





Construction Waste and Resource Sub-Plan

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Document Control

The Project Director is responsible for ensuring that this Sub Plan is reviewed and approved. The Support Services Director is responsible for updating this Sub Plan to reflect changes to the Project, legal and other requirements, as required.

Amendments

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

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Contents

1. Introduction	4
1.1 Context	4
1.2 Objectives and Targets	4
1.3 Quarterly Sustainability Report	6
1.4 Interface with Other Plans	6
1.5 Training	8
2. Legal and Other Requirements	9
2.1 Legislation	9
2.2 Minister's Conditions of Approval	9
2.3 Revised Environmental Management Measures	10
2.4 EPL Conditions	14
2.5 Sustainability Requirements	14
2.6 Guidelines and Relevant Documents	14
3. Consultation	15
4. Construction Aspects and Environmental Impacts	16
4.1 Construction Waste Stream	16
4.2 Potential Environmental Impacts	16
5. Waste Management and Resource Conservation	17
5.1 Waste Classification	17
5.2 Resource Recovery Orders and Exemptions	18
5.3 Classification of Potential Waste Streams and Resource Recovery	20
5.4 Waste Hierarchy	23
5.5 Waste separation and segregation	24
5.6 Green Waste	24
5.7 Waste handling and storage	24
5.8 Waste disposal	25
5.9 Reuse of captured water from sediment basins	25
5.10 Reuse of treated water from Water Treatment Plants (WTPs)	25
5.11 Section 143 Notices	25
5.12 Energy Conservation	25
6. Mitigation and Management Actions	26
7. Monitoring	29
8. Reporting	31
9. Review and Improvement	32
9.1 Auditing	32
9.2 Record management	32
9.3 Waste Tracking Records	32
9.4 Non-conformance management, corrective and preventative action	33
9.5 Complaints	33
9.6 Revision of this plan	33
Appendices	35
Appendix A: Waste Management Register (Example)	35
Appendix B: Section 143 Notice Proforma	36
Appendix C: Location of Possible Waste Transporters and Local Waste Facilities	38
Appendix D: Manage Waste Procedure	41
Appendix E: Environmental Inspection Checklist	42
Appendix F: Glossary of Terms	43

1. Introduction

1.1 Context

The New M5 Project is the Stage 2 component of the WestConnex scheme, a NSW Government initiative to connect Sydney's west and south-west with the Sydney Airport and the Port Botany precinct. It is being delivered by the Sydney Motorway Corporation (SMC), formerly the WestConnex Delivery Authority (WDA).

The CPB Contractors Dragados Samsung Joint Venture (CDS-JV) will deliver the design and construction of WestConnex Stage 2 referred to as the New M5 (the Project). The Project will run from the existing M5 East corridor at Beverly Hills via tunnel to St Peters, providing improved access to the airport, south Sydney and Port Botany precincts. The Project will substantially improve the east - west corridor access between the Sydney CBD, Port Botany and Sydney Airport precincts and the South West growth areas.

The Project will deliver approximately nine kilometres of two-lane twin tunnels with capacity to operate three lanes in the future, motorway to motorway connections to the King Georges Road Interchange Upgrade at Beverly Hills, and a new interchange at St Peters. Infrastructure Approval was granted for the project on 20 April 2016. Major works are expected to commence in mid-2016 and the New M5 tunnel is scheduled to open to traffic in late 2019.

Section 2.3 of the Construction Environmental Management Plan provides further background and detailed description of the New M5 Project.

This Construction Waste and Resource Sub-plan (CWRSP) forms part of the Construction Environmental Management Plan (CEMP) developed for the construction of the Project. The CWRSP describes how CDS-JV will manage and/or mitigate waste and resource consumption during construction of the Project.

This CWRSP has been prepared with consideration of project requirements, and to address the mitigation measures listed in the New M5 Environmental Impact Statement (EIS), the revised environmental management measures (REMMs) listed in Submissions and Preferred Infrastructure Report (SPIR) and applicable legislation.

1.2 Objectives and Targets

The key objective of the CWRSP is to ensure that the generation of waste and the consumption of resources are minimised during construction of the Project. To achieve this objective, the minimum targets in Table 1 have been established for the management of waste and resources during the Project.

The waste and resource targets in Table 1 relate to the overall targets identified in the Sustainability Plan.

Table 1: Project sustainability targets for the management of waste and resources

Metric / measure	Target (minimum)	Timeframe	Accountability	Documentation / reporting
Percentage of office waste (paper, plastic, cardboard, glass, aluminium, ink) diverted from landfill	60%	Average over construction period	Commercial Manager	Monthly Sustainability Report
Percentage weed free vegetation waste reused or sent to recyclers	90%	Average over construction period	Project Manager	Monthly Sustainability Report
Percentage of weed free topsoil reused or sent to recyclers	90%	Average over construction period	Project Manager	Monthly Sustainability Report

Construction Waste and Resource Sub-Plan



Metric / measure	Target (minimum)	Timeframe	Accountability	Documentation / reporting
Percentage of usable spoil (uncontaminated surplus excavated material) reused/recycled.	80%	Average over construction period	Spoil Manager	Monthly Sustainability Report
Percentage of construction and demolition waste (uncontaminated material excluding spoil) reused/recycled.	80%	Average over construction period	Commercial Manager	Monthly Sustainability Report
Percentage of cement replacement material, measured by mass, used in concrete during the construction stage.	5%	Average over construction period	Commercial Manager	Material Supply Invoices Monthly Sustainability Report
Percentage of recycled material used in road base and sub base during the construction stage.	10%	Average over construction period	Commercial Manager	Material Supply Invoices Monthly Sustainability Report
Percentage of construction stage energy sourced from renewable energy generated onsite and/or accredited GreenPower	20%	Average over construction period	Commercial Manager	Monthly Sustainability Report
Percentage of potable water demand which is sourced from non-potable water sources during construction	15%	Average over construction period	Project Manager	Monthly Sustainability Report
Percentage of water (rainwater, stormwater, wastewater, groundwater, tunnel inflow water) generated/collected during construction which is reused, recycled or reclaimed.	15%	Average over construction period	Project Manager	Monthly Sustainability Report
Percentage of timber products used in the Project either reused/recycled timber or from sustainably managed forests that have obtained Forest Management Certification (FMC)	100%	At all times	Commercial Manager	Monthly Sustainability Report
Achieve credits in ISCA IS Rating Tool for: sustainable procurement; materials management; and waste generation and management.	IS Credits	As-built rating	Sustainability Manager	IS Rating Tool

1.3 Quarterly Sustainability Report

Over the course of the project, a Quarterly Sustainability Report will be produced and include an analysis of progress against the objectives and targets. The report will be collated by the Sustainability Manager and submitted to the Client, SMC. The Report will include:

- Electricity use (including % of renewable energy purchased) and any electricity generated onsite;
- Fuel use by type (diesel, petrol);
- Energy use (in MJ/month);
- Greenhouse gas emissions (in tonnes of Carbon Dioxide equivalents per month (tCO₂-e/month));
- Volume of water (total, potable, non-potable, reused water and potable water replaced with non-potable water) used during construction;
- Quantity of waste (including spoil): reused, recycled, and disposed to landfill; and
- Performance towards the achievement of all other sustainability requirements, objectives and targets set out in the Sustainability Plan (M5N-ES-PLN-PWD-0020).

1.4 Interface with Other Plans

This CWRSP is part of an integrated set of sub plans to the CEMP. [Figure 1](#) shows the CEMP framework for the Project.

Construction Waste and Resource Sub-Plan

Figure 1: New M5 CEMP Framework

Construction Environmental Management Plan	Sub-Plans to CEMP	Sub-Plan attachments	Standalone Documentation (linked to CEMP)
	Construction Air Quality Sub Plan	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Sustainability Plan • Ancillary Facilities Management Plan
	Construction Noise and Vibration Sub Plan	<ul style="list-style-type: none"> • Out of Hours Works Protocol • Blast Management Strategy 	<ul style="list-style-type: none"> • Land Use Survey • Sustainability Plan • Ancillary Facilities Management Plan • Temporary Noise Barrier Strategy
	Construction Traffic & Access Sub Plan	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Traffic Management Plans • Ancillary Facilities Management Plan • Local Road Dilapidation Report • Road Safety Audit • Construction Parking and Access Strategy
	Construction Soil & Water Quality Sub Plan	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Flood Mitigation Strategy • Groundwater and Soil Salinity Report • Sustainability Plan • Geotechnical Model • Ancillary Facilities Management Plan • Water Quality Plan and Monitoring Program • Construction Contaminated Land Management Plan • Acid Sulfate Soil Management Procedure • Asbestos Guideline
	Construction Heritage Sub Plan	<ul style="list-style-type: none"> • Historical Archaeological Research Design & Excavation Methodology • Unexpected Heritage Finds 	<ul style="list-style-type: none"> • Sustainability Plan • Geotechnical Model • Ancillary Facilities Management Plan
	Construction Flora & Fauna Sub Plan	<ul style="list-style-type: none"> • Pathogen and Weed Management Strategy • Nest Box Plan 	<ul style="list-style-type: none"> • Sustainability Plan • Ancillary Facilities Management Plan • Urban Design and Landscape Management Plan • Green and Golden Bell Frog Plan of Management • Biodiversity Offsets Package • Tree Reports
	Construction Waste and Resource Management Plan	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Water Reuse Strategy • Spoil Management Plan • Sustainability Plan
	Energy and Greenhouse Gas Emissions Strategy	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Sustainability Plan

1.5 Training

Applicable waste and resource management and sustainability objectives, targets and requirements will be addressed in:

- Design briefings for all personnel involved in the preparation of Design Documentation;
- Site inductions for all of the Project Company's personnel and Subcontractor personnel engaged in the Project Company's Work; and
- Design and construction Project plans.

All personnel, including employees, contractors and sub-contractors, are required to complete a Project induction containing relevant environmental information before they are authorised to work on the Project. Waste and resource specific information to be covered in the Project induction will include:

- Project obligations relevant to the management of waste and resources such as requirements to assess and classify waste generated on site;
- Requirements and responsibilities relevant to the management of waste and resources under this Plan;
- Responsibilities pertaining to the management of waste under *the Protection of the Environment Operations Act 1997 (POEO Act)*, the *Protection of the Environment Operations (Waste) Regulation 2014 (2014 Waste Regulation)* and *the Waste Avoidance and Resource Recovery Act 2001 (WARR Act)*;
- Responsibilities under the Waste Classification Guidelines (EPA, 2014).

Refer to the training requirements in the CEMP, Part B Element 7.

2. Legal and Other Requirements

This section provides the relevant legislation and Project requirements that apply to waste and resource management throughout construction.

2.1 Legislation

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

- *Contaminated Land Management Act 1997*;
- *Dangerous Goods (Road and Rail Transport) Act 2008*;
- *Environmentally Hazardous Chemicals Act 1985*;
- *Noxious Weeds Act 1993*;
- *Protection of the Environment Operations Act 1997*;
- *Protection of the Environment Operations (Waste) Regulation 2014*;
- *Waste Avoidance and Resource Recovery Act 2001*; and
- *Work Health and Safety Act 2011*.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix C – Environmental obligations register of the CEMP.

2.2 Minister’s Conditions of Approval

Project approval has been granted and issued with Conditions of Approval (CoA).

CoA that specifically address waste and resource management are identified in Table 2. A cross reference is included to indicate where each condition is addressed in this CWRSP or other project management document.

Table 2: Conditions of Approval that address management of waste and resources

Reference	Requirement	Where addressed
A9	This approval does not apply to the operation of off-site spoil receiving locations and facilities. The receipt of spoil at these locations and facilities must be undertaken in accordance with approvals or licenses applying to those locations or facilities.	Section 6 Spoil Management Plan (M5N-PM-PLN-PWD-0002)
B52	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 6 RW5
B53	The reuse and/or recycling of waste materials generated on site must be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Section 1.2 Section 5 Section 6
B54	All liquid and/or non-liquid waste generated on the site must be assessed and classified in accordance with <i>Waste Classification Guidelines</i> (DECCW, 2009), or any superseding documents.	Section 6 RW4 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
B55	All waste materials removed from the SSI site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Section 6 RW4 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)

Reference	Requirement	Where addressed
B56	The handling of spoil generated during construction of the SSI is to be conducted in accordance with the Spoil Management Plan required under condition D51.	Spoil Management Plan (M5N-PM-PLN-PWD-0002)
D67	(e) details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues must be addressed in the CEMP -	CEMP (M5N-ES-PLN-PWD-0001) Section 1.2, 5, 6, 7, 8 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
	(iii) measures to monitor and manage waste generated during construction including but not limited to:	
	general procedures for waste classification, handling, reuse, and disposal;	Section 5 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
	use of secondary waste material in construction wherever feasible and reasonable,	Section 5 Section 6 RW10, RW11
	procedures or dealing with green waste including timber and mulch from clearing activities,	Section 5.5 Section 6 RW9 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
	and measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins),	Section 5.8 Construction Soil and Water Quality Sub-Plan (CSWQSP, M5N-ES-PLN-PWD-0005)

2.3 Revised Environmental Management Measures

The revised environmental management measures (REMMs) included in the Submissions Report relating to the management of waste and resources are included in Table 3.

Table 3: Revised environmental management measures from New M5 Submissions Report relevant to the management of waste and resources

Reference	Requirement	Where addressed
Resource consumption		
REMM WM1.	<p>Construction energy consumption would be reduced through initiatives such as:</p> <ul style="list-style-type: none"> – Use of roadheaders, which can excavate a more efficient shape for the road tunnel than tunnel boring machines, resulting in less spoil generation and less energy consumption for handling, management and transport of spoil; – Local materials procurement where feasible and cost effective to reduce fuel consumption for transport; – Selection of efficient construction plant and equipment where possible; – Use of recycled materials where feasible; – Efficient practices on site (for example, switching off engines when not in use); – Use of energy efficient or solar powered lighting for temporary construction facilities; and – Investigating the use of biofuel for construction vehicles. 	<p>Energy Efficiency and Greenhouse Gas Emissions Strategy (M5N-ES-PLN-PWD-0021)</p> <p>Section 6; RW9 to RW16</p>
REMM WM2.	Wherever feasible and reasonable, construction material would be sourced from within the Sydney region.	Sustainability Plan (M5N-ES-PLN-PWD-0020)
REMM WM3.	Unnecessary resource consumption would be avoided by making realistic predictions on the required quantities of resources, such as construction materials.	Sustainability Plan (M5N-ES-PLN-PWD-0020)
REMM WM4.	<p>Resource recovery would be applied to the management of construction waste and would include:</p> <ul style="list-style-type: none"> – Recovery of resources for reuse - reusable materials generated by the Project would be segregated for reuse either on-site or off-site where possible, including the reuse of the major waste streams (VENM and ENM); – Recovery of resources for recycling - recyclable resources (such as metals, plastics and other recyclable materials) generated during construction and demolition; – Resources would be segregated for recycling; – These materials would then be sent to an appropriate recycling facility for processing; and – Recovery of resources for reprocessing - cleared vegetation would be mulched or chipped on-site and used for landscaping, in the absence of a higher beneficial use being identified. 	<p>Section 5</p> <p>Section 6 RW2</p>
REMM WM5.	Where reasonable and feasible, Packaging Take Back arrangements would be implemented with suppliers.	Procurement Plan (M5N-

Reference	Requirement	Where addressed
		PR-PLN-PWD-0001)
Management of waste		
REMM WM6.	Wastes would be managed (classified, handled and stored) and reused/recycled/disposed of in accordance with relevant State legislation and government policies including the POEO Act, <i>Waste Avoidance and Resource Recovery Act 2001</i> , <i>Waste Avoidance and Resource Recovery Strategy 2014-2021</i> (EPA, 2014b), and the sustainable procurement objective of the <i>WestConnex sustainability strategy</i> (WestConnex Delivery Authority, 2015).	Section 5 Section 6 RW3 Sustainability Plan (M5N-ES-PLN-PWD-0020)
REMM WM7.	A Construction Waste Reuse Recycling and Energy plan (CWRREMP) would be prepared as part of the CEMP detailing appropriate procedures for waste management. The Construction Waste Recycling Reuse Environment Management Plan would ensure waste disposal and energy use is minimised by tracking and reporting performance and applying corrective action as required.	This plan Energy Efficiency and Greenhouse Gas Emissions Strategy Sustainability Plan (M5N-ES-PLN-PWD-0020)
REMM WM8.	Wastes would be managed using the waste hierarchy principles of: <ul style="list-style-type: none"> – Avoidance of unnecessary resource consumption to reduce the quantity of waste being generated; – Recover resources for reuse on-site or off-site for the same or similar use, without reprocessing; – Recover resources through recycling and reprocessing so that waste can be processed into a similar non-waste product and reused; and – Disposal of residual waste. 	Section 5 Section 6 RW6, RW7
REMM WM9.	Residual waste would be disposed of to a suitably licensed landfill or waste management facility where there are no other feasible and reasonable options for waste avoidance, reuse or recycling. Waste materials requiring removal from the site would be classified, handled and stored in accordance with the <i>Waste Classification Guidelines: Part 1 Classifying Waste</i> (EPA, 2014a) until collection by a contractor for disposal.	Section 6 RW4, RW7, RW8 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
REMM WM10.	Off-site reuse of waste would comply with relevant NSW Environment Protection Authority resource recovery exemptions and requirements.	Section 6 RW1 Manage Waste Procedure (M5N-ES-PRC-PWD-0044)
REMM WM11.	Asbestos handling and management would be undertaken in accordance with the Project's Asbestos Management Plan and relevant legislation, policies and standards: <ul style="list-style-type: none"> – <i>Work Health and Safety Act 2011</i>; 	Demolition Plan Manage Work with Asbestos Procedure

Reference	Requirement	Where addressed
	<ul style="list-style-type: none"> - <i>Code of Practice for the Safe Removal of Asbestos 2nd Edition (NOHSC, 2005a);</i> - <i>Code of Practice for the Management and Control of Asbestos in Workplaces (NOHSC, 2005b);</i> - <i>Protection of the Environment Operations (Waste) Regulation 2014 – Part 7 Transportation and management of asbestos waste; and</i> - Australian Standards AS2601:1991 Demolition of Structures. 	
REMM WM12.	Measures would be implemented to manage stockpiles such as potentially locating stockpiles outside of overland flowpaths, riparian corridors and finished and contoured so as to minimise loss of material in flood or rainfall events. Stockpiles left exposed and undisturbed for longer than 28 days would be stabilised by compaction then either sprayed with suitable tackifier, covered with anchored fabrics, or seeded with sterile grass.	Construction Soil and Water Quality Sub-Plan (CSWQSP, M5N-ES-PLN-PWD-0005)
Excess spoil		
REMM WM13.	A Spoil Management Strategy would be developed prior to the commencement of construction and implemented during construction. The strategy would identify spoil disposal sites and describe the management of spoil on-site and during off-site transport.	Spoil Management Plan (M5N-PM-PLN-PWD-0002)
REMM WM14.	Where possible and fit for purpose, spoil would be beneficially reused within the Project before off-site reuse or disposal options are pursued.	Section 5.3 Spoil Management Plan (M5N-PM-PLN-PWD-0002)
REMM WM15.	Before being transported from construction sites, excavated spoil would be classified in accordance with the <i>Waste Classification Guidelines: Part 1 Classifying Waste</i> (EPA, 2014a) to ensure appropriate reuse or disposal.	Section 5.1 Spoil Management Plan (M5N-PM-PLN-PWD-0002)
Wastewater		
REMM WM16.	Feasible and reasonable opportunities for wastewater reuse on-site or for construction purposes would be pursued (such as dust suppression both in the tunnels and for surface works).	Section 5.3 Construction Soil and Water Quality Sub-Plan (CSWQSP, M5N-ES-PLN-PWD-0005)
REMM WM17.	Wastewater not used on-site would be discharged into the local stormwater system in accordance with the requirements of an environment protection licence issued for the Project.	Section 5.3 Construction Soil and Water Quality Sub-Plan (CSWQSP, M5N-ES-PLN-PWD-0005)

Reference	Requirement	Where addressed
Contaminated soil		
REMM WM18.	An Unexpected Finds Protocol would be implemented in the event of encountering previously unidentified area(s) or types of contaminated material. Where this happens, all relevant work would cease in the vicinity of the discovery in accordance with a unsuitable spoil management contingency procedure which would be included as part of the Spoil Management Strategy for the Project. Relevant works would not recommence until the need for and scope of remedial action(s), if required, is identified in accordance with the requirements of the <i>Contaminated Land Management Act 1997</i> .	Manage Contaminated Land Procedure (M5N-ES-PRC-PWD-0036) Spoil Management Plan (M5N-ES-PLN-PWD-0020)

2.4 EPL Conditions

The Project's construction activities will be regulated by Environment Protection Licences (EPL) #20772 and #4627 issued by the NSW Environment Protection Authority (EPA). EPL conditions relevant to waste and resource management in Licence 20772 are included in Section O1 and in Section O6 of Licence 4627.

2.5 Sustainability Requirements

In accordance with the Sustainability Plan, CDS-JV will target to achieve IS credits in the ISCA IS Rating Tool:

- For sustainable procurement;
- For materials management; and
- For waste generation and management.

Section 7-9 of this Plan summarise the monitoring, auditing and reporting requirements associated with achieving the waste and resource targets identified in the Sustainability Plan.

2.6 Guidelines and Relevant Documents

The main guidelines, specification and policy documents relevant to this CWRSP include:

- AS2601:2001 The Demolition of Structures;
- Code of Practice for the Management and Control of Asbestos in Workplaces (NOHSC, 2005b);
- Code of Practice for the Safe Removal of Asbestos 2nd Edition (NOHSC, 2005a);
- Storing and Handling Liquids: Environmental Protection - Participants Manual (DECC 2007);
- Infrastructure Sustainability (IS) rating scheme (ISCA, 2015);
- Waste Avoidance and Resource Recovery Strategy 2014-2021 (EPA, 2014);
- Waste Classification Guidelines (EPA, 2014);
- WRAPP Reporting Guidelines (NSW Government and OEHL, 2011);
- RMS G36 Environmental Protection (RMS, 2016);
- RMS Waste Fact Sheets: "Virgin Excavated Natural Material (VENM)", "Excavated Natural Material" (ENM), "Excavated Public Road Materials", "Recovered Aggregates", "Asbestos Waste" and "Waste Sampling"; and
- WestConnex Delivery Authority 2015, WestConnex Sustainability Strategy

3. Consultation

This plan has been developed in consultation with the relevant councils. Comments have been provided by Inner West Council (previously Marrickville Council), which related to various issues including waste classification, tracking, recycling and reuse. Comments have been incorporated where required and responses are provided in the Consultation Comment and Response Register.

Ongoing consultation with relevant Councils and stakeholders may be undertaken for particular issues including waste recycling and reuse opportunities.

4. Construction Aspects and Environmental Impacts

4.1 Construction Waste Stream

The following construction waste streams are expected during the construction phase of the Project:

- Demolition wastes including from buildings, structures, pavements, hardstand areas and vegetation;
- Earthworks and excavation wastes including spoil (e.g. ENM, VENM) and contaminated spoil;
- General construction wastes including metals, conduits/pipes, plasterboard, concrete, timber framework, packaging material, hazardous and special wastes, plant and vehicle maintenance waste and sewage waste; and
- Office wastes including food waste, general recyclables, and printer cartridges.

4.2 Potential Environmental Impacts

The potential environmental impacts associated with waste and resource use during construction have been identified through review of the Project's EIS and the risk register included in the CEMP – Appendix D.

Potential environmental impacts include:

- Pollution / contamination of air, water or soil through inappropriate storage, transport or disposal;
- Generation of greenhouse gas emissions due to consumption of energy and fuels;
- Excessive volumes of spoil directed to landfill due to inadequate recycling or reuse; and
- Excessive volumes of waste directed to landfill due to excessive resource consumption, inadequate collection and classification.

5. Waste Management and Resource Conservation

Where practicable, construction materials would be sourced locally i.e. from within the Sydney region. The extraction and procurement of select materials such as concrete, steel, asphalt, polypropylene and copper is likely to be required from quarries, manufacturers and suppliers outside the Sydney region.

Material quantities would be reduced where possible through efficient design, construction and procurement processes.

5.1 Waste Classification

Where waste cannot be avoided, reused or recycled it will be classified and then disposed of appropriately. The classification of waste is undertaken in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA 2014). This document 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. That process is summarised below:

Step 1: Is it 'Special Waste'?

Establish if the waste should be classified as special waste. Special wastes are: clinical and related, asbestos, waste tyres. Definitions are provided in the guidelines.

Note: The transportation and management of asbestos waste must be managed in accordance with Part 7 of the Protection of the Environment Operations (Waste) Regulation 2014, and special requirements pertaining to clinical and related waste are stipulated in section 113 of the Regulation.

Step 2: If not special, is it 'Liquid Waste'?

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

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent;
- Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2014; and
- Non-trackable liquid waste.

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

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

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

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

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

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

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

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

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

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

5.2 Resource Recovery Orders and Exemptions

The EPA may issue resource recovery orders and resource recovery exemptions under the Waste Regulation. Resource recovery orders apply to generators and processors of waste. Resource recovery exemptions apply to consumers of the resource. Both contain conditions that must be met to satisfy the order/exemption and may include specifications, requirements on how to re-use or apply the waste, record keeping, reporting and other requirements.

The general orders and exemptions that may be applicable to the Project are listed in Table 4 below. In addition to these, a specific exemption may be granted where an application is made to the EPA.

Table 4: General resource recovery orders and exemptions that relate to the Project

Order / Exemption	General conditions
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 excavated natural material order 2014 / The excavated natural material exemption 2014	<p>The chemical concentration or other attributes of the excavated natural material listed in the order must not be exceeded.</p> <p>The excavated natural material can only be applied to land as engineering fill or used in earthworks.</p> <p>ENM handling, processing and testing requirements are outlined in detail in the order.</p>
The excavated public road material order 2014 / The excavated public road material exemption 2014	<p>The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land.</p> <p>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 order does not apply to the land application of excavated public road material on any land outside the road corridor.</p> <p>The excavated public road material cannot be applied on private land.</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> <p>The order and exemption commence on 25 July 2016.</p>
The raw mulch order 2014 / The raw mulch exemption 2014	<p>The raw mulch can only be applied to land for the purposes of filtration or as a soil amendment material or used either singularly or in any combination as input material(s) to a composting process.</p> <p>The order and exemption is revoked from 25 July 2016.</p>

Order / Exemption	General conditions
<p>The reclaimed asphalt pavement order 2014 / The reclaimed asphalt pavement exemption 2014</p>	<p>The reclaimed asphalt pavement can only be:</p> <ul style="list-style-type: none"> - Applied to land for road related activities including road construction or road maintenance activities, being: <ol style="list-style-type: none"> a. Use as a road base and sub base; b. Applied as a surface layer on road shoulders and unsealed roads; and c. Use as engineering fill material. - Used as an alternative raw material in the manufacture of asphalt.
<p>The recovered aggregate order 2014 / The recovered aggregate exemption 2014</p>	<p>The chemical concentration or other attribute of the recovered aggregate listed in the order must be met.</p> <p>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:</p> <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: <ol style="list-style-type: none"> a. The relevant waste is applied to land to the minimum extent necessary for the construction of a road, and b. A development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI), or c. It is to provide access (temporary or permanent) to a development approved by a Council, or d. The works undertaken are either exempt or complying development.
<p>The recovered plasterboard order 2014 / The recovered plasterboard exemption 2014</p>	<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. POEO Waste Regulation 2014 applies to this order.</p>
<p>The recovered tyres order 2014 / The recovered tyres exemption 2014</p>	<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>
<p>The stormwater order 2014 / The stormwater exemption 2014</p>	<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.

Order / Exemption	General conditions
Project specific exemptions	<p>Issued by EPA on a case-by-case basis.</p> <p>Can be issued for the beneficial reuse of certain waste materials off-site which are fit for purpose and will cause no harm to the environment or human health.</p> <p>Waste generator is responsible for demonstrating the above.</p> <p>Application is required to be submitted to the EPA for consideration and approval.</p> <p>Exemption only valid if implemented in accordance with its requirements.</p>

5.3 Classification of Potential Waste Streams and Resource Recovery

Table 5 classifies the indicative waste streams for the Project and provides the proposed reuse, recycling or disposal strategy for each. This table acts as an example of how waste could potentially be classified and should not be used as a table of pre-classified waste. All waste will need to be classified according to Section 5.1

The final locations for resource reuse/recycling or waste disposal will be determined during the construction phase and will be recorded in the Project Waste Register. Appendix C provides a list of identified waste facilities in the local area that may be used during construction.

Table 5: Classification of key waste streams and proposed resource recovery

Project activity	Waste stream	Classification	Proposed reuse / recycling / disposal	Storage receptacle
Site establishment and demolition	Demolition waste: concrete, asphalt, bricks gravel	General solid waste (non-putrescible)	Reuse concrete onsite (after crushing) as base material in haul roads where possible. Reuse/recycle off-site in accordance with Excavated Public Road Material or recovered aggregate exemption.	Stockpile
	Demolition waste: scrap metal	General solid waste (non-putrescible)	Recycle	Scrap metal bin
	Demolition waste: vegetation waste	General solid waste (non-putrescible)	Reuse as mulch on site where possible. Off-site reuse in accordance with raw mulch exemption. Recycle off-site as timber products. Weeds to be identified and disposed off-site in accordance with <i>Noxious Weeds Act 1993</i> at a licensed facility.	Stockpile
	Topsoil	General solid waste (non-putrescible)	Reuse onsite in landscaping where storage space is available until the topsoil is required.. Recycle offsite as topsoil. Off-site disposal at a licensed facility.	Stockpile

Construction Waste and Resource Sub-Plan



Project activity	Waste stream	Classification	Proposed reuse / recycling / disposal	Storage receptacle
	Hazardous waste, such as asbestos	Hazardous waste or Special waste (eg. Asbestos)	Off-site disposal by authorised contractor at a licensed facility.	Bunded and contained storage facility
Earthworks and excavation, including tunnelling activities	Spoil including ENM and VENM	If material taken off-site, testing and/or classification will be undertaken prior to removal off-site.	On-site reuse for earthworks where possible. Beneficial reuse off-site (s143 requirement). Off-site re-use in accordance with ENM Exemption. Off-site disposal at an approved facility.	Stockpiles (separate for each classification)
	Contaminated spoil	If material taken off-site, testing and classification will be undertaken prior to removal off-site.	Reuse/ encapsulation in accordance with contamination procedure and/or guidelines. Disposal to licensed facility.	Stockpiles (separate for each classification)
	Landfill leachate and/or contaminated stormwater at St Peters Interchange	In accordance with trade waste agreement	Discharge to Trade Waste Sewer.	N/A
	Gases and landfill gases at St Peters Interchange	Diversion to landfill gas collection and extraction system	Treat in compliance with EPL.	N/A
Surface works and general construction activities	Construction wastes: steel, electrical cabling, other metals	General solid waste (non-putrescible)	Recycle at an off-site facility.	Scrap metal bin
	Construction wastes: conduits/pipes	General solid waste (non-putrescible)	Recycle at an off-site facility.	Construction waste bin for offsite segregation
	Construction wastes: plasterboard	General solid waste (non-putrescible)	Recycle at an off-site facility.	Construction waste bin for offsite segregation
	Construction wastes: concrete and asphalt	General solid waste (non-putrescible)	Reuse concrete onsite (after crushing) in base material for haul roads where possible. Recycle at an off-site facility.	Concrete skip bin or construction waste bin for offsite segregation

Construction Waste and Resource Sub-Plan



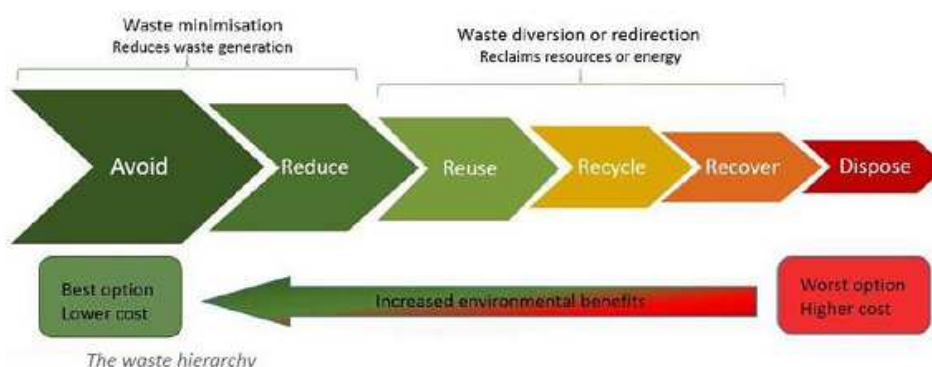
Project activity	Waste stream	Classification	Proposed reuse / recycling / disposal	Storage receptacle
	Construction wastes: timber formwork	General solid waste (non-putrescible)	Reuse until end of useful life.	Timber skip bin or construction waste bin for offsite segregation
	Construction wastes: packaging materials (eg. Crates, pallets, cartons, plastics and wrapping materials)	General solid waste (non-putrescible)	Return to supplier. Recycle at an off-site facility.	Separate skip bins for plastics, timber, metals, cardboard or construction waste bin for offsite segregation
	Construction wastes: empty oil and other containers/drums	General solid waste (non-putrescible)	Return to supplier. Recycle at an off-site facility.	Oil drum skip bin, plastics skip bin
	Hazardous wastes including chemicals, paints, pesticides	Hazardous waste	Off-site disposal at a licensed facility.	Bunded and contained storage facility
	Maintenance Waste: tyres	Special waste	Off-site disposal at a licensed facility.	Stockpile
	Maintenance Waste: air/oil filters, rags	General solid waste (non-putrescible)	Off-site disposal at a licensed facility.	Skip bin
	Maintenance Waste: lubricants, waste oils, fuels, coolant	Liquid waste	Off-site disposal at a licensed facility.	Bunded and/or contained storage facility
	Maintenance Waste: batteries	Hazardous waste	Off-site disposal or recycling at a licensed facility.	Bunded and contained storage facility
	Maintenance Waste: radiator fluid, hydraulic fluid	Hazardous waste	Off-site disposal at a licensed facility.	Bunded and contained storage facility
	Maintenance Waste: hoses	General solid waste (non-putrescible)	Recycle at an off-site facility.	Skip bin

Project activity	Waste stream	Classification	Proposed reuse / recycling / disposal	Storage receptacle
	Maintenance Waste: gas cylinders and bulk chemicals containers for Water Treatment Plant	Packaging	Returned to Supplier for reuse / recycling.	Bottle cage/rack
Site office use	Site office waste: food waste	General solid waste (putrescible)	Off-site disposal at a licensed facility.	General waste bin
	Site office waste: paper, cardboard,	General solid waste (non-putrescible)	Recycled at an off-site facility.	Paper and cardboard bin
	Site office waste: plastics, glass, cans	General solid waste (non-putrescible)	Recycled at an off-site facility.	Co-mingled bin
	Site office waste: printer cartridges	General solid waste (non-putrescible)	Recycled at an off-site facility.	Printer cartridge bin
	Sewage	Liquid	Sydney Water sewerage system. Off-site disposal at a licensed facility by sewerage collection service.	Tank
	Sanitary waste	Clinical waste	Off-site disposal at a licensed facility.	Sanitary waste bin

5.4 Waste Hierarchy

To achieve positive waste and resource management outcomes, the Project will adopt waste management strategies in accordance with the *Waste Avoidance and Resource Recovery Act 2001 Act* (NSW) management hierarchy as illustrated in **Figure 12**. The waste hierarchy nominates avoidance and reduction of waste as the most important priority, with disposal of waste as the least preferred option for waste management.

Figure 2: Waste management hierarchy



5.5 Waste separation and segregation

Waste separation and segregation will be managed at each work area/site to facilitate resource recovery as a priority of the waste management program. All sites will have bins appropriate to the waste products being generated at the site, such as putrescible, paper, metal and general construction waste.

In accordance with SWTC D.5 requirements and ISCA waste management benchmarks, the Project will aim to meeting the following minimum targets:

- 40-60% recycling of office waste.
- 80% reuse/recycling of general construction wastes (e.g. building and demolition)
- 80% reuse/recycling of usable spoil
- 50-90% diversion from landfill of inert and non-hazardous materials.

Further details regarding the ISCA waste management benchmarks are detailed in the Sustainability Plan (M5N-ES-PLN-PWD-0020).

5.6 Green Waste

The procedure for dealing with green waste including timber and mulch from clearing activities is as follows;

1. Where practical weeds are to be removed from the area to be cleared and disposed of at a facility licensed to receive green waste.
2. Where required in the Construction Flora and Fauna Management Plan (M5N-ES-PLN-PWD-0002) logs and hollows are to be salvaged for habitat adjacent to the works.
3. Where there is available storage, mulched weed free green waste shall be reused on site to improve topsoil productivity of previously disturbed areas.
4. Where there is no on site demand for mulched weed free green waste it shall be beneficially reused off site.

5.7 Waste handling and storage

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

- All spoil, subsoil, topsoil and mulch are to be stockpiled separately on site in allocated areas to be protected from degradation, erosion or mixing with fill or waste;
- Mitigation measures for dust control and surface water management will be implemented as per the Air Quality Management Plan (M5N-ES-PLN-PWD-0002) and the Soil and Water Quality Management Plan (M5N-ES-PLN-PWD-0005);
- 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;
- Hazardous wastes 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
- All other recyclables or non-recyclable wastes are to be stored in appropriate receptacles (e.g. bins or skips) in appropriate locations on-site accessible to contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

5.8 Waste disposal

Waste disposal is to be in accordance with the POEO Act and the *Waste Avoidance and Resources Recovery Act 2001*. Wastes that are unable to be reused or recycled will be disposed of off-site to an EPA approved waste management facility following classification (Section 5.1). The locations of possible waste management / disposal facilities are included in Appendix C. Details of waste types, volumes and destinations are to be recorded in the Waste Management Register (Appendix A).

5.9 Reuse of captured water from sediment basins

Where practical (i.e. pump lines at basins can be accessed by water carts) and compliant (e.g. treated for discharge where appropriate) captured water from sediment basins at the Kingsgrove (western surface works) and Arncliffe sites will be used to fill water carts for onsite dust suppression and other surface activities. Captured surface water at the St Peters Interchange site must not be reused due to the potential for high levels of contaminants from the former landfill.

5.10 Reuse of treated water from Water Treatment Plants

Where applicable, treated groundwater from WTPs will be re-used for surface construction activities such as dust suppression, cleaning of belt presses, and material compaction.

5.11 Section 143 Notices

- Notices under section 143(3A) of the POEO Act (“s.143 Notice”) must be submitted to the RMS Representative prior to transporting any waste to a place that is not owned by RMS and is not a licensed waste facility (the “Waste Site”).
- This requirement includes waste transported for reuse, recycling, and disposal or stockpiling. Waste in this context includes spoil, Virgin Excavated Natural Material (“VENM”), Excavated Natural Material (“ENM”), crushed rock, reclaimed asphalt pavement, mulched vegetation, waste concrete, etc.
- Section 143 Notices must include:
 - An accurate description of the waste;
 - Evidence that the Waste Site has the appropriate planning consent; and
 - Confirmation of the waste delivery arrangements with the landholder prior to transporting materials to the Waste Site.
 - Refer to the Section 143 Pro-forma in Appendix B of this CWRSP.

5.12 Energy Conservation

As detailed in the Project Energy Efficiency and Greenhouse Gas Emissions Strategy (M5N-ES-PLN-PWD-0021), the project design has been optimised to:

- Reduce energy and resource consumption, and spoil generation during tunnel excavation, by selecting to excavate the main alignment tunnels using roadheader and drill and blast methods, instead of use of a tunnel boring machine which would consume more electricity, potable water and concrete, and generate more spoil.

Refer to Section 6 for other energy conservation controls over the course of construction.



6. Mitigation and Management Actions

Measures to manage and minimise the generation of waste and the consumption of resources are to be implemented prior to and during works. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Controls used on this Project are identified in Table 6. These controls include the relevant environmental mitigation measures identified in the CoA and REMMs.

Table 6: Project controls for the management of waste and resources

Reference	Control / Action	Timing	Responsibility	Source
Planning				
RW1.	Obtain relevant licences / approvals for off-site waste management facilities or premises prior to removal from site.	Pre-construction Construction	EM	A9 REMM WM10
RW2.	Ensure waste management controls are considered as part of the development of Construction Area Plans.	Pre-construction Construction	PM	REMM WM4
RW3.	Ensure Work Packs include relevant environmental control information regarding Regulated Waste where required.	Pre-construction Construction	PE	REMM WM6
General				
RW4.	Classify wastes in accordance with Waste Classification Guidelines Part 1: Classifying waste (EPA 2014). Comply with the requirements of the POEO Act for any non-licensed as well as licensed waste activities that involve the storage, transport, treatment and/or disposal of waste.	Pre-construction Construction	EM, PM	B54 B55 REMM WM9
RW5.	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.	Construction	PM, EM	B52



Reference	Control / Action	Timing	Responsibility	Source
RW6.	Storage containers (bins, skips, tanks, etc) are to be provided at each work area in sufficient numbers to facilitate segregation of waste at the source of generation, where ever possible. The correct bin type must be used to avoid contamination.	Construction	PM	REMM WM8
RW7.	Containers are clearly sign posted to inform all Project personnel of the correct material to be placed within each bin type. Containers are emptied at a frequency that is sufficient to ensure their correct use. If a bin needs to be collected, the site supervisor should be contacted.	Construction	PM	REMM WM9 REMM WM8
RW8.	Burial or burning of waste is not permitted.	Construction	SS	REMM WM9
RW9.	The procurement process will consider the following: <ul style="list-style-type: none"> • Locally produced goods and services to reduce transport fuel emissions. • Emissions intensity of construction materials. • The fuel efficiency of the construction plant and equipment. • Accurate estimates of resource requirements to minimise wastage. 	Pre- construction Construction	PM/PE/EM	REMM WM1 REMM WM2 REMM WM3
RW10.	Recycled or secondary waste material will be considered for use during construction, where reasonable and feasible (e.g. fly ash for concrete production)	Construction	PM/PE/EM	D67(iii) REMM WM1 REMM WM2
RW11.	Where feasible, recycled content road construction and maintenance materials such as recycled aggregates in road pavement and surfacing will be used.	Construction	PM/PE/EM	D67(iii) REMM WM1 REMM WM2
RW12.	Project planning will aim to minimise double handling of materials, long haulage distances and additional fuel use.	Construction	PM/PE	REMM WM1
Construction Compounds				

Construction Waste and Resource Sub-Plan



Reference	Control / Action	Timing	Responsibility	Source
RW13.	All new office equipment, kitchen appliances and portable heating/cooling units procured must be energy efficient.	Pre-construction Construction	PM	REMM WM1
RW14.	All mains water and electricity used will be metered to allow site consumption to be monitored and recorded	Pre-construction Construction	PM	REMM WM1
RW15.	Provide office aluminium cans, glass, and paper recycling bins/boxes in site offices.	Pre-construction Construction	EM	REMM WM1
RW16.	Set site office printers to default to double sided and black and white printing.	Pre-construction Construction	EM	REMM WM1

7. Monitoring

Inspections, observations, and monitoring requirements relevant to waste and resource management are identified in Table 7.

Table 7: Monitoring requirements relevant to management of waste and resources

Item	Frequency	Standards	Records	Responsibility
Inspection				
Asbestos Survey	As required, prior to demolition	Manage Work with Asbestos Procedure (M5N-ES-PRC-PWD-0037) Inspection to be undertaken by a qualified asbestos surveyor	Reporting as per Manage Work with Asbestos Procedure	Project Manager HSE Manager
Site inspections	Weekly	Waste and Resource Management Procedure; EPA "Waste Classification Guidelines"; NSW Government "Waste Reduction and Purchasing Policy" (WRAPP); and RMS Waste Fact Sheets: "Virgin Excavated Natural Material (VENM)", "Excavated Natural Material" (ENM), "Excavated Public Road Materials", "Recovered Aggregates", "Asbestos Waste" and "Waste Sampling".	Environmental Inspection Checklist (M5N-ES-FRM-PWD-0010-02)	Environment and Sustainability Manager
Visual surveillance	Daily	Storage containers (bins, skips, tanks, etc.) in sufficient numbers to facilitate segregation; Correct bin type used; Containers clearly sign posted; and Containers emptied at sufficient frequency.	Mobile phone photos as relevant	Environment Advisor
Monitoring				
Sustainability	Sustainability inspection and audit requirements as specified in Element 1 of the Sustainability Plan (M5N-ES-PLN-PWD-0020).			Environment and Sustainability Manager

Construction Waste and Resource Sub-Plan



Construction Waste and Resource Sub-Plan



8. Reporting

Reporting requirements relevant to waste management are identified in Table 8.

Table 8: Reporting requirements relevant to management of waste and resources

Item	Frequency	Standards	External Reporting	Responsibility
Purchasing / Procurement	Monthly	D&C G36 Section 4.11.2 and Annexure G36/F	Reporting of waste and purchasing data as required under the NSW Government "Waste Reduction and Purchasing Policy" in accordance with D&C G36 Annexure G36/F on or before:	Environment and Sustainability Manager
Waste	Monthly	D&C G36 Section 4.11.2 and Annexure G36/F Waste & Spoil Tracking Register	(i) 31 July for the reporting of information relating to materials purchased and wastes generated or recycled between 1 January and 30 June of that year; (ii) 31 January for the reporting of information relating to materials purchased and wastes generated or recycled between 1 July and 31 December of the previous year; and (iii) at Construction Completion Date.	Environment and Sustainability Manager
Sustainability	Sustainability reporting requirements as specified in Element 1 of the Sustainability Plan (M5N-ES-PLN-PWD-0020).			Environment and Sustainability Manager

Construction Waste and Resource Sub-Plan



9. Review and Improvement

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub-plan, conditions of approval and other relevant approvals and licences.

Refer to the continuous improvement requirements including corrective actions in Section 3.3 and Element 12 of the CEMP.

9.1 Auditing

Audits will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines. Internal audits of the implementation of this sub plan, CoA and relevant approvals will be undertaken on an annual basis.

In accordance with the ISCA waste management requirements, external audits of the waste management system will be undertaken at least annually. Internal auditing to final destination, to a waste facility where the waste is transformed into another product or material or into landfill, will be conducted bi-annually.

Audit requirements are detailed in Element 12 of the CEMP and Element 9 of the SP.

9.2 Record management

All documents and records referred to within and required to implement the CEMP (including the plan and relevant sub-plan) will be controlled and maintained according to the project's Records Management Plan.

Environmental documents may include, but are not limited to:

- CEMP and sub-plans;
- Procedures and protocols; and
- Checklists, forms and templates.

Environmental records relevant to the CWRSP may include, but are not limited to:

- All monitoring, inspection and compliance reports / records. For samples required to be collected for the purposes of the EPL, the following records will be maintained:
 - the date(s) on which the sample was taken;
 - the time(s) at which the sample was collected;
 - the point at which the sample was taken; and
 - the name of the person who collected the sample;
- Reports on environmental incidents, other environmental non-conformances, complaints and follow-up action;
- Minutes of the CEMP and construction environmental management system review meetings and any resulting actions;
- Results of internal and external audits.

All records required to be kept by the EPL licence will be:

- in a legible form, or in a form that can readily be reduced to a legible form;
- kept for at least 4 years after the monitoring or event to which they relate took place; and
- produced in a legible form to any authorised officer of the EPA who asks to see them.

The minimum document retention periods beyond practical completion for environmental documents and records are described in Records Management Plan and will consider the EPL monitoring requirements M1.

9.3 Waste Tracking Records

A Waste Register shall be maintained which identifies all waste removed from the Project. The Register shall document the following:

Construction Waste and Resource Sub-Plan



- Site from which the waste was generated
- Stream of waste
- Volume of waste
- Tracking information of trackable waste streams e.g. tracking receipts
- Tracking to final destination where requested e.g. recycled brick and concrete.

A separate register shall be maintained for spoil due to the quantities involved. This is further discussed in the Spoil Management Plan.

9.4 Non-conformance management, corrective and preventative action

Environmental inspection, observation and monitoring results are interpreted to identify actual and potential non-conformances and events that may result in nuisance, environmental harm and unacceptable loss of amenity or community complaints. The Environmental Representative, WCX M5 AT Representative and/or a public authority may also raise a non-conformance or improvement notice.

Where non-conformances are identified during regular inspections, corrective actions are raised, tracked and closed out through the inspection records if the actions can be closed out within 72 hours. All other nonconformances are recorded and reported as incidents in Synergy.

Following the identification of a non-conformance, corrective and/or preventative actions will be identified and assigned to the appropriate person with set timeframes. Timeframes will be set to ensure any damage incurred is rectified and any chance of recurrence is eliminated as soon as practicable. Synergy will be used to assign, track and close out corrective actions (except for those actions identified, tracked and closed out within 72 hours through inspection records). All corrective actions will include reference to the relevant incident record for ease of tracking. Refer to Element 3 and Element 9 of the CEMP.

9.5 Complaints

Complaints will be recorded in accordance with the Construction Complaints Management System. Information to be recorded will include location of complaint, time(s) of occurrence of alleged air quality impacts and perceived source. Resident complaints will be responded to in a timely manner and action taken recorded in accordance with the Construction Complaints Management System.

9.6 Revision of this plan

Continual improvement is achieved through constant measurement and evaluation, audit and review of the effectiveness of the plan, and adjustment and improvement of the Construction Environmental Management Plan, project environmental outcomes and CDS-JV Environmental Management System. Monthly reviews undertaken by the Environmental Representative and annual management reviews provide specific opportunities to identify improvements in the environmental management system and/or this CWRSP.

This plan will be updated as required:

- 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;
- Where requested or required by the NSW Department of Planning and Environment or any other Authority; or
- In response to internal or external audits or annual management reviews.

The updated plan must be endorsed by the Environment and Sustainability Manager and approved internally by the Project Director. Minor changes may be approved by the Environmental Representative. Minor changes would typically include those that:

- Are editorial in nature (e.g. staff and agency/authority name changes);
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively;

Construction Waste and Resource Sub-Plan



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

Where the Environmental Representative deems it necessary, the CWRSP will be provided to relevant stakeholders for review and comment if required and forwarded to the Secretary of DP&E for approval. Revisions to the plan will be provided to the Project Company for review upon request by the Project Company prior to submission to stakeholders or the NSW DP&E.

Where approval of the Secretary of DP&E is not required, a copy of the updated plan will be provided to the Secretary for information.



Construction Waste and Resource Sub-Plan

Appendices

Appendix A: Waste Management Register (Example)

Date	Time	Waste Classification*	Description of waste	Amount		Transporter		Receiving facility			Description of Waste Use (reused, recycled, stockpiled or disposed of)	Location of Reuse, if reused on site	Invoice no. / receiving facility ref. no.
				(tonnes)	(m ³)	Name	Waste Licence no.	Name	Address	Waste Licence no.			

*Refer to Construction Waste and Resource Sub Plan for waste classes or Waste and Resource Management Procedure

Appendix B: Section 143 Notice Proforma

The text below is adapted from RMS Specification D&C G36 Annexure G36/F2, Template for letter to accompany "s.143 notice" to landholders. All letters to accompany s.143 Notices to landholders must be consistent with the following template.

[Insert reference number, if applicable]

[Insert file number, if applicable]

[Date]

[Recipient name]

[Recipient company (if applicable)]

[Recipient address]

Dear [Recipient Name]

RECEIVING NEW M5 WASTE AT [INSERT LOCATION OF WASTE FACILITY]

[Insert Company Name] has been engaged by CDS-JV to undertake [insert brief description of the works].

Your interest in receiving [discuss type and quantity of waste of the waste] ("New M5 Waste") which will be generated by the Project is appreciated. It is understood that you intend to use the New M5 Waste for [insert intended use for the waste]. It is important to New M5 that all waste materials from this Project are managed in a way that meets legislated requirements and will not harm the environment or human health.

This letter provides important information that will help you to understand what you need to do to legally receive this material and avoid harm to environmental and human health.

You will need to do the following things before the New M5 Waste is delivered to your property:

Read the "Questions and Answers" attached to this letter. The Environment Protection Authority ("EPA") has other information that may help you to understand the laws relating to receiving waste materials. This information is available on the EPA website at <http://www.epa.nsw.gov.au/waste/dumping.htm>.

Check with your local council and the EPA whether any approvals or licenses are needed before your property can accept the New M5 Waste.

Make sure that you obtain all relevant approvals, licenses or permits that are required for you to legally receive the New M5 Waste. Often there will be no need for any approvals; licenses or permits, but always check with council whether this will be the case for your property.

Complete and sign a "Section 143 Notice" (copy attached). Only sign this form if you are confident that the details on the Section 143 Notice are correct, your property can lawfully receive the New M5 Waste, and the materials can be legally used for the intended purpose.

Keep a copy of the completed Section 143 Notice for your records and mail the original document to:

Please contact [insert name of contact person] on [insert telephone number] if you have any questions in relation to the New M5 Waste. This will help you, the local council and the EPA to decide whether any approvals or licenses are needed, and whether the New M5 Waste needs to be managed in any particular way once delivered to your property.

Once we have received the completed and signed Section 143 Notice and have confirmed that the New M5 Waste can be legally transported to your property, we will contact you to make arrangements for waste delivery.

When the New M5 Waste arrives on your property, you must ensure that:

The New M5 Waste is as described on the Section 143 Notice; and

The New M5 Waste is managed in a way that complies with any relevant approvals, licences or permits and avoids harm to the environment, human health and other people's property.

Construction Waste and Resource Sub-Plan



[Optional – outline any further requirements, depending on the environmental risks associated with the New M5 Waste and the proposed use].

If you have any inquiries about these matters, please contact [insert name of contact person] on [insert contact telephone number].

Yours faithfully,

[Insert sender name]

[Insert sender title]

Appendix C: Location of Possible Waste Transporters and Local Waste Facilities

Potential Waste Contact List

Provider/Facility	Contact Details	Waste Accepted
Waste Transporter		
Bingo Bins Pty Ltd	305 Parramatta Rd, Auburn NSW 2144 Ph: 1300 424 646	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	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	Transport of category 2 trackable waste Transport of category 1 trackable waste
Solveco Pty Ltd	38 Links Road, St Marys Ph: 9833 7035	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	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	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	Waste storage - other types of waste Composting Waste storage - waste tyres Non-thermal treatment of general waste Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste Recovery of general waste
Concrete Recyclers	14 Thackeray Street, Camellia Ph: 8832 7400	Concrete, Bricks, Tiles and Asphalt
Metropolitan Demolitions & Recycling Pty Ltd	396 Princes Highway, St Peters Ph: 9519 3099	Demolition Rubble (Brick & Concrete)
REMONDIS Australia Pty Ltd - Transfer Station	2 Bay Road, Taren Point 2229 Ph: 9526 2642	Recycling - gas bottles, batteries – car, oil - used motor

Construction Waste and Resource Sub-Plan

Provider/Facility	Contact Details	Waste Accepted
Sims Metal Management - Alexandria	72 Burrows Road, Alexandria Ph: 9509 7002	Metal recyclers
Solveco St Marys Sydney waste treatment facility	38 Links Road, St Marys Ph: 9833 7035	Liquid waste
Bingo St Peters Recycling Facility	6-10 Burrows Road South, St Peters Ph: 1300 424 646	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	Liquid or hazardous waste
Visy Taren Point Material Recovery Facility	43 Bay Road, Taren Point, Ph: 02 9524 8533	Newspapers Magazines Office Paper Envelopes Without a Window Envelopes With a Window Phone Books Pizza Boxes (clean) Egg Cartons Cardboard
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	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	General Solid Waste (Nonputrescibles) includes VENM Asbestos Waste Waste Tyres

Construction Waste and Resource Sub-Plan



Provider/Facility	Contact Details	Waste Accepted
Lucas Heights Landfill and Resource Recovery Park	New Illawarra Road, Lucas Heights Ph: 1300 651 116	General Solid Waste (Putrescible) General Solid Waste (Nonputrescibles) includes VENM Asbestos Waste Waste Tyres
Wallgrove Road (Eastern Creek) Landfill	Wallgrove Road, Eastern Creek Ph: 1300 651 116	General Solid Waste (Putrescible) General Solid Waste (Nonputrescibles) includes VENM Asbestos Waste Waste Tyres

Construction Waste and Resource Sub-Plan



Appendix D: Manage Waste Procedure

M5N-ES-PRC-PWD-0044



Appendix E: Environmental Inspection Checklist

M5N-ES-FRM-PWD-0010-02

Appendix F: Glossary of Terms

Term / abbreviation	Definition
CEMP	Construction Environmental Management Plan
CSWQSP	Construction Soil and Water Quality Sub-plan
CWRSP	Construction Waste and Resource Sub-plan
CoA	Condition of Approval
D&C	Design and Construction
Deed	As appropriate to the defined scope of the WestConnex New M5 Main Works D&C Deed.
DP&E	Department of Planning and Environment
EEGGES	Energy Efficiency and Greenhouse Gas Emissions Strategy
EIS	Environmental Impact Statement
ENM	Excavated Natural Material
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Infrastructure Approval	Approval under the Environmental Planning & Assessment Act 1979 for SSI 6788 signed by the Minister for Planning on 20 April 2016
ISCA	Infrastructure Sustainability Council of Australia
ISCA IS Rating Tool	Rating tool developed by the Infrastructure Sustainability Council of Australia (ISCA) to evaluate sustainability across design, construction and operation of infrastructure. The Infrastructure Sustainability rating scheme evaluates the sustainability (including environmental, social, economic and governance aspects) of infrastructure Projects and assets.
CDS-JV	CPB Contractors Dragados Samsung Joint Venture (Contractor)
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project	WestConnex New M5 Project
Project Company	WCX M5 AT
Project requirements	The project requirements include all CoA (pursuant to Infrastructure Approval), REMMs, EMMs, SWTC and EPL.
REMM	Revised Environmental Management Measure (from the SPIR)
RMS, Roads and Maritime	Roads and Maritime Services
SMC	Sydney Motorway Corporation
SP	Sustainability Plan

Construction Waste and Resource Sub-Plan



Term / abbreviation	Definition
SPIR	Submission [and Preferred Infrastructure] Report
SWTC	As appropriate to the defined scope of the Scope of Works & Technical Criteria defined under the New M5 D&C Deed.
VENM	Virgin Excavated Natural Material
WCX	WestConnex
WDA	WestConnex Delivery Authority, now Sydney Motorway Corporation (SMC)
WRAPP	Waste Reduction and Purchasing Policy