

# Sydenham Station and Junction

## Waste Management and Recycling Plan


 LAING O'ROURKE


 John  
Holland

23 March 2018

# Waste Management and Recycling Plan

## Revision 3

### Document and Revision history

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### Terms of definitions

The following terms, abbreviations and definitions are used in this plan.

Terms	Explanation
ASR	Annual Sustainability Report
BCA	Building Code of Australia
CBD	Central Business District
CEMF	Construction Environmental Management Framework
CERT	Carbon Estimate and Reporting Tool
CoA	Conditions of Approval
DPE	Department of Planning & Environment
ECMP	Energy and Carbon Management Plan
EIS	Environmental Impact Statement
GHG	Greenhouse Gas
FTE	Full Time Employee
ISCA	Infrastructure Council of Australia
IS	Infrastructure Sustainability
IWC	Inner West Council
JH	John Holland Group Pty Limited
JHLOR	John Holland and Laing O'Rourke joint venture
Laing O'Rourke	Laing O'Rourke Australia Construction Pty Limited
Minister, the	NSW Minister for Planning
MMP	Materials Management Plan
MSDR	Monthly Sustainability Data Report
NCC	National Construction Code
ODS	ODS Track (web based submission management framework)
SLC	Sustainability Leadership Committee
SMCSW	Sydney Metro City and Southwest
SME's	Small and Medium sized Enterprises
SMP	Sustainability Management Plan
QSR	Quarterly Sustainability Report
TfNSW	Transport for New South Wales
WMRP	Waste Management and Recycling Plan

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The logo for Laing O'Rourke, featuring the company name in white capital letters on a dark grey rectangular background, with a yellow horizontal line above and a red horizontal line below the text.The logo for John Holland, featuring the company name in white text on a red rectangular background with horizontal white lines.

## 1. Introduction

### 1.1 Purpose and Application

This Waste Management and Recycling Plan (WMRP) specifies the sustainability requirements that the Project must meet in order to enhance its sustainability performance in relation to waste and recycling. Consistent with the Projects Sustainability Policy, the intended outcomes of the WMRP with regards to waste and recycling include:

- enhancement of sustainability performance in relation to waste and recycling;
- fulfilment of compliance obligations in relation to waste and recycling; and,
- achievement of sustainability objectives in relation to waste and recycling.

The WMRP enables the Project to manage sustainability in relation to waste in a systematic manner, and is applicable to the Project, and all of the Project's activities, products and services that the Project determines it can either control or influence considering a life cycle perspective.

This WMRP is a sub plan of the Sustainability Management Plan (SMP) and shall be read in conjunction with it

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## 2. Context

### 2.1 Understanding the Project's Context

The Project has determined external and internal issues that are relevant to its purpose and that affect its ability to achieve its intended waste and recycling outcomes. An overview of the key high level issues that are relevant is provided below.

Key external cultural, social, political, legal, regulatory, financial, technological, economic, natural and competitive circumstances include;

- The Sydney Metro City & Southwest project is the second stage of the Sydney Metro program, extending from Chatswood, under Sydney Harbour, through the central business district (CBD) and beyond to Bankstown. It includes seven new metro stations and the upgrade of all eleven existing stations between Sydenham and Bankstown.
- Sydenham Station and Junction Works forms a subsection of the second stage of the Sydney Metro program and is to be procured as an incentivised target cost contract.
- The client have budgeted approximately \$240M for the Project and it is scheduled for completion in 2021;
- According to Sydney Metro's Sustainability Strategy for Stage 2, their sustainability objectives in relation to waste include;
  - Resources – Waste & Materials
    - Minimise waste through the Project lifecycle.
    - Reduce materials consumption.
    - Consider embodied impacts in materials selection.
    - Maximise beneficial reuse of spoil.

### 2.2 Needs and Expectations of Interested Parties

The Project has determined the interested parties that are relevant to the Project; the relevant needs and expectations of these interested parties, and which of these needs and expectations become its compliance obligations with regards to sustainability.

Substantial ongoing effort will be made to manage the Project's understanding of the needs and expectations of Interested Parties, further detail can be found in the Interface Management Plan (SMCSWSSJ-JHL-WSS-IF-PLN-000019) and the Community and Stakeholder Engagement Plan (SMCSWSSJ-JHL-WSS-CL-PLN-000023). A high level overview of the most relevant parties is provided in the table below.

Interested Party	Needs and Expectations
<b>Transport for NSW</b>	Environment and Sustainability Policy Environment and Sustainability Framework
<b>Sydney Metro</b>	Environment and Sustainability Policy Sustainability Strategy Contract documents
<b>Parent Companies</b>	Policies Systems Procedures
<b>Infrastructure Sustainability Council of Australia (V1.2)</b>	Technical Manual V1.2

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### 2.3 Project Scope

The Project is as described in the Scope of Works and Technical Criteria (SWTC). For further detail regarding the overall scope of works see the SMP (SMCSWSSJ-JHL-WSS-SU-PLN-000035). A brief overview of relevant content in relation to waste and recycling is provided below (adapted from Appendix B7 of the SWTC);

- ensure that inert and non-hazardous construction and demolition waste, and office waste is recycled or alternatively beneficially reused
- implement opportunities for recycling and reuse of non-putrescible general solid wastes (other than construction and demolition waste and office waste)
- implement packaging take-back arrangements with suppliers
- use compostable or reusable temporary erosion control devices where practicable
- provide construction recycling facilities within the Site where practicable
- include the following waste management measures in the design of the Project Works:
  - commingled recycling bins adjacent to all general waste bins within all areas accessible by customers, in Back of House Areas;
  - separate bins for storage of specialist waste streams, including oil, electrical and electronic waste, and equipment waste; and
  - sufficient on-site storage space for the safe storage of recyclable waste and general waste prior to collection for treatment and disposal
- use reusable formwork where practicable
- reduce spoil quantities which will be generated during the SSJ Project works and beneficially reuse spoil, including topsoil
- reuse appropriate site-won materials onsite
- achieve or exceed the specified ISCA IS Rating Scheme version 1.2 credit requirements.

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### 3. Leadership

#### 3.1 Sustainability Leadership Committee

A Sustainability Leadership Committee (SLC) will be established on the project. The Sustainability Leadership Committee will meet on a regular basis to demonstrate leadership and commitment with respect to sustainability, including in relation to materials, by taking accountability for the effectiveness of the Project's approach to sustainability;

See the SMP (SMCSWSSJ-JHL-WSS-SU-PLN-000035) for more information regarding membership and duties of the SLC.

#### 3.2 Sustainability Policy

Project management have drafted a Sustainability Policy for the Project. It provides a framework for the objectives that have been set in this WMRP and includes a commitment to going beyond the mitigation of negative impacts to restorative actions (i.e. net positive benefits for society and the environment) and also to sustainable procurement.

The Project Sustainability Policy supports the Metro Environment and Sustainability Policy. For further information on the Project Sustainability Policy and Metro's Environment and Sustainability Policy see Appendix A.

#### 3.3 Project Roles, Responsibilities and Authorities

Project management ensure that the responsibilities and authorities for relevant roles are assigned and communicated within the Project. Sustainable infrastructure cannot be delivered by one person or one discipline, it requires a multidisciplinary approach underpinned by collaboration. On the Project the following roles are critical to the management of energy and carbon emissions.

Role	Responsibility
<b>Project Director</b>	Overall responsibility and authority for; <ul style="list-style-type: none"> <li>ensuring that the management of waste and recycling conforms to the requirements of this WRMP</li> <li>reporting on the performance of the Project with regards to energy and carbon, to top management and interested parties</li> </ul>

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<b>Sustainability Manager</b>	<p>IS Assessor</p> <p>Day to day responsibility and authority for;</p> <ul style="list-style-type: none"> <li>ensuring that the management of sustainability conforms to the requirements of this WRMP</li> <li>reporting on the performance of the Project with regards to material , to project management</li> </ul> <p>As per the applicable compliance obligations, the Sustainability Manager must;</p> <ul style="list-style-type: none"> <li>possess a recognised qualification relevant to the position and the SSJ Contractor's Activities and have recent relevant experience in sustainability management on projects similar to the Project Works;</li> <li>have at least five years' sustainability management experience in the design and construction of sustainable infrastructure or buildings;</li> <li>be available as the Principal's Representative's primary contact with the SSJ Contractor on sustainability matters;</li> <li>be responsible for and have the authority to develop and implement the Sustainability Management Plan; and</li> <li>be engaged throughout the execution of the SSJ Contractor's Activities and be on or around the Site during the construction phase of the Project Works and Temporary Works with responsibilities limited to sustainability management of the SSJ Contractor's Activities.</li> </ul>
<b>Sustainability Co-ordinator</b>	<p>IS Assessor</p> <p>Dedicated to assisting the Sustainability Manager fulfil their duties, must;</p> <ul style="list-style-type: none"> <li>have at least two years' sustainability management experience in the design and construction of sustainable infrastructure or buildings</li> </ul>
<b>Commercial Manager</b>	As per the Sustainability Manager, but with a focus on commercial and procurement matters.
<b>Design Manager</b>	As per the Sustainability Manager, but with a focus on design matters
<b>Construction Manager</b>	As per the Sustainability Manager, but with a focus on construction matters

Also noteworthy are critical roles undertaken by personnel external to the JHLOR JV. They have been identified as key facilitators which the Project will proactively seek to work with, they are detailed in the table below.

<b>Role</b>	<b>Responsibility</b>
<b>Metro Project Leaders</b>	<p>Overall responsibility and authority for;</p> <ul style="list-style-type: none"> <li>ensuring that the Project's management of sustainability conforms to Metro's requirements</li> <li>reporting on the performance of the Project with regards to sustainability, to Metro's top management and interested parties</li> </ul>
<b>Metro Sustainability Leads</b>	<p>Day to day responsibility and authority for;</p> <ul style="list-style-type: none"> <li>ensuring that the Project's management of sustainability conforms to Metro's requirements</li> <li>reporting on the performance of the Project with regards to sustainability, to Metro's top management and interested parties</li> </ul>
<b>Independent Certifier</b>	Responsibility and authority for certifying compliance with all applicable sustainability compliance obligations
<b>Metro Technical Specialists</b>	<p>Day to day responsibility and authority for;</p> <ul style="list-style-type: none"> <li>ensuring that the Project's management of sustainability (including in relation to their areas of expertise) conforms to the technical requirements of Metro (e.g. concrete structures)</li> </ul>

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## 4. Planning

### 4.1 Risks and Opportunities

The Project Team have determined the sustainability risks and opportunities, including in relation to materials, associated with its activities, products and services that it can control and those that it can influence, and their associated impacts, considering a life cycle perspective.

The Project has determined those aspects that have or can have a significant impact, by using established criteria. Comprehensive information has been consolidated within the Project's Risk and Opportunity Register prepared in accordance with the Risk Management Plan (SMCSWSSJ-JHL-WSS-RM-PLN-000010).

Lifecycle assessment will also be used ahead of detailed design to determine issues that have or can have a significant impact, with a view to identifying and prioritising opportunities.

Sustainability opportunities, including in relation to waste and recycling, will also be documented within a stand-alone Sustainability Opportunities Register (see Appendix C for an excerpt featuring opportunities in relation to materials).

Effectively managing opportunities, including in relation to waste and materials, is central to achieving sustainable outcomes. It is typically the management of opportunities, rather than risks, that allow compliance benchmarks to be surpassed and best practice to be achieved. In order to do this the Project has leveraged recent experience from other successful projects Laing O'Rourke and John Holland have been involved in. These relevant projects include:

- John Holland's NorthLink WA Southern Section project for Main Road Western Australia as part of the \$1.2bn NorthLink WA Program. This project achieved a Leading IS Design rating of 93 (version 1.2) and in doing so achieved a number of firsts, all of which stemmed from effectively and proactively managing sustainability opportunities:
- Laing O'Rourke Fulton Hogan and AECOM in an alliance with Public Transport Victoria, Metro Trains Melbourne and Vic Roads delivered the Bayswater Level Crossing Removal Project. It was the first project completed under the Level Crossing Removal Program to be certified with a sustainability rating. The project received a 'Leading' IS Design Rating with an unprecedented score of 93.5 out of 110, and set a new industry benchmark in sustainable delivery.
- CPB Contractors John Holland Dragados Joint Venture for the \$1.15bn Sydney Metro Northwest Tunnel and Stations Civil Works project, which achieved a Leading IS As-Built Rating of 92 (version 1.2), the highest As-Built rating achieved to date

### 4.2 Compliance Obligations

The Project have determined the compliance obligations related to sustainability, including in relation to materials, determined how these obligations apply, and taken these compliance obligations into account when establishing this WRMP.

The key project sustainability compliance obligations are derived from the following contract documents:

- Scope of Works and Technical Requirements (SWTC)
- Management Requirements – Sustainability (MR-Sy)
- Construction Environmental Management Framework (CEMF)
- Revised Environmental Management Measures (REMMs)

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- Planning Approval – Conditions of Approval (CoA)

These key obligations also address applicable requirements arising from a complex legislative framework and numerous state guidelines including;

- Environmental Planning and Assessment Act 1979
- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2005
- Waste Avoidance and Resource Recovery Act 2001
- Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA, November 2014)
- Waste Classification Guidelines, Part 4: Acid Sulfate Soils (DECCW August 2009)
- NSW Government's Waste Reduction and Purchasing Policy
- Environmental Best Practice Guidelines for Concreting Contractors (Department of Environment and Conservation, 2004)
- Local government guidelines for waste/recycling as appropriate
- Australian Dangerous Goods Code 7th Edition (ADG7) (National Transport Commission, October 2011)
- TfNSW Standard Requirements TSR E1 – Environmental Management
- General resource recovery exemptions under Part 6, Clause 51 and 51A of the Protection of the Environment Operations (Waste) Regulation 2005
- Waste Reduction and Purchasing Policy (WRAPP).

### 4.3 Objectives

The Project have established sustainability objectives, taking into account risks and opportunities and compliance obligations. These objectives have been determined in direct response to the commitments articulated in the sustainability policies. The primary sustainability objectives are detailed below;

- Leading IS Design rating (75 points)
- Leading IS As-built rating (75 points)

Supporting the IS Design and As-Built rating objectives are a number of more specific targets. Details on all of these targets is available in the SMP. For convenience specific targets in relation to waste and recycling are presented below;

- Level 2.3 - IS Credit Was-1 'Waste management'; this aims for waste to be predicted, minimisation measures to be implemented, monitored and audited.
- Level 3 - IS Credit Was-2 'Diversion from landfill', this aims for 100% of spoil, 95%\* of inert waste, and 60% of office waste to be diverted from landfill
- Level 1. – IS Credit Was-3 ' Deconstruction, disassembly, adaptability', this aims for a deconstruction plan to be developed

\*increased above the 90% requirement of V1.2 of the IS Technical Manual to match compliance obligations.

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The project will at all times aspire to exceed the stipulated scores. The objectives and targets have been designed to encompass and exceed similar sustainability obligations detailed elsewhere within the contract documents. For example, the target to achieve Level 3 in relation to the IS Was-1 credit, addresses the requirements of the SWTC which requires '95% of inert waste and 60% of office waste to be recycled or beneficially reused. This has been done to rationalise the number of objectives which the project needs to manage.

#### 4.4 Planning Action

The Project has planned to take actions to address waste management and recycling risks and opportunities, its compliance obligations, and its objectives. The Project has determined what will be done, what resources will be required, who will be responsible, when it will be completed and how the results will be evaluated.

When planning action the project has and shall apply the waste hierarchy detailed below, focusing on the waste streams with the most significant lifecycle impacts first, by prioritising (in order of preference):

1. Waste elimination
2. Waste reduction
3. Waste reuse onsite
4. Waste reuse offsite
5. Waste recycling
6. Waste to energy generation
7. Waste to landfill

Prior to reuse on site or disposal off site, materials will be classified in accordance with the *Waste Classification Guidelines, Part 1: Classifying Waste* (NSW EPA, November 2014), further details on this process are provided below in section 4.4.1 Classification of Waste Streams. No waste shall be permitted to be received on site, unless permitted by the EPL.

Actions to mitigate risks and opportunities have been planned in accordance with the Risk Management Plan (SMCSWSSJ-JHL-WSS-RM-PLN-000010). Actions to attend to sustainability opportunities have also been documented and planned within a Sustainability Opportunity Register (see Appendix C for an excerpt in relation to waste and recycling). This Register shall be a key item reviewed by the SLC.

Actions to attend to compliance obligations have been planned and documented within an Obligations Register (RAATM) (see Appendix D for an excerpt in relation to waste and recycling). Items from the Obligation Register shall be discussed by the Sustainability Leadership Committee wherever non-conformance is determined.

Actions to attend to objectives have been planned and documented within ODS Track, a web based document and submission management framework for all deliverables associated with the IS Rating. It is specifically designed to assist in management of the large number of deliverables that accompany a submission for sustainability rating systems. ODS Track has been tailor made for situations where deliverables must be requested from multiple parties and allows what, when, who and how to be defined for each deliverable (see Appendix E for an excerpt in relation to

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materials). ODS Track shall be a key item reviewed within Sustainability Leadership Committee meetings.

Note, all registers/trackers detailed within this section will be live documents and will be regularly reviewed and updated

#### 4.4.1 Classification of Waste Streams

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur. The classification of waste is undertaken in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA, 2014). This document identifies six classes of waste as defined in clause 49 of Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act):

- Special Waste
- liquid waste
- hazardous waste
- restricted solid waste
- general solid waste (putrescible)
- general solid waste (non-putrescible)

The steps below will be implemented to determine which of the above classifications applies to the Projects waste. Once a classification has been established under a particular step, the waste will be taken to have that classification and will be managed accordingly.

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

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

If it is established that the waste is not special waste it must be decided 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 2005 Schedule 1 Waste* to which waste tracking requirements apply.
- Non-trackable liquid waste

##### Step 3: Has the waste already been pre-classified by the NWS 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. Details are provided in the guidelines.

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

If the waste is not special waste, liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous under the classes or divisions of the *Transport of Dangerous Goods Code* which include explosives, flammable solids, substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

#### Step 5: 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 classified and 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).

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## 5. Implementation

### 5.1 Resources

The Project has determined and made provision for the resources needed for the establishment, implementation, maintenance and continual improvement of the sustainability management system on the Project. Key human resources have been allocated as per Section 3 Roles, Responsibilities and Authorities.

### 5.2 Competence and Awareness

The Project shall:

- Use Training Needs Analysis to determine the necessary competence of persons doing work under its control that affects its materials performance and its ability to fulfil its compliance obligations;
- Obtain records of suitable education, training, experience and verification of competency to ensure that these persons are competent on the basis of appropriate education, training or experience;
- Determine any further training needs associated with sustainability;
- where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken

The Project shall ensure, via the Project Induction, Tool Box Talks and Pre-Start Meetings (or similar) that persons doing work under the Projects control are aware of the:

- sustainability policy;
- the significant materials issues and related actual or potential impacts associated with their work, including in relation to materials;
- their contribution to the effectiveness of materials management , including the benefits of enhanced materials performance;
- the implications of not conforming with the materials management requirements, including not fulfilling the organisation's compliance obligations

### 5.3 Knowledge Sharing

Effective and ongoing sustainability knowledge sharing has occurred within the Project team and with the client, supply chain and parent organisations during the tender and target costing phases. Knowledge sharing will continue post-award with these and other key stakeholders and wider industry

Knowledge sharing will take many forms: informal and formal, spoken and written. It will be encouraged at all times, and will involve the sustainability leadership committee, facilitated workshops and regular meetings in order to foster mutually beneficial relationships with key stakeholders and subject matter experts.

Knowledge sharing will be undertaken in a timely and targeted manner to enable enhanced outcomes to be achieved. While the knowledge sharing process is ongoing, critical junctures are identified below;

- Stakeholder engagement
- Design management
- Procurement
- Construction planning

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See the Interface Management Plan (SMCSWSSJ-JHL-WSS-IF-PLN-000019) and the Community and Stakeholder Engagement Plan (SMCSWSSJ-JHL-WSS-CL-PLN-000023) for further information.

### 5.4 Decision Making

JHLOR will ensure that decision making in relation to significant issues will be characterised by:

- A consideration of options including business-as-usual and other proven approaches taken in comparable situations.
- An evaluation of options that considers environmental, social and economic aspects through multi-criteria analysis or other scored means
- An evaluation of options based on the useful forecast life of the infrastructure asset (i.e. 100-year design life).

Generally, when determining what opportunities (derived from knowledge sharing activities) to include, the following question applies:

- Will undertaking the opportunity reduce capital expenditure and comply with applicable requirements?

Where the answer is 'yes', the opportunity will typically be included automatically. Other opportunities that may require additional expenditure, or modification/relaxation of applicable requirements are considered for inclusion based on the following questions (a consensus on the answers to these questions will generally be sought during SLC meetings):

- Will undertaking the opportunity reduce whole-of-life cost or impacts?
- Will undertaking the opportunity attend to a material risk or opportunity for the Project, the client or other stakeholders?

Accordingly, once decision making in relation to opportunities has occurred, the opportunities' status will be updated in the Opportunity Register (Appendix C) as either 'Included' or 'Abandoned'. If the answers to the relevant questions are unclear, the opportunity status will remain 'Under consideration' and further information will be sought.

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## 6. Performance Evaluation

### 6.1 Monitoring Measurement and Analysis

The Project team shall monitor, measure, analyse and evaluate its waste and recycling performance. The Project shall undertake weekly sustainability (including waste) inspections during construction.

Monitoring in relation to waste and recycling will also be undertaken in accordance with the applicable compliance requirements.

Monitoring shall include details pertaining to;

- Types and quantity of waste generated
- Types and quantity of waste reused or recycled
- Types and quantity of waste disposed to landfill
- Percentage of waste reused or recycled
- Quantity of spoil generated

Preliminary waste estimates for construction are included below. Each waste type represents an opportunity to apply the waste hierarchy (eliminate, reduce, reuse, recycle, waste to energy, landfill)

Waste Type	Estimate of Quantities (tonnes or other weight noted)	Dispose or Recycle
General mixed construction waste	19,500	Recycle
Concrete	1,523m <sup>3</sup>	Recycle
Waste Soil	77,084	Recycle
Timber/Wood	160m <sup>3</sup>	Recycle
Hazardous Waste	1,111	Dispose
Liquid Waste	800	Recycle
Metals	284	Recycle
Asphalt	221	Recycle
Masonry	30	Recycle
Tiles	5.85	Recycle
Paper/Cardboard	100	Recycle
Plastic	4.95	Recycle
Oil & Lubricants	5m <sup>3</sup>	Recycle
Tyres	tbd	Recycle
Solvents	tbd	Dispose
Glass	4.15	Recycle
Organic waste and food waste	100m <sup>3</sup>	Recycle
Co-mingled recyclables	250	Recycle
Cables	4.25	Recycle

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e-Waste	Volumes as generated	Recycle
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Predictions for operational waste quantities and types have been sourced from the Transport Postal and Warehousing sector, A study into commercial & industrial (C&I) waste and recycling in Australia by industry division (2013).

Waste Type	Waste to landfill (kg/FTE.yr)	Diversion for recycling (kg/FTE.yr)	Total Waste Generation
Masonry materials	-	-	-
Metal	-	100	100
Organics	10	110	120
Paper & Cardboard	20	230	250
Plastics	10	40	50
Glass	-	10	10
Other /	50	130	180

The Transport Postal and Warehousing division has a moderate waste generation profile of 0.7 tonnes per FTE per annum.

## 6.2 Reporting

The Project shall evaluate its sustainability performance, including in relation to waste and recycling. The Project shall communicate relevant waste and recycling performance information both internally and externally, as identified in its communication processes and as required by its compliance obligations. The Project shall evaluate and document compliance within Project reports and take action if needed, reports include;

- Monthly Project Reports
- Monthly Sustainability Data Report
- Quarterly Sustainability Report
- Annual Sustainability Report

Compliance records will be retained centrally and will include:

- Records of inspections in relation to waste management and recycling activities, including weekly inspections of waste storage facilities
- Records detailing the beneficial re-use or recycling of material either within the project or at off-site locations
- Waste tracking forms and dockets for any material disposed of to land-fill sites
- Waste register detailing the date, types and quantities of waste disposed and the receiving facility

## Sydenham Station and Junction

### Waste Management and Recycling Plan



LAING O'ROURKE



John  
Holland

### 6.3 Audit

The Project shall be audited at planned intervals to provide information on whether the Project:

- is meeting its compliance obligations;
- conforms to the WMRP; and,
- determine if the WMRP is effectively implemented and maintained.

The Project shall establish, implement and maintain an audit programme for the Project, including the frequency, methods, responsibilities, planning requirements and reporting of its audits. Sustainability audits will be conducted at least quarterly with at least one per year being 'independent'. The scope of the audits may vary but it is important that the most material issues are audited regularly during the rating period. Sustainability audits should cover the most material environmental, social and economic issues. 'Regularly' needs to be described and justified for each project. The audit reports must demonstrate that these requirements have been fulfilled.

In addition waste specific audits shall include;

- Annual review covering systems used to manage waste and the data recording and reporting. Must be an objective assessment of the accuracy and completeness of reported waste information with the aim to provide confidence that the reported information represent a faithful, true, and fair account of waste management practices and performance. Must be undertaken by a suitably qualified person (someone with at least five years' waste management experience, or a NABERS Assessor, or equivalent)
- Auditing to final destination must be undertaken at least 6 monthly for construction. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill. Physical sorting of waste is not considered a final destination. The audit should include a physical/visual verification of waste destinations.

### 6.4 Management Review

Project Management shall review the implementation of the WMRP at Project level, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness, including in relation to materials. Reviews will be performed by the sustainability leadership committee.

The management review shall include consideration of:

- the status of actions from previous management reviews;
- changes in:
  - external and internal issues that are relevant to sustainability;
  - the needs and expectations of interested parties, including compliance obligations;
  - risks and opportunities;
- the extent to which sustainability objectives have been achieved;
- information on the Project's sustainability performance, including trends in:
  - nonconformities and corrective actions;
  - monitoring and measurement results;
  - fulfilment of its compliance obligations;
  - audit results;
- adequacy of resources;
- relevant communication(s) from interested parties, including the community; and,

## Sydenham Station and Junction

### Waste Management and Recycling Plan

The logo for Laing O'Rourke, featuring the company name in white capital letters on a dark grey rectangular background. Two horizontal lines, one yellow and one red, are positioned above and below the text respectively.The logo for John Holland, featuring the company name in white capital letters on a red rectangular background with horizontal white lines.

- opportunities for continual improvement

The outputs of the management review shall include:

- conclusions on the continuing suitability, adequacy and effectiveness of the WMRP;
- decisions related to continual improvement opportunities;
- decisions related to any need for changes to the WMRP, including resources;
- actions, if needed, when waste and recycling objectives have not been achieved;
- opportunities to improve integration of the WMRP with other Project processes, if needed; and,
- any implications for the strategic direction of the Project.

The Project shall retain documented information as evidence of the results of management reviews.

## 7. Improvement

When a nonconformity occurs, including in relation to waste and recycling, the Project shall:

- react to the nonconformity and, as applicable:
  - take action to control and correct it;
  - deal with the consequences, including mitigating adverse sustainability impacts;
- evaluate the need for action to eliminate the causes of the nonconformity, in order that it does not recur or occur elsewhere, by:
  - reviewing the nonconformity;
  - determining the causes of the nonconformity;
  - determining if similar nonconformities exist, or could potentially occur;
- implement any action needed;
- review the effectiveness of any corrective action taken; and,
- make changes to the WRMP, if necessary.

Corrective actions shall be appropriate to the significance of the effects of the nonconformities encountered, including the sustainability outcomes(s).

The Project shall retain documented information as evidence of:

- the nature of the nonconformities and any subsequent actions taken; and,
- the results of any corrective action

# Sydenham Station and Junction

## Waste Management and Recycling Plan

LAING O'ROURKE



### 8. Appendix A Policies



Environment  
& Sustainability  
Policy



This Policy reflects a commitment in our delivery of the Sydney Metro program to:

- Align with, and support, Transport for NSW (TfNSW) Environment & Sustainability Policy.
- Optimise sustainability outcomes, transport service quality, and cost effectiveness.
- Develop effective and appropriate responses to the challenges of climate change, carbon management, resource and waste management, land use integration, customer and community expectation, and heritage and biodiversity conservation.
- Be environmentally responsible, by avoiding pollution, enhancing the natural environment and reducing the project ecological footprint, while complying with all applicable environmental laws, regulations and statutory obligations.
- Be socially responsible by delivering a workforce legacy which benefits individuals, communities, the project and industry, and is achieved through collaboration and partnerships.

To deliver on these commitments, the Sydney Metro team will:

**Industry leadership**

- Implement coordinated and transparent decision making, by engaging with stakeholders and suppliers, encouraging innovation and demonstrating sustainability leadership.
- Explore new benchmarks for the transport infrastructure sector by requiring high standards from our designers, contractors and suppliers, building on experience gained through development of Sydney Metro Northwest.

**Community and customer**

- Provide accessible, safe, pleasurable, and convenient access and transport service for all customers.
- Establish positive relationships with community and stakeholders to maximise opportunities to add value to local communities.

**Land use integration and place making**

- Create desirable places, promote liveability and cultural heritage, and optimise both community and economic benefit.
- Balance transit oriented development opportunities with stakeholder expectations.

**Embedding environmental and social sustainability**

- Establish robust sustainability objectives and targets.
- Maintain an environmental management system that is integrated into all our project activities.
- Ensure thorough and open environmental assessment processes are developed and maintained.
- Develop and maintain an environmental management framework to embed best practice pollution management and sustainable outcomes during construction.
- Apply effective assurance processes to monitor performance against the project environment and sustainability objectives and identify appropriate reward or corrective action, as required.
- Apply environment and sustainability specific processes to the procurement of delivery activities.

**Accountability**

- Undertake public sustainability reporting.
- Hold employees and contractors accountable for proactively meeting their environmental and social sustainability responsibilities.
- Provide appropriate training and resources necessary to meet our responsibilities.



**Rodd Staples**  
Program Director, Sydney Metro

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SM ES-ST-209 Sydney Metro Environment and Sustainability Policy

# Sydenham Station and Junction

## Waste Management and Recycling Plan



### Sustainability Policy

March 2018

**Our vision**

The JHLOR JV understand that achieving sustainability is an integral part of delivering the Sydenham Station and Junction Works. We will seek opportunities to go beyond current legal requirements and business as usual to deliver value for the project's stakeholders.

This Policy sits alongside our Health and Safety, Quality, Environment, Human Capital and Customer Service policies as part of the JHLOR JV policy framework.

**Our approach**

JHLOR JV will work collaboratively with our client, stakeholders and the supply chain to ensure the best sustainable outcomes for the project and ultimately the asset owner are attained.

**Our pledge**

The JHLOR JV are committed to achieving positive environmental, social and economic outcomes in relation to the SSI Project. We will achieve this by:

- → Implementing coordinated and transparent decision-making, by engaging with stakeholders and suppliers, encouraging innovation and demonstrating sustainability leadership.
- → Establishing robust sustainability objectives and targets, and applying effective assurance processes to monitor performance.
- → Requiring high standards from our designers, contractors and suppliers.
- → Adopting ethical and responsible procurement practices by incorporating environmental and social performance in subcontractor selection; adopting a preference for local industry participation and encouraging the supply chain to adopt sustainability practices.
- → Developing effective and appropriate responses to the challenges of climate change, carbon management, resource and waste management, land use integration, customer and community expectation, and heritage and biodiversity enhancement.
- → Assessing and managing all environmental risks.
- → Being socially responsible and delivering a workforce legacy which benefits individuals, communities, the project and industry, and is achieved through collaboration and partnerships.
- → Creating desirable places, promoting liveability and cultural heritage, and optimising both community and economic benefit.
- → Consolidating upon existing relationships with community and stakeholders to maximise opportunities to add value to local communities.
- → Providing the appropriate training and resources necessary to meet our sustainability responsibilities.
- → Undertaking public sustainability reporting.

Our policies are regularly updated to ensure currency and strive for best practice as our environment evolves.

John Holland Group and Laing O'Rourke fully endorse this JHLOR JV Policy.

	→	+		→
<Name, Position>			<Name, Position>	
John Holland Group			Laing O'Rourke	

# Sydenham Station and Junction

## Waste Management and Recycling Plan

LAING O'ROURKE

John  
Holland

### 9. Appendix B Objectives

The following is an excerpt from the ISCA Scorecard prepared during the Target Cost Phase. The ISCA scorecard is a stand-alone spreadsheet which shall remain live until project completion is achieved. Details shall be updated upon finalising the weightings assessment.



#### Infrastructure Sustainability Scorecard Credit Summary

Project: Sydney

Location: Sydney

Rating Type: As Built

Category	Credit	Materiality Score	Score Possible	Target Level	Target Score
<b>Waste</b>					
Was-1	Waste management	2	1.77	2/2	1.77
Was-2	Diversion from landfill	2	3.09	3/3	3.09
Was-3	Deconstruction/ Disassembly/ Adaptability	1	-	1/3	-
Sub-total			4.85		4.85

## Sydenham Station and Junction

### Waste Management and Recycling Plan



### 10. Appendix C Opportunity Register

The following is an excerpt from the Sustainability Opportunity Register prepared during the Target Cost Phase. The Sustainability Opportunity Register is a stand-alone register which shall remain live until project completion is achieved. Further details shall be populated during the course of design.

Title	Description	Source	Status	Materiality	Comment
Optimise C&D Waste	There is an opportunity to apply the waste hierarchy (eliminate (e.g. pre-cast systems, reusable form, packaging take back), reuse (preferably onsite), recycle, waste to energy, dispose) so that waste is diverted from landfill	BoQ	Included	Medium	PI 09.11.17 include targets as contract requirements in waste management packages
Optimise Spoil Handling	There is an opportunity to apply the waste hierarchy (eliminate (e.g. avoid disturbing large areas), reuse (preferably onsite), recycle, waste to energy, dispose) so that waste is diverted from landfill	BoQ	Included	Medium	PI 09.11.17 BaU
Optimise Asphalt	There is an opportunity to optimise the use of asphalt (e.g. lean design (e.g. high strength/reduced thickness), extended design life, alternatives (e.g. RAP, low temperature asphalt)) so that there is reduced demand for high impact materials	BoQ	Included	Low	PI 31.10.17 Base Case states; Assumed hot mix asphalt, 0-20% RAP for BAU.

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<p>Optimise Ready Mixed Concrete</p>	<p>There is an opportunity to optimise the use of ready mixed concrete (e.g. lean design (e.g. high strength/low volume), extended design life, alternatives (e.g. Portland cement replacement, cross laminated timber)) so that there is reduced demand for high impact materials</p>	<p>BoQ</p>	<p>Under Consideration</p>	<p>High</p>	<p>PI 30.10.17 The BAU assumption for % Supplementary Cementitious Material (SCM) in concrete will be either:</p> <ul style="list-style-type: none"> <li>o Consistent with the minimums required in relevant Australian Standards which are being adopted for the various applications of concrete which are being used on the project, as nominated by the contractor; or</li> <li>o In the absence of a minimum %SCM requirement in Standards, the Green Star baseline Portland cement contents will be used; or</li> <li>o As nominated by contractor, where the contractor can provide sufficient evidence that the proposed base case % SCM is representative of BAU.</li> </ul> <p>SWTC design life 100-120years for structures</p> <p>PI 09.11.17 Metro Info doc states; The contractor must minimise cement content using, where practicable:</p> <ul style="list-style-type: none"> <li>- A maximum cementitious content for any concrete with compressive strength up to and including 32 MPa is recommended as follows:</li> <li>- 20 MPa: 280kg Portland cement/m3 concrete</li> <li>- 25 MPa: 310 kg Portland cement/m3 concrete</li> <li>- 32 MPA: 360 kg Portland cement/m3 concrete</li> <li>- A maximum cementitious content of 450 kg/m3</li> </ul>
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**Sydenham Station and Junction**  
Waste Management and Recycling Plan



			<p>for any concrete with compressive strength greater than Grade 40 up to Grade 65 is recommended</p> <ul style="list-style-type: none"> <li>- A maximum cementitious content of 500 kg/m<sup>3</sup> for higher grades without supporting evidence justifying a higher limit is recommended</li> </ul> <p>And</p> <p>The contractor must minimise cement content using, where practicable:</p> <ul style="list-style-type: none"> <li>n A minimum replacement level of 25% for fly ash or 50% for slag</li> <li>n For thicker elements (&gt;500 mm), a min replacement level of 50% for fly ash or 70% for slag.</li> </ul> <p>And</p> <p>The used of UHPC will be deemed applicable, if at all, by the spatial constraints of specific sites. The detailed design development undertaken by the contractor will determine if UHPC is an appropriate solution.</p> <p>PI 09.11.17</p> <p>Metro Infodoc states 'The contractor must reuse of a minimum 80% of CPO water into concrete production at onsite or offsite batching plants for concrete used on the project.'</p>
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## Sydenham Station and Junction

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Title	Description	Source	Status	Materiality	Comment
Optimise Concrete Reinforcement	There is an opportunity to optimise the use of reinforcement mesh (e.g. lean design (e.g. high strength/low volume), extended design life, alternatives (e.g. fibre reinforcement, high recycled content, cross laminated timber)) so that there is reduced demand for high impact materials	BoQ	Under Consideration	High	PI 30.10.17 Base Case states; The BAU source of steel is to be identified by the contractor.

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### Waste Management and Recycling Plan



Title	Description	Source	Status	Materiality	Comment
<p>Optimise Operational Water</p>	<p>There is an opportunity to reduce potable water demand during operation (water efficient fittings, self-cleaning surfaces, no reticulated landscaping, rain water harvesting and reuse) so that there is reduced demand for potable water</p>	<p>BoQ</p>	<p>Under Consideration</p>	<p>High</p>	<p>PI 30.10.17 Base case states; Non potable water (either from rainwater harvesting or from a recycled water network) is not used during operations as part of BAU.</p> <p>PI 09.11.17 Metro Infodoc states 'Across the Southwest stations, total water demand is equal to about 5,250kL per year. A minimum of 60% of operational non-potable water demand will be met by onsite rainwater harvesting and reuse, equal to a saving of about 3,400kL per year. Where rainwater storage tanks are installed they are a minimum size of 25kL, and rainwater treatment systems including UV treatment and a first flush mechanism are provided. Rainwater storage tanks are located under the platform, with treatment plant included under the stairs at platform level. At Sydenham station, the estimated monthly non-potable water demand for toilet flushing and irrigation is 62kL. The available roof catchment area is 880sqm. By installing a 25kL rainwater harvesting tank, 38kL per month can be captured and reused, ensuring that 60% of monthly non potable water demand will be met by rainwater harvesting.'</p>

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Title	Description	Source	Status	Materiality	Comment
					<p>And 'There is no sprinkler system or fire system pumps proposed for Sydenham station. Should fire sprinkler systems or fire system pumps be installed, 80% of potable water associated with fire protection system testing must be reused through recirculation systems and temporary storage.'</p> <p>And 'Fixture outlets to sanitary fixtures shall meet the minimum water efficiency requirements and the minimum WELS Star Ratings.'</p> <p>And 'Leak detection to be addressed in detail design. Metering and BMS will be able to monitor flows and identify abnormalities such as leaks.'</p> <p>11.09.17 JH needs buy-in from Sydney Water</p>

## Sydenham Station and Junction

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Title	Description	Source	Status	Materiality	Comment
Optimise Precast Concrete	There is an opportunity to optimise the use of pre-cast concrete (e.g. lean design (e.g. high strength/low volume), extended design life, alternatives (e.g. Portland cement replacement, cross laminated timber)) so that there is reduced demand for high impact materials	BoQ	Under Consideration	High	PI 07.11.17 Precast components to be used platform concourse retaining noise walls
Optimise Structural Steel	There is an opportunity to optimise the use of structural steel (e.g. lean design (e.g. high strength/low volume), extended design life, alternatives (e.g. high recycled content, cross laminated timber)) so that there is reduced demand for high impact materials	BoQ	Under Consideration	High	PI 30.10.17 Base Case states; The BAU source of steel is to be identified by the contractor.
Reuse Existing Pumping Station	There is an opportunity to reduce demand for pumps from the reference design	Contract - Schedule A4	Under Consideration	High	PI 11.10.17 Review flood model, determine actual flows, divert flow from pit to reduce pumping needs, reduce number of pumps from ref. current capacity 2.5m <sup>3</sup> /sec. Ref design 7.5m <sup>3</sup> /sec. we could possibly go back to 2.5m <sup>3</sup> /sec. just refurb existing pumps

## Sydenham Station and Junction

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Title	Description	Source	Status	Materiality	Comment
Optimise Canopy	There is an opportunity to reduce the size of the canopy from the reference design	Contract - Schedule A4	Under Consideration	High	PI 11.10.17 Possible Reduction from 5000m2 to approx 3000m2. may also get lower - improve constructability  Metro Infodoc states; Low-emissivity films required for glazing and canopies in detail design
Optimise Metro Building & Facilities	There is an opportunity to rationalise the number of new buildings	Contract - Schedule A4	Under Consideration	High	PI 11.10.17 Avoid need for two new large buildings (new metro station can possibly be accommodated in the existing Sydenham Station whilst enhancing heritage..., new metro services building can be mostly accommodated in the existing geotech building)
Supplier Training	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	High	
Improved Accessibility and Wayfinding	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	High	
Optimise Concrete Pipes	There is an opportunity to optimise the use of concrete pipes (e.g. lean design (e.g. design out pit and pipe for swales), extended design life, alternatives (e.g. Portland cement replacement, recycled	BoQ	Under Consideration	Medium	PI 11.10.17 EPD's available from Humes Recycled plastic alternatives Suppliers to be identified

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Title	Description	Source	Status	Materiality	Comment
	plastic pipes)) so that there is reduced demand for high impact materials				
Optimise PVC Pipe	There is an opportunity to optimise the use of PVC pipes (e.g. lean design (e.g. design out pit and pipe for swales), extended design life, alternatives (e.g. recycled plastic pipes)) so that there is reduced demand for high impact materials	BoQ	Under Consideration	Medium	PI 11.10.17 Recycled plastic alternatives Suppliers to be identified
Optimise Aggregates	There is an opportunity to optimise the use of aggregates (e.g. lean design (e.g. utilise favourable ground conditions), alternatives (e.g. recycled aggregates, ballast cleaning)) so that there is reduced demand for high impact materials	BoQ	Under Consideration	Medium	PI 31.10.17 Base Case states All gravel and crushed rock materials for pavements (carparks, roads, and footpaths), track foundation, and drains will be virgin/quarried materials and imported to site.  PI 09.11.17 Suppliers to be identified  train haulage
Optimise Platform Finishes	There is an opportunity to substitute tiles with asphalt (or similar)	Contract - Schedule A4	Under Consideration	Medium	PI 11.10.17 asphalt instead of tiles
Optimise Public Domain Finishes	There is an opportunity to substitute pavers with asphalt and also rationalise the extent of hard landscaping	Contract - Schedule A4	Under Consideration	Medium	PI 11.10.17 asphalt instead of pavers, soft instead of hard

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Title	Description	Source	Status	Materiality	Comment
Optimise CSR and Cable Joint Pits	There is an opportunity to rationalise the length and size of the Combined Services Route	Contract - Schedule A4	Under Consideration	Medium	PI 11.10.17 Reduced number of pits and length of routes
Cross Laminated Timber	There is an opportunity to substitute concrete elements with cross laminated timber	Initial Sustainability Plan	Under Consideration	Medium	
Ultra High Performance Concrete	There is an opportunity to utilise very strong very lean concrete structures	Initial Sustainability Plan	Under Consideration	Medium	PI 09.11.17 Metro Infodoc states 'Ultra High Performance concrete (UHPC) refers to concrete with a compressive strength of over 120 MPa. While UHPC has a higher embodied energy in per unit, the higher load bearing capacity can greatly reduce the size of elements providing overall sustainability advantages (Voo and Foster, 2009).'
Geopolymer Concrete	There is an opportunity to utilise geopolymer concrete in lieu of regular concrete	Initial Sustainability Plan	Under Consideration	Medium	PI 09.11.17 Metro Info Doc says; Geopolymer concrete, often called inorganic polymer concrete, is the result of the reaction of materials containing aluminosilicate with concentrated alkali hydroxide and/or silicate solution to produce an inorganic polymer binder. Until recently geopolymers have been used in niche applications. However, the potential application for geopolymers as an environmentally friendly concrete with reduced embodied energy and CO2 footprint compared to the traditional Portland cement based concrete is gaining attention. Geopolymer concrete has been used in

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Title	Description	Source	Status	Materiality	Comment
					many precast and in-situ applications to replace traditional concrete. There would be opportunities to use geopolymer concrete in structural and non-structural applications on the Project.
Concrete operations water reuse (CPO)	There is an opportunity to....		Under Consideration	Medium	
Recycled Water for Concrete Batching	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	PI 09.11.17 to be included in RFQ documentation
Low Carbon Blockwork	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	
Low Carbon Tiles	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	
Eco-Labeling for Materials	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	Supplier lifecycle assessments to contribute towards our lifecycle assessment requirements
Pakaging Takeback	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	
Mobile Centrifuge	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	PI 09.11.17 utilised at Bayswater to treat Non destructive digging (NDD) waste reduced significantly waste disposal fees and allowed reuse of water

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Title	Description	Source	Status	Materiality	Comment
Reverse Bottle Vending	There is an opportunity to....	Initial Sustainability Plan	Under Consideration	Low	
Imported recycled water for concrete production			Under Consideration	Low	PI 09.11.17 Metro Info Doc states 'This paper has identified sufficient evidence to support the use of non-potable water in concrete production and the potential opportunity to source 100% of the precast segment water demand from non-potable sources near Sydenham.

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## 11. Appendix D Obligations Register

The following is an excerpt from the Sustainability Obligations Register pertaining to waste and recycling management obligations. This excerpt includes detail of the applicable materials obligations. The Register is a stand-alone register which shall remain live until project completion is achieved.

Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
CEMF	17	Waste Management and Recycling	WRMP	This Plan	Waste and Recycling	Design and Implementation	Sustainability Manager
CEMF	17.1	Waste Objectives	WRMP		Waste and Recycling	Design and Implementation	Sustainability Manager
CEMF	17.1 a	The following waste objectives will apply to construction: i. Minimise waste throughout the project life-cycle. ii. Waste management strategies will be implemented in accordance with the Waste Avoidance and Resource Recovery Act 2001 management hierarchy as follows: - Avoidance of unnecessary resource consumption. - Resource recovery (including reuse, reprocessing, recycling and energy recovery). - Disposal.	WRMP	4.4	Waste and Recycling	Design and Implementation	Sustainability Manager
CEMF	17.1 b	Targets for the recovery, recycling or reuse of construction waste, and beneficial reuse of spoil will be provided by the Principal Contractor.	WRMP	4.3	Waste and Recycling	Design	Sustainability Manager
CEMF	17.2	Waste Implementation	WRMP		Waste and Recycling	Design and Implementation	Sustainability Manager

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### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
CEMF	17.2 a	Principal Contractors will develop and implement a Waste Management and Recycling Plan which will include as a minimum: i. The waste management and recycling mitigation measures as detailed in the environmental approval documentation. ii. The responsibilities of key project personnel with respect to the implementation of the plan. iii. Waste management and recycling monitoring requirements. iv. A procedure for the assessment, classification, management and disposal of waste in accordance with the Waste Classification Guidelines (DECC, 2008). v. Compliance record generation and management.	WRMP	4	Waste and Recycling	Design and Implementation	Sustainability Manager
CEMF	17.2 b	Principal Contractors will undertake the following waste monitoring as a minimum: i. Weekly inspections will include checking on the waste storage facilities on site. ii. All waste removed from the site will be appropriately tracked from 'cradle to grave' using waste tracking docket	WRMP	6	Waste and Recycling	Implementation	Sustainability Manager
CEMF	17.2 c	Principal Contractors will report all necessary waste and purchasing information to TfNSW as required for TfNSW to fulfil their WRAPP reporting requirements	WRMP	6.2	Waste and Recycling	Implementation	Sustainability Manager

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Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
CEMF	17.2 d	Compliance records will be retained by the Principal Contractors in relation to waste management including records of inspections and waste docket for all waste removed from site	WRMP	6.2	Waste and Recycling	Implementation	Sustainability Manager
CEMF	17.3	Waste Mitigation	WRMP		Waste and Recycling	Design and Implementation	
CEMF	17.3 a	Examples of waste management and recycling mitigation measures include: i. All waste materials removed from the sites will be directed to an appropriately licensed waste management facility. ii. The use of raw materials (noise hoarding, site fencing, etc...) will be reused or shared, between sites and between construction contractors where feasible and reasonable. iii. Recyclable wastes, including paper at site offices, will be stored separately from the other waste	WRMP	4.4	Waste and Recycling	Implementation	
SWTC Appendix B7.0 (14/09/2017)	2.5	Resource - waste and materials	WRMP		Waste and Recycling	Design and Implementation	Sustainability Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (a)	The SSJ Contractor must ensure that at least 95% of inert and non-hazardous construction and demolition waste, excluding spoil, and at least 60% of office waste	WRMP	4.3	Waste and Recycling	Design and Implementation	Sustainability Manager

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Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
		generated during the SSJ Contractor's Activities is recycled or alternatively beneficially reused.					
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (b)	The SSJ Contractor must identify and implement opportunities for recycling and reuse of non-putrescible general solid wastes (other than construction and demolition waste and office waste) during the SSJ Contractor's Activities.	WRMP	4.4	Waste and Recycling	Design and Implementation	Sustainability Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (c)	The SSJ Contractor must negotiate and implement packaging take-back arrangements with suppliers.	WRMP	4.4	Waste and Recycling	Design and Implementation	Procurement Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (d)	The SSJ Contractor must use compostable or reusable temporary erosion control devices where practicable.	WRMP	4.4	Waste and Recycling	Implementation	Environment Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (e)	The SSJ Contractor must provide construction recycling facilities within the Site where practicable.	WRMP	4.4	Waste and Recycling	Implementation	Sustainability Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (f)	The SSJ Contractor must include the following waste management measures in the design of the Project Works:	WRMP		Waste and Recycling	Design and Implementation	Sustainability Manager

## Sydenham Station and Junction

### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (f) (i)	commingled recycling bins adjacent to all general waste bins within all areas accessible by customers, in Back of House Areas;	WRMP	4.4	Waste and Recycling	Implementation	Sustainability Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (f) (ii)	separate bins for storage of specialist waste streams, including oil, electrical and electronic waste, and equipment waste; and	WRMP	4.4	Waste and Recycling	Design and Implementation	Sustainability Manager
SWTC Appendix B7.0 (14/09/2017)	2.5.1 (f) (ii)	sufficient on-site storage space for the safe storage of recyclable waste and general waste prior to collection for treatment and disposal.	WRMP	4.4	Waste and Recycling	Implementation	Sustainability Manager
MR-Sy (15/06/2017)	9.(i)(ix)	The Contractor's MSDR must as a minimum, detail the Contractor's performance against the targets identified in the Sustainability Management Plan, Spoil Management Plan, Carbon and Energy Management Plan, and Materials Management Plan (all required under MR-PA), using the Sydney Metro City & Southwest Sustainability Reporting Template SME ES-FT- 439 including reporting on: waste generation, recycling and disposal; total quantity of waste generated; quantity of non-putrescible general solid waste generated and percentage which has been recycled or reused; quantity of construction and demolition waste generated and percentage which has	WRMP	6.2	Waste and Recycling	Implementation	Sustainability Manager

## Sydenham Station and Junction

### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
		been recycled or reused; quantity of office waste generated and percentage which has been recycled or reused;					
MR-Sy (15/06/2017)	9.(i)(x)	The Contractor's MS DR must as a minimum, detail the Contractor's performance against the targets identified in the Sustainability Management Plan, Spoil Management Plan, Carbon and Energy Management Plan, and Materials Management Plan (all required under MR-PA), using the Sydney Metro City & Southwest Sustainability Reporting Template SME ES-FT- 439 including reporting on: the volume of spoil reused within the Site, beneficially reused off-site or disposed of off-site against the Spoil Targets identified in the Spoil Management Plan;	WRMP	6.2	Waste and Recycling	Implementation	Sustainability Manager
MR-Sy (15/06/2017)	9.(i)(xi)	The Contractor's MS DR must as a minimum, detail the Contractor's performance against the targets identified in the Sustainability Management Plan, Spoil Management Plan, Carbon and Energy Management Plan, and Materials Management Plan (all required under MR-PA), using the Sydney Metro City & Southwest Sustainability Reporting Template SME ES-FT- 439 including reporting on: destinations for spoil which has been beneficially reused off-site or disposed of off-site;	WRMP	6.2	Waste and Recycling	Implementation	Sustainability Manager

## Sydenham Station and Junction

### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
IS Technical Manual V1.2	Was-1	Predictions for waste quantities and types have been developed for construction. Measures to minimise waste during construction have been identified and implemented. Monitoring of all wastes is undertaken during construction.	WRMP	6.1	Waste and Recycling	Design and Implementation	Sustainability Manager
IS Technical Manual V1.2	Was-1	Predictions for waste quantities and types have been developed for operation. Measures to minimise waste during operation have been identified and implemented	WRMP	6.1	Waste and Recycling	Design and Implementation	Sustainability Manager
IS Technical Manual V1.2	Was-1	Waste monitoring and management has been managed, reviewed or audited by a suitably qualified professional. It should be undertaken at least annually for construction. A suitably qualified professional means someone with at least five years' waste management experience, or a NABERS Assessor, or equivalent. The review or audit should cover both systems and data i.e. the systems used to manage waste and the data recording and reporting. The scope of the waste review/audit should include an objective assessment of the accuracy and completeness of reported waste information	WRMP	6.3	Waste and Recycling	Design and Implementation	Sustainability Manager
IS Technical Manual V1.2	Was-1	Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals. Auditing to final destination must be undertaken at least 6 monthly for construction. The	WRMP	6.3	Waste and Recycling	Design and Implementation	Sustainability Manager

## Sydenham Station and Junction

### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
		audit should include a physical/visual verification of waste destinations.					
IS Technical Manual V1.2	Was-2	All of the following targets for landfill diversion have been achieved or bettered: 100% by volume of spoil >90% by volume of inert and non-hazardous waste >60% by volume of office waste material.	WRMP	6.1	Waste and Recycling	Design and Implementation	Sustainability Manager
IS Technical Manual V1.2	Was-3	A deconstruction plan is developed based on good practice. The deconstruction plan is reviewed and updated. Reviews should consider changes to technology and infrastructure planning.	WRMP	4.4	Waste and Recycling	Design	Design Manager
IS Technical Manual V1.2	Was-3	50% by value of components or pre-fabricated units used can be easily separated on disassembly/ deconstruction into material types suitable for recycling or reuse.	WRMP	4.4	Waste and Recycling	Design and Implementation	Design Manager
Contract Schedule E3 - Conditions of Approvals	E106	Waste generated during construction and operation is to be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.	WRMP	4.4	Waste and Recycling	Design and Implementation	Sustainability Manager

## Sydenham Station and Junction

### Waste Management and Recycling Plan



Source Document	Clause	Description	Document	Clause	Description	Timing	Responsibility
Contract Schedule E3 - REMMs	WM1	All waste would be assessed, classified, managed and disposed of in accordance with the <i>NSW Waste Classification Guidelines</i> .	WRMP	4.4	Waste and Recycling	Design and Implementation	Environment Manager
Contract Schedule E3 - REMMs	WM2	100 per cent of spoil that can be reused would be beneficially reused in accordance with the project spoil reuse hierarchy.	WRMP	4.3	Waste and Recycling	Design and Implementation	Sustainability Manager
Contract Schedule E3 - REMMs	WM3	A recycling target of at least 90 per cent would be adopted for the project.	WRMP	4.3	Waste and Recycling	Design	Sustainability Manager
Contract Schedule E3 - REMMs	WM4	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	WRMP	4.4	Waste and Recycling	Design and Implementation	Construction Manager
Contract Schedule E3 - REMMs	WM5	Generation of operation phase waste would be minimised.	WRMP	4.4	Waste and Recycling	Design	Design Manager

# Sydenham Station and Junction

## Waste Management and Recycling Plan



### 12. Appendix E Design Rating Tracker

The following is an excerpt from the Design Rating Tracker. This excerpt includes detail of the applicable materials deliverables. The tracker is a stand-alone tracker which shall remain live until project completion is achieved. Further detail shall be populated during the course of design, and an As-Built Rating Tracker will also be developed.

ODS **Track** My Documents Tracker Admin tools Account

[All Projects](#) → [Sydenham Station and Junction Works](#) → IS Design Rating

[Add a Category](#)

Waste Admin

- Was-01: Waste management 0/4
- Was-02: Diversion from landfill 0/1
- Was-03: Deconstruction, Disassembly, Adaptability 0/2

# Sydenham Station and Junction

## Waste Management and Recycling Plan



Browser address bar: <https://www.ods-engineering.com/tools/ods-track/48>

Page header: ODS Track | My Documents | Tracker | Account

All Projects → Sydenham Station and Junction Works → IS Design Rating → Was-01: Waste management

← Prev | Next →

### Was-01: Waste management

0/3.5

Revision: [v] | Level 2 [v]

#### Objective:

To reward sustainable waste management plans and practices.

#### Description:

Points are awarded for Level 2 where:

- Predictions for waste quantities and types have been developed for construction and operation; AND
- Measures to minimise waste during construction and operation have been identified and implemented. The measures must apply the waste hierarchy - avoidance, reduction, reuse and recycling; AND
- Tracking of all wastes is undertaken during construction and operation; AND
- Waste tracking and management has been externally audited; AND
- Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals.

#### Documents Required:

				Admin
<b>Predictions and waste minimisation measures (construction)</b>				Admin
<i>Civil Construction Manager (JHLOR JV) , due: Sat 30 Jun 2018</i>				Nothing Received
Predictions for waste quantities and types have been developed for construction. Measures to minimise waste during construction have been identified and implemented. Monitoring of all wastes is undertaken during construction.				
Upload File	Due: June	30	2018	Nothing Received
				Save
<b>Predictions and waste minimisation measures (operation)</b>				Admin
<i>Design Team Manager (JHLOR JV) , due: Sun 30 Dec 2018</i>				Nothing Received
Predictions for waste quantities and types have been developed for operation. Measures to minimise waste during operation have been identified and implemented				
Upload File	Due: December	30	2018	Nothing Received
				Save

# Sydenham Station and Junction

## Waste Management and Recycling Plan



### Waste management reviews

Admin ▾

*Sustainability Manager (JHLOR JV) , due: Tue 30 Jan 2018*

Waste monitoring and management has been managed, reviewed or audited by a suitably qualified professional. It should be undertaken at least annually for construction. A suitably qualified professional means someone with at least five years' waste management experience, or a NABERS Assessor, or equivalent. The review or audit should cover both systems and data i.e. the systems used to manage waste and the data recording and reporting. The scope of the waste review/audit should include an objective assessment of the accuracy and completeness of reported waste information

Nothing Received

Upload File

Due: January ▾ 30 ▾ 2018 ▾

Nothing Received ▾

Save

### Waste handling audits

Admin ▾

*Design Team Manager (JHLOR JV) , due: Sat 30 Jun 2018*

Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals. Auditing to final destination must be undertaken at least 6 monthly for construction. The audit should include a physical/visual verification of waste destinations.

Nothing Received

Upload File

Due: June ▾ 30 ▾ 2018 ▾

Nothing Received ▾

Save

Additional Comments:

Add a comment