

# Sydney Metro North West

Design and Construction of Surface  
and Viaduct Civil Works



## Spoil Management Plan

**NWRLSVC-ISJ-SVC-PM-PLN-120212**

**Revision 8.0**

**29 May 2017**

## Spoil Management Plan

Surface and Viaduct Civil Works



### Document Control


A controlled copy of the Spoil Management plan will be distributed to the Environmental Representative, Principal's Representative, Environmental Certifier and other relevant stakeholders and will be available to all ISJV employees in soft copy format through the digital document control management system.

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### Document Revision History

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Signature					

## Contents

DEFINITIONS AND ABBREVIATIONS.....	4
INTRODUCTION.....	5
1 GOALS, OUTCOMES AND KEY ISSUES.....	7
2 COA REQUIREMENTS .....	14
2.1 Major Civil Construction Works – Sydney Metro North West (SSI-5100) .....	14
2.2 Stations, Rail Infrastructure and Systems – Sydney Metro North West (SSI-5414).....	14
3 REVISED ENVIRONMENTAL MITIGATION MEASURES.....	15
3.1 Stage 1 Submissions Report (SSI-5100) .....	15
3.2 Stage 2 Submissions Report (SSI-5414) .....	15
4 DEED REQUIREMENTS .....	16
4.1 SWTC Requirements .....	16
4.2 CEMF Requirements.....	17
5 LICENCE AND PERMIT REQUIREMENTS.....	18
5.1 EPA License 20454.....	18
6 MITIGATION MEASURES.....	19
7 MONITORING.....	24
8 TRAINING AND RESOURCES .....	25
9 REFERENCES AND REVISIONS .....	26
10 INCIDENT PLANNING AND RESPONSE .....	27
APPENDIX 1 - Overview of Spoil Management .....	28
APPENDIX 2 - Off-site Reuse and Disposal Options .....	30
APPENDIX 3 - Spoil Storage Location Maps .....	34

## DEFINITIONS AND ABBREVIATIONS

Abbreviation	Definition
<b>B&amp;D waste</b>	Building and Demolition Waste
<b>CEMF</b>	Construction Environmental Management Framework
<b>CEMP</b>	Construction Environmental Management Plan
<b>COA</b>	Conditions of Approval
<b>EIS</b>	Environmental Impact Statement
<b>EM</b>	Environment Manager (ISJV)
<b>ENM</b>	Excavated Natural Material
<b>EP&amp;A Act</b>	Environmental Planning and Assessment Act 1979
<b>EPA</b>	Environment Protection Authority
<b>EPL</b>	Environment Protection Licence
<b>GSW</b>	General Solid Waste
<b>GSW-R</b>	General Solid Waste Recyclable (under an EPL licence)
<b>IC</b>	Independent Certifier
<b>SI-BMS</b>	Salini Impregilo– Business Management System
<b>ISJV</b>	Impregilo S.p.A. (Australia) and Salini (Australia) Joint Venture / Principal Contractor
<b>ISJV SVC PMS</b>	ISJV SVC Project Management System
<b>Mitigation Measures</b>	Measures employed to reduce (mitigate) an impact
<b>OEH</b>	Office of Environment and Heritage
<b>PD</b>	Project Director
<b>PMS</b>	Project Management System
<b>RMS</b>	Roads and Maritime Service (formerly RTA)
<b>RSW</b>	Restricted Solid Waste
<b>SSI</b>	State Significant Infrastructure
<b>SVC Works</b>	Surface Viaducts and Civil Works, for the Sydney Metro North West Project
<b>SWTC</b>	Scope of Work and Technical Criteria
<b>TfNSW</b>	Transport for New South Wales
<b>VENM</b>	Virgin Excavated Natural Material

## INTRODUCTION

The Sydney Metro North West project is a key priority for the NSW Government. This project will deliver a new high frequency single deck train system initially operating as a shuttle between Cudgegong Road and Chatswood. The project includes eight new stations, approximately 15.5km of tunnels from Epping to Bella Vista, a 4.5km elevated 'skytrain' (viaduct) between Bella Vista and Rouse Hill, and conversion of the Epping to Chatswood Rail Link to deliver high frequency rapid transit services.

Stations are planned at Cherrybrook, Castle Hill, Showground, Norwest, Bella Vista, Kellyville, Rouse Hill and Cudgegong Road. Bus, pedestrian, cycling and easy access facilities will be provided at all stations, with approximately 4000 'Park and Ride' spaces spread across five sites.

The project is approved staged infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is to be implemented in two stages under this approval, with each stage having its own Environmental Impact Statement (EIS) and approval:

- Stage 1 – Major Civil Construction Works (EIS 1), under approval SSI-5100.
- Stage 2 – Stations, Rail Infrastructure and Systems (EIS 2), under approval SSI-5414.

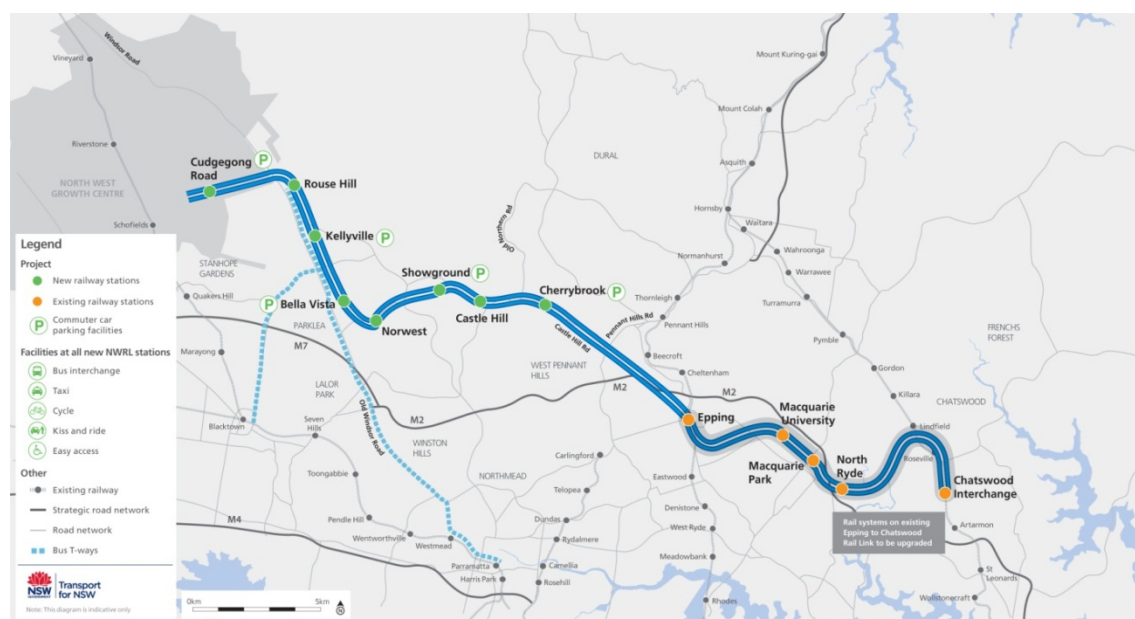


Figure 1: The Sydney Metro North West service proposed alignment

The project is approved staged infrastructure under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act). It is to be implemented in two stages under this approval, with each stage having its own Environmental Impact Statement (EIS) and approval:

- Stage 1 – Major Civil Construction Works (EIS 1), under approval SSI-5100.
- Stage 2 – Stations, Rail Infrastructure and Systems (EIS 2), under approval SSI-5414.

The scope of the SVC Project works consists of the detailed design, construction and handover of the viaducts, bridges and associated civil works required for the Sydney Metro North West project between Bella Vista and Cudgegong Road and includes establishment and reinstatement of

worksites, spoil removal and disposal and all required utility relocations and adjustments at construction worksites.

The 6.3 km of permanent infrastructure to be delivered includes:

- Approximately 4.5 km of viaduct between Balmoral Road and Rouse Hill Station including crossings over Memorial Avenue, Samantha Riley Drive, Windsor Road, Sanctuary Drive and White Hart Drive
- Bulk earthworks requirements including all cut, fill and embankments between Balmoral Road and Cudgegong Road
- A bridge over Windsor Road / Rouse Hill
- A bridge over Second Ponds Creek
- Allowance for station structures to be incorporated onto the viaduct at the Kellyville and Rouse Hill station sites
- Adjustments to existing infrastructure and roads within the construction site and / or otherwise affected by ISJV activities
- Safe, secure personnel access / egress into site areas including necessary temporary support services and site facilities, with hoardings, fencing and so on around worksites to be left in place upon completion
- Construction traffic and transport management including temporary and permanent traffic management works
- Removal of all temporary work and site facilities not otherwise required for handover to subsequent contractors.

Activities associated with the temporary and SVC Contractor works required in order to complete construction include:

- Safe, secure personnel access / egress into site areas including necessary temporary support services and site facilities, with hoardings, fencing and the like around work sites to be left in place upon completion
- Construction traffic and transport management including temporary and permanent traffic management works
- Removal of all temporary work and site facilities not otherwise required for handover to subsequent contractors.
- Construction and removal of two concrete batching plants
- Construction and removal of a pre-cast concrete plant
- Construction of temporary T-way car parking at Rouse Hill and Kellyville
- Construction, removal and transportation of the gantry along the SVC construction zone
- Temporary changes to site personnel access/egress
- Signage, fencing and hoarding
- Construction environmental management activities
- Construction traffic management activities
- Interface and communications within SVC Contractor team and across the broader Sydney Metro North West team
- Stakeholder liaison activities
- Adherence to Sydney Metro North West protocols and procedures.

The construction methodology and scope is comprehensively set out in the Construction Plan.



## 1 GOALS, OUTCOMES AND KEY ISSUES

<b>Scope, Purpose &amp; Authorisation</b>	<p>This Spoil Management Plan (SMP) has been prepared to manage spoil during construction of the SVC Works. The scope of this SMP includes work sites along the 6.3 km above ground section of the rail corridor, from Bella Vista to Rouse Hill. This SMP is based on identified impacts to biophysical and social environment associated with spoil reuse, transport and disposal at each of the SVC work sites, and identified guidelines and standards to be achieved.</p> <p>The purpose of this SMP is to:</p> <ul style="list-style-type: none"> <li>• Set spoil management protocols</li> <li>• Outline responsibilities of site personnel involved in spoil management</li> <li>• Comply with various environmental requirements of the EPA, TfNSW, other statutory organisations and relevant guidelines</li> <li>• Provide a process for identifying and managing environmental and other risks associated with spoil handling</li> <li>• Provide safeguards and monitoring procedures for all risks associated with spoil management.</li> </ul> <p>The Environment Manager is accountable for ensuring that the SMP is kept up to date across the SVC Works. All companies, contractors and subcontractors undertaking work on this project must comply with this SMP.</p>
<b>Objectives</b>	<p>The following spoil management objectives are based on (CEMF Section 6.1a):</p> <ul style="list-style-type: none"> <li>• 100% reuse or recycling (on or off-site) of usable spoil</li> <li>• Minimising adverse traffic and transport related issues from spoil management and transport</li> <li>• Avoid potential contamination of land or water, or potential risk to human health and the environment, from contaminated spoil</li> <li>• Manage spoil with consideration of impacts on residents and other sensitive receivers</li> </ul>
<b>Intended Outcomes</b>	<ul style="list-style-type: none"> <li>• Minimise spoil generation</li> <li>• Accurate classification of spoil to allow appropriate management</li> <li>• Minimise risk of cross contamination of stockpiled materials</li> <li>• 100% reuse or recycling (on or off-site) of usable spoil</li> <li>• 95% of all topsoil (by volume) retains productivity and its beneficially re-used on or nearby to the project</li> <li>• Maximise spoil reuse within the SVC Works where spoil generation is unavoidable</li> <li>• Minimise on and off-site environmental impacts during temporary stockpiling of spoil</li> <li>• Identify off-site spoil recipients that: <ul style="list-style-type: none"> <li>➢ can beneficially reuse spoil that cannot be accommodated on-site</li> <li>➢ are located as close as possible to the work site to minimise haulage distance, associated traffic impacts and greenhouse gas emissions</li> <li>➢ have the relevant approvals to accept the spoil</li> </ul> </li> <li>• Minimise disposal of spoil to landfill</li> </ul>

# Spoil Management Plan

## Surface and Viaduct Civil Works



<b>Spoil Generation and Disposal</b>	<p><b>Material types</b></p> <p>Spoil is any earthen material that is surplus to requirements, unsuitable for reuse as engineered fill, or material that is contaminated. Unsuitable (non-contaminated) spoil comprises soil of comparatively lower engineering quality and may be used for general fill or landscaping works or alternatively spoiled on or off-site.</p> <p>Spoil is likely to be generated from drainage works, services works, bridge construction, vegetation clearing, topsoil stripping, piling, bulk earthworks during cutting.</p> <p>Spoil from the TSC project will not be accepted in the SVC works, unless a suitable reuse is found for the spoil that does not impact on the balance of spoil from the SVC works, and the spoil meets the EPA's Resource Recovery Exemptions for engineered fill purposes.</p> <p><b>Excavation and transport</b></p> <p>Excavation will generally be performed using scrapers, dozers, 30 to 60 tonne excavators, 30 to 40 tonne off road dump trucks, graders, water carts and various roller configurations. Spoil will be loaded onto truck and dog trailers, and designated approved routes used to access from and to major arterial roads such as Old Windsor Road, Windsor Road and Schofields Road.</p> <p><b>Spoil volumes and reuse/disposal options</b></p> <p>It is expected that the surplus generated spoil associated with cutting works will be in the order of 300,000 tonnes, as per the table below and Appendix 1. These spoil amounts are based on removing the minimum amount of spoil required to meet design requirements and will be stored onsite (Appendix 3) until required.</p> <p>ISJV intends to reuse most of the spoil on site, reducing potential environmental and social impacts associated with exporting spoil. Appendix 2 details where spoil will be removed to off-site in accordance with the spoil reuse hierarchy.</p> <p>Only spoil that is unusable (cannot meet onsite or off site reuse requirements, such as unexpected finds of contamination or asbestos, not VEMN or ENM) – will be disposed to landfill. The EISs indicated low TPH and heavy metals impacts were reported in fill samples from Bella Vista to Rouse Hill, and low TPH and phenol impacts were reported in fill samples from Rouse Hill to Cudgegong Road.</p> <p>The following table summarises the expected spoil volumes, and methods to reuse or dispose of the spoil.</p>
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# Spoil Management Plan

## Surface and Viaduct Civil Works



Location	Spoil Volume	Composition	Method of Reuse or Disposal	Destination	Trucks Movements & Duration
Cutting north of Bella Vista Station Ch 40461 to 41355	Average 600 tonnes/day Peak 1000 tonnes/day Total 200,000 tonnes	Sandstone and Shale Rock: 85%, Soft: 10% Fill/Alluvium: 5%	Truck to reuse on site, off-site development (or landfill if spoil is unusable)  50% reuse – 50% disposal offsite	Reuse on site in landscaping, at grade formation and overbridge abutments. Otherwise, Local (within 20 km) recycled opportunities followed by land fill will be sourced dependent on material classification.	Start date: July 2016 End date: Feb 2017 Peak movements 20 per hour i.e. 10 in and 10 out
Cutting east of Tallawong Station Ch 45600 to 46800	Average 600 tonnes/day Peak 1000 tonnes/day Total 50,000 tonnes	Sandstone and Shale Rock: 60%, Soft: 20% Fill/Alluvium: 20%	Truck to development (or landfill site if development site not available)  50% reuse – 50% disposal offsite	Reuse on site in landscaping, at grade formation and overbridge abutments. Otherwise, Local (within 20 km) recycled opportunities followed by land fill will be sourced dependent on material classification.	Start date: July 2014 End date: Dec 2015 Peak movements 20 per hour i.e. 10 in and 10 out
Piering and piling & miscellaneous services	Average 600 tonnes/day Peak 1000 tonnes/day Total 50,000 tonnes	Sandstone and Shale Rock: 60%, Soft: 20% Fill/Alluvium: 20%	Truck to development (or landfill site if development site not available)  50% reuse – 50% disposal offsite	Reuse on site in landscaping, at grade formation and overbridge abutments. Otherwise, Local (within 20 KM) recycled opportunities followed by land fill will be sourced dependent on material classification.	Start date: Aug 2014 End date: June 2016 Peak movements 20 per hour i.e. 10 in and 10 out  End date: June 2016 Peak movements 20 per hour i.e. 10 in and 10 out
105 Scofield's Road Quarry remediation	71,272 tonnes	Contaminated Material	Truck to licensed receiver  100% disposal off site	Licensed receiver	Start date: June 2015 End date: August 2015
Amber Tiles Contaminated material removal	843.54 tonnes	Contaminated Material	Truck to licensed receiver  100% disposal off site	Licensed receiver	October 2014

# Spoil Management Plan

## Surface and Viaduct Civil Works



<b>Key Issues and Sensitive Areas</b>	<p>Key issues relating to the management of spoil generated during the SVC Works include:</p> <ul style="list-style-type: none"> <li>• Sedimentation of water bodies and creeks due to erosion from flooding, temporary spoil stockpiles and/or vehicular spoil mud tracking</li> <li>• Temporary spoil stockpiles placed within or in close proximity to sensitive areas resulting in direct or indirect impacts</li> <li>• Dust generation during temporary stockpiling and transport of spoil</li> <li>• Contaminated spoil is not identified and/or appropriately segregated and managed</li> <li>• Traffic and community impacts from spoil haulage/transport off-site</li> <li>• Temporary visual impacts</li> </ul>
<b>Statutory Requirements</b>	<p>ISJV will comply with key environmental legislation relating to spoil management including:</p> <ul style="list-style-type: none"> <li>• <i>Environmental Planning and Assessment Act 1979</i></li> <li>• <i>Waste Avoidance and Recovery Act 2001</i></li> <li>• <i>Protection of the Environment Operations Act 1997; and</i></li> <li>• <i>Contaminated Land Management Act 1997</i></li> </ul>
<b>Relationship to Other Plans</b>	<p>The SMP was prepared in line with the ISJV Project Management System (PMS) which is based on Salini Impregilo's Business Management System (SI-BMS) as outlined in Figure 2. The SMP is a sub-plan of the Construction Environmental Management Plan (CEMP). The SMP is one of a suite of documents created to manage the timely and safe execution of the SVC Works, and must be read in conjunction with the:</p> <ul style="list-style-type: none"> <li>• Construction Environmental Management Plan (CEMP)</li> <li>• Waste Management and Recycling Plan</li> <li>• Construction Soil and Water Management Plan</li> <li>• Construction Compound &amp; Ancillary Facilities Management Plan</li> <li>• Earthworks Plan</li> <li>• Site Specific Emergency Response Sub-Plan</li> </ul> <p>All environment-related plans are shown in Figure 3 and Figure 4 below.</p>
<b>Environmental Aspects &amp; Impacts</b>	<p>Refer to environmental aspects and impacts identified in CEMP Appendix 5.</p>
<b>Licence &amp; Permit Requirements</b>	<p>The requirements of EPA Licence 20454 for SVC works are included in Section 5 of this plan. These requirements will be updated with each relevant licence variation issued by EPA.</p>

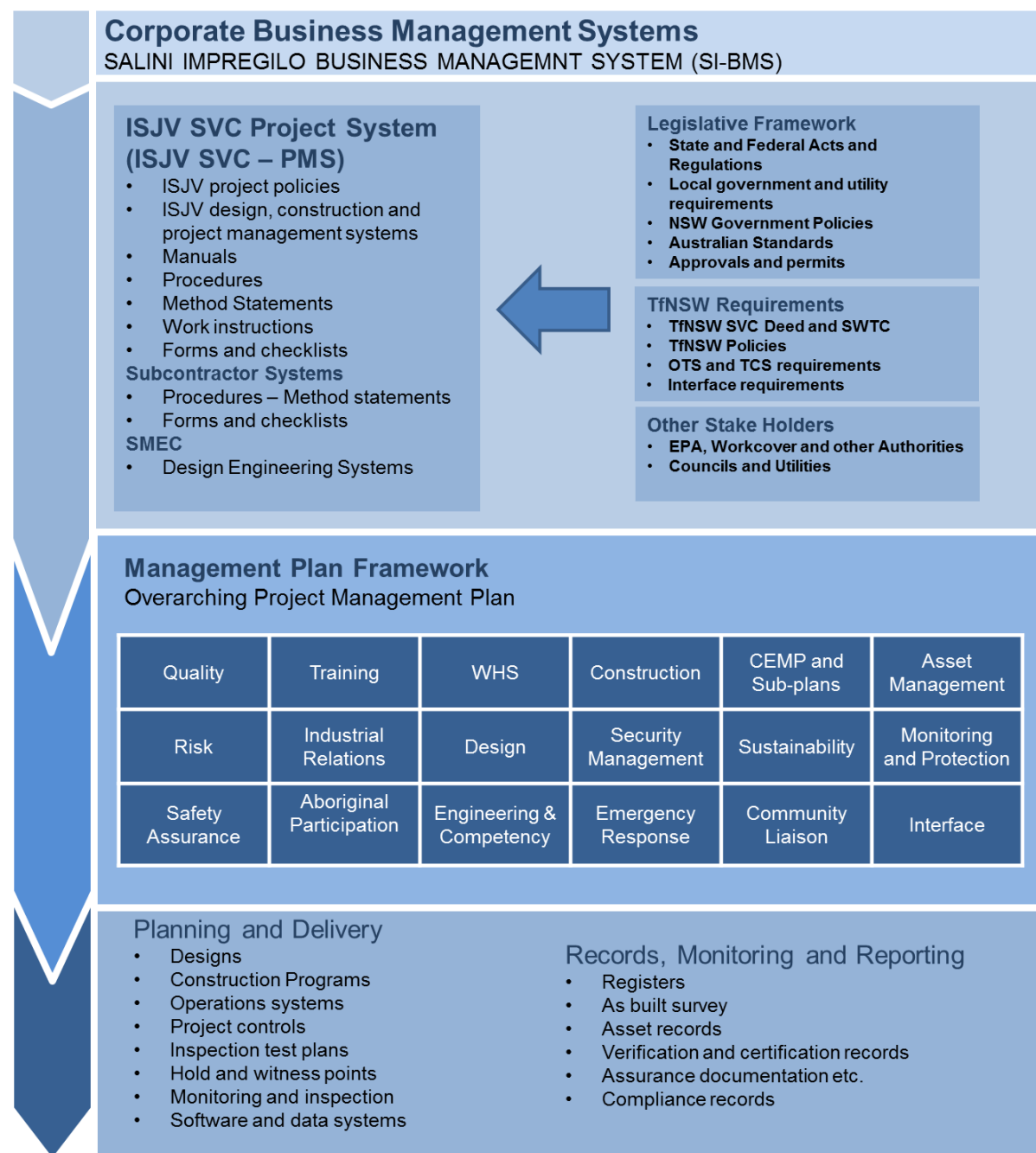


Figure 2 – ISJV SVC Management System and Document Frame Work

# Spoil Management Plan

## Surface and Viaduct Civil Works



Project Management Plan				
Risk Management Plan including Technical Risk Management Plan	Design Plan	Construction Plan	Construction Environmental Management Plan	
Project Quality Plan	Engineering and Competency Management Plan	Earthworks Plan	inputs to Compliance Tracking Procedure	
Project Records Management Plan including Technical Data Management Plan and Project Purchasing Plan	Engineering Management Plan	Spoil Management Plan	Construction Compound Ancillary Facilities Management Plan	
	Requirements Management Plan	Waste Management and Recycling Plan	Construction Noise and Vibration Management Plan	
Safety Assurance Plan including RAMs	Competency Management Plan	Sustainability Plan	Construction Noise Impact Statement	
Assurance Documentation Management Plan	Urban Design & Corridor Landscape Plan	Carbon and Energy Management Plan	Construction Traffic Management Plan Including	
Project Training Management Plan	Services Management Plan	Stormwater and Flooding Management Plan	Construction Soil and Water Management Plan	
Workplace Relations Management Plan	Community Liaison Implementation Plan	Pollution Incident Response Management Plan	Soil Salinity Management Plan	
Project Aboriginal Participation Plan	Stakeholder and Community Involvement Plan	Monitoring and Protection Plan	Water Quality Monitoring Program	
	Business Management Plan	Visual Amenity Management Plan	Construction Heritage Management Plan	
		Security Management Plan	Construction Flora and Fauna Management Plan	
		Project WHS Management Plan Including Site Specific WHS Management Plan and Project WHS Development Plan	Nest Box Management Plan	
			Ecological Monitoring Program	
		Site Specific Emergency Response Plan	Construction Air Quality Plan	
		Asset Management Information Delivery Plan		
		Technical Maintenance Plan	BIM Execution Plan	
	Interface Management Plan			

### KEY:

Plan	Sub Plan	This Plan
TfNSW Plan	Sub - Sub Plan	

Figure 3 - Hierarchy of SVC management Plans

# Spoil Management Plan

## Surface and Viaduct Civil Works



CEMP	CEMP interface plans
Construction Environmental Management Plan	Project Management Plan
	Design Plan
	Construction Plan
	Risk Management Plan
	Quality Plan
	Project Training Management Plan
	Community Liaison Implementation Plan
	Earthworks Plan
	Site Specific Emergency Response Plan
	Interface Plan
	Sustainability Plan
	Training Plan
	inputs to Compliance Tracking Procedure
Environmental Management Plans	Attachments
Construction Noise and Vibration Management Plan	
Construction Soil and Water Management Plan	Soil Salinity Report
	Water Quality Monitoring Program
Construction Heritage Management Plan	
Construction Flora and Fauna Management Plan	Nest Box Management Plan
	Ecological Monitoring Program
Construction Air Quality Plan	
Construction Compound Ancillary Facilities Management Plan	
Construction Traffic Management Plan Including	
Pollution Incident Response Management Plan	
Monitoring and Protection Plan	
Sustainability Plan	Carbon and Energy Management Plan
	Spoil Management Plan
	Waste Management and Recycling Plan
Visual Amenity Management Plan	
Stormwater and Flooding Management Plan	

### KEY:

CEMP	Plan Interface
EMP	Interface with TINSW Plan
Attachment	

Figure 4 - Environmental Plans Interrelation Figure

# Spoil Management Plan

Surface and Viaduct Civil Works



## 2 COA REQUIREMENTS

### 2.1 Major Civil Construction Works – Sydney Metro North West (SSI-5100)

No.	Ref.	Relevant Requirement	Reference
1.	D6	The Proponent shall notify the Director General of an incident with significant off-site impacts on people or the biophysical environment as identified by the Environmental Representative within 48 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director General within seven days of the date on which the incident occurred.	Section 10
2.	E46(d)	<p>A <b>Construction Soil and Water Management Plan</b> to manage surface and groundwater impacts during construction of the SSI. This plan will be consistent with other documents and shall be developed in consultation with the EPA and NOW. It will include, but not necessarily be limited to:</p> <p>(iv) management measures to be used to minimise surface and groundwater impacts, including identification of water treatment measures and discharge points, details of how <b>spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed</b>; erosion and sediment control measures; salinity control measures and the consideration of flood events;</p>	Sections 6 & 7

### 2.2 Stations, Rail Infrastructure and Systems – Sydney Metro North West (SSI-5414)

No.	Ref.	Relevant Requirement	Reference
3.	D6	The Proponent shall notify the Director General of an incident with significant off-site impacts on people or the biophysical environment as identified by the Environmental Representative within 48 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director General within seven days of the date on which the incident occurred.	Section 10
4.	E34(d)	<p>A Construction Soil and Water Management Plan to manage surface and groundwater impacts during construction of the SSI. This plan will be consistent with other documents and shall be developed in consultation with the EPA and NOW. It will include, but not necessarily be limited to:</p> <p>(iv) management measures to be used to minimise surface and groundwater impacts, including identification of water treatment measures and discharge points, details of <b>how spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed</b>; erosion and sediment control measures; salinity control measures and the consideration of flood events;</p>	Sections 6 & 7



### 3 REVISED ENVIRONMENTAL MITIGATION MEASURES

#### 3.1 Stage 1 Submissions Report (SSI-5100)

No.	Original Ref.	Relevant Requirement	Reference
5.	-	-	-

#### 3.2 Stage 2 Submissions Report (SSI-5414)

No.	Original Ref.	Relevant Requirement	Reference
6.	OpSG39	Bella Vista to Rouse Hill (Open Cutting for Bella Vista Dive and skytrain). If excavation for offsite disposal is to take place, additional assessments for waste classification may be required as low TPH and heavy metals impacts were reported in fill samples. Further assessment in this area may be required if disturbance is to take place in this area.	Section 1 Section 5, SV1
7.	OpSG40	Rouse Hill to Cudgegong Road (Earthworks and Bridges). Should excavation for offsite disposal take place, additional assessments for waste classification may be required as low TPH and phenol impacts were reported in fill samples. Not all of the Areas of Environmental Concern in this area have been specifically targeted, ie individual above-ground storage tanks, farm dams and asbestos in buildings. Additional assessment and waste classification may be required.	Section 1 Section 5, SV1

# Spoil Management Plan

Surface and Viaduct Civil Works



## 4 DEED REQUIREMENTS

### 4.1 SWTC Requirements

No.	Original Ref.	Relevant Requirement	Reference
8.	App 24.4 (m)	<p>The Spoil Management Plan must address and detail:</p> <ul style="list-style-type: none"> <li>(i) the excavation, handling, haulage and disposal methodology, including on-site storage and stockpiling arrangements</li> <li>(ii) processes and procedures that will be used for the management of spoil, including those for virgin excavated natural material, contaminated and unsuitable material</li> <li>(iii) 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 SVC Contractor's Activities</li> <li>(iv) quantities for reuse of spoil within the Construction Site, for beneficial reuse of spoil off site and for spoil disposal</li> <li>(v) processes and procedures for the management of the environmental and social impacts of spoil transfer and reuse</li> </ul>	<p>This SMP</p> <p>Section 6</p> <p>Section 6</p> <p>Section 6, SP3 SP4</p> <p>Section 1</p> <p>Section 6</p>
9.	ISCA Lan-2	<p>Conservation of on-site resources -</p> <p>Level 1 - Conservation of topsoils, subsoil, and conservation or use of on-site mineral resources has been considered.</p> <p>Level 2 - All subsoil &amp; topsoil impacted by works is separated and protected from degradation, erosion or mixing with fill or waste;</p> <p>Level 2 - 95% of all topsoil (by volume) retains its productivity and is beneficially re-used on or nearby to the project or asset.</p> <p>Level 3 - Opportunities to improve topsoil productivity of previously disturbed areas identified and incorporated into the project.</p>	<p>Section 6</p> <p>Section 6</p> <p>Section 1, Section 6</p> <p>Section 1, Section 6</p>
10.	Sus. Design Guidelines C10	Reuse spoil - Ensure that 100 percent of usable spoil (by weight) is beneficially reused, onsite or nearby offsite. Usable spoil is not to be sent to landfill.	<p>Section 1</p> <p>Section 6</p>
11.	3.25	Cut fill balance - Balance site works to avoid excess or import of spoil.	<p>Section 1</p> <p>Section 6</p>
12.	3.26	On-site spoil reuse - Reuse any excess spoil as a landform feature, visual screen, in concrete and/or for noise attenuation.	Section 6, SP3
13.	3.27	Off-site spoil reuse - Where clean spoil cannot be used on-site, prioritise off-site uses that have biodiversity or community benefit, and require minimum transport distances.	Section 6
14.	3.28	Excavated materials - Investigate future use opportunities for excavated materials (e.g. Yellowblock sandstone).	Section 6
15.	Schedule 10 10.9.1 (c)	<p>The SVC Contractor must minimise embodied carbon and lifecycle impacts by using, where practicable:</p> <ul style="list-style-type: none"> <li>(i) blended cement that contains waste industrial products such as fly ash and ground granulated blast furnace slag;</li> <li>(ii) low carbon concrete;</li> </ul>	Section 6, SP3

# Spoil Management Plan

## Surface and Viaduct Civil Works



No.	Original Ref.	Relevant Requirement	Reference
		(iii) recycled steel, including in concrete reinforcing; and (iv) spoil generated on-site.	
16.	10.9.2 (a)	The SVC Contractor must identify and implement initiatives to both reduce spoil quantities which will be generated during the performance of the SVC Contractor's Activities and maximise the beneficial reuse of spoil.	Section 6, SP3 SP4
17.	10.9.2 (b)	The SVC Contractor must ensure that environmental and social impacts of spoil transfer/reuse are effectively managed & minimised.	Section 1&6, SP23, CEMP, appendix 5

## 4.2 CEMF Requirements

No.	Original Ref.	Relevant Requirement	Reference
18.	6.1(a)	The following spoil management objectives will apply to the construction of the project: i. The beneficial reuse of spoil from the project will target 100 per cent reuse or recycling (on or off-site) of usable spoil. ii. Spoil will be managed with high consideration to minimising adverse traffic and transport related issues. iii. Potential contamination of land or water from contaminated spoil will be avoided. iv. Spoil will be managed with consideration of the impacts on residents and other sensitive receivers. v. Site contamination will be effectively managed to limit the potential risk to human health and the environment.	Section 1 Section 6 Construction Soil & Water Management Plan
19.	6.2(a)	Sydney Metro North West Principal Contractors will develop and implement a Spoil Management Plan for their scope of works. The Spoil Management Plan will include as a minimum: i. The spoil 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. Spoil management monitoring requirements. iv. Compliance record generation and management.	Section 6 Sections 6, 7, 8, 10 Section 7 Section 7
20.	6.2(b)	Spoil management measures will be included in regular inspections undertaken by the Contractor, and compliance records will be retained. These will include: i. Records of inspections in relation to spoil management. ii. Records detailing the beneficial re-use of spoil either within the project or at off site locations. iii. Waste dockets for any spoil disposed of to landfill sites.	Section 6 Section 7
21.	6.3	Examples of spoil mitigation measures include (a) Implementing the spoil re-use hierarchy (b) handling spoil to minimise potential for air or water pollution.	Section 6

# Spoil Management Plan

Surface and Viaduct Civil Works



## 5 LICENCE AND PERMIT REQUIREMENTS

### 5.1 EPA License 20454

No.	Original Ref.	Relevant Requirement	Reference
22.	O5.1	The licensee must assess, classify and manage any waste generated at the premises in accordance with the Waste Classification Guidelines Part 1: Classifying Waste, April 2008 (Waste Guidelines) prior to dispatching the waste offsite.	Section 6
23.	O5.2	The licensee must not cause, permit or allow any waste generated: (a) outside the premises to be received at the premises except for materials that meet the EPA's Resource Recovery Exemptions for engineered fill purposes. (b) at the premises to be disposed of at the premises, except as permitted in Condition O5.3.	Section 6
24.	O5.3	Excavated material suitable for re-use within the premises, may be transported from one part of the premises or the Sydney Trains rail corridor or Sydney Trains recycling facility to another part by road in accordance with Condition O5.4.	Noted.
25.	O5.4	The licensee must ensure that: (a) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to minimise any spill or escape of any dust, waste, or spoil from the vehicle or trailer;	Section 6

# Spoil Management Plan

Surface and Viaduct Civil Works



## 6 MITIGATION MEASURES

ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	SWTC Requirement	Responsibility	Timing
<b>Spoil Assessment and Classification</b>							
SP1.	Implement a <b>Spoil Sampling and Analysis Program</b> as per the Waste Classification Guidelines 2009, into the following categories: <ul style="list-style-type: none"> <li>• Virgin Excavated Natural Material (VENM), including topsoil which is suitable for reuse in rehabilitation works on or off-site.</li> <li>• Excavated Natural Material (ENM) through the ENM Exemption 2012.</li> <li>• Exempted material through a specific exemption from the EPA.</li> <li>• General Solid Waste.</li> <li>• Special Waste (Asbestos).</li> <li>• Potentially contaminated material – hazardous or restricted waste.</li> </ul>		■	Entire project	SWTC Appendix 24.4 (m)(i and ii)	Project Manager, Environment Manager	Prior to and during excavation/ earthworks throughout construction
<b>Spoil Management Hierarchy</b>							
SP2.	Implement the following waste hierarchy in management of spoil with avoidance, reduce and reuse the ultimate goals. 	■	■	Entire project	SWTC Appendix 24.4 (m)(iii)	Design Manager, Site Superintendent, Environment Manager	Prior to and during excavation/ earthworks throughout construction

# Spoil Management Plan

## Surface and Viaduct Civil Works



ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	SWTC Requirement	Responsibility	Timing
SP3.	Investigate opportunities for beneficial reuse of spoil classified as VENM or ENM, including: <ul style="list-style-type: none"> <li>Backfill for embankments and pile caps</li> <li>Haul road creation</li> <li>Temporary works such as sediment basins</li> <li>Increased earthworks batters and formations, if corridor permits</li> <li>Earthen noise walls in lieu of structural noise walls, if required</li> <li>Backfill in service excavations, in lieu of imported materials</li> <li>Stabilisation of weak sub-grades, in lieu of removal</li> <li>Mechanical strengthening techniques for weak sub-grades in lieu of removal, e.g. terragrids, terramesh etc.</li> <li>Spoil placement at adjacent degraded sites that are legally able to accept validated spoil, via planning approvals, licences or EPA approved exemptions.</li> <li>Tallawong Stabling Yard foundations</li> <li>Landscaping</li> </ul>	■	■	Entire project	SWTC Appendix 24.4 (m)(iii)	Design Manager, Environment Manager	Prior to and during excavation/ earthworks throughout construction
SP4.	Reduce as far as practicable the total volume of spoil generated by minimising clearing for work sites, haul road and access tracks, and maximising topsoil reuse on-site.		■	Entire project	SWTC Appendix 24.4 (m)(iii)	Design Manager, Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
<b>Temporary Stockpiling of Spoil</b>							
SP5.	Reuse topsoil and spoil immediately after excavation where possible, or otherwise temporarily stockpile within the SVC project boundary. Maintain topsoil stockpiles to retain productivity for beneficially re-use opportunities at nearby off-site locations.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, iii, v) Sustainability requirements	Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
SP6.	Stockpile spoil excavated from local area works in temporary laydown areas adjacent to Windsor Road, Commercial Road, and Schofields Road.		■	Entire project	SWTC Appendix 24.4 (m)(i)	Site Superintendent	Throughout construction
SP7.	Stockpile spoil from west of Windsor Road in the temporary laydown area west of Windsor Rd.		■	Entire project	SWTC Appendix 24.4 (m)(i)	Site Superintendent	Throughout construction
SP8.	Ensure that temporary spoil stockpiles are not within or in close proximity to sensitive areas identified in Sensitive Area Maps, or within flood prone areas.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Site Superintendent, Environment Manager,	Throughout construction



# Spoil Management Plan

Surface and Viaduct Civil Works



ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	SWTC Requirement	Responsibility	Timing
						Environment Coordinator	
SP9.	Create and manage segregated stockpiles to avoid cross contamination for: <ul style="list-style-type: none"> <li>topsoil.</li> <li>spoil requiring disposal as asbestos/restricted/hazardous waste.</li> <li>spoil requiring disposal as general solid waste.</li> <li>spoil for reuse under an exemption (VENM, ENM, B&amp;D waste) or licence.</li> </ul> Create additional segregated stockpiles to be used if needed for acid sulfate soils and foreign material such as timber, rubble etc from excavation.		■	Entire project	SWTC Appendix 24.4 (m)(iii)	Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
SP10.	Manage temporary spoil stockpiles in accordance with the <i>Construction Soil &amp; Water Management Plan</i> and <i>Construction Air Quality Plan</i> which outline: <ul style="list-style-type: none"> <li>Installation and maintenance of temporary erosion and sedimentation controls, including around temporary spoil stockpiles, that are identified by Progressive Erosion and Sediment Control Plans prior to establishing temporary stockpiles in each work area</li> <li>Revegetate temporary soil stockpiles that will be on site for more than one month with cover crop, or alternatively cover with geofabric or other dust sealant e.g. tacifier spray</li> <li>Dust dampening using a watercart or other practical application</li> </ul>		■	Entire project	SWTC Appendix 24.4 (m)(i, v)	Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
<b>Contaminated Spoil</b>							
SP11.	Manage any unexpected finds of contaminated spoil through the <i>Contaminated Materials, MSF22C</i> .		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, iii, v)	Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
SP12.	If hazardous spoil is encountered, use offsite treatment and disposal. Hazardous waste may require immobilisation prior to disposal. Obtain a Site Specific Immobilisation Approval prior to off-site treatment if so. Implement the EPAs waste tracking requirements.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Environment Manager	Throughout construction
<b>Spoil Transport and Disposal</b>							
SP13.	Spoil classified as VENM and ENM, that cannot be beneficially reused on-site, will be made available to nearby developments, ISJV clients, and other		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Environment Manager	Throughout construction

# Spoil Management Plan

## Surface and Viaduct Civil Works



ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	SWTC Requirement	Responsibility	Timing
	locations that have approvals in place to accept and reuse VENM and ENM. Prioritise off-site reuse locations in terms of biodiversity/community benefit, and require minimum transport distances.						
SP14.	Validate VENM and ENM stockpiles by ISJV's geotechnical engineer prior to removal and transportation off-site, and receive VENM certificates or ENM certification for each stockpile.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Site Superintendent, Environment Manager, Environment Coordinator	Throughout construction
SP15.	Undertake haulage of spoil off-site in accordance with the Construction Traffic Management Plan (including relevant work site specific sub-plans) which includes haulage roads, hours of work, and queuing.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP16.	Implement measures in the Construction Air Quality Plan and Construction Soil and Water Management Plan to prevent the tracking of spoil mud onto roads and the generation of both wheel and load generated dust, for trucks transporting spoil off-site.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP17.	Ensure all trucks transporting spoil off-site are appropriately licenced to carry the materials to appropriately licenced waste facilities. Record waste type and destination on a waste manifest/docket system and in the Waste Register. Ensure waste spoil classified as restricted or hazardous is tracked using the EPA online trackable waste system.		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP18.	Maintain all waste sampling and classification results and waste transfer dockets/ receipts for the life of the project in the waste register (refer to the Waste Management and Recycling Plan).		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP19.	Prepare and maintain a <b>Spoil &amp; Truck Movement Register</b> which will include the following information: <ul style="list-style-type: none"> <li>• Date, Time in and out</li> <li>• Truck registration number</li> <li>• Source of material (chainage reference or stockpile reference, and RL)</li> <li>• Material type and classification</li> <li>• Amount of material</li> </ul>		■	Entire project	SWTC Appendix 24.4 (m)(i, ii, v)	Project Manager, Traffic Manager, Environment Manager	Throughout construction

# Spoil Management Plan

## Surface and Viaduct Civil Works



ISJV Ref.	Mitigation Measure	Design	Construction	Relevant Location / Activity	SWTC Requirement	Responsibility	Timing
	<ul style="list-style-type: none"> <li>Destination</li> <li>Corresponding sample and report reference</li> </ul>						
SP20.	<p>Potential spoil disposal destinations include:</p> <ul style="list-style-type: none"> <li>SITA Environmental Kemps Creek for GSW, RSW, Special Waste Asbestos.</li> <li>Enviroguard Erskine Park for GSW, Special Waste Asbestos,</li> <li>Worth Recycling at Windsor or St Marys for Hazardous Waste, Special Waste Asbestos.</li> </ul> <p>All potential beneficial reuse options for spoil are being considered including negotiations with Councils on rezoning and quarry backfilling.</p>		■	Entire project		Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP21.	Do not accept spoil from other projects or sites, unless a suitable reuse is found for the spoil that does not impact on the balance of spoil from the SVC works, and the spoil meets the EPA's Resource Recovery Exemptions for engineered fill purposes.		■	Entire project	EPL 20454	Project Manager, Traffic Manager, Environment Manager	Throughout construction
SP22.	<p>Preliminary Land Contamination Risk Review of the Sydney Metro North West Corridor.</p> <ul style="list-style-type: none"> <li>Ensure all identified contaminated areas within the risk review are remediated before stripping</li> </ul>		■	Entire Project		Environmental Manager, Construction Manager	Throughout Construction

# Spoil Management Plan

Surface and Viaduct Civil Works



## 7 MONITORING

Item	Frequency	Standards	Action/Reporting	Responsibility
Test spoil as per the <b>Spoil Sampling and Analysis Program</b> .	As per the <b>Spoil Sampling and Analysis Program</b>	As per the <b>Spoil Sampling and Analysis Program</b>	As per the <b>Spoil Sampling and Analysis Program</b>	Contractor / Environment Co-ordinator / Project Engineers
Record volumes of spoil generated using an Inspection & Test Plan for spoil production and stockpiling.	Daily input and monthly reporting	As per ITP	Contractor to complete daily – as required. Information to be uploaded to project database	Contractor / Environment Co-ordinator / Project Engineers
Record volumes of off-site spoil reuse or disposal using the <b>Spoil &amp; Truck Movement Register</b> , waste contractor's systems, or the EPA online trackable waste system for any wastes classified as restricted or hazardous.	Daily input and monthly reporting	As per Waste Register Form or EPA online system	Contractor to complete daily – as required. Information to be uploaded to project database	Contractor / Environment Co-ordinator / Project Engineers
Retain dockets / manifests to record the date of waste removal and identify the waste transport contractor and destination of the wastes taken from site.	Monthly	All required wastes are tracked and records are kept	Dockets to be uploaded to project database	Environment Co-ordinator / Project Engineers
Daily inspections by the Site Manager or nominated representative. Weekly inspections by the Site Manager.	Daily and weekly	As per checklists	Daily SWMS Review and Weekly Site Assessment Checklist	Site Manager
Routine inspections by the Environment Co-ordinator on a weekly to fortnightly basis, depending on the construction activities and site specific environmental issues.	Weekly / Fortnightly	As per checklist	Environmental Site Checklist Record any non-conformances as System Defects on the project database.	Environment Co-ordinator
Internal auditing of the Spoil Management Plan	6 monthly	AS/NZ ISO 9001 Cl 8.2.2 Internal audit and 14001 Cl 4.5.2 Evaluation of compliance	To be completed by competent and qualified internal auditor	Compliance Working Group

## 8 TRAINING AND RESOURCES

### Training

Inductions are required and are to address:

- Waste hierarchy principles and responsibility to separate materials.
- Site specific waste storage areas and recycling methods onsite (e.g. recycling bin locations, waste separation processes).
- Any special storage or disposal arrangements (e.g. hazardous wastes, chemicals, waste oils/contaminated materials).
- Notification of the Environment Manager of any issues relating to waste storage or handling.

Toolbox talks will be used to reinforce and reiterate key information from the project induction as well as to address new or changed procedures for environmental management. This might include (but is not limited to):

- Effective separation of spoil stockpiles to prevent cross-contamination.
- Asbestos and contamination levels in soil to be excavated, or spoil stockpiled on site.
- Ongoing housekeeping requirements

### Resources

- Spoil stockpiling areas, including bunding and signage.
- Waste contractors for transport, recycling, treatment and/or disposal of spoil.
- Excavation contractor.
- NATA accredited laboratory.
- Validation and contamination consultant.
- Environment Manager, Environment Co-ordinator.
- Occupational Hygienist.

# Spoil Management Plan

Surface and Viaduct Civil Works



## 9 REFERENCES AND REVISIONS

Related Documents
Contaminated Materials Contingency Plan (Appendix 5 of the Construction Soil & Water Management Plan)
ISJV SVC Project Management System - MSP22P Water Quality Management Procedure
ISJV SVC Project Management System - MSP22Q Soil Conservation Management Procedure
Spoil Sampling and Analysis Program
Spoil & Truck Movement Register
Spoil Excavation ITPs
Spoil Stockpiling ITPs
References
EPA (DECCW) <i>Waste Classification Guidelines Part 1 and Part 2</i> (2009).
Revision, Control & Amendment
Revisions to this plan will be made as required and in accordance with MSP18 'Document and Data Control'. The Environmental Manager will review outstanding issues and comments provided by the ER, IC, Principal's Representative or authorities and address these either: <ul style="list-style-type: none"><li>• in time to be endorsed by the IC and reviewed by the Principal's Representative prior to commencement of any related activities or work; or</li><li>• at the next Management Review of the plan as outlined in the Project Management Plan.</li></ul>



## 10 INCIDENT PLANNING AND RESPONSE

### Incident Planning & Response

Environmental incidents will be reported immediately as per ISJV's SVC PMS Incident Management Procedure (MSP42) to a Site Supervisor who will contact either the Project Manager, or Environmental Manager. All incidents will be investigated and appropriate actions taken to address the issue. Environmental incidents that cause or threaten material harm will be reported to EPA and other authorities in accordance with the ISJV's Pollution Incident Response Management Plan. Details will also be reported to the ER, DP&E, and TfNSW, as per the PIRMP and SVC Incident Management Procedure. Any water quality monitoring in response to an incident will be undertaken as required or in response to authority directions.

Unexpected heritage, acid sulfate soils, soil or asbestos contamination, threatened species/EEC and fauna rescue will be managed separately in accordance with relevant procedures in the Construction Heritage Management Plan, Construction Soil and Water Management Plan or Construction Flora and Fauna Management Plan.

No.	Incident	Response	Responsibility
1	Unexpected find of potentially contaminated fill.	<p>The material is to remain in-situ and the Environment Manager contacted immediately. The unexpected finds procedures within the Construction Soil &amp; Water Management Plan are to be implemented, requiring the material to be segregated with bunding controls in place and a cover ensuring no potential for run-off or leachate contamination migrating into adjacent areas.</p> <p>The material is then to be tested and classified in accordance with <i>Waste Classification Guidelines</i>. If timing / schedule permits, the material is to remain in-situ until test results are confirmed. The material is to be treated and re-used on site, or if the material is unsuitable for treatment, it is to be disposed of off-site at a suitably licenced landfill / treatment facility.</p>	Environment Manager Construction Manager, Superintendent

ISJV must notify the DPE Secretary of an incident with significant off-site impacts on people or the biophysical environment, as identified by the Environmental Representative, within 48 hours of becoming aware of the incident.

Furthermore, ISJV must provide full written details of the incident to the Director General within seven days of the date on which the incident occurred.

## APPENDIX 1 - Overview of Spoil Management

# Spoil Management Plan

Surface and Viaduct Civil Works



## Overview of spoil management from SVC works

SVC Works	Spoil Activity	Spoil Type/ Classification	Reuse/ Recycling/ Disposal Options
	Bella Vista Drive (200,000 t)	Pavement material	Recycle
		Exempted material	Reuse on-site
		VENM	Beneficial re-use off-site
	Cudgegong Road east (50,000 t)	General Solid Waste	Licensed landfill
		Restricted Solid Waste	Licensed landfill
	Piling, pile caps, services (50,000 t)	Hazardous Waste	Treat off-site, dispose at licensed landfill
		Special Waste (Asbestos)	Licensed landfill

## APPENDIX 2 - Off-site Reuse and Disposal Options

# Spoil Management Plan

## Surface and Viaduct Civil Works



The following tables provide a summary of activity sequences that may be used for reuse or disposal of spoil from the SVC works.

### Off-site reuse options summary

Destination	Activity sequence	Related documents
VENM	Visual assessment and testing if required Excavate & stockpile if needed Transport (truck) Dockets & tracking	SVC works EPL 20454
ENM	Excavate Stockpile and test using frequencies and parameters in the ENM Exemption 2012 (ex situ) Transport (truck) Dockets & tracking	SVC works EPL 20454
Third party location, after investigations, under a specific Resource Recovery Exemption (RRE), if approved	Excavate Stockpile and test using frequencies and parameters specified in the RRE (ex situ) Transport (truck) Dockets & tracking	Resource Recovery Exemption (if approved), and required plans. SVC works EPL 20454
Locations with an EPL to receive GSW-R	Excavate. Stockpile and test using frequencies and parameters specified in the EPL (ex situ) Transport (truck) to licenced transfer yard Dockets & tracking	EPL for individual transfer yards SVC works EPL 20454

### Off-site disposal summary

Destination	Activity sequence	Related documents
Removal off-site as hazardous waste	Excavate (or stockpile unexpected finds) Licenced transport to off-site licenced facility Stockpile and test Retest and immobilisation (if required) Licenced landfill EPA dockets & tracking – consignment authorisation	EPL for hazardous waste treatment facility EPL for landfill facility SVC works EPL 20454 Immobilisation Permit Waste consignment
Removal off-site as restricted waste	Excavate, stockpile and test Licenced transport Licenced landfill EPA dockets & tracking – consignment authorisation	SVC works EPL 20454 Waste consignment EPL for landfill facility
Removal off-site as general solid waste	Excavate, stockpile and test Transport Licenced landfill Dockets & tracking	SVC works EPL 20454 EPL for landfill facility
Removal off-site as asbestos (special) waste	Excavate (or stockpile unexpected finds), stockpile and test Licenced transport Licenced landfill Dockets & tracking	SVC works EPL 20454 EPL for landfill facility
Screened (& crushed) material as Building and Demolition Waste	Stockpile Visual assessment Transport Licenced transfer yard Dockets & tracking	SVC works EPL 20454 EPL for transfer yard facility
Removal off-site as acid sulfate soil (assuming no treatment on site)	Stockpile and test Transport to licenced off-site facility for treatment and disposal Licenced landfill Dockets & tracking	EPL for acid sulfate soil treatment facility SVC works EPL 20454

# Spoil Management Plan

## Surface and Viaduct Civil Works



The following table outlines the spoil hierarchy to be adopted on site as per EIS 1.

Tier	Reuse Options	Example
1	Within the Project	<ul style="list-style-type: none"><li>• Reuse in the Project to fill embankments and mounds within short haulage distance of source.</li><li>• Restoration of any pre-existing contaminated sites within the Project boundaries.</li><li>• Reuse as a feed product in construction materials (e.g. concrete)</li></ul>
2	Environmental works	<ul style="list-style-type: none"><li>• Reuse in coastal protection works such as beach nourishment and land raise.</li><li>• Reuse in flood mitigation works.</li></ul>
3	Other development projects	<ul style="list-style-type: none"><li>• Reuse for fill embankments and mounds on projects with an economic transport distance from site.</li><li>• Reuse for land reclamation or remediation works.</li><li>• Reuse sand for manufacturing concrete and reuse shale for manufacturing bricks/tiles.</li></ul>
4	Land restoration	<ul style="list-style-type: none"><li>• Reuse to fill dis-used facilities, e.g. mines and quarries, to enable either future development or ecological rehabilitation.</li></ul>
5	Landfill management	<ul style="list-style-type: none"><li>• Reuse to cap completed landfill cells.</li><li>• Reuse in daily covering of landfill waste.</li></ul>



The table below outlines the approved exported spoil reuse sites to date.

### EXPORT MATERIALS REGISTER



#### Management System Register

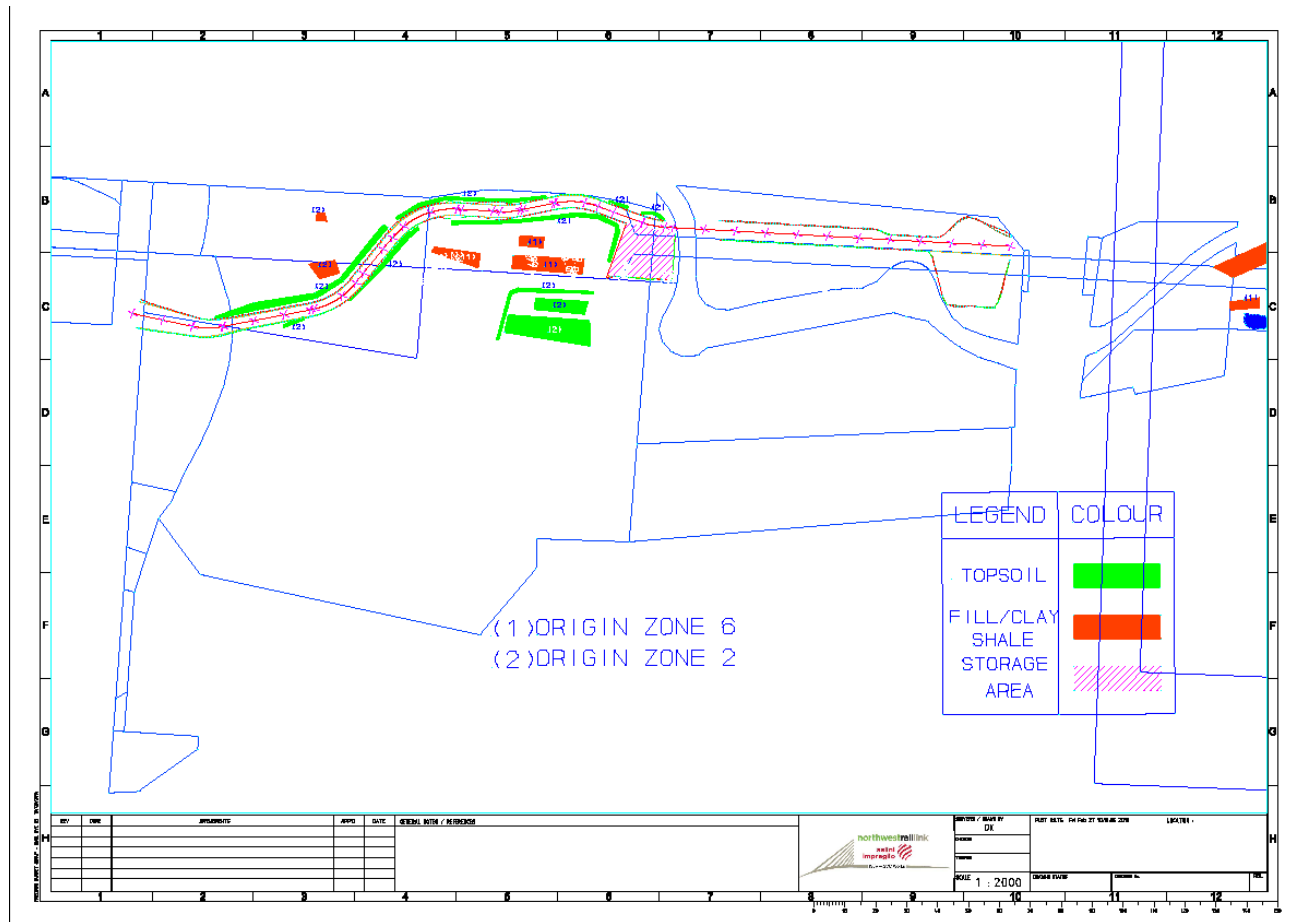
Receiver	Address	DA received	Tier	Waste type approved to receive	Quantity approved to receive
<b>Gregory Hills Corporate Park</b>	650 Camden Valley Way Gledswood Hills NSW 2557	Y - DP1203105	3	VENM/ ENM	5,000 t
<b>Celia Rd, Kellyville</b>	1- 3 Celia Rd Kellyville NSW 2155	Y - DA1517/2015/ZD	3	VENM/ ENM	5,000 t
<b>Box Hill</b>	40 Boundary Rd, Box Hill	Y – DA2014/1327/ZB	3	VENM	10,000 m <sup>3</sup>
<b>Plant Heavy Haulage</b>	46 Mulgrave Road, Mulgrave	Y - DA0030/13	3	ENM	200,000 t
<b>Kurrajong Road, Prestons</b>	290 Kurrajong Road, Prestons	Y - DA917/2015	3	VENM/ ENM	150,000m3, 150,000m3
<b>Altis Property (Orchard Hills)</b>	585-649 Mamre Road, Orchard Hills	Y – Lot 2171 in DP1153854	3	VENM / ENM	225,000m3 (each)

- Note: conversion factor of 1.9 tonner per m3 is used in calculations for monthly reports (as Daracon provide information in m3, rather than tonnes. This conversion factor has been used throughout the project.

## APPENDIX 3 - Spoil Storage Location Maps

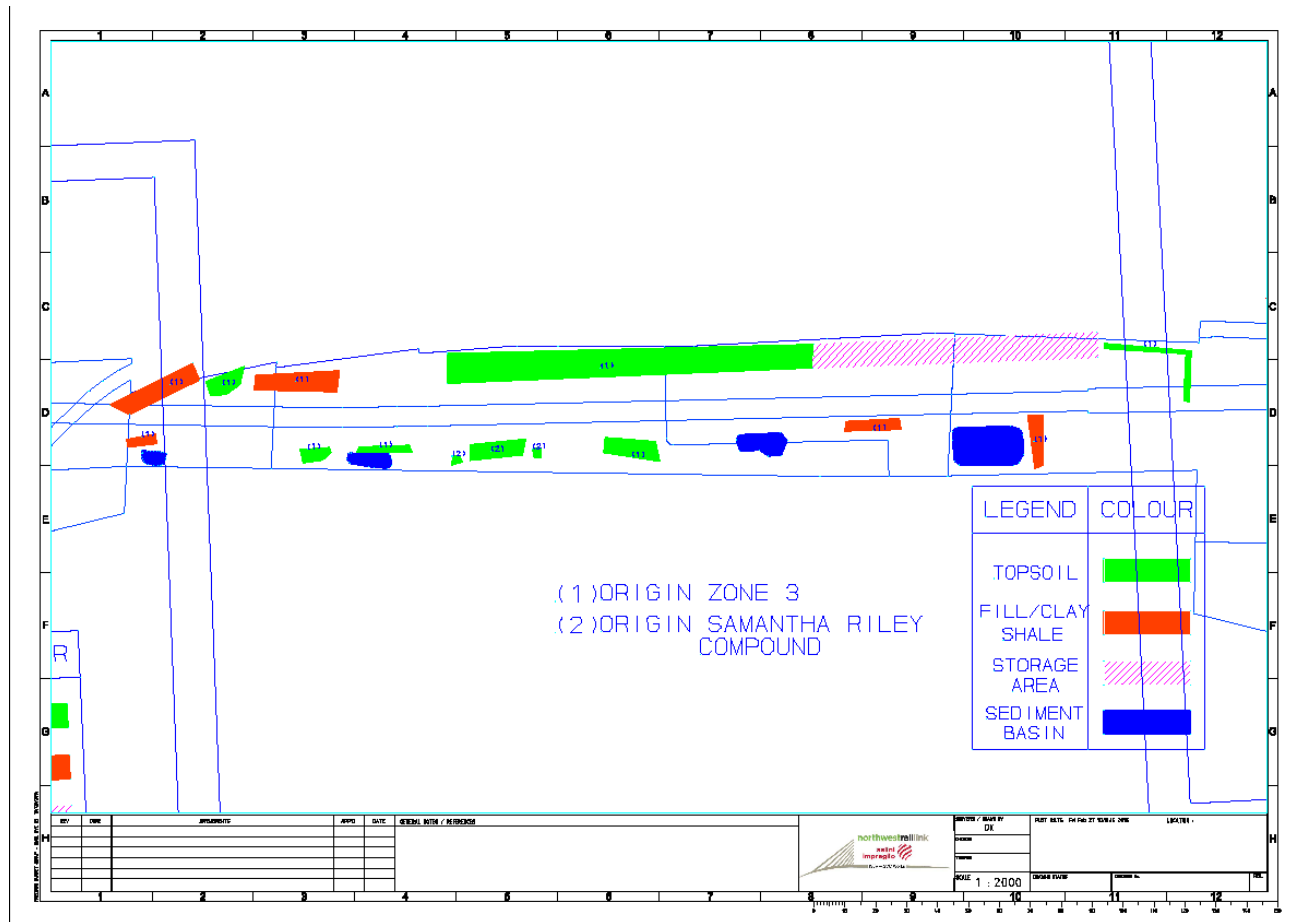
# Spoil Management Plan

Surface and Viaduct Civil Works



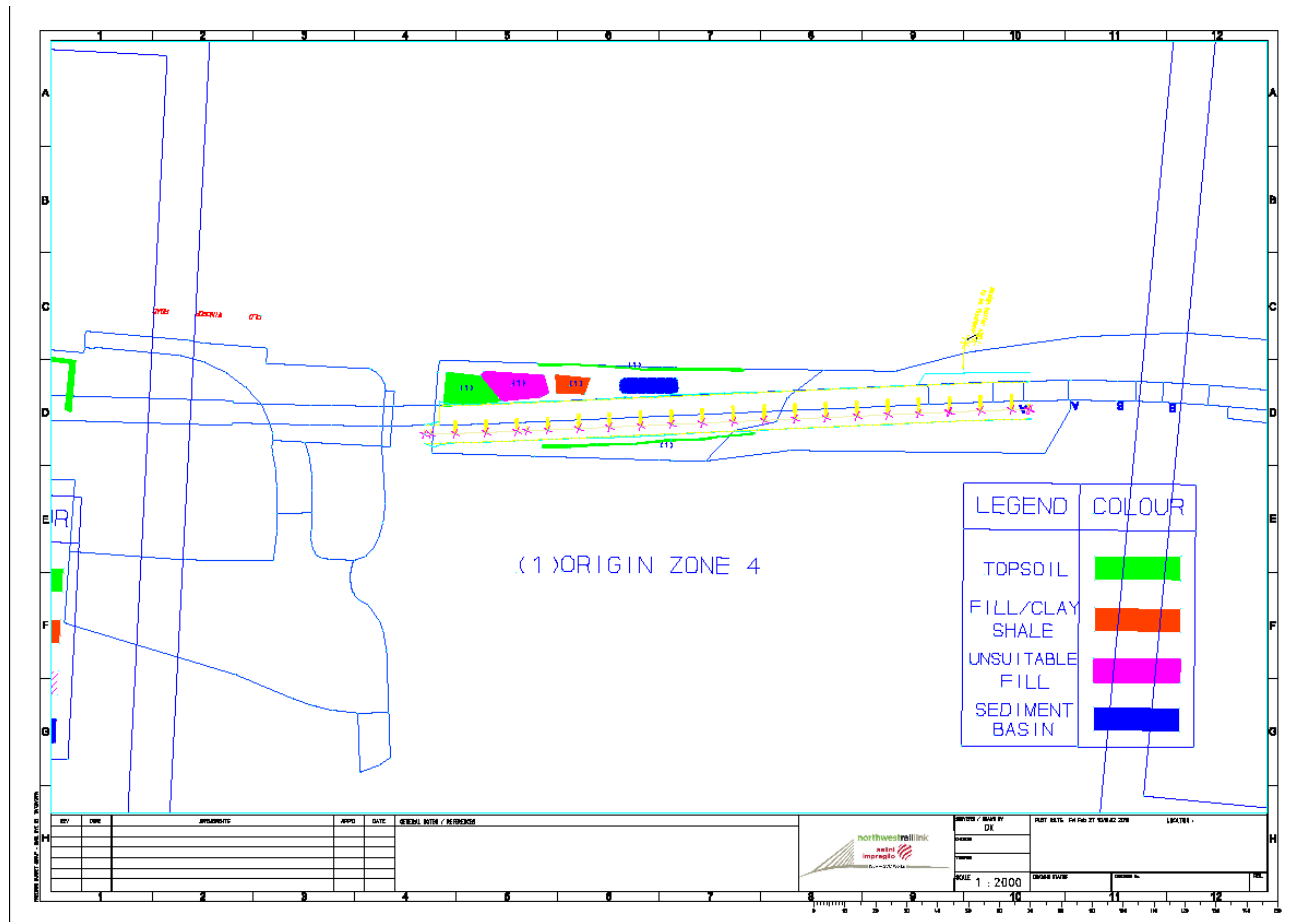
# Spoil Management Plan

Surface and Viaduct Civil Works



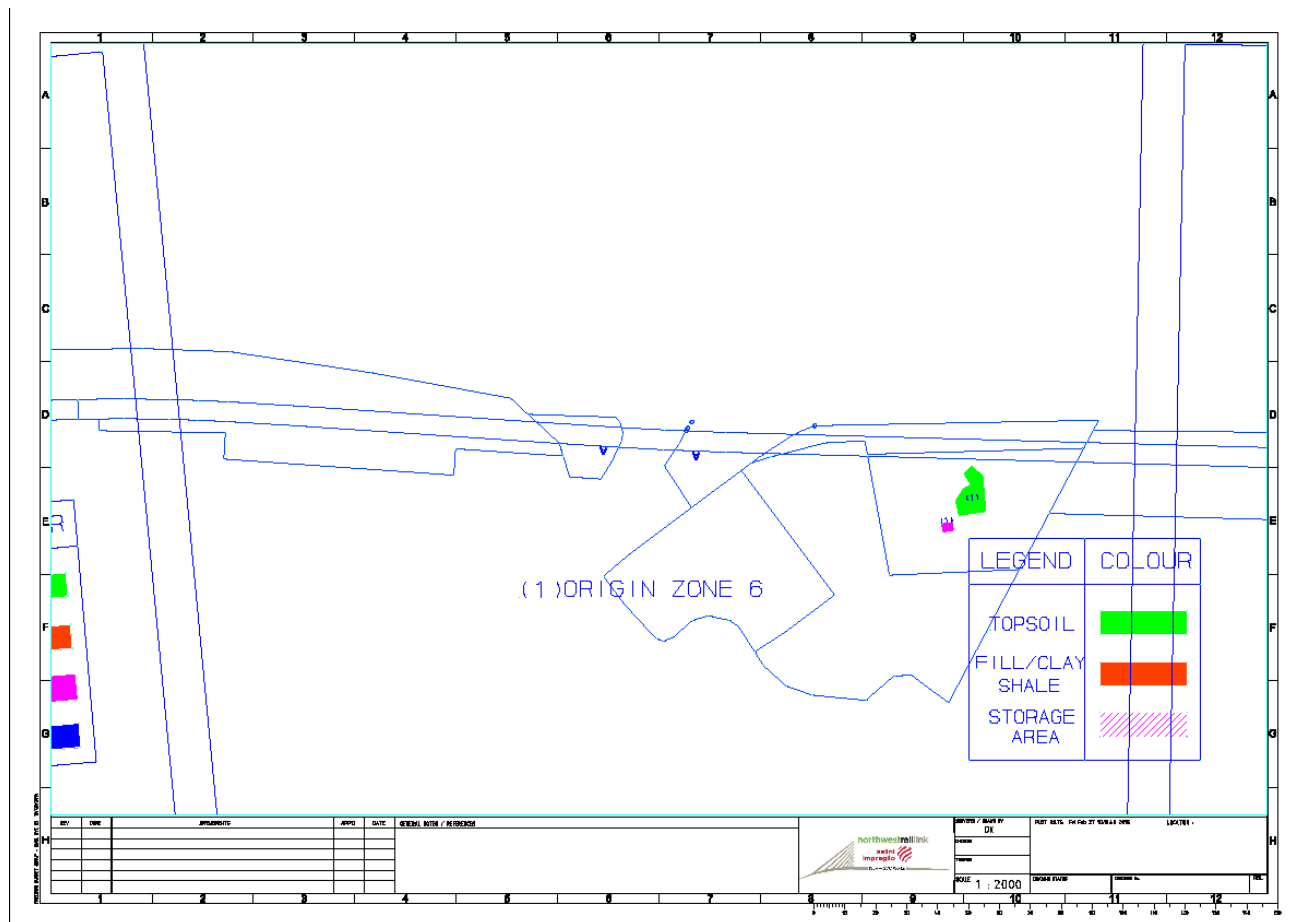
# Spoil Management Plan

Surface and Viaduct Civil Works



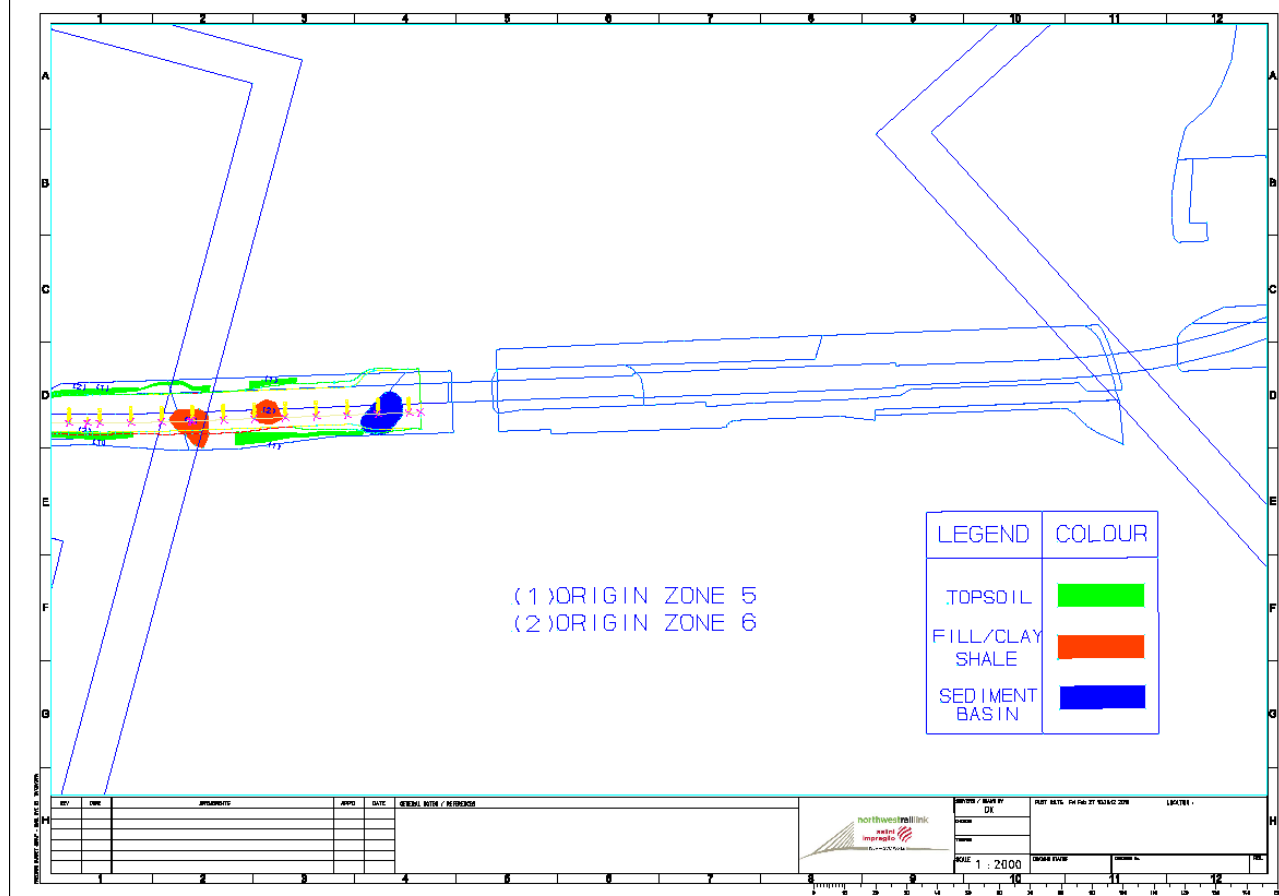
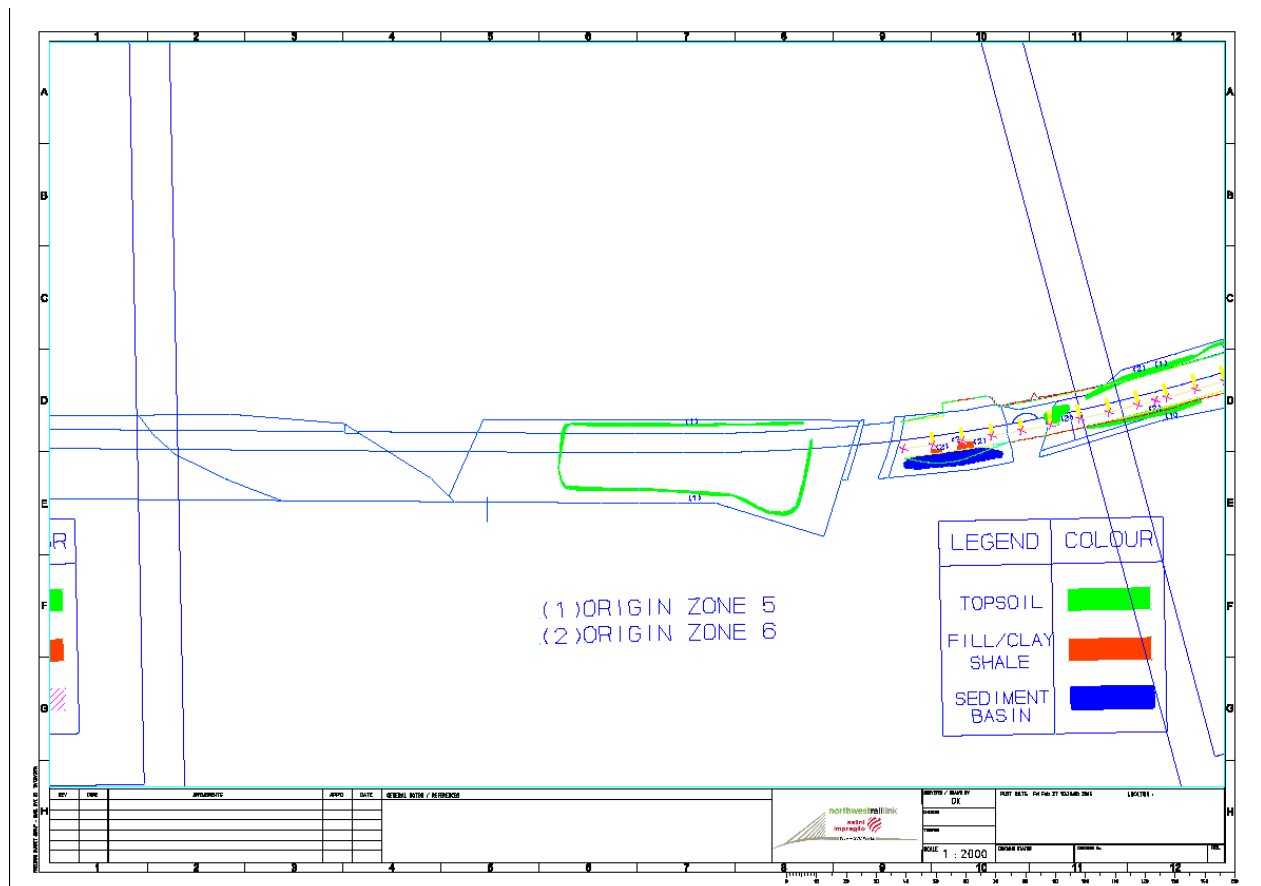
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Surface and Viaduct Civil Works



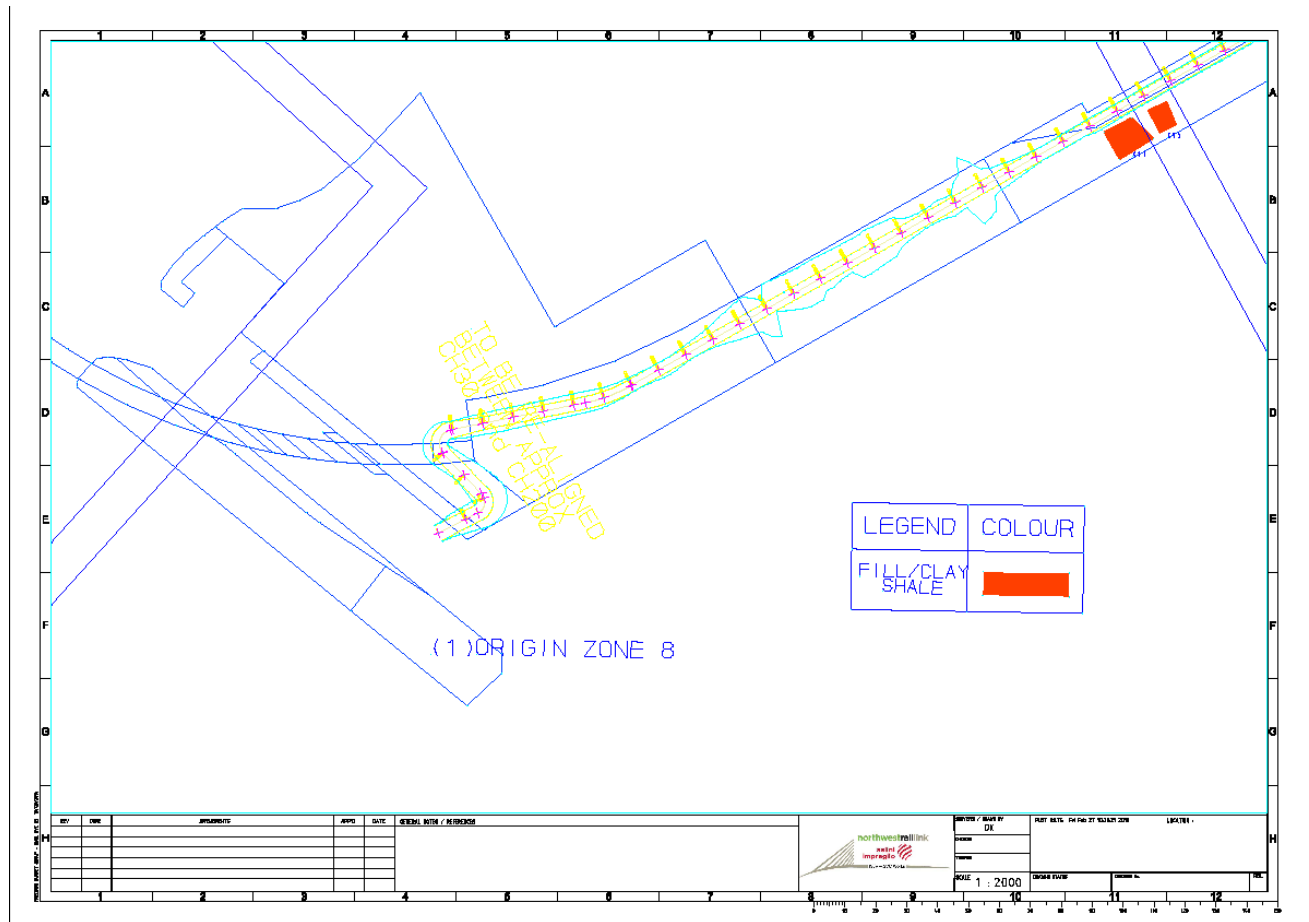
# Spoil Management Plan

Surface and Viaduct Civil Works



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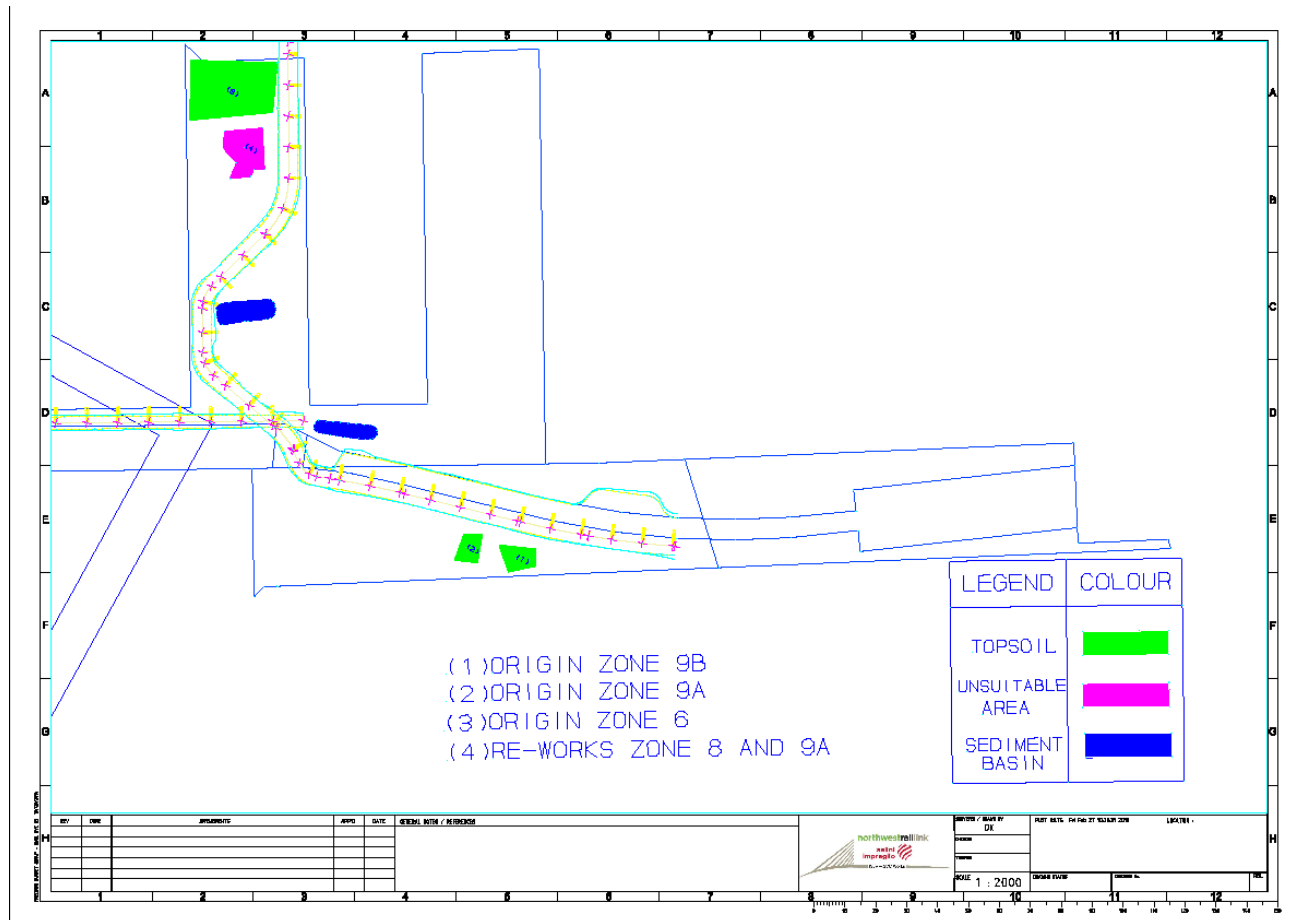
Surface and Viaduct Civil Works





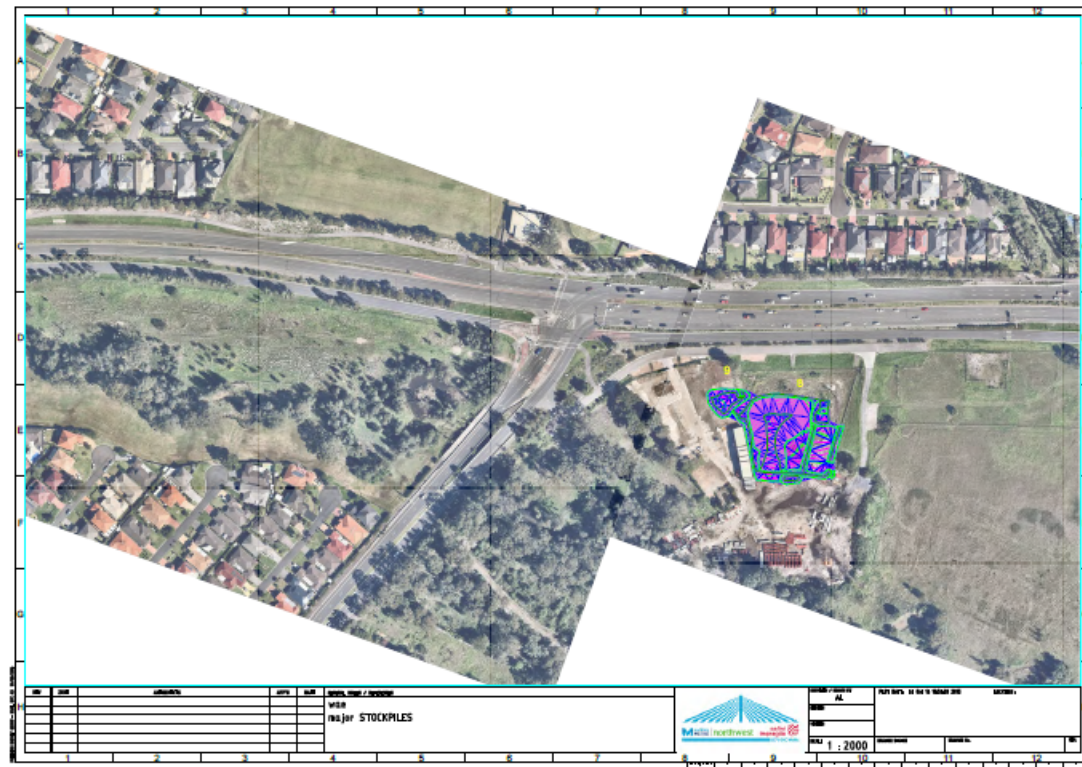
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Surface and Viaduct Civil Works



# Spoil Management Plan

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# Spoil Management Plan

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