

Contaminated Land Management Plan

Transport for NSW

Supply, Operate, Maintain (SOM) Package

Parramatta Light Rail

December 2020

PLR1SOM-GLR-ALL-PM-PLN-000040 Rev 1



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Approval and Certification

Title	Parramatta Light - Rail Supply, Operate, Maintain Contract Contaminated Land Management Plan
Endorsed by Environmental Representative	
Signed	
Dated	
Approved on behalf of Transport for NSW by	
Signed	
Dated	
Approved on behalf of [Insert name of Construction Contractor] by	
Signed	
Dated	

About this release

Title	Contaminated Land Management Plan
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Version	Date	Prepared By	Approved By
A	10/04/2019	Advisian on behalf of GRCLR	
B	16/04/2020	Mott MacDonald Australia Pty Ltd on behalf of GRCLR	
C	14/07/2020	Mott MacDonald Australia Pty Ltd on behalf of GRCLR	
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A	10/04/2019	Draft for review – Prepared by Advisian
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Contents

Contents	iii
Glossary / Abbreviations	v
1 Introduction	1
1.1 Context	1
1.2 Background and project description	1
1.3 Staging of the PLR works	4
1.4 Project description for Supply, Operate and Maintain - Package 5.....	5
1.5 Scope of this Plan.....	9
1.6 Relationship with relevant work packages.....	9
1.7 Environmental management systems overview	10
2 Purpose and objectives	14
2.1 Purpose	14
2.2 Objectives.....	14
2.3 Targets	14
3 Environmental requirements	15
3.1 Relevant legislation and guidelines	15
3.2 Minister's Conditions of Approval.....	16
3.3 Revised Environmental Mitigation and Management Measures	24
3.4 Environmental Performance Outcomes	32
4 Existing environment	34
4.1 Previous investigations	34
4.2 Further investigations.....	34
5 Environmental aspects and impacts	36
5.1 Construction activities	36
5.2 Impacts.....	36
6 Environmental control measures	38
7 Compliance management	43
7.1 Roles and responsibilities	43
7.2 Training	43
7.3 Monitoring and inspections	43
7.4 Auditing	43
7.5 Reporting.....	44
8 Review and improvement	45
8.1 Continuous improvement.....	45

8.2 CLMP update and amendment	45
Appendix A – Unexpected Contaminated Land and Asbestos Finds Procedure	46
Appendix B – ER Endorsement	48

Glossary / Abbreviations

Abbreviations	Expanded text
ACM	Asbestos containing material
BOCC	Back Up Operations Control Centre
CEMP	Construction Environmental Management Plan
CLM Act	<i>Contaminated Land Management Act 1997</i>
CLMP	Contaminated Land Management Plan
CoA	Conditions of Approval
CSSI	Critical State Significant Infrastructure
DPIE	Department of Planning, Industry and Environment
DPI	Department of Primary Industries
ECM	Environmental Control Map
EES	The Environment, Energy and Science Group is part of the Department of Planning, Industry and Environment and incorporates OEH
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
GRCLR	Great River City Light Rail
LTEMP	Long Term Environmental Management Plan
PESCP	Progressive Erosion and Sediment Control Plan
PLR	Parramatta Light Rail
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RAP	Remediation Action Plan
REMMM	Revised Environmental Mitigation and Management Measure

SaMF	stabling and maintenance facility
SAR	Site Audit Report
SAS	Site Audit Statement
SPIR	Submissions and Preferred Infrastructure Report
SOM	Supply, Operate and Maintain
VENM	Virgin Excavated Natural Material

1 Introduction

1.1 Context

This Contaminated Land Management Plan (CLMP – the Plan) has been prepared by Great River City Light Rail (GRCLR) for the construction phase of the Supply, Operate and Maintain (SOM) package of the Parramatta Light Rail (PLR).

PLR is one of the NSW Government's major infrastructure projects being delivered to serve a growing Sydney. PLR will connect Westmead to Carlingford via Parramatta Central Business District (CBD) and Camellia. PLR is expected to be operational in 2023. More detailed description of the overall PLR Project is provided in Section 1.2.

The PLR Project received planning approval on the 29 May 2018 (SSI 8285) and subsequently modified twice with approvals issued on 21 December 2018 and 25 January 2019 respectively. This CLMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA) and the revised environmental mitigation and management measures (REMMM) listed in the *Parramatta Light Rail Stage 1 Westmead to Carlingford via Parramatta CBD and Camellia Environmental Impact Statement (EIS)*, as amended by the *Parramatta Light Rail (Stage 1) Westmead to Carlingford via Parramatta CBD and Camellia Submissions Report (incorporating Preferred Infrastructure Report)* (February 2018) (SPIR) and all applicable legislation.

1.2 Background and project description

PLR will create new communities, connect great places and help both local residents and visitors move around and explore what the region has to offer. The route will link Parramatta's CBD and train station to a number of key locations, including the Westmead Precinct, the Parramatta North Growth Centre, the new Western Sydney Stadium, the Camellia Town Centre, the new Powerhouse Museum and Riverside Theatre arts and cultural precinct, the private and social housing redevelopment at Telopea, the Rosehill Gardens Racecourse and the three Western Sydney University campuses.

In summary, the key features of PLR include:

- A new dual track light rail network of approximately twelve kilometres in length, including approximately seven kilometres within the existing road corridor and approximately five (5) kilometres within the existing Carlingford Line and Sandown Line, replacing current heavy rail services
- Sixteen stops that are fully accessible and integrated into the urban environment including a terminus stop at each end of Westmead and Carlingford
- High frequency 'turn-up-and-go' services operating seven days a week from 5am to 1am. Weekday services will operate approximately every 7.5 minutes in the peak period between 7am and 7pm
- Modern and comfortable air-conditioned light rail vehicles, nominally 45 metres long and driver-operated, each carrying up to 300 passengers.
- Intermodal interchanges with existing public transport services at Westmead terminus, Parramatta CBD and the Carlingford terminus

- Creation of two light rail and pedestrian zones (no general vehicle access) within the Parramatta CBD along Church Street (generally between Market Street and Macquarie Street) and along Macquarie Street (generally between Horwood Place and Smith Street)
- A Stabling and Maintenance Facility (SaMF) located in Camellia for light rail vehicles to be stabled, cleaned and maintained
- New bridge structures along the alignment including over James Ruse Drive and Clay Cliff Creek, Parramatta River (near the Cumberland Hospital), Kissing Point Road and Vineyard Creek, Rydalmere
- Alterations to the existing road network including line marking, additional traffic lanes and turning lanes, new traffic signals, and changes to traffic flows
- Relocation and protection of existing utilities
- Public domain and urban design works along the corridor and at Stop precincts
- Closure of the heavy rail line between Carlingford and Clyde
- Active transport corridors and additional urban design features along sections of the alignment and within Stop precincts
- Integration with the Opal Electronic Ticketing System (ETS)
- Real time information in light rail vehicles and at Stops via visual displays and audio.
- An overview of PLR route is shown in below Figure 1-1.

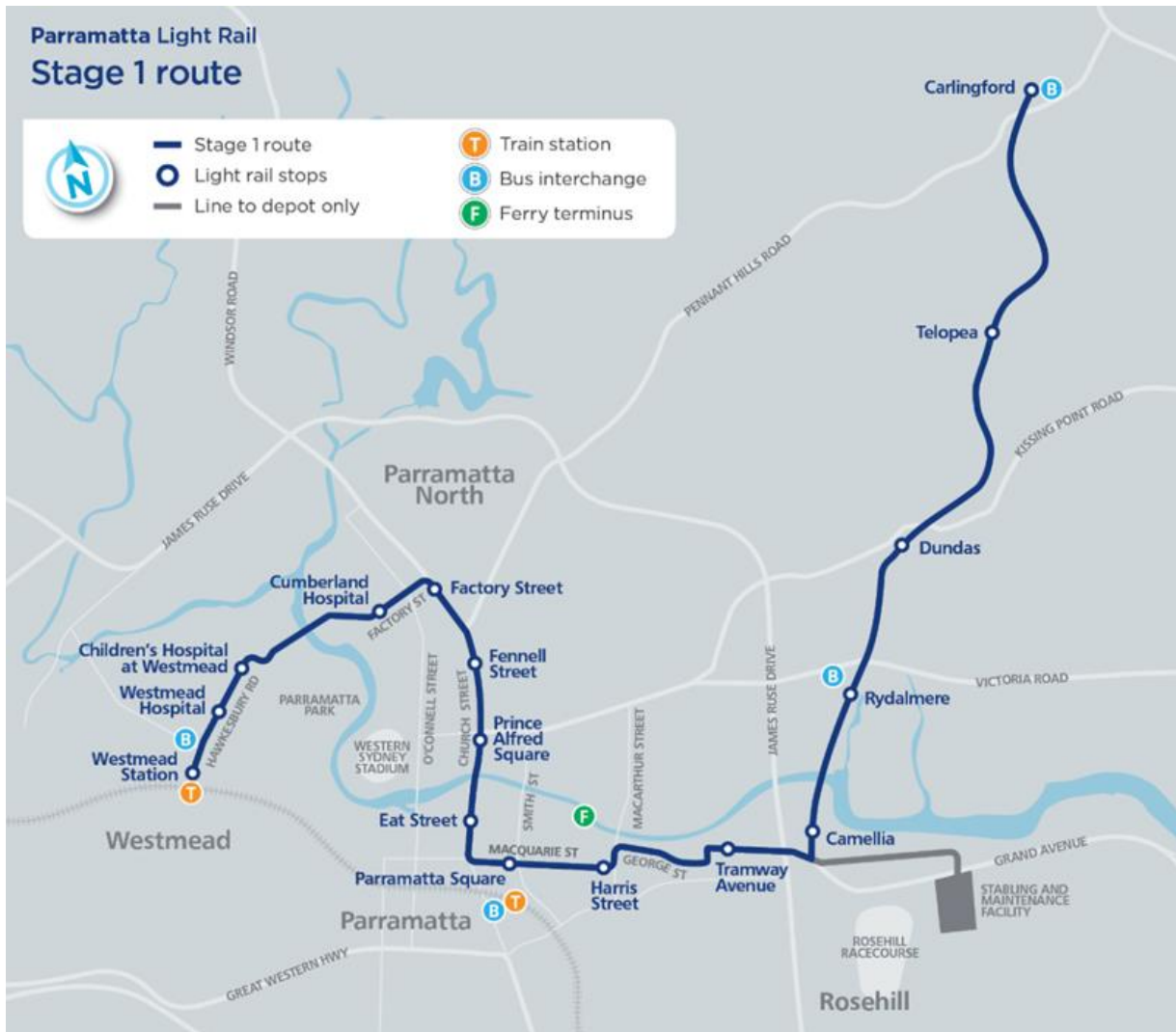


Figure 1-1: Parramatta Light Rail Stage 1 Route

1.2.1 Statutory Context

PLR has been subject to environmental impact assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is classified as Critical State Significant Infrastructure (CSSI).

A detailed environmental impact assessment has been carried out and approved by the Minister for Planning. The Planning Approval for PLR is described in Section 1.2.2.

1.2.2 PLR Planning Approval

The Parramatta Light Rail was approved by the Minister for Planning on 29 May 2018, under Section 5.19 of the *Environmental Planning and Assessment Act (EP&A Act) 1979*. An environmental impact statement (EIS) was prepared as part of the infrastructure application (SSI-8285) as was a submissions and preferred infrastructure report (SPIR) following public exhibition of the EIS.

The Infrastructure Approval has subsequently been modified twice under Section 5.25 of the EP&A Act, with approvals issued on 21 December 2018 and 25 January 2019, respectively. The modifications related to changes to conditions of approval (CoA) not the physical description of PLR.

The Infrastructure Approval, modifications and related environmental assessment documents can be found at: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8285.

1.3 Staging of the PLR works

The PLR comprises approximately 12km alignment from Westmead to Carlingford via Camellia and consists of a mix of both on-street and dedicated corridor.

PLR is being delivered under five delivery packages as detailed in the Staging Report:

- Enabling Works (**Package 1**) – Local road network improvements including O’Connell Street and George Street (off-alignment)
- Westmead Precinct Works (**Package 2**) – Hawkesbury Road widening and demolition at Cumberland Hospital (east and west Campus)
- Early Works (**Package 3**) – Remediation of the Stabling and Maintenance Facility (SaMF)
- Infrastructure Works (**Package 4**) – Design and construction of civil works, public domain and light rail infrastructure up to road level/top of rail and to the top of the concrete slab at stops, including provision of utility services (excluding high-voltage power supply and cabling for rail systems), and decommissioning of the T6 Carlingford Line
- Supply Operate and Maintain Works (**Package 5**) – The Project (subject of this Plan) Design and construction of the light rail systems, high-voltage power supply and stops above slab level, the supply of light rail vehicles, and the design and construction of the SaMF, including all light rail operations, customer service and asset management.

Each package of work is to be delivered under separate contracts on behalf of the proponent Transport for NSW (TfNSW). While the packages will commence at different times under separate construction approvals, there will be periods during which the packages works will overlap. The interactions between the packages are shown in Figure 1-2.

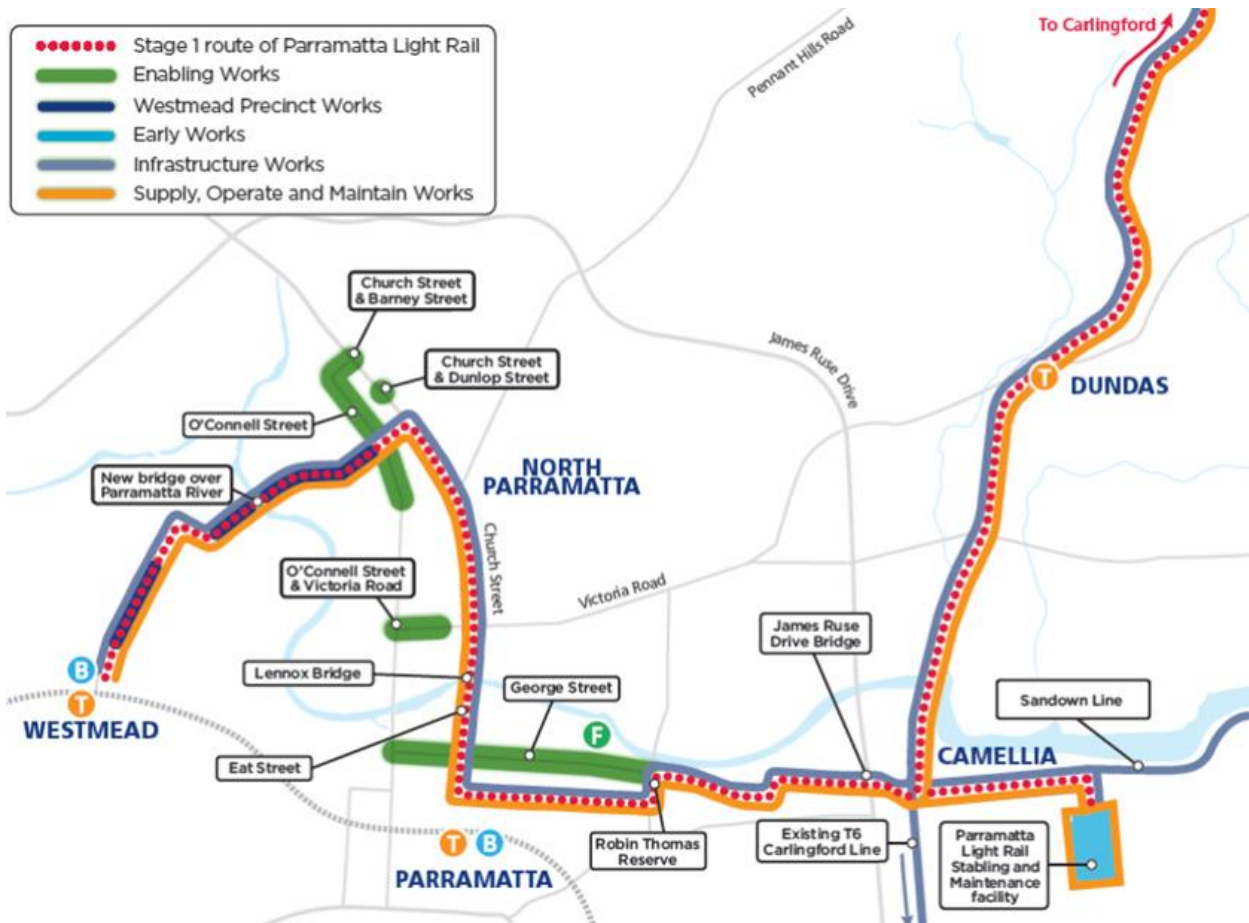


Figure 1-2: Parramatta Light Rail Delivery Package Interface

1.4 Project description for Supply, Operate and Maintain - Package 5

As System Integrator for PLR, the SOM Contractor's activities include:

- Delivery activities
- Light rail vehicle procurement
- Operation and maintenance.

The delivery activities include all investigation, selection, specification, design, approvals, construction, manufacture, installation, testing & commissioning, operational readiness and activities to transition from the delivery phase to the operations phase.

In summary the SOM package includes the following.

- All works above and additional to the platform concrete foundation slab at all stops
- Stabling and maintenance facility
- Central control system
- Light rail signalling system

- Elements of the road intersection signalling system
- Communications and passenger information systems
- Power Supply system
- Procurement of light rail vehicles (LRV)
- Maintenance plant and machinery for the LRVs
- Earthing & bonding, electrolysis and electromagnetic compatibility.

1.4.1 SOM roles and responsibilities

Great River City Light Rail (GRCLR) is responsible for the delivery of the SOM contract for PLR. GRCLR has sub-contracted out the supply component of these works to Construcciones y Auxiliar de Ferrocarriles (CAF) who has engaged Thales, General Electric and Laing O'Rourke Australia (LORAC) to undertake the design and construction responsibilities associated with the supply component of the works, which includes the design and construction related activities including testing and commissioning, and excludes all operational and maintenance activities.

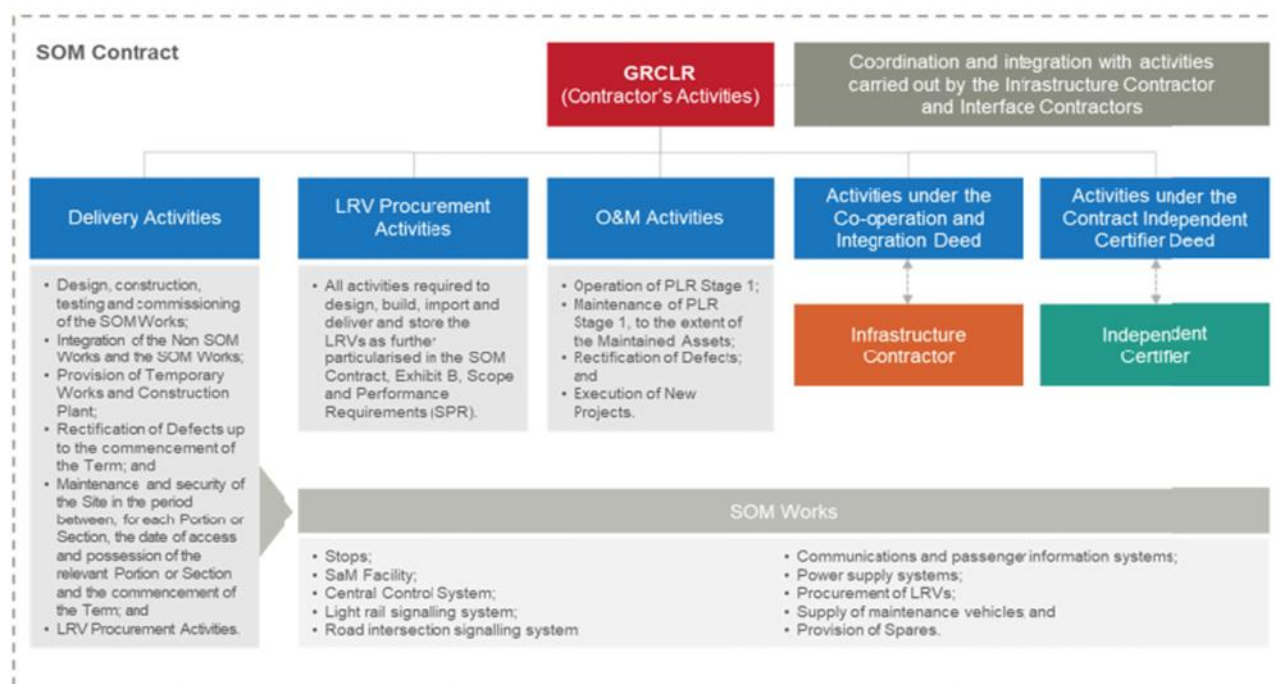


Figure 1-3: SOM contract activities for PLR

GRCLR is the owner of the Construction Environmental Management Plan (CEMP) and Plans, and is responsible for ensuring implementation of and compliance by all subcontractors during construction works of the SOM package, which include the construction of the light rail systems (including high-voltage power supply), stops above slab level, as well as the stabling and maintenance facility (the Project). Further detail on the Project is provided below.

1.4.2 Stops

Light rail stops would be constructed after the Infrastructure Contractor has completed the stop slabs and access, with works at each stop commencing progressively after the completion of the

adjacent linear segment of track infrastructure. There are sixteen stops that would be constructed. The stops will be in the following locations:

- Westmead Station
- Westmead Hospital
- Children's Hospital at Westmead
- Cumberland Hospital
- Factory Street
- Fennell Street
- Prince Alfred Square
- Eat Street
- Parramatta Square
- Harris Street
- Tramway Avenue
- Camellia
- Rydalmere
- Dundas
- Telopea
- Carlingford.

1.4.3 Stabling and maintenance facility

A stabling and maintenance facility (SaMF) will be constructed at 6 Grand Avenue, Camellia on a former industrial site adjacent to the Rosehill Gardens Racecourse. The facility will provide for maintenance, repair, refurbishing, upgrading, stabling, cleaning of light rail vehicles and a base for infrastructure maintenance activities and will operate 24 hours a day and 7 days a week.

Administration and staff facilities, as well as the operations control centre for the light rail network, will be located within the maintenance building. Parking for staff and visitors will be provided on site, including maintenance vehicle parking. An electrical substation will be located at the site to power the facility and light rail.

This site is referred to as Area of Environmental Interest (AEI) 27 in the Parramatta Light Rail (stage 1) EIS (TfNSW August 2017).

The site is currently undergoing remediation, including subsurface remediation works to render the site suitable for its proposed land use as a stabling and maintenance facility. This has removed all vegetation from the site. GRCLR will receive the site cleared of vegetation and with an unsealed capping layer.

The Local heritage listed tram alignment (I6) passes adjacent to the northern end of the site. Grand Avenue lies within the curtilage of the heritage tram alignment.

This site is to be used as the main SOM project compound. The facility will be established following completion of ground remediation works and capping of the site, which will be completed by others. GRCLR will receive the site along with a Site Audit Statement from an EPA Accredited Site Auditor. Prior to establishment, the ground will be stabilised.

The type and extent of works to construct the SaMF are summarised in Table 1-1.

Table 1-1 - Type and extent of works to construct the SaMF.

Type of works	Works extent
Site establishment	<ul style="list-style-type: none"> • Site office and amenities during construction
Earthworks and subsurface works	<ul style="list-style-type: none"> • Combined service route • Drainage • Hydraulics (sewer, water, fire)
Civil works	<ul style="list-style-type: none"> • Fencing • Service roads • Footpaths • Carparks • Landscaping • Substation – TPS 8
Rail Systems	<ul style="list-style-type: none"> • Track • Overhead wiring • DC feeders
Structures	<ul style="list-style-type: none"> • Administration and Maintenance building (construction of foundation and slab, structural frame, roofing and cladding, MEP fit out, finishes) • Outbuildings (fire pump house, sanding plant building, cleaners store, train wash building)
Operations Control Centre	<ul style="list-style-type: none"> • Operations Control Centre (construction of foundation and slab, structural frame, roofing and cladding, MEP fit out, finishes) • Outbuildings (fire pump house, sanding plant building, cleaners store, train wash building)
Rail stops	none

1.4.4 Substations

Traction power substations (TPS) would generally comprise prefabricated structures, which are manufactured off-site. On-site works would typically comprise excavation, foundation preparation and construction, and the installation of conduits and other in-situ works (i.e. electrical works) prior to the installation of the prefabricated substation building and security fencing surrounding the site.

Note that the demolition of existing buildings and vegetation removal at TPS sites will be undertaken by the Infrastructure Contractor and is outside of the scope of this Plan.

1.4.5 Rail systems

The installation of rail systems would include the installation of overhead wiring and jewellery, rail signalling and associated infrastructure and systems. The overhead wiring structures and footings will be constructed by the Infrastructure Contractor, as will be the combined services route within which the rail systems conduits will be installed. The OHW Structures and footings within the SaMF will be constructed by SOM.

A Backup Operations Control Centre (BOCC) will be constructed adjacent to Dundas Station on the corner of Dudley Street and Calder Road, Dundas. Table 5.1 provides the construction activities being undertaken at the BOCC site.

1.5 Scope of this Plan

The scope of this CLMP is to outline how GRCLR proposes to manage and control construction impacts with respect to contamination. It has been prepared for the construction of Package 5 Activity A (Stabling and Maintenance Facility) and Activity B (remaining SOM works), as per Staging Report Revision 7.02. Referred to as the Project.

This CLMP applies to the construction of the stabling and maintenance facility (SaMF) and the remainder of the SOM works for the alignment, including Stops, Traction Power Stations (TPS), Back-up Operations and Control Centre (BOCC), and other sites (i.e. full SOM scope or construction works).

The CLMP is applicable to all activities during construction of the Project, including all areas where physical works will occur, or areas that may be otherwise impacted by the construction works, and which are under the control of the GRCLR. All GRCLR staff and sub-contractors are required to operate fully under the requirements of this Plan and related environmental management plans, over the full duration of the construction program.

This Plan is to be implemented at the SaMF site once the remediation works have been completed by the Remediation Contractor.

This plan may be submitted to DPIE along with, or subsequent to, the submission of the CEMP but in any event, no later than one month before construction.

1.6 Relationship with relevant work packages

1.6.1 Infrastructure contractor - Parramatta Connect (Package 4)

The Infrastructure Works is closely aligned to the Package 5, Supply, Operate and Maintain (SOM) Works. A graphical representation of the split in scope between the two packages is depicted in Figure 1-4. The reason for dividing this work into two packages is to ensure that suitably qualified and experienced sub-contractors are in place for each specialised component; civil infrastructure, and operational systems. The Infrastructure Works will deliver the civil infrastructure components and will not trigger the operational conditions, except for those that relate to detailed design.

An interface between the two packages has been established to monitor cumulative impacts and the coordination of environmental complaints management, site management controls, and the delineation of incident reporting and non-compliance management.

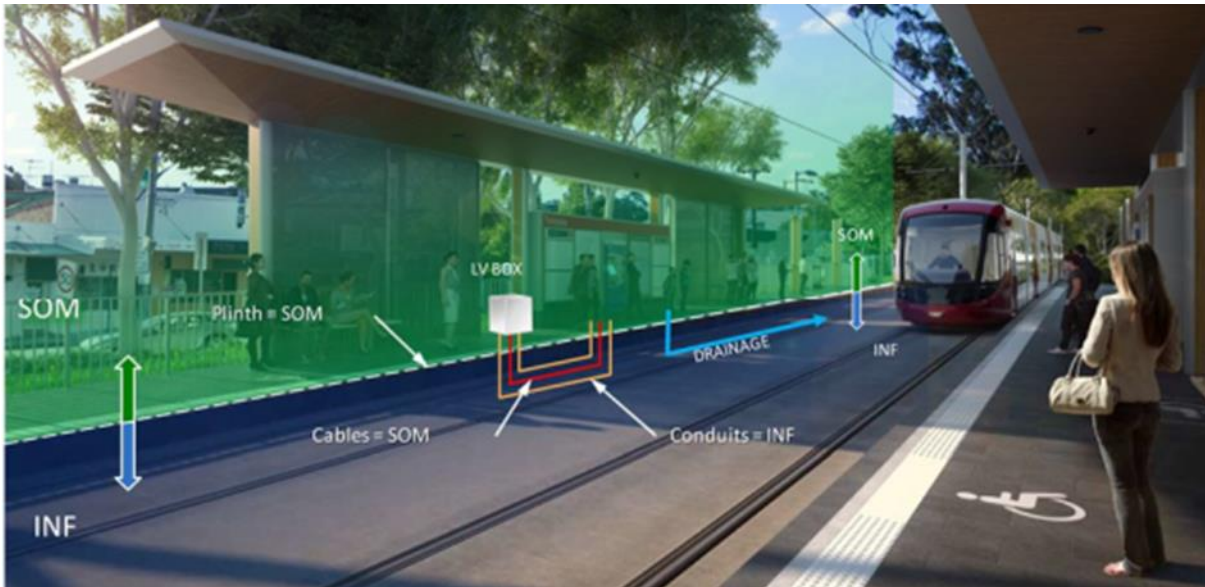


Figure 1-4: Relationship between Infrastructure Works and SOM Works

1.6.2 Early Works Remediation Contractor – Ventia (Package 3)

The SOM contract is dependent on the completion of the remediation works at the stabling and maintenance facility (SaMF) site, by the remediation contractor.

The SaMF site is subject to historical contamination and is a listed contaminated site by the Environment Protection Authority (EPA). The works have been split to ensure that appropriately qualified contractor, experienced in remediating heavily contaminated sites, is managing the remediation of the site. The remediation contractor will complete their works and provide GRCLR a remediated site, complete with a site audit statement, and supporting management documentation, fit for purpose for site establishment, construction and operational activities associated with PLR.

The remediation works will deliver the remediated site, including any details of any ongoing management requirements, and will not trigger the construction and operational conditions, except for those that relate to detailed design. The Remediation Contractor will provide GRCLR with a Long Term Environmental Management Plan (LTEMP) for the SaMF. The LTEMP will include all construction, operation, management, maintenance and monitoring requirements to protect and maintain the performance of the remediation infrastructure at the SaMF. GRCLR will implement the requirements relevant to the construction and operation of the Stabling and Maintenance facility.

Ongoing management for the remedial works on the SaMF site will be implemented through a LTEMP which will be approved by the Site Auditor, as part of the issuing of the Site Audit Statement (SAS) for the site. The LTEMP will be a stand-alone document, and all monitoring and reporting will be managed through the processes and procedures in the LTEMP, and not through the SOM CEMP.

An interface between the two packages has been established to ensure the remediated site meets the design requirements for the construction, operation and maintenance of the site.

1.7 Environmental management systems overview

The construction of the Project will be managed in accordance with the GRCLR Integrated Management System (IMS) which includes an Environmental Management System (EMS). The EMS will be adopted as the guiding environmental management framework for the Project. The EMS is compliant with AS/NZS ISO 14001:2015. The EMS is integrated with the project wide IMS which includes assurance, quality and health and safety, management systems

The EMS will guide the development of the Project's governance documentation, including this CLMP, the CEMP and associated management plans, procedures and management tools to achieve the commitments and intentions established by the GRCLR Environment and Sustainability Policy, to ensure environmental performance and sustainability objectives and targets are achieved.

All works carried out on the site will be in accordance with:

- Minister's Conditions of Approval (CoA) SSI-8285
- Revised Environmental Mitigation and Management Measures (REMMMs)
- Environmental Performance Outcomes (EPO's)
- AS/NZ ISO 14001
- All applicable legislation
- Project Deed
- GRCLR IMS.

1.7.1 Construction Environmental Management Plan

A CEMP will be prepared for the SOM contract (Package 5). This CEMP provides the system to manage and control the environmental aspects of the SOM contract (Package 5) during construction. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled.

The CEMP will be endorsed by the ER and provided to the Secretary for approval at least one month prior to the commencement of construction. In accordance with CoA C8 construction will not commence until the CEMP and the associated management plans specified in CoA C3 are approved by the Secretary or provided to the Secretary for information (as required by CoA C3).

1.7.2 Environment management plans

Subject-specific environmental management plans will be prepared to support the CEMP. These documents are prepared to identify requirements and processes applicable to specific impacts or aspects of the SOM contract (Package 5). They address the relevant requirements of the CoAs, REMMMs and EPOs. A list of construction management plans for the SOM contract (Package 5) and their approval requirements are provided in Table 1-2.

Table 1-2 – Environmental Management Plans

Document name	Document number	Approval pathway/ requirement
Traffic, Transport and Access Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000032	REMMM GEN-1 CoA C3 (a) REMMM TT-25
Flora and Fauna Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000033	REMMM GEN-1 CoA C3 (e)

Document name	Document number	Approval pathway/ requirement
		REMMM BI-3
Noise and Vibration Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000034	REMMM GEN-1 CoA C3 (b) REMMM NV-1
Soil and Water Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000035	REMMM GEN-1 REMMM HY-6
Heritage Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000037	REMMM GEN-1 CoA C3 (d) REMMM AB-2 REMMM HE-21
Air Quality Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000038	REMMM GEN-1 and AQ-1
Construction Waste and Resource Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000039	REMMM GEN-1 REMMM WM-2
Contaminated Land Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000040	REMMM GEN-1 REMMM CM-3
Site Establishment Management	PLR1SOM-GLR-ALL-PE-PLN-001002	REMMM GEN-1 CoA C18 REMMM GEN-2
Flood Management Plan	PLR1SOM-GLR-ALL-PM-PLN-000047	REMMM GEN-1 CoA C3 (c) REMMM HY-4

1.7.4 Interaction with other management plans

Key interactions for this Plan with other management plans include:

- Construction Waste and Resource Management Plan, which details the controls and requirements for managing waste and resources

- Soil and Water Management Plan, which addresses chemical storage and spill response and stockpile management
- Delivery Phase Sustainability Management Plan, which defines the sustainability targets, addresses the tracking and reporting of waste and energy, and provides detailed strategies to achieve resource reductions.

2 Purpose and objectives

2.1 Purpose

The purpose of this CLMP is to establish a set of best practice procedures for the identification and management of contaminated land if encountered during works undertaken for the Project.

This plan has been prepared to address the applicable statutory requirements and aims to ensure that the commitments with regard to contaminated land are met.

2.2 Objectives

The key objective of the CLMP is to ensure all CoA, REMMMs, EPOs and licence/permit requirements relevant to contaminated land are described, scheduled and assigned responsibility as outlined in:

The environmental impact assessment prepared for Parramatta Light Rail – Stage 1

Conditions of Approval granted to the project on 29 May 2018

Submissions Report (incorporating Preferred Infrastructure Report), February 2018

Site Audit Statement Report, together with a supporting Long Term Management Plan (LTEMP) is under preparation.

2.3 Targets

The following targets have been established for the management of contaminated land during the project:

- Ensure full compliance with the relevant legislative requirements, CoA, REMMMs, EPOs and TfNSW specifications
- Follow correct procedure and ensure notification of any contamination uncovered during construction
- Minimise or avoid impacts from contaminated land
- Avoid harm to workers and the community's health and safety.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation relevant to contaminated land management includes:

- Contaminated Land Management Act (1997)
- Protection of the Environment Operations Act (1997)
- Environmentally Hazardous Chemicals Act (1985)
- Environmentally Hazardous Chemicals Regulation (2008)
- Work Health and Safety Act (2011)
- Protection of the Environment Operations (Waste) Regulation 2014.

All other legislation relevant to the CEMP and the sub plans is included in Appendix A1 of the CEMP.

3.1.2 Additional approvals, licences, permits and requirements

Site Audit Statement and Report for the SaMF site.

3.1.3 Guidelines and standards

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

- National Environmental Protection Measure Guidelines for the Assessment of Site Contamination
- NSW Environment Protection Authority (EPA) Consultants reporting on contaminated land (April 2020)
- Waste Classification Guidelines – Part 1: Classification of waste (NSW EPA 2014)
- NSW Environment Protection Authority (EPA) Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd edition) (2017)
- NSW Department of Planning State Environmental Planning Policy 55 – Remediation of Land
- Department of Urban Affairs and Planning and Environment Protection Authority Planning Guidelines SEPP 55 – Remediation of Land (1998)
- Guidelines on the Duty to Report Contamination under the *Contaminated Land Management Act* 1997 OEH (2009).

3.2 Minister's Conditions of Approval

The CoA relevant to this Plan are listed in **Table 3-1** below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-1: Conditions of Approval relevant to the CLMP

CoA No.	Condition Requirements	Document Reference	How Addressed
C4	<p>The CEMP Sub-plans must state how:</p> <ul style="list-style-type: none"> (a) the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved; (b) the mitigation measures identified in the documents listed in Condition A1 will be implemented; (c) the relevant terms of this approval will be complied with; and (d) issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed. 	Section 2, Section 3.2, Section 5, Table 3-1, Table 3-3, Table 3-4 and Table 6-1	<ul style="list-style-type: none"> (a) Section 2 and Table 2-1 identifies the environmental objectives and targets (b) Table 3-2 provides a guide to where the relevant REMMMs have been addressed in this Plan (c) This section (Section 3.2) outlines the terms of this approval and will be complied with through the preparation and implementation of this Plan (d) The issues requiring management are outlined in Section 5 of this Plan, which describes the construction activities and predicted impacts. The environmental risk assessment for Project works is outlined in the CEMP (with an environmental risk register

CoA No.	Condition Requirements	Document Reference	How Addressed
			included in Appendix A2 of the CEMP).
C6	Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one month before construction.	General note	Discussed in Section 1.5.
E118	Notification must be provided and, where relevant, approvals must be sought directly from the EPA before commencement of any works which will intersect or disturb the surface of sites which are regulated by the EPA under the <i>Contaminated Land Management Act 1997</i> .	Section 1.3.3	TfNSW has notified the EPA that works have commenced at the SaMF.
E119	Before commencement of any activities that would result in the disturbance of land and/or soil in Areas of Environmental Interest (AEI) identified as having a high risk of contamination, or identified as medium risk subject to further desktop assessment as specified in the documents listed in Condition A1, a Site Contamination Report must be prepared by a suitably qualified person(s) in accordance with the requirements of the <i>Contaminated Land Management Act 1997</i> and associated guidelines. The Site Contamination Report must outline the potential contamination risks from the AEIs to human health and receiving waterways and detail, where relevant, whether the land is suitable (for the intended land use) or can be made suitable through remediation. For AEIs where there is	Section 4.2 and Table 6.1 (CL 16 of this CLMP	<p>A Site Contamination Report has been prepared in the form of the Remediation Action Plan for the SaMF site.</p> <p>The Remediation Action Plan for the SaMF and the Site Auditor's endorsement of the Remediation Action Plan have been prepared and provided to NSW EPA by TfNSW.</p> <p>A Site Contamination Report will be prepared for TPS 3 (AEI 13) and TPS 6 (AEI 47) construction sites.</p>

CoA No.	Condition Requirements	Document Reference	How Addressed
	insufficient information and data available to draw such conclusions, the Site Contamination Report must also detail the outcomes of Phase 2 site contamination investigations within those AEIs.		
E120	For those AEIs where a Site Contamination Report is to be prepared in accordance with Condition E119, where the investigations identify that the site is suitable for the intended operations and that there is no need for a specific remediation strategy, measures to identify, handle and manage potential contaminated soils, materials and groundwater must be identified in the Site Contamination Report and incorporated into the CEMP or relevant sub-plan.	Section 4.2 and Table 6.1 (CL 16 -) of this CLMP	<p>A Site Contamination Report has been prepared in the form of the Remediation Action Plan for the SaMF site.</p> <p>The required Site Contamination Report (in the form of the RAP for the site) determined that remediation of the site is required. Therefore Condition E120 does not apply to the site.</p> <p>If the Site Contamination Report for TPS 3 (AEI 13) and TPS 6 (AEI 47) construction sites identifies any measures to identify, handle and manage potential contaminated soils, materials and groundwater they will be incorporated in the CEMP or relevant Sub plan.</p>
E121	For those AEIs where a Site Contamination Report concludes the site can be made suitable for its intended land use subject to remediation, the Site Contamination Report must include a Remediation	Section 4.2	A Site Contamination Report has been prepared in the form of the Remediation Action Plan for the SaMF site.

CoA No.	Condition Requirements	Document Reference	How Addressed
	<p>Action Plan to address disturbed areas, and how the environmental and human health risks will be managed during the disturbance, remediation and/or removal of contaminated soil or groundwater.</p>		<p>The Remediation Action Plan and the Site Auditor's endorsement of the Remediation Action Plan have been prepared and provided to NSW EPA by TfNSW.</p> <p>The stabling and maintenance facility will not be established until the required remediation is complete and the Site Audit Statement declares the site suitable for the proposed use</p> <p>If the Site Contamination Report for TPS 3 (AEI 13) and TPS 6 (AEI 47) concludes the site can be made suitable for its intended land use subject to remediation, the Site Contamination Report will include a Remediation Action Plan.</p>
E122	<p>For those AEIs where remediation is required, the Site Contamination Report and Remediation Action Plan must be accompanied by a Site Audit Statement(s), prepared by a NSW EPA Accredited Site Auditor under the Contaminated Land Management Act 1997, verifying that the disturbed area has been or can be remediated to a standard consistent with the intended land use. Where land</p>	Section 1.6.2 and 4.2	<p>A Site Contamination Report has been prepared in the form of the Remediation Action Plan for the SaMF site.</p> <p>The Remediation Action Plan and the Site Auditor's endorsement of the</p>

CoA No.	Condition Requirements	Document Reference	How Addressed
	<p>is remediated, a final Site Audit Statement(s) must be prepared by an accredited Site Auditor, certifying that the contaminated and disturbed areas have been remediated to a standard consistent with the intended land use.</p>		<p>Remediation Action Plan have been prepared and provided to NSW EPA by TfNSW</p> <p>GRCLR will implement the LTEMP in parallel with the CEMP and CLMP as a standalone management plan.</p> <p>The stabling and maintenance facility will not be established until the remediation action plan has been implemented and a the Site Audit Statement prepared by a NSW EPA Accredited Site Auditor, verifying that the disturbed area has been or can be remediated to a standard consistent with the intended land use received by GRCLR.</p> <p>If TPS 3 (AEI 13) and TPS 6 (AEI 47) requires remediation the Site Contamination Report and Remediation Action Plan will be accompanied by a Site Audit Statement prepared by a NSW EPA Accredited Site Auditor, verifying that the disturbed area has been or can be remediated to a standard</p>

CoA No.	Condition Requirements	Document Reference	How Addressed
			consistent with the intended land use.
E123	For those AEIs where remediation is required, the land must not be used for the purpose approved under the terms of this approval until a Site Audit Statement determines that the land is suitable for that purpose and any conditions on the Site Audit Statement have been complied with.	Section 1.6.2 and 4.2	<p>The SaMF will not be established until a Site Audit Statement declares the site suitable for the proposed use as the SaMF. Conditions on the Site Audit Statement will be complied with via implementation of the LTEMP. The final Site Audit Statement will be submitted to the Secretary and Parramatta City Council at least one month prior to commencement of operations, not prior to GRCLR taking possession of the site.</p> <p>If remediation is required at TPS 3 (AEI 13) and TPS 6 (AEI 47), the land will not be used until a Site Audit Statement determines that the land is suitable for the intended purpose.</p>
E124	A copy of the final Site Audit Statement must be submitted to the Secretary and Relevant Council no later than one month before the commencement of CSSI operations.	Section 1.3.6	The SaMF will not be established until a Site Audit Statement declares the site suitable for the proposed use

CoA No.	Condition Requirements	Document Reference	How Addressed
			<p>as the SaMF. Conditions on the Site Audit Statement will be complied with via implementation of the LTEMP. The final Site Audit Statement will be submitted to the Secretary and Parramatta City Council at least one month prior to commencement of operations, not prior to GRCLR taking possession of the site.</p> <p>If a Site Audit Statement is required for TPS 3 (AEI 13) and TPS 6 (AEI 47), it will be submitted to the Secretary and Relevant Council no later than one month before the commencement PLR operations</p>
E125	An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be implemented should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction. This can be provided as part of the CEMP or relevant sub-plan.	CLMP Appendix A – Unexpected finds procedure	If unexpected contaminated land or asbestos is encountered during construction of the Project the unexpected finds procedure in Appendix A will be implemented.

CoA No.	Condition Requirements	Document Reference	How Addressed
E126	The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.	CLMP Appendix A – Unexpected finds procedure	If unexpected contaminated land or asbestos is encountered during construction of the Project the unexpected finds procedure in Appendix A will be implemented.
E131	Asbestos or asbestos-contaminated materials be uncovered during demolition and construction activities of the CSSI must be strictly managed in accordance with the requirements under the Protection of the Environment Operations (Waste) Regulation 2014 and any guidelines or requirements in force at the date of this approval and issued by the EPA in relation to those materials.	CLMP Appendix A – Unexpected finds procedure. Table 6.1 (CL 14) of this CLMP	If asbestos or asbestos-contaminated materials are found during construction, work will stop, the area will be sign posted and secured. The material will be managed in accordance with the requirements of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and any guidelines or requirements in force and issued by the EPA in relation to those materials.

3.3 Revised Environmental Mitigation and Management Measures

Relevant REMMMs are listed in **Table 3-2** below. This includes reference to required outcomes, the timing of when the commitment applies, relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3-2: Revised Environmental mitigation and management measures relevant to this CLMP

Ref #	Commitment	Timing	CLMP Reference	How Addressed
CM-1	<p>During detailed design, a desktop risk assessment would be carried out for the following Areas of Environmental Interest (AEI) to confirm high or medium risk of contamination:</p> <ul style="list-style-type: none"> » 435 Church Street, Parramatta (AEI 9). » 1A Barrack Lane, Parramatta (AEI 13). » 142-154 Macquarie Street, Parramatta (AEI 14). » 127 Alfred Street Parramatta (AEI 16). » Former James Hardie Property at 181 James Ruse Drive, Rosehill and 1 Grand Avenue, Rosehill (AEI 21 and AEI 22). » 6 Grand Avenue, Rosehill (former Akzo Nobel site) (AEI 27). <p>This would involve a review of available data, collaboration with stakeholders and consideration of the extent of disturbance by the Project in the vicinity of the AEI. Based on the results of this assessment:</p> <ul style="list-style-type: none"> » Mitigation and management measure CM-2 would apply to AEIs classified as high risk 	Detailed design	CEMP Appendix A2	<p>An environmental risk assessment has been completed for the Project and it is provided in Appendix A2 of the CEMP.</p> <p>The ERA will be updated when the Site Audit Statement and Site Contamination report is received for the SaMF site, and if required TPS3 (which is in the vicinity of AEI 13) and then as construction progresses to ensure it reflects the current risk profile.</p>

Ref #	Commitment	Timing	CLMP Reference	How Addressed
	» Mitigation CM-4 would apply to AEIs classified as medium risk.			
CM-2	<p>Prior to the commencement of construction in the vicinity of these sites, site investigations would be carried out at the following high-risk AEIs:</p> <ul style="list-style-type: none"> » Former gas works at Queens Wharf Reserve (AEI 15) » 13A Grand Avenue, Camellia (AEI 21). <p>The results from the site investigations would be assessed against criteria contained within the National Environment Protection (Assessment of Site Contamination) Measure 1999 (2013) to determine any need for remediation.</p> <p>Remediation works would be performed in accordance with the hierarchy of preferred strategies in the Guidelines for the NSW Site Auditor Scheme (DECCW 2006). Where practical, remediation works would be integrated with excavation and development works performed during construction.</p>	Pre-construction	13A Grand Avenue, Camellia (AEI 21) is not found within the scope of disturbance of the Project	Not applicable
CM-3	For low and medium risk sites, environmental management measures would be applied as detailed in a Construction Contaminated Land Management Plan (CCLMP), as a sub-plan to the Construction Environmental Management Plan (CEMP).	Construction	Section 6 of this CLMP document	Section 6 and Table 6.1 of this CLMP provide environmental management measures to be implemented during the construction of the Project.

Ref #	Commitment	Timing	CLMP Reference	How Addressed
	The measures would be tailored to address any specific locations where contamination is identified through the current contaminated land investigations. This includes worker health and safety measures.			
CM-4	Visual inspections and monitoring will be performed during excavation activities at medium risk Areas of Environmental Interest (AEIs) to identify potential indicators of contamination. If suspected contamination is encountered, the materials will be subject to sampling and analysis to determine management requirements and suitability for reuse, recycling or remediation.	Construction	Section 7 of this CLMP document sets out the procedures for monitoring for contamination. Appendix A – Unexpected Finds Procedure	Section 7 of the CLMP will be implemented during excavation activities at medium risk Areas of Environmental Interest (AEIs) to identify potential indicators of contamination. An unexpected finds procedure is provided in Appendix A, which directs activities in case contamination is encountered.
CM-5	Construction activities within AEI 23 (Sandown Line, including 27 Grand Avenue, Camellia) would be carried out under asbestos control and removal conditions by an appropriately licensed asbestos contractor.	Construction	Not applicable - AEI 23 is not located in the Project construction boundary (Coffey 2017)	Not applicable
CM-6	An unexpected finds procedure would be developed and implemented as part of the Project's CCLMP, outlining a set of potential contamination	Construction	Appendix A – Unexpected finds procedure	If unexpected contaminated soil or groundwater is encountered during the construction of the Project the unexpected finds

Ref #	Commitment	Timing	CLMP Reference	How Addressed
	issues which could be encountered, and detailing the corrective actions to be implemented.			procedure in Appendix A will be implemented.
CM-7	Ongoing management measures would be implemented for any areas within the permanent light rail corridor where minor residual contamination remains following construction.	Operation	Not relevant to this construction plan	Not applicable
HY-6	A soil and water management plan would be prepared as part of the CEMP. Specific measures would be identified in consultation with relevant government agencies and would be consistent with the principles and practices detailed in Landcom's (2004) Managing Urban Stormwater: Soils and Construction. The objectives and strategies of the soil and water management sub-plan would include the following:	Construction	REMMM addressed by the Soil and Water Management Plan Unexpected Acid Sulphate Soils (ASS) would be handled in accordance with Appendix A	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern. Where possible pre-classified contaminated materials will be transferred directly into haulage trucks for off-site disposal by licenced operators
	» Minimise the extent and duration of exposed surfaces (particularly those works that have the greatest potential to disturb soils that are contaminated or have a high erosion and runoff hazard).	Construction	REMMM addressed by the Soil and Water Management Plan	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern.
	» Develop and implement adequate water quality control measures prior to the carrying out of significant earthwork or bridge construction activities.	Construction	REMMM addressed by the Soil and Water Management Plan	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas

Ref #	Commitment	Timing	CLMP Reference	How Addressed
				of potential contamination concern.
	» Minimise and manage impacts on water quality and downstream receiving environments during instream activities.	Construction	REMMM addressed by the Soil and Water Management Plan	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern.
	» Where possible, reuse excavated materials as fill on other parts of the Project in preference to disposing off-site in accordance with OEH's Waste Classification Guidelines (2016).	Construction	REMMM addressed by the Soil and Water Management Plan	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern.
	» Areas of potential contamination concern would be identified and works in these areas managed to minimise disturbance.	Construction	REMMM addressed by the Soil and Water Management Plan Unexpected Acid Sulphate Soils (ASS) would be handled in accordance with Appendix A	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern.
	» Excavate pre-classified contaminated materials and transfer such materials directly into haulage	Construction	REMMM addressed by the	The Soil and Water Management Plan (SWMP) provides measures

Ref #	Commitment	Timing	CLMP Reference	How Addressed
	trucks for off-site disposal at a waste facility licensed to accept the contaminated material.		Soil and Water Management Plan Unexpected Acid Sulphate Soils (ASS) would be handled in accordance with Appendix A	to manage pre classified contaminated material. Where possible pre-classified contaminated materials will be transferred directly into haulage trucks for off-site disposal to a licensed waste facility.
	» Transport for NSW would also undertake consultation with DPI Fisheries with respect to the development for the CEMP, and Erosion and Sediment Control Plan for the Project.	Construction	REMMM addressed by the Soil and Water Management Plan Unexpected Acid Sulphate Soils (ASS) would be handled in accordance with Appendix A	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern. Where possible pre-classified contaminated materials will be transferred directly into haulage trucks for off-site disposal to a licensed waste facility.
	» Develop procedures for the assessment, handling and stockpiling of potentially contaminated materials, in accordance with EES's Waste Classification Guidelines (2016).	Construction	REMMM addressed by the Soil and Water Management Plan Unexpected Acid Sulphate Soils (ASS) would be handled in	The Soil and Water Management Plan (SWMP) provides measures to minimise disturbance in areas of potential contamination concern. Where possible pre-classified contaminated materials will be

Ref #	Commitment	Timing	CLMP Reference	How Addressed
			accordance with Appendix A	transferred directly into haulage trucks for off-site disposal. There will be minimal excavation undertaken at the SaMF.
HY-7	<p>During construction, any water collected from the worksites would be treated and discharged in accordance with current guidelines to avoid any potential contamination or local stormwater system impacts. These guidelines include:</p> <ul style="list-style-type: none"> » The Blue Book - Managing Urban Stormwater: Soils and Construction (Landcom, 2004 and DEC 2008). » Transport for NSW Water Discharge and Reuse Guideline 7TP-SD-024. <p>All water (including groundwater) requiring disposal during construction would be tested and treated in accordance with the Transport for NSW Water Discharge and Reuse Guideline 7TP-SD-024 and the Waste Classification Guidelines (OEH, 2016) prior to disposal. If required, water treatment would occur to ensure guidelines are met prior to water disposal. Treatments may include sediment basins and pH neutralisation.</p>	Construction	REMMM addressed in the SWMP	The SWMP sets out the water quality criteria that will be met prior to discharge of any treated water. This will be managed in accordance with <i>TfNSW Water Discharge and Reuse Guideline: 7TP-SD-024/3.0</i> , and controlled and recorded using the <i>TfNSW: Discharge or Reuse Water Approval 9TP-FT-207</i> form provided as Appendix B.
GW-4	Hazardous material procedures (including procedures for managing spills and refuelling and maintaining construction vehicles/equipment)	Construction	REMMM addressed in in the SWMP	The Environmental Control Maps (ECM) identified in the SWMP and the preparation procedure

Ref #	Commitment	Timing	CLMP Reference	How Addressed
	would be developed and implemented as part of the CEMP to minimise potential for groundwater quality impacts due to chemical spills.			provided in Appendix A5 of the CEMP detail specific procedures that will be implemented to minimise potential for groundwater quality impacts due to chemical spills.
AQ-1	Apply odour suppressing agents to materials as necessary to minimise related impacts should any contaminated or hazardous materials be uncovered during the works.	Construction	Table 6.1 of this CLMP document Appendix A – Unexpected finds procedure	If unexpected contaminated soil or groundwater is encountered during the construction of the Project the unexpected finds procedure in Appendix A will be implemented. Table 6.1 (CL6) of this CLMP provide environmental management measures to be implemented to suppress odours from contaminated or hazardous materials.

3.4 Environmental Performance Outcomes

Relevant EPOs are listed in Table 3-3 below. This includes reference to required outcomes, the timing of when the commitment applies relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3-3: Environmental Performance Outcomes relevant to this CLMP

ID Ref#	Environmental Performance Outcome	Timing	CLMP reference	How Addressed
EPO-SG-2	There would be no impacts on aquatic environments associated with the disturbance of ASS during construction.	Construction	Section 1.3.2 Section 4.1 Table 6-1 CL15	<p>This EPO requirement is addressed in the Soil and Water Management Plan (SWMP) and Contaminated Land Management Plan (CLMP) prepared together with the CEMP and submitted separately.</p> <p>The plans provide mitigation measures to ensure there are no impacts on aquatic environments associated the disturbance of ASS during construction.</p>
EPO-SG-3	Any contamination on project sites would be remediated to suit future land use.	Pre-Construction	Sections 1.3.3, 1.3.6, 4.1 and 4.2	<p>This responsibility for compliance with this CoA for the SaMF site is with the Package 3 Remediation Contractor.</p> <p>Any additional contamination/unexpected finds will be managed through the unexpected finds procedure and in accordance with CLA 1997</p> <p>The establishment of the SaMF will not commence until the Site</p>

				<p>Contamination Report and Site Audit Statement state that the site is suitable for the proposed use.</p> <p>If TPS 3 (AEI 13) and TPS 6 (AEI 47) requires remediation the Site Contamination Report and Remediation Action Plan will be accompanied by a Site Audit Statement prepared by a NSW EPA Accredited Site Auditor, verifying that the disturbed area has been or can be remediated to a standard consistent with the intended land use.</p>
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4 Existing environment

This section describes the existing environment of the Project sites, specific to contaminated land. It also summaries previous contaminated land investigations undertaken to date and outlines further investigation required. The existing environment is informed by the Stage 1 Contaminated Land Technical Paper produced by Coffey (2017) which was used to inform the EIS (WSP & Jacobs 2017) for the Parramatta Light Rail project.

4.1 Previous investigations

The Parramatta Light Rail Stage 1 Contaminated Land Technical Paper (Coffey 2017) identified the SaMF site as an area of environmental interest (AEI 27). The SaMF is currently notified under the CLM Act. Soils and groundwater at the site are known to contain hexavalent chromium, volatile chlorinated hydrocarbons (VCHs) and asbestos due to historical industrial activities.

The SaMF is currently being remediated (subsurface) to a level to allow commercial/industrial land use under NSW EPA audit scheme prior to the commencement of construction of the stabling and maintenance facility (under a separate planning approval process).

The SaMF site is underlain by black to dark grey shale laminate geology. The soil landscapes within the site boundary are a mix of alluvial, residual and disturbed terrain. Residual soil is characterised by Wianamatta shales, an absence of rock outcrops and moderately deep soils.

The Parramatta Light Rail Stage 1 Contaminated Land Technical Paper (Coffey 2017) identified AEI 13 and AEI 47 as medium level contaminated sites. AEI 13 was historically used by Endeavour Energy as substation site, this is the proposed location of TPS 3. AEI 47 is located at 57 Adderton Road, Telopea and was historically used as a workshop and service station, this is close to the location of TPS 6.

A relatively shallow groundwater table is expected in the estuarine deposits adjacent to the Parramatta River. In more elevated terrains further away from Parramatta River, groundwater is expected to be encountered in bedrock. Perched groundwater may also be present above the bedrock.

A review of the acid sulphate soil mapping, obtained from Australian Soils Resource Information System and NSW Department of Land Water and Conservation, concluded that the SaMF site lies in zones designated as extremely low probability/class 5 (Parramatta North Precinct) or low probability/class 4 (Parramatta CBD Precinct).

4.2 Further investigations

In accordance with CoA E 119 a Site Contamination Report has been prepared in the form of the Remediation Action Plan for the SaMF site. The Remediation Action Plan and the Site Auditor's endorsement of the Remediation Action Plan have been prepared and provided to NSW EPA by TfNSW. The Site Audit Statement will be prepared for the SaMF by a suitably qualified person(s) in accordance with the requirements of the *Contaminated Land Management Act 1997* and associated guidelines. The Site Audit Statement must outline the potential contamination risks from the AEIs to human health and receiving waterways and detail, where relevant, whether the land is suitable (for the intended land use) or can be made suitable through remediation.

GRCLR will be able to commence work once the Site Audit Statement, is received stating that the site is suitable for commencement of construction of the SaMF. This CLMP will also be updated with any relevant recommendations from the Site Audit Statement and Site Audit Report.

In compliance with conditions of approval E119 to E124, before commencement of any activities that would result in the disturbance of land and/or soil in the vicinity of AEI 13 and AEI 47 a Site Contamination Report will be prepared by a suitably qualified person in accordance with the requirements of the *Contaminated Land Management Act 1997* and associated guidelines. The Site Contamination Report will outline the potential contamination risks from the AEI to human health and receiving waterways, and detail, where relevant, whether the land is suitable (for the intended land use) or can be made suitable through remediation. Where there is insufficient information and data available to draw such conclusions, the Site Contamination Report will also detail the outcomes of Phase 2 site contamination investigations.

Where the investigations identify that the site is suitable for the intended operations and that there is no need for a specific remediation strategy, measures to identify, handle and manage potential contaminated soils, materials and groundwater will be identified in the Site Contamination Report and incorporated into the CEMP or relevant sub-plan.

For those AEIs where a Site Contamination Report concludes the site can be made suitable for its intended land use subject to remediation, the Site Contamination Report will include a Remediation Action Plan to address disturbed areas, and how the environmental and human health risks will be managed during the disturbance, remediation and/or removal of contaminated soil or groundwater.

Where remediation is required, the Site Contamination Report and Remediation Action Plan will be accompanied by a Site Audit Statement, prepared by a NSW EPA Accredited Site Auditor under the *Contaminated Land Management Act 1997*, verifying that the disturbed area has been or can be remediated to a standard consistent with the intended land use.

Further investigations may be required if additional land contamination, acid sulphate soils or asbestos is suspected during construction activities. The scope of the investigations would be developed by a suitably qualified specialist in compliance with the relevant guidelines, as listed in Section 3.1.3.

5 Environmental aspects and impacts

5.1 Construction activities

The Project (subject of this Plan) includes the construction of the following:

- Stabling and Maintenance Facility (SaMF)
- Traction Power Substations (TPS)
- Light rail stops above slab level
- Back Up Operating Centre (BOCC).

Chapter 2 of the CEMP provides a description of the Project features and construction activities.

Error! Reference source not found. provides a summary of the construction activities for the Project.

Table 5-1: Construction Activity Summary

SaMF	TPS	Light rail stops	BOCC
<ul style="list-style-type: none"> • Site establishment • Shallow earthworks for utilities, roads, fencing (less than 1 meter) • Hydraulics (sewer, water, fire, drainage) • Rail systems • Operational Control Centre • Development of structures • Fencing • Landscaping • Carpark and footpaths • Hazardous goods and chemical storage 	<ul style="list-style-type: none"> • Construction site establishment • Substructure construction • Installation of utilities and services • Installation of architectural screening, security fencing and lighting • Landscaping • Roadworks 	<ul style="list-style-type: none"> • Prefabricated column and canopy placement • Installation of wind break screens and, lighting • Connection to previously constructed or existing utilities • Stop fit out 	<ul style="list-style-type: none"> • Construction site establishment • Substructure construction • Installation of utilities and services • Superstructure building works, including architectural screening • Installation of fencing and gates • Roadworks • Landscaping

5.2 Impacts

The potential for contaminated land disturbance and impacts is low and will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with known and potential contaminated land sources. Potential impacts attributable to construction might include:

- Disturbance or improper management of known or unknown contamination, allowing it to migrate into the environment Use of contaminated material for fill or other purposes, allowing it to migrate into the environment
- Damage to the SaMF contamination cap could lead to impact to human health and the environment.

Relevant aspects and the potential for related impacts have been considered in a risk assessment at Section 3.5 and Appendix A2 of the CEMP. Chapter 6 provides a suite of mitigation measures that will be implemented to avoid or minimise those impacts.

6 Environmental control measures

Specific measures and requirements to meet the objectives of this CLMP by addressing contract specifications, CoA and REMMM in relation to impacts on contaminated land are lined in Table 6-1.

Table 6-1: Contaminated land management mitigation measures

ID	Measure/Requirement	When to implement	Responsibility	Reference
CL 1	All imported or reused material will be assessed for classification as virgin excavated natural material (as defined in the <i>Protection of the Environment Operations Act 1997</i>) or excavated natural material (as defined by the Protection of the Environment Operations (Waste) Regulation 2014) prior to use on site. Evidence of classification would be maintained on site. (Guidelines: RMS Waste Fact Sheet 1 and 2).	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	POEO Act
CL 2	If site-excavated soils are to be disposed off-site, assessment in accordance with the NSW EPA waste classification guidelines will be carried out to understand the appropriate waste classification of the soils as defined by the <i>Protection of the Environment Operations Act 1997</i> . Evidence of classification would be maintained on site	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	NSW EPA waste classification guidelines
CL 3	All material disposed off-site must be classified, tracked, and disposed of to a waste receiving facility licensed to accept the waste.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	NSW EPA waste classification guidelines
CL 4	The disposal of contaminated material, whether solid or liquid, will be managed in accordance with the Construction Waste and Resource Management Sub-plan.	Pre-construction Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	NSW EPA waste classification guidelines

ID	Measure/Requirement	When to implement	Responsibility	Reference
CL 5	If suspected contaminated material, asbestos or acid sulphate soils are encountered the unexpected finds procedure (Appendix A) will be followed.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	CoA E125 & E126
CL 6	Unexpected contaminated material will be segregated, secured and signposted when awaiting treatment, disposal or reuse. Contaminated materials will be stored in an impervious bunded area and covered to avoid the risk of leachate, odours or contaminated dust, as directed by a suitably qualified person. Odour suppressing agents will be applied to materials as necessary.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	Best practice AQ-1
CL 7	All equipment and vehicles will be maintained in good working order. Daily inspections will be performed to identify leaks. Records of inspections will be maintained on site. Any identified leaks shall be repaired immediately.	Construction	Site Engineer	Best practice
CL 8	The storage, handling and use of hazardous materials (e.g. chemicals and fuels) and waste will be in accordance with the Work Health and Safety Act 2000, WorkCover's Storage and Handling of Dangerous Goods Code of Practice (WorkCover, 2005) and EPA "Bunding and Spill Management Guidelines".	Pre-construction Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	REMMM GW-4

ID	Measure/Requirement	When to implement	Responsibility	Reference
CL 9	An environmental incident and emergency response plan would be developed and incorporated into the CEMP. This plan would detail measures for the prevention, containment and clean-up of accidental spills of fuels and chemicals.	Pre-construction Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	REMMM CM-3
CL 10	<p>Visual inspections and monitoring will be performed during excavation and demolition activities (roadways, road reserves, utilities and properties) to identify potential indicators of contamination, such as presence of fill materials, stained soils, odours, suspected asbestos containing materials, discoloured groundwater or hydrocarbons. If suspected contamination is encountered, the materials will be subject to sampling and analysis to determine management requirements and suitability for reuse, recycling or remediation.</p> <p>Prior to demolition, structures will be inspected by a suitably qualified person to confirm that they do not contain any hazardous materials (e.g. asbestos) which could be broken and mobilised during demolition. This will include buildings and utility pits.</p>	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	REMMM CM-4
CL 11	Training of construction staff on the identification and management of potential contamination issues.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	REMMM CM-3

ID	Measure/Requirement	When to implement	Responsibility	Reference
CL 12	Ensure Progressive Erosion Sediment Control Plan (PESCP) is developed and approved prior to commencing establishment works, ensure spill kit is on site.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	Environmental Risk Assessment, (Appendix A2 of CEMP)
CL 13	If asbestos or asbestos-contaminated materials are found during construction, work will stop, the area will be sign posted and secured. The asbestos or asbestos-contaminated materials will be managed in accordance with the requirements of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and any guidelines or requirements in force and issued by the EPA in relation to those materials.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	CoA E131
CL14	The remediation works will deliver the remediated site, including any details of any ongoing management requirements, and will not trigger the construction and operational conditions, except for those that relate to detailed design. The Remediation Contractor will provide GRCLR with a Long Term Environmental Management Plan (LTEMP) for the SaMF. The LTEMP will include all construction, operation, management, maintenance and monitoring requirements for the SaMF. GRCLR will implement the requirements relevant to the construction and operation of the Stabling and Maintenance facility.	Construction	Site Engineer / Design and Construct Environment and Sustainability Manager	Long Term Environmental Management Plan (LTEMP)

7 Compliance management

7.1 Roles and responsibilities

The Great River City Light Rail (GRCLR) Project Team's organisational structure and overall roles and responsibilities are outlined in Appendix A7 and Section 4.2 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

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

- Identification of contaminated land/acid sulphate soils/asbestos
- Implementation and requirements of the unexpected finds procedure (Appendix A)
- Practices and controls to avoid pollution incidents
- Response to environmental incidents.

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

Further details regarding staff induction and training are outlined in Section 5 of the CEMP.

7.3 Monitoring and inspections

Visual inspection for contamination will be undertaken on a daily basis by the Site Engineer and Foreman. Environment-specific inspections would be carried out by the Design and Construct Environment and Sustainability Manager or delegate on a weekly basis.

Visual inspections and monitoring will be performed during any excavation activities to identify potential indicators of contamination, such as presence of fill materials, stained soils, odours, suspected ACM, discoloured groundwater or hydrocarbons. If suspected contamination is encountered, the materials will be subject to sampling and analysis to determine management requirements and suitability for reuse, recycling or remediation.

Additional requirements and responsibilities in relation to inspections are documented in Section 8 of the CEMP.

7.4 Auditing

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

Audit requirements are detailed in the audit program discussed in Section 8.3 of the CEMP.

7.5 Reporting

There are no specific requirements for reporting on contamination. General project environmental reporting is set out in Section 8.3 and 8.5 of the CEMP.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

8.2 CLMP update and amendment

The processes described in Section 8 and 9 of the CEMP may result in the need to update or revise this Plan. This will occur as needed and will include the assessment of risks associated with contaminated land management for the project.

Only the GRCLR Environment and Sustainability Manager, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated Plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 10.2 of the CEMP

Appendix A – Unexpected Contaminated Land and Asbestos Finds Procedure

Discovery of suspected contamination/acid sulphate soils/asbestos

STOP WORK in affected area and contact environmental manager (EM) for advice on how

- Implement strategies to avoid escape into the environment and human exposure in accordance with staff training and in consultation with a suitably qualified person. These strategies include cover with plastic, light misting with water/PVA glue to stop asbestos becoming airborne. Divert surface runoff around suspected areas of contamination.
- Erect barriers and warning signs to prevent access to all unauthorized personnel.
- Appropriate PPE (e.g. respirator/disposable overalls and gloves/safety glasses) to be worn in proximity to the find in accordance with staff training and as directed by a suitably qualified person.
- EM to record incident and liaise with TfNSW
- All relevant staff to be informed of the find
- Engage a suitably qualified person to investigate the find and recommend management actions in accordance with CoA E119

Is the area suitable for its intended purpose without remediation?

YES

- Measures to handle and manage the find will be developed and incorporated into the CLMSP (CoA E120)
- Training of staff with regards to the updated CLMSP requirements
- Works to proceed under supervision of EM

NO

Develop remediation action plan (may include an ASSMP), including management of environmental risks (CoA E121), in collaboration with TfNSW

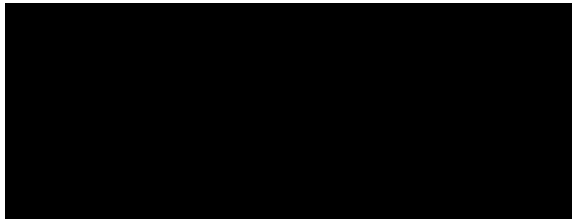
Implement the action plan

Undertake post remediation clearance inspection or site audit by suitably qualified (E122) consultant or auditor to confirm the area is suitable for its intended.

Once confirmation of suitability is received construction can continue (CoA E123)


For those AEIs where remediation is required, the final site audit statement must be submitted to the secretary and relevant council (CoA E124)

Appendix B – ER Endorsement



20 October 2020

Transport for NSW

Attention: 
Senior Manager Environment
Parramatta Light Rail



Review of Parramatta Light Rail Stage 1 - Transport for NSW Supply, Operate, Maintain (SOM) Package - Contaminated Land Management Plan for SAMF

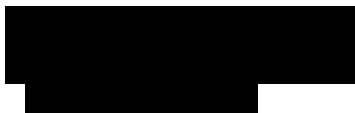
Pursuant to Parramatta Light Rail – Stage 1 (SSI-8285) Condition of Approval A23 (d) (i), as the approved Environmental Representative, I confirm that I have reviewed the following document against the requirements of relevant conditions of approval (CoA) C4, E118-E126, E131 and revised environmental mitigation measures (REMMs) CM-1 to CM-7:

- Transport for NSW Supply, Operate, Maintain (SOM) Package Parramatta Light Rail - Contaminated Land Management Plan (PLR1SOM-GLR-ALL-PM-PLN-000040) Revision E, October 2020 – For the construction of Stabling Yard Maintenance Facility only

The reviewed CLMP is a sub-plan to the Construction Environmental Management Plan (CEMP) for the construction of the Stabling and maintenance facility (SaMF) is now endorsed for implementation.

Yours sincerely,

Australian Quality Assurance & Superintendence Pty Ltd (AQUAS)



Environmental Representative



