Spoil Management Plan

Western Sydney Airport – Surface and Civil Alignment Works

Project Name	Sydney Metro – Western Sydney Airport, Surface and Civil Alignment Works
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Document Approval

Rev.	Date	Prepared by	Reviewed by	Approved by	Remarks
A	06/05/2022	[redacted]			First Draft
B	21/07/2022				In response to Sydney Metro comments
C	19/08/2022				See Revision table
D	30/08/2022				See Revision table
01	29/09/2022				Issued for construction
Signature					

Distribution and Authorisation

Document Control

The CPBUIJV Project Director is responsible for ensuring this plan is reviewed and approved. The Senior Project Manager is responsible for updating this plan to reflect changes to the project, legal and other requirements, as required.

The controlled master version will be maintained on TeamBinder. All circulated hard copies are deemed to be uncontrolled.

Amendments

The implementation of this Plan is under the authority of the CPBUIJV Delegated Authority Matrix. All Contract personnel will perform their duties in accordance with this Plan, supporting plans, and related procedures.

Revision Details

Rev.	Details
A	First Draft
B	In response to Sydney Metro Comments
C	In response to Sydney Metro, Independent Certifier and ER comments
D	response to final ER comments prior to endorsement
01	Issued for Construction (All Sydney Metro review comments closed)

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Abbreviations and definitions

Refer to Definitions, Abbreviations and Acronyms, Sydney Metro – Western Sydney Airport Surface Civil and Alignment Works Package

Table 1 – Abbreviations and definitions

Abbreviation	Description
ASS	Acid sulfate soil
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CPB	CPB Contractors Pty Ltd
CPBUI JV	CPB Contractors Pty Limited and United Infrastructure Pty Limited Joint Venture
CTMF	Construction Traffic Management Framework
CTMP	Construction Traffic Management Plans
EIS	Environmental Impact Statement
ENM	Excavated Natural Material
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ITP	Inspection and Test Plan
RAP	Remedial Action Plans
REMM	Revised Environmental Management Measures
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
SCAW	Western Sydney Airport Surface and Civil Alignment Works
SMF	Stabling and Maintenance Facility
SMWSA	Sydney Metro – Western Sydney Airport
TBM	Tunnel boring machines
TfNSW	Transport for NSW
UI	United Infrastructure Pty Limited
VENM	Virgin Excavated Natural Material
WSA	Western Sydney Airport
WSI	Western Sydney International

Part A Overview

1. Introduction

Through aligned values, CPBUIJV will partner with Sydney Metro to deliver the Western Sydney Airport (WSA) Surface and Civil Alignment Works (SCAW). We will establish strong foundations and create seamless interfaces to pave the way for the successful completion of Sydney Metro – Western Sydney Airport (SMWSA), on Darug Country as part of the future Western Parkland City.

1.1. Project Scope

The SMWSA Project involves the construction and operation of a new 23km metro rail line that extends from the existing Sydney Trains suburban T1 western line (at St Marys) in the north to the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaducts, bridges, and surface and open-cut troughs between the two tunnel sections. The Project also includes six new metro stations, and a stabling and maintenance facility and operational control centre at Orchard Hills. The SCAW package is the second major contract package to be procured for the Project. The successful and timely completion of the SCAW package is critical to the subsequent construction activities and ultimate completion of the entire Project.

1.1.1. Package scope

The scope for the SCAW package includes approximately 10.6km of alignment up to the underside of track formation from Orchard Hills to the WSI airport. This includes approximately:

- 3.6km of viaduct
  - 400m of viaduct over Blaxland Creek
  - 660m of viaduct over the Patons Lane area and un-named creek
  - 2.5km of viaduct in the Luddenham Road area including across the Warragamba pipeline, at Luddenham Station, across Luddenham Road and across Cosgrove Creek
- 209m of bridges
  - A bridge, approximately 187m long, over the proposed M12 Motorway
  - A bridge, approximately 22m long, over the drainage swale on the WSI airport site
- 6.9km of at-grade alignment
  - 600m at Orchard Hills, south of Lansdowne Road
  - 1.6km alongside the stabling maintenance facility in Orchard Hills
  - 900m to the north of the Warragamba pipelines
  - 1.1km north of the proposed M12 motorway
  - 1.4km south of the proposed M12 Motorway on Elizabeth Derive
  - 1.3km within the Airport site from the northern boundary to the Airport Business Park Station
- Temporary and permanent access roads.

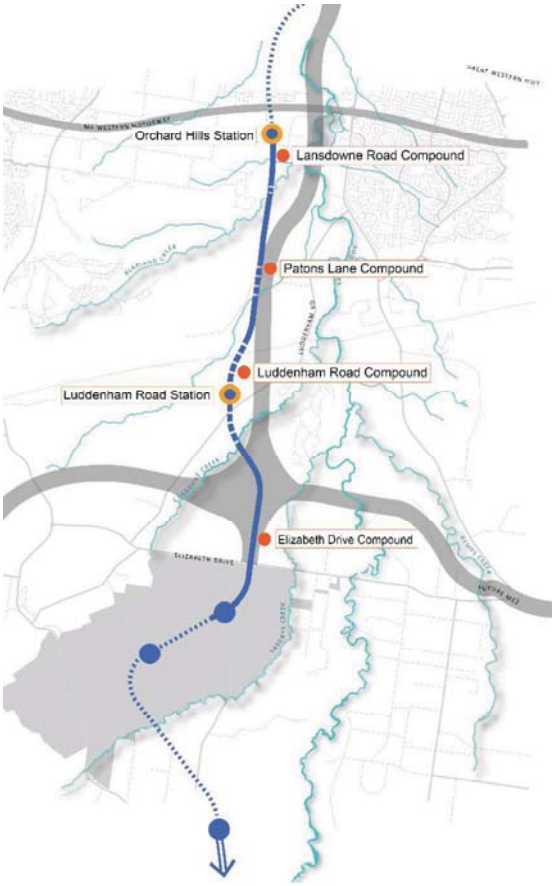


Figure 1 – SCAW Project scope

2. Structure of this Plan

2.1. Plan Purpose and Objectives

The Spoil Management Plan forms part of the Project Management System. It is part of a suite of plans that together outline how the Sydney Metro – Western Sydney Airport, Surface and Civil Alignment Works project (SCAW) spoil requirements will be managed to ensure an integrated approach to meeting contract requirements. The Spoil Management Plan forms part of the Construction Environmental Management Plan (CEMP) (refer to Figure 2) and it will outline how CPBUIJV will comply with and implement the applicable requirements from the following documents:

- The Project Planning Approval (SSI 10051)
- Revised Environmental Management Measures (REMMs)
- The Sydney Metro Construction Environmental Management Framework (CEMF), and
- The Sydney Metro Construction Traffic Management Framework (CTMF).

In addition to the Project Management Plan, other Project Plans that interface with the Spoil Management Plan include:

- Contract Management Plan
- Quality Management Plan
- CEMP
- Soil and Water Management Sub-plan
- Waste Management Sub-plan
- Construction Traffic Management Plan/s
- On Airport Construction Environmental Management Plan/s

This plan has the following structure:

Part A: Overview	This section clearly defines: ▪ Introduction ▪ Purpose, scope, and objectives of this plan ▪ Project specific requirements ▪ Compliance
Part B: Implementation Plan	This section outlines the key aspects for managing spoil on the Project including: ▪ Management and compliance with Project elements and expectations ▪ Responsibilities for each expectation ▪ Procedures and deliverables for each expectation
Part C: Appendices	This section includes appendices and annexures providing additional detail that support this plan.

2.1.1. Objectives

Section 6.1(a) of the CEMF sets out the following management objectives relevant to SCAW for construction spoil management:

i. Minimise spoil generation where possible;
ii. The project will mandate 100% reuse or recycling (on or off-site) of usable spoil;
iii. Spoil will be managed with consideration to minimising adverse traffic and transport related issues;
iv. Spoil will be managed to avoid contamination of land or water;
v. Spoil will be managed with consideration of the impacts on residents and other sensitive receivers; and
vi. Site contamination will be effectively managed to limit the potential risk to human health and the environment.

Reduction targets that address the CEMF objectives are identified in the Sustainability Management Plan. The management of spoil to be taken off site is identified in the Waste Management Sub-plan. The management of traffic and transport related issues is identified in the Construction Traffic Management Plan/s. The management of contaminated spoil is identified in Section 7.6 of the Soil and Water Management Sub-plan.

The Environmental Impact Statement (EIS) Submissions Report identified revised performance outcomes, those relevant to SCAW are addressed in Table 2 along with the CEMF objectives and targets.

Table 2 – Spoil objectives and targets

Objective	Target (KPI)	Measurement Tool
Conservation of natural soil resources is maximised	100 % of useable spoil is reused in accordance with the spoil reuse hierarchy	Waste Tracking Registers
Minimise spoil generation where possible	100 % of usable spoil is reused within onsite spoil mounds or offsite as beneficial reuse	Waste Tracking Registers Section 143 notices
The project will mandate 100% reuse or recycling (on or off-site) of usable spoil	100 % of usable spoil is reused within onsite spoil mounds or offsite as beneficial reuse	Waste Tracking Registers Section 143 notices
Spoil will be managed with consideration to minimising adverse traffic and transport related issues	100 % of complaints regarding spoil transport are investigated and responded to within 48 hours	Consultation Manager Database
Spoil will be managed to avoid contamination of land or water	Zero environmental incidents resulting in a Penalty Infringement Notice or prosecution for spoil management	Incident Reports
Spoil will be managed with consideration of the impacts on residents and other sensitive receivers	100 % of complaints regarding spoil transport are investigated and responded to within 48 hours	Consultation Manager Database
Site contamination will be effectively managed to limit the potential risk to human health and the environment	100 % of contamination identified is sent to a suitably licenced landfill or remediated in accordance with a Remedial Action Plan	Waste Tracking Registers Site Audit Statements

2.2. Compliance with the Deed

This Spoil Management Plan is a nominated Plan under the terms of the General Specifications and Deed and is provided, and will be implemented, in accordance with Specifications and Planning Approvals.

In accordance with the Deed, this plan will be resubmitted to the Principal's Representative at least 30 calendar days prior to any SCAW Contractor's Activities and annually until completion of the last Portion to achieve Completion.

The requirements detailed in 5.1.12.1 of Schedule C1 of Volume 4A (General Specifications) have been copied verbatim in Table 3, and the relevant section of this Plan is referenced where it addresses these requirements. The CPBUIJV delivery strategy in response to the project deed, particular specification requirements is detailed in Section 6.1.1.

2.2.1. Spoil Management Plan Contract Requirements

Table 3 – Spoil Management Plan Contract Requirements

Contract Requirement	Plan Section
5.1.12.1 (c) The SCAW Contractor must develop, submit for Review, implement and maintain all plans and sub-plans required by the Sydney Metro Construction	This Plan

Contract Requirement	Plan Section
Environmental Management Framework (CEMF), the Construction Noise and Vibration Standard, and the Construction Traffic Management Framework (CTMF). *[SM-WSA-SCAW-GS-1857]*	

2.2.2. Construction Environmental Management Framework

Section 6.2 of the CEMF lists a number of Spoil Management Plan requirements relevant to the preparation of this Plan and these are provided in Table 4. Other requirements relevant to spoil management from the Project Planning Approval, the CEMF and EIS are provided in Section 7.

Table 4 – Compliance Table – CEMF requirements for the preparation of this Plan

Ref	Requirement	Where Addressed
6.2a	Principal Contractors will develop and implement a Spoil Management Plan for their scope of works. The Spoil Management Plan will include as a minimum:	This Plan
6.2a(i)	The spoil mitigation measures as detailed in the planning approval documentation;	Section 7
6.2a(ii)	The responsibilities of key project personnel with respect to the implementation of the plan;	Section **Error! Reference s ource not found.**
6.2a(iii)	Procedures and methodologies for the haulage and disposal locations, storage and stockpiling arrangements, including those for virgin excavated natural material, contaminated and unsuitable material;	Section 7 Traffic Management Plan/s
6.2a(iv)	Procedures for the testing, excavation, classification, handling and reuse of spoil;	Section 5.1
6.2a(v)	Measures that will be implemented to both reduce spoil quantities and maximise the beneficial reuse of spoil which will be generated during the performance of the Contractor's Activities, including how spoil generation is minimised through the design development process;	Section 6.1.1.2
6.2a(vi)	Details, links or references to where traffic movements in relation to spoil are described, and measures that will be implemented to minimise traffic and noise impacts associated with haulage and disposal of spoil;	Traffic Management Plan/s Noise and Vibration Management Plan
6.2a(vii)	Quantities for reuse of spoil within the Construction Site or Western Sydney International, for beneficial reuse of spoil off site and for spoil disposal;	Section 6.1.1.2
6.2a(viii)	Processes and procedures for the management of the environmental and social impacts of spoil transfer and reuse;	Section 7 Table 12
6.2a(ix)	A register of spoil receipt sites that includes the site or project name, location, capacity, site owner and which tier the site is classified as under the spoil reuse hierarchy;	Section 6.4
6.2a(x)	Spoil management monitoring requirements; and	Section 8.2
6.2a(xi)	Compliance record generation and management	Section 8.3

2.3. Plan Revisions

This Plan has been prepared in accordance with the Particular Specification.

This Spoil Management Plan is the initial plan that will be:

- Submitted to Sydney Metro within 60 Business Days after the date of the Deed

- Contain the contents specified for the Spoil Management Plan in the Schedule C1 General Specification Section 5.1.12.1.
- Updated every 12 Months or following a significant change to the Project Management Plan

2.4. Plan approval and distribution

The Spoil Management Plan will be authorised for implementation by the CPBUIJV Project Director.

All personnel engaged on the Project, including consultants, subcontractors or suppliers, will perform their duties in accordance with the requirements of this Plan, and in compliance with CPBUIJV systems, procedures and any specific Project instructions.

The Spoil Management Plan is a controlled document and registered copies must be distributed and revised in accordance with the Quality Plan. CPBUIJV will advise of any amendments to this Plan and controlled copyholders are responsible for keeping their copies up to date.

The Project Director and the Senior Project Managers will monitor this Plan, and review the need for change or improvement having regard for:

- Sydney Metro Construction Environmental Management Framework (CEMF)
- All requirements in the CEMP

All changes are to be approved by the Project Director.

2.5. Interface with other management plans

The Project Management Plan (PMP) provides an overview of the Project and its overarching management systems. Supporting Project Plans are focused on implementation activities and responsibilities. This Plan forms part of the PMP and details how CPBUIJV will comply with the demolition requirements of the Deed. Figure 2 shows the Project Plan hierarchy and interface with other plans.

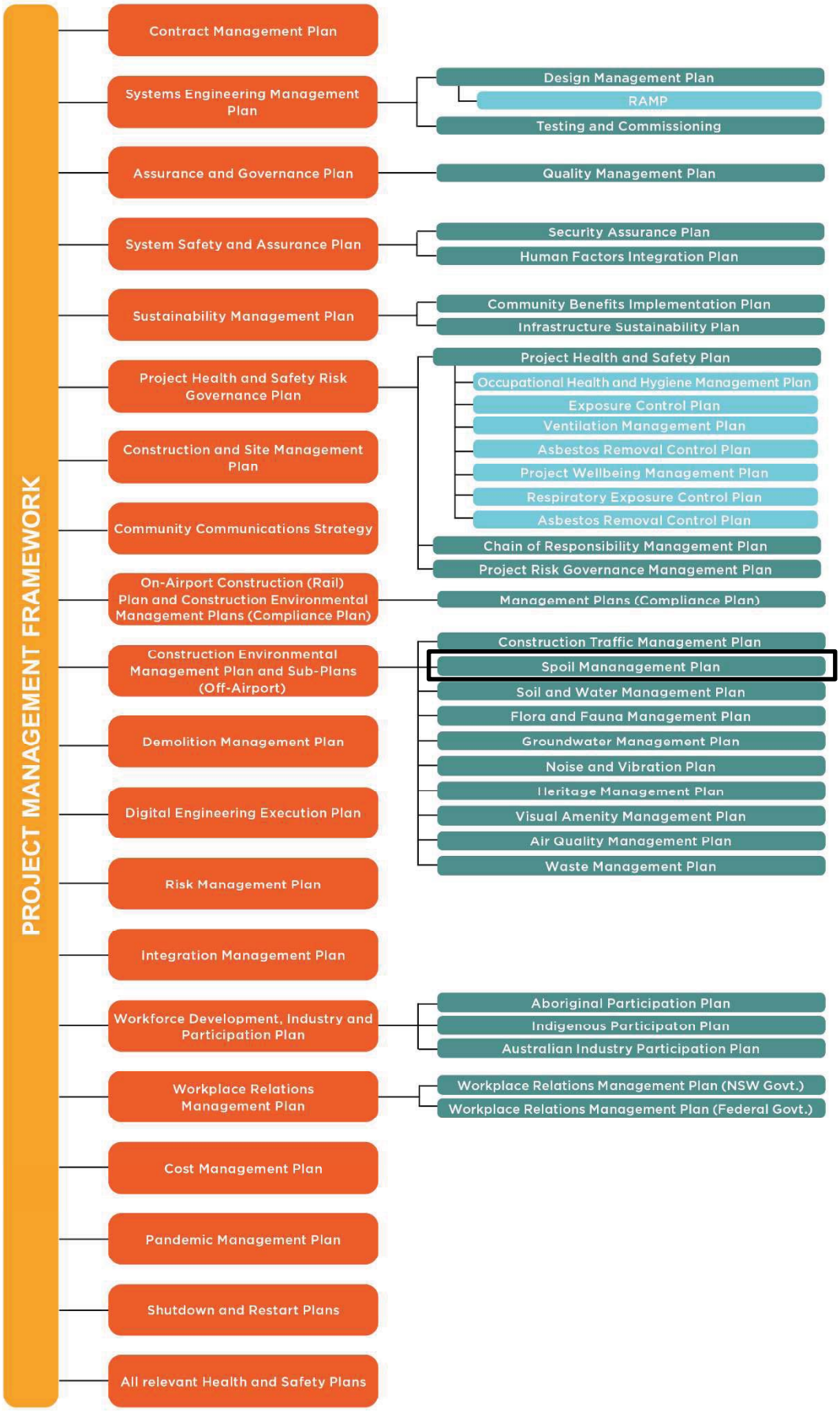


Figure 2 – SCAW Project Management Systems

3. Legal and other requirements

3.1. Legislation and Related Requirements

Key legislation relevant to waste management includes:

- *Environmental Planning & Assessment Act 1979*
- *Protection of the Environment Operations Act 1997*
- *Protection of the Environment Operations (General) Regulation 2009*
- *Protection of the Environment (Waste) Regulation 2014*
- *Waste Avoidance and Resource Recovery Act 2001*

Refer to the CEMP for further details of the relevant legislation.

3.2. Project Compliance Requirements

All works to be delivered for SCAW have been assessed and approved under the EP&A Act for the Critical State Significant Infrastructure application number 10051. The on-airport works are a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act) relating to approval EPBC 2019/8541.

There are three (3) principal statutory schemes that govern the planning and assessment process for the Sydney Metro – Western Sydney Airport (SM-WSA) project:

Commonwealth:

SCAW works have been assessed and approved under the *Airports Act 1996* (Airports Act) for works located on Commonwealth land within the boundary of the Western Sydney International Airport (on-airport).

SCAW works have been assessed and approved as a controlled action by the Department of Agriculture, Water and the Environment under Part 9 of the *Environment Protection and Biodiversity Conservation Act 1999* was obtained by Sydney Metro on 3 June 2021 (EPBC2020/8687) for the impacts on threatened species and communities and Commonwealth Land (off-airport).

State:

SCAW works have been assessed and approved via number of applications under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and are classified as Critical State Significant Infrastructure (SSI 10051) (off-airport).

Detailed environmental assessments have been carried out to gain the necessary Commonwealth and State planning approvals.

Project Specific Requirements:

The Project Specific Requirements contains a summary of the key compliance requirements relevant to spoil management measures which are applicable to SCAW are provided in Section 7. This includes relevant Conditions of Approval (CoA), REMMs, CEMF requirements and contractual requirements (Section 6.1.1.1).

3.2.1. Other licences and permits

The following licences and permits will be obtained:

- CPB have obtained an Environment Protection Licence (EPL) 21695
- CPBUIJV will ensure that a resource recovery order and resource recovery exemption applies (Refer to Section 6.5)
- Refer to the Waste Management Sub-plan for detail relating to licencing and permit requirements applicable to waste disposal and transportation

3.3. Guidelines and Standards

Additional guidelines and standards relating to the management of waste management include:

- Waste Avoidance and Resource Recovery Strategy 2007
- Waste Classification Guidelines, Part 1: Classifying Waste (EPA November 2014)
- National Environmental Protection (Assessment of Site Contamination) Measure 1999

The management of waste will be managed in accordance with the Waste Avoidance and Resource Recovery Strategy 2007, in particular Avoid and reduce waste and Reuse waste. Refer to the Waste Management Sub-plan (SMWSASCA-CPU-1NL-NL000-VM-PLN-000001).

4. Roles and Responsibilities

4.1. CPBUI Staff

The roles and responsibilities of key CPBUI JV project personnel with respect to Spoil management are detailed in Table 5 and are further detailed in Section 5.2.1 of the CEMP. Responsibilities for implementing specific requirements relating to spoil management are identified in Table 11.

Table 5 – Key roles, authority and responsibility

Role	Authority and Responsibility
Project Director	▪ Managing the delivery of SCAW including overseeing planning approval and environmental management ▪ Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts ▪ Act as the Contractor's Representative
Environmental Manager	▪ Oversee the implementation of spoil management initiatives and beneficial reuses ▪ Prepare and implement this Sub-plan ▪ Oversee monitoring, inspections and auditing ▪ Have the ability to stop works on environmental grounds ▪ Report any incidents or non-compliances to Sydney Metro and the ER
Environmental Advisor / Coordinator	▪ Assist the Environmental Manager in the day-to-day environmental management of SCAW ▪ Manage the on-ground application of spoil management measures during construction (e.g. reviewing compliance of imported spoil against its waste classification, monitoring and reviewing control measures associated with stockpiled spoil) ▪ Monitor and report on spoil management and waste tracking during construction ▪ Have the ability to stop works on environmental grounds
Commercial Manager	▪ Ensure that relevant spoil management requirements are considered in procuring materials and services
Senior Engineering Manager	▪ Ensure relevant spoil management requirements, initiatives and reductions strategies are addressed in design development
Construction Manager and delegates	▪ Manage the delivery of the construction process in relation to spoil management for their work activity in conjunction with the Environmental Manager and Environment Advisors/Coordinators ▪ Ensure compliance with this Sub-plan and associated procedures ▪ Manage spoil movements and coordination of appropriate waste classifications are received from spoil generators under a Resource Recovery Exemption (RRE)/ Resource Recovery Order (RRO)
Sustainability Manager/ Coordinator	▪ Track and report spoil and beneficial reuse elements against sustainability targets
Superintendents/ Site Supervisors	▪ Construction delivery in relation to spoil management and compliance in conjunction with the Environmental Manager ▪ Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimize unintended environmental or community impacts
Project Manager Civil/Structures Project Engineers Site Engineers Supervisors	▪ Implement and monitor onsite spoil management compliance measures across all sites in conjunction with environmental coordinators ▪ Manage spoil movements and coordination of appropriate waste classifications are received from spoil generators under a RRE/ RRO ▪ Undertake site inspections

Role	Authority and Responsibility
Stakeholder and Community Engagement Manager	▪ Assist in response to and management of complaints relating to spoil management or truck movements

4.2. Contamination Specialist

A consultancy specialising in the fields of contamination management and materials identification is engaged to undertake contamination assessments and provide advice on contamination management. They will also prepare:

- Detailed investigation reports (DSI) – required by CoA E92,
- Remedial Action Plan (RAPs) – as required by CoA E93,
- Validation reports (where required) as required by CoA E95; and
- Waste classification reports for RRE/RRO where spoil is proposed to go offsite for a beneficial reuse.

The consultants will have within their team a person certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CenvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme to either prepare or review and approve the DSIs, RAPs and validation reports.

4.3. Site Auditor

Should contamination be found and remediation be required to make land suitable for the final intended land use, an accredited Site Auditor engaged under the NSW site auditor scheme (administered by the EPA under Part 4 of the CLM Act) will review investigation, remediation, and validation work done by the contamination specialist and prepare Site Audit Statements to determine:

- The RAP is appropriate and the site can be made suitable for the proposed use (Section B Site Audit Statement) – as required by CoA E94; and
- The remediation has been completed (Section A1 or A2 Site Audit Statement) – as required by CoA E96.

The Site Auditor will also review DSI reports as required by Clause 12.19 (c) (vi) of the Design and Construction Deed.

Part B Implementation Plan

5. Aspects and impacts

Spoil and waste constraints associated with the SCAW activities have been identified and assessed in the EIS, specifically in the following:

- EIS Chapter 18 Resource management
- Contamination Assessment Report - Phase D/E, Cardno (November 2021)
- Human Health and Ecological Risk Assessment (HHERA), Cardno (June 2021)

The following sections summarise the spoil, waste and resource management aspects and the likely SCAW impacts as identified in the EIS.

5.1. Spoil classification

CPBUI will undertake a Detailed Site Investigation (DSI) including in-situ waste classification of material prior to commencement of excavation (refer to Section 6.2.1). The details and locations of DSIs to be completed are included in Section 7 of the Soil and Water Management Sub-plan and subject to the Areas of Environmental Concern listed in Figure 16-2b of the EIS.

Classification of material will be undertaken by a contamination specialist in accordance with the NSW Waste Classification Guidelines, in accordance with the Waste Management Sub-plan (SMWSASCA-CPU-1NL-NL000-VM-PLN-000001). Further classification of material would be undertaken in the event it is required prior to off-site disposal per Appendix D – Waste Classification Flow Chart.

All waste classification will be documented and tracked as part of a waste tracking register (for material being disposed off-site) and/or the material tracking register (for material moved within the SCAW worksite). This will be tracked by the Project Engineers and monitored for compliance by the Environmental Manager.

Indicatives waste streams associated with SCAW activities are:

- Virgin excavated natural material (VENM)
- Excavated Natural Material (ENM)
- Contaminated soil including:
    - Acid sulfate soil (ASS)
    - Potential ASS
    - General Sold Waste
    - Restricted Solid Waste
    - Hazardous Waste.

CPBUI and the management of spoil will be undertaken in accordance with the Sydney Metro Spoil Management Hierarchy:

1. Reuse spoil within the project
2. Reuse spoil associated with environmental works
3. Reuse spoil on other development projects
4. Reuse spoil for land restoration
5. Reuse spoil associated with landfill management

Refer to Table 8 for the anticipated spoil volumes by location and for each waste stream.

CPBUI will continue to examine opportunities to reuse spoil during SCAW activities. Refer to Table 7 for further detail on reuse initiatives. Other opportunities in regard to the reuse of waste under resource recovery exemptions (refer to Section 6.5) will continue to be explored during SCAW activities.

6. Strategy and approach for spoil reuse or removal and disposal compliance

6.1. Spoil Management

6.1.1. Delivery Strategy

6.1.1.1. Specification Requirements

The objectives of spoil management are to- adhere to the contract requirements in the specification, namely the particular specification Section 3.4.4.5 described below:

Table 6 – Project Deed particular specification requirements

PS 3.4.4.5	Requirement	Where Addressed
(a)	The SCAW Contractor must identify and implement initiatives to both reduce spoil quantities which will be generated during the performance of the SCAW Contractor's Activities and beneficially reuse 100% of reusable spoil, including topsoil. [SM-WSA-SCAW-PS-3133]	This Plan
(b)	Beneficial reuse of spoil must be in accordance with the following spoil reuse hierarchy, in order of preference: [SM-WSA-SCAW-PS-3134] i) within the project; [SM-WSA-SCAW-PS-3135] ii) environmental works; [SM-WSA-SCAW-PS-3136] iii) other development projects; [SM-WSA-SCAW-PS-3137] iv) land restoration; and [SM-WSA-SCAW-PS-3138] v) landfill management. [SM-WSA-SCAW-PS-3139]	Section 5.1
(c)	Where spoil cannot be classified as either virgin excavated natural material (VENM) or excavated natural material (ENM), the SCAW Contractor must determine the feasibility of beneficial reuse by characterising the spoil against the specific contaminant concentration (SCC) and toxicity characteristics leaching procedure (TCLP) values in Table 1 and Table 2 of the NSW Environment Protection Authority (EPA) Waste Classification Guidelines Part 1 (2014). Where contamination meets the requirements for General Solid Waste and is not able to be retained on site, the SCAW Contractor must seek receivers who are able to re-use or recycle spoil that meets the General Solid Waste thresholds as outlined in NSW EPA Waste Classification Guidelines (2014) (as updated from time to time). Alternatively, the SCAW Contractor may apply to the EPA for a Resource Recovery Order or Exemption granted under the Protection of the Environment Operations (Waste) Regulation 2014. [SM-WSA-SCAW-PS-3140]	Section 5 of the Waste Management Sub-plan
(d)	Subject to paragraphs (e) to (g), the SCAW Contractor must ensure that landscape mounds are: [SM-WSA-SCAW-PS-3142] i) designed and constructed to meet the requirements of the D&C Deed including the requirements of the Planning Approval related to landscaping, visual	Section 6.1.1.2 Design Reports

PS 3.4.4.5	Requirement	Where Addressed
	impact, flooding and drainage; [SM-WSA-SCAW-PS-6103] ii) not placed within riparian buffer zones as defined by Guidelines for controlled activities on waterfront land riparian corridors (Department of Industry 2018) and at least 60m from middle of creek, whichever is greater; [SM-WSA-SCAW-PS-6104] iii) naturally shaped with smooth transitions into the surrounding topography; [SM-WSA-SCAW-PS-6105] iv) constructed with batter slopes less than or equal to 3 horizontal to 1 vertically; and [SM-WSA-SCAW-PS-6106] v) covered by at least 400mm of topsoil to enable revegetation of the native bushlands. [SM-WSA-SCAW-PS-6107]	
(e)	The SCAW Contractor must ensure that the top 100mm of weed laden topsoil is stripped and separated from cleaner underlying topsoil. Weed laden topsoil may only be reused when buried beneath a minimum of 200mm of cleaner material or placed in dedicated linear landscape buffer mounds at the boundary of the corridor that are no higher than 1 metre and no wider than 8m. [SM-WSA-SCAW-PS-6108]	Section 7 Inspection and Test Plans (ITPs)
(f)	The subsections below set out the requirements by location for all landscape mounds constructed to manage excess spoil on the Project Site: [SM-WSA-SCAW-PS-6109] i) Within the Project Site north of the Warragamba pipeline excluding Project Site areas PS-101B, PS-102 and PS-105, all permanent landscape mounds must: [SM-WSA-SCAW-PS-6110] A) be no higher than 3m above existing ground level; [SM-WSA-SCAW-PS-6111] B) have batter slopes less than or equal to 5 horizontal to 1 vertical; [SM-WSA-SCAW-PS-6112] C) not be located within 200m of the eastern boundary of the Construction Site north of Blaxland Creek (Project Site PS-44); and [SM-WSA-SCAW-PS-6113] D) be located at least 200m north of the northern boundary of the Warragamba Pipeline easement. [SM-WSA-SCAW-PS-6114] ii) Landscape mounds in the area for the Stage 2 stabling yard and located in areas of the Project Site PS-101B and PS102 may only be used to stockpile VENM or ENM material. [SM-WSA-SCAW-PS-6115] iii) Section 3.4.4.5(f)(ii) is not applicable to landscape mounds within Project Site area PS-102 outside of the area for the Stage 2 stabling yard. [SM-WSA-SCAW-PS-6116]	Design Reports

PS 3.4.4.5	Requirement	Where Addressed
	iv) The use of Project Site area PS-25 directly south of Luddenham Road for managing excess spoil on the project must only consist of site levelling with VENM and ENM material and must not restrict or limit the future development opportunities for this site as defined within the Western Sydney Aerotropolis Precinct Plan 2020 (or as updated from time to time by the Western Sydney Planning Partnership). [SM-WSA-SCAW-PS-6117]	
(g)	The SCAW Contractor is to prioritise and maximise the use of Project Site PS-105 in its approach to landscape mounds for the purpose of managing excess spoil on the project. [SM-WSA-SCAW-PS-6118]	Design Reports Table 8

6.1.1.2. Approach

Measures that will be implemented to both reduce spoil quantities and maximise the beneficial reuse of spoil which will be generated by CPBUI in performing the SCAW project works include, balancing the cut to fill during the design development process to minimise spoil generation. In minimising the spoil approach, CPBUI will:

- Achieve a 'beneficial reuse' approach when determining the final use of 100% of reusable spoil and 100% of reusable topsoil
- Minimise spoil management impacts on the environment, road network and local community
- Achieve solutions that consider the hierarchy of options for reuse as outlined in section 3.4.4.5 (Spoil Management) of the Particular Specification.

The plan for management of spoil material from SCAW Project Works will be guided by the Sydney Metro – Western Sydney Airport (SMWSA) SCAW hierarchy of options for reuse as outlined in Section 5.1. The CPBUIJV spoil management values and principles align with SMWSA hierarchy. The optimised spoil reuse strategy, derived from the SMWSA hierarchy, is outlined in Table 7.

Table 7 – SCAW spoil management approach as derived from the SMWSA hierarchy

Priority	Option	CPBUIJV Strategies
Potential for option to be used on SCAW:		Preferred
1	Avoid or reduce the generation of spoil wherever possible	**Strategy 1 –** Vertical alignment optimisation to reduce overall spoil quantities and overall import quantities generated from the SCAW At-Grade construction activities.
2	Reuse spoil where spoil is suitable (or can be made suitable through remedial actions and engineering design) for the placement location under the applicable regulatory regime and geotechnical requirements	**Strategy 2 –** Where the program allows and where material is suitable, all site won cut of Bringelly clay/shale will be utilised in the SMF “core”. In addition, site won material will be utilised for local cut to fill within basins and temporary work formations (Such as haul roads and compound pads).All respreading of topsoil will maximise the use of site won topsoil. Where required, site won topsoil will be ameliorated in order to achieve the project requirements. The reuse of topsoil will be in accordance with PS 3.4.4.5(e)
Potential for option to be used on SCAW:		Potential but not preferred
3	Recycle materials at off-site facilities in accordance with the licenses and approvals of the recycling facility	**Strategy 3 –** Local approved recycling and resource recovery facilities within an economic transportable distance from site (reserved for materials not able to be utilised on site)

Priority	Option	CPBUIJV Strategies
Potential for option to be used on SCAW:		Not preferred
4	Dispose offsite to landfill in accordance with the licenses and approvals of the facility (contaminated spoil only)	**Strategy 4 –** Local approved landfill facilities within an economic transportable distance from site (utilised only for materials exceeding legislative criteria limits for onsite stockpiling and storage)

Onsite stockpile and permanent fill areas outside of the alignment, but within the project boundary have been identified, assessed and designed and are listed in Table 8. The final form allows for the below permanent stockpiles (Volumes to be confirmed at final design stage). The location of the permanent stockpiles and the sensitive areas that surround them are contained in **Appendix B – Permanent Stockpiles – Sensitive Area Plan**. These permanent stockpile locations will be located in areas that minimises the need for clearing of native vegetation and their design will be such that they are undertaken to retain trees. Table 6 references compliance with the Project Deed and Particular Specification however the permanent stockpiles will be designed to address the requirements of Clause 3.4.4.5(d).

Table 8 – Permanent Stockpiles

Permanent Stockpiles	Road location access point	Capacity * (Subject to change during design development)	Material Type
SMF	End of Patons Lane	205,888m³	VENM/ENM
SMF Additional	End of Patons Lane	62,496m³	VENM/ENM
PS-105	End of Patons Lane	260,000m³ – 350,000m³	Topsoil / Unsuitable^ / VENM / ENM
Luddenham Road south	546-640 Luddenham Road	12,550m³	VENM/ENM
M12 Basin Elizabeth Drive	Corner of Elizabeth Drive and Badgerys Creek Road	16,500m³	Topsoil

**Note: Not all stockpile locations will be used to their maximum capacity and final volumes may vary depending on material types encountered during construction.*

^ Unsuitable refers to material that is geotechnically unsuitable for filling and compaction requirements and is not from an area onsite identified as having potential contamination and/or below the chemical concentrations identified in the HHERA.

The volume of surplus is contained in the indicative Mass Haul (Appendix A – Indicative Mass Haul) and outlined in Table 9 below. The total volume of surplus spoil proposed to be retained on-site is approximately 228,545 m³. For design purposes, an additional 40,000 m³ of Contaminated Material has been allowed for. Based on the design capacities outlined in Table 8 above, the existing stockpile areas have capacity retain 100% of spoil generated by the SCAW project.

Table 9 – Surplus spoil generated

Material Type	Surplus Spoil Volume Generated
Topsoil	135,234 m³
Geotechnically Unsuitable Material	61,335 m³
Non-structural fill	31, 976 m³
Contaminated Material (assumed level for purposes of onsite encapsulation design)	~40,000 m³

Table 10 outlines the critical issues and solutions that CPBUIJV will implement for spoil management operations.

Table 10 – Critical issues and solutions that CPBUIJV will implement for spoil management operations

Critical Issues	CPBUIJV Solutions
Material Tracking for On site permanent Stockpiles	▪ Ensure that all materials to be maintained on site in permanent stockpiles are documented and, where require, encapsulation of such materials is as per the relevant legislative requirements in the *Contaminated Lands Management Act 1997*. ▪ Existing and final surveys to be provided in all permanent stockpile locations. ▪ All relevant testing and material classification to be approved prior to onsite encapsulation
Ensuring that spoil materials are disposed of appropriately and at a lawful location	▪ Real-time GPS monitoring of trucks (to monitor in real time the locations of all heavy vehicles used for spoil haulage) ▪ Allocated trucks communicated to disposal sites ▪ Inductions and training of truck drivers ▪ Multiple sources of independent data including truck dockets, gatekeeper records, driver records ▪ Utilise waste tracker for general solid waste/contaminated material cartage/disposal ▪ Obtain a section 143 notice (under the POEO Act) for receiving sites of RRO/RRE materials ▪ Compliance to Heavy Vehicle National Law (using CPBUIJVs established and demonstrated procedure) ▪ Undertake waste classification per the details in Section 6.2 ▪ Implementation of Waste Management Sub-plan (SMWSASCA-CPU-1NL-NL000-VM-PLN-000001)
Western Sydney traffic network traffic congestion	▪ Staged spoil haul-out minimising volume of traffic ▪ Use of nominated haulage routes ▪ Site access points ▪ Truck staging areas where practical ▪ Heavy Vehicle National Law audits carried out by project team ▪ Use of larger truck and dog combinations where practicable (HML – Quad Dog and 9 Axle B-Double) to reduce overall heavy vehicle movements ▪ Implementation of SCAW overarching Construction Traffic Management Plan (SMWSASCA-CPU-1NL-NL000-TF-PLN-000001)
Driver Behaviour	▪ Real-time GPS monitoring of trucks ▪ Project identification labels on trucks ▪ Local contractors and drivers ▪ Specific induction for spoil drivers ▪ Project code of conduct ▪ Visibility of driver behaviour - regular feedback to driver work force ▪ Daily allocations allow immediate identification of project trucks.

6.2. Stockpiling and Disposal of Materials

6.2.1. Testing of Materials

Pre-classification of spoil will be implemented with sampling and analysis using the Sydney Metro Waste Classification Procedure undertaken prior to the excavation work commencing. This will allow the effective management of varying spoil types and classifications, and isolation of specific project areas if contaminants are encountered. Where the spoil is required to be re-used or disposed at an off-site location, the pre-classification of the material will reduce the requirement for double handling; reduce the

potential for cross contamination; and allow the final destination of spoil with a classification for beneficial reuse (such as VENM or ENM) to be determined prior to excavation works commencing.

Detailed site investigations (DSIs) will be undertaken on the site in accordance with CoA E92 and the NSW EPA Contaminated Land Guidelines at the areas identified in the EIS (referred to as Areas of Environmental Concern) of being moderate to high risk contaminated sites and in other areas deemed necessary to manage the risks associated with contaminated land and to properly plan for remediation prior to commencement of construction. Where contamination is identified a Remedial Action Plan(s) (RAP) will be prepared in accordance with the requirements of CoA E93 and the Project Deed (specifically Clause 12.20). The RAPs will be prepared to guide the excavation, treatment, handling and final encapsulation (or disposal method) required and will include a "Classification and Excavation Map" and an "Excavation Quantity Register". They will be approved by a NSW EPA Accredited Site Auditor (for off-airport and) in accordance with CoA E94, E95 and E96, and the Airport Environmental Officer (for on-airport land) prior to implementation. If the Agreed Remediation Scope with Sydney Metro requires off-site disposal, sampling of material will be undertaken in accordance with the Sydney Metro Waste Classification Procedure and the NSW EPA Waste Classification Guidelines (2014).

CPBUIJV will implement the measures and procedures to ensure all materials are handled safely and contaminants of concern are appropriately handled to reduce cross contamination.

Where contaminated material requiring disposed off-site is identified, the suitability of potential disposal sites will be assessed. A Waste Classification Report will be sent to the receiving licensed disposal site prior to haulage, and the spoil will be tracked using multiple independent record sources such as real-time GPS heavy vehicle tracking, weighbridge dockets, gatekeeper records and driver dockets.

Where stockpiling of contaminated material is necessary, it will be undertaken in accordance with the Soil and Water Management Sub-plan (SMWSASCA-CPU-1NL-NL000-WA-PLN-000001) including the Stockpile Management Protocol which outlines how CPBUIJV will ensure contaminants are appropriately stored, identified and controlled, and the Erosion and Sediment Control Management Procedure (which has been prepared in accordance with the Blue Book (CoA E128). The different types of excavated materials will be segregated as far as practicable and stored separately to prevent mixing and cross-contamination. Stockpile management will be undertaken as per the Transport for NSW (TfNSW) D&C Specification G38 requirements.

Material encountered during excavation that is inconsistent with the In-situ waste classification will be segregated and stored with adequate environmental controls until the waste classification is completed. The 'Unexpected Contamination Protocol' contained within the Soil and Water Management Sub-plan will be implemented.

6.2.2. Temporary Spoil Stockpile Management

CPBUIJV's strategy for permanent stockpiling has significantly reduced the need for temporary material management. Where small volumes of spoil are stockpiled locally for reuse, the temporary stockpile locations will be coordinated to minimise environmental impact.

Temporary stockpile sites for spoil ancillary facilities will be established and managed in accordance with the Stockpile Management Protocol and the Erosion and Sediment Control Management Procedure contained in the Soil and Water Management Sub-plan (SMWSASCA-CPU-1NL-NL000-WA-PLN-000001). These stockpiles will be established according to their waste stream, classification or material type (such as Topsoil, geotechnically unsuitable, VENM, ENM) and segregated to avoid cross-contamination of materials and maximise reuse and recycling opportunities.

6.2.3. On-Site Handling and Reuse

Refer to Table 8 – Permanent Stockpiles and the indicative Mass Haul in Appendix A – Indicative Mass Haul for on-site handling details.

In accordance with the Sydney Metro Spoil Management Hierarchy site won material will be utilised for the SMF core, general fill in temporary works, such as haul roads, basins, crane and piling pads, drainage channels and site compound facilities.

Excess spoil will be placed in onsite permanent stockpile locations (detailed in Table 8).

CPBUIJV will refer to the Human Health and Environmental Risk Assessment (HHERA) and the reuse criteria in regard to avoiding long term adverse impacts to human health or the environment.

6.2.4. Spoil transport

Spoil management and traffic and transport related impacts will be managed via the measures described in Table 10.

Haulage times to and from the SCAW worksites will be managed in accordance with the relevant EPL and CoA, along with any site-specific restrictions from Construction Traffic Management Plans (CTMP) and Detailed Noise and Vibration Statements.

In accordance with CoA E104, the locations of all heavy vehicles used for spoil haulage will be monitored in real time. Waste spoil will be transported to an EPA licensed waste disposal site as identified in the Waste Management Sub-plan.

Refer to Section 7 of the CEMP for specific training related to the transportation of spoil.

6.2.5. On-Airport import

The import of spoil on to the On-Airport site will be undertaken with the requirements of the Sydney Metro – Western Sydney Airport On-Airport Waste and Resources Construction Environmental Management Plan (specifically Section 6.7).

Certification of the imported materials must be provided to WSA for approval no less than two (2) weeks prior to planned importation. Materials to be imported onto the On-Airport site will satisfy the following criteria:

- virgin excavated materials such as natural clays, gravel, sand, soil or rock fines;
- material with suitable Environmental Protection Authority waste exemption/order or meet the excavated natural material requirements;
- materials excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, resulting from industrial, commercial, mining or agricultural activities;
- materials that do not contain any sulfidic ores or soils or any other waste;
- topsoil growing media, mulch etc. for landscaping purposes, free of foreign substances, staining and/or odours; and
- materials that do not contain marine mud, peat, vegetation, timber, organics, soluble or perishable elements; dangerous or toxic material; metal, rubber or plastics; and construction /demolition debris.

A material import assessment form is required for importing material to on-airport to meet the requirements of the *Airports (Environment Protection) Regulations 1997* and the Western Sydney Airport Remediation Action Plan 2019 prepared by GHD.

The material tracking register and waste material tracking register, to record the type, amount and location of material/waste imported, reused, recycled, stockpiled and disposed of will include the following details and all validation in accordance with the On-Airport Remediation Action Plan:

- type of imported material and its classification (according to the *Protection of the Environment Operations Act 1997* (POEO Act) and NSW EPA waste classification guidelines and Airport Environmental Protection Regulations);
- quantities of imported material measured in tonnes;
- how and where the imported material was stockpiled, used or disposed of;
- date when the waste or imported material was stockpiled, used or disposed of; and
- name and licence of the suppler used.

Wastes that are unable to be reused or recycled or retained will be disposed of offsite to an NSW EPA approved waste management facility following classification in accordance with the POEO Act and the *Waste Avoidance and Resource Recovery Act 2001*.

6.3. Waste disposal

Off-site disposal will be undertaken in accordance with the Waste Management Sub-plan.

6.4. Spoil tracking

Waste management and tracking will be managed in accordance with the Waste Management Sub-plan. In accordance with CoA E104 the location of all heavy vehicles used for spoil haulage will be monitored

in real time and in accordance with CoA A46 the heavy vehicles will be clearly marked as being used for the Sydney Metro – Western Sydney Airport Project (SSI 10051) and so as to ensure that identification can be made from at least 50m away. Records of monitoring will be made available to the Planning Secretary and the EPA upon request for a period of no less than one (1) year following completion of construction.

All waste removed from the site will be appropriately tracked from 'cradle to grave' using waste tracking dockets. CPBUI will track waste and spoil via a waste tracking register (for material being disposed off-site) and/or the material tracking register (for material moved within the SCAW worksite – example form attached in **Appendix C – Material Tracking Form**). The register will track GPS tracking records, landfill receival receipts, section 143 notices and resource recovery order/exemption details. The register will track detail including (but not limited to):

- Location
- Capacity
- site owner
- which tier the site is classified as under the spoil reuse hierarchy.

6.5. Resource recovery

A significant volume of imported material is expected to be tunnel spoil from TfNSW road and rail projects. Due to construction methodologies:

- Using roadheaders for excavation, the natural sandstones are mixed with small quantities of concrete materials and steel fibres from the application of shotcrete to support the roof of the tunnel.
- Using tunnel boring machines (TBM's) for excavation, the natural sandstones are mixed with conditioning agents such as foaming agents, stabilisers and polymers which assist with abrasion and wear, dust control and performance and reliability of the TBM's.

Tunnel spoil that contains such additives is unlikely to be classified as VENM under the NSW *Protection of the Environment Operations Act 1997* or ENM under the NSW *Protection of the Environment Operations (Waste) Regulation 2014* and therefore would require a specific RRE/ RRO to be obtained by the generator of the spoil.

For all tunnel spoil imported, CPBUIJV will ensure that an approved EPA RRE/RRO is in place and that the generator of the spoil meets all requirements of conditions for spoil supply.

7. Spoil management

Procedures and methodologies for the haulage and disposal locations, storage and stockpiling arrangements, including those for topsoil, VENM, contaminated and geotechnically unsuitable material are contained in the Inspection and Test Plans (ITPs) contained in Work Packs for earth works.

The ITP process details the following processed for the following spoil types:

- Topsoil
- Geotechnically Unsuitable Material (may be VENM or another classification depending on site conditions)
- Non-structural fill (may be VENM or another classification depending on site conditions)
- Contaminated material

The POEO Act defines VENM as:

natural material (such as clay, gravel, sand, soil or rock fines): (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and (b) that does not contain any sulfidic ores or soils or any other waste.

VENM may form part of either non-structural fill, or geotechnically unsuitable material. Where VENM is not proposed to be reused onsite (in the cut and fill), it will be stored in separated or delineated stockpiles so that cross contamination does not occur.

Topsoil

Topsoil is defined as the natural surface soil that may contain organic matter. All topsoil will be removed over the area which is occupied by the completed works.

- Topsoil should be free of foreign material
- The top 100mm of weed laden topsoil will be stripped and separated from the cleaner underlying topsoil where possible
- After removing the topsoil, a survey will be undertaken of the stripped surface levels
- Weed laden and clean topsoil will be stored in separated or delineated stockpiles
- Topsoil suitable for vegetation propagation will be placed in stockpiles clear of the work to enable its re-use in landscaping and revegetation
- Topsoil that is required to be hauled via public roads to other locations on the project will follow the approved haulage routes subject to the CTMPs.

Geotechnically Unsuitable Material

Geotechnically unsuitable materials are generally defined as those materials unsuitable for forming embankment fill and railway formations and/or with a California Bearing Ratio (CBR) test of <1%.

- A site based Geotech engineer will be onsite to provide advice and direction of the unsuitable material to be removed. Where unsuitable material exists in excessive depths, advice of the geotechnical engineer shall be sought.
- Stockpiling of unsuitable material will be placed in a designated location in PS-105
- Geotechnically unsuitable materials that is required to be hauled via public roads to other locations on the project will follow the approved haulage routes subject to the CTMPs.

Non-structural fill

Non-structural fill is material that is not required to provide structural support to the mainline or SMF, but can be reused within landscaping and permanent stockpiles on the project.

- Stockpiling of non-structural fill will be placed in a designated location in PS-105 or at temporary stockpile locations throughout the project identified in the Erosion and Sediment Control Plans.
- Non-structural fill that is required to be hauled via public roads to other locations on the project will follow the approved haulage routes subject to the CTMPs.

Contaminated material

Contaminated material is that which has been identified by DSIs prepared or and unexpected find and is subject to a RAP.

- Excavation of contaminated material will in accordance with the approved RAP.
- Contamination shall be placed and capped in accordance with an approved RAP and managed under an approved lone term environmental management plan.
- Contaminated materials that are required to be hauled via public roads to other locations on the project will follow the approved haulage routes subject to the CTMPs. Any contaminated material required to be disposed of at an approval licensed landfill will be subject material tracking requirements per the Waste Classification and any applicable requirements for transport of hazardous waste required under the *Protection of the Environment Operations (Waste) Regulation 2014*.

The proposed haulage routes for spoil that will be reuse within the SCAW project footprint at the designated location in PS-105 are shown in Figure 3. The proposed haul routes for any spoil that would be sent off-site for a beneficial reuse would be subject to a CTMPs and the approved haul routes for the receiving site.

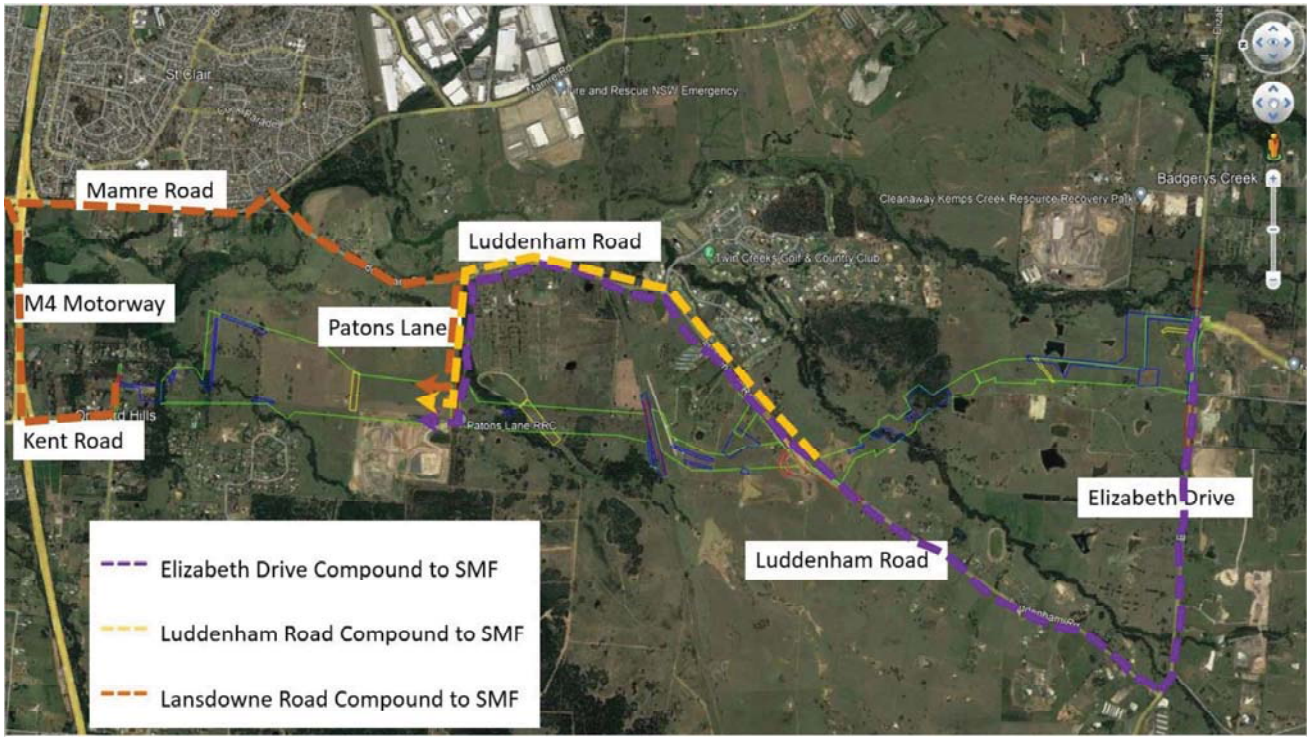


Figure 3 – Proposed haulage routes for spoil reused on the SCAW project

7.1. Spoil Mitigation Measures

SCAW activities will generate spoil which is required to be appropriately managed. In order to avoid, mitigation and/or minimise the potential for impacts, CPBUI will implement a range of requirements as identified in the Project Planning Approval, the EIS and Submissions Report and the CEMF. Project requirements are identified in Table 11. Table 10 outlines the standard management and mitigation measures developed for the management of social and environmental impacts associated with spoil transfer and reuse for construction of the SCAW.

7.2. Sydney Metro Spoil Management Framework

CPBUIJV has developed its bulk earthworks strategy and mass haul (**Appendix A – Indicative Mass Haul**) to reduce and mitigate the impacts of the variable requirements NSW and Commonwealth legislations along the alignment of the project, in particular with the supply point and disposal point of spoil between the two jurisdictions.

7.3. Permanent Stockpile locations

The location of the permanent stockpile locations are subject to detailed design (and details will be updated further in Table 8). The sensitive areas that surround them are contained in **Appendix B – Permanent Stockpiles – Sensitive Area Plan** .

Table 11 – Project specific requirements

No	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
CoA A46	All Heavy Vehicles used for spoil haulage must be clearly marked on the sides and rear with the project name and application number to enable immediate identification by a person viewing the Heavy Vehicle standing 20 metres away.	Table 10	**Site Supervisor** Environmental Manager	Construction
CoA E99	The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.	Appendix C5 of the Soil and Water Management Sub-plan	**Site Supervisor** Safety Manager Environmental Manager	Construction
CoA E104	The locations of all Heavy Vehicles used for spoil haulage must be monitored in real time and the records of monitoring be made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one (1) year following the completion of construction.	Table 10	**Site Supervisor** Environmental Manager	Construction
CoA E109(e)	Vehicles associated with the project workforce (including light vehicles and Heavy Vehicles) must be managed to: (e) ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMP.	Table 10	**Site Supervisor** **Traffic Manager**	Construction
CoA E122	Waste generated during construction and operation must be dealt with in accordance with the following priorities: (a) waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; (b) where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.	Section 6.2 Waste Management Sub-plan	**Site Supervisor** Environmental Manager	Construction
CoA E123	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of the current EPL for the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, as the case may be.	Section 3.2.1 Waste Management Sub-plan	**Environmental Manager** Site Supervisor Project Engineer	Construction

No	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
CoA E124	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.	Section 3.2.1 Waste Management Sub-plan	**Environmental Manager** Site Supervisor	Construction
CoA E125	All waste must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Section 3.2.1 Waste Management Sub-plan	**Environmental Manager** Site Supervisor	Construction
REMM WR2	Waste streams would be segregated to avoid cross-contamination of materials and maximise reuse and recycling opportunities	Section 6.2.2	**Site Supervisor** Environmental Manager	Construction
REMM WR3	A materials tracking system would be implemented for material transferred between construction sites.	Table 10	**Environmental Manager** Project Engineers	Construction

Table 12 – Spoil mitigation measures

Ref	Mitigation measure	Responsibility	Source
SP1	All staff and Subcontractors will participate in a Project induction and ongoing toolbox talks that will describe waste minimisation and reuse management measures, including the requirements of the waste management hierarchy	Project Director	CEMF 3.11 a
SP2	Waste and spoil management measures from this plan will be included in relevant Environmental Work Method Statements (EWMS) that will be developed prior to the commencement of specific activities, where there is a residual high risk	Environmental Manager	Best practice
SP3	DSIs will be undertaken on the site in accordance with CoA E92 and the NSW EPA Contaminated Land Guidelines at the areas identified in the EIS of being moderate to high risk contaminated sites and in other areas deemed necessary to manage the risks associated with contaminated land and to properly plan for remediation prior to commencement of construction.	Environmental Manager	CoA E92
SP4	Spoil generated on-site, that requires storage prior to disposal, will be segregated by type and the appropriate environmental controls implemented, as required by the Soil and Water	Site Supervisor	REMM WR2

Ref	Mitigation measure	Responsibility	Source
	Management Plan. Stockpiles will be managed to avoid any contamination of land and adjacent waterways.		
SP5	100% of usable spoil will be re-used or recycled (both onsite and off-site). Where necessary the off-site re-use of spoil will be in accordance with either existing, or Project specific resource recovery exemptions/orders.	Project Engineer	REMM WR2 CoA E122
SP6	The re-use and recycling of materials generated on the project , where suitable, will be prioritised over disposal at landfill facilities.	Project Engineer	REMM WR2 CoA E122
SP7	Waste and spoil will be transported by reputable transport companies, and where required will be suitably licenced for transporting certain types of waste material.	Project Engineer	CoA E124 Best practice
SP8	Waste transport vehicles will be fitted with GPS tracking systems. GPS records will be made available to the EPA and the DPE upon request.	Project Engineer	CoA E104
SP9	100% waste will be tracked using a waste tracking registers. The registers will track the material 'from cradle to grave'.	Project Engineer	REMM WR3
SP10	The Material Tracking Form will be implemented for the authorisation of spoil and or waste to be disposed of at off-site at licensed facilities or to any other place that can lawfully accept such waste by providing a signed section 143 notices for the RRO/RRE details	Project Engineer	Best practice
SP11	Spoil transport will be completed via approved haul routes only. The use of approved haul routes will be included in haulage contractor subcontracts. Compliance with these requirements will be monitored through the GPS tracking system	Project Engineer	CoA E109
SP12	All Heavy Vehicles used for spoil haulage off-site will be clearly marked on the sides and rear with the project name and application number to enable immediate identification by a person viewing the Heavy Vehicle standing 20 metres away.	Project Engineer	CoA A46
SP13	Each site entry and exits points for the haulage of spoil will be designed that no pedestrians or cyclists are put at risk.	Traffic Manager	Best practice
SP14	Road surfaces subject to the tracking of material by vehicles leaving the premises will be effectively cleaned as required via a road sweeper where mud-tracking has been identified or excessive dust is being generated	Project Engineer	Best practice

8. Compliance management

8.1. Training

Section 7.8 of the CEMP provides full detail on the delivery of spoil management training including:

- Project induction
- Toolbox talks and awareness

Relevant to spoil management, the induction would address:

- Implementation of this Plan
- Nominated haulage routes and the CTMP
- Waste management procedures and the Waste Management Sub-plan
- Project Planning Approval, and other project specific requirements
- Incident notification procedures
- Communication protocols and the Community Communication Strategy
- Driver training

8.2. Monitoring, inspections and audits

Refer to Section 6.5 and 7.13 of the CEMP for detail on monitoring, inspections and audits.

Inspections specific to spoil management will be undertaken to confirm compliance with objectives and targets (Section 2.1.1).

Monitoring of spoil imported will involve daily checks of material imported to confirm the material is consistent with the classification of the approved EPA RRE/RRO. Audits will be undertaken at least 6 monthly of the generator of the spoil to ensure all requirements of conditions for spoil supply are being met.

Refer to the Waste Management Sub-plan for detail relating to monitoring, inspection and audits that relate to waste tracking.

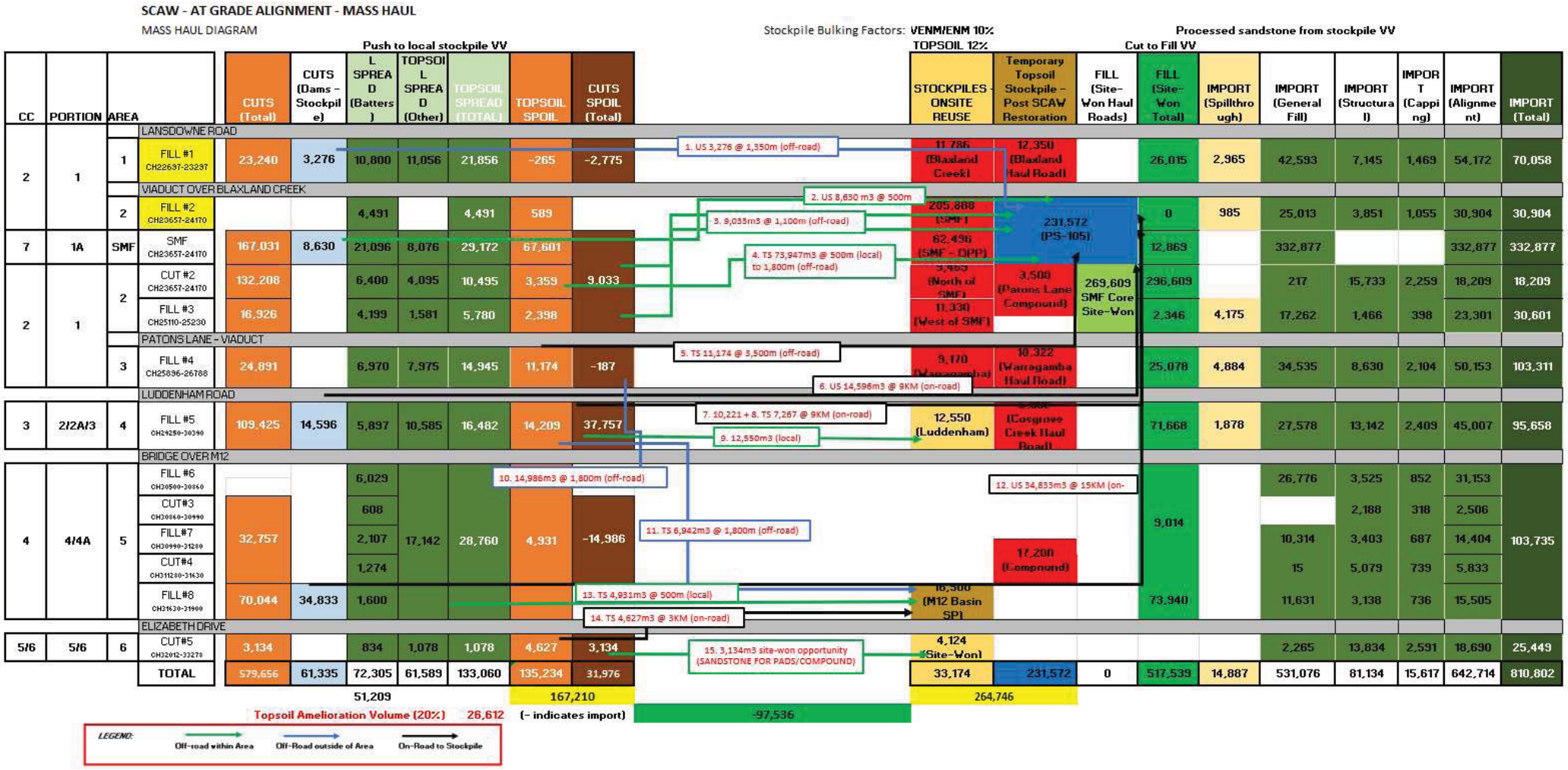
8.3. Records and reporting

CPBUI will track waste and spoil via a waste tracking register (for material being disposed off-site) and/or the material tracking register (for material moved within the SCAW worksite – example form attached in **Appendix C – Material Tracking Form**)

CPBUI will retain records associated with material and/or waste tracking in accordance with the Waste Management Sub-plan including records of reuse, disposal, resource recovery and waste dockets. Records for spoil that will kept during construction and managed by the ITPs include:

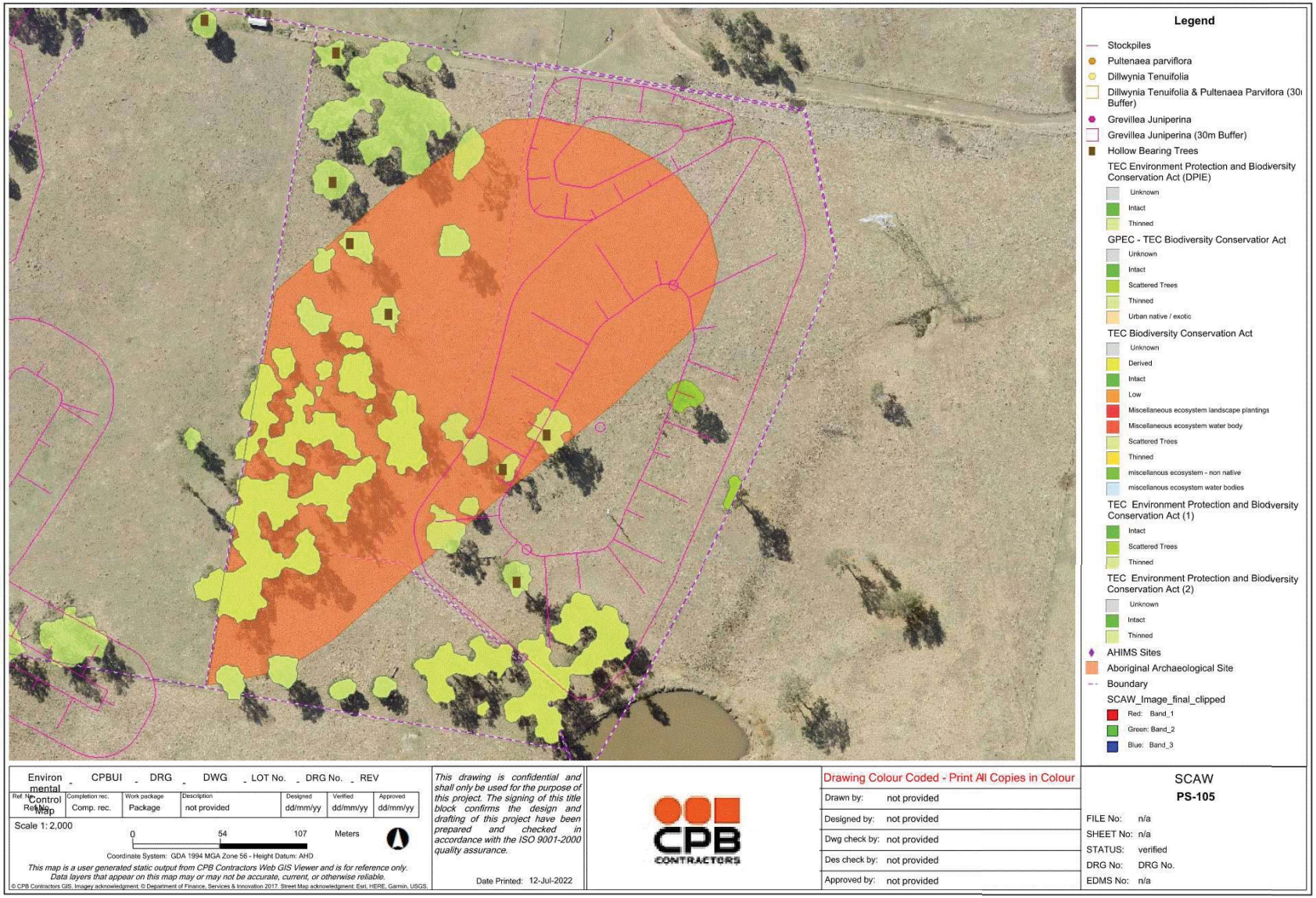
- Cut or fill areas
- Surveys / levels
- Material types
- Location of testing

Appendix A – Indicative Mass Haul



CC	PORTION	AREA		CUTS (Total)	CUTS (Dams – Stockpile)	L SPREAD (Batters)	TOPSOIL SPREAD (Other)	TOPSOIL SPREAD (TOTAL)	TOPSOIL SPOIL	CUTS SPOIL (Total)	STOCKPILES - ONSITE REUSE	Temporary Topsoil Stockpile – Post SCAW Restoration	FILL (Site-Won Haul Roads)	FILL (Site-Won Total)	IMPORT (Spillthrough)	IMPORT (General Fill)	IMPORT (Structural)	IMPORT (Capping)	IMPORT (Alignment)	IMPORT (Total)
			LANSDOWNE ROAD																	
2	1	1	FILL #1 CH22637-23237	23,240	3,276	10,800	11,056	21,856	-265	-2,775	11,786 (Blaxland Creek)	12,350 (Blaxland Haul Road)		26,015	2,965	42,593	7,145	1,469	54,172	70,058
			VIADUCT OVER BLAXLAND CREEK																	
		2	FILL #2 CH23657-24170			4,491		4,491	589		205,888 (SMF)	231,572 (PS-105)		0	985	25,013	3,851	1,055	30,904	30,904
7	1A	SMF	SMF CH23657-24170	167,031	8,630	21,096	8,076	29,172	67,601		62,496 (SMF - OPP)			12,869		332,877			332,877	332,877
2	1	2	CUT #2 CH23657-24170	132,208		6,400	4,095	10,495	3,359	9,033	3,455 (North of SMF)	3,500 (Patons Lane Compound)	269,609 SMF Core Site-Won	296,609		217	15,733	2,259	18,209	18,209
			FILL #3 CH25110-25230	16,926		4,199	1,581	5,780	2,398		11,330 (West of SMF)			2,346	4,175	17,262	1,466	398	23,301	30,601
			PATONS LANE - VIADUCT																	
		3	FILL #4 CH25836-26788	24,891		6,970	7,975	14,945	11,174	-187	9,170 (Warragamba)	10,322 (Warragamba Haul Road)		25,078	4,884	34,535	8,630	2,104	50,153	103,311
			LUDDENHAM ROAD																	
3	2/2A/3	4	FILL #5 CH29250-30390	109,425	14,596	5,897	10,585	16,482	14,209	37,757	12,550 (Luddenham)	(Cosgrove Creek Haul Road)		71,668	1,878	27,578	13,142	2,409	45,007	95,658
			BRIDGE OVER M12																	
			FILL #6 CH30500-30960			6,029										26,776	3,525	852	31,153	
			CUT#3 CH30360-30990			608											2,188	318	2,506	
4	4/4A	5	FILL#7 CH30990-31280	32,757		2,107	17,142	28,760	4,931	-14,986		17,200 (Compound)		9,014		10,314	3,403	687	14,404	103,735
			CUT#4 CH31280-31630			1,274										15	5,079	739	5,833	
			FILL#8 CH31630-31900	70,044	34,833	1,600					16,500 (M12 Basin SP)			73,940		11,631	3,138	736	15,505	
			ELIZABETH DRIVE																	
5/6	5/6	6	CUT#5 CH32012-33278	3,134		834	1,078	1,078	4,627	3,134	4,124 (Site-Won)					2,265	13,834	2,591	18,690	25,449
			TOTAL	579,656	61,335	72,305	61,589	133,060	135,234	31,976	33,174	231,572	0	517,539	14,887	531,076	81,134	15,617	642,714	810,802
						51,209			167,210		264,746									
									-97,536											

Appendix B – Permanent Stockpiles – Sensitive Area Plan



Appendix C – Material Tracking Form

Materials Tracking

Environment

All materials transported within or offsite need to be captured on this form.

Submit a completed copy of this form daily with delivery dockets or weigh bridge tickets.

Operator Name: _____ Docket No: _____ Truck Registration: _____
Date:_____

Zone: _____ Work Pack: _____

Material Types:

Truck Type: _____ Capacity (m3): _____

Time start Loading	Location/ Origin (Bridge / Pier ID / Chainage/ Address)	Material type: (Clean fill, concrete, vegetation, hard waste, asphalt etc)	Destination (Site Zone or off site)	End Use (Fill, recycle, reuse, landfill etc)	Time start dumping

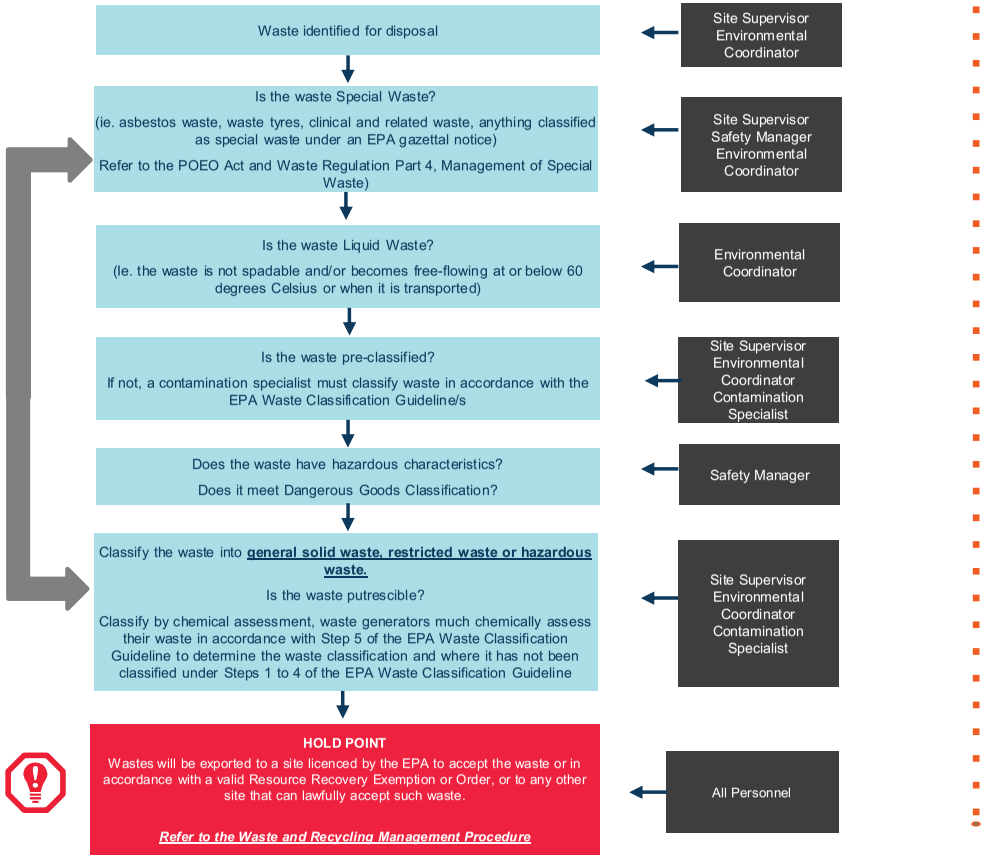
Time start Loading	Location/ Origin (Bridge / Pier ID / Chainage/ Address)	Material type: (Clean fill, concrete, vegetation, hard waste, asphalt etc)	Destination (Site Zone or off site)	End Use (Fill, recycle, reuse, landfill etc)	Time start dumping

Site Foreman Signature: _____ Date: _____

Appendix D – Waste Classification Flow Chart

WASTE CLASSIFICATION FLOWCHART

MANAGEMENT AND RESPONSIBILITY



MANAGEMENT

- All waste generated will be assessed, classified and managed in accordance with NSW Waste Classification Guidelines (EPA 2014).
- Where waste has been classified as VENM/ENM, on-site re-use options are to be investigated prior to off-site reuse
- Waste generated outside the premises will not be received at the premises for use, storage, treatment, processing, reprocessing, or disposal unless expressly permitted under the Environmental Protection License (EPL) or relevant Resource Exemption.
- Contaminated material is to be managed in accordance with the Contamination and Acid Sulfate Soils Management Procedure. Asbestos is to be managed in accordance with the Project WHS Management Plan.

MONITORING

- Monitoring of all waste, disposal locations and associated volumes will be carried out for the duration of the works

WASTE RECORDS

- A register of spoil receipt sites will be maintained, including the site or project name, location, capacity, site owner and which tier the site is classified as under the spoil reuse hierarchy.
- All waste movements must be allocated by the haulage contractor and submitted to the site as a minimum the day before the intended waste movement.
- Each waste movement must be accompanied by a waste transfer docket which details as a minimum; the waste producer, the waste receival site, the waste classification, details of stockpiles or excavation location, the time and date of transfer, vehicle registration, quantity of material transferred and acceptance of the material at the receival site. Material tracking forms must be completed for material transferred between construction sites.
- For hazardous waste movements (if required), a consignment authorisation will be obtained from the facility which is receiving the waste, a transport certificate will be completed for each load of waste and the site will ensure the transporter is licensed or legally permitted to transport the waste.
- Waste dockets will be reviewed for content and maintained electronically on-site. The waste transfer information will be documented within the site Waste Tracking Register.
- All dockets for hazardous waste movements will be maintained for a minimum of four years.