestos and lead paint
- General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material (crates, pallets, cartons, plastics and wrapping material)
- Surplus construction material including fencing, sediment, gravel/crushed rock, asphalt, concrete, steel, aggregate, formwork, asphalt, landscaping material and sand bags
- Sediment and sludge within sediment basins
- General waste from site offices including putrescibles, paper, cardboard, e-waste plastics, glass, site litter, cigarette butts, printer cartridges and sewage waste
- Waste from operation and maintenance of construction vehicles and machinery including adhesives, lubricants, waste fuels, cleaning products and chemicals, and oils, engine coolant, batteries, hoses and tyres
- Clean up waste in the event of an accidental spill of fuel or chemicals.

An estimate of potential waste types to be generated for the key stages of the M12 Central package are provided in Table 4-1. A register of potential waste transporters and waste facilities is provided in Appendix E.

Table 4-1: Potential construction waste streams and classifications

Construction activity	Material	Waste classification	Estimated Quantity
Construction	Asphalt	General Solid Waste Non-Putrescible (pre-classified)	22,120 tonnes
	Road base, sub-base	General Solid Waste Non-Putrescible (pre-classified)	34,500 tonnes

Construction activity	Material	Waste classification	Estimated Quantity
	Steel (structural)	General Solid Waste Non-Putrescible (pre-classified)	1,000 tonnes
	Steel (reo)	General Solid Waste Non-Putrescible (pre-classified)	5,000 tonnes
	Concrete	General Solid Waste Non-Putrescible (pre-classified)	82,065 m^3
	Timber formwork	General Solid Waste Non-Putrescible (pre-classified)	550 tonnes
Demolition	Timber, steel, fibre sheeting, bricks, concrete, asphalt, road base, glass	General Solid Waste Non-Putrescible (pre-classified)	To be determined
Excavation	Topsoil	General Solid Waste Non-Putrescible (pre-classified)	58,000 m^3
	Usable spoil (VENM or ENM)	General Solid Waste Non-Putrescible (pre-classified)	775,000 m^3
	Contaminated spoil	Chemical Assessment/ Hazardous Waste	14,000 m^3
Basins / farm dams	Sediment and sludge	General Solid Waste Non-Putrescible (pre-classified)	20,000 m^3
Vegetation clearance	Vegetation material (weed free - trees, grass etc)	General Solid Waste Non-Putrescible (pre-classified)	4,600 to 6,900 tonnes
	Vegetation material (containing weeds -trees, grass etc)	General Solid Waste Non-Putrescible (pre-classified)	4,600 to 6,900 tonnes
Wash-down and maintenance of equipment	Oils and lubricants	Liquid Waste	4,500L
	Used chemicals (adhesives, cleaning products, engine coolant, batteries	Chemical Assessment Required	2,000L
	Tyres	Special waste	> 10 tonnes
Water use – Dust suppression	Non-potable from sediment basins	Liquid Waste – Chemical Assessment may be required	80,000 KL
Sewage	Sewage	Liquid Waste – Chemical Assessment may be required	1,560 KL (~12KL per week)
Office activities	Food scraps	General Solid Waste (putrescible)	50 m^3

Construction activity	Material	Waste classification	Estimated Quantity
Office activities	Glass, paper, cardboard, plastic, packaging	General Solid Waste (non-putrescible)	650 m^3

4.2 Resource use

The main construction materials required for the M12 Central package includes:

- Fill for earthworks (general and select)
- Sand and soils for landscaping
- Geotextile materials
- Pavement materials including road base and sub-base
- Materials for lining drainage channels
- Aggregate for concrete, asphalt and bitumen
- Cement and concrete and pre-cast concrete (pipes, culverts, barriers)
- Steel
- Wood for use in formwork and other temporary structures
- Water for dust suppression, compaction of excavated fill material, gravel pavements, road sweepers, office amenities and landscape establishment
- Mechanical and electrical equipment for Variable Message Signs.

4.3 Energy use

Energy use during construction of the M12 Central package will result from the manufacture, processing and transport of materials (concrete, steel, asphalt, aggregate, timber, and piping), from the use of electricity, diesel and other fuels, waste generated, and land use and clearing.

Sources of construction related energy consumption (fuel and power) includes:

- Procurement and delivery of materials to site
- Vegetation removal
- Site establishment, including compound and ancillary facility set up
- Operation of the concrete batching plant
- Relocation and protection of services
- Earthworks including earth and rock cuttings and retaining walls
- Removal, relocation and compaction of excavated material in fill embankments
- Construction of pavements, bridges and culverts
- Demolition of structures and pavements
- Operation of site compounds, ancillary facilities and lighting
- Construction plant including cranes, rollers, excavators, bulldozers, graders and water trucks

- Removal of waste from site.

4.4 Greenhouse gas emissions

The main sources of greenhouse gas (GHG) emissions during construction of the M12 Central package includes:

- Construction vehicles and plant
- Use of construction materials
- Vegetation clearing, including loss of carbon sink.

The GHG Assessment prepared by GHD for the M12 Central package was undertaken in accordance with the Greenhouse Gas Protocol (World Business Council for Sustainable Development and World Resources Institute, 2004). The Protocol provides guidance on the calculation and reporting of carbon footprints and defines three categories for GHG emissions:

- **Scope 1** – direct emissions from sources that are owned or operated by a reporting organisation (e.g. combustion of diesel in company owned vehicles or used in on-site generators)
- **Scope 2** – indirect emissions associated with the import of energy from another source (e.g. importation of electricity or heat)
- **Scope 3** – other indirect emissions (other than Scope 2 energy imports) which are a direct result of the operations of the organisation but from sources not owned or operated by them (e.g. business travel (by air or rail) and product usage).

Table 4-2 provides a summary of the estimated GHG emissions for the M12 Central package. Note that no Scope 2 or 3 GHG emissions, as defined by the GHG Protocol, were identified by the GHG assessment.

Table 4-2: Construction GHG emissions[1]

Activity	Scope 1 emissions (tonnes of CO2 equivalent (tCO2-e))
Diesel combustion (stationary), including: • Site offices • Construction activities • Demolition & earthworks • Vegetation removal	10,478
Vegetation removal	28,217
Total	**38,695**

Notes:

(1) Issued for 80% design and is subject to change.

4.5 Impacts

The potential environmental impacts associated with construction waste generation and energy use for the M12 Central package includes:

- Generation of large volumes of construction waste, such as excavated soil and rock

- Mixing of suitable and unsuitable material/contaminated material leading to materials that would have ordinarily been reused being rendered as waste
- Generation of vegetation waste from corridor clearing
- Generation of domestic waste from construction personnel
- Inappropriate disposal of hazardous waste
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials
- Disturbance of contaminated soils
- Adverse effects on flora and fauna due to contamination of water or soils
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities
- Odour impacts and increases in vermin from inappropriate general waste storage and disposal
- Consumption of non-renewable resources such as energy, diesel and other chemicals
- Greenhouse gas emissions due to consumption of energy from non-renewable resources
- Transportation of waste, including dust, noise, odour and traffic impacts
- Storage of waste (including segregation) such as through dust and odour impacts, sediment laden runoff, visual amenity, and littering.

The mismanagement of waste streams has the potential to result in the following impacts:

- Excessive waste being directed to landfill
- Various type of waste being generated and stored on site, with the potential for misclassification
- Water pollution
- Land contamination.

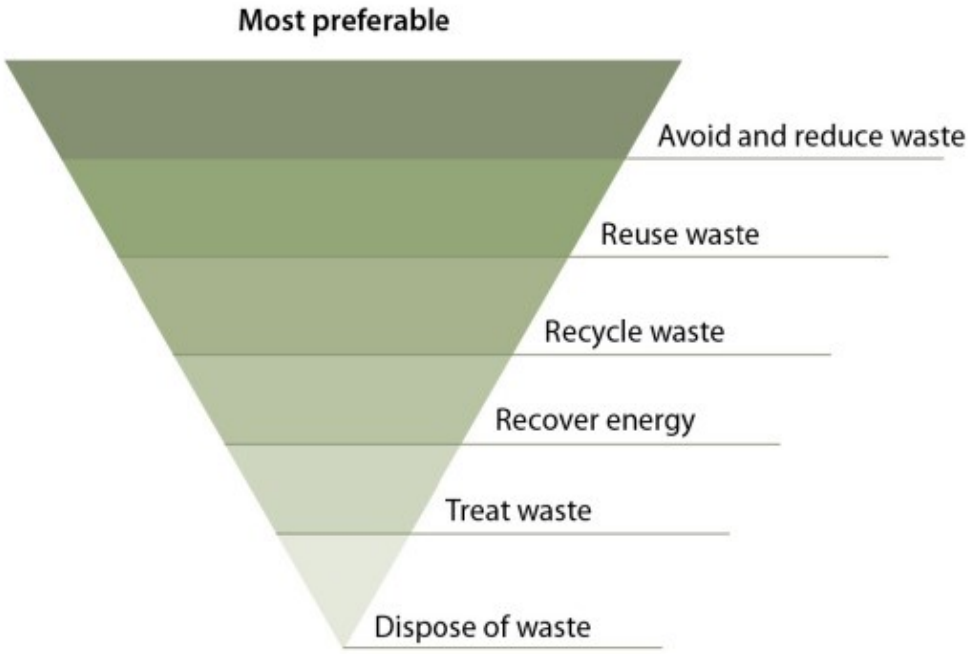
Waste classification will be required during construction to determine appropriate soil management and disposal, as detailed in Section 5.2 and Section 5.3.

A full list of management measures is included in Section 7of this CWRMP. Refer also to the initial risk register included in Appendix A2 of the CEMP.

5 Waste management

5.1 Waste management hierarchy

The general approach to the hierarchy of waste management for the M12 Central package is in accordance with the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (EPA, 2014). The waste hierarchy provides guidance on the order of preference of approaches to achieve efficient resource use, as shown in Figure 5-1. The aspects of the hierarchy applicable to the construction of the M12 Central package are outlined below.



Source: NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA, 2014)

Figure 5-1: The waste hierarchy

5.1.1 Avoiding and reduce waste

Waste generation will be avoided and where avoidance is not reasonably practicable, waste generation will be reduced. This is because it preserves resources, avoids the use of additional resources to manage waste that would have been generated and aims to eliminate disposal costs. The goal is to maximise efficiency and avoid unnecessary consumption by:

- Selecting items with the least packaging or that require the least resources to produce
- Avoiding single-use materials or disposable goods
- Using products and materials that are recycled, recyclable, repairable, refillable, reusable or biodegradable.

Best endeavours will be used to target at an average of 40% of recycled material used in road base and sub-base, whilst maintaining current quality and whole-of-life costs (Table 2-1).

This will be supported by the procurement processes outlined in the M12 Central Construction Sustainability Management Plan and the Seymour Whyte Procurement Procedure (SWC-QP-130) which will support negotiation with prospective suppliers and subcontractors around opportunities

to avoid waste that can be incorporated into subcontractor agreements. These may include arrangement for excess material to minimise packaging or returning packaging or excess material to the supplier (such as concrete, asphalt and aggregates).

5.1.2 Reuse and recycling

Where avoiding or reducing waste is not possible, waste will be reused, recycled, or recovered. Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

- **Waste segregation on-site** – waste materials, including spoil and demolition waste, will be separated on-site into dedicated bins/areas for either reuse on-site or collection by a waste contractor and transported to off-site facilities
- **Water recovery** – in accordance with Section 5.9
- **Wood reuse** – woody debris and snags will be reused in a matter that enhances habitat for native fauna (refer to Section 6 of the CFFMP).

The use of recycled-content materials will be investigated and proposed as part of the M12 Central Sustainability Management Plan where they are cost and performance competitive and are at least the environmental equivalent of the non-recycled alternatives.

5.1.3 Waste handling and storage

Where waste is required to be handled and stored on-site prior to on-site reuse or off-site recycling/disposal, the following measures will occur:

- Spoil, topsoil and mulch will be stockpiled on-site in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented as per the CSWMP (refer to Appendix B4 of the CEMP)
- Liquid wastes will be stored in appropriate containers within bunded areas until transported off-site. Bunded areas will have the capacity to hold 110% of the liquid waste volume for bulk storage or 120% of the volume of the largest container for smaller packaged storage
- Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmentally Hazardous Chemicals Act 1985* and EPA waste disposal guidelines
- If asbestos or other hazardous materials are identified, they will be managed in accordance with the Asbestos Management Plan (AMP) which forms part of the CCLMP (refer to Appendix B5 of the CEMP)
- All other recyclable or non-recyclable wastes will be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations on-site, such as ancillary construction facilities, and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities
- Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. These suitable areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage at ancillary construction facilities or within the construction footprint. The contingency areas will be identified in EWMS prepared for compound and ancillary facility establishment and use and EWMS for topsoil stripping (including temporary stockpiling and disposal of excavated material and protocols for the management of materials containing asbestos).

5.1.4 Waste transportation

Waste being transported between site and/or a disposal facility will be covered. Uncovered loads of waste can spill onto the road that create litter, dust and potential traffic hazards, and can wash into waterways via stormwater drains.

Materials classified under the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) as hazardous during construction, including those materials outlined in Table 5-1, will be transported in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008 (NSW), Dangerous Goods (Road and Rail Transport) Regulation 2014 (NSW)* and *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2008).

The transportation of asbestos waste will be completed in accordance with Asbestos Management Plan (AMP) (refer to Appendix B5 of the CEMP).

The NSW EPA guidelines will be followed for regulations when transporting hazardous and/or liquid wastes. An EPL and appropriate waste tracking are required to transport higher risk wastes and some liquid wastes (other than water or oil) that may be potentially hazardous or potentially harmful to human health or the environment.

Waste tyres and asbestos waste may be required to be tracked using the NSW EPA WasteLocate in accordance with clauses 76 and 79 of the Protection of the Environment Operations (Waste) Regulation 2014. WasteLocate will be used when:

- Consigning, transporting or accepting tyres with a total weight of more than 200 kilograms, or 20 or more tyres, in any single load
- Consigning, transporting or accepting more than 100 kilograms of asbestos waste, or more than 10 square metres of waste asbestos sheeting, in any single load.

For further detail on the transportation of asbestos waste, refer to the AMP.

5.1.5 Waste disposal

Where re-using, recycling or recovering waste is not possible, waste and rubbish including putrescible material, generated, found or uncovered on the Site, will be treated or disposed of at a waste management facility or premises lawfully permitted to accept the materials. Disposal of waste (and spoil) will be in accordance with the POEO Act and the WARR Act.

The selection of waste disposal and recovery facilities will be dependent on the nature and volume of waste streams generated and the capacity of the receiving facilities at the time of the waste generation. Waste that is unable to be reused or recycled will be disposed of off-site to an appropriately licenced waste management facility following classification. Appendix E provides a register of potential waste transporters and licenced waste facilities. This register must be maintained throughout construction and updated with information of the intended reuse, recycling or disposal locations against actual reuse, recycling and disposal locations.

Seymour Whyte will verify the licences and permits of each proposed disposal facility prior to disposal of waste offsite. A copy of the facilities license, at the date of disposal, will be maintained in the Project document management system to verify that the facility was permitted to receive the waste type at the time of disposal.

Prior to disposal of waste offsite, except when transporting to a licenced waste disposal facility, Seymour White will provide TfNSW with evidence that the site is lawfully permitted to receive the nominated waste. This information may be in the form of:

- Section 43 Notice (an “approved notice” as defined in section 143(3A) of the POEO Act

- Copy of the letter, using the template in ETD 2015/020, sent to the owner and/or occupier receiving the waste
- Evidence that the waste classification in accordance with the EPA Waste Classification Guideline is consistent with that stated in the "s.143 Notice", which may be either:
  - virgin excavated natural material (VENM) certificate, or
  - test results, survey or other assessment details as required by EPA Waste Classification Guideline or in accordance with a relevant NSW Resource Recovery order and exemption.
- Evidence of legal right to receive the described waste, which may be any of the following:
  - development or planning approval; or
  - determined REF; or
  - other relevant statutory approval; or
  - written correspondence from the Local Council or alternate planning authority clearly stating that the activity is exempt development or permitted without consent (under a Local or Regional Environment Plan or State Environmental Planning Policy), to accept the waste material as classified.
- The submitted information above must identify the approval or regulatory clauses that define:
  - how the waste can be received;
  - any volume limits (including EPA licence or Resource Recovery order/exemption constraints);
  - permitted waste classifications;
  - time limitation and constraints (as stated in EPA licence or Resource Recovery order/exemption or planning approvals).
- Written confirmation from the "waste site" of the following:
  - waste delivery arrangements and/or relevant traffic management plan;
  - "waste site" will display the "s.143 Notice" at the entrance to the property or a copy of the "s.143 Notice" will be supplied to each delivery vehicle.
- Proposed methodology to track the cumulative total volume of each class of waste and/or material being transferred to each individual "waste site", to ensure that volumes will be managed to meet the requirements stated in the "s.143 Notice".

The "approved notice" and supporting documents outlined above are to be submitted to TfNSW under the G36 4.11.1 Hold Point (refer to Section 8.4). A copy of ETD 2015/020 which includes the template letter to the owner and/or occupier receiving the waste and s.143 notice is provided in Appendix F.

Records of the cumulative total volume of waste and materials being transferred under section 143 notices will be kept and made available to TfNSW upon request. The Material Tracking Forms in Spoil Management Plan (Appendix C) will be used to track all spoil disposal movements.

Contaminated materials must be identified, managed, encapsulated on site, stockpiled and/or removed from the site in accordance with TfNSW G36

The Removal of any rubbish on the Site at the start of Work Under the Contract will be removed, and the cost of initial waste removal is included in TfNSW G40P1.

5.2 Classification of waste streams

Where waste cannot be avoided, reused, recovered or recycled it will be classified and disposed of appropriately. The classification of waste will be undertaken in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) with appropriate records and disposal dockets retained for audit purposes in accordance with NSW CoA E103.

The EPA guidelines identify six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describe a six-step process to classifying waste:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes include clinical and related waste, asbestos waste and waste tyres.

Note: Asbestos and clinical wastes must be managed in accordance with the requirements of Clauses 42 and 43 of the *Protection of the Environment Operations (Waste) Regulation 2005*.

Step 2: If not special, is it 'liquid waste'?

If it is established that the waste is not special waste it must be decided if it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above the horizontal, becomes free-flowing at or below 60°C or when it is transported, and is generally not capable of being picked up by a spade or shovel.

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent
- Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2005 Schedule 1 Waste to which waste tracking requirements apply
- Non-trackable liquid waste.

Step 3: If not special or liquid, has the waste already been pre-classified by the NSW EPA?

The EPA has pre-classified several commonly generated wastes in the categories of hazardous, general solid waste (putrescibles) and general solid waste (non-putrescibles). If a waste is listed as 'pre-classified', no further assessment is required.

Step 4: If not pre-classified, is the waste hazardous?

If the waste is not special waste (other than asbestos waste), liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.

Hazardous waste includes items such as explosives, flammable solids, substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

Step 5: If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification

If the waste does not possess hazardous characteristics, it must be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible or non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous.

Waste is assessed by comparing Specific Contaminant Concentrations of each chemical contaminant, and where required, the leachable concentration using the Toxicity Characteristics Leaching Procedure, against Contaminant Thresholds.

Step 6: Is the general solid waste putrescible or non-putrescible?

If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

5.2.1 Waste sampling and classification

Waste sampling and classification must occur if waste is intended for re-use or disposal off site. Waste sampling for offsite re-use of soils and aggregates shall be in accordance with the Roads and Maritime 'Waste Sampling' Environment Fact sheet. All offsite disposal of waste will be subject to classification of the material in accordance with the NSW EPA Waste classification guidelines (2014), and relevant Resource Recovery Orders (Section 5.5).

Waste sampling and classification must be completed by a suitably qualified professional. Each Waste Classification Report will report on the sampling density and methods used to determine the waste classification in accordance with the guidelines and standards relevant to the material being classified.

5.3 Classification and management of potential waste streams

The construction activities, types of wastes which may be generated during the construction of the M12 Central package, and waste classifications are outlined and classified in Table 5-1. Estimated quantities of wastes are provided in Table 4-1.

Table 5-1: Management of waste streams

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
Early works (including site establishment activities, installation of office accommodation, utilities, and other facilities and minor earthworks).	Surplus construction material including fencing, geofabrics sediment, concrete, steel, timber, and sand bags	General solid waste (non-putrescible)	Materials that are potentially recyclable would be disassembled and removed carefully to maximise reuse and recycling. To ensure diversion from landfill, materials would be clearly separated and stored temporarily on-site for reuse or removal to a recycling facility. Stockpiled materials would be monitored and managed in accordance with the CEMP and Site Establishment Management Plan (SEMP). As a priority, surplus construction materials are to be stored for reuse on M12 Central package or be transferred to other sites for use in other parts of the Project or TfNSW projects. On-site assessment/treatment of surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, will facilitate potential reuse of this material. In the second instance, surplus construction materials may be recycled where possible. Sending surplus materials to landfill is to be avoided where possible.	Minimal surplus material is anticipated. Surplus construction material would be reused on-site, or reused in other Project packages or reused at alternate TfNSW Projects
	Excavated materials including spoil	General solid waste (non-putrescible), restricted solid waste, hazardous	Excavation associated with establishment of ancillary facilities is to be minimised through selection of suitable ancillary facility locations that are as flat as possible.	Minimal surplus excavated material is anticipated, as excavated material will be reused on the M12 Central package, or other Project packages, where feasible.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
		waste and/or special waste	Excavated materials suitable for reuse are to be appropriately segregated and stored for future use on the M12 Central package, or other Project packages. On-site assessment/treatment of these surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping. Earthworks waste is discussed further in the section below.	
Earthworks[1], drainage works and creek adjustment (including topsoil stripping, cut and fill preparation, and vegetation clearance)	Vegetation waste from the removal of trees, shrubs and ground cover	General solid waste (putrescible)	Vegetation that is cleared would be mulched and reused where possible, including consideration of the Mulch Order and Mulch Exemption allowing for reuse on another Project package or other TfNSW Projects. This may include the reuse of timber for fauna habitat and root balls in the rehabilitation of waterways (refer to Section 5.7). Remaining vegetation that is not reused is to be sent to an approved facility for sale or disposal. Prior to clearing, weed mapping must be completed by the Project Ecologist in accordance with the G40 2.4 Hold Point submission to identify weeds to be separated for disposal to an appropriately licensed facility (refer to CFFMP Appendix B). Weeds must be separated from native vegetation and disposed of off-site at an appropriate licensed disposal facility (waste disposal locations are discussed in the	Minimal surplus excavated material is anticipated. A majority of cleared vegetation is expected to be reused on the M12 Central package, or other Project packages or on other TfNSW Projects, other than weed species.

[1] These activities will not necessarily be carried out concurrently and will include low impact works such as investigations including archaeological and cultural salvage, minor vegetation clearing and minor excavation across the M12 Central package.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
			following sections below under ‘waste disposal locations’). On-site assessment/treatment of these surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping.	
	Excavated spoil unsuitable for reuse (including contaminated spoil)	General solid waste (non-putrescible), restricted solid waste, hazardous waste, and/or special waste	Material that is identified as contaminated is to be segregated from uncontaminated material on-site to prevent cross-contamination and removed off-site to a licensed disposal facility. On-site assessment/treatment of surplus excavated materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping. If asbestos or other hazardous materials are identified, they are to be disposed off-site to a licensed facility or managed in accordance with a Remedial Action Plan. Where reasonable and feasible, asbestos may be emplaced under the road pavement in accordance with a Remedial Action Plan. Waste disposal locations are discussed in the following sections under ‘waste disposal locations’. The excavation, handling, storage, movement and disposal of waste material that is identified as being contaminated would be carried out in accordance with the procedures detailed in this CWRMP in accordance with the *Work Health and Safety Regulation 2011* (NSW).	Minimal excavated material is anticipated, as the M12 Central package would reuse excavated material where feasible. All subsoil and topsoil impacted by the project is separated and protected from degradation, erosion or mixing with fill or waste. Opportunities to improve topsoil productivity of previously disturbed areas will be identified and incorporated into the M12 Central package. 95% of all topsoil (by volume) retains its productivity and is beneficially re-used on or nearby to the M12 Central package. In addition, areas of historical fill will be further investigated to determine if there is any contaminated material that would require excavation.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	Contaminated water (e.g. generated by a spill leading to contamination of surface water or encountering (already) contaminated groundwater)	Liquid waste	Erosion and sediment controls, appropriate bunding of all chemicals and use of water quality control measures would be implemented to minimise potential risk of surface water contamination. Contaminated water quantities are anticipated to be negligible or minor and are to be collected and disposed of by a suitably licensed contractor. Where contaminated water can be treated, it may be reused on-site for construction activities, including dust suppression, where possible.	Minimal.
Demolition of existing structures on acquired/leased land and farm structures	Demolition materials including concrete, bricks, road base, tiles, timber (untreated and treated), metals, plasterboard, carpets, electrical and plumbing fittings and furnishing (doors, windows).	General solid waste (non-putrescible),	Concrete and bricks are to be demolished using low impact techniques where practicable, so as to maintain the structure of the material, and therefore its reusability. Materials are to be disassembled and removed carefully to maximise the potential for reuse and recycling. Where practical, removed road pavement is to be re-processed and used to provide sub-pavement layers for the M12 Central package, other Project packages or another TfNSW project under a waste order or exemption where applicable. Where practical, concrete is to be recycled. Remaining material is to be disposed of at an offsite facility. Waste disposal locations are discussed in the following sections below under ‘waste disposal locations’.	100% of clean concrete will be beneficially reused 100% of clean reclaimed asphalt pavement will be recycled Quantities of demolition waste requiring offsite removal is to be determined, however the quantities of waste disposed of to landfill would be minimised where possible.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	HBM were identified including ACM, LBP, PCBs and SMF	Special waste and/or hazardous waste	Hazardous waste is to be removed by a qualified handler for recycling or recovery of energy where possible. If asbestos or other hazardous materials are identified, they are to be managed in accordance with a Remedial Action Plan or disposed of offsite at a licenced facility.	100% HBM to be disposed of offsite to licensed landfill.
Construction of pavements and bridges, retaining structures, including finishing works (e.g. line marking, installation of roadside furniture, landscaping and demobilisation and rehabilitation of construction facilities and disturbed areas)	General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material (crates, pallets, cartons, plastics and wrapping material)	General solid waste (non-putrescible)	Materials that are potentially recyclable are to be disassembled and removed carefully to maximise further reuse and recycling. To ensure diversion from landfill, waste materials are to be clearly separated and temporality stored onsite for reuse or removal to a recycling facility. Stockpiled materials would be monitored and managed in accordance with the CEMP and SEMP. Where possible, the amount of packaging waste is to be minimised by avoiding the ordering of unnecessary or excess supplies and by buying in bulk. Where reasonable and feasible, cost-effective suppliers that use sustainable, recycled and/or recyclable material are to be used. Packaging waste generated is to be sorted for recycling or disposal at an approved facility. In the event of excess supplies due to accidental over-ordering or design changes, excess material would be reused, returned to the supplier or recycled where feasible. Remaining material would be disposed of at a licenced facility.	Minimal.
	Surplus construction material including fencing, sediment, gravel/crushed rock, asphalt, concrete, steel,	General solid waste (non-putrescible)	Materials that are potentially recyclable would be disassembled and removed carefully to maximise further reuse and recycling. To ensure diversion from landfill, waste materials would be clearly separated and stored temporarily on-site for reuse or removal to a recycling facility. Stockpiled materials would be	Minimal. Surplus construction material would be reused on-site, or reused by other Project packages, or reused at an alternate TfNSW project where possible.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	aggregate, formwork, asphalt, landscaping material and sand bags.		monitored and managed in accordance with the CEMP and SEMP. As a priority, surplus construction materials may be transferred to other sites for use or stored for future use. In the second instance, surplus construction materials may be recycled where possible. Surplus materials would be diverted from, landfill where possible. On-site assessment/treatment of surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material in the M12 Central package. In the second instance, surplus construction materials may be recycled where possible. Sending surplus materials to landfill is to be avoided where possible.	
Temporary works including the construction of work platforms, hardstand areas, and sediment basins	General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards and packaging material (crates, pallets, cartons, plastics and wrapping material)	General solid waste (non-putrescible)	To ensure diversion from landfill, waste materials would be clearly separated and stored onsite, monitored and managed in accordance with this CWRMP. Where possible, the amount of packaging waste would be minimised by avoiding the ordering of unnecessary or excess supplies and by buying in bulk. Where reasonable and feasible, cost-effective suppliers that use sustainable, recycled and/or recyclable material would be used. Packaging waste generated would be sorted for recycling or disposal at an approved facility. In the event of excess supplies due to accidental over-ordering or design changes, excess material would be reused, returned to the supplier or recycled where feasible.	Minimal.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
			Materials that are potentially recyclable would be disassembled and removed carefully to maximise further reuse and recycling.	
	Sediment and sludge within sediment basins	General solid waste (non-putrescible)	Sediment removed from basins would be dewatered and may be reused on-site (e.g. in landscaping works) or in non-structural fill embankments. If the material cannot be reused on-site, it would be disposed of at an appropriately licensed facility.	Minimal. Any sediment/ sludge is expected to be treated and reused on-site.
Activities at site offices	General waste from site office including putrescibles, paper, cardboard, e-waste plastics, glass, site litter, cigarette butts, printer cartridges and sewage waste	General solid waste (non-putrescible)	Waste and recycling generated by the site offices would be source-separated into dedicated bins, such as: • General waste • Co-mingled recycling • Paper/cardboard • Toner/cartridges • E-waste • Food waste (where practicable). The segregation of recyclables from the general waste stream would maximise resource recovery and minimise materials sent to landfill. Bins will be clearly labelled and coloured to reflect the correct stream. Staff will be trained about the internal office waste management system to ensure adequate understanding across all employees. Sewage will be directed to the sewage mains or pumped out for disposal at an appropriately licensed facility.	Minimal. Volumes of waste produced will be dependent on the number of workers onsite at any one time.
Operation of plant and equipment	Waste from operation and maintenance of construction	Hazardous waste, special waste, liquid waste	Liquid waste will be collected and transferred to a dedicated recycling facility where possible, to ensure diversion from landfill.	Minimal.

Construction Activity	Waste Type	Waste Classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	vehicles and machinery including oily waste and rags, adhesives, lubricants, waste fuels, cleaning products and chemicals, and oils, engine coolant, batteries, hoses and tyres		Batteries will be collected and recycled by a qualified handler.	
Incident Management	Clean up waste in the event of an accidental spill of fuel or chemicals	Hazardous waste, Liquid waste	Materials collected during clean-up will be disposed of at an appropriately licensed facility.	Minimal. Any waste from spills will be dependent on the size and nature of the spill.

5.4 Waste Management Register

Details of waste types, volumes and destinations will be recorded in the Waste Management Register in accordance with NSW CoA E104. A template waste management register is included in Appendix B. The Waste Management Register will detail the following:

- Quantity of each type of waste generated including its classification and source location (recorded using latitude and longitude coordinates)
- Destination location/s for all wastes generated during construction including addresses and facility/business names of destination location(s) (including recycling, reuse, processing, treatment and disposal)
- Quantities and types of waste subject to Resource Recovery Order(s) and/or Exemption(s)
- Disposal records demonstrating that receiving facilities have lawfully accepted waste
- Written confirmation from each place of disposal that they can lawfully receive the types of waste proposed to be transported there with supporting evidence such as a copy of the EPL or completed Section 143 notice (refer to Section 5.1.5)
- The location for all waste stored at the premises, if different from source location
- Details of all waste received on the premises that is subject to a Resource Recovery Order and/or Exemption under the Protection of the Environment Operations (Waste) Regulation 2014, and demonstration that the waste meets the requirements of the Order and/or Exemption.

Seymour Whyte will collect and keep legible copies of all receipts and/or weighbridge dockets from transporters and/or contractors evidencing that all waste transported from the premises was taken to a facility/premises that lawfully accept that waste type.

The waste management register will also track the quantity of Virgin excavated natural material, waste materials expressly permitted by a condition of the EPL 21596 or materials a resource recovery order and/or resource recovery exemption received at the site. The Waste Management Register will detail the following information regarding waste and resource recovery materials received at the site:

- Quantities of any waste types imported onto any M12 Central package site, including their classification and emplacement location (recorded using latitude and longitude coordinates)
- Waste generator details including facility/business names, address and source locations (including recycling, reuse, processing and treatment)
- Written confirmation from the waste generator of the waste / resource classification including evidence of sampling and classification in accordance with the NSW EPA Waste classification guidelines (2014) or relevant Resource Recovery Orders demonstration that the waste meets the requirements of the classification or Order and/or Exemption.

The waste management register must be maintained throughout construction and updated with information showing comparisons of the proposed waste quantities and waste types against the actual waste quantities and waste types.

Records of all compliance checks of the waste register will be maintained (refer to Section 8.5).

The Waste Management Register is to be maintained throughout construction and will be made available to the Planning Secretary and EPA on request.

5.5 Resource recovery exemptions and orders

Clause 51 of the *Protection of the Environment Operations (Waste) Regulation 2005* enables the EPA to grant exemptions to the licensing and payment of levies for the land application or use of waste from some of the requirements under the *Protection of the Environment Operations Act* 1997 and Regulation for certain wastes and resource recovery activities where it can be demonstrated that waste reuse would not cause harm to human or environmental health. Under these provisions, the NSW EPA requires two separate applications, either or both of which may be applicable to the Project:

- A Resource Recovery Order made under Clause 93 of the Regulation, which covers the requirements for the generation and/or processing of material for reuse
- A Resource Recovery Exemption made under clauses 91 and 92 of the Regulation, which relates to the consumption of any material for reuse.

The general Resource Recovery Exemptions and Orders that the EPA has issued for a range of commonly recovered, high volume and well characterised waste materials that allow their use as fill or fertiliser at unlicensed, off-site facilities. The general Resource Recovery Exemptions and Orders that may be applicable to the Project are defined in Table 5-2 and at EPA Current Orders and Exemptions. These are general gazette exemptions that do not require approval. A specific exemption may be granted where an application is made to the EPA.

Each Resource Recovery Exemption and Order includes specific sampling requirements, test methods, notifications and record keeping requirements. Prior to the implementation of any Resource Recovery Exemptions and Orders, a suitably qualified person should develop and implement a sampling plan to address the specific requirements of the Resource Recovery Exemptions and Orders.

Table 5-2: Waste Recovery Exemptions and Orders, and relevant conditions

Exemption/Order	Relevant Conditions	Potential utilisation for M12 Central works
Compost Exemption 2016	The chemical concentration or other attributes of compost listed in the Compost Exemption must not be exceeded The compost can only be applied to land as a soil amendment The consumer must ensure that they do not cause or permit the migration of leachate from the site The consumer must ensure that any application of compost to land occurs within a reasonable period of time.	Potential for application to site for soil amelioration
Effluent Exemption 2014	The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material. The consumer must apply the effluent within a reasonable period of time.	Potential for application to site for soil amelioration

Exemption/Order	Relevant Conditions	Potential utilisation for M12 Central works
Pasteurised Garden Organics Exemption 2016	The chemical concentration or other attributes of the Pasteurised Garden Organics (PGO) listed in the Pasteurised Garden Organics Exemption must not be exceeded The PGO can only be applied to land as a soil amendment The consumer must ensure that they do not cause or permit the migration of leachate from the land application site The consumer must ensure that any application of pasteurised garden organics to land occurs within a reasonable period of time.	Potential for application to site for soil amelioration
The Excavated Natural Material Exemption 2014	The chemical concentration or other attributes of the excavated natural material listed in the Excavated Natural Material Exemption must not be exceeded. The excavated natural material can only be applied to land as engineering fill or used in earthworks. ENM handling, processing and testing requirements are outlined in detail in the exemption.	Landfill diversion for surplus clean spoil
The Excavated Public Road Material Exemption 2014	The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material can only be applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities. This exemption does not apply to the land application of excavated public road material on any land outside the road corridor. The excavated public road material cannot be applied on private land. The consumer must land apply the relevant waste within a reasonable period of time.	Landfill diversion for existing road materials Potential source of recycled road bases
The Mulch Exemption 2016	The raw mulch can only be applied to land for the purposes of filtration or as a soil amendment material or used either singularly or in any combination as input material(s) to a composting process. The consumer must land apply the raw mulch within a reasonable period of time.	Landfill diversion for surplus mulch in accordance with the, CFFMP Appendix F - Habitat Compensation Plan

Exemption/Order	Relevant Conditions	Potential utilisation for M12 Central works
The Recovered Aggregate Exemption 2014	The chemical concentration or other attribute of the recovered aggregate listed in the Recovered Aggregate Exemption must be met. The recovered aggregate can only be applied to land for road making activities, building, landscaping and construction works. This approval does not apply to any of the following applications: • Construction of dams or related water storage infrastructure • Mine site rehabilitation • Quarry rehabilitation • Sand dredge pond rehabilitation • Back-filling of quarry voids • Raising or reshaping of land used for agricultural purposes and • Construction of roads on private land unless: ◦ the relevant waste is applied to land to the minimum extent necessary for the construction of a road and ◦ a development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI) or ◦ it is to provide access (temporary or permanent) to a development approved by a Council or • The works undertaken are either exempt or complying development.	Landfill diversion for existing road materials Potential source of recycled road bases
The Blast Furnace Slag Exemption 2014	Blast furnace slag or blended slag can only be applied to land in cementitious mixes such as concrete or in non-cementitious mixes such as an engineering fill in earthworks or roadmaking activities.	Source of supplementary cementitious material (SCM) for on-site concrete batching
The Reclaimed Asphalt Pavement Exemption 2014	Reclaimed asphalt can only be applied to land for road related activities including road construction or road maintenance.	Landfill diversion for asphalt milling from existing roads removed as part of the WUC

Exemption/Order	Relevant Conditions	Potential utilisation for M12 Central works
Treated Drilling Mud Exemption 2011	At the time the treated drilling mud is received at the premises, the material must meet all chemical and other material requirements for treated drilling mud which are required on or before the supply of treated drilling mud under 'the treated drilling mud order 2014'. The treated drilling mud can only be applied to land as engineering fill or for use in earthworks. The consumer must keep a written record of the following for a period of six years: • the quantity of any treated drilling mud received; and • the name and address of the supplier of the treated drilling mud received. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request. The consumer must ensure that any application of treated drilling mud to land must occur within a reasonable period of time after its receipt.	Landfill diversion for drilling muds
Stormwater Exemption 2014	The stormwater can only be applied to land within the definitions of "application to land". The consumer must ensure that any application of stormwater to land must occur within a reasonable period of time after its receipt.	Avenue to receive stormwater from other sites to reduce potable water use

5.6 Management of surplus material approval

Earthworks will be required for construction activities, including road construction, bridge construction and drainage. To ensure the amount of waste is minimised, earthwork requirements will be managed across the entire Project, with construction staging taking into account efficient resource use and opportunities for reusing materials to limit waste generation.

Surplus material excavated from the M12 Central package may consist of VENM (being natural rock, soil, sand and clay), excavated natural material (at least 98% natural soil or rock material) or excavated public road materials (typically asphalt or concrete pavement materials). The preferred approach to managing surplus material is to re-use or recycle the material as fill on-site (with the exception of contaminated material) and within the construction footprint of the M12 Central package, in the first instance, or on another Project package as an alternative. TfNSW will also investigate whether unused resources could be used on other TfNSW projects. Priority will be given to recycled materials of higher quality; materials of a higher standard are to be considered first for reuse on the project. Unsuitable material is surplus material that cannot be used beneficially elsewhere on-site. Off-site disposal of unsuitable material will be required. Surplus spoil that is unable to be reused on-site will be transported for beneficial reuse off-site in

accordance with a relevant EPA resource recovery exemption or disposed of at a licensed waste facility.

Before any surplus material is disposed off-site, it will be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and the POEO Act.

Measures to avoid the risk of importation of pathogens or weeds into the M12 Central package are included in Section 6 of the CFFMP (refer to Appendix B3 of the CEMP).

Waste generated outside the site will not be received for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the POEO Act, if such a licence is required in relation to that waste.

A Spoil Management Plan (SMP) is provided in Appendix C to identify spoil disposal sites and management protocols for spoil reuse on-site and during off-site transport. The SMP has been prepared in accordance with relevant EPA guidelines, TfNSW QA Specifications and the overarching SMP provided in Appendix C of the OCWRMP. The purpose of the SMP is to:

- Identify the environmental management issues associated with the sourcing, handling, transportation, stockpiling, disposal and reuse of spoil material
- Document and describe the systems and procedures developed to mitigate environmental impacts
- Provide practical measures that will be implemented during construction of the M12 Central package to minimise adverse impacts on the surrounding environment resulting from spoil management.

TfNSW will review the SMP for consistency with the requirements of this CWRMP.

5.7 Management of cleared vegetation waste

Vegetation cleared from the M12 Central package to facilitate construction works will be collected and reused on- and off-site wherever possible, minimising vegetation removal where practicable.

The Habitat Compensation Plan (CFFMP Appendix F) has been prepared to identify opportunities to salvage natural resources including coarse woody debris (logs and root balls), hollows, deadwood and mulch that can be used in habitat reinstatement or restoration projects within the project corridor, or by natural resource management agencies off site in consultation with local landowners and stakeholders. Where agreed by TfNSW, these resources may be relocated under the supervision and direction of an Ecologist within the construction footprint for use in conjunction with soil erosion and sediment control measures. Native tree materials may also be reused on-site for other suitable purposes.

A Vegetation Clearing Procedure that outlines the re-use of cleared vegetation will be prepared as part of the CCFMP (refer to Appendix B3 of the CEMP).

Non-reusable vegetation, such as exotic plant species and priority weeds will be disposed off-site, at a licensed landfill facility. Disposal of priority weeds will be carried out in accordance with their category under the *Biosecurity Act 2015* and following Department of Primary Industry guidelines. To reduce the green mass of non-reusable vegetation, planting areas will be sprayed with approved herbicide and left for two weeks before commencing excavation.

A vegetation clearing and grubbing EWMS will be prepared before undertaking any clearing activities to detail the procedures for the disposal of priority weeds and exotic plants and for the

recycling and disposal of all other materials from clearing and grubbing operations during construction of the M12 Central package (refer to Section 3.3.3 and Appendix B3 of the CEMP).

If cleared native trees and vegetation cannot be reused, Seymour Whyte will consult with relevant councils, Western Sydney Parklands Trust and Landcare groups and relevant government agencies, to determine if others in habitat enhancement, beneficial re-use and rehabilitation work could use the cleared vegetation instead of other disposal options.

Unless otherwise agreed with the Principal, all materials cleared, pruned, demolished, cleaned, removed and grubbed, must be removed from the site in accordance with this plan.

5.8 Mulch

Native trees removed during clearing and grubbing that are not reused in conjunction with soil erosion and sediment control measures or other identified purposes will be converted to mulch and stockpiled for use during landscape planting (subject to relevant landscape design specifications). Native vegetation used for mulch in the landscaping works will take priority over the use of native vegetation in soil erosion and sediment control measures.

Excess mulch will be disposed off-site for beneficial reuse where practical. Any mulch material applied or stockpiled on land must fulfil the requirements of the Mulch Exemption and the Mulch Order as if the mulch were being applied to an environmentally sensitive area.

Preventative actions to control the potential spread of weeds will be implemented in accordance with the CFFMP (refer to Appendix B3 of the CEMP).

5.9 Water

Construction activities may require the use of water, both non-potable and potable, including for dust suppression, compaction of fill, pavement works, road finishing works, landscaping and use of office amenities.

Where available and practicable, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources (e.g. treated water from sediment basins, harvested rainwater) will be used in preference to potable water. The relevant target is to source 33% of water from non-potable sources.

A Construction Water Strategy has been developed in accordance with REMM SWH03 (refer to Appendix D). This Strategy details considerations of the current and future demand of potable water within the Project, including the M12 Central package, and considers possible alternate water sources to be used for construction, where potable water may not be required. Construction will be managed in accordance with the Construction Water Strategy with the aim of reducing use of potable water for construction and meeting targets for use of non-potable water.

5.10 Management of asbestos

Demolition activities for construction of the M12 Central package may require disposal of asbestos pipes, conduits and pits. The EIS (Chapter 8.1) also identified Areas of Environmental Interest (AEIs) in 2017 that may potentially contain asbestos, including historical structures, fill sites and illegally dumped stockpiles. Supplemental contamination investigations were carried out during detailed design and are provided in the M12 Motorway Central – Detailed Design Contamination Investigation Report (GHD, 2021).

An EWMS will be prepared to document the procedure for disposal of asbestos pipes, conduits, pits, structures, fill and stockpiles as per the AMP. The AMP outlines the requirements for the encapsulation of asbestos to be carried out in accordance with Project Remedial Action Plans. The AMP is found in Appendix C of the CCLMP (refer to Appendix B5 of the CEMP). Removal of asbestos materials will be carried out by a licensed asbestos removalist (where required) holding a current licence issued by SafeWork NSW. Removal of asbestos materials must comply with the *Work, Health and Safety Act 2019* and the SafeWork Australia code of practice for 'How to Safely Remove Asbestos'. Off-site disposal of the asbestos material will be at facilities legally authorised to accept such material.

5.11 Coal tar management

Coal tar may be present in the existing pavement and around utilities to be removed or cold milled during construction of the M12 Central package. Coal tar is classified within the Australian Hazardous Substances regulatory regime as a Category 1 Carcinogen.

The most obvious way most Roads and Maritime workers identify the presence of coal tar asphalt, as distinct from bitumen, is the distinctive odour it gives off when heated. This odour occurs when the coal tar asphalt is milled and the friction heat from the milling machine releases coal tar fumes.

The identification of coal tar and contingency response measures will be included in the EWMS prepared for contingency response measures and targeted toolbox training will be provided to personnel involved in milling of asphalt.

If coal tar is identified within the M12 Central package works area, construction activities will cease, and the Environmental Site Representative (ESR) will notify the TfNSW ESM (or delegate). If required, testing of the material will be undertaken in accordance with TfNSW Test Method T542.

Should coal tar be encountered during construction, a Coal Tar Management Plan will be prepared in accordance with the requirements of *Technical Direction: Coal tar asphalt handling and disposal* (TfNSW, 2015) and TfNSW QA Specifications.

The purpose of the Coal Tar Management Plan is to:

- Identify the environmental management issues associated with the handling, transportation, and disposal of coal tar
- Document methods for the investigation, sampling and testing of materials potentially containing coal tar, including records of surveyed locations
- Provide practical measures that will be implemented during construction of the M12 Central package to minimise adverse impacts on the surrounding environment and human health resulting from coal tar management.

If required, the Coal Tar Management Plan will include, but not be limited to:

- Outline of potential sources of coal tar
- Procedure for the identification of coal tar
- Process for the testing and classification of coal tar
- Measures for the safe handling of coal tar
- Locations of off-site disposal facilities
- Process for safe transportation of coal tar
- Performance criteria

- Potential impacts associated with spoil
- Management measures and mitigation strategies relevant to spoil
- Monitoring and reporting
- Process for corrective action.

If required, the Coal Tar Management Plan will be submitted to TfNSW for review, including to confirm consistency with the requirements of the overarching CWRMP, this CWRMP, the CoA and the REMMs and will be appended to this Plan.

5.12 Illegal dumping management

Illegally dumped waste is defined as the disposal of waste larger than litter on land or in water without the correct approvals (an EPL or planning approval). Seymour Whyte will actively inform NSW EPA and/or the local regional illegal dumping squad (RID Squad) of any potential fly-tipping and/or illegally dumping identified during construction.

5.13 Receiving waste generated outside the licensed premises

Seymour Whyte must not cause, permit or allow any waste generated outside the licensed premises to be received at the licensed premises, except virgin excavated natural material or as expressly permitted by a condition of EPL 21596 or a resource recovery order and/or resource recovery exemption under the Protection of the Environment Operations (Waste) Regulation 2014.

The waste management register will be used to track the quantity of Virgin excavated natural material, waste materials expressly permitted by a condition of the EPL 21596 or materials a resource recovery order and/or resource recovery exemption received at the site.

6 Resource management strategy

Seymour Whyte is dedicated to implementing resource conservation best practice and the reduction of greenhouse gases through energy efficient work practices. Initial resource conservation opportunities that are being explored are detailed in Table 6-1. These opportunities will be explored during construction. Opportunities that indicate resource reduction (materials, water, waste and energy) will be logged, tracked and managed through the Sustainability Opportunities Register (M12 Central package Sustainability Management Plan). The Sustainability Opportunity Register is a stand-alone register which will remain live until construction completion is achieved.

Resources are to be appropriately managed during construction to minimise wastage, including through the identification of reuse options for surplus materials. Waste management strategies to be implemented, where feasible and reasonable, include:

- Waste generation to be avoided
- Where avoidance is not reasonably practicable, waste generation to be reduced.
- Where avoiding or reducing waste is not possible, waste to be reused, recycled, or recovered. Surplus construction material could be reused on-site, or reused at other Project packages, and/or reused at alternate TfNSW projects
- Waste will be handled and appropriately stored on-site before on-site reuse
- Waste that cannot be reused on-site, but can be recycled or recovered, will be removed off-site for recycling or recovering at an appropriately licenced facility
- As a final approach, waste that cannot be reused, recycled, or recovered, will be removed off-site for disposal at an appropriately licenced facility.

As stated in the Environmental Assessment Documentation, significant quantities of materials, water and electricity are expected to be required for the construction of the Project, including M12 Central package. Consequently, resource consumption and waste generated would contribute to the emission of greenhouse gases during construction.

Construction materials would likely be sourced from offsite suppliers, however locally sourced construction materials (e.g. from within the Sydney region) will be prioritised for use where practical to minimise haulage distances and the associated impacts on traffic in the area.

Water for the M12 Central package, for example, will be sourced (in order of general preference) from stormwater harvesting (non-potable water), on site construction water treatment and reuse (non-potable water) and mains supply (potable water). It is anticipated that the local water supply network would have sufficient capacity to accommodate water requirements.

Similarly, power requirements are expected to be significant during construction of the M12 Central package, however local substations are expected to have the required capacity to supply the construction ancillary facilities without affecting the local supply network.

Monitoring and reporting of energy use will be carried out throughout construction the M12 Central package. This will include the implementation of the TfNSW Carbon Estimation Reporting Tool for energy use monitoring. Quarterly Sustainability Reports will be prepared during construction providing the actual performance against the nominated sustainability targets, the work that has been undertaken and the achievements that have been met, as well as identifying those areas where improvements were made. Further details are provided in the M12 Central Sustainability Management Plan.

Table 6-1: Resource conservation opportunities

Resource	Conservation opportunities
Potable water	• A Construction Water Strategy for the M12 Central package has been developed in accordance with REMM SWH03 (refer to Appendix D). The Strategy details considerations of the current and future demand of potable water within the M12 Central package and considers possible alternate water sources to be used for construction, where potable water may not be required. Construction will be managed in accordance with the Construction Water Strategy with the aim of reducing use of potable water for construction and meeting targets for use of non-potable water. • Use of non-potable alternatives (e.g. stormwater, harvested rainwater, recycled water or treated water from sediment basins) • Use of non-potable water for concrete batching plants • Use of non-potable water for landscaping • Minimise the use of water filled barriers where feasible • Use of waterless urinals • Use of water efficient taps and fittings • Use of non-potable water for non-destructive digging • Where available and practicable, will be used in preference to potable water, e.g. for dust suppression • Application of dust suppressant polymers.
Electricity	• Uptake of energy efficient construction practices • Use of energy efficient fittings and fixtures where feasible • Use of solar powered lighting for temporary construction activities • Use of solar power for the Automatic Weather Station • Using LED and low energy equipment for signals and signage • Percentage of construction electricity sourced from renewable energy generated onsite and/or accredited GreenPower.
Fuel	• Use of biodiesel and other low carbon fuels (such as E10 or B80) in vehicles and equipment • Use of fuel efficient/hybrid construction equipment • Using modern diesel engine equipment, to ensure highest fuel efficiency ratings • Promote efficient operator behaviour; switch off construction plant, vehicles and equipment when not in use to minimise idling • Use of mains connections for site facilities (where feasible) • Optimise haulage distances and material handling practices • Regular maintenance of construction plant and equipment to maximise fuel efficiency, refer to the Construction Air Quality Management Sub-plan for more details on the plant inspections to be carried out during construction • Reporting on and aiming to achieve compliance with air emissions standards for mobile non-road diesel plant and equipment as per the NSW Government Resource Efficiency Policy

Resource	Conservation opportunities
	• Reviewing cut and fill balances for earthworks to minimise transportation distances for materials • Reviewing local options for import and export of fill materials to reduce transportation distances • Procuring of locally manufactures goods/ materials. • Developing and implementing a Green Travel Plan.
Cement	• Beneficially reuse 100% of clean concrete from demolition • Specifying lower embodied energy concrete, for example concrete that contains less Portland cement (which would be replaced with fly-ash) for lower strength concrete applications • Use an average of 10% cement replacement material in concrete (by mass), such as fly ash or blast furnace slag, whilst maintaining specified quality and whole-of-life costs • Incorporate glass content into fine aggregated within pavement mixes.
Steel	• Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation • Specifying recycled steel in-place of virgin steel • Use macro-synthetic fibre non-steel reinforcement, subject to approval.
Cleared vegetation	• Limiting vegetation clearance where feasible and revegetating with native species • Cleared vegetation (excluding exotic plant species and priority weeds) from the construction footprint is to be collected and reused on site wherever possible, for example as habitat for fauna under the supervision and direction of an ecologist • Native tree materials may also be reused on-site as fencing material or for other suitable purposes (e.g. soil erosion and sediment control measures) or will be converted to mulch to use during landscape planting • Excess mulch not used for landscaping will be disposed off-site for beneficial reuse where practical, and where the requirements of the Mulch Exemption and the Mulch Order are fulfilled.
Asphalt and road base	• Use of reclaimed asphalt pavement material in new asphalt pavement and sub-base • Use of TonerPave (low CO2 asphalt) (where feasible) • Use of PlastiPave (asphalt product utilising waste soft plastics) (where feasible) • Use an average of 40% of recycled material used in granular base and sub base • Incorporate maximum permissible glass content in asphalt.
Timber	• Use reusable formwork, where practicable • Procure a minimum of 95% (by cost) of timber products that are either re-used timber, postconsumer recycled timber or Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) certified timber.
Aggregates	• Use of recycled and recyclable materials where possible

Resource	Conservation opportunities
	• Processing tunnel spoil as alternative to virgin quarry products (subject to specific Resource Recovery Exemption) • Use of crushed glass as utility bedding sand (engineered fill) • Reuse of suitable site won material.

7 Environmental control measures

A range of environmental requirements and management measures are identified in the Environmental Assessment Documentation, and relevant TfNSW documents. Specific measures and requirements to address waste impacts are outlined in Table 7-1.

Table 7-1: Waste, energy, and water management and mitigation measures

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR1	The waste minimisation hierarchy principles of avoid/reduce/reuse/ recycle/dispose will be used.	Prior to construction and during construction	Construction Manager ESR	NSW CoA E100 ISC Was-1	Construction documentation
WR2	A Waste Management Register will be developed prior to any waste generation and implemented throughout construction.	Prior to construction and during construction	Supervisors ESR	NSW CoA E104 TfNSW G36	Appendix B Waste Management Register
WR3	All wastes, including contaminated wastes, will be identified and classified in accordance with the EPA's *Waste Classification Guidelines: Part 1 Classifying Waste*, with appropriate records and disposal dockets retained for audit purposes. Disposal of contaminated waste will be completed in accordance with the POEO Act, *Protection of the Environment Operations (Waste) Regulation 2014*.	During construction	Construction Manager Supervisors ESR	NSW CoA E101 to E103 REMM SC03 and SC08	Waste Classification Reports Disposal dockets EPA Annual Return
WR4	Wherever feasible and reasonable, construction material will be sourced from within the Sydney region.	During construction	Commercial manager Construction Manager Supervisors ESR	REMM W03	Procurement Procedure (refer to M12 Central Sustainability Management Plan)

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR5	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. The contingency areas will be identified in EWMS prepared for compound and ancillary facility establishment and use and EWMS for topsoil stripping (including temporary stockpiling and disposal of excavated material and protocols for the management of materials containing asbestos). Suitable areas will be required to be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage.	During construction	Construction Manager Supervisors ESR	REMM W04	EWMS
WR6	The Spoil Management Plan (Appendix C of CWRMP) will be implemented for the M12 Central package.	During construction	Construction Manager ESR	REMM W02	Appendix C - Spoil Management Plan
WR7	An annual Waste Avoidance and Resource Recovery Report will be prepared and submitted to TfNSW.	During construction	ESR	TfNSW G36	Annual Waste Avoidance and Resource Recovery Report
WR8	Comply with s143 of the POEO Act when transporting and/or depositing of waste. When transferring waste under a “s.143 Notice”, provide to TfNSW a completed and signed copy of the approved notice and supporting documents, as listed under items (a) to (g) in G36, Clause 4.11.4. Maintain a record of the cumulative total volume of waste and materials being transferred and make this record available to TfNSW upon request.	During construction	Construction Manager Supervisors ESR	TfNSW G36	s143 Form
WR9	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste will comply with the conditions of the current EPL for the M12 Central package, or be done in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014.*	During construction	Construction Manager Supervisors ESR	NSW CoA E101	Site inspection records

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR10	Waste will only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014,* or to any other place that can lawfully accept such waste.	During construction	Construction Manager Supervisors Site engineers ESR	NSW CoA E102	s143 Form Disposal dockets
WR11	A Procurement Strategy, with the objective of achieving sustainable procurement of materials, will be developed providing details on the minimisation of unnecessary consumption of materials and waste generation in accordance with relevant legislation and guidelines.	Prior to and during construction	Commercial manager Construction Manager ESR	REMM W01	Procurement Procedure (refer to M12 Central Sustainability Management Plan)
WR12	The procurement of goods and services will consider goods and services that: • Are from local suppliers • Make use of recycled materials or materials with a low embodied energy content. • Are energy efficient or have low embodied energy • Minimise the generation of waste.	During construction	Commercial manager Construction Manager ESR	REMM GG04	Procurement Procedure (refer to M12 Central Sustainability Management Plan)
WR13	Prefabricated material will be used where possible	During construction	Construction Manager Site engineers	Best practice	Procurement Procedure (refer to M12 Central Sustainability Management Plan)

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR14	Materials will be segregated into stockpiles of spoil, concrete, steel, timber, paper and cardboard and vegetation to maximise recycling opportunities and sent to a waste facility with recycling capabilities.	During construction	Construction Manager Supervisors Site engineers ESR	Best practice	Site inspections
WR15	Waste auditing to final destination will be carried out at least every six months during construction. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill.	During construction	ESR Auditor - professional with at least five years' waste management experience, or a NABERS Assessor, or equivalent	ISC Was-1 G36 Best practice	Waste audits
WR16	The relevant licences of waste facilities utilised for the disposal or handling of waste will be obtained to ensure they are legally compliant.	During construction	ESR	Best practice	Record of licences
WR17	All waste disposal vehicles must be equipped with an operating GPS tracker.	During construction	Commercial manager ESR	Best practice	Waste disposal contracts Waste audits
WR18	Onsite and offsite concrete batching plants will use non-potable water where available.	During construction	Supervisors	Best practice	Site inspections

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR19	Burial or burning of waste is not permitted.	During construction	Supervisors	Best practice	Site inspections
WR20	The site will be maintained in a clean and tidy condition and rubbish will be regularly removed from site.	During construction	Construction Manager Supervisors	Best practice	Site inspections
WR21	Where possible and fit for purpose, green waste will be mulched and beneficially reused within the alignment before off-site reuse or disposal options are pursued. Green waste containing weeds or contaminated material must be separated from native vegetation and classified and disposed of at an appropriately licensed facility. Prior to clearing, weed mapping must be completed by the Project Ecologist in accordance with the G40 2.4 Hold Point submission to identify weeds to be separated for disposal to an appropriately licensed facility.	During construction	Construction Manager Supervisors ESR	Best practice	Site inspections
WR22	Excavated material suitable for re-use within the premises may be transported from one part of the premises to another part of the premises by road in accordance with this Plan, including Appendix C (Spoil Management Plan)	During construction	Construction Manager	Best practice	Site inspections Appendix C
WR23	Use EPA WasteLocate for all special waste transported off-Site	During construction	Construction Manager ESR	G36	Site inspections Appendix B
WR24	Remove any rubbish within 500 mm of existing surface levels on, or within, the limits of clearing defined in Clauses 2.1, 2.2 and 2.3 whenever you undertake topsoil stripping. (included in TfNSW G40P1).	During construction	Construction Manager ESR	G40	Site inspections

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR25	Remove all rubbish and debris left by Contractor within the area of landscape planting, and recycle or dispose of material, and leave the Site in a clean and tidy condition at end of construction in accordance with G36.	Construction close	Construction Manager ESR	Best practice	Site inspection
WR26	Recycle, reuse or otherwise dispose of all surplus material, including offcuts, timber logs, boulders, stumps, roots, undergrowth, rubbish and other debris resulting from the clearing and fencing work, in accordance with the requirements of Specification TfNSW G36.	During construction	Construction Manager ESR	R201 G36	Waste register
WR27	To reduce the green mass of non-reusable vegetation, spray all planting areas with approved herbicide and leave for two weeks before commencing excavation.	Two weeks before commencing excavation.	Construction Manager ESR	R197	Pesticide application records sheet
WR28	Prior to Completion, restore any areas disturbed by the works including removal of extraneous excavated materials (such as but not limited to imported earthworks materials, aggregates, concrete, loose rock, surplus spoil), unused construction materials and other wastes including rubbish.	Prior to completion	Construction Manager ESR	G36	TfNSW pre-completion audit report

8 Compliance management

8.1 Roles and responsibilities

The organisational structure for the M12 Central package and overall roles and responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 7 of this Plan.

Waste monitoring and management has been managed, reviewed or audited by a suitably qualified professional. A suitably qualified professional (SQP) for the purposes of this credit means someone with at least five years' waste management experience, or a NABERS Assessor, or equivalent.

Peter Monsted, the nominated ESR has over five years' experience in waste management on infrastructure construction projects. The waste management system will also be reviewed / audited by an independent SQP in waste management (refer to Section 8.5).

8.2 Training

To ensure that this Plan is effectively implemented, all site personnel (including sub-contractors) will undergo site induction training relating to waste and energy management issues before construction commencing. The induction training will address elements related to waste and energy management, including:

- Existence and requirements of the OCWRMP, this CWRMP and all plans and procedures prepared under the CWRMPs relevant to the M12 Central package
- Relevant legislation and regulations
- Incident response, management and reporting
- Waste reporting requirements
- Waste minimisation principles
- Requirements of the waste hierarchy
- Waste/recycle storage requirements
- Best practice energy efficiency
- Equipment start up and shut down procedures
- Reuse and recycling targets
- Location of refuse and recycling bins
- Other specific responsibilities for waste and reuse management
- Other specific responsibilities for energy management.

Targeted training in the form of toolbox talks or specific training will be provided to staff with a key role in waste and resource management or those carrying out activities with a high risk of impact to the environment such as identification of coal tar in asphalt millings. Site personnel will undergo refresher training at six monthly intervals.

The ER will review and approve the induction and training program prior to the commencement of construction and monitor implementation.

Daily pre-start meetings conducted by the Foreman / Site Supervisor (or delegate) will inform the site workforce of any environmental issues relevant to waste and resource management that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are provided in Section 5.3 of the CEMP.

8.3 Inspections and monitoring

Regular inspections of activities with the potential to generate waste will be undertaken for the duration of construction. Inspections will include daily site inspections by Site Supervisors, and weekly site inspection by environmental personnel during construction as a minimum. The frequency of inspections may be increased to reflect the risk associated with potential impacts during adverse weather conditions or during specific construction activities.

Inspection items that are specific to identifying waste and resource conservation issues include:

- Visible litter, sources of littering, unauthorised disposal of construction waste, contamination of waste streams and adequacy of capacity of waste receptacles
- Site is maintained in a clean and tidy condition and rubbish is regularly removed
- Confirming waste streams are appropriately classified and segregated onsite
- Managing stockpiles and stored waste, including documenting locations
- Ensuring efficient use of resources and energy efficient construction practices
- No burial or burning of waste on site
- Green waste containing weeds or contaminated material must be classified and disposed to an appropriately licensed facility
- Importation of wastes is carried out in accordance with relevant requirements
- Maintenance of adequate documentation recording the types and volumes of wastes generated, re-used, recycled and disposed of, ensuring waste management can be traced from cradle to grave
- Use of recycled and recyclable materials where possible
- Non-potable water sources are identified and used as appropriate
- Alternative fuels are prioritised, such as biodiesel and other low carbon fuels (E10 or B80)
- Reuse of suitable site won material where appropriate
- Plant and equipment is regularly maintained to maximise fuel efficiency
- Maintenance of adequate documentation recording resource usage during construction (e.g. energy, water, fuel, oil, etc).

An adaptive approach to waste and resource management will be implemented. Mitigation measures can be amended and improved if they are found to not meet the required outcomes. Waste and resource use minimisation strategies will be communicated in pre-starts and during inspections.

Site inspections will be recorded (along with actions and issues observed) and actioned appropriately within agreed timeframes. These inspections will be recorded as part of the Weekly

Environmental Inspection Checklist. Additional requirements and responsibilities in relation to inspections are documented in Section 5.1 of the CEMP.

Weekly and other routine inspections by the TfNSW ESM (or delegate), the Environmental Review Group (ERG) representatives and the ER will also occur throughout construction. Detail on the nature and frequency of these inspections are documented in Section 7.1 of the CEMP.

8.4 Hold Points and Witness Points

Hold Points and Witness Points relevant to this Plan are outlined in Table 8-1. Documentation to be submitted for Hold Point listed in Section 5.1.5.

Table 8-1: Hold Points and Witness Points applicable to this Plan

TfNSW QA spec	Clause	Type	Description	Plan reference
G36	4.11.4	Hold Point	Transport of waste generated under the Contract to the “waste site”. Including Completion and signed copy of “approved notice” and supporting documents, as listed under items (a) to (g) in Clause 4.11.4.	Section 5.1.5

8.5 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of waste and energy management measures, and compliance with this CWRMP, CoA and REMMs, and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 7.4 of the CEMP.

Auditing requirements relevant to the management of waste are identified in Table 8-2

Table 8-2: Waste audits

Item	Frequency	Standards	External reporting	Responsibility
Compliance checks	Monthly	EPL O5.4 The licensee must conduct monthly compliance checks of the CWMP while it is in effect (being while the licensed activities are occurring and not after) to ensure that all waste is being managed, transported, reused, recycled or disposed in a lawful manner. The compliance checks must take the form of: a) desktop investigations (such as contacting reuse, recycling or disposal facilities directly, reviewing waste disposal dockets, reviewing exemption requirements against particular loads of waste, reviewing environment protection licences); b) site inspections to reuse, recycling or disposal locations; and/or c) any other method approved in writing by the EPA.	EPA upon request	ESR
Waste Management Review/Audit	Annually	IS TM Was-1 Waste Management. Assessment of the accuracy and completeness of reported waste information. The review or audit should cover both systems and data, i.e., the systems used to manage waste and the data recording and reporting. The waste management review should be completed by a suitably qualified professional with at least five years' waste management experience.	ISC	Suitably Qualified Professional

Item	Frequency	Standards	External reporting	Responsibility
Waste to Destination Audit	Six monthly	IS TM Was-1 Waste Management. The audit should include a physical/visual verification of waste destinations. The audit needs to only focus on the significant waste streams, taking into account the volume and nature of the wastes. Each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period.	ISC	ESR

8.6 Reporting

Reporting requirements relevant to the management of waste and resources are identified in Table 8-3. Construction crews will collect and keep legible copies of all receipts and/or weighbridge dockets from transporters and/or contractors in relation to disposal of waste from the premises. Requirements and responsibilities for reporting are further described in Section 7.5 of the CEMP.

Waste contractors will report regularly on their waste management practices. Seymour Whyte will relay the required information through regular reporting to TfNSW and other stakeholders as required. Waste and energy use records will feed into the sustainability reporting under the overarching Sustainability Strategy.

Accurate records will be maintained substantiating all construction activities associated with the M12 Central package or relevant to the conditions of approval, including measures taken to implement this CWRMP. Records will be made available to the DPE and Department of Climate Change, Energy, the Environment and Water (DCCEEW) upon request, within the timeframe nominated in the request.

Table 8-3: Reporting requirements relevant to this Plan

Item	Frequency	Standards	External reporting	Responsibility
Waste Management Register	Monthly	Reporting as required by TfNSW G36 Specification, prepared in accordance with the template in Appendix B.	TfNSW	Sustainability Manager
Monthly Environmental Report	Monthly	Reporting as required by TfNSW G36 Specification, Section 3.11.1.2, including: The quantity, final location and EPA Exemptions utilised for materials taken offsite to a non-licenced waste facility. The sustainability section of the monthly report will provide a monthly update on the performance against the sustainability targets which are consistent with the targets in Section 2.3 of this Plan.	TfNSW	ESR
Quarterly Sustainability Report	Quarterly	Reporting as described in the M12 Central Sustainability Management Plan, including: • Records of resource usage during construction work (e.g. energy, water, fuel, oil, etc.) • Records of energy use and emissions • Records of waste management, take-back, and recycling.	TfNSW	Sustainability Manager
Waste Avoidance and Resource Recovery Report	Annually (before 31 July) and on completion of construction	Once a year, submit report containing information relating to wastes generated or recycled in accordance with Annexure G36/F.	TfNSW	Sustainability Manager

Item	Frequency	Standards	External reporting	Responsibility
Resource Recovery Exemption and Order Sampling Plan	Each time a Resource Recovery Exemption and Order is proposed for waste disposal	A suitably qualified person should develop and implement a sampling plan to address the specific sampling requirements, test methods, notifications and record keeping requirements of the proposed Resource Recovery Exemptions and Orders.	TfNSW with G36 4.11.2 hold point	ESR

9 Review and improvement

9.1 Continuous improvement

Continuous improvement of this CWRMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Identify environmental risks not already included in the risk register
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

The ESR is responsible for ensuring stage-specific environmental risks are identified and included in the M12 Central package risk register and appropriate mitigation measures implemented throughout the construction, as part of the continuous improvement process. The process for ongoing risk identification and non-conformance management during construction is outlined in Section 4.1.2 of the CEMP.

9.2 CWRMP update and amendment

The processes described in Section 7.7 of the CEMP may result in the need to update or revise this CWRMP. This will occur as needed. Any revisions to this CWRMP and other Sub-plans will be in accordance with the process outlined in Sections 1.12 of the CEMP.

A copy of the updated Plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure (refer to Section 7.6.2 of the CEMP).

Construction Waste and Resources Management Sub-plan

Appendix A – Secondary CoA, Secondary REMMs and TfNSW QA specifications

M12 Motorway - Central

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Appendix A – Secondary CoA, Secondary REMMs and TfNSW QA Specifications

Secondary requirements that are related, but not specific to, the development of this Plan are outlined in this appendix. Cross references are provided to indicate where the requirements are addressed in this Plan or other Project management documents. This includes:

- Secondary NSW Conditions of Approval (CoA) which are listed in Table A1
- Secondary Revised Environmental Management Measures (REMMs) which are listed in Table A2
- Relevant requirements of the TfNSW QA Specifications which are listed in Table A3.

Table A1: Secondary NSW CoA

CoA No.	Condition Requirements	CWRMP Reference
E15	Prior to vegetation clearing, the Proponent must identify where it is practicable for the CSSI to reuse native trees and vegetation that are to be removed. If it is not possible for the CSSI to reuse all removed native trees and vegetation, the Proponent must consult with the relevant council(s), Western Sydney Parklands Trust and Landcare groups and relevant government agencies to determine if:	Section 5.7 CFFMP
	(a) Hollows, tree trunks, mulch, bush rock and root balls salvaged from native vegetation impacted by the CSSI; and	
	(b) Collected plant material, seeds and/or propagated plants from native vegetation impacted by the CSSI, could be used by others in habitat enhancement, beneficial re-use and rehabilitation work, before pursuing other disposal options.	
E100	Waste generated during Work and operation must be dealt with in accordance with the following priorities: (a) Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced;	Section 5.1
	(b) Where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered; and	
	(c) Where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.	

CoA No.	Condition Requirements	CWRMP Reference
E101	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of the current EPL for the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014*, as the case may be.	Section 3.4
E102	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014*, or to any other place that can lawfully accept such waste, except in accordance with Condition E15.	Section 5.1.4 Section 5.1.5
E103	All waste generated by Works must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Section 5.2
E104	The Proponent must develop and implement a waste tracking register prior to waste generated by Work that details: (a) The quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates);	Section 5.4 Appendix B
	(b) The destination location(s) for all wastes generated during construction;	
	(c) The quantities of any waste types imported onto the CSSI site, including their classification and emplacement location (recorded using latitude and longitude coordinates);	
	(d) The quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and	
	(e) Disposal records demonstrating that receiving facilities have lawfully accepted the waste type.	
	The waste tracking register must be made available to the Planning Secretary and EPA on request, within the timeframe stated in the request.	

Table A2: Secondary REMMs

ID	Measure/requirement	CWRMP Reference
SC03	A contaminated land management plan (CLMP) will be prepared for the project. The CLMP will include:	CCLMP Section 5.1 Section 5.2 Section 5.3
	• Control measures to manage identified areas of contamination, including surface soils in the vicinity of TP303, TP304, TP310 and TP311 containing heavy metal and PAH concentrations	
	• Procedures for unexpected contamination	
	• Measures to manage potential ASS (as required based on testing results) within sediments of the creeks in the construction footprint to minimise impacts to the environment	
	• Requirements for excavation of unexpected contaminants to be carried out in consultation with project Remedial Actions Plans.	
	• Requirements for the disposal of contaminated waste in accordance with the POEO Act and the *Protection of the Environment Operations (Waste) Regulation 2014*.	
SC08	All waste will be classified in accordance with the NSW EPA's *Waste Classification Guidelines*, with appropriate records and disposal dockets retained for audit purposes.	Section 5.2 Section 5.4 Appendix C
SWH03	A water reuse strategy will be developed for both construction and operational phases of the project to reduce reliance on potable water. This strategy will be prepared during the detailed design stage and implemented throughout the project and will outline the construction and operational water requirements and potential water sources to supply the water demand in consultation with Sydney Water. Alternative water supply options to potable water will be investigated, with the aim of reusing water using recycled water where feasible.	Section 5.9

ID	Measure/requirement	CWRMP Reference
W03	Wherever feasible and reasonable, construction material will be sourced from within the Sydney region.	Section 6 Section 7, WR4 Appendix C
W04	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Suitable areas will be required to be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage.	Section 5.1.3 Section 7, WR5
GG03	Vegetation removal will be minimised where practicable.	CFFMP Section 5.7
GG04	The procurement of goods and services will consider goods and services that: • Are from local suppliers • Make use of recycled materials or materials with a low embodied energy content. • Are energy efficient or have low embodied energy • Minimise the generation of waste	Section 7, WR12
GG05	Construction plant and equipment will be well maintained to maximise fuel efficiency.	CAQMP Section 6

Table A3: TfNSW QA specifications

Specification	Measure/requirement	CWRMP Reference
G1 Section 2.5. i)	Refer to Specification TfNSW G36 for waste management requirements	Table A3
G36 Section 4.11.1	Prepare a Waste Management and Resources Management Sub-Plan as part of the CEMP, to manage and minimise the generation of waste and encourage reuse of materials. When preparing the Waste Management and Resources Management Sub-Plan, use as a guide the following publications: • NSW Government Resource Efficiency Policy (GREP) • EPA Waste Classification Guidelines • EPA Resource Recovery orders and exemptions • TfNSW Environmental Sustainability Strategy 2019-2023 • TfNSW Technical Guide “Management of road construction and maintenance wastes” • TfNSW Technical Direction ETD 2015/020 “Legal offsite disposal of Roads and Maritime Services waste” • TfNSW Environment Fact Sheets.	This CWRMP Section 3
G36 Section 4.11.1	Use the concept of the waste hierarchy to set priorities for the efficient use of resources, consistent with the objectives of the Waste Avoidance and Resource Recovery Act 2001 (NSW). Further details of the waste hierarchy may be obtained from: http://www.epa.nsw.gov.au/wastestrategy/waste-hierarchy.htm.	Section 5.1
G36 Section 4.11.1(a)	The Waste Management and Resources Management Sub-Plan or mitigation strategies must: (a) identify the waste streams that will be generated during the Contract;	Section 4.1
G36 Section 4.11.1(b)	(b) provide details, for each of the identified waste streams, of the following: (i) the waste classification (refer to EPA’s “Waste Classification Guidelines” and TfNSW Environment Fact Sheets); (ii) how and where the waste is to be reused, recycled, stockpiled or disposed of;	Section 5.3

Specification	Measure/requirement	CWRMP Reference
	(iii) the receptacles that will be used for storing identified waste materials prior to reuse, recycling, stockpiling or disposal; (iv) how, and by whom, will the waste be transported between generation, storage and point of reuse, recycling, stockpiling or disposal, including identification of suitable methods and routes to transport waste; (v) sampling and testing requirements (refer to TfNSW Environment Fact Sheet "Waste Sampling"); (vi) licensing requirements under the POEO Act and/or relevant NSW Resource Recovery Orders and Exemptions; (vii) procedures for verifying licences and permits for handling, transportation and disposal of waste;	
G36 Section 4.11.1(c)	(c) provide controls for minimising consumption of fuel, oil and other consumables, on-site electricity and water required for construction;	Sections 6
G36 Section 4.11.1(d)	(d) include methods for monitoring the implementation of the Waste Management and Resources Management Sub-Plan or mitigation strategies;	Section 8.3
G36 Section 4.11.1(e)	(e) identify the need or otherwise for "s.143 Notices" (see Clause 4.11.4) or any other additional approval, licence and/or permit from an appropriate authority or the Principal;	Section 3, Section 5.1.5 and Section 7, WR8
G36 Section 4.11.1(f)	(f) comply with: (i) the requirements of the EPL and POEO Act; or (ii) a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014* for any non-licensed as well as licensed waste activities that involve the importation, storage, transport, treatment, processing, reprocessing, and/or disposal of waste.	Section 3

Specification	Measure/requirement	CWRMP Reference
G36 Section 4.11.1(g)	(g) include mulching of native vegetation for use in soil erosion and sediment control or stockpiled for landscape planting in accordance with TfNSW G40;	CSWMP Section 5.8
G36 Section 4.11.1(h)	(h) include a Spoil Management Strategy to be implemented during construction to identify spoil disposal site(s) and include the management of spoil on-site and during off-site transport;	Appendix C
G36 Section 4.11.1(j)	(j) identify and implement construction stage energy saving opportunities;	Section 6, Section 8.3
G36 Section 4.11.1(k)	(k) use EPA WasteLocate for all special waste transported off-Site;	Section 5.1.4 Section 7, WR23
G36 Section 4.11.1(l)	(l) detail destinations for each resource/waste type either for on-Site reuse or recycling, off-Site reuse or recycling, or disposal at a licensed waste facility;	Section 7,
G36 Section 4.11.1(m)	(m) procedures and disposal arrangements for unsuitable excavated material or contaminated material;	Section 5.1.5
G36 Section 4.11.1(n)	(n) site clean-up for each construction stage;	Section 7,
G36 Section 4.11.1(o)	(o) identify how relevant waste sustainability targets outlined in TfNSW G1/L and your Sustainability Management Plan will be achieved;	This Plan Section 2.3

Specification	Measure/requirement	CWRMP Reference
		Section 7,
G36 Section 4.11.1(p)	(p) identify waste monitoring and management will be managed, reviewed or audited by a professional with at least five years' waste management experience, or a NABERS Assessor, or equivalent; and	Section 7, WR15
G36 Section 4.11.1(q)	(q) identify a review and audit methodology including that review and/or audit of waste handling and disposal/recycling all the way to final destination will be audited at appropriate intervals in accordance with IS TM Was-1 Level 2 credit.	Section 3.7 Section 7, WR15
G36 Section 4.11.2	Maintain a Waste Management Register until the Actual Completion Date, to record the type, amount and location of waste reused, recycled, stockpiled and disposed of. The Waste Management Register must include the following details: (a) the quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates); (b) the destination location(s) for all wastes generated during work; (c) the quantities of any waste types imported onto the site, including their classification and emplacement location (recorded using latitude and longitude coordinates); (d) the quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and (e) disposal records demonstrating that receiving facilities have lawfully accepted the waste type. The waste tracking register must be made available to the Principal, Planning Secretary and EPA on request, within the timeframe stated in the request.	Section 5 Appendix B
G36 Section 4.11.3	Once a year, submit to the Principal a Waste Avoidance and Resource Recovery Report containing information relating to wastes generated or recycled in accordance with Annexure G36/F, at the following dates: (a) within one month from 1 July of the current calendar year, for the previous 12 months of the contract period, or part thereof if the contract commenced after 1 July of the previous calendar year; (b) at Actual Completion Date, for the final reporting period.	Section 8.6

Specification	Measure/requirement	CWRMP Reference
G36 Section 4.11.4(a)	Comply with Section 143 of the POEO Act when transporting or depositing of waste. Prior to transporting wastes generated under the Contract to any location outside the Site for reuse, recycling, stockpiling or disposal (termed “waste site”), except when transporting to a licenced waste disposal facility, submit to Principal the following documents: (a) A completed and signed copy of an “approved notice” as defined in section 143(3A) of the POEO Act (termed “s.143 Notice”) received from owner and/or occupier of the “waste site”. A proforma for this “s.143 Notice” is available from the EPA website at: https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wasteregulation/160095-notices143-form.docx).	Section 5
G36 Section 4.11.4(b)	(b) A copy of the letter, using the template in ETD 2015/020, sent to the owner and/or occupier receiving the waste.	Section 5.1.5
G36 Section 4.11.4(c)	(c) Evidence that the waste classification in accordance with the EPA Waste Classification Guideline is consistent with that stated in the “s.143 Notice”, which may be either: (i) virgin excavated natural material (VENM) certificate (template available at: https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/waste/130693-venm-certificate.doc?la=en&hash=270F10BAA489FD49EB53CE088A6A49409A45218A), Or (ii) test results, survey or other assessment details as required by EPA Waste Classification Guideline or in accordance with a relevant NSW Resource Recovery order and exemption.	Section 5.1.5
G36 Section 4.11.4(d)	(d) Evidence of legal right to receive the described waste, which may be any of the following: (i) development or planning approval; or (ii) determined REF; or (iii) other relevant statutory approval; or (iv) written correspondence from the Local Council or alternate planning authority clearly stating that the activity is exempt development or permitted without consent (under a Local or Regional Environment Plan or State Environmental Planning Policy), to accept the waste material as classified.	Section 5.1.5

Specification	Measure/requirement	CWRMP Reference
G36 Section 4.11.4(e)	(e) The submitted information under item (d) above must identify the approval or regulatory clauses that define: (i) how the waste can be received; (ii) any volume limits (including EPA licence or Resource Recovery order/exemption constraints); (iii) permitted waste classifications; (iv) time limitation and constraints (as stated in EPA licence or Resource Recovery order/exemption or planning approvals).	Section 5.1.5
G36 Section 4.11.4(f)	(f) Written confirmation from the “waste site” of the following: (i) waste delivery arrangements and/or relevant traffic management plan; (ii) “waste site” will display the “s.143 Notice” at the entrance to the property or a copy of the “s.143 Notice” will be supplied to each delivery vehicle.	Section 5.1.5
G36 Section 4.11.4(g)	(g) Proposed methodology to track the cumulative total volume of each class of waste and/or material being transferred to each individual “waste site”, to ensure that volumes will be managed to meet the requirements stated in the “s.143 Notice”.	Appendix B
	When transferring waste under a “s.143 Notice”, implement the methodology stated under item (g) above and maintain a record of the cumulative total volume of waste and materials being transferred. Make this record to the Principal upon request.	Section 5.1.4

Appendix B – Template Waste Management Register

Date / time	Source Location	Waste classification	Waste Type	Resource Recovery Order / Exemption	Quantity (tonnes)	Transporter (name and waste transport licence, if applicable)	Truck Registration	Disposal Facility / premise	EPL License	Evidence of lawful disposal (Invoice no. / tip docket or Section 143)	Waste use (reused, recycled, stockpiled or disposed)

Appendix E – Potential Local Waste Transporters and Waste Facilities

Type	Name	Contact Details	Distance from Project	Waste Accepted
Waste Transporter	Grasshopper Environmental	200 Walters Road Arndell Park NSW, 2148	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste
	Bingo Bins Pty Ltd	305 Parramatta Rd, Auburn NSW 2144 Ph: 1300 424 646	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste
	Remondis Australia Pty Ltd	Level 4, 163 O'Riordan Street, Mascot Ph: 9032 7100	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste
	JJ Richards & Sons Pty Ltd	16 Childs Road, Chipping Norton Ph: 9832 4022	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste
	Solveco Pty Ltd	38 Links Road, St Marys Ph: 9833 7035	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste
	Transpacific Cleanaway Pty Ltd	Level 4/441 St Kilda Rd, Melbourne Ph: 13 13 39	N/A	Transport of category 2 trackable waste Transport of category 1 trackable waste

Type	Name	Contact Details	Distance from Project	Waste Accepted
Recycler / Recovery / Waste Management Facility	Benedict Recycling Girraween	224 Toongabbie Rd, Girraween NSW 2145	<25km	Recycling - mixed waste, asphalt, concrete and brick, demolition waste, construction waste, rubble and soil, paper and cardboard, all metals
	Camellia Resource Recovery & Treatment Facility	Grand Avenue, Camellia Ph: 1300 651 116	<30 km	Liquid waste Recycling - mixed plastics, cardboard and paper, aluminium cans, organics and metals.
	Chullora Resource Recovery Facility	15 Muir Road, Chullora Ph: 1300 651 116	<30 km	Waste storage - other types of waste Composting Waste storage - waste tyres Non-thermal treatment of general waste Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste Recovery of general waste
	Concrete Recyclers	14 Thackeray Street, Camellia Ph: 8832 7400	<30 km	Concrete, Bricks, Tiles and Asphalt
	Metropolitan Demolitions & Recycling Pty Ltd	396 Princes Highway, St Peters Ph: 9519 3099	<50 km	Demolition Rubble (Brick & Concrete)

Type	Name	Contact Details	Distance from Project	Waste Accepted
	REMONDIS Australia Pty Ltd - Transfer Station	2 Bay Road, Taren Point 2229 Ph: 9526 2642	<55 km	Recycling - gas bottles, batteries – car, oil - used motor
	Sims Metal Management - Alexandria	72 Burrows Road, Alexandria Ph: 9509 7002	<50 km	Metal recyclers
	Sell and Parker, Blacktown	45 Tattersall Road, Blacktown NSW 2148	<30km	Metal recyclers
	Solveco St Marys Sydney waste treatment facility	38 Links Road, St Marys Ph: 9833 7035	<20 km	Liquid waste
	Bingo St Peters Recycling Facility	6-10 Burrows Road South, St Peters Ph: 1300 424 646	<50 km	Building & Demolition Waste Rubble, Sand, Soil, Asphalt, Brick, Concrete, Tiles Timber & Green Waste Metals, Plasterboard, Paper & Cardboard Plastics
	TransPacific	12 Stuart St, Padstow NSW 2211 Ph: 02 8748 0900	<30 km	Liquid or hazardous waste
	Visy Taren Point Material Recovery Facility	43 Bay Road, Taren Point, Ph: 02 9524 8533	<55 km	Newspapers Magazines Office Paper, Envelopes Without a Window Envelopes with a Window Phone Books, Pizza Boxes (clean) Egg Cartons Cardboard

Type	Name	Contact Details	Distance from Project	Waste Accepted
Waste Management Facility and Landfill	Elizabeth Drive (Kemps Creek) Landfill	Elizabeth Drive, Kemps Creek NSW 2178 Ph: 1300 651 116	<10 km	General solid classified contaminated soils. General solid classified asbestos contaminated soils. Restricted classified contaminated wastes. VENM/ENM.
	Genesis Xero Waste Facility	Honeycomb Drive, Eastern Creek NSW 2766 Ph: 9832 3333	<15 km	All wastes (including asbestos waste). Exclusions – hazardous, restricted, food, liquid, medical and chemical wastes
	Horsley Park Waste Management Facility	Wallgrove Road, Horsley Park Ph: 9620 1944	<10 km	General Solid Waste (Non-putrescibles) includes VENM Asbestos Waste Waste Tyres
	Lucas Heights Landfill and Resource Recovery Park	New Illawarra Road, Lucas Heights Ph: 1300 651 116	<45 km	General Solid Waste (Putrescible) General Solid Waste (Non-putrescibles) includes VENM Asbestos Waste Waste Tyres

Type	Name	Contact Details	Distance from Project	Waste Accepted
	Wallgrove Road (Eastern Creek) Landfill	Wallgrove Road, Eastern Creek Ph: 1300 651 116	<15 km	General Solid Waste (Putrescible) General Solid Waste (Non-putrescibles) includes VENM Asbestos Waste Waste Tyres
	Bettergrow Pty Ltd	24 David Road, Weatherill Park 2164	<15 km	General Solid Waste (Putrescible) General Solid Waste (Non-putrescibles) includes hazardous, restricted solid, liquid, clinical and related waste and asbestos waste

Type	Name	Contact Details	Distance from Project	Waste Accepted
Preliminary spoil disposal and reuse receival locations	SUEZ Kemps Creek Resource Recovery Park	1725 Elizabeth Drive, Kemps Creek 2178	<10km	General solid waste (non-putrescible) including waste which is subject to general or specific immobilisation approvals which have a restriction that they may only be disposed of at waste disposal facilities which have currently operating leachate collection systems. Asbestos waste. Restricted solid waste (including wastes assessed as Restricted Solids Wastes which are also subject to general or specific immobilisation approvals which have a restriction that they may only be disposed of at waste disposal facilities which have currently operating leachate collection systems).

Type	Name	Contact Details	Distance from Project	Waste Accepted
	Brandown Pty Ltd Lot	90 Elizabeth Drive, Kemps Creek 2171	<10km	General solid waste (non-putrescible) excluding biosolids. Excavated Natural Material (soils). VENM. Soils (Arsenic 40mg/kg; Cadmium 2mg/kg; Copper 200mg/kg; Mercury 1.5mg/kg; Zinc 600mg/kg; Petroleum Hydrocarbons C6-C9 150mg/kg; Petroleum Hydrocarbons C10-C36 1600mg/kg; Polycyclic aromatic hydrocarbons 80mg/kg; Polychlorinated biphenyls (individual) 1mg/kg.
	Cleanaway Co. Pty Ltd	42-46 Charles Street, St. Marys, NSW 2760		Contaminated soil treatment.
	Dial A Dump Industries	76-82 Burrows Road, Alexandria, NSW 2015		Soils (that meet the CTI thresholds for General Solid in Table 1 of the Waste Classification Guidelines as in force from time to time with the exception of the maximum threshold values for contaminants specified in the 'Other Limits' column) – also referred to as 'GSW-Recyclable'.

Type	Name	Contact Details	Distance from Project	Waste Accepted
	Waste Science Pty Ltd Soil Recycling Facility	17 Turners Lane, Cootamundra	350 km	Contaminated soil treatment (heavy metals, total polycyclic aromatic hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPHs), Phenols, cresols and Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Cyanide.
	Blacktown Waste Services (landfill)	920 Richmond Road at Marsden Park	<40 km	Spoil (uncontaminated).

Appendix C – Spoil Management Plan

Appendix B9

Construction Waste and Resources Management Sub-plan

Appendix C – Spoil Management Plan

M12 Motorway – Central

January 2025

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Document control

File Name	**M12 Central CEMP Appendix B9**
Title	Construction Waste and Resources Management Sub-plan Appendix C – Spoil Management Plan
Document Number	M12CCO-SYW-ALL-EN-PLN-000010

Approval and authorisation

Plan reviewed by:	Plan endorsed by:
[redacted]	[redacted]
Seymour Whyte Environmental Site Representative	Seymour Whyte Project Manager
18/01/2025	18/01/2025
	

Revision history

Revision	Date	Description
A	18/02/2022	First draft for TfNSW review
B	29/04/2022	Updated in response to TfNSW review
C	30/06/2022	Updated in response to TfNSW review
D	27/07/2022	Updated in response to TfNSW and ER review
E	14/08/23	Updated in response to TfNSW review
F	18/01/2025	Updated in response to OCEMP update

Contents

Figures

Tables

Glossary/ Abbreviations

Abbreviations	Expanded text
CoA	Conditions of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out to complete prior to the approval of the OCEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix B of the Infrastructure Approval and approved under an environmental management plan(s) in accordance with Condition A24.
CWRMP	Construction Waste and Resources Management Sub-plan
DPE	Former NSW Department of Planning and Environment
DPIE	Former Department of Planning, Industry and Environment
EAD	Environmental Assessment Documentation
EIS	Environmental Impact Statement
EMS	Environmental Management System
ENM	Excavated Natural Material, as defined in *The excavated natural material exemption*

Environmental Assessment Documentation	The set of documents that comprise the Division 5.2 Approval: • Roads and Maritime Services (October, 2019) M12 Motorway, Environmental Impact Statement (EIS) • Transport for NSW (October, 2020) M12 Motorway, Submissions Report (the Submissions Report) • Transport for NSW (October, 2020) M12 Motorway, Amendment Report (AR) • Transport for NSW (December, 2020) M12 Motorway, Amendment Report submissions report (ARSR) • Transport for NSW (March, 2021) The M12 Motorway Amendment Report Submissions Report – Amendment (ARSR amendment) • WSP (October, 2021) M12 Motorway – West Package Detailed Design Consistency Assessment • GHD (October, 2021) M12 Motorway – Central Package Detailed Design Consistency Assessment • Arcadis (June, 2022) M12 Motorway – Sydney Water Crossings Consistency Assessment • Arcadis (July, 2022) M12 Motorway – Design Boundary Changes Consistency Assessment • Arcadis (August, 2022) M12 Motorway – Minor Consistency Assessment for Proposed Change to the M12 Motorway Project (M12 Central) • Arcadis (rSeptember, 2023) M12 Motorway – Devonshire Road Temporary Roundabout Consistency Assessment • WSP (September, 2023) M12 Motorway – Elizabeth Drive Connections Consistency Assessment • TfNSW (September, 2023) M12 Motorway – Minor Consistency Assessment M12 West demolition of structures at 752 Luddenham Road • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East AF9 Power Supply • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Cecil Road Laydown Area • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Temporary Construction Signage • Arcadis (December, 2023) M12 Motorway – East Site 48, 50 and 51 Boundary Changes Minor Consistency Assessment • Arcadis (January, 2024) M12 Motorway – Minor Consistency Assessment M12 Central Water Tower Access Road The documents that comprise the EPBC referral:

Abbreviations	Expanded text
	• Submission #3486 – The M12 Motorway Project between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham, NSW Notification of referral decision and designated proponent - controlled action; date of decision 19 October 2018; ID: 2018-8286.
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPL	Environmental Protection Licence
ERG	Environmental Review Group
ESM	TfNSW Environment and Sustainability Manager
ESR	Environmental Site Representative (Seymour Whyte)
OCEMP	Overarching Construction Environmental Management Plan
OCWRMP	Overarching Construction Waste and Resources Management Sub-Plan
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Primary CoA/REMM	CoA/REMM that are specific to the development of this Plan
Project, the	The CSSI as approved by the Minister for Planning and Public Spaces on the 23 April 2021 (SSI 9364)
QA	Quality Assurance
REMM	Revised Environmental Management Measures
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the M12 Central package
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
Secondary CoA/REMM	CoA/REMM that are related to, but not specific to, the development of this Plan
SMP	Spoil Management Plan
Spoil	Spoil is material from excavations under the Contract which is surplus to that required to complete the Works as specified, and/or material from excavations under the Contract whose quality renders it unacceptable for incorporation in the Works. Spoil includes contaminated material which needs to be disposed of outside the Site.
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services)

Abbreviations	Expanded text
VENM	Virgin Excavated Natural Material
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*

1 Introduction

1.1 Context

This Spoil Management Plan (SMP or Plan) is an Appendix of the Construction Waste and Resources Management Sub-plan (CWRMP) and forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – Central package.

This SMP has been prepared under the Overarching Construction Environmental Management Plan (OCEMP) and relevant sub-plans developed for M12 Motorway (the Project), to address the requirements of the Minister's Conditions of Approval (CoA), Revised Environmental Management Measures (REMMs) listed in the Environmental Impact Statement (EIS), Submissions Report, Amendment Report, and Amendment Report Submissions Report (ARSR), ARSR amendment report, all applicable legislation, and Transport for New South Wales (TfNSW) specifications.

1.2 Background

1.2.1 M12 Motorway (the Project)

TfNSW is planning to construct and operate the M12 Motorway (the Project) to provide direct access between the Western Sydney International Airport (WSIA) at Badgerys Creek and Sydney's motorway network. The M12 Motorway will run between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham for about 16 kilometres (km) and is expected to be opened to traffic prior to opening of the WSIA. A detailed Project description is provided in Section 2.1 of the CEMP.

1.2.2 M12 Central

Seymour Whyte has been engaged to deliver the M12 Central package. Construction of the M12 Central package involves building 7.5 km of motorway from west of Badgerys Creek to the Water Tower Access Road within Western Sydney Parklands. A detailed description of the M12 Central package is provided in Section 2.3 of the CEMP.

1.3 Scope of the SMP

The scope of this SMP is to describe how potential impacts related to the management and transport of spoil generated during construction will be managed on the M12 Central package.

1.4 Environmental Management Systems overview

The Environmental Management System (EMS) for the M12 Central package is described in Section 3 of the CEMP. To achieve the intended environmental performance outcomes, Seymour Whyte have established, implemented, maintained and continually improved an EMS in accordance with the requirements of ISO14001:2015. The Seymour Whyte EMS, which is consistent with overarching EMS described in the OCEMP, will be adopted as the guiding environmental management framework for the M12 Central package.

This SMP forms part of the environmental management framework for the M12 Central package, as described in Section 3.3 of the CEMP. This SMP has been developed consistent with the OCEMP including overarching SMP, the CWRMP and the EMS.

2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how the Seymour Whyte propose to manage spoil during construction of the M12 Central package.

2.2 Objectives

The objective of the SMP is to ensure that all avoidance, mitigation and management measures relevant to waste and resource use is managed as described in:

- Environmental Assessment Documentation
- Infrastructure Approval CoA (SSI 9364)
- TfNSW Quality Assurance (QA) Specifications
- Environment Protection Licence
- TfNSW Sustainability Strategy 2019-2023
- All relevant legislation and other requirements described in Section 3 of this Plan.

2.3 Targets

TfNSW and Seymour Whyte are committed to ensuring the responsible management of unavoidable waste and promoting the reuse of such waste in accordance with the resource management hierarchy principles outlined in the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

Spoil will be managed in accordance with the following hierarchy:

1. Avoidance of spoil generation through design and management
2. Reuse of spoil within the alignment (targeting 100% reuse of useable spoil)
3. Beneficial reuse of spoil outside the alignment for site levelling, development or rehabilitation
4. Disposal of spoil outside the alignment for a non-beneficial uses (landfilling).

Refer to Section 2.3 of the CWRMP for the waste reuse / recycling targets. The following controls will apply to the management and storage of spoil:

- Topsoil reuse will be maximised on site to minimise the import of external topsoil for revegetation and landscaping purposes wherever practicable
- The amount of spoil being generated will be reduced through the design and construction methodology to achieve a reuse/recycling target of 100% (usable spoil)
- Excess spoil (VENM and ENM) will be transported to a secure site and stored separately to prevent cross contamination. Spoil will be sampled, analysed and characterised according to the Waste Classification Guidelines: Part 1 Classifying Waste (NSW EPA, 2014).

3 Environmental Requirements

In accordance with NSW CoA A7, references in the terms of this Plan to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in at the date of the Infrastructure Approval (CSSI 9364).

3.1 Relevant legalisation and guidelines

3.1.1 Legalisation

All legislation relevant to the CWRMP and this SMP are included in Appendix A1 of the CEMP. Legislation considered during the development of this SMP includes:

- *Environmental Planning and Assessment Act 1979* (EP& A Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Protection of the Environment Operations (General) Regulation 2009*
- *Protection of the Environment Operations (Waste) Regulation 2005*
- *Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

3.1.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this Plan include:

- *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (Environment Protection Authority (EPA), 2014)
- *Waste Classification Guidelines* (EPA, 2014)
- *NSW Government Resource Efficiency Policy* (Office of Environment and Heritage, 2014)
- *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2008)
- *Environmental Sustainability Strategy 2019-2023* (Roads and Maritime, 2019)
- *Managing Urban Stormwater* ("The Blue Book") (Landcom, 2004)
- *Management of wastes on TfNSW land* (TfNSW, 2014)
- *Management of road construction and maintenance wastes* (TfNSW, 2016)
- *Technical Direction: Legal offsite disposal of TfNSW Waste* (TfNSW, 2015)
- *Technical Direction: Coal tar asphalt handling and disposal* (TfNSW, 2015)
- *Stockpile Site Management Guideline* (TfNSW, 2011)
- Roads and Maritime waste fact sheets:
    - Waste Fact Sheet 1 – Virgin Excavated Natural Material
    - Waste Fact Sheet 2 – Excavated Natural Material
    - Waste Fact Sheet 3 – Excavated Public Road Materials
    - Waste Fact Sheet 4 – Recovered Aggregates
    - Waste Fact Sheet 5 – Asbestos Waste

- Waste Fact Sheet 6 – Waste Sampling
- Waste Fact Sheet 7 – Reclaimed asphalt pavement
- Waste Fact Sheet 9 – Re-use of waste off-site.

- NSW EPA orders and exemptions
  - Compost Exemption 2016
  - Effluent Exemption 2014
  - Pasteurised Garden Organics Exemption 2016
  - The Excavated Natural Material Exemption 2014
  - The Excavated Public Road Material Exemption 2014
  - The Mulch Exemption 2016
  - The Recovered Aggregate Exemption 2014
  - The Blast Furnace Slag Exemption 2014
  - The Reclaimed Asphalt Pavement Exemption 2014
  - Treated Drilling Mud Exemption 2011
  - Stormwater Exemption 2014.
- PS311 – Environmental Design and Compliance, specifically:
  - M12 Motorway – Central Package, Sustainability Management Plan (GHD, 2021)
  - M12 Motorway - Central Package, Detailed Design 100% Detailed Design Report (GHD, 2021)
  - M12 Motorway Central - Detailed Design Contamination Investigation Report M12CDD-GHDA-ALL-CT-RPT-000010 (GHD, 2020).

3.2 NSW Conditions of Approval

There are no primary NSW CoA relevant to the development of this Plan.

3.3 Revised Environmental Management Measures

The primary REMMs relevant to the development of this Plan are listed in Table 3-1.

Table 3-1: Environmental management measures relevant to this SMP

ID	Measure/requirement	Timing	SMP Reference
W02	A Spoil Management Plan will be prepared for the Project as part of the CWRMP and in line with the CSWMP. The Spoil Management Plan will outline appropriate management procedures for the generation and importation of spoil. It will include, but not be limited to:	Prior to construction	CWRMP Section 5.2
	• Procedures for classification of spoil		Section 5.7
	• Identification of spoil reuse measures		Section 5.1

ID	Measure/requirement	Timing	SMP Reference
	• Spoil stockpile management procedures		Section 5.7 Section 5.8
	• Spoil haulage routes		Section 5.9
	• Spoil disposal and reuse locations		Section 5.5 Section 5.6
	• Imported spoil sources and volumes.		Section 5.3

3.4 Environment Protection Licence

The M12 Central package is subject to an EPL as a Scheduled Activity for 'road construction'. The EPL includes clauses requiring the licensee to minimise and appropriately manage waste from the premises. The M12 Central package will be constructed so as to meet the waste management requirements identified in the EPL.

3.5 TfNSW QA Specifications

The TfNSW QA Specifications set out the minimum requirements for the detailed outcomes in terms of quality or performance expected in the finished product for construction projects and are relevant to various construction activities on work sites to minimise impacts to the environment.

This SMP incorporates the relevant requirements to spoil management from the TfNSW QA Specifications prepared for the *M12 Motorway (Central), Construction between Badgerys Creek and the Water Tower Access Road, Cecil Hills* including:

- TfNSW G36 – Environmental Protection

The specifications set out environmental protection requirements, including Hold Points and Witness Points that must be complied with during construction of the M12 Central package. Relevant Hold Points and Witness Points for the SMP are addressed in the CWRMP, Section 7.4.

4 Environmental aspects and impacts

4.1 Required earthworks quantities

Indicative quantities of spoil required to carry out earthworks for construction of the M12 Central package are presented in Table 4-1. Overall there is a deficit on the M12 Central package requiring import of fill material from other sources to achieve an earthworks balance.

Table 4-1: Approximate bulk earthworks quantities for M12 Central package

Type of material	Approximate quantity (m^3)[1]	Comments
Total fill material required	1,023,700	• Assumed fill required for construction to underside of Select material Zone (SMZ)
Total cut material to be excavated (including topsoil)	838,650	• Cut volume based on design alignment to bottom of SMZ layer including all soil and rock units.
Total topsoil to be excavated	84,000	• Estimated quantity assumes stripping of topsoil across entire earthworks footprint. Bridging layer (R44 type E2) foundation treatment as assumed as default treatment in floodplain areas allows topsoil to remain in place. This would present a reduction in excavated topsoil.
Total topsoil cleared and unsuitable for re-use (ACM impacted)	8,400 – 21,100 (represents 10-25% unsuitable fill)	• Based on 10-25% of total topsoil removed along alignment footprint.
Estimated cut material unsuitable for reuse, excluding topsoil (geotechnical)	43,370 (represents ~5-10% unsuitable fill)	• Residual and Alluvium units assumed to be suitable for use as general fill (moisture dependent) or undergo appropriate lime treatment onsite allowing for reuse as working platform/ lower UZF material. • Estimated percentage of unsuitable material for geotechnical reuse based on calculated soil volume within alignment footprint. Contamination and re-use potential for other applications not considered. Foundation treatments with additional removal of unsuitable materials have not been considered.
Total suitable fill material required to be re-used onsite	746,350	• Assumed fill required to underside of SMZ • Residual and Alluvium units assumed to be suitable for use as general fill (moisture dependent) or undergo appropriate lime treatment onsite allowing for reuse as working platform/ lower UZF material.
Total suitable fill required for construction (balance)	312,400	• Assumed fill required to underside of SMZ

Notes:

(1) Based on M12 Central, Material and Water Re-Use and Management Plan 80% (GHD, 2021), subject to change.

4.2 Construction spoil related impacts

The potential environmental impacts associated with construction spoil use for the M12 Central package include:

- Generation of large volumes of construction waste, such as excavated soil and rock
- Generation of volumes of fill material unsuitable for reuse due to poor geotechnical quality (e.g. from farm dams, drainage features, soil bunds at Clifton Avenue and Elizabeth Drive)
- Mixing of suitable and unsuitable material/contaminated material leading to materials that would have ordinarily been reused being rendered as waste
- Inappropriate disposal of hazardous waste
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or spoil
- Disturbance of contaminated soils
- Adverse effects on flora and fauna due to contamination of water or soils
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities.

The mismanagement of waste streams has the potential to result in the following impacts:

- Excessive waste being directed to landfill
- Various type of waste being generated and stored on site, with the potential for misclassification
- Water pollution
- Land contamination.

Waste classification will be required during construction to determine appropriate spoil management and disposal, as detailed in Section 5.

Refer to the Initial Risk Register included in Appendix A2 of the CEMP and Section 4 of the CWRMP for further detail on construction spoil related impacts. A full list of management measures is included in Section 6 of this SMP to manage the construction spoil related impacts.

5 Spoil Management

Overall, there is an earthworks deficit on the M12 Central package (see Section 4.1). Imported spoil from external sources will therefore be required to meet construction requirements. Spoil material generated by construction which is not suitable for reuse on the M12 Central package will need to be exported offsite.

5.1 Identification of spoil reuse measures

A number of strategies for the management of spoil material will be used during construction to minimise waste, where feasible. Spoil reuse measures for the different types of material required for construction of the M12 Central package are presented in Table 5-1.

Table 5-1: Spoil reuse and management options

Type of material	Reuse and management options
Total fill material	Where possible, source on-site from cuts required for the M12 Central package. Alternatively, use imported material, to be sourced from other Project packages, and/or sourced locally from other TfNSW projects where practical.
Total cut material to be excavated	It is anticipated that all suitable excavated material would be reused within the site as general fill either within the same section of work or elsewhere along the M12 Central package. Cut-to-fill haulage of this nature will generally be carried out using internal haul roads, so that haulage does not contribute to traffic volumes on existing roads. Where it cannot be reused on site, material will be managed in the following order of priority: 1. Transfer to other TfNSW projects for reuse in accordance with the NSW EPA's excavated public road resource recovery order and exemption 2. Transport off-site for reuse by a third party in accordance with the relevant NSW EPA resource recovery order and exemption or to an NSW EPA licensed waste recovery facility 3. Dispose at an accredited materials recycling or waste disposal facility. Where excavated material is deemed unsuitable for reuse or emplacement due to contamination, it will be taken to a waste facility licensed to accept the waste.
Total fill deficit to be imported	Import material, locally sourced where practical
Topsoil (balance)	Where possible, topsoil stripped would be reused on site. Any material to be removed from site would be managed in accordance with the measures outlined in the CWRMP.
Select material zone (SMZ) (import)	Import material, locally sourced where practical
Pavement (import)	Import material, locally sourced where practical

Type of material	Reuse and management options
Contaminated material	Manage in accordance with CCLMP (encapsulation or off-site disposal).

5.2 Imported spoil requirements

Spoil imported to the site will be restricted to:

- Virgin excavated natural material (VENM) defined in accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997*
- Excavated natural material (ENM) classified in accordance with *The excavated natural material exemption* (NSW EPA 2014c)
- Other material approved in writing by EPA.

All imported spoil, entering the site must be accompanied by a waste classification report completed by the supplier. Material characterisation will occur before being imported to the M12 Central package in accordance with the *Waste Classification Guidelines: Part 1 Classifying Waste* (NSW EPA 2014). A s143 Notice and Waste Acceptance form will be completed before importation of spoil from each new spoil source. The section 143 Notice and Waste Acceptance form will be completed by the supplier and signed by the receiver of the imported spoil (see Table 6-1).

Before and during importation of VENM or ENM, visual inspection must be undertaken to verify that the appearance of the material is consistent with the source material description.

No imported spoil is permitted to enter the site without providing a waste classification report.

5.3 Imported spoil sources

It is estimated that around 271,120 to 290,270 cubic metres of spoil will need to be imported to facilitate the construction of the M12 Central package. This is anticipated to be derived mainly from other TfNSW projects, and primarily tunnels projects which generate large volumes of suitable natural material, which would otherwise require disposal. Co-ordination and collaboration between other TfNSW projects reduces cumulative impacts and assists in gaining an earthworks balance across NSW. A list of potential spoil import sources along with spoil availability timings is provided in Table 5-2.

Where practicable imported spoil will be sourced locally to minimise impacts from the transportation of spoil across the wider road network, including impacts to transport and traffic, air quality and waste and resources.

Table 5-2: Potential spoil sources

Project	Approximate timing of spoil availability	Proponent
M4-M5 Link	Available now, tunnelling underway	TfNSW
Sydney Metro West (Westmead to The Bays)	Tunnelling commencing from Q3 2022	TfNSW
Sydney Metro Western Sydney Airport	Station and tunnel portal excavation Q1 2022; Tunnelling commencing from Q4 2022	TfNSW

Project	Approximate timing of spoil availability	Proponent
Western Harbour Tunnel and Warringah Freeway Upgrade	Tunnelling commencing from Q2 2022	TfNSW
M6 Stage 1	Tunnelling commencing from Q1 2022	TfNSW
Beaches Link and Gore Hill Freeway Connection	Pre-tender, timing to be confirmed.	TfNSW

5.4 Spoil reuse hierarchy

The strategy for management of surplus spoil material will be guided by the hierarchy in Table 5-3.

Table 5-3: Potential spoil sources

Priority	Reuse options	Possible reuse options	Potential
1	Within M12 Central package	• Reuse spoil on the M12 Central package for fill embankments and mounds within a short haulage distance of the source • Reuse spoil as a feed product in construction materials	Preferred but limited opportunity
2	Within other Project packages	• Opportunities to reuse material between packages of the M12 Project would be considered and co-ordinated during construction	Potential
3	Environmental Work	• Reuse spoil for coastal protection such as beach nourishment and land raising • Reuse spoil in flood mitigation projects	Unlikely
4	Other development projects (including other TfNSW projects)	• Reuse spoil for fill embankments and mounds on projects within a financially feasible transport distance of the site • Reuse spoil for land reclamation or remediation projects	Potential
5	Land restoration	• Reuse sand for manufacturing concrete and shale for manufacturing bricks and tiles • Reuse spoil to fill disused facilities (for example mines and quarries) to enable either future development or site rehabilitation	Unlikely

Priority	Reuse options	Possible reuse options	Potential
6	Landfill management	• Reuse spoil to cap completed landfill cells • Reuse spoil in daily covering of landfill waste	Potential

5.5 Onsite Spoil Management

The M12 Central Earthworks Management Plan (EMP) provides Seymour Whyte's strategy for onsite spoil management. Within the EMP, Section 4.3 provides a review of the quantity and quality of site won material. In general, all site won material is only suitable for use as General Fill and there limited opportunities for reuse of site won material for upper zone formation (UZF) or select material zone (SMZ) and these materials will need to be imported from off site. The M12 Central project will generate a surplus of spoil material and the Section 4.11 of the EMP proposes a series of potential landscape features to incorporate materials surplus to the project onsite and minimise the volume of material removed from the site, however these are subject to TfNSW review and acceptance.

Section 6 of the EMP provides a detailed mass haul for the project. This outlines the staging of earthworks in each cut and fill including management of topsoil, unsuitable material and contaminated material. The mass haul also outlines which fill the general fill from each cut will be hauled to.

5.6 Spoil disposal and reuse locations

Potential spoil disposal and reuse options were assessed in Section 8.5.3 of the EIS and Section 16.5.2.3 of the Amendment Report. The selection of waste disposal and recovery facilities would be dependent on the nature and volume of waste streams generated and the capacity of the receiving facilities at the time of the waste generation.

Any spoil that cannot be reused due to contamination must be collected by a licensed waste contractor and exported to a site licenced by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a valid Resource Recovery Exemption or Order. Potential spoil disposal locations are detailed in Table 5-4. Alternative disposal locations may be utilised subject to approval of the ESR.

The NSW EPA Recovery orders and exemptions will also be applied under s143 of the POEO Act for spoil reuse. This includes the reuse of spoil for other projects or developments where approved.

Prior to off-site disposal, a Material Movement Permit must be prepared by the Site Engineer and ESR (or delegate) (Appendix A). Each load of material must be recorded on a Material Tracking Form which is cross-referenced to the appropriate Material Movement Permit. All Material Movement Permits must be recorded in a Waste Management Register (Appendix B) and reconciled against disposal dockets.

All disposal vehicles must be equipped with GPS tracking. In addition, all construction spoil haulage vehicles and construction plant must be clearly marked as being for the CSSI in such a manner to enable immediate identification by a person viewing the heavy vehicle. There must only be one CSSI form of signage on a heavy vehicle at any one time.

Table 5-4: Spoil disposal locations

Facility Name	Lawfully Received Spoil Types	EPL
Brandown Pty Ltd Lot 90 Elizabeth Drive, Kemps Creek 2171	• General solid waste (non-putrescible) excluding biosolids • Excavated Natural Material (soils) • VENM • Soils (Arsenic 40mg/kg; Cadmium 2mg/kg; Copper 200mg/kg; Mercury 1.5mg/kg; Zinc 600mg/kg; Petroleum Hydrocarbons C6-C9 150mg/kg; Petroleum Hydrocarbons C10-C36 1600mg/kg; Polycyclic aromatic hydrocarbons 80mg/kg; Polychlorinated biphenyls (individual) 1mg/kg. No Acid Sulfate Soil or Potential Acid Sulfate Soil is to be received at the Premises.)	5186 and 12618
Cleanaway Co. Pty Ltd 42-46 Charles Street, St. Marys, NSW 2760	• Contaminated soil treatment • Non-thermal treatment of hazardous and other waste	20271
Cleanaway Erskine Park Resource Management Facility 85-87 Quarry Road, Erskine Park, NSW 2759	• General solid waste (putrescible) as defined in Schedule 1 of the POEO Act • General solid waste (non-putrescible) as defined in Schedule 1 of the POEO Act	20986
Bettergrow Resource Recovery Facility, Wetherill Park. 24 Davis Road, Wetherill Park, NSW 2164	• General solid waste (non-putrescible) as defined in Schedule 1 of the POEO Act • Hazardous, restricted solid, liquid, clinical and related waste and asbestos waste • Non-thermal treatment of general waste • Non-thermal treatment of liquid waste	21092
Boral Widemere Resource Recovery Facility 38 Widemere Rd, Wetherill Park NSW 2164	• General solid waste (putrescible) as defined in Schedule 1 of the POEO Act • Soils (that meet the CTI thresholds for General Solid in Table 1 of the Waste Classification Guidelines as in force from time to time with the exception of the maximum threshold values for contaminants specified in the 'Other Limits' column) – also referred to as 'GSW-Recyclable'	11815

Facility Name	Lawfully Received Spoil Types	EPL
Dial A Dump Industries 76-82 Burrows Road, Alexandria, NSW 2015	• Soils (that meet the CTI thresholds for General Solid in Table 1 of the Waste Classification Guidelines as in force from time to time with the exception of the maximum threshold values for contaminants specified in the 'Other Limits' column) – also referred to as 'GSW-Recyclable'	4679
SUEZ Kemps Creek Resource Recovery Park 1725 Elizabeth Drive, Kemps Creek 2178	• General solid waste (non-putrescible) including waste which is subject to general or specific immobilisation approvals which have a restriction that they may only be disposed of at waste disposal facilities which have currently operating leachate collection systems • Asbestos waste • Restricted solid waste (including wastes assessed as Restricted Solids Wastes which are also subject to general or specific immobilisation approvals which have a restriction that they may only be disposed of at waste disposal facilities which have currently operating leachate collection systems)	4068
SUEZ Lucas Heights Resource Recovery Park New Illawarra Rd, Lucas Heights NSW 2234	• General solid waste (putrescible and non-putrescible) • Asbestos waste • Any waste that is below licensing thresholds in Schedule 1 of the POEO Act	5065
SUEZ Wetherill Park Resource Recovery Facility 20 Davis Road, Wetherill Park, NSW 2164	• General solid waste (putrescible) • VENM • Asbestos waste •	4548
Veolia Environmental Services Clyde Transfer Terminal Parramatta Road, Clyde, NSW 2142	• General solid waste (putrescible) as defined in Schedule 1 of the POEO Act • General solid waste (non-putrescible) as defined in Schedule 1 of the POEO Act	11763
Veolia Environmental Services Horsley Park Waste Management Facility Wallgrove Road, Horsley Park, NSW 2175	• Waste that is below licensing thresholds in Schedule 1 of the POEO Act • Asbestos waste •	11584

5.7 Spoil sampling and classification

Waste sampling and classification must occur if waste is intended for re-use or disposal off site. Waste sampling for offsite re-use of soils and aggregates shall be in accordance with the Roads and Maritime 'Waste Sampling' Environment Fact sheet. All offsite disposal of waste will be subject to classification of the material in accordance with the NSW EPA Waste classification guidelines (2014), and relevant Resource Recovery Orders.

Waste sampling and classification must be completed by a suitably qualified professional. Each Waste Classification Report will report on the sampling density and methods used to determine the waste classification in accordance with the guidelines and standards relevant to the material being classified. Refer to the CWRMP Section 5.2 for detailed requirements for classification of waste streams.

5.8 Spoil stockpile management procedures

Stockpiling of spoil was assessed in Section 5.2.3 of the EIS and Section 6.15.2.2 of the Amendment Report. The Amendment Report identified that large stockpiles will be established at AF1, AF2, AF3, AF 9, AF 10 and AF 11. As these locations are not within the M12 Central package footprint, no large stockpiles have currently been assessed for the M12 Central package.

Stockpiles for spoil will be established and managed in accordance with the *Stockpile Site Management Guideline* (TfNSW, 2011):

- More than 50 metres from a waterway
- Within or adjacent to land where the Project is being carried out
- Have ready access to the road network
- Are on relatively level land
- Do not require vegetation clearing beyond that already required for the Project
- Are above the one in 20–year ARI flood level unless a contingency plan to manage flooding is prepared and implemented
- Provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours.

Spoil may be transported between ancillary sites along the length of the Project and to offsite reuse or disposal locations (refer to Section 5.5). The location of ancillary sites, on or adjacent to land where the M12 Central package is being carried out and that have ready access to the road network, will minimise potential impacts associated with the transportation of earthworks.

5.9 Spoil haulage routes

Haulage routes for the Project were assessed in the Environmental Assessment Documentation including Section 5.24.17 of the EIS and Section 4.2.6 of the Amendment Report. Refer to Figure 5-1 for the spoil haulage routes for the M12 Central package.

The proposed haul routes for construction traffic are generally as described within Section 4.2.6 of the Amendment Report. Spoil haulage routes within the construction footprint will be formed to connect to the wider road network for offsite removal. The wider road network that would be used to bring materials in and out of the M12 Central package are the M7, Elizabeth Drive and The Northern Road. These main roads will be prioritised for spoil haulage, however the use of local roads will be required to provide access for construction work and material management activities

(amongst other construction activities). Access routes to ancillary facilities within the M12 Central package are provided in Table 5-5.

Table 5-5: Spoil haulage routes to ancillary facilities

Ancillary facility	Use	Access to and from wider road network
AF4	Concrete/asphalt batching plant Stockpile and laydown area	Clifton Avenue - Elizabeth Drive
AF5	Material and earthworks stockpile	Mamre Road - Elizabeth Drive
AF6	Material and earthworks stockpile Double handling laydown	Direct access to Elizabeth Drive
AF12	Stockpile and laydown area	Existing property access - Clifton Avenue - Elizabeth Drive
AF13	Stockpile and laydown area	Access road (to be constructed) - Salisbury Avenue - Elizabeth Drive
AF15	Stockpile and laydown area	Access road (to be constructed) - Range Road - Elizabeth Drive
AF16	Stockpile and laydown area	Existing access road to Wylde Mountain Bike Trail carpark - Range Road - Elizabeth Drive

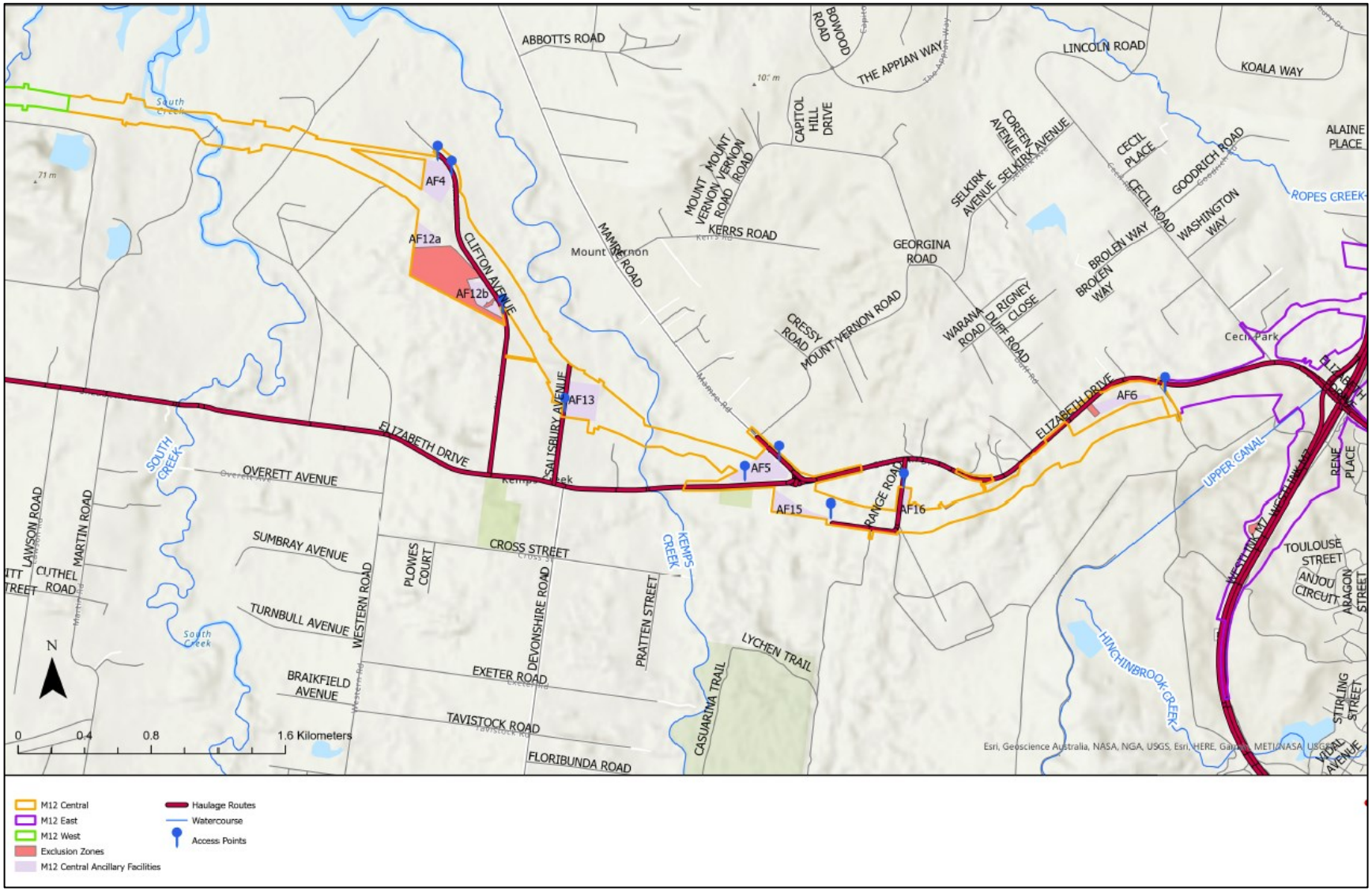

Figure 5-1: Project spoil haulage routes

6 Spoil management measures

Specific measures and requirements to address spoil issues are outlined in Table 6-1.

Table 6-1: Spoil management and mitigation measures

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
SP1	Spoil imported to site is restricted to VENM or ENM, or other material approved under a Resource Recovery Order (RRO) and Resource Recovery Exemption (RRE). Material characterisation of the imported spoil will occur before being exported to the Project site by the producer of the material at source, in accordance with the latest version of the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA 2014) and this Plan.	During construction	Construction Manager Supervisors ESR	NSW CoA E101 G36 *Waste Classification Guidelines* (EPA, 2014)	s143 Form Waste Classification Reports
SP2	A s143 Notice and Waste Acceptance form will be completed before importation of spoil from each new spoil source. The form will be completed by the supplier and signed by the receiver of the imported spoil.	During construction	Construction Manager Supervisors ESR	G36	s143 Form Waste Acceptance Form
SP3	Waste generated outside the M12 Central package will not be received at the site for storage, treatment, processing, reprocessing, or disposal unless it satisfies the NSW CoA or EPL.	During construction	Construction Manager Supervisors ESR	NSW CoA E101 and E102	Site inspections Waste management register
SP4	All sampling and waste classification reports will be retained for the life of the development in accordance with the requirements of the EPA.	During construction	Construction Manager Supervisors ESR	NSW CoA E103 and E104 G36	Availability of records

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
SP5	Wherever feasible and reasonable, spoil will be sourced from within the Sydney region.	During construction	Procurement Team	REMM W03	Procurement Strategy
SP6	All trucks entering or leaving the site will have their loads covered.	During construction	Supervisors	G36	Site inspections
SP7	Trucks will keep public roads clean and must not track dirt onto public roads.	During construction	Construction Manager Supervisors ESR	G36	Induction and training records Site inspections
SP8	All construction spoil haulage vehicles and construction plant must be clearly marked as being for the CSSI in such a manner to enable immediate identification by a person viewing the heavy vehicle. There must only be one CSSI form of signage on a heavy vehicle at any one time.	During construction	Construction Manager Supervisors ESR	NSW CoA A49	Stickers Site inspections

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
SP9	The management principles outlined in *Managing Urban Stormwater* ("The Blue Book") (Landcom, 2004) for sites with stockpiles will be implemented. Stockpiles for spoil will be established and managed in accordance with the following criteria: • More than 50 metres from a waterway • Within or adjacent to land where the Project is being carried out • Have ready access to the road network • Are on relatively level land • Do not require vegetation clearing beyond that already required for the Project • Are above the one in 20–year ARI flood level unless a contingency plan to manage flooding is prepared and implemented • Provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours.	Prior to construction and during construction	Construction Manager Supervisors ESR	*Stockpile Site Management Guideline* (TfNSW, 2011) *Managing Urban Stormwater* (Landcom, 2004)	Site inspection records

7 Compliance management

7.1 Roles, responsibility and training

The organisational structure for the M12 Central package and overall roles and responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls for spoil management are detailed in Section 6.

All personnel working on site will undergo a site induction and targeted training relating spoil management issues, detailed in the SMP. All personnel involved in the implementation of this Plan will receive training in the spoil reuse hierarchy, stockpile management and spoil haulage routes. The ESR is responsible for training and keeping records of trained staff.

7.2 Reporting

7.2.1 Monthly Environmental Report

A Monthly Environmental Report will be prepared for the duration of the M12 Central package for submission to the TfNSW ESR (or delegate). Information to be detailed in the reports includes:

- Performance of this Plan
- Summary of any complaints received that are related to spoil management.

Refer to Section 7.5 of the CEMP for further detail on environmental reporting.

7.2.2 Quarterly Sustainability Report

Quarterly Sustainability Reports will be prepared during construction of the M12 Central package providing the actual performance against the nominated sustainability targets in Section 2.3 of the CWRMP, the work that has been undertaken and the achievements that have been met, as well as identifying those areas where improvements were made. This includes the management of spoil. Further details are provided in the M12 Central Sustainability Management Plan.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Identify environmental risks not already included in the risk register
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

The ESR is responsible for ensuring stage-specific environmental risks are identified and included in the M12 Central package risk register and appropriate mitigation measures implemented throughout the construction, as part of the continuous improvement process. The process for ongoing risk identification and management during construction is outlined in Section 4.1.2 of the CEMP.

8.2 SMP update and amendment

The processes described in Section 7.7 of the CEMP may result in the need to update or revise this SMP. This will occur as needed. Any revisions to this Monitoring Program will be in accordance with the process outlined in Section 1.12 of the CEMP.

A copy of the updated SMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure (refer to Section 7.6.2 of the CEMP).

Appendix A- Material Movement Permit

SECTION 1: GENERAL DETAILS								
Completed by Environment / Engineers	**Permit No.**				**Rev.**		**Date**	
	Source Location Description				**Chainage**			
					Depth (m)	below surface material		
					Stockpile ID	*If material is stored in a stockpile*		
	Material Type				**Quantity (estimated)**		m^3 / T	
	Waste Classification	☐ General Solid	☐ Restricted Solid	☐ Hazardous Waste	☐ ENM	☐ VENM	☐ Other: ___*Specify*___	
	Special Waste (Asbestos)		☒ Yes ☐ No		If yes, ☐ Bonded ☐ Friable			
	Acid Sulphate Soils (ASS)		☒ Yes ☐ No		If yes, ☐ Treated ☐ Untreated			
	Disposal subject to Resource Recovery Exemption and Order		☐ Yes ☐ No		Exemption / Order Name and Date *Review additional requirements or reporting of the exemption and order*			
	Waste Classification Report ID	Prepared by: Title: Document Number: Revision: Date:						

SECTION 2: ON-SITE RETENTION					
Completed by Supervisors / Engineers		**Yes**	**No**	**N/A**	**Comments**
	Are materials being temporarily stockpiled?	☒	☐	☐	Stockpile number and location.
	Are materials being re-used along the alignment?	☐	☐	☐	Must be suitable for relevant land use State location within site

SECTION 3: OFF-SITE DISPOSAL		
Completed by Supervisors / Engineers	**Licensed waste facility**	**Response**
	Place of disposal (full name and address)	
	EPL License No. of receiving facility (if applicable)	
	Has Waste Class Report been sent to receiving facility?	☐ Yes ☐ No
	Consignment / booking number	

SECTION 3: OFF-SITE DISPOSAL				
	Unlicensed premises			
	Is S143 Cert been exchanged (applicable only to non-licensed facility)?	☐ Yes	☐ No	*Details*
	G36 Section 4.11.4 Hold Point released by TfNSW	☐ Yes	☐ No	*Details*
Environment	Is the material suitable for receiving facility/location?	☐ Yes	☐ No	*Details*
	Are all required documents provided?			

SECTION 4: PERMIT HOLDER				Completed by Permit Holder	
I confirm and accept the conditions stated in this Permit and associated work activity documents. I will ensure adherence to these conditions and all persons under my control will be advised accordingly.					
Name		Signature		Date & Time	

SECTION 5: PERMIT ACCEPTANCE				Completed by Environment	
I authorise work to proceed in accordance with the conditions stated in this Permit and supporting documents (Waste Classification Reports, Material Characterisation Reports)					
Name		Signature		Date & Time	

SECTION 6: COMPLETION OF WORKS				Completed by Permit Holder	
I confirm that the material movement was undertaken in accordance with the conditions of this Permit and associated documents.					
Comments/Notes from the Works:					
Name		Signature		Date & Time	

SECTION 7: PERMIT SURRENDER				Completed by Environment	
This Permit has been surrendered for the works specified					
Name		Signature		Date & Time	

SECTION 8: REVISION HISTORY (EPL 21596, Clause O5.2 e)		Completed by Environment
Where the place of disposal changes after the plan has been made, an amendment to the plan can be made as an addendum.		
Revision	**Date**	**Change**
Rev 0		*Place of disposal changes / classification changes / quantity changes*
Rev 1		

Appendix B- Material Tracking Form

To be prepared in triplicate

(White copy – source site, Blue copy – destination site, Green copy – retained in book)

Material Movement Permit Number:	

Haulage Information

Transport Company	
Operator Name	
Truck Rego / Plant ID	
Truck Type	
PLR Section	
Date / Time Loaded	
Tipping Dockets Attached *(off-site disposal)*	☐ Yes ☐ No

Material Information

Source Location (Chainage)	Depth	Material type	Destination	Volume (m^3)
			Total	

Driver (Name & Signature)

Source Foreman/Supervisor (Name & Signature)

Appendix D – Construction Water Strategy

Construction Waste and Resource Management Sub-plan

Appendix D – Construction Water Strategy

M12 Motorway

January 2025

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Document control

File Name	
Title	M12 Central CEMP: Construction Water Management Plan
Document Number	

Approval and authorisation

Plan reviewed by:	Plan endorsed by:
[redacted]	[redacted]
Seymour Whyte Environmental Site Representative	Seymour Whyte Project Manager
18/01/2025	18/01/2025
	

Revision history

Revision	Date	Description
Rev A	30/06/2022	First draft for TfNSW review with CWRMP Rev C
Rev B	25/09/2023	Updated in response to OCEMP update
Rev C	18/01/2025	Updated in response to OCEMP update

Contents

Tables

Glossary/Abbreviations

Abbreviations	Expanded text
AR	Amendment Report
ARSR	Amendment Report Submissions Report
CoA	Conditions of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out prior to the approval of the OCEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix B of the Infrastructure Approval and approved under an environmental management plan(s) in accordance with Condition A24.
CSSI	Critical State Significant Infrastructure
DAWE	Former Commonwealth Department of Agriculture, Water and the Environment (Now Department of Climate Change, Energy, the Environment and Water)
DECCW	Former Department of Environment, Climate Change and Water, now EES
DPI	Department of Primary Industries
DPE	Former Department of Planning and Environment
EIS	Environmental Impact Statement
ESCP	Erosion and Sediment Control Plan
EMS	Environmental Management System
Environmental Assessment Documentation	Collective reference to the M12 EIS (Oct 2019), Submissions Report (Oct 2020) and Amendment Report (Oct 2020), Amendment Report Submissions Report (Dec 2020) and supplementary reports as detailed in NSW CoA A1.
Environmental Representative	A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. A key point of contact for the Planning Secretary in relation to environmental performance of the CSSI.
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection Licence

Abbreviations	Expanded text
ERG	Environmental Review Group
ESM	TfNSW Environment and Sustainability Manager
ESR	Environmental Site Representative (Seymour Whyte)
EWMS	Environmental Work Method Statements
ISC	Infrastructure Sustainability Council
IS	Infrastructure Sustainability
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
OCEMP	Overarching Construction Environmental Management Plan
OCS	Overarching Communication Strategy
OCWRMP	Overarching Construction Waste and Resources Management Sub-Plan
OEH	Former NSW Office of Environment and Heritage; now EES
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Planning Secretary	Secretary of the NSW Department of Infrastructure, Planning and Environment, or delegate
Primary CoA/REMM	CoA/REMM that are specific to the development of this Strategy
Project, the	The CSSI as approved by the Minister for Planning and Public Spaces on the 23 April 2021 (SSI 9364)
RAP	Reclaimed asphalt pavement
REMM	Revised Environmental Management Measures
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the M12 Central package
Roads and Maritime	Former NSW Roads and Maritime Services. Now Transport for NSW
RMS	Resource Management Strategy
SCM	Supplementary Cementitious Material
SEARs	Secretary's Environmental Assessment Requirements
Secondary CoA/REMM	CoA/REMM that are related to, but not specific to, the development of this Plan
SEMP	Site Establishment Management Plan
SMP	Sustainability Management Plan

Abbreviations	Expanded text
tCO_2-e	Tonnes of CO_2 equivalent
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services (RMS))
VENM	Virgin Excavated Natural Material
Work	Any physical work to build or facilitate the building of the CSSI, including low impact work, environmental management measures and utility works. However, it does not include activities that inform or enable detailed design of the CSSI and generate noise that is no more than 5 dB(A) above the rating background level at any sensitive receiver.
WSA	Western Sydney Airport
WUC	Works Under Contract

1 Introduction

1.1 Context

This Construction Water Strategy (Strategy) is an appendix of the Construction Waste and Resource Management Sub-plan (CWRMP) which forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – Central package.

This Strategy has been prepared under the Overarching Construction Environmental Management Plan (OCEMP) and relevant sub-plans developed for M12 Motorway (the Project), to address the requirements of the Minister's Conditions of Approval (CoA), Revised Environmental Management Measures (REMMs) listed in the Environmental Impact Statement (EIS), Submissions Report, Amendment Report, and Amendment Report Submissions Report (ARSR), ARSR Amendment Report, all applicable legislation, and Transport for New South Wales (TfNSW) specifications.

1.2 Background

1.2.1 M12 Motorway (the Project)

Transport for New South Wales (TfNSW) is planning to construct and operate the M12 Motorway (the Project) to provide direct access between the Western Sydney International Airport (WSIA) at Badgerys Creek and Sydney's motorway network. The M12 Motorway will run between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham for about 16 kilometres (km) and is expected to be opened to traffic prior to opening of the WSIA. A detailed Project description is provided in Section 2.1 of the CEMP.

1.2.2 M12 Central

Seymour Whyte has been engaged to deliver the M12 Central package. Construction of the M12 Central package involves building 7.5 km of motorway from west of Badgerys Creek to the Water Tower Access Road within Western Sydney Parklands. A detailed description of the M12 Central package is provided in Section 2.3 of the CEMP.

1.3 Scope of the Strategy

TfNSW developed a Construction Water Strategy in accordance with REMM SWH03. TfNSW's strategy details considerations of the current and future demand of potable water within the M12 Motorway Project and considers possible alternate water sources to be used for construction, where potable water may not be required.

This Strategy has been prepared under and consistent with the TfNSW's overarching Construction Water Strategy to describe how water will be managed during construction of the M12 Central package. In the preparation and ongoing implementation of this Plan, SMART (Specific, Measurable, Achievable, Realistic and Timely) principles are to be considered and applied.

1.4 Key stakeholders

Sydney Water play a critical role for the delivery of the M12 Project as they will be one of the key providers of water used during construction. The M12 project team work closely with Sydney Water to understand the options available for water to be utilised during construction.

There are four (4) other major projects in the direct vicinity of the Project that will also require considerable volumes of water for construction and generate large volumes of water. These are the Western Sydney International Airport, Sydney Metro Western Sydney Airport, Upper South Creek Water Recycling Plant and M12 Motorway (West). Timing of these project is similar to the M12 Central with commencement during or before the 2022. The upgrading of Mamre Road is also a potential fifth project that will be under construction concurrent with those already mentioned. Further details on each of the projects is included below. Transport has also had ongoing consultation with the Western Sydney Joint Project Integrator (SJPI) facilitating discussions between WSIA and Metro Western Sydney Airport to understand the forecast combined water usage between the projects mentioned above.

TfNSW have consulted with Sydney Water to review the options for construction water. Sydney Water have raised concerns with respect to the quantity of water required for the M12 project and the volume of water available from the existing water main network.

TfNSW have provided Sydney Water with the expected construction water usage split per location as detailed in section 2 below. Sydney Water have reviewed the expected demand, provided a response as detailed below:

- Existing Cecil Park WSZ is at capacity, additional transfer is required from Liverpool. New DN900 from Liverpool to Cecil park in currently under delivery.
- In addition to the above, DN1200/DN1050 is required from Cecil Park up to western Rd is also required to accommodate M12 construction demand. This is under delivery to be completed by end of next year (Dec 2021).
- A new DN900 or DN750 along Elizabeth Drive from existing main up to Luddenham Rd and DN450 along Luddenham Rd is required. This is required to service construction at Luddenham identified in the below table (portion of the main in negotiation for delivery by TfNSW M12 Project).
- The volume per day within the DN200 is available for servicing the max construction water of 0.77 ML/day provided at Clifton Avenue North & South. Sydney Water are planning an amplification of the main to a DN300 along Clifton Avenue to be completed by 2023.
- The existing network has capacity to meet the construction water demand around Wallgrove Road, east package. The Upper South Creek Water Recycling Plant is a new water treatment facility located adjacent to M12 Central off Clifton Avenue. The treatment plant once complete will provide recycled water to the area and discharge excess treated water into the Nepean River. Sydney Water have submitted the State Significant Infrastructure Application to the Department of Planning. Sydney Water have requested that TfNSW consider recycled water as an alternate source of water for the construction activities listed in Table 3 (below) instead of potable water from the existing water main network. The options for recycled water are discussed further below

1.4.1 Community

As the M12 Project covers a significant area that will include multiple locations where potable water is used, there is the potential for impacts to the potable water supply on the community. The Construction water strategy has been developed with consolation from Sydney Water to minimise any adverse impacts to the community and to store and reuse as much water as practical.

2 Purpose, objectives and targets

2.1 Purpose

This Strategy outlines the predicted water quantities required for the M12 Central, the possible water sources and a strategy on how to meet the non-potable and water reduction targets.

This plan will also meet a key initiative of the TfNSW Environmental and Sustainability Strategy 2019- 2023. The key initiatives are as follows:

- Working with regulatory stakeholders to ensure environmentally sound opportunities to legally recycle or beneficially reuse waste materials are maximised
- Monitoring and reporting on potable and non-potable water use in areas where water scarcity occurs
- Maximising the use of non-potable water in preference to potable water where feasible.

2.2 Objectives

The key objective of this Construction Water Strategy is to ensure that water is minimised in accordance with the waste hierarchy and to appropriately manage resource use throughout construction of the M12 Central package.

2.3 Targets

The following targets for the maximising the use of non-potable water in preference to potable water where feasible:

- 33% of water demand which is sourced from non-potable water sources during construction
- 5% of water (rainwater, stormwater, wastewater, groundwater, generated/collected during construction) which is reused, recycled or reclaimed.

These targets as based in the ISC Water credits and the contractual sustainability targets as summarised in

Table 2-1 and Table 2-2 respectively.

Table 2-1: ISC Credits

Credit reference	Level 1	Level 2	Level 3	Target Level
Wat-1	Monitoring and modelling of water use is undertaken	As for Level 1 AND Monitoring and modelling demonstrates a reduction in water use compared to a base case footprint. For every reduction up to 20% for Level 3, fractions of Levels may be achieved on a sliding scale	As for level 2	2

Credit reference	Level 1	Level 2	Level 3	Target Level
Wat-2	Monitoring and modelling demonstrates that some proportion of total water use is from non-potable sources (substituting for potable).	** Fractions of Levels may be achieved on a sliding scale up to 100% for Level 3.*		

TfNSW and Seymour Whyte are committed to ensuring the responsible management of water by promoting the reuse of non-potable water to meet the contractual requirements listed in Table 3 below.

Table 2-2: M12 Central Sustainability Targets

Contract Reference	Mitigation measure
2.6 Water Efficiency a)	Undertake and report on a water balance study to estimate the quantities of potable and non-potable water uses, volumes, sources that would be used and generated during construction of the WUC.
Target 11	Percentage of water demand which is sourced from non-potable water sources during construction (33%)
Target 12	Percentage of water (rainwater, stormwater, wastewater, groundwater, generated/collected during construction which is reused, recycled or reclaimed (5%)

2.4 Estimated water Use

The EIS/AR estimated water use figures to complete the Project works. Some construction processes must use non-potable water due to affecting the strength/quality of materials. Table 4 lists out what construction activities can use non-potable water.

As listed in Table 3, Seymour Whyte will develop and maintain a Construction Phase Water Balance Study to model total water demand and potential non-potable water sources identified and secured during construction and compare to a reference case. The water balance will also include opportunities to reduce water use including the development of a Construction Water Strategy. Furthermore, Seymour Whyte will set a target for percentage of total water consumption for non-potable water demand. Relevant ISCA credits are Wat-1 and Wat-2.

Table 2-3: Estimated water use

Construction Activities	Average Water Use (ML/day)	Estimated Peak Water Use (ML/day)	From	To	Duration (months)	Total Water (mL)	Can recycled water be utilised
Dust suppression	0.240	0.400	Q2-2022	Q4-2024	24	115.2	Y
Earthworks Compaction	0.361	1.100	Q2-2022	Q3-2024	18	130.0	Y
Concrete Pavements	0.056	0.083	Q2-2023	Q3-2024	15	16.7	N
Potable water at main ancillary facility	0.005	0.008	Q2-2022	Q4-2024	30	3.2	N
Potable water at outpost sites (8)	0.017	0.025	Q2-2022	Q4-2024	30	10.1	N
Concrete bridges	0.051	0.077	Q3-2022	Q4-2024	21	21.5	N
Wheel washing and road sweeper trucks	0.010	0.029	Q2-2022	Q4-2024	30	5.8	Y
Landscaping and maintenance	0.03	0.06	Q1-2024	Q2-2025	18	10.8	Y

3 Water sources

3.1 Potable Water

Potable water would be required at a number of locations across the Project for the compounds, batch plants and use for concrete pavement. The locations of the compounds are marked on the map in Appendix A.1. Potable water will also be used fill water tanks/ carts at various locations along the existing water mains where hydrant valves are located. Where potable water is used to fill water carts between the compound locations, hydrants will be utilised that located on local road away from traffic that can be accessed safety.

Due to the limited volume/ flow of potable water available, drip feeds from water mains may be required to fill dams, temporary basins or ballast tanks at tanks farms over the course of the day.

3.2 Non- potable Water

Non-potable water source locations are listed below. There is a contract requirement to use 33% of all construction water used, as listed in Table 2-2 in Section 2.3. There are a number of sources the project can access to meet this non-potable target.

3.2.1 Treated recycled water

Tertiary treated recycled water is a suitable substitute to potable water for some of the significant construction activities as described in Section 2.4.

There are two options for the supply of treated recycled water, either trucked to site from a treatment plant or taking treated water from Western Sydney Airport. Further detail regarding the available water is included in section 3.3 below. Water could be transferred to site and stored in dams/ temporary basins/ tanks to allow the civil contractors to utilise the water as they need. The use of trucks to bring water into the Project would add a large number of vehicles to the local road networks and a greater noise impact on the community. Additional construction vehicles would increase carbon emissions, impacting the GHG contractual reduction target of GHG emissions by 10% and to the Projects ISCA rating.

An alternative to truck haulage would be to have a dedicated treated recycled water pipeline reticulated to a strategic location to service the M12 Project.

One of the suitable treatment plants would be at St. Mary's. Currently, the excess capacity from St. Mary's is pumped back to Penrith Sewage Treatment plant which ultimate discharges up to 18,000 megalitres of tertiary treated water into the Nepean River per annum (Sydney Water, (2010). The potential to generate additional income from this high value product may be a financial incentive for Sydney Water to seriously consider providing a recycled water main initially for the Project Delivery phase of the M12. This would then provide scope for recycled water to also service the delivery phases of Elizabeth Drive and Mamre Road.

3.2.2 Groundwater (Bore Water)

Along the project there are a small number of ground water bores that are used for water supply. Transfer or leasing of ground water bores is currently not permitted by the Natural Resources Access Regulator. For the use of a bore for water supply, the Project would be required apply and install their own bores. Prior to a bore being installed a study would be required to identify the quantity of the aquifer, expected flow/ pump rate through the bore, testing of the water extracted and determination of the allowable draw from the aquifer per day so as to not affect other users. A

consistency assessment would also be required to review the environmental impacts of the bore and to determine if a modification would be required

This is not currently included within the Amendment EIS and not being considered as a source for construction water and therefore this option is not being considered. If this was to be considered, a Consistency Assessment must be completed and approved under Section 91 of the *Water Treatment Act 2000* to construct a bore to extract groundwater, as there is no exemption under Part 4, Division 4.7, Section 4.41 of the Environmental Planning and Assessment Act 1979.

3.2.3 Rainwater Captured on Site

There are opportunities to use sediment basins for water storage on site. Once water has been treated in sediment basins and approved for discharge, water can either be transported to temporary storage areas for re-use in the earthworks or pumped into watercarts for re-use as dust suppression and during earthworks compaction.

There are also opportunities to have site sheds with rainwater tanks, having the site facilities to utilise rainwater capture.

The conditions of the EPL will have to be assessed and negotiated if water is to be stored longer than 5 days after a rain event.

3.2.4 Dams

The detail below has been extracted from the Metro Western Sydney Airport Environmental Impact Statement Water provide by Metro for Re-use in construction would be required to be clean and chemical free and pose any risk to human health.

The excavation of the tunnels, stations and shafts is likely to intercept groundwater, resulting in the need to capture, treat and reuse or discharge water. Treated water would be recirculated to the tunnel cutting face and also used for surface dust suppression. Treated water that could not be recirculated would be discharged from the sites via construction water treatment plants.

The reuse of treated water would be maximised during the construction works. Where surplus treated water needs to be discharged from the sites, it may be discharged to the local stormwater system or to a surrounding local watercourse.

Other reuse options including Sydney Water trade waste agreement(s) and use of treated water at nearby projects (such as Western Sydney International and M12 Motorway) would be investigated during construction planning. Table 5 below outlines an approximate discharge flow adjacent to the M12 Project.

Table 3-1: Indicative Discharge of treated groundwater

Location	Discharge Point	Indicative Discharge Volume (litres per second (L/s))
Off-airport		
Aerotropolis Core	Thompsons Creek	10
On-airport		
Western Sydney International tunnel portal	Badgerys creek via Western Sydney International swale	10

Location	Discharge Point	Indicative Discharge Volume (litres per second (L/s))
Airport terminal	Badgerys Creek via Western Sydney International Swale	10

Opportunities for water discharge points will be assessed as construction progresses, allowing for the water strategy to adapt to the changing construction footprint and interface with other large construction projects in the vicinity of works.

3.2.5 River Water

Schedule 4 of the Water Management (General) Regulation 2018 provides exemption for TfNSW to use water for dust suppression having considered the environmental impact of such an activity. River water from the Nepean River at Wallacia may be able to be extracted for use as dust suppression, earthworks compaction and concrete batching. This option will only be considered as the preferred contingency during any prolonged dry spells and droughts. The disadvantage of utilising river water for construction use is the additional trucks required on the local road network.

3.3 Western Sydney Airport

Western Sydney Airport have advised that a dedicated pipeline from Glenfield Water Recycling (TBC) plant has been constructed into WSA and will be operational by the end of 2022. The pipeline is currently providing treated water to the WSA site to be used for construction activities and will continue to provide treated water until the end of 2022. WSA have confirmed that the volume of water available per day exceeds the daily needs for the M12 project by up to 4ML/ day, (for west and central sections) and this water will be available for use by the M12 Project. The pipeline currently provides a feed into Basin 1 within WSA, refer to Appendix B for locality, which the M12 Project would be able to install a temporary filling station from this basin.

Post 2022, WSA are not able to confirm if treated water will continue to be available but have confirmed the pipeline will become a potable water pipeline that the M12 could also use as a supply for construction water, Arrangements for the supply of Water to the M12 project are included within the interface agreement between TfNSW and WSA Co.

Seymour Whyte will assess the potential to access the pipeline in future works as per interface agreement between TfNSW and WSA Co.

3.4 Future Sydney Water Projects

Sydney Water are developing a number of pipelines with the vicinity of the Project to increase the volume of potable water available within the area. These include large pipelines into and out of the Water Reservoir located in the East package, referred to Promac by Sydney Water, additional pipelines from the Promac pipelines and amplification of some of the existing mains. The development of the new and future pipelines provides an increase of available potable water per day from the existing water main network. The first of the Promac pipelines is a DN900 pipe from the Liverpool Reservoir into the Cecil Hill Reservoir. This will be able to provide a minimum flow rate of 838l/sec into the Cecil Hills Reservoir. The second of the Promac pipelines is a DN1200 pipe from the Cecil Hills Reservoir heading west. This pipe will be delivered in multiple stages. Both these pipelines are in the delivery stage with works under way and plan to be operational prior to the end of 2021.

Some of these pipelines are programmed for delivery in mid-2021 to 2022 and will provide additional potable water capacity to the Project. Seymour Whyte will be in communication with Sydney Water throughout the duration of the project and will continue to assess water access opportunities that will best meet the contractual agreements, taking into account the overall reduction figures for GHG emissions (trucks and haulage).

4 Water minimisation strategies

Reduction strategies proposed for the central package that potentially can be implemented during construction. The below strategies listed in the EIS/ AR will be assessed by the construction team during site implementation.

Table 4-1: Opportunities for the Central Package water strategy

Source	Volume	Reliability	Cost	Cost Benefit	Social and Environmental	Approvals / Licences
Potable Water	Sydney water are able to provide the volume of potable water required per day. They have not indicated expected flow rates. Existing mains are a 150mm main along Clifton Avenue , 150mm main along Salisbury Avenue, 300 and 450 main along Elizabeth Drive Potable water could be utilised to drip feed dams if the flow/ volume per day is not achievable from the existing watermain networks	Sydney Water have advised that the existing potable water network will have capacity to supply all the water needs of the Project. Potable water may be used to fill dams/ ballast tanks	Charge per litre of potable water used and will included generally with the contractors rates	Provides the highest cost benefit as would be sourced directly adjacent to the project with minimal additional work required.	May impact water availability for local residents if used as primary source. Easier to control volume required and less risk of water storage	Nil

Source	Volume	Reliability	Cost	Cost Benefit	Social and Environmental	Approvals / Licences
Treated Recycled Water from Sydney Water	Table 4 in Section 2.4 the Central package could utilise up to 251 ML of treated recycled water part of which could be trucked to site	Peak treated recycled water usage for the Central package could be approximately 1.6 ML. The Sydney Water treatment plants have sufficient discharge to provide the required volume.	Trucking treated recycled water would be an extremely expensive option with road tankers carrying approximately 68,000 litres. The Central could take treated water from the Quakers hill treatment facility	Provide little cost benefit to the project but may be required if alternate water sources cannot supply adequate volumes for the project.	Large number of increased trucks on the local road network. Increased noise for local residents	Approval for the modification of a water recycling plant
Bore Water	Volume available unknown at present	Reliability unknown	Cost to be provided by engineers	Water could be readily sourced as and when required	Minimal additional vehicles on local roads.	

Source	Volume	Reliability	Cost	Cost Benefit	Social and Environmental	Approvals / Licences
Ground Water / Rainwater captured on site	All the dam reviewed as part of the dam assessment completed for the M12 project were either within the formation of the M12 or outside the project boundary. It is considered that there will be little opportunity for the Central package to utilise any existing dams. If the temporary storage basins between the edge of the formation and motorway boundary, the central package could allow for storage of up to 17.2 ML of water	The use of temporary basins are not readily available for the contractor and would have to be constructed. Contractors will need to consider water loss to evaporation and absorption into the earth.	Minimal volume available to store within existing dams. Numerous temporary basins would be required along the corridor and filled in at the completion of the works.	Provides a moderate cost benefit but mat have to filled in at the end of the project. Will likely have to be filled with potable and recycled water.	No social impact to storing water onsite. Increased environmental risk if dirty water leaves site uncontrolled	EPL conditions

Source	Volume	Reliability	Cost	Cost Benefit	Social and Environmental	Approvals / Licences
Western Sydney Airport	WSA have indicated that a large surplus of water will be available during 2022 and 2023 that would be able to cater for the west and central package	WSA have indicated that they will be able to provide the peak volume of water per day required for the west and central package.	Cost arrangements for supply of water from WSA are still to be agreed. Contractors would need to install a suitable pump and stand pipe for filling water carts. If utilised by the Central package, filling station would need to be located so as not to interface with west contractor. Cost of transporting water from the west package to the central package for storage or usage direct from water carts	Water provided by WSA will provide a major cost benefit due to the close proximity to the West Package. Contractors would still incur a cost for moving the water to the limits of the west package	Reduces distance trucks transporting water would be required to travel but will add additional vehicles on the road network	Execution of Interface Agreement currently under negotiation. Consideration of the Principal contractor in the west package as they will likely maintain the discharge points

Source	Volume	Reliability	Cost	Cost Benefit	Social and Environmental	Approvals / Licences
Water minimisation	Use of all the methods listed above may reduce water consumption by 2-4%	Extremely reliable	Cheaper than providing water carts constantly however could only seal long term haul roads	Needs constant maintenance if tracked over polymers. Polymers are ineffective on haul roads. Longer term temporary haul roads would only be viable with bituminous chip seal.	Reduces consumption of potable water and runoff into local catchment	Nil

4.1 Water Assessment

As stated in the EIS/ AR, the following figures have been estimated for the Central Package Average Daily Water Consumption:

- Potable water required for compounds and concrete works: 0.139ML
- Site water captured and re-used/ stored in dams: 0.1ML
- Potable water required to drip feed dams: 0.5ML
- Water minimisation initiatives implemented, assume 1% reduction: 0.007ML Saved

Peak Water Consumption During Dry Months – assumes 5months per year

- Minimum potable water required for compounds and concrete works: 0.208ML
- Site water captured and re-used/ stored in dams: Assume dams at minimal capacity: 0.1ML
- Potable water required to drip feed dams: 0.95ML
- Potable water/ Trucking of Treated Recycled Water from WSA: 0.39ML
- Water minimisation initiatives implemented, assume 2% reduction: 0.03ML Saved

Peak Water Consumptions during Wet Months

- Minimum potable water required for compounds and concrete works: 0.208ML
- Site water captured and re-used/ stored in dams: Assume dams at full capacity: 0.75ML
- Potable water required to drip feed dams: 0.75ML
- Water minimisation initiatives implemented, assume 2% reduction: 0.03ML Saved

Approximate Total Volume of Water for Central Package

- Minimum potable water required for compounds and concrete works: 59ML
- Site water captured and re-used/ stored in dams: Assume dams at full capacity: 32ML
- Potable water required to drip feed dams: 152.8ML
- Potable Water/ Trucking of Treated Recycled Water from WSA, assume up to 15%: 50ML
- Water minimisation initiatives implemented, assume 2% reduction: 6.2ML saved

Additional costs of transporting recycled water from the west package to the central package include:

- Volume of Water Cart – 30,000L
- No. Loads Per Day - 12
- No. Trucks Required – 2 Cost Per Day Per Truck – $2000.000, Total $4, 000.00 per day
- Days Per Month – 20
- Cost for five months at 20 days per month for 2 years - $800,000.00

4.2 Water reduction strategies

Where available and practicable, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources (e.g., treated water from sediment basins, harvested rainwater) will be used in preference to potable water. The relevant target, as mentioned in section 2.3, is to source 33% of water from non-potable sources. To meet these targets, there are a number of strategies that the Contractors will be able to implement to reduce the water demand over the life of the project. Some potential strategies are listed in Table 6. Resource conservation opportunities assessed by Seymour Whyte are listed in Table 7 below.

Table 4-2: Resource conservation opportunities

Resource	Conservation opportunities
Potable water	• Use of non-potable alternatives (e.g. stormwater, harvested rainwater, recycled water or treated water from sediment basins) • Use of non-potable water for concrete batching plants • Use of non-potable water for landscaping • Minimise the use of water filled barriers where feasible • Use of waterless urinals • Use of water efficient taps and fittings • Use of non-potable water for non-destructive digging • Where available and practicable, will be used in preference to potable water, e.g. for dust suppression • Application of dust suppressant polymers.

4.3 Water abstraction Management

Construction will be managed in accordance with this Plan, with the aim of reducing the use of potable water and the overall for construction and meet the non-potable water targets.

As listed in Table 4, around 302.5 ML of water would be required for construction. This would comprise of a core potable water demand of about 51.5 ML per year and recycled water of about 251 ML in total.

Seymour Whyte will not abstract water from waterways or from groundwater without obtaining all required approvals and written approval from TfNSW. If the proposed source is other than a town water supply or natural water source, procedures for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment will be developed.

Table 9 provides a summary of the proposed reuse water sources for the M12 Central package and the associated approval and licence. The use of reclaimed water will comply with the requirements of TfNSW Environmental Direction 19: Use of Reclaimed Water.

Table 4-3: Water use sources

Source	Licence and approvals
Farms dams within the construction footprint	EPL Conditions

Source	Licence and approvals
	Exempt under the *Water Management (General) Regulation 2018 (NSW) (Regulation)*
Temporary sediment basins	EPL Conditions
Western Sydney Airport recycled water sourced from a dedicated pipeline from Glenfield Water Recycling	Execution of Interface Agreement with WSA Co. Site specific resource recovery order (order) and resource recovery exemption (exemption)
Sydney Metro's Western Sydney Airport tunnel water treatment plants	Execution of Interface Agreement with Sydney Metro Site specific resource recovery order (order) and resource recovery exemption (exemption)
Groundwater (installation of new groundwater bores on site) (Note: this source is not included within or assessed by the Environmental Assessment Documentation as a source for construction water)	A consistency assessment to review the environmental impacts of the bore and to determine if a modification would be required. An aquifer interference approval under Section 91 of the Water Management Act 2000
River water local waterway	Schedule 4 of the Water Management (General) Regulation 2018 provides exemption for TfNSW to use water for dust suppression having considered the environmental impact of such an activity.

Where water abstraction from local waterway is proposed a qualified aquatic ecologist will be engaged to assess if it is suitable for water abstraction and for when pumping should cease. Any pumps used in natural waterways should be screened with mesh no greater than 5mm.

If the proposed source is other than a town water supply or natural water source, a monitoring procedure will be developed and implemented for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment.

4.4 Dewatering Management

Dewatering is any activity that involves the removal of ponded stormwater or infiltrated groundwater from any location within the M12 Central package (including from sediment basins and dams) and the subsequent reuse or discharge of that water.

Seymour Whyte will plan to avoid and minimise discharges as much as practicable, while complying with the conditions of the EPL, and undertake dewatering activities in a manner to minimise erosion and pollution of the environment. The M12 Central package is subject to an EPL which will include discharge criteria for licenced discharge points. The specific discharge criteria will be confirmed as part of consultation with the EPA and award of an EPL.

A Dewatering Management Plan with a Trigger Action Response Protocol (TARP) outlines disposal options. The Dewatering Management Plan is located in the Construction Soil and Water Management Plan (CSWMP) Appendix D.

The Dewatering Management Plan includes details on the treatment of water when a flocculant or coagulant is necessary to settle suspended sediments. Where a flocculant or coagulant other than

gypsum is proposed to treat site water, the ESR will demonstrate that the proposed flocculant or coagulant is suitable for use and will submit the application using the TfNSW template “Alternative flocculants and coagulants – template to propose use”.

5 Compliance management

5.1 Roles and responsibilities

The organisational structure for the M12 Central package and overall roles and responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 7 of this Plan.

5.2 Training

To ensure that this Strategy is effectively implemented, all site personnel (including sub-contractors) will undergo site induction training relating to water management and documentation before construction commences including:

- Relevant legislation / regulations
- Dewatering procedures
- Site documentation and reporting requirements, and
- Incident response, management and reporting.

The ER will review and approve the induction and training program prior to the commencement of construction and monitor implementation. EWMS will be updated and reviewed regularly by the ER outlining approved water connections and water discharge points for use.

Daily pre-start meetings conducted by the Foreman / Site Supervisor (or delegate) will inform the site workforce of any environmental issues relevant to resource management that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are provided in Section 5.3 of the CEMP.

5.3 Inspections and monitoring

Inspections will include daily site inspections by Site Supervisors, and weekly site inspection by environmental personnel during construction as a minimum. The frequency of inspections may be increased to reflect the risk associated with potential impacts during adverse weather conditions or during specific construction activities.

Site inspections will be recorded (along with actions and issues observed) and actioned appropriately within agreed timeframes. These inspections will be recorded as part of the Weekly Environmental Inspection Checklist. Additional requirements and responsibilities in relation to inspections are documented in Section 5.1 of the CEMP.

Weekly and other routine inspections by the TfNSW ESM (or delegate), the Environmental Review Group (ERG) representatives and the ER will also occur throughout construction. Detail on the nature and frequency of these inspections are documented in Section 7.1 of the CEMP.

5.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of waste and energy management measures, and compliance with this CWRMP, CoA and REMMs, and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 7.4 of the CEMP.

5.5 Reporting

Reporting requirements relevant to the water use are identified in Table 10. Water outlets will be monitored for water use and construction crews will collect and keep legible copies of all water movements (haulage, dust suppression) in relation to where water is used on site. Requirements and responsibilities for reporting are further described in Section 7.5 of the CEMP.

Accurate records will be maintained substantiating all construction activities associated with the M12 Central package or relevant to the conditions of approval, including measures taken to implement this Strategy. Records will be made available to the DPIE and Commonwealth Department of Agriculture, Water and the Environment (DAWE) upon request, within the timeframe nominated in the request.

Table 5-1: Reporting requirements relevant to this plan

Item	Frequency	Standards	External reporting	Responsibility
Monthly Environmental Report	Monthly	Reporting as required by TfNSW G36 Specification, Section 3.11.1.2, including: The quantity, final location and EPA Exemptions utilised for materials taken offsite to a non-licenced waste facility. The sustainability section of the monthly report will provide a monthly update on the performance against the sustainability targets which are consistent with the targets in Section 2.3 of this Plan.	TfNSW	ESR
Quarterly Sustainability Report	Quarterly	Reporting as described in the M12 Central Sustainability Management Plan, including: • Records of resource usage during construction work (e.g. energy, water, fuel, oil, etc.)	TfNSW	Sustainability Manager

6 Review and improvement

6.1 Continuous improvement

Continuous improvement of this Strategy will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Identify environmental risks not already included in the risk register
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

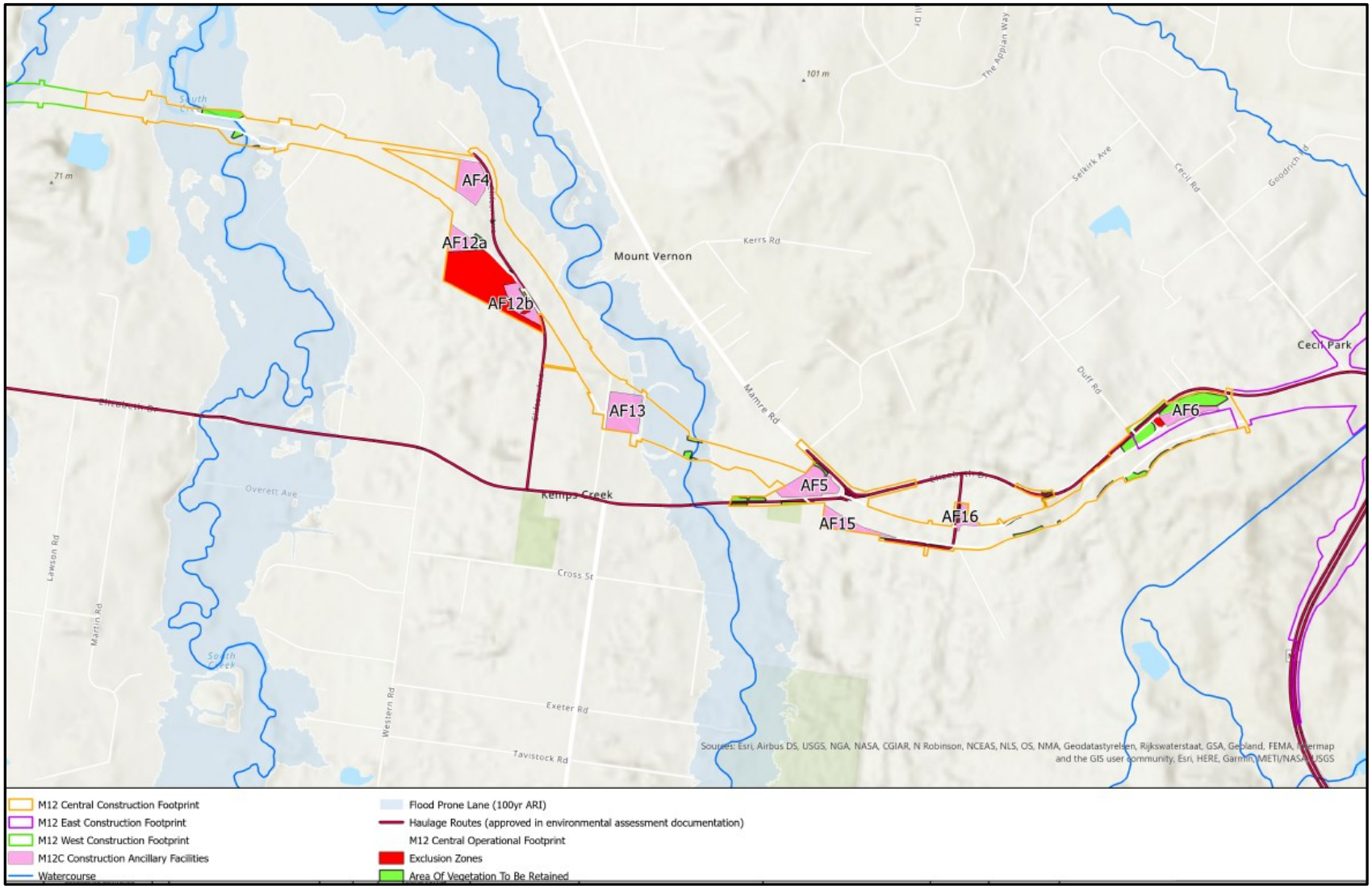
The ESR is responsible for ensuring stage-specific environmental risks are identified and included in the M12 Central package risk register and appropriate mitigation measures implemented throughout the construction, as part of the continuous improvement process. The process for ongoing risk identification and non-conformance management during construction is outlined in Section 4.1.2 of the CEMP.

6.2 Strategy update and amendment

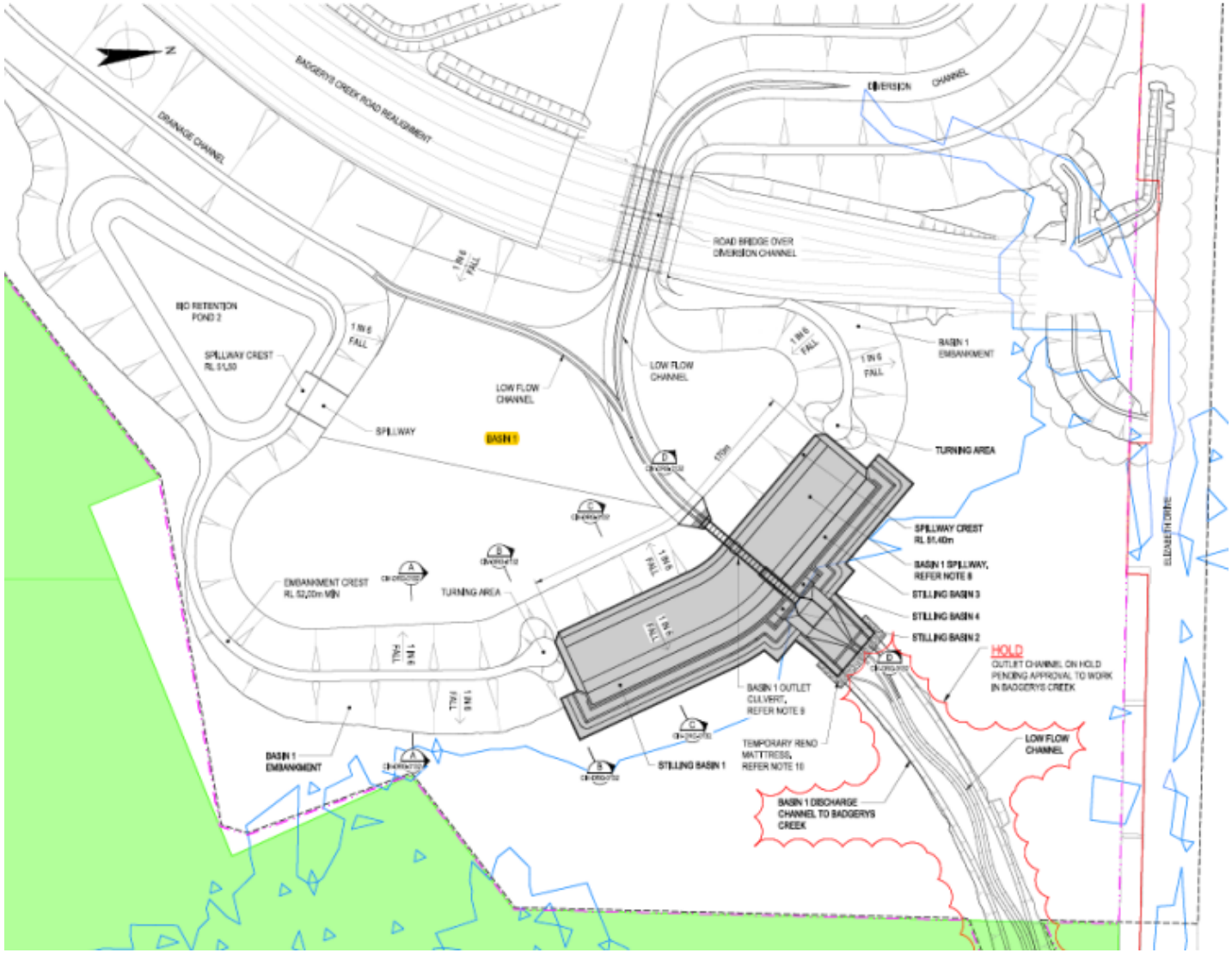
The processes described in Section 7.7 of the CEMP may result in the need to update or revise the Strategy. This will occur as needed. Any revisions to the Strategy and other Sub-plans will be in accordance with the process outlined in Sections 1.12 of the CEMP.

A copy of the updated Strategy and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

Appendix A: M12 Central compound locations requiring potable water



Appendix B: Basin 1 within Western Sydney Airport



Appendix F – Template letter to owner and/or occupier receiving the waste and Notice under section 143 (ETD 2015/020)

ORIGINAL: TO BE COMPLETED BY LANDOWNER AND GIVEN TO WASTE TRANSPORTER OR DISPLAYED AT WASTE FACILITY

APPROVED NOTICE UNDER SECTION 143

PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

WARNING: If you sign this notice it could be used as a defence by a transporter if they deposit waste on your land. It does not give you a defence. It is an offence to provide false or misleading information about waste (section 144AA)

I (*full name*) ……

am the owner and/or occupier (*delete if not applicable*) of (*insert street address and/or folio identification number of place*):

……

……

certify that this place can lawfully be used as a waste facility for the **waste(s) specified** in the following table.

(Note: you must clearly state the exact type. Do not use terms like 'fill' or 'clean fill'.)

Table of specified wastes

Type of waste e.g. virgin excavated natural material	**Classification of waste** e.g. general solid waste	**Amount of waste** e.g. 50 tonnes
……	……	……
……	……	……
……	……	……
……	……	……

Before signing this notice you should read the back of this form for important information about offences.

Signature	……	Signature	……
Name	……	Name	……
Position title (e.g. director, owner, occupier)	……	Position title (e.g. director, owner, occupier)	……
ACN	……	ACN	……
Date	……	Date	……

Note that only one signature is required if the person signing this notice is **not** signing on behalf of a company.

Lawful authority to use place as waste facility for the specified waste

The place can lawfully be used for the types of waste described in the notice **because** (Delete whichever is not applicable):

A. This use is permitted by EPA licence number: ……

Or

An EPA licence is not required (for example, a resource recovery exemption may apply)

And because (Delete whichever is not applicable):

B.The place has consent or approval under the *Environmental Planning and Assessment Act 1979* for the uses described in the table above.

Or

The place can be used as a waste facility without consent or approval under the *Environmental Planning and Assessment Act 1979*.

The use(s) for the waste at the place are: …….

Land owners and occupiers should note that it is an offence to use land as a waste facility without lawful authority, see section 144 of the *Protection of the Environment Operations Act 1997* (POEO Act). It is also an offence to carry out an activity listed in Schedule 1 to the POEO Act without and Environment Protection Licence when one is required (see section 48). Offences carry a maximum penalty of $250,000 for an individual and $1,000,000 for a corporation. In the case of a continuing offence, a further penalty applies for each day the offence continues, being $60,000 for an individual and $120,000 for a corporation.

Regardless of this notice, any person who carries out any development or activity on land involving waste must ensure they comply with any planning requirements including obtaining any planning consent or approval and complying with any conditions attached to that consent or approval

Information about this notice

Waste is a very broad concept under the law and covers many types of materials you may not think of as waste; for example, it covers waste tyres, building and demolition materials and virgin excavated natural material.

Under the POEO Act, a waste facility includes any premises used for storage, treatment, processing, sorting or disposal of waste. For example, if you are planning to build a road or dam, or fill a gully, this could involve using your place as a waste facility.

Section 143 of the POEO Act makes it an offence to transport waste to a place that cannot lawfully be used as a waste facility for that waste. The notice above is the approved notice under section 143 (3A) of the POEO Act. If you sign this notice it may be used as a defence by a transporter if they are charged with unlawfully transporting or depositing waste on your land. It does not give you a defence to using your land as a waste facility without lawful authority.

If you sign this notice, you should give it to the transporter or display it at the waste facility. The transporter should keep the original and you should keep a copy.

If the landowner or occupier signing this notice is a company, the full name of the company and ACN should be used and the notice must be executed in accordance with the Corporations Law.

If you operate an unlicensed landfill site for business or commercial purposes you should contact the EPA to discuss reporting and operating requirements.

If you are not sure if you require an EPA licence you can ring the Environment Line on 131 555.

You are likely to need development consent to use your land as a waste facility. If you are not sure if you require development consent you should contact your local council.

COPY: TO BE KEPT BY LANDOWNER AND KEPT FOR RECORDS

APPROVED NOTICE UNDER SECTION 143

PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

WARNING: If you sign this notice it could be used as a defence by a transporter if they deposit waste on your land. It does not give you a defence. It is an offence to provide false or misleading information about waste (section 144AA)

I (*full name*) ……

am the owner and/or occupier (*delete if not applicable*) of (*insert street address and/or folio identification number of place*):

……

……

certify that this place can lawfully be used as a waste facility for the **waste(s) specified** in the following table.

(Note: you must clearly state the exact type. Do not use terms like 'fill' or 'clean fill'.)

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