

JHCPB Joint Venture

Waste Management Sub-plan

RIC-JHC-MPL-00-PL-250-003

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Glossary/ Abbreviations

Abbreviation	Expanded text
AQMP	Air Quality Management Sub-plan
ASS	Acid Sulfate Soils
CEMP	Construction Environmental Management Plan
CLM Act	<i>Contaminated Land Management Act 1997 (NSW)</i>
CoA	Conditions of Approval
CSSI	The Critical State Significant Infrastructure, as described in Schedule 1, the carrying out of which is approved under the terms of the SSI 7485 approval
DECC	Former Department of Environment and Climate Change
DPIE	NSW Department of Planning, Industry and Environment
EHC Act	<i>Environmentally Hazardous Chemicals Act 1985</i>
EIS	M4-M5 Link Environmental Impact Statement
ENM	Excavated Natural Material, as defined in the excavated natural material exemption
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
EWMS	Environmental Work Method Statements
Feasible and reasonable	Feasible means actions to reduce impacts and is capable of being put into practice or engineered and practical to build given project constraints. Reasonable means selecting reasonable measures from those that are feasible based on whether the overall benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the measure.
FFMP	Flora and Fauna Management Sub-plan
FMC	Forest Management Certification
GREP	NSW Government Resource Efficiency Policy 2016
Hold point	A verification point that prevents work from commencing prior to release from RMS
IS	Infrastructure Sustainability
ISCA	Infrastructure Sustainability Council of Australia
JHCPB	John Holland CPB Contractors Joint Venture
NGER	National Greenhouse and Energy Reporting
PASS	Potential Acid Sulfate Soils
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Project, the	Design and Construction of Rozelle Interchange Project
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the Project.
REMM	Revised Environmental Management Measures
Roads and Maritime	Roads and Maritime Services
s.143 Notice	Section 143 notice, a signed notice under section 143(3A) of the Protection of the Environment Operations Act 1997 (NSW) ("POEO Act")
Secretary	Secretary of the NSW Department of Planning and Environment or nominee, whether nominated before or after the date on which this approval was granted
SPIR	M4-M5 Link Submissions and Preferred Infrastructure Report
SSWMP	Soil and Surface Water Management Sub-plan
TfNSW	Transport for NSW (former RMS)
TTAMP	Traffic and Transport and Access Management Sub-plan
VENM	Virgin Excavated Natural Material as defined in Schedule 1 of the Protection of the Environment Operations Act 1997
WARR	Waste Avoidance and Resource Recovery
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001 (NSW)</i>

1. Introduction

1.1. Context

This Waste Management Sub-plan (WMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Design and Construction of Rozelle Interchange Project (the Project).

This WMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), Project Approvals and all applicable guidance and legislation.

1.2. Background and project description

The M4-M5 Link EIS (AECOM 2017) assessed the impacts of construction and operation of the Project on resource use and waste management, within Chapter 23 (Resource use and waste minimisation).

The EIS identified the potential for resource consumption and impacts of waste generation requiring waste minimisation and management during construction of the Project. This was typically associated with the generation of construction and demolition waste, vegetation waste, packaging materials and liquid wastes. All wastes would be managed using the hierarchy approach of waste avoidance and resource recovery before consideration of waste disposal.

The EIS concluded that any potential impacts regarding waste generation and resource recovery could be managed by standard mitigation and management measures described in this WMP.

Please refer to Section 1.3 of the CEMP for the Project Description.

1.3. Scope of the Sub-Plan

The scope of this Plan is to describe how John Holland CPB Contractors Joint Venture (JHCPB) proposes to manage waste and resource recovery during construction of the Project. This sub-plan relates to the Project works and activities described in the WestConnex M4-M5 Link Planning Approval, specifically those works listed under Stage 2 of the A12 Staging Report.

Operational waste management measures do not fall within the scope of this Plan and therefore are not included within the processes contained within this Plan.

1.4. Environmental management systems overview

The environmental management system overview is described in Section 1.5 of the CEMP.

2. Purpose and objectives

2.1. Purpose

The purpose of this Plan is to describe how JHCPB proposes to manage waste during construction of the Project. This Plan also explores relevant aspects of resource recovery and management and sustainability requirements for the Project; for detailed information regarding sustainability refer to the Project's Sustainability Strategy and Sustainability Management Plan.

2.2. Objectives

The key objective of this WMP is to ensure all CoA, REMMs and licence/permit requirements relevant to waste management are described, scheduled and assigned responsibility as outlined in:

- All documents listed in CoA A1,
- Conditions of Approval: SSI-7485,
- Roads and Maritime Services (Roads and Maritime) QA Specifications G36 and G40,
- The Project's Environment Protection Licence (EPL), and
- All relevant legislation and other requirements described in Section 3.1 of this Plan.

2.3. Environmental Performance Outcomes and Targets

The desired environmental performance outcome for waste management, as outlined and addressed in the EIS, is that all wastes generated during the construction of the Project are effectively minimised, stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.

To achieve this outcome, JHCPB will undertake the following, as identified in Table 1.

Table 1 Performance outcomes

No.	Performance outcome	Source	Document reference
1	Impacts will be minimised through mitigation measures implemented to address the relevant CoA and the safeguards detailed in the EIS and SPIR, REMMs and all other relevant legislation and requirements	CoA C5	Section 7
2	80% of usable spoil (uncontaminated surplus excavated material) reused/recycled	EIS, Appendix A Sustainability Strategy	Section 5.1.2
3	Manage off-site waste re-use in accordance with relevant NSW Environment Protection Authority resource recovery exemptions and requirements	EIS, Appendix A	Section 5.1.2
4	Dispose of waste at appropriately licensed facilities	EIS, Appendix A	Section 5.1.3, 5.1.5
5	80% of construction and demolition waste (uncontaminated material excluding spoil) reused/recycled	Sustainability Strategy	Section 5.1.2
6	15% of water (rainwater, stormwater, wastewater, groundwater, tunnel inflow water) generated/collected during construction which is reused, recycled or reclaimed	Sustainability Strategy	Section 5.1.2
7	5% of water (rainwater, stormwater, wastewater, groundwater, tunnel inflow water) generated/collected during operation which is reused, recycled or reclaimed	Sustainability Strategy	Section 5.1.2

3. Environmental requirements

3.1. Relevant legislation and guidelines

3.1.1. Legislation

Legislation relevant to waste and resource management for this project includes:

- *Environmentally Hazardous Chemicals Act 1985*
- *Protection of the Environment Operations Act 1997* (NSW)
- *Protection of the Environment Operations (Waste) Regulation 2014* (NSW);
- *Waste Avoidance and Resource Recovery Act 2001* (NSW); and
- *Work Health and Safety Act 2011* (NSW).

Relevant provisions of the above legislation are explained in the legal and compliance tracking register included in Appendix A1 of the CEMP.

3.1.2. Guidelines and standards

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

- NSW Waste and Resource Recovery Strategy 2014-21 (EPA, 2014),
- NSW Government Resource Efficiency Policy (GREP) (OEH 2014),
- Waste Classification Guidelines (EPA 2014),
- Management of Wastes on Roads and Maritime Services Land (Roads and Maritime 2014),
- Management of road construction and maintenance wastes (Roads and Maritime 2016),
- Technical Direction: Legal offsite disposal of Roads and Maritime Services Waste (Roads and Maritime 2015),
- Technical Direction: Coal tar asphalt handling and disposal (Roads and Maritime 2015),
- Stockpile Site Management Guideline (Roads and Maritime 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 (RAP),
 - Waste Fact Sheet 9 – Re-use of waste off-site,
- RMS Environmental Sustainability Strategy 2015-2019
- WestConnex Sustainability Strategy 2017
- Transport Environment and Sustainability Policy Framework (Transport for NSW 2013),
- Guideline for the Management of Contamination (Roads and Maritime 2013),
- AS2601: 2001 The Demolition of Structures,
- Code of Practice for the Safe Removal of Asbestos 2nd Edition (National Occupational Health and Safety Commission 2005a),
- Code of Practice for the Management and Control of Asbestos in Workplaces (National Occupational Health and Safety Commission 2005b),
- Guideline for the Management of Acid Sulfate Materials (NSW Roads and Traffic Authority 2005c),
- Roads and Maritime QA Specification G36 – Environmental Protection,
- Roads and Maritime QA Specification G40 – Clearing and Grubbing,
- National Environment Protection (assessment of site contamination) Measure 1999, and
- Storing and Handling Liquids: Environmental Protection – Participants Manual (NSW Department of Environment and Climate Change (DECC) 2007).

3.2. Minister's Conditions of Approval

The CoA relevant to this Plan are listed in Table 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. Specific CoA relevant to waste management for the Project are included within Annexure A.

Table 2 Conditions of Approval relevant to the WMP

CoA No.	Condition Requirements	Document Reference	How Addressed		
C4	The following CEMP Sub-plans must be prepared in consultation with the relevant authorities identified for each CEMP Sub-plan and be consistent with the CEMP referred to in the EIS.	This Plan	This WMP has been prepared in accordance with this condition and describes how JHCPB propose to manage waste during construction of the Project.		
				Required CEMP Sub-plan	Relevant authority(s) and council(s) to be consulted for each CEMP Sub-plan
	i)			Waste Management	N/A
C5	The CEMP Sub-plans must state how:				
	(a) the environmental performance outcomes identified in the documents listed in Condition A1 as modified by these conditions will be achieved	Section 2.3 Table 7 Annexure A	This Plan was prepared in accordance with the environmental performance outcomes identified in the documents listed in Condition A1 and is evidenced primarily in Section 2.3 and Table 7.		
	(b) the mitigation measures identified in the documents listed in Condition A1 as modified by these conditions will be implemented	Table 7	The implementation of waste management and mitigation measures identified in the documents listed in Condition A1 are listed in Table 7.		
	(c) the relevant terms of this approval will be complied with	Section 3.2 Annexure A	Details regarding how JHCPB propose to comply with the relevant terms of approval are listed in this Table and in Annexure A.		

CoA No.	Condition Requirements	Document Reference	How Addressed
	(d) issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed.	Section 4.3 Table 7 Annexure A Aspects and Impacts Register (Appendix A2 of CEMP)	Resource consumption issues requiring waste minimisation and management during construction of the Project have been identified through the EIS, SPIR and Environmental Risk Assessment Workshop. These issues including cumulative impacts have been detailed in Section 4.3 of this plan and Appendix A2, Aspects and Impacts Register of the CEMP. Environmental risk analysis will be ongoing and regularly reviewed in accordance with Section 3.9 to Section 3.13 of the CEMP to ensure effective management of waste. Mitigation and management measures for these issues are listed in Table 7.
C6	The CEMP Sub-plans must be endorsed by the ER and then submitted to the Secretary for approval no later than one (1) month prior to the commencement of the construction activities to which they apply.	CEMP Section 2.2	The WMP will be submitted to Department of Planning, Industry and Environment (DPE) for approval no later than one month prior to the commencement of the construction activities.
C7	Any of the CEMP Sub-plans may be submitted to the Secretary along with, or subsequent to, the submission of the CEMP.	CEMP Section 2.2	This Sub-plan will be submitted for approval to DPIE.
C8	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Secretary. The CEMP and CEMP Sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and CEMP sub-plans have been endorsed by the ER and approved by the Secretary.	CEMP Section 2.2	Construction will not commence until the CEMP and all CEMP Sub-plans have been approved by DPIE.

Please refer to Annexure A for all other CoA relevant to the development of this Plan.

3.3. Environmental Management Measures

Refer to Annexure A for all CoA's and REMMs relevant to the development of this Plan.

3.4. Consultation

The CoA do not require the project to undertake consultation with agencies during the development of this Plan. Refer to Section 2 of the CEMP for consultation requirements relating to the CEMP and all other sub-plans. The Plan will be made publicly available on the Project website.

4. Environmental aspects and impacts

4.1. Construction waste streams

The following construction related waste streams are expected to be generated during construction of the Project:

- Excavated wastes, such as soil and rock, primarily from tunnelling and excavation will be separated into reusable and disposal spoil,
- Demolition wastes including concrete, bricks, tiles, timber (untreated and treated), metals, plasterboard, carpets, electrical and plumbing fittings and furnishings,
- Asbestos and soil containing asbestos,
- Hazardous waste,
- Vegetation waste from the removal of trees, shrubs and ground cover that are unable to be mulched and reused within the Project,
- General construction waste such as timber formwork, scrap metal, steel, concrete, plasterboards and packaging material (crates, pallets, cartons, plastics and wrapping materials),
- Recyclable construction waste such as timber, scrap metal, steel, concrete and packaging material (crates, pallets, cartons, plastics and wrapping materials),
- Waste from operation and maintenance of construction vehicles and machinery including adhesives, lubricants, waste fuels and oils, engine coolant, batteries, hoses and tyres; and
- General recyclable wastes from site offices such as putrescibles, paper, cardboard, plastics, glass and printer cartridges.

Quantities of waste produced during construction of the Project will be tracked as described in Section 6.2.

4.2. Construction resource consumption

Construction of the Project will require the consumption of a number of resources and materials. Estimates of the type and quantity of materials required for construction of the M4-M5 Link project as identified in the M4-M5 Link EIS are included in Table 3. The following construction activities resulting in the consumption of materials and resources are expected during construction of the Project, include:

- Procurement and delivery of materials to site,
- Removal of vegetation,
- Site establishment, including compound set up,
- Relocation and protection of services and utilities,
- Earthworks including earth and rock cuttings and retaining walls,
- Tunnelling works,
- Removal, relocation and compaction of excavated material,
- Construction of pavements, bridges and culverts,
- Demolition of structures and pavements,
- Operation of site compounds and lighting,
- Use of construction plant,
- Removal of waste from site, and
- Laying concrete and installing precast concrete.

Table 3 Indicative material quantities and major sources required for construction for the M4-M5 Link project, including the Mainline Tunnels Project and Rozelle Interchange Project, as identified in the EIS

Material	Estimated quantity	Anticipated Source/Origin
Concrete	400,000 cubic metres	Sydney suppliers located close to the Project
Precast concrete	32,250 cubic metres	Combination of NSW and overseas suppliers
Structural steel	450 tonnes	Manufactured in Australia and/or overseas

Material	Estimated quantity	Anticipated Source/Origin
Reinforcing steel	15,000 tonnes	Manufactured in Australia
Asphalt	70,000 tonnes	Sydney suppliers located close to the Project
Road base	20,000 tonnes	Quarries within the Sydney region
Water	2,000 megalitres	Recycled construction and mains water
Petrol	30,000 litres	Local Sydney supplier
Diesel	12 megalitres	Local Sydney supplier
Power	100,000 megawatt hours	Renewable energy sources and local substations

Quantities of resources and materials required during construction of the Project will be tracked as described in Section 6.2.

4.3. Impacts

4.3.1. Waste Management Impacts

The impacts associated with construction waste management include:

- Generation of domestic waste from construction personnel and ancillary facilities,
- Generation of spoil from tunnelling and surface excavation works,
- Generation of hazardous waste from demolition and excavation activities, and
- Large number of spoil haulage vehicles on road network impacting local traffic (addressed in the Traffic and Transport and Access Management Sub-plan (TTAMP)).

These impacts will be managed through the implementation of the mitigation measures detailed in Section 7.

4.3.2. Resource Consumption Impacts

The potential environmental impacts associated with construction resource use include:

- Impacts on construction resource availability within the local suburb boundary over the construction period,
- Consumption of non-renewable resources such as energy, diesel and other chemicals, and
- Greenhouse gas emissions due to consumption of energy or fuels from non-renewable resources.

Refer also to the Aspects and Impacts Register included in Appendix A2 of the CEMP.

4.3.3. Cumulative Impacts

There is the potential for cumulative impacts related to spoil disposal for the Project if the spoil management sites identified for the Project reach capacity as a result of receiving spoil from other tunnelling projects. These sites are identified in Section 5.2.5. However, as stated in the EIS Section 23.3.2, it is considered unlikely that any one spoil management site would reach capacity and it is highly unlikely that all the sites would reach capacity at the same time.

5. Waste management

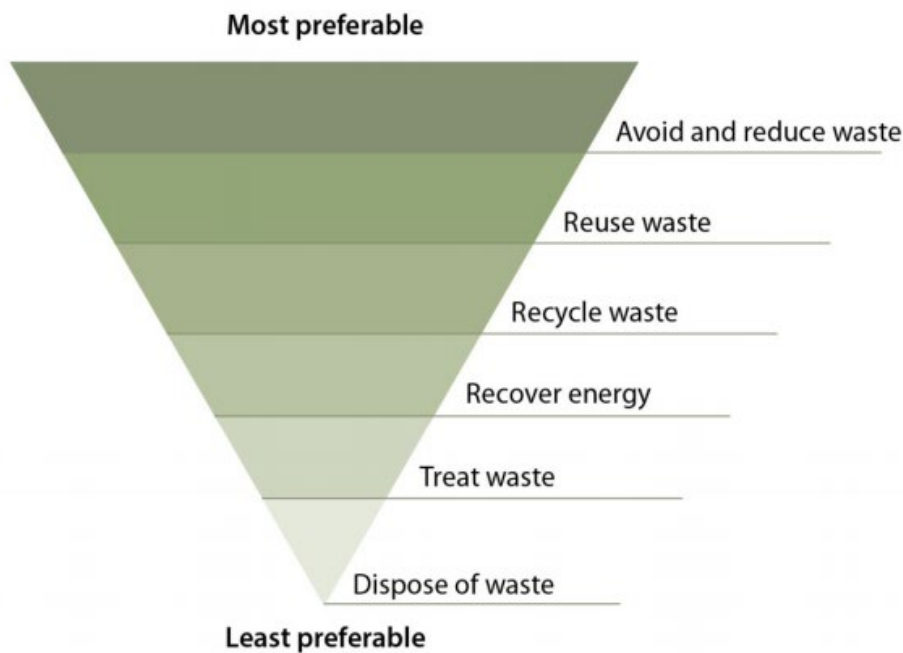
5.1. Waste management hierarchy

To achieve positive waste and resource management outcomes, the Project will adopt waste management strategies in accordance with the waste hierarchy and requirements identified in the CoA, EIS, SPIR, *NSW Waste Avoidance and Resource Recovery Act 2001* (WARR Act) and the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (EPA 2014).

Waste generated during delivery of the Project will be dealt with in accordance with the following priorities (in order of preference):

- Waste generation is to be avoided, and where avoidance is not reasonably practicable, waste generation is to be reduced (refer to Section 5.1.1),
- Where avoiding or reducing waste is not possible, waste is to be reused, recycled, or recovered (refer to Section 5.1.2), and
- Where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility (premise lawfully permitted to accept the materials), 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 (refer to Section 5.1.3).

Figure 1 Waste management hierarchy (NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA,2014))



5.1.1. Waste Avoidance and Reduction Schemes

As demonstrated in Figure 1 the waste hierarchy (which governs the management of waste during construction of the Project) nominates avoidance of waste as the most important priority. During the construction phase, the following measures will be implemented to avoid creation of waste:

- Ensuring that the necessary planning is undertaken to enable efficient management of the delivery and storage of materials, to avoid spoilage of materials,
- Wherever possible, establishing agreements with suppliers for 'take back' arrangements for packaging/pallets/drums,
- Highlighting the minimisation of packaging as an important factor in the product procurement process,
- Ensuring correct types and quantities of materials are ordered, essentially avoiding excess material waste,
- Coordinating site activities to minimise waste through utilisation of unused materials,
- Employing trained and qualified plant and machinery operators to avoid damage to materials and reduce wastage of consumables during plant and machinery maintenance,
- Ensure that stored supplies are properly protected from the weather, and
- Where feasible and reasonable suppliers that can demonstrate sustainable practices will be selected e.g. locally sourced, produced with sustainable practices, EMS accredited.

5.1.2. Reuse and recycling

In accordance with the waste hierarchy principles, when avoiding or reducing waste is not possible, waste is to be reused on site or off site for the same or a similar use. It may also be recovered through recycling and reprocessing, so that waste can be processed into a similar non-waste product.

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 (construction activities) – 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 transport to offsite facilities,
- Waste segregation on site (office) – waste within site offices shall be segregated on site with colour coded bins being provided for mixed recyclable, organic waste, landfill and paper. Paper bins will be provided throughout the office to encourage the recycling of scrap paper, and
- Waste separation off site at an appropriately licenced facility – wastes to be deposited into one bin where space is not available for placement of multiple bins, and the waste is to be sorted off site by a waste contractor.

When possible, waste shall be beneficially reused on or offsite in accordance with relevant approvals. This may occur through the following pathways and in compliance with appropriate legislation:

- Resource recovery exemptions as referenced in Section 5.4 of this Plan,
- Appropriately approved recycling facility,
- Appropriately approved developments which are able to accept waste through the use of a notice under Section 143(3A) of the POEO Act (s.143 Notice) as detailed in Roads and Maritime QA Specification G36, and
- Consideration of adaptive reuse of recovered rail infrastructure in landscaping works at the Rozelle Rail Yards, as required in CoA E166.

Waste sampling and classification is to occur when waste is being transported off site. In general, waste sampling shall be in accordance with the Roads and Maritime 'Waste Sampling' Environment Fact sheet on the Roads and Maritime website as well as the relevant Resource Recovery Exemption or Order as discussed in Section 5.5. Where large quantities are involved, further input from specialists may be obtained. In some instances, Project specific resource recovery exemptions may be sought from EPA.

Spoil

The generation of up to 3,421,300 cubic metres of spoil has been estimated during construction of the Project as a result of tunnel construction activities as well as surface works. Wherever possible and fit for purpose, uncontaminated spoil will be beneficially reused as part of the Project before alternative spoil disposal options are pursued. This spoil is likely to be a combination of Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM) or classified in accordance with other waste exemptions or orders.

The indicative anticipated spoil volumes associated with the Project are outlined in Table 4 below.

Table 4 Indicative Project spoil volumes

Site	Estimated spoil volume (cubic metres)		
	Tunnel	Surface	Total
Rozelle civil and tunnel site (C5)	2,850,000	390,000	3,179,000
The Crescent civil site (C6)	-	43,800	43,800
Victoria Road civil site (C7)	-	25,000	25,000
Iron Cove Link civil site (C8)	60,000	52,500	112,500
Total	2,910,000	511,300	3,421,300

Excess spoil which cannot be reused or recycled would be disposed of at a suitably licensed landfill or waste management facility. Spoil reuse would be prioritised in accordance with the spoil management hierarchy outlined below.

Where feasible and reasonable, spoil would be managed according to the following hierarchy:

- Minimisation of spoil generation through design and management,
- Reuse of spoil within the Project,
- Beneficial reuse of spoil outside the Project, and
- Where reuse isn't possible, spoil disposal would be the last resort.

The following spoil reuse opportunities are identified within the Project:

- The use of tunnel spoil for the infill of temporary access shafts and declines,
- The use of tunnel and civil surface works spoil for fill, landscaping and site rehabilitation purposes (including the Rozelle Rail Yards), and
- Potential use of tunnel spoil for local road upgrades, namely the replacement of existing unsuitable pavement subgrade material.

Further spoil reuse opportunities will be investigated during the construction of the Project.

Preliminary spoil disposal and reuse receipt locations identified for the Rozelle Interchange have been listed below and shown in Annexure C:

- Fulton Hogan Albion Park Bypass, Yallah Road, Yallah
- ANL Badgerys Creek, 210 Martin Road, Badgerys Creek
- Qube Moorebank, 400 Moorebank Avenue, Moorebank
- Bingo Genesis Recycling Centre, 1 Kangaroo Avenue, Eastern Creek
- Boral Recycling, 39 Widemere Road, Wetherill Park
- Dial a Dump Industries, 76 Burrows Road, Alexandria
- Western Sydney Airport
- Parramatta Light Rail

A list of potential waste facilities for the Project are identified in Annexure B.

Delivery of spoil to these reuse / disposal sites would occur in accordance with any EPL and other licencing / approvals requirements governing those sites. As these sites are indicative, any new sites identified as potential spoil receipt sites would be reviewed, including assurance that the facility is appropriately licenced to accept waste material, and the s.143 Notice hold point process detailed in Section 5.1.5 will be followed.

Due to the number of options for potential spoil reuse and disposal, in order of priority, the following factors will be considered to determine appropriate spoil management: the environmental benefits (including meeting sustainability targets), traffic impacts, approvals and economic feasibility.

As discussed in Section 2.3 of this Plan, there are waste management targets associated with the Project in accordance with the Project's EIS, WestConnex Sustainability Strategy 2017 and the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA 2014). These targets include:

- The reuse or recycling of around 95% of uncontaminated spoil generated during construction of the Project for beneficial purposes, either within the Project or at other locations in accordance with the Project waste management hierarchy, and
- The reuse or recycling of 80% of uncontaminated construction and demolition waste.

Refer to the Sustainability Strategy and Sustainability Management Plan for detailed information on the reuse and recycling targets for the Project.

Water

Construction water will either be reused on site where feasible, or discharged into the local stormwater system in accordance with the requirements of the EPL. Water reuse opportunities are further detailed within the Water Reuse Strategy developed in accordance with CoA E198. Refer to the SSWMP and Sustainability Strategy for further information on targets and treatment methods and

discharge water quality. Treated water reuse opportunities for the Project include irrigation of landscaped areas within the Rozelle Rail Yards.

5.1.3. Waste handling and storage

Where waste is required to be handled and stored onsite prior to either onsite reuse or offsite recycling/disposal, it will be stored in accordance with Clause 42 (Schedule 1) of the POEO Act.

The following handling and storage measures will apply:

- Spoil, topsoil and mulch are to be stockpiled on site in allocated areas, and mitigation measures for dust control and surface water management will be implemented as per the AQMP and the SSWMP.
- Liquid wastes are to be stored in appropriate containers in bunded areas until transported off site. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage,
- The excavation, handling, management and temporary storage of asbestos containing material will be undertaken in accordance with procedures detailed in the Unexpected Contaminated Lands and Asbestos Finds Procedure and Asbestos Management Plan. Asbestos waste will be disposed of off site by authorised contractors at a licenced facility and the NSW EPA WasteLocate system will be used to track asbestos waste
- Identified acid sulfate soils (ASS) and potential acid sulfate soils (PASS) material will be managed by the following strategies:
 - › treated and neutralised within a bunded area on-site, before being reused on site;
 - › treated and neutralised within a bunded area on site, before being removed to a licenced facility, and /or
 - › removed directly from site and reburied at a licenced facility (PASS only).
 - › Handling, treatment and disposal will be carried out in accordance with the Guideline for the Management of Acid Sulfate Materials (NSW Roads and Traffic Authority 2005c). Acid sulfate soil management procedures will be prepared as part of the SSWMP,
- The excavation, handling and temporary storage of waste material that is identified as being contaminated . will be undertaken in accordance with the procedures detailed in the CEMP and the Work Health and Safety Regulation 2001 (NSW). Contaminated material will be stockpiled and stored in a suitable hardstand or lined areas and segregated from uncontaminated material onsite to prevent cross-contamination. Contaminated material will be disposed of off site by authorised contractors at a licenced facility,
- Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmentally Hazardous Chemicals Act 1985* and the EPA waste disposal guidelines, and
- Recyclable and non-recyclable wastes will be stored in appropriately covered receptacles (e.g. bins or skips) on site and contractors will be commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

5.1.4. Extra measures for spoil handling and storage

Spoil stockpiles will be managed within acoustic sheds, cut-and-cover ramps, tunnel sections or in other areas where dust impacts can be appropriately managed. Where excavations are carried out prior to the construction of cut-and-cover ramps, spoil would be stored on the surface within the Rozelle Rail Yards or loaded into spoil trucks directly from excavation areas.

Spoil from construction activities will be stockpiled on site at locations including but not limited to:

- Rozelle civil and tunnel site (C5),
- The Crescent civil site (C6),
- Iron Cove Link tunnel site (C8), and
- Victoria Road civil site (C7).

Potential impacts associated with dust generation, erosion and sedimentation of spoil stockpiles are detailed in the Soil and Surface Water Management Plan (SSWMP).

Potential impacts related to the disturbance of landfill areas are unlikely during construction of the Project. If uncovered, landfill related contamination will be managed in accordance with the Contaminated Land Management Sub-plan (CLMP), Unexpected Contaminated Land and Asbestos Finds Protocol and/or Site Audit Report which may be required as per the CoA E182.

5.1.5. Waste disposal and s.143 notices

Wastes and spoil that are unable to be reused or recycled on site will be disposed of offsite to an appropriately licenced waste management facility or spoil management site following classification. The disposal of any waste including spoil generated from the construction of the Project is to be in accordance with the POEO Act and the WARR Act.

Prior to transporting spoil wastes generated by the Project to a spoil management site where an EPA licence is not required (such as an beneficial reuse site), JHCPB will submit (via the hold point system) a completed and signed notice under section 143(3A) of the POEO Act (“s.143 Notice”) to the Roads and Maritime Environmental Manager along with accompanying documentation confirming that the proposed disposal site holds appropriate licences / approvals to receive the spoil.

Disposal of the spoil material will not occur until the relevant authority has released the s.143 Notice hold point.

All waste generated during construction that is to be disposed of will be classified in accordance with the Waste Classification Guidelines (EPA 2014), with appropriate records and disposal docketts retained for audit purposes. Details of waste types, volumes and destinations are to be recorded in the Waste and Spoil Management Tracking Register.

Potential spoil reuse and disposal sites are identified in Section 5.1.2 and Annexure B, and shown in Annexure C Indicative spoil volumes for various components of the Project and potential spoil management sites identified for the Project are shown in Table 3 and Table 4 respectively. It is anticipated that alternative locations for spoil disposal could become available during construction of the Project. Where new sites are identified, the s.143 Notice hold point process detailed above will be followed.

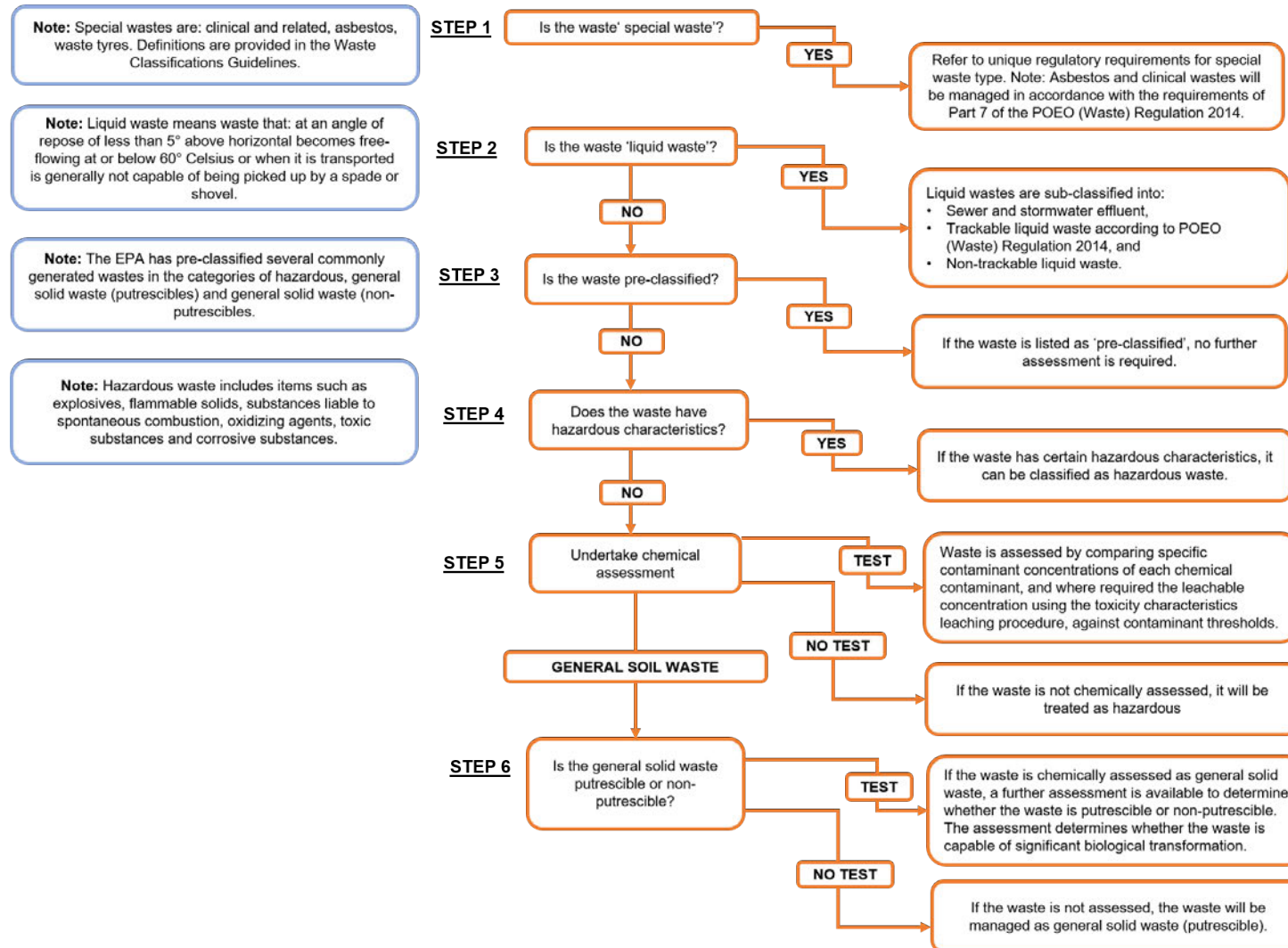
5.2. Classification of waste streams

Waste classification will be undertaken in accordance with the Waste Classification Guidelines (EPA 2014). Part 1 of the Waste Classification Guidelines (EPA 2014) identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describes a six-step process to classifying waste. Sampling and testing requirements for the waste streams are detailed below.

That process is detailed in Figure 2

Figure 2 Waste Classification Process

Waste Classification Process (Part 1, of the Waste Classification Guidelines EPA, 2014)



5.3. Management of waste streams

The types of wastes which may be generated during construction are outlined in Section 4.1 and Table 5.

Table 5 Management of waste streams

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
Site Establishment and Demolition	Demolition Waste: vegetation waste	General solid waste (non-putrescible)	On site reuse of mulch where possible Adaptive reuse of rail infrastructure within landscaping Off site reuse in accordance with Mulch Exemption Off site disposal in accordance with <i>Biosecurity Act 2015</i> at a licensed facility or deep burial of weeds in accordance with Roads and Maritime Specification G40	Stockpile	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	Potential reuse opportunity within Rozelle Rail yards site
	Demolition Waste: scrap metal	General solid waste (non-putrescible)	Recycle where possible	Scrap metal bin	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	
	Demolition Waste: concrete, asphalt, bricks and gravel (not including refractory bricks, refractory materials or asphalt containing coal tar)	General solid waste (non-putrescible)	Following crushing, reuse on site as backfill, road base, on access tracks or for ongoing road maintenance Reuse / recycle off site in accordance with Reclaimed Asphalt, Excavated Public Road Material and Recovered Aggregate Exemptions	Stockpile or skip bin	Will be sampled and tested for contaminants prior to being transported off site and applied to land outside a road corridor	To be included in calculations for: 80% of construction and demolition waste reused / recycled target, 5% concrete replacement material used in concrete during construction target, and 10% recycled material used in road base and sub base during construction target	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Demolition Waste: hazardous or special waste	Special or hazardous waste such as asbestos		Bunded and contained storage facility	Will be appropriately classified in accordance with the waste guidance and exemption requirements	N/A	Asbestos survey will be undertaken of buildings to be demolished by a suitably qualified person
Earthworks and excavation, including tunnelling activities	Spoil	VENM or ENM	Reuse on site where possible Relocate VENM or ENM to approved community beneficial use off site Offsite reuse in accordance with ENM Exemption Beneficial reuse off site (s.143 Notice requirement) Offsite disposal by authorised contractors at a licensed facility	Stockpiles (separate for each classification)	Will be appropriately classified in accordance with the waste guidance and exemption requirements	To be included in calculations for 95% reuse / recycling of usable spoil (uncontaminated surplus excavated material)	Potential on site reuse opportunity within Rozelle Rail yards for contamination remediation Potential reuse opportunity for backfill of retaining walls throughout the Project site When disposing of ENM off site to a private or publicly owned site, a section 143 notice will be required

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Potentially contaminated or contaminated soils	If material is taken off site classification will be carried out, based on soil tests carried out prior to offsite disposal and in accordance with the EPA Waste Classification Guidelines (EPA 2014)	On site burial / remediation / reuse / encapsulation in accordance with Unexpected Contaminated Lands and Asbestos Finds Procedure, and/or guidelines, and/or Remedial Action Plan if applicable Offsite disposal by authorised contractors at a licensed facility	Stockpiles (separate for each classification and banded and contained)	Will be sampled and tested for contaminants prior to being transported off site and applied to land outside a road corridor	N/A	Soil contamination has been identified at several locations on the Project site, including the Rozelle Rail Yards, Rozelle civil and tunnel site (C5) and Victoria Road civil site (C7). Potential contamination of soil by heavy metals (such as cadmium, arsenic, copper, lead, mercury, magnesium, aluminium and iron) has been identified at the Rozelle civil and tunnel site (C5).
Surface works and general construction activities (including utility works)	Construction Wastes: steel reinforcing	General solid waste (non-putrescible)	Recycle at an offsite facility	Scrap metal bin	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	
	Construction Wastes: conduits and pipes	General solid waste (non-putrescible)	Recycle at an offsite facility	Construction waste bin for offsite segregation	Will be sampled and tested for contaminants (namely asbestos) prior to reuse on site or prior to being transported off	To be included in calculations for 80% of construction and demolition waste reused / recycled target	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
					site and applied to land outside a road corridor		
	Construction Wastes: conduits, pipes and buildings (asbestos containing)	Special Waste such as Asbestos	Offsite disposal by authorised contractors at a licensed facility	Bunded and appropriately contained in storage facility	Will be sampled and tested for contaminants (namely asbestos) prior to reuse on site or prior to being transported off site and applied to land outside a road corridor	N/A	Asbestos materials have been confirmed in many of the old buildings located at the Rozelle Rail Yards
	Construction Wastes: concrete (solids and washouts) and asphalt	General solid waste (non-putrescible)	Following crushing, reuse on site as backfill, road base, on access tracks or for ongoing road maintenance Reuse / recycle off site in accordance with Reclaimed Asphalt, Excavated Public Road Material and Recovered Aggregate Exemptions	Stockpile or skip bin	Will be sampled and tested for contaminants prior to being transported off site and applied to land outside a road corridor	To be included in calculations for: 80% of construction and demolition waste reused / recycled target 5% concrete replacement material used in concrete during construction target	
	Construction Wastes: timber formwork	General solid waste (non-putrescible)	Reuse until end of useful life	Timber skip bin or construction waste bin for offsite segregation	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	
	Construction Wastes: packaging materials, including wood, plastic,	General solid waste (non-putrescible)	Return to supplier where possible Recycle at an offsite facility	Separate skip bins for plastics, timber, metals, cardboard or construction waste bin for	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	cardboard and metals			offsite segregation			
	Construction Wastes: empty oil and other drums	General solid waste (non-putrescible)	Return to supplier where possible. Offsite disposal at an approved facility	Oil drum skip bin, plastics skip bin	N/A	To be included in calculations for 80% of construction and demolition waste reused / recycled target	
	Construction Wastes: pesticides, herbicides, spill clean ups, paints and other chemicals	Hazardous waste / liquid waste	Return unused portions or empty containers to supplier where possible. Offsite disposal at an approved facility	Bunded and contained storage facility	Sampling to confirm EPA waste classification	N/A	
	Construction Wastes Metals and electrical cabling	General solid waste (non-putrescible)	Recycle at an offsite facility. Use on other Roads and Maritime projects	Scrap metal bin	N/A	N/A	
	Construction Wastes: aerosol cans	General solid waste (non-putrescible)	Recycle at an offsite facility	Recycling bin	N/A	N/A	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Construction Wastes: sediment basin discharge and solids (sediment)	Liquid waste / General Solid (non-putrescible)	Dust suppression / Beneficial reuse on site (such as noise mounds or off site as per WMP)	Sediment Basin	As in accordance with SSWMP	N/A	Discharge in accordance with EPL requirement Detailed in SSWMP Basin Discharge Permit
Compounds and Workshop Operation	Tyres	Special waste	Offsite disposal / recycling at an approved facility / in accordance with the Recovered Tyre Exemption	Stockpile	The material will meet all chemical and other material requirements for recovered tyres The recovered tyres can only be applied to land for use in civil engineering structures and road making activities (using industry recognised standards such as the Building Code of Australia)	N/A	
	Waste generated by the maintenance of equipment including oil filters and rags	General solid waste (non-putrescible)	Offsite disposal at an approved facility	Skip bin	N/A	N/A	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Oils, grease, fuel, chemicals and other fluids	Liquid Waste	Offsite disposal at an approved facility	Bunded and contained storage facility	N/A	N/A	
	Batteries	Hazardous waste	Offsite disposal / recycling at an approved facility	Bunded and contained storage facility	N/A	N/A	
	Radiator fluid	Hazardous waste	Offsite disposal at an approved facility	Bunded and contained storage facility	N/A	N/A	
	Hydraulic fluid	Hazardous waste	Offsite disposal at an approved facility	Bunded and contained storage facility	N/A	N/A	
	Domestic waste generated by workers	General solid waste (putrescible)	Offsite disposal at an approved facility	General waste bin	N/A	N/A	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Wastewater / recycled water / stormwater	Liquid	Treated and reused on site when biologically and chemically suitable If unable to be reused on site will be discharged in accordance with EPL and SSWMP water discharge criteria	Water Treatment Plants	In accordance with SSWMP	15% percent of water (rainwater, stormwater, wastewater, groundwater, tunnel inflow water) generated/collected during construction to be reused, recycled or reclaimed	
	Gas cylinders and bulk chemicals containers for Water Treatment Plant	General solid waste (non-putrescible)	Return to supplier where possible Recycle at an offsite facility	Bottle cage/rack	N/A	N/A	
Site Office Use	Paper, cardboard and plastic	General solid waste (non-putrescible)	Recycle at an offsite facility	Paper and cardboard bin	N/A	To be included in calculations for 40-60% by volume of office waste diversion from landfill	
	Glass bottles and aluminium cans	General solid waste (non-putrescible)	Recycle at an offsite facility	Co-mingled bin	N/A	To be included in calculations for 40-60% by volume of office waste diversion from landfill	
	Ink cartridges	General solid waste (non-putrescible)	Recycle at an offsite facility	Printer cartridge bin	N/A	To be included in calculations for 40-60% by volume of office waste diversion from landfill	

Construction Activity	Waste Type	Waste Classification	Proposed reuse / recycling / disposal methods	Storage receptacle	Sampling and Testing Requirements	Reuse / Recycle Target	Comments
	Food waste	General solid waste (putrescible)	Offsite disposal at a licensed facility	General waste bin	N/A	N/A	
	Effluent and sewage	Liquid	Offsite disposal at an approved facility by a sewage collection service and/or treated and reused on site	Tank	N/A	N/A	
	Sanitary waste	Special Waste (Clinical Waste)	Offsite Disposal at a licensed facility	Sanitary Waste Bin	N/A	N/A	

5.4. Waste exemption

Clause 91 Protection of the Environment Operations (Waste) Regulation 2014 enables the EPA to grant exemptions to the licensing and payment of levies for the land application or use of waste.

The EPA has issued general exemptions 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. Under the Protection of the Environment Operations (Waste) Regulation 2014, there are a number of resource recovery orders and exemptions currently in force.

Relevant Resource Recovery Exemptions and Orders which may be applicable to this Project are defined in Table 6 below. These are general gazette exemptions that do not require additional approval. Specific exemptions may be granted where an application is made to the EPA and it is likely that the Project team will seek additional exemptions as the Project is delivered.

Table 6 Waste Recovery Exemptions and Orders, and associated conditions relevant to the Project (EPA Current Orders and Exemptions, 2018)-

Exemption/Order	General Conditions
The excavated natural material exemption 2014 The excavated natural material order 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.
The excavated public road material exemption 2014 The excavated public road material order 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 apply the relevant waste within a reasonable period of time.
The reclaimed asphalt pavement exemption 2014 The reclaimed asphalt pavement order 2014	The reclaimed asphalt can only be: <ul style="list-style-type: none"> ▪ Applied to land for road related activities including road construction or road maintenance activities, being: <ul style="list-style-type: none"> ○ A use as a road base and sub base, ○ Applied as a surface layer on road shoulders and unsealed roads, and ○ Use as engineering fill material. ▪ Used as an alternative raw material in the manufacture of asphalt.
The recovered aggregate exemption 2014 The recovered aggregate order 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: <ul style="list-style-type: none"> ▪ 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: <ul style="list-style-type: none"> ○ 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

Exemption/Order	General Conditions
	<ul style="list-style-type: none"> ○ The works undertaken are either exempt or complying development.
The stormwater exemption 2014 The stormwater order 2014	<p>Stormwater can be applied to land by:</p> <ul style="list-style-type: none"> ▪ Spraying, spreading or depositing on the land, ▪ Ploughing, injecting or mixing into the land, and ▪ Filling, raising, reclaiming or contouring the land.
The cement fibre board waste order 2014 The cement fibre board waste exemption 2014	<p>The chemical concentration or other attributes of the cement fibre board material listed in the order must not be exceeded.</p> <p>Cement fibre board can only be applied to land when incorporated within road making material or used as an alternative input into thermal processes for non-energy recovery purposes in the manufacture of building products.</p> <p>Handling, processing, sampling and testing requirements are outlined in detail in the order.</p>
The recovered tyres order 2014 The recovered tyres exemption 2014	<p>The material must meet all chemical and other material requirements for recovered tyres.</p> <p>The recovered tyres can only be applied to land for use in civil engineering structures and road making activities (using industry recognised standards such as the Building Code of Australia).</p>
The mulch order 2016 The mulch exemption 2016	<p>The 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.</p> <p>Mulch does not include plant material from kerbside waste collections.</p>
The recovered plasterboard order 2014 The recovered plasterboard exemption 2014	<p>The chemical concentration or other attributes of the recovered plasterboard material listed in the order must not be exceeded.</p> <p>Recovered plasterboard can only be applied to land as a soil amendment. Prior to application to land the soil to which the material will be applied must be characterised to determine appropriate application rates. The recovered plasterboard must be incorporated into the topsoil.</p> <p>Handling, processing, sampling and testing requirements are outlined in detail in the order.</p> <p>Protection of the Environment Operations (Waste) Regulation 2014 applies to this order.</p>

5.5. Waste tracking

In accordance with the CoA E53, the locations of all construction spoil haulage vehicles will be monitored in real time via GPS tracking. Furthermore, in accordance with the CoA A44 these haulage vehicles will be clearly marked as being for the WestConnex M4-M5 Link (including the display of the Critical State Significant Infrastructure (CSSI) SSI 7485) in such a manner to enable immediate identification within at least 50 metres of the vehicles such as through Project branding on haul trucks.

Consistent with the Protection of the Environment Operations (Waste) Regulation 2014 the following wastes potentially encountered/generated are required to be tracked within NSW:

- Hazardous Wastes as defined by Table 3 in the NSW EPA 'Waste that must be tracked' guideline,
- Liquid Waste (Category 1 trackable waste),
- More than 100 kilograms of asbestos waste or more than 10 square meters of asbestos sheeting in any single load,
- More than 200kg of waste tyres, or 20 tyres (whichever is heavier)
- Waste oil/water, hydrocarbon/water mixtures emulsions, and
- Wastes listed in Table 1 of the NSW EPA 'Waste that must be tracked' Guideline.

Details of waste types, volumes and destinations will be recorded in the Waste and Spoil Management Register for all waste movements off site.

The NSW EPA Waste Locate system will be used to track asbestos waste and waste tyres, whilst the online waste tracking system developed by EPA will be utilised to track all other trackable waste.

6. Resource management and conservation

As stated in the EIS Section 23.3.1, significant quantities of materials, water and electricity are expected to be required for the construction of the Project. Consequently, the EIS identified that resource consumption and waste generated by the Project could also contribute to the emission of greenhouse gases during construction.

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

Water would be required during construction for tunnelling activities, surface works, site offices and ablutions. Preference would be given to the use of non-potable water over potable water, in accordance with the WestConnex Sustainability Strategy (Sydney Motorway Corporation 2017). Water would for example 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 Project, however local substations are expected to have the required capacity to supply the construction ancillary facilities without affecting the local supply network.

6.1. Resource management

The general resource recovery principles that will govern the management and conservation of resources are:

- Recovery of resources for reuse - reusable materials generated by the Project will be segregated for reuse on site, or off site where possible,
- Recovery of resources for recycling - recyclable resources (such as metals, plastics and other recyclable materials) generated during construction and demolition will be segregated for recycling and sent to an appropriate recycling facility for processing, and
- Recovery of resources for reprocessing cleared vegetation will be mulched or chipped on site and used for landscaping, in the absence of a higher beneficial use being identified.

The Project will commit to implementing the resource recovery principles stated above during construction of the Project. These practices include:

- Monitoring and recording quantities of materials used, waste to be beneficially reused and waste to be recycled during the construction stage,
- Conducting awareness programs for all site personnel regarding energy conservation methods,
- Capitalise on opportunities to reduce material use and maximise the use of materials with low environmental impact,
- Maximise the use of reused/recycled timber products and timber from sustainably managed forests that have obtained Forest Management Certification (FMC) which will also contribute towards Infrastructure Sustainability Council of Australia (ISCA) Rating Tool IS Materials Credits as an “Environmentally labelled products and supply chains”,
- Optimise the amount of cement replacement material used in concrete,
- Optimise the amount of recycled material used in road base and sub-base,
- Preference would be given to the use of non-potable water over potable water in accordance with workplace health and safety considerations, economic feasibility, the functional specifications of the design, tunnelling equipment specifications, and non-potable water availability, and
- Non-potable water will be used where possible during construction for dust suppression and end-of-project landscaping.

With the adoption of these principles, the Project would minimise long-term impacts through the sustainable use of construction materials, water resources, electricity consumption and consequently reduce greenhouse gas emissions.

6.2. Tracking of resource and waste quantities

The Project will track the quantities of materials and resources used, quantities of waste to be beneficially reused, quantities of waste to be recycled and quantities of waste unable to be recycled or beneficially reused. This will assist in the management of resource consumption and identifying areas for improvement. The quantities of materials, resources and waste streams will be obtained by the JHCPB sustainability team from various channels including:

- directly from the waste subcontractor for waste stream quantities and disposal location,
- from site commercial and environment teams for asphalt, road base and water quantities used, from the commercial team for fuel quantities and energy captured through the National Greenhouse and Energy Reporting Scheme (NGERS), and
- directly from suppliers (on a monthly basis) for concrete and steel quantities used.

These quantities will be reported on in the Sustainability Quarterly Report and Sustainability Annual Report. In addition, all data collated relating to consumption of resources and materials will be provided in the Project's ISCA submission. To demonstrate reductions in materials consumption, the ISCA submission will compare the quantities estimated from the tender reference design to the actual quantities of materials used in the 'As Built' design. This submission will contribute to the Project's ISCA rating. The Project must achieve a minimum 'Excellent' 'Design' and 'As built' rating using the ISCA infrastructure rating tool. This is set out in the Project's Sustainability Strategy, required in accordance with CoA E199.

7. Environmental control measures

Specific mitigation and management measures to meet the objectives of this and to address contract specifications, CoA and REMM's are outlined in Table 7.

Table 7 Waste Management Mitigation Measures

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
General Project Requirements						
W1	<p>Waste generated during construction of the Project will be managed in accordance with the following waste hierarchy priorities:</p> <ul style="list-style-type: none"> ▪ Waste generation is to be avoided ▪ Where avoidance is not reasonably practicable, waste generation is to be reduced ▪ Where avoiding or reducing waste is not possible, waste is to be reused, recycled, or recovered on site or off site ▪ Where waste reuse, recycling or recovery is not possible, waste will be treated and/or disposed of at a waste management facility or premise lawfully permitted to accept the materials 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. 	Waste Management Plan Waste and Spoil Management Register	Construction	Environment and Sustainability Manager or delegate Foreman	Table 10 CoA E202 Table 11 REMM RW4 Roads and Maritime QA Specification G36 Section 4.11.1	Waste and Spoil Management Tracking Register records WARR reporting
W2	<p>Prior to transporting wastes generated by or for Roads and Maritime to a place that is not owned by Roads and Maritime and is not a licensed waste facility a completed and signed notice under section 143(3A) of the POEO Act ("s.143 Notice") will be submitted to Roads and Maritime. A completed and signed original copy of "s.143 Notice" received from the landholder receiving the waste will be retained as evidence that the Waste Site has the appropriate planning consent. This includes waste transported for reuse, recycling, disposal or stockpiling.</p>	s.143 Notice letter from landholder and completed notice	Construction	Environment and Sustainability Manager or delegate	Roads and Maritime QA Specification G36 Section 4.11.4	Completed s.143 Notice Waste and Spoil Management Tracking Register records

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
W3	All staff and subcontractors will receive a site induction and ongoing toolbox talks that will detail waste and resource management measures (including the waste management hierarchy).	N/A	Construction	Environment and Sustainability Manager or delegate Foreman	Table 10 CoA C2	Induction records Toolbox talk records
W4	A hazardous building materials survey will be undertaken of buildings to be demolished as part of the Project.	A suitably qualified person in Asbestos Investigation	Prior to Construction	Safety Manager	Table 11 REMM RW13, CM03	Asbestos Survey Report
Management of Waste – General						
W5	Waste management measures from this WMP will be included in relevant Environmental Work Method Statements (EWMS) to be developed prior to the commencement of specific activities.	EWMS	Prior to Construction Construction	Environment and Sustainability Manager or delegate	Best practice	EWMS
W6	Waste generated offsite will not be received onsite 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.	N/A	Construction	Project Manager Environment and Sustainability Manager or delegate	Table 10 CoA E203 Table 11 REMM RW2, RW6	Licence or waste exemption, if relevant
W7	All waste generated during construction will be classified in accordance with the Waste Classification Guidelines (EPA 2014). Waste sampling and testing to be guided by the Waste Classification Guidelines and Roads and Maritime Fact Sheet 'Waste Sampling'.	Waste Classification Guidelines (EPA 2014) Roads and Maritime Fact Sheet 'Waste Sampling'.	Prior to Construction Construction	Environment and Sustainability Manager or delegate	Table 10 CoA E204 Table 11 REMM RW2 Roads and Maritime QA Specification G36 Section 4.11.1	Waste Classification Reports
W8	Any disposal of weeds and exotics resulting from clearing and grubbing operations will be managed in accordance with <i>Biosecurity Act 2015</i> and the FFMP.	Waste Classification Guidelines (EPA 2014)	Construction	Environment and Sustainability Manager or delegate	Roads and Maritime QA Specification G40/D	Waste and Spoil Management Tracking Register records

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
W9	Suitable areas will be identified to allow for contingency management of unexpected waste materials (excluding VENM, ENM and General Solid Waste (GSW)). Areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient space for stockpile storage.	Suitable areas for contaminated material stockpiling	Prior to Construction Construction	Environment and Sustainability Manager or delegate Project / Site Engineers	Table 11 REMM RW9, CM08	Site layout plans in the CEMP
W10	Stockpiles will be managed to control combustibility, dust, odour and cross contamination. Mulch in excess of the quantity required for landscape planting will not be stockpiled on Construction Site.	N/A	Construction	Environment and Sustainability Manager or delegate Foreman	Table 11 REMM CM05 Roads and Maritime QA Specification G40 Section 4.2	Environmental Inspection Checklist
W11	Stockpile sites will be located away from drainage lines and watercourses and arranged to minimise damage to natural vegetation and trees.	N/A	Construction	Environment and Sustainability Manager or delegate	Roads and Maritime QA Specification G40 Section 4.2	Environmental Inspection Checklist
W12	Suitably licensed waste contractors will be used for the collection and transport of all non-domestic, retail and commercial wastes for either off site processing and/or disposal to an appropriately licensed facility. Receipts for waste transfer and disposal will be checked to ensure all details are correct and retained for audit purposes.	N/A	Construction	Environment and Sustainability Manager or delegate Procurement Team	Table 10 CoA E204	Receipts for waste transfer and disposal
Management of Waste - Spoil						
W13	The handling of spoil generated during construction of the CSSI is to be conducted in conjunction with the WMP and TTAMP.	TTAMP	Construction	Environment and Sustainability Manager or delegate Area Manager	EIS Section 23.3.2	Spoil Management records TTAMP
W14	Where possible and fit for purpose, spoil will be beneficially reused as part of the Project before alternative spoil disposal options are pursued. Spoil reuse opportunities will be regularly reviewed and updated during detailed design and Project construction.	N/A	Construction	Environment and Sustainability Manager or delegate	Table 11 REMM RW7	Spoil Management records

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
				Area Manager		
Management of Waste - Hazardous or special waste						
W15	Hazardous substances, dangerous goods and hazardous materials will not be stored on site except in small volumes within a well-ventilated, area with cover. The store will have a concrete sealed or equivalent impervious floor with bunding, isolated drainage (if required), signage and be secured.	N/A	Construction	Project Manager	Best practice	Site plans
W16	The discovery and excavation of previously unexpected contaminated land or asbestos will be managed and disposed of in accordance with an Unexpected Contaminated Lands and Asbestos Management Procedure in the SSWMP. Any contaminated waste will be handled, separated, contained, managed and disposed of to prevent migration and further contamination.	Unexpected Contaminated Lands and Asbestos Management Procedure	Construction	Environment and Sustainability Manager or delegate Safety Manager Foreman	Table 10 CoA E184 Table 11 REMM RW10, CM04, CM06, CM08 <i>Contaminated Land Management Act 1997 (CLM Act)</i>	Unexpected Contaminated Lands and Asbestos Management Procedure
W17	Asbestos handling and management will be undertaken in accordance with an Asbestos Management Plan prepared in accordance with relevant legislation, regulations and codes of practice. Adjacent communities will be provided with advance notification about potential hazards.	Asbestos Management Plan	Construction	Safety Manager	Table 11 REMM RW14, CM02	Safety Inspections
Resource Consumption – General						
W18	Resource recovery will be applied to the management of construction waste and will include: <ul style="list-style-type: none"> Recovery of resources for reuse- reusable materials generated by the Project will be segregated for reuse on site, or off site where possible, including the reuse of the major waste streams (VENM) and the salvage and adaptive reuse of rail related infrastructure at the Rozelle Rail Yards in landscaping, Recovery of resources for recycling - recyclable resources (such as metals, plastics and other recyclable materials) generated during construction and demolition, 	UDLP WMP FFMP Appropriate receptacles for segregation	Construction	Environment and Sustainability Manager or delegate Commercial Manager Project / Site Engineers	Table 11 REMM RW5 Table 10 CoA, E166	Waste and Spoil Management Tracking Register records WARR reporting UDLP Reporting

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
	<ul style="list-style-type: none"> Resources will be segregated for recycling and sent to an appropriate recycling facility for processing, and Recovery of resources for reprocessing - cleared vegetation will be mulched or chipped on site and used for landscaping, in the absence of a higher beneficial use being identified. 					
Resource Consumption – Materials						
W19	Construction material will be sourced in accordance with the relevant aims of the WestConnex Sustainability Strategy (Sydney Motorway Corporation 2017) and the Project Sustainability Management Plan.	N/A	Construction	Environment and Sustainability Manager or delegate Commercial Manager Procurement Team	Table 11 REMM RW1	Waste and Spoil Management Tracking Register records National Greenhouse and Energy Reporting (NGER) annual reporting GREP reporting WARR Reporting ISCA audits
W20	Waste will be segregated between recyclable and non-recyclable waste, as well as between categories of recyclable wastes (paper/ cardboard/ plastic/ glass/ timber/ metals/ fluorescent lighting/ printer cartridges/ICT equipment) and volumes reported. Wherever possible, packaging will be avoided or minimised.	Appropriate receptacles for segregation	Construction	Environment and Sustainability Manager or delegate	Table 11 REMM RW12	Waste and Spoil Management Tracking Register records Environmental Inspection Checklist
W21	The Project will reuse or recycle around 95 per cent of uncontaminated spoil generated for beneficial purposes, either within the Project or at other locations in accordance with the Project waste management hierarchy.	N/A	Construction	Environment and Sustainability Manager or delegate Commercial Manager Area Manager	Table 11 REMM RW8 Sustainability Management Plan	Waste and Spoil Management Tracking Register records ISCA Scorecard

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
				Sustainability Manager		
W22	The Project will source all timber products from either reused timber, recycled timber, or from timber sustainably managed forests that have obtained FMC. Acceptable FMC schemes include the Program for the Endorsement of Forest Certification, Forest Stewardship Council and Australian Forest Certification Scheme.	Reused/recycled timber or FMC certified timber	Construction	Environment and Sustainability Manager or delegate Commercial Manager	Sustainability Management Plan	Timber with an FMC or source records ISCA Scorecard
W23	Locally produced goods and services will be procured where feasible and cost effective to reduce transport fuel emissions.	N/A	Prior to Construction Construction	Commercial Manager Procurement Team	Table 11 REMM GHG5	Procurement records
Resource Consumption – Water						
W24	Where practicable construction water will either be reused on site wherever feasible and opportunities for the reuse of treated water would be considered in preference to discharge into the stormwater system.	N/A Water reuse strategy	Construction	Environment and Sustainability Manager or delegate Project / Site Engineers Foreman	Best practice	ISCA Scorecards Sustainability reports
W25	Wastewater not reused on site will be discharged into the local stormwater system in accordance with the requirements of an EPL issued for the Project.	EPL	Construction	Environment and Sustainability Manager or delegate	Best practice	EPL Annual Returns
Resource Consumption – Power						
W26	At least 20 per cent of construction energy (electricity) required for the Project will be sourced from renewable energy generated on site and/or an accredited GreenPower energy supplier, where possible. Six per cent of construction energy (electricity) requirements will be offset, with any offset undertaken in accordance with the Australian Government National Carbon Offset Standard.	N/A	Construction	Environment and Sustainability Manager Sustainability Manager or delegate Procurement Team	Table 11 REMM GHG6	ISCA Scorecard

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
Resource Consumption – Emissions						
W27	Construction plant and equipment will be operated and maintained to maximise efficiency and reduce emissions, with construction planning used to minimise vehicle wait times and idling on site and machinery turned off when not in use.	N/A	Construction	Foreman Plant Manager	Table 11 REMM GHG4	Plant records
W28	Opportunities to use low emission construction materials, such as recycled aggregates in road pavement and surfacing, and cement replacement materials will be investigated and incorporated where feasible and cost-effective.	N/A	Construction	Environment and Sustainability Manager Procurement Team	Table 11 REMM GHG3	Procurement records
Recording / Reporting						
W29	A Waste and Spoil Management Tracking Register will be maintained until the construction completion date, to record the type, amount and location of waste reused, recycled, stockpiled and disposed of.	Waste and Spoil Management Tracking Register	Prior to Construction Construction	Environment and Sustainability Manager or delegate	Roads and Maritime QA Specification G36 Section 4.11.2	Waste and Spoil Management Tracking Register records Waste Dockets
W30	Any servicing of plant and equipment will be performed in accordance with a risk assessment and within an appropriate onsite servicing area supported by immediately accessible spill controls and waste storage. Maintenance records will be readily available for inspection.	N/A	Construction	Environment and Sustainability Manager or delegate Plant Manager	Best Practice	Plant maintenance records
W31	An annual WARR report will be submitted containing information relating to wastes generated or recycled in accordance with Roads and Maritime QA Specification G36 Annexure G36/F.	Completed WARR Report	Construction	Environment and Sustainability Manager or delegate	Roads and Maritime QA Specification G36 Section 4.11.3 Roads and Maritime QA Specification G36/F1	WARR reporting
W34	All construction spoil haulage vehicles will be clearly marked as being for WestConnex M4-M5 Link and the locations of these haulage vehicles will be GPS tracked and monitored in real time. Records of haulage vehicle	GPS tracking	Construction	Environment and Sustainability Manager or delegate	Table 10 CoA A44, E53	GPS Tracking records WestConnex M4- M5 Link project branding

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
	monitoring will be made available electronically to the Secretary and the EPA upon request.					on haul trucks including the CSSI application number Section 4.7.2 of the TTAMP
W35	Ensure that each Project site has an informed, delegated officer authorised to sign off any Waste Transport Certificates when waste is picked up from site.	N/A	Construction	Environment and Sustainability Manager or delegate Foreman	Table 10 CoA E204	Waste Transport Certificates

8. Compliance management

8.1. Roles and responsibilities

The JHCPB Project Team's organisational structure and overall roles and responsibilities are outlined in Section 3.3 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 7 of this Plan.

8.2. Training

All personnel, including employees, contractors and utility staff working on site will undergo site induction training relating to waste management issues. The induction training will address elements related to waste management including:

- Existence and requirements of this Sub-plan,
- Existence and requirements of other management plans and guidelines such as the Unexpected Contaminated Lands and Asbestos Finds Procedure, the Sustainability Strategy and the Sustainability Management Plan,
- Relevant legislation and guidelines,
- Roles and responsibilities for waste management,
- Incident response, management and reporting,
- Waste reporting requirements,
- Requirements of the waste hierarchy,
- Waste/recycle storage requirements,
- Energy and resource use efficiency best practices,
- Potential for contaminated material to be present on site and management requirements if such material is identified, and
- Expectations for targets relevant to waste and resource management including ISCA targets.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in waste management.

Further details regarding staff induction and training are outlined in Section 3.5 of the CEMP.

8.3. Monitoring and inspection

Compliance with the requirements of this WMP, its implementation and effectiveness will be monitored through:

- Regular inspections of worksite and activities,
- JHCPB Environmental Inspections which occur weekly (or more depending on works/weather conditions),
- Internal and external audits, including regular audits of appointed Project Waste Management Contractor(s) and waste disposal facilities, and
- Compliance Tracking Report (6 monthly).

Requirements and responsibilities in relation to inspections are documented in Section 3.9.1 and 3.9.2 of the CEMP. Regular monitoring and inspections will be carried out during construction in accordance with Section 3.9 of the CEMP. Inspection and monitoring requirements relevant to waste management for the Project are identified in Table 8.

Table 8 Inspection and monitoring requirements relevant to waste management

Item	Frequency	Standards	Records	Responsibility
Asbestos survey	As required, prior to demolition	Inspection to be undertaken by a qualified asbestos surveyor	Reporting as per Asbestos Management Plan	Safety Manager

Item	Frequency	Standards	Records	Responsibility
Site Inspections	Weekly	Waste Classification Guidelines (EPA 2014) Roads and Maritime Waste Fact Sheets	Environmental Inspection Checklist	Environment and Sustainability Manager or delegate
Site Inspections	Fortnightly	Implementation of this Plan	Environmental Representative Inspection Report	ER
Site Inspections	As required	Implementation of this Plan	RMS Inspection Report	RMS
Visual surveillance	Daily	Storage containers (bins, skips, tanks, etc.) in sufficient numbers to facilitate segregation Correct bin type used Containers clearly sign posted Containers emptied at sufficient frequency	Log book and photos as relevant	Foreman Environment and Sustainability Manager or delegate

8.4. Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this Plan, CoA, REMMs and other relevant approvals, licenses and guidelines.

In accordance with the ISCA waste management requirements, as detailed in the Sustainability Management Plan, external audits of the waste management system will be undertaken at least annually.

Audit requirements are detailed in Section 3.9.3 of the CEMP.

8.5. Reporting

Reporting requirements and responsibilities are documented in Section 3.9.5 of the CEMP. Subcontractors will supply all required data to the delivery team including data for waste movements to inform the Waste and Spoil Management Tracking Register.

Reporting requirements relevant to waste management are identified in Table 9.

Table 9 Reporting requirements relevant to waste management

Item	Frequency	Standards	Records	Responsibility
Diesel Plant and Equipment Reporting	Annual	Roads and Maritime QA Specification G36 Section 4.4.2 and GREP reporting tool	Reporting on the conformity, or otherwise, of mobile non-road diesel plant and equipment used for the work under the deed. Prepared in accordance with the GREP "Clean Air Data Management Tool1" (refer to Appendix G).	Environment and Sustainability Manager

Item	Frequency	Standards	Records	Responsibility
GREP Reporting	Annually (before 31 July) and on completion of construction	GREP "Clean Air Data Management Tool1" United States Environmental Protection Agency, European Union (EU) standards or approved equivalent emission standards	Conformity, or otherwise, of mobile non-road diesel plant and equipment used for the work under the deed with the relevant United States Environmental Protection Agency, European Union (EU) standards or approved equivalent emission standards.	Environment and Sustainability Manager
NGER Reporting	Annual	NGER Scheme	Required report information including: Diesel usage, Electricity from site generators, Bitumen and asphalt produced, Explosives used on site, and Amount of acetylene.	Environment and Sustainability Manager
Sustainability / resource consumption monitoring	As specified in the Sustainability Management Plan	As specified in the Sustainability Management Plan	As specified in the Sustainability Management Plan.	Sustainability Manager
WARR Reporting	Annual	Roads and Maritime Specification G36 Annexure G36/F	Reporting will include the following three components to the report to be addressed: Purchasing data: data on the amount of material purchased by the Project to enable construction works listed under the contract Waste and recycling data: data on the amount of material generated and recycled by JHCPB in the course of completing work under the contract Project initiatives and barriers: provide information taken to reduce waste, recycle resources and purchase recycled content materials in the course of completing work under the contract.	Environment and Sustainability Manager

8.5.1. Waste and Spoil Management Register

A Waste and Spoil Management Tracking Register will be maintained which identifies all waste produced on site and subsequent management. The Register shall document the following:

- Type and quantity of waste,
- Whether the waste is to be recovered (either for use on site or off site) or sent for disposal,
- Tracking information of various waste streams, and

- Upon removal of waste from site: date of removal, transport contractor information and final destination.

All relevant documentation such as dockets and receipts will be retained with the Waste and Spoil Management Tracking Register.

9. Review and improvement

9.1. 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,
- 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 identified through the following:
 - › As a result of any investigations into any exceedances or non-conformances that determine changes to this Plan are required to prevent reoccurrences,
 - › To take into account changes to the Environment or generally accepted environmental management practices, new risks to the Environment, any Hazardous Substances, Contamination or changes in Law, and
 - › In response to internal or external audits or annual management reviews.
- Where requested or required by the DPIE or any other Authority,
- Make comparisons with objectives and targets, and
- Meet approval requirements and conditions such as EPL requirements.

9.2. WMP update and amendment

The processes described in Section 3.9 to Section 3.13 of the CEMP may result in the need to update or revise this Plan.

Any revisions to the WMP will be in accordance with the process outlined in Section 1.5 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 3.11.2 of the CEMP.

Annexure A Other Conditions of Approval and Revised Environmental Management Measures relevant to this Plan

Table 10 Other Conditions of Approval relevant to the development of this Plan

CoA No.	Condition Requirements	Document Reference
A44	All construction spoil haulage vehicles must be clearly marked as being for WestConnex M4-M5 Link (including Critical State Significant Infrastructure (CSSI) application number) in such a manner to enable immediate identification within at least 50 metres of the vehicles.	Table 7 W34 Section 5.5
C2	<p>The CEMP must provide:</p> <ul style="list-style-type: none"> (a) a description of activities to be undertaken during construction (including the scheduling of construction and figures depicting the site layouts of the construction ancillary facilities); (b) details of environmental policies, guidelines and principles to be followed in the construction of the CSSI; (c) a schedule for compliance auditing; (d) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition, including an initial risk assessment undertaken before the commencement of construction of the CSSI; (e) details of how the activities described in subsection (a) of this condition will be carried out to: <ul style="list-style-type: none"> (i) Meet the performance outcomes states in the documents listed in Condition A1 and (ii) manage the risks identified in the risk analysis undertaken in subsection (d) of this condition; (f) an inspection program detailing the activities to be inspected and frequency of inspections; (g) a protocol for managing and reporting any: <ul style="list-style-type: none"> (i) incidents, and (ii) non-compliances with this approval and with statutory requirements; (h) procedures for rectifying any non-compliance with this approval identified during compliance auditing, incident management or at any time during construction; (i) a list of all the CEMP Sub-plans required in respect of construction, as set out in Condition C4. Where staged construction of the CSSI is proposed, the CEMP must also identify which CEMP Sub-plan applies to each of the proposed stages of construction; (j) a description of the roles and environmental responsibilities for relevant employees and their relationship with the ER; (k) an outline of the training and induction for employees, including contractors and sub-contractors, in relation to environmental and compliance obligations under the terms of this approval; and (l) the process for periodic review and update of the CEMP and all associated plans and programs. 	Table 7 W2
E54	The locations of all construction spoil haulage vehicles must be able to be monitored in real time and the records of monitoring be made available electronically to the Secretary and the EPA upon request for a period of no less than one year following construction.	Table 7 W34 Section 5.5

CoA No.	Condition Requirements	Document Reference
		TTAMP Section 5.5
E185	An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.	Section 5 Table 7 W16 SSWMP
E203	Waste generated during delivery of the CSSI is to be dealt with in accordance with the following priorities: <ul style="list-style-type: none"> a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the <i>Protection of the Environment Operations (Waste) Regulation 2014</i>, or to any other place that can lawfully accept such waste. 	Section 5.2 Table 7 W1
E204	Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the <i>Protection of the Environment Operations Act 1997</i> , if such a licence is required in relation to that waste.	Section 5 Table 7 W10
E205	All waste generated during construction and operation must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal docketts retained for audit purposes.	Section 5 Table 7 W7, 12, 35
E167	The Proponent must investigate options for utilising salvaged rail related infrastructure from the Rozelle Rail Yards into the landscaping of the Rozelle Rail Yards. How the items are to be used is to be detailed in the Urban Design and Landscape Plan required by Condition E133.	Section 5.1.2 Table 7 W18

Table 11 Revised Environmental Management Measures relevant to the development of this Plan

Outcome	REMM No.	Commitment	Timing	Document Reference
Resource Consumption	RW1	<p>Construction material will be sourced in accordance with the relevant aims of the WestConnex Sustainability Strategy (Sydney Motorway Corporation 2015) and a Sustainability Management Plan that will be developed during detailed design, including to optimise resource efficiency and waste management, and select locally sourced materials and prefabricated assets where possible, to reduce greenhouse gas emissions.</p> <p>Unnecessary resource consumption will be avoided through the detailed design of the project and by making realistic predictions about the required quantities of resources, such as construction materials.</p>	Construction	<p>Sustainability Strategy Sustainability Management Plan Procurement Management Plan Section 5.1</p> <p>Section 6.1 Table 7 W19</p>
Waste Generation and Disposal	RW2	Wastes will be managed and disposed of in accordance with relevant NSW legislation and government policies.	Construction	<p>Section 3.1 Section 5 Table 7 W6, W7</p>
	RW3	A Construction Waste Management Plan will be prepared as part of the CEMP and regularly updated during detailed design and construction, detailing appropriate procedures for waste management. The Plan will include the waste management measures described in the project EIS.	Construction	<p>This Plan Section 9.2</p>
	RW4	<p>Wastes will be managed using the waste hierarchy principles of:</p> <ul style="list-style-type: none"> • Avoidance of unnecessary resource consumption to reduce the quantity of waste being generated • Recovery of resources for reuse on site or off site for the same or similar use, without reprocessing • Recovery of resources through recycling and reprocessing so that waste can be processed into a similar non-waste product and reused • Disposal of residual waste. 	Construction	<p>Section 5.1 Table 7 W1</p>

Outcome	REMM No.	Commitment	Timing	Document Reference
	RW5	<p>Resource recovery will be applied to the management of construction waste and will include:</p> <ul style="list-style-type: none"> Recovery of resources for reuse-reusable materials generated by the project will be segregated for reuse on site, or off site where possible, including the reuse of the major waste streams (VENM) Recovery of resources for recycling - recyclable resources (such as metals, plastics and other recyclable materials) generated during construction and demolition Resources will be segregated for recycling and sent to an appropriate recycling facility for processing and Recovery of resources for reprocessing - cleared vegetation will be mulched or chipped on site and used for landscaping, in the absence of a higher beneficial use being identified. 	Construction	<p>Section 5 Table 7 W18 Sustainability Strategy Sustainability Management Plan Waste Avoidance and Resource Recovery (WARR) reporting</p>
	RW6	Options identified for the off-site reuse of waste will comply with relevant NSW EPA resource recovery exemptions and requirements.	Construction	<p>Section 5 Table 7 W6 Annexure B</p>
	RW7	<p>The Construction Waste Management Plan will document anticipated volumes of spoil that will be generated by the project, spoil storage locations within project sites and likely spoil disposal sites.</p> <p>The Construction Waste Management Plan and spoil reuse opportunities will be regularly reviewed and updated during detailed design and project construction.</p>	Construction	<p>Sustainability Strategy Sustainability Management Plan Section 5.1.2 Table 7 W14</p>
	RW8	The project will reuse or recycle around 95 per cent of uncontaminated spoil generated for beneficial purposes, either within the project or at other locations in accordance with the project spoil management hierarchy.	Construction	<p>Section 5.2.2 Table 7 W21</p>
	RW9	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.	Construction	<p>Section 5.2.3 Table 7 W9</p>
Exposure to unexpected contaminated land	RW10	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated lands discovery procedure, as outlined in the Guideline for the Management of Contamination (Roads and Maritime 2013) and detailed in the CEMP.	Construction	<p>SSWMP Section 5 Table 7 W16</p>

Outcome	REMM No.	Commitment	Timing	Document Reference
Dust generation, erosion and sedimentation of stockpiles	RW11	Spoil stockpiles will be provided with appropriate environmental controls and managed to reduce potential impacts associated with dust generation, erosion and sedimentation.	Construction	Section 5 AQMP SSWMP
Generation of general waste	RW12	General wastes from site offices such as putrescibles, paper, cardboard, plastics, glass and printer cartridges will be separated and collected for recycling off site wherever practicable.	Construction	Section 5 Table 7 W20
Exposure to Asbestos	RW13	An asbestos survey will be undertaken of buildings to be demolished as part of the project in accordance with an Asbestos Management Plan as part of the Work Health and Safety Plan. The survey will be conducted by a suitably qualified person.	Construction	Table 7 W4 Work Health and Safety Plan
	RW14	Asbestos handling and management will be undertaken in accordance with an Asbestos Management Plan (or similar) prepared in accordance with relevant legislation, regulations and codes of practice as described in Chapter 23 (Resource Use and Waste Minimisation) of the EIS. Adjacent communities will be provided with advance notification about potential hazards.	Construction	SSWMP Asbestos Management Plan
Impacts on human and/or ecological receptors through disturbance and mobilisation of contaminated material	CM01	Potentially contaminated areas directly affected by the project will be investigated and managed in accordance with the requirements of guidance endorsed under section 105 of the <i>Contaminated Land Management Act 1997</i> (NSW) (CLM Act). This includes further investigations in areas of potential contamination identified in the project footprint. If contamination posing a risk to human or ecological receptors is identified, a Remediation Action Plan will be prepared.	Construction	Contaminated Land Management Plan
	CM02	Asbestos handling and management will be undertaken in accordance with an Asbestos Management Plan (or similar) prepared in accordance with relevant legislation, regulations and codes of practice as described in Chapter 23 (Resource use and waste minimisation) of the EIS.	Construction	Section 5.1.3 Table 7 W17
	CM03	A hazardous materials assessment will be carried out prior to and during the demolition of buildings. Demolition works will be undertaken in accordance with the relevant Australian Standards and relevant NSW WorkCover Codes of Practice, including the Work Health and Safety Regulation 2011 (NSW).	Construction	Table 7 W4

Outcome	REMM No.	Commitment	Timing	Document Reference
	CM04	The Construction Waste Management Plan for the project, prepared as described in Chapter 23 (Resource use and waste minimisation) of the EIS, will include procedures for handling and storing potentially contaminated substances.	Construction	SSWMP Section 5.2.3 Table 7 W16
	CM05	Stockpile management procedures will be implemented to control dust, odour and cross contamination.	Construction	Section 5.1 Table 7 W10 AQMP SSWMP
	CM06	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated lands discovery procedure, as outlined in the Guideline for the Management of Contamination (Roads and Maritime 2013) and detailed in the CEMP. The procedure will include: <ul style="list-style-type: none"> ▪ Cease work in the vicinity ▪ Initial assessment by an appropriately qualified environmental consultant ▪ Further assessment and management of contamination, if confirmed, in accordance with section 105 of the Contaminated Land Management Act 1997 (CLM Act). 	Construction	SSWMP Section 5.1.3 Table 7 W16
Impacts on soil and water quality through incorrect handling of hazardous or contaminated material	CM08	Measures identified in Chapter 25 (Hazard and risk) of the EIS will be implemented to appropriately store contaminated materials and materials with the potential to cause contamination and reduce the potential for environmental contamination due to spills and leaks.	Construction	SSWMP Section 5.2.3 Table 7 W9, W16

Annexure B Contact List and Locations of Potential Local Waste Transporters and Waste Facilities

This list is provided as an indicative list only. Potential transporters and facilities would be developed throughout the project. Refer to Annexure C for a map of the potential waste facilities.

Table 12 Potential transporters and facilities

Transporter or Facility	Name	Contact Details	Distance from Project	Waste Accepted
Waste Transporter	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
Recycler / Recovery / Waste Management Facility	Camellia Resource Recovery & Treatment Facility	Grand Avenue, Camellia Ph: 1300 651 116	13.3 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	12.1 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

Transporter or Facility	Name	Contact Details	Distance from Project	Waste Accepted
	Concrete Recyclers	14 Thackeray Street, Camellia Ph: 8832 7400	13 km	Concrete, Bricks, Tiles and Asphalt
	Metropolitan Demolitions & Recycling Pty Ltd	396 Princes Highway, St Peters Ph: 9519 3099	5.6 km	Demolition Rubble (Brick & Concrete)
	REMONDIS Australia Pty Ltd - Transfer Station	2 Bay Road, Taren Point 2229 Ph: 9526 2642	18 km	Recycling - gas bottles, batteries – car, oil - used motor
	Sims Metal Management - Alexandria	72 Burrows Road, Alexandria Ph: 9509 7002	6 km	Metal recyclers
	Solveco St Marys Sydney waste treatment facility	38 Links Road, St Marys Ph: 9833 7035	39.7 km	Liquid waste
	Bingo St Peters Recycling Facility	6-10 Burrows Road South, St Peters Ph: 1300 424 646	5.5 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	14.5 km	Liquid or hazardous waste
	Visy Taren Point Material Recovery Facility	43 Bay Road, Taren Point, Ph: 02 9524 8533	17.9 km	Newspapers Magazines Office Paper Envelopes Without a Window Envelopes With a Window Phone Books Pizza Boxes (clean) Egg Cartons Cardboard

Transporter or Facility	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		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	38.2 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	29.3 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	26.7 km	
	Wallgrove Road (Eastern Creek) Landfill	Wallgrove Road, Eastern Creek Ph: 1300 651 116	30 km	General Solid Waste (Putrescible) General Solid Waste (Non-putrescibles) includes VENM Asbestos Waste Waste Tyres
Preliminary spoil disposal and reuse receival locations	Horsley Park (manufacturing facility)	Wallgrove Road at Horsley Park	30 km	Spoil (uncontaminated)
	Blacktown Waste Services (landfill)	920 Richmond Road at Marsden Park	35 km	Spoil (uncontaminated)
	Sakkara Development (industrial estate)	Riverstone Parade at Riverstone	37 km	Spoil (uncontaminated)
	Kurnell Landfill	330 Captain Cook Drive at Kurnell	18 km	Spoil (uncontaminated)
	Moorebank Intermodal Terminal Precinct –	Moorebank Avenue, Moorebank	25 km	Spoil (uncontaminated)

Transporter or Facility	Name	Contact Details	Distance from Project	Waste Accepted
	Western Sydney Airport	Lot 1 DP 838361, Badgerys Creek	40 km	Spoil (uncontaminated)

Annexure C Locations of Potential Waste Facilities (Map)

Figure 3 Potential waste facilities locations

