

# Flood Management Plan

**Transport for NSW**

**Supply, Operate, Maintain (SOM) Package  
Parramatta Light Rail**

June 2021

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## Document control

### Approval and authorisation

<b>Title</b>	Parramatta Light Rail Flood Management Plan
<b>Endorsed by Environmental Representative</b>	
<b>Signed</b>	
<b>Dated</b>	
<b>Approved on behalf of Transport for NSW by</b>	
<b>Signed</b>	
<b>Dated</b>	
<b>Approved on behalf of [Insert name of Construction Contractor] by</b>	
<b>Signed</b>	
<b>Dated</b>	

## About this release

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C	21/07/2020	Revised to address TfNSW comments
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# Glossary / Abbreviations

Abbreviations	Expanded text
BOM	Bureau of Meteorology
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARI	Average Recurrence Interval
Catchment	The area of land draining to a site. It always relates to a particular location and may include the catchments of tributary streams as well as the mainstream.
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CoPC	City of Parramatta Council
DPI&E	Department of Planning, Industry and Environment
DPI	NSW Department of Primary Industries
DPI Water	NSW Department of Primary Industries – Water
ECM	Environmental Control Maps
EEC	Endangered Ecological Community
EES	Environmental, Energy and Science Group (formerly Office of Environment and Heritage (OEH), noted in document references)
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>
EY	Average Occurrences Each Year
Flash Flood	Sudden and unexpected flooding caused by sudden local heavy rainfall or rainfall in another area. Often defined as flooding which occurs within six (6) hours of the rainfall event.



Abbreviations	Expanded text
Flood	Relatively high streamflow which overtops the natural or artificial banks in any part of a creek, river, estuary, lake, dam or artificial channel.
Floodplain	Area of land adjacent to a creek, river, estuary, lake, dam or artificial channel which is subject to inundation by the Probable Maximum Flood (PMF).
FMP	Flood Management Plan
GRCLR	Great River City Light Rail
LEP	Local Environmental Plan
PLR	Parramatta Light Rail
PMF	Probable Maximum Flood
Project	Construction of the PLR light rail systems, high-voltage power supply and stops above slab level, and the stabling and maintenance facility
REMMM	Revised Environmental Mitigation and Management Measure
Runoff	The portion of rainfall which actually ends up as streamflow, also known as rainfall excess.
SaMF	Stabling and Maintenance Facility
SES	State Emergency Service
SOM	Supply, Operate and Maintain
SPiR	Submissions and Preferred Infrastructure Report
SSI	The state significant infrastructure as generally described in Schedule 1 (SSI-8285) of the Infrastructure Approval.
Sydney Water	Sydney Water Corporation
TfNSW	Transport for NSW

# 1 Introduction

## 1.1 Context

This Flood Management Plan (FMP - 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 was subsequently modified twice with approvals issued on 21 December 2018 and 25 January 2019, respectively. This FMP 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 the PLR route is shown in Figure 1-1: Parramatta Light Rail Route.



**Figure 1-1: Parramatta Light Rail 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).

Detailed environmental impact assessments have 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](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 Project, 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.

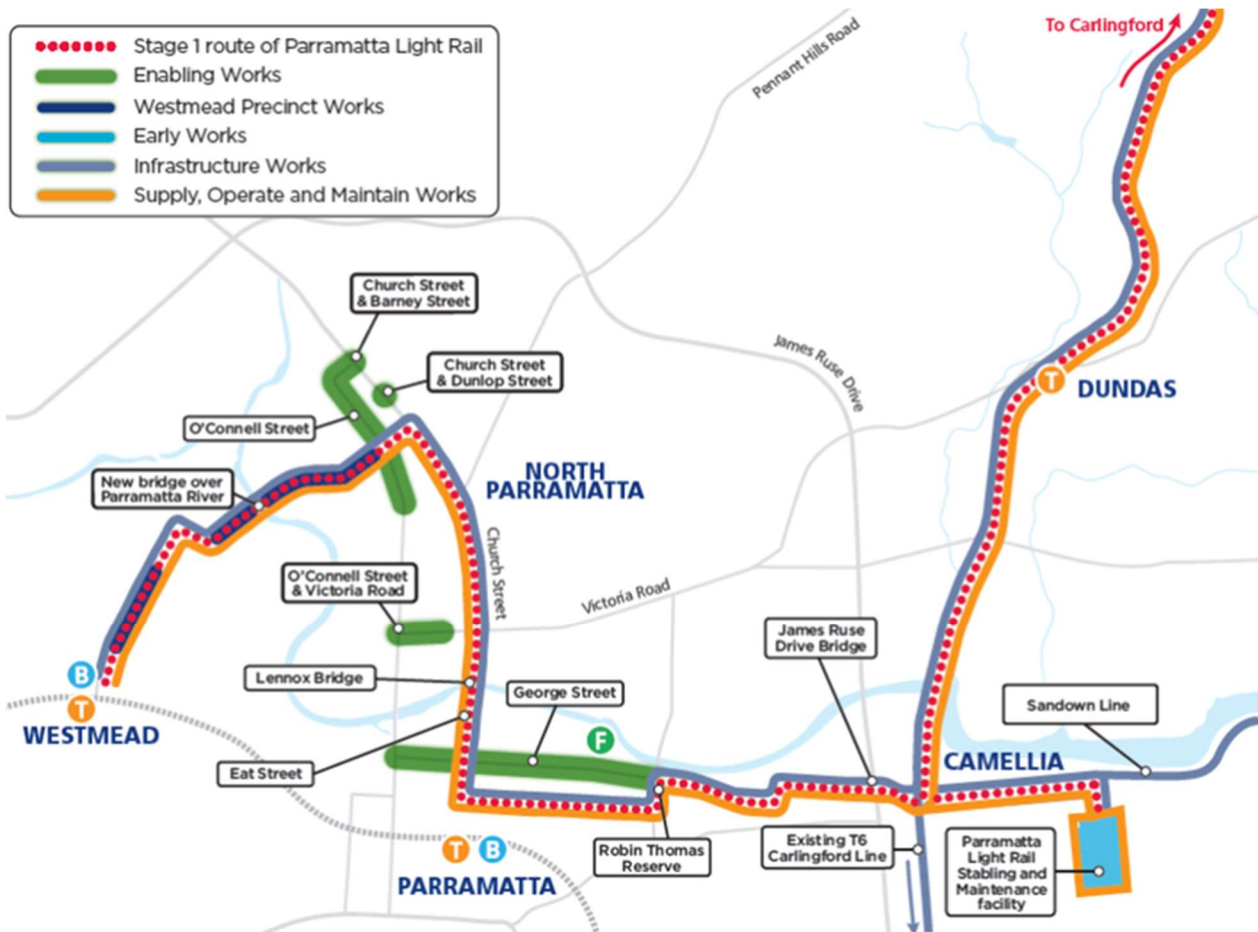


Figure 1-2: Parramatta Light Rail Delivery Package Interface

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

As System Integrator for PLR, the Supply, Operate and Maintain (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.

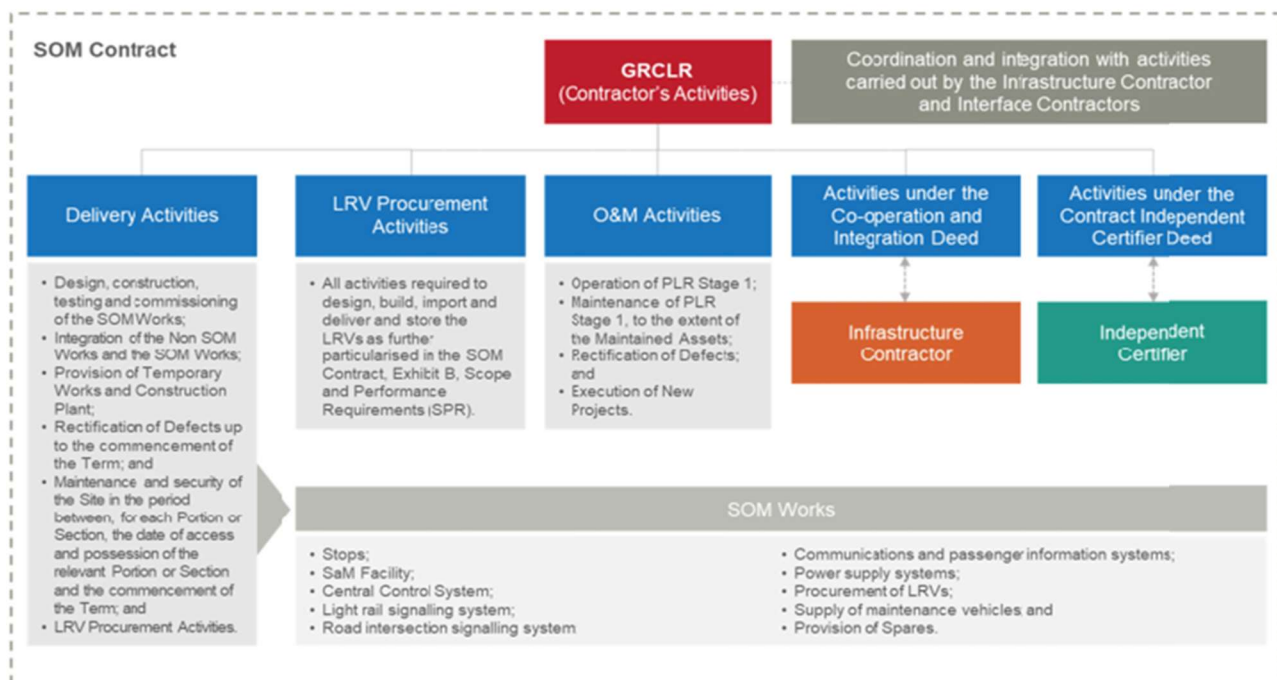
In summary the package includes the following. Figure 1-3: SOM contract activities for PLR further details these activities.

- 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.
- Electronic ticketing system for top up or ticket machine and fixed location reader.

### 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 Auxiliary 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.

All Project sites have already been completely cleared of all vegetation by the Remediation and Infrastructure Contractors.

### 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) Westmead to Carlingford via Parramatta CBD and Camellia Environmental Impact Statement.

The site has undergone 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 validation certificate from an EPA Accredited Site Auditor. Prior to establishment, the ground will be managed to minimise dust emissions. The type and extent of works involved with 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"> <li>• Site office and amenities during construction</li> </ul>
Earthworks and subsurface works	<ul style="list-style-type: none"> <li>• Combined service route</li> <li>• Drainage</li> <li>• Hydraulics (sewer, water, fire)</li> </ul>
Civil works	<ul style="list-style-type: none"> <li>• Fencing</li> <li>• Service roads</li> <li>• Footpaths</li> <li>• Carparks</li> <li>• Landscaping</li> <li>• Substation – TPS 8</li> </ul>
Rail Systems	<ul style="list-style-type: none"> <li>• Track</li> <li>• Overhead wiring</li> <li>• DC feeders</li> </ul>
Structures	<ul style="list-style-type: none"> <li>• Administration and Maintenance building (construction of foundation and slab, structural frame, roofing and cladding, MEP fit out, finishes)</li> <li>• Outbuildings (fire pump house, sanding plant building, cleaners store, train wash building)</li> </ul>
Operations Control Centre	<ul style="list-style-type: none"> <li>• Construction of foundation and slab, structural frame, roofing and cladding, MEP fit out, finishes</li> <li>• Fire pump house, sanding plant building, cleaners store, train wash building</li> </ul>
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 foundation preparation and construction, including structural slab, 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 at TPS sites (excluding TPS 8) will be undertaken by the Infrastructure Contractor and is outside of the scope of this management 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 along the main alignment will be constructed by the Infrastructure Contractor, as will be the combined services route within which the rail systems conduits will be installed. The overhead wiring (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 6-1 provides the construction activities being undertaken at the BOCC site.



## 1.5 Scope of this Plan

The scope of this FMP is to outline how GRCLR proposes to manage and control construction impacts to flooding. 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 FMP 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 of construction works).

This plan has been prepared to outline and describe how GRCLR will comply with the requirements of the following during the construction of the Project.

- 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.

It outlines how GRCLR will minimise the environmental risks and achieve environmental outcomes by providing a structured approach to ensure appropriate environmental mitigation measures are implemented.

This FMP is a sub-plan to the overarching CEMP document. It is applicable to all staff and subcontractors associated with construction.

In summary, the main purpose of this FMP is to:

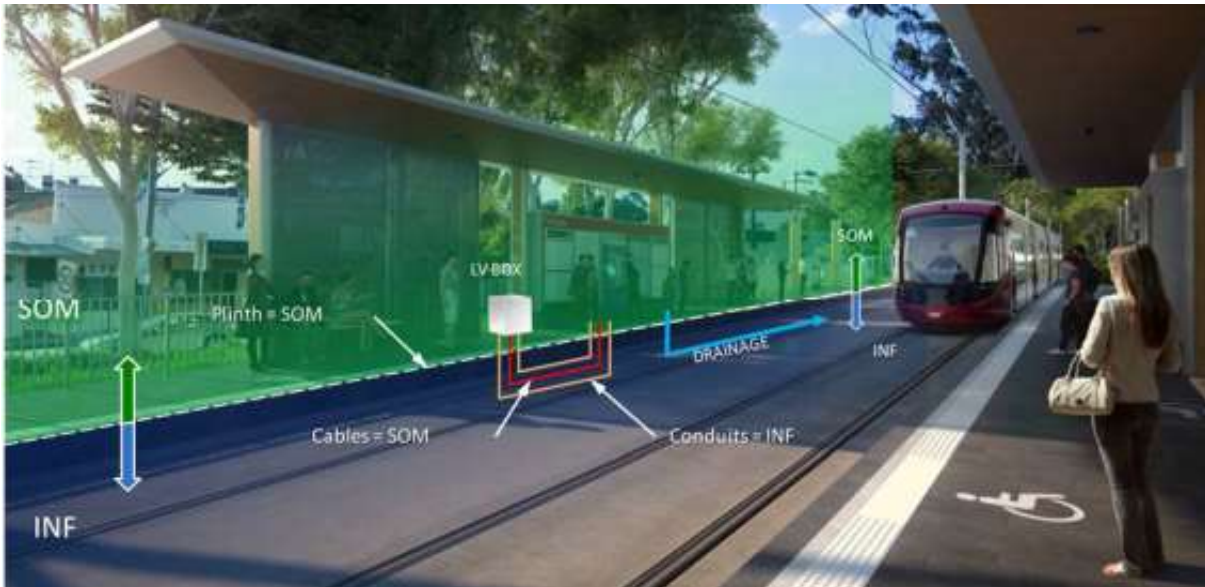
- Describe the Project including all relevant activities to be undertaken on the site during construction and associated timing of the various stages of the Project
- Comply with the relevant environmental requirements of the Project
- Identify the risks and mitigation measures associated with managing potential flooding impacts during GRCLR's construction activities Assist in the prevention of unauthorised environmental harm resulting from flooding events
- Minimise negative impacts on the community that relate to the environmental impacts of the construction activities
- Identify and outline implementation for feasible opportunities to reduce the potential flooding impact of GRCLR's construction activities that are beyond compliance requirements
- Meet the requirements of AS/NZ ISO 14001 including the need for continual improvement.

## 1.6 Relationship with relevant works 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 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 for the SaMF. GRCLR will implement the requirements of the LTEMP 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 Long Term Environmental Management Plan (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 and sub plans.

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 FMP, 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 REMMM 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

### 1.7.3 Sustainability Management Plan

TfNSW has prepared a Sustainability Strategy to comply with CoA E136 and EPO-SU-1 for the PLR including the Project. The management of the Sustainability Strategy's requirements associated with the construction of the Project will be addressed in the Sustainability Management

Plan (Ref PLR1SOM-GLR-ALL-PM-PLN-000015). Implementation of the Sustainability Management Plan will be managed by the GRCLR Environment and Sustainability Manager. The plan will demonstrate how the relevant commitments in the Sustainability Strategy (CoA 136 and EPO-SU-1) will be implemented for the construction of the Project.

The Sustainability Strategy identifies targets for management of waste and resource impacts during the construction of the Project, which are outlined in Section 2.3.

#### 1.7.4 Interaction with other management plans

Key interactions for this Plan with other management plans include:

- Contaminated Land Management Plan, which details the controls and requirements for managing contaminated soils and asbestos
- 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.

## 1.8 Terminology

Specific flooding and hydrology terms used in this FMP are defined in Table 1-3.

**Table 1-3: Glossary of terms relevant to flooding and hydrology**

Term	Definition
100-year flood event	A 100-year flood is the flood that will occur or be exceeded on average once every 100 years. It has 1% probability of occurring in any given year. The same principle applies to other flooding events, such as 10-year, 20-year and 50-year flood events.
Australian height datum (AHD)	This is the standard datum that most flood levels are measured from. Its value is equivalent to mean sea level.
Average recurrence interval (ARI)	The long-term average number of years between the occurrence of a flood larger than the selected flood event.
Annual Exceedance Probability (AEP)	The likelihood of a selected flood event of defined magnitude occurring within any one year.
Average Occurrences Each Year (EY)	Exceedances per year (EY): the number of times an event is likely to occur or be exceeded within any given year.
Probable maximum flood (PMF)	The largest flood that could conceivably occur (a worst-case flood event). It is typically estimated from probable maximum precipitation coupled with the worst flood-producing catchment conditions. The PMF extent defines the floodplain and incorporates all flood-prone land. The PMF is a very rare and improbable flood.

## 2 Purpose and objectives

### 2.1 Purpose

The purpose of this Plan is to describe how construction impacts on hydrology and flooding from works within the Parramatta River, its tributaries and associated floodplains will be minimised and managed so that any significant adverse impacts to people and property are avoided.

### 2.2 Objectives

The key objective of the FMP 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 (August 2017)
- Conditions of Approval granted to the project on 29 May 2018
- Submissions Report (incorporating Preferred Infrastructure Report), February 2018.

### 2.3 Targets

Targets for the management of flooding and hydrology during the Project are presented in table 2.1, with key performance indicators for each.

**Table 2-1: Targets and key performance indicators for flood management**

Target	Key Performance Indicators	Records
Full compliance with the relevant legislative requirements, CoA, REMMMs and EPOs.	No non-conformances, and no reoccurrences when non-conformances identified	Environmental inspection checklist, audits
Minimise and manage construction impacts on hydrology and flooding from all construction works, including the management of potential cumulative impacts identified in this plan.	The environmental control measures described in section 7 list construction stage management of overland flows and control of the discharge from the site.	Environmental inspection checklist, audits
Avoid any significant adverse impacts to people and property, both on site and in surrounding publicly accessible areas.	The environmental control measures described in section 7 list construction stage management of overland flows and control of the discharge from the site.	Environmental inspection checklist, audits

# 3 Environmental requirements

## 3.1 Relevant legislation and guidelines

### 3.1.1 Legislation

Legislation relevant to flooding and hydrology management includes:

- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- *Parramatta Local Environmental Plan (LEP) 2011*
- *Protection of the Environment Operations Act 1997 (POEO Act)*
- *State Emergency and Rescue Management Act 1989 (SERM Act)*
- *State Emergency Service Act 1989*
- *Water Management Act 2000 (WM Act)*
- *Water Act 1912 (Water Act)*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the CEMP.

### 3.1.2 Additional approvals, licences, permits and requirements

Refer to Appendix A1 of the CEMP.

### 3.1.3 Guidelines and standards

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

- Floodplain Development Manual (OEH)
- Floodplain Risk Management Guideline (OEH)
- Practical Consideration of Climate Change - Flood risk management guideline (Department of Environment and Climate Change (DECC), 2007)
- NSW Sea Level Rise Policy Statement (NSW Government, 2009)
- Australian Rainfall and Runoff 2019 (Institution of Engineers, Australia)
- IS Technical Manual Version 1.2, Infrastructure Sustainability Council of Australia (ISCA, 2016)
- Parramatta Floodplain Risk Management Policy (CoP, 2014)
- Upper Parramatta River Catchment Floodplain Risk Management Study & Plan (Bewsher for CoP, April 2003)
- Lower Parramatta River Catchment Floodplain Risk Management Study & Plan (SKM for CoP, August 2005)
- Draft Update of Parramatta Floodplain Risk Management Plans (Molino Stewart for CoP, 2016)
- Parramatta Local Emergency Management Plan (Parramatta Local Emergency Management Committee, 2018) (LEMP)
- New South Wales State Emergency Management Plan (EMPLAN, December 2012)

- New South Wales State Flood Plan (a sub-plan of EMPLAN) (March 2015)
- New South Wales State Emergency Management Plan – Evacuation Management Guidelines (March 2014)
- New South Wales Flood Prone Land Policy (May 2005).
- Local Planning Direction 4.3 “Flood Prone Land” and guideline PS 07-003 under Section 117(2) of the *EP&A Act* (July 2007)

### **3.2 Minister’s Conditions of Approval**

The CoA relevant to this Plan are listed in Table 3-1. 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 this FMP**

CoA No.	Condition Requirements	Document Reference	How Addressed
A5	<p>Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Secretary with the document or monitoring program or review. The evidence must include:</p> <p>(a) documentation of the engagement with the party(ies) identified in the relevant condition of approval before submitting the document for approval;</p> <p>(b) log of the points of engagement or attempted engagement with the identified party(ies) and a summary of the issues raised by the identified party(ies);</p> <p>(c) documentation of any follow-up with the identified party(ies), where feedback has not been provided, to confirm that the identified party(ies) has none or has failed to provide feedback after repeated requests;</p> <p>(d) outline of the issues raised by the identified party(ies) and how they have been addressed, including evidence that the party(ies) is satisfied the issues have been addressed; and</p> <p>(e) where there are outstanding issues raised by the identified party(ies) that have not been adopted, the reasons why they have not been/could not be adopted must be provided, including evidence of consultation with the relevant party(ies).</p>	<p>Refer Appendix B for consultation evidence with the relevant stakeholders including:</p> <ul style="list-style-type: none"> <li>• City of Parramatta Council;</li> <li>• EES;</li> <li>• Sydney Water.</li> </ul>	<p>For consultation on this content, Appendix B indicates the</p> <p>a) engagement log,</p> <p>b) summary of issues,</p> <p>c) finalised comments,</p> <p>d) evidence of consultation</p> <p>e) closure of issues, relevant to the management of flooding risks through construction, for each stakeholder.</p>

CoA No.	Condition Requirements	Document Reference	How Addressed
C1	<p>A Construction Environmental Management Plan (CEMP) must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during construction.</p>	<p>Refer the CEMP for information and references to other discipline specific plans. Refer conditions below for specific references to relevant sections and documents for flooding management.</p>	<p>This FMP has been prepared for the construction of the Project as described in Section 1.4.</p> <p>This plan addresses the performance outcomes commitments and mitigation measures for flood risk management during construction. References to other discipline specific plans found in the CEMP.</p>
C3	<p>The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan and be consistent with the CEMP referred to in Condition C1:</p> <p>(c) Flood Management</p> <p>Relevant government agencies to be consulted for each CEMP Sub-plan include Relevant Council(s), OEH, Sydney Water.</p>	<p>Refer Appendix B for consultation evidence with the relevant stakeholders including:</p> <ul style="list-style-type: none"> <li>• City of Parramatta Council;</li> <li>• EES;</li> <li>• Sydney Water.</li> </ul>	<p>This FMP has been prepared for the construction of the Project as described in Section 1.4.</p> <p>The preparation for construction work and procedures relating to flood events and the treatment of flood risk are discussed throughout this plan.</p> <p>For consultation on this content, Appendix B indicates the</p> <ol style="list-style-type: none"> <li>a) engagement log,</li> <li>b) summary of issues,</li> <li>c) finalised comments,</li> <li>d) evidence of consultation</li> </ol>

CoA No.	Condition Requirements	Document Reference	How Addressed
			e) closure of issues, relevant to the management of flooding risks through construction, for each stakeholder.
C4	<p>The CEMP Sub-plans must state how:</p> <p>(a) the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved;</p> <p>(b) the mitigation measures identified in the documents listed in Condition A1 will be implemented;</p> <p>(c) the relevant terms of this approval will be complied with; and</p> <p>(d) issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed.</p>	<p>Refer relevant locations below:</p> <p>(a) Section 3.4 of this plan details the environmental performance outcomes.</p> <p>(b) Section 3.3 of this plan details the mitigation measures or REMMMs, addressed by this plan.</p> <p>(c) Table 3-1.</p> <p>(d) Section 7 of this plan identifies environmental control measures. Section 9 of this plan describes the ongoing adaptation of the environmental control system.</p>	<p>Refer methodology below:</p> <p>(a) Section 2 and Table 2-1 identifies the environmental objectives and targets.</p> <p>(b) Table 3-3 provides a guide to where the relevant REMMMs have been addressed in this Plan</p> <p>(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</p> <p>(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 the Project works is outlined in the CEMP (with an environmental risk register included in Appendix A2 of the CEMP).</p>

CoA No.	Condition Requirements	Document Reference	How Addressed
C5	The CEMP Sub-plans must be developed in consultation with relevant government agencies (including Relevant Council(s)). Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including all copies of correspondence from those agencies, must be provided to the Secretary with the relevant CEMP Sub-plan	Refer Section 4 of this plan, Appendix B and Section 1.2.3 of the CEMP.	The correspondence including requests and document sharing, and any actions arising are summarised in Appendix B (and separate reports as described in 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.	Refer Section 8 of this plan.	This FMP will be submitted to the DPIE no later than one month prior to commencement of construction.
C7	The CEMP must be endorsed by the ER and then submitted to the Secretary for approval no later than one month before the commencement of construction.	Refer Section 8 of this plan.	This FMP will be endorsed by the ER prior to being submitted to DPIE.
C8	Construction must not commence until the CEMP and any CEMP Sub-plan specified in Condition C3 have been submitted to or approved by the Secretary. The CEMP and CEMP Sub-plans submitted to or approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where construction of the CSSI is staged, construction of a stage must not commence until the CEMP and Sub-plans for that stage have been submitted to or approved by the Secretary.	Refer Section 8 of this plan and the main CEMP document.	This FMP will be submitted to the DPIE no later than one month prior to commencement of construction.  The CEMP and any CEMP Sub-plan specified in Condition C3 will be updated prior to the commencement of Package 5 - Activity B.

CoA No.	Condition Requirements	Document Reference	How Addressed
	Note: The requirement to submit or have a CEMP or CEMP Sub-plan approved is specified in Condition C3.		

### 3.3 Revised Environmental Mitigation and Management Measures

Relevant REMMMs are listed in Table 3-2. 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 FMP**

Ref #	Commitment	Timing	FMP Reference	How Addressed
GEN-2	<p>A construction compounds plan would be prepared for the SOM Package as part of the overall CEMP. This plan would set out details for each of the approved construction compounds, including stockpile areas, laydown areas and other ancillary activities required to construct the works. The plan would supplement, in greater detail, the information provided in the main body of the CEMP.</p> <p>The objectives and strategies of the construction compounds and ancillary facilities management plan would include the following:</p> <ul style="list-style-type: none"> <li>• Minimise the impact of construction compounds on surrounding land uses and sensitive receivers.</li> <li>• Locate construction compounds away from sensitive land uses and receivers, wherever practical and feasible, or configure internal compound layouts in a manner that considers noise and light sensitive receivers (e.g. use of buildings to shield noisy activities, minimising the requirement for reversing vehicles, or locating noise intensive activities to maximise the distance to noise sensitive receivers).</li> </ul>	Pre-Construction / Construction	<p>SEMP Section 7</p> <p>FMP5 of Table 7-1 and Appendix A for reference maps</p>	<p>In identifying stockpile locations, areas within the 5% AEP (20-year ARI equivalent) flood extent are excluded.</p> <p>Flood monitoring, management, communication, response and recovery measures are provided in section 7.</p> <p>Upon the issuing of a “Flood Warning”, the Design and Construct Environment Manager will inform the Senior Construction and Staging Manager to prepare the site for evacuation and coordinate with GRCLR, who will continuously monitor BoM Flood Warning Service and maintain open communications with the SES.</p> <p>Note the Project areas affected by the 5% AEP flooding, include ponding at:</p> <ul style="list-style-type: none"> <li>• Children’s Hospital at Westmead;</li> <li>• Parramatta Square;</li> <li>• Tramway Avenue;</li> </ul>

Ref #	Commitment	Timing	FMP Reference	How Addressed
	<ul style="list-style-type: none"> <li>• Manage stockpile areas to minimise potential pollution of watercourses, groundwater and local air quality.</li> <li>• Minimise the clearing of vegetation (e.g. street trees and trees within public open spaces) to the minimum amount necessary to construct the project, particularly where construction compounds are proposed in public open spaces/ parkland areas.</li> <li>• Locate construction compounds away from (or able to be managed in such a way so as to not impact on) heritage items and high retention value trees.</li> <li>• Locate construction compounds away from or implement management measures so as to not impact on waterways.</li> <li>• <b>Flood response measures for compounds that are located on land affected by the 20-year ARI flood level (e.g. bridge support construction compounds).</b></li> <li>• Situate construction compounds and ancillary facilities on relatively level ground, and avoid excavation in construction compounds where risk of heritage impacts or disturbance of contaminated material.</li> <li>• Minimise the visual impact of construction compounds and ancillary facilities through either</li> </ul>			<ul style="list-style-type: none"> <li>• Camellia (excluding 6 Grand Avenue), and;</li> <li>• Carlingford, minor overland flow at: <ul style="list-style-type: none"> <li>• Factory Street;</li> <li>• Fennell Street;</li> <li>• Prince Alfred Square;</li> <li>• Rydalmere;</li> <li>• Dundas, and;</li> <li>• Telopea,</li> </ul> </li> </ul> <p>with remaining areas unaffected.</p>

Ref #	Commitment	Timing	FMP Reference	How Addressed
	<p>siting such facilities away from sensitive receivers (where practical and feasible) and/ or providing screening.</p> <ul style="list-style-type: none"> <li>• Reinstatement strategies for construction compounds. As a minimum, this would include: <ul style="list-style-type: none"> <li>○ At the completion of construction, all plant, temporary buildings or vehicles would be removed.</li> <li>○ All land, including roadways, footpaths or other land having been occupied temporarily would be returned to their pre-existing condition or better.</li> <li>○ Reinstatement of community spaces, infrastructure and services would occur as soon as possible after completion of construction.</li> </ul> </li> </ul> <p>Environmental management measures for construction compounds would be developed as part of the overall CEMP, with the construction compounds sub-plan identifying where such measures are documented within the CEMP.</p>			
HR-5	<p>Environmental management measures relating to hazards and risk would be developed and implemented as part of the CEMP. These would include:</p>	Pre-Construction / Construction	FMP5 of Table 7-1 and Appendix A for reference maps	In identifying stockpile locations, areas within the 5% AEP (20-year ARI equivalent) flood extent are excluded.



Ref #	Commitment	Timing	FMP Reference	How Addressed
	<ul style="list-style-type: none"> <li>• Potential environmental hazards and risks associated with construction activities would be identified prior to construction.</li> <li>• The storage of hazardous materials, and refuelling/maintenance of construction plant and equipment would be carried out in clearly marked and bunded areas within the construction site that are designed to contain spills and leaks in accordance with Australian Standards and DECCW guidelines.</li> <li>• <b>Hazardous materials would not be stored below the ten percent AEP flood level.</b></li> <li>• Chemical spill kits would be readily available and accessible to construction workers. Kits would be kept at site compounds and on specific construction vehicles, and all hazardous materials spills and leaks would be reported to site managers and actions would be immediately taken to remedy spills and leaks.</li> <li>• Employees would be trained in the correct use of spill kits.</li> </ul>			<p>Monitoring daily of the drainage infrastructure to ensure clear of debris and materials.</p> <p>Note the Project areas affected by the 5% AEP flooding, include ponding at:</p> <ul style="list-style-type: none"> <li>• Children’s Hospital at Westmead;</li> <li>• Parramatta Square;</li> <li>• Tramway Avenue;</li> <li>• Camellia (excluding 6 Grand Avenue), and;</li> <li>• Carlingford,</li> </ul> <p>minor overland flow at:</p> <ul style="list-style-type: none"> <li>• Factory Street;</li> <li>• Fennell Street;</li> <li>• Prince Alfred Square;</li> <li>• Rydalmere;</li> <li>• Dundas, and;</li> <li>• Telopea,</li> </ul> <p>with remaining areas unaffected.</p> <p>Hazardous materials will not be stored below the 10% AEP flood level.</p>

Ref #	Commitment	Timing	FMP Reference	How Addressed
HY-6	<p>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 plan would include the following:</p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• Develop and implement adequate water quality control measures prior to the carrying out of significant earthwork or bridge construction activities.</li> <li>• Minimise and manage impacts on water quality and downstream receiving environments during instream activities.</li> <li>• <b>Flood response measures for activities located on land affected by the 20-year ARI flood level (e.g. bridge support construction compounds) or works within waterways (such as bridge works).</b></li> <li>• Where possible, reuse excavated materials as fill on other parts of the Project in preference to</li> </ul>	Pre-Construction / Construction	Section 7 Appendix A	<p>Flood monitoring, management, communication, response and recovery measures are provided in section 7.</p> <p>Upon the issuing of a “Flood Warning”, the Design and Construct Environment Manager will inform the Senior Construction and Staging Manager to prepare the site for evacuation and coordinate with GRCLR, who will continuously monitor BoM Flood Warning Service and maintain open communications with the SES.</p> <p>Note the Project areas affected by the 5% AEP flooding, include ponding at:</p> <ul style="list-style-type: none"> <li>• Children’s Hospital at Westmead;</li> <li>• Parramatta Square;</li> <li>• Tramway Avenue;</li> <li>• Camellia, and;</li> <li>• Carlingford,</li> </ul> <p>minor overland flow at:</p> <ul style="list-style-type: none"> <li>• Factory Street;</li> <li>• Fennell Street;</li> <li>• Prince Alfred Square;</li> <li>• Rydalmere;</li> </ul>

Ref #	Commitment	Timing	FMP Reference	How Addressed
	<p>disposing off-site in accordance with OEH's <i>Waste Classification Guidelines (2016)</i>.</p> <ul style="list-style-type: none"> <li>• Areas of potential contamination concern would be identified and works in these areas managed to minimise disturbance.</li> <li>• Excavate pre-classified contaminated materials and transfer such materials directly into haulage trucks for off-site disposal at a waste facility licensed to accept the contaminated material.</li> <li>• 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.</li> <li>• Develop procedures for the assessment, handling and stockpiling of potentially contaminated materials, in accordance with OEH's <i>Waste Classification Guidelines (2016)</i>.</li> </ul>			<ul style="list-style-type: none"> <li>• Dundas, and;</li> <li>• Telopea,</li> </ul> <p>with remaining areas unaffected.</p>
HY-8	<p>Large areas of disturbance such as compound areas and stockpile sites would, where feasible and reasonable, be located away from any surface runoff flow paths and above the 10% AEP flood levels.</p>	Pre-Construction / Construction	FMP5 of Table 7-1 and Appendix A for reference maps	<p>In identifying stockpile locations, areas within the 5% AEP (20-year ARI equivalent) flood extent are excluded.</p> <p>Monitoring daily of the drainage infrastructure to ensure clear of debris and materials.</p> <p>Note the Project areas affected by the 5% AEP flooding, include ponding at:</p>

Ref #	Commitment	Timing	FMP Reference	How Addressed
				<ul style="list-style-type: none"> <li>• Children’s Hospital at Westmead;</li> <li>• Parramatta Square;</li> <li>• Tramway Avenue;</li> <li>• Camellia, and;</li> <li>• Carlingford,</li> </ul> minor overland flow at: <ul style="list-style-type: none"> <li>• Factory Street;</li> <li>• Fennell Street;</li> <li>• Prince Alfred Square;</li> <li>• Rydalmere;</li> <li>• Dundas, and;</li> <li>• Telopea,</li> </ul> with remaining areas unaffected.
GEN-3	Incident management procedures would be developed as part of the CEMP. The procedures would clearly outline the process to be followed in the event of an environmental incident or noncompliance, including (but not limited to) the following: <ul style="list-style-type: none"> <li>• Classification of the incident (e.g. minor, moderate, serious) based on the severity of the likely impact on the surrounding environment and community.</li> </ul>	Construction	Sections 7.3, 7.4, 7.5	Detailed notification and actions assigned to roles for weather forecast events and flooding events will be undertaken as provided in Section 8 of the CEMP. Monitoring and continued update of this plan as per Section 9.  Flood monitoring, management, communication, response and recovery measures are provided in section 7.

Ref #	Commitment	Timing	FMP Reference	How Addressed
	<ul style="list-style-type: none"> <li>Emergency response procedures.</li> <li>Notification requirements (e.g. Transport for NSW and/or other regulatory authorities, or owners/occupiers in the vicinity of the incident).</li> <li>Mechanisms for improving environmental controls to reduce the likelihood of a similar incident occurring.</li> <li>Incident reporting and tracking.</li> </ul>			Upon the issuing of a “Flood Warning”, the Design and Construct Environment Manager will inform the Senior Construction and Staging Manager to prepare the site for evacuation and coordinate with GRCLR, who will continuously monitor BoM Flood Warning Service and maintain open communications with the SES.
HR-6	A process for regularly reviewing work practices/procedures would be implemented throughout construction to identify, report and respond to any new environmental hazards/risks.	Construction	Section 8	Observations to be made during and after weather events, with identified corrective actions and root causes for FMP update.
HY-4	<p>A Flood Management Strategy would be prepared for the project, to include an update of the flood impact assessment undertaken for the EIS (refer Technical Paper 7) to inform the detailed design, re-assess the level of flood immunity of the project and to identify potential impacts of the project on flood behaviour. The strategy would demonstrate how the project design achieves the desired Performance Criteria (refer to Table 17.5 of the EIS).</p> <p>The Flood Management Strategy would identify design responses and construction management measures that would be implemented in design or during construction. Construction management procedures would be detailed in the Construction</p>	Pre-Construction /Construction	<p>Section 7</p> <p>Table 7-1</p> <p>Appendix B for consultation evidence.</p>	<p>Table 7-1 lists each of the flood risk management activities from the Flood Management Strategy.</p> <p>Construction management procedures are detailed in section 7 of this Construction Flood Management Plan.</p> <p>Appendix B details the issues raised, updates to flood risk management or justification for no action.</p>

Ref #	Commitment	Timing	FMP Reference	How Addressed
	Environmental Management Plan. The Flood Management Strategy would be prepared in consultation with the City of Parramatta Council.			
SG-3	Monitoring of erosion and sedimentation controls to ensure adequacy of extent and quality of the mitigation measures.	Construction	Table 7.1 FMP 9-11 Section 8.3.	Monitoring of erosion and sedimentation controls is addressed in the SWMP.  Environmental monitoring and inspections is addressed in sections 8.1 and 8.2 of the CEMP.  Monitoring and inspections related to flood management are addressed in section 8.3.  The D&C Environment Manager and/or delegate will undertake pre-work inspections, weekly, and pre and post-rainfall inspections of the work sites to evaluate the effectiveness of environmental controls, and to ensure controls are in place in accordance with the ECMs and CEMP plans.
CC-2	Construction-related climate change risks (e.g. increased frequency and severity of extreme rainfall events placing increased pressure on construction water quality control measures) would be considered during the development of environmental management measures as part of the CEMP.	Pre-Construction	FMP1, 3, 8, 11, 12 of Table 7-1	Assessment of each measure to be based on climate change scenario flood study results.

### 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 FMP**

ID Ref#	Environmental Performance Outcome	Timing	FMP reference	How Addressed
EPO-HY-1	No aspect of the project would materially adversely affect existing flood behaviour in the vicinity of the project	Pre-Construction / Construction / Operation	Section 6.2 Section 6.2.2 Section 7 Appendix A	Potential flood impacts are detailed in Section 6.2. Limitations of the project impact on flooding in the vicinity due to environmental controls noted in Section 6.2.2. and indicated through flood mapping of the impacts in Appendix A.  Flood mitigation detailed in section 7 will ensure materially adversely affect existing flood behaviour in the vicinity of the project.
EPO-HY-2	The project would not seek to improve flood immunity levels outside the project boundary, unless required to achieve project flood immunity levels or mitigate materially adverse impacts.	Pre-Construction / Construction / Operation	Section 6.2.2 Appendix A	Discussion of the flood extents over a range of events and limitations of the project impact on flooding in the vicinity. Noted temporary nature of impacts.
EPO-HY-3	Where reasonably practicable, existing drainage directly impacted by the project would be replaced in a	Construction	FMP12 of Table 7-1	Reduce the impact of the project on existing drainage networks. Note detailed design

ID Ref#	Environmental Performance Outcome	Timing	FMP reference	How Addressed
	manner compliant with current laws and applicable standards.			stage addresses modification of the existing network to the appropriate standards.
EPO-HY-4	<p>An adverse effect to flood behaviour for the purposes of the project is defined as:</p> <ul style="list-style-type: none"> <li>-A negative change to a flood hazard category</li> <li>-An increase in flood level that results in habitable flood levels or basements being inundated Increase in potential risk to life and personal safety</li> <li>- A negative effect on the structural soundness of a habitable building</li> <li>-A negative effect on existing flood evacuation access routes</li> <li>-An increase in velocity that results in a significant increase in the potential for soil erosion and scouring</li> <li>-Damage to, or temporary loss of, service of existing critical infrastructure.</li> </ul>	Construction / Operation	Table 7-1 all items	These definitions of impacts have been applied in the development of mitigation measures appropriate for the management of each impact to the appropriate level, as stated in each definition.



## 4 Consultation

This plan has been developed in consultation with relevant stakeholders as identified in the following list;

- City of Paramatta Council;
- Environment, Energy and Science Group (DPIE)
- Sydney Water

The outcomes of the consultation are addressed and documented where relevant in Appendix B and separate consultation reports, submitted to DPIE together with the relevant plans. Where the terms of the CoA require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken will be submitted to the Secretary with the document or monitoring program for review, in accordance with CoA A5. The evidence would include:

- Documentation of the engagement with the party(ies) identified in the relevant condition of approval before submitting the document for approval
- Log of the points of engagement or attempted engagement with the identified party(ies) and a summary of the issues raised by the identified party(ies)
- Documentation of any follow-up with the identified party(ies), where feedback has not been provided, to confirm that the identified party(ies) has none or has failed to provide feedback after repeated requests
- Outline of the issues raised by the identified party(ies) and how they have been addressed, including evidence that the party(ies) is satisfied the issues have been addressed
- where there are outstanding issues raised by the identified party(ies) that have not been adopted, the reasons why they have not been/could not be adopted must be provided, including evidence of consultation with the relevant party(ies).

Refer to section 6.3 of the CEMP and The Community and Engagement Plan for details on how GRCLR will comply with the communications and engagement requirements of the CoAs, the SOM contract and the TfNSW Project Community Communication Strategy (CCS). The Community and Engagement Plan outlines processes for providing accurate information to the TfNSW representative regarding current and upcoming contractor activities, and all associated community impacts and potential announcements.

# 5 Existing environment

The following sections describes the existing flood regime within the Project area, based on the information contained in the Parramatta Light Rail EIS and GRCLR SOM Flood Study Reports. For a description of the Flood study refer section 5.5.

## 5.1 Existing flood regime

The site is situated in the vicinity of Parramatta River and its tributaries, with three crossings of the Parramatta River, and a maintenance facility within the low lying Camellia precinct. The project area experiences flooding from surface water (rainfall) falling on the local catchments in addition to overbank flows from the Parramatta River and tributaries in large flood events. Flows leave the project area towards the Parramatta River main channel via underground drainage infrastructure, with excess overland flows travelling through adjacent sites.

## 5.2 Flood extents

Flood extents for minor flood events including the 0.2 EY (5yr ARI equivalent) and 5% AEP (20yr ARI equivalent) are limited to sag points in the road network and depressions or low points in the private lot areas adjacent. In major flood events 1% AEP (100yr ARI equivalent) and 1% AEP with climate change, this flooding of local roads and adjacent site increases in extent through areas east of the Parramatta CBD and the Camellia precinct road carriageways. The extreme flood event (PMF) indicates a scenario where the entire CBD and Camellia precinct is inundated and overbank flooding from the Parramatta River joins with surface water flooding of the Camellia precinct. Refer to Appendix A for flood maps.

## 5.3 Emergency response and evacuation

The NSW State Emergency Services (SES) is responsible for coordinating the emergency response and evacuations, with the assistance of NSW Police and Fire and Rescue. The NSW guidance on evacuation strategies is given specific local context through the development of the Parramatta Local Disaster Plan by the Emergency Management Committee. The Project interface with emergency response and potential evacuations is discussed in Section 7.

- Parramatta Local Emergency Management Plan (Parramatta Local Emergency Management Committee, 2018) (LEMP)
- New South Wales State Emergency Management Plan (EMPLAN, December 2012)
- New South Wales State Flood Plan (a sub-plan of EMPLAN) (March 2015)
- New South Wales State Emergency Management Plan – Evacuation Management Guidelines (March 2014)

## 5.4 Floodplain risk management plan

The flood risk management plan is implemented by CoPC with a range of documents providing assistance to Council with hydrological and hydraulic modelling to support the development of policy and procedures.

- Parramatta Floodplain Risk Management Policy (CoP, 2014)
- Upper Parramatta River Catchment Floodplain Risk Management Study & Plan (Bewsher for CoP, April 2003)

- Lower Parramatta River Catchment Floodplain Risk Management Study & Plan (SKM for CoP, August 2005)
- Draft Update of Parramatta Floodplain Risk Management Plans (Molino Stewart for CoP, 2016)
- New South Wales Flood Prone Land Policy (May 2005).
- Local Planning Direction 4.3 “Flood Prone Land” and guideline PS 07-003 under Section 117(2) of the *EP&A Act* (July 2007)

## 5.5 Flood Study

The GRCLR Flood Study was based on definition stage flood models developed for the PLR1 EIS (ARUP, 2017). The modelling methodology comprised updates to the combined 1D/2D TUFLOW models, incorporating the design stage earthworks for the Project, TPS sites and BOCC as well as drainage infrastructure components of the works. Impact assessments were based on a pre-construction to post-construction comparison of flood behaviour.

The following details of the technical approach indicate the methodology for assessment of project impacts:

- Multiple model domains were created to represent portions of the project within either 1D/2D combined hydrodynamic models or 2D grid based modelling of overland flows.
- 2m grid cells within the TUFLOW models provide sufficient definition of the site ground levels to enable the assessment of flood impacts through the minor and major flooding event range. For the extreme flooding PMF assessment a project wide 4m grid was deemed suitable.
- Hydrology inputs to the model were based on ARR 1987 methodologies, justified as being a conservative approach with ARR 2019 methodologies generally revealing lower rainfall intensities.

# 6 Environmental aspects and impacts

## 6.1 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).

**Table 6-1: Summary of Construction Activities involved with the Project**

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

Refer also to the Environmental Risk Assessment included in Appendix A2 of the CEMP.

## 6.2 Project flooding and hydrology impacts

### 6.2.1 Potential impacts of flooding on the project

Generally flood levels through minor storm events are reduced in the vicinity of the alignment through the provision of drainage infrastructure to maintain operability of the rail during storm events. Through the various precincts flood levels are locally impacted with a general upper limit of 50mm increase in flood levels through the 1% AEP event observed.

The Grand Avenue road reserve and surrounds is relatively susceptible to flooding with limited piped drainage capacity to remove flood waters from within the area. In smaller flood events the road network and adjacent properties in the vicinity of the site will experience ponding in sag locations and low-lying areas. Access to the site will be interrupted with water ponding in the Grand Avenue sag points. These ponding areas are a result of local runoff only and as indicated by the mapping in Appendix A are not connected.

In larger floods these piped systems are drowned out by high downstream conditions in the Parramatta River floodplain, and ponding within the Parramatta CBD and Grand Avenue becomes deeper, introducing a greater hazard to people and vehicles. These areas are located in a low flood island meaning that in extreme flooding the escape routes along existing roads are cut and that early evacuation prior to extreme flooding is the best approach. Shelter-in-place should only be considered a last resort, and emergency management plans have been designed to facilitate evacuation prior to extreme flooding occurring.

### **6.2.2 Potential impacts of construction on the flood regime**

The construction of the Project will have impact on local drainage routes during trenching activities and impact overland flows with the presence of site equipment, fencing and earthworks in preparation for foundations. The environmental control measures described in section 7 list construction stage management of overland flows and control of the discharge from the site. The planning of locations for stockpiles and disturbed areas eliminates potential impacts of the construction works on flood behaviour. Where construction activities do occur within flow path areas, management measures including flood warnings, preparation of the site for flooding and general monitoring of overland flow provisions have been developed and reviewed by CoPC.

The GRCLR assessment of flood impact for the Project construction indicates some impacts to flooding as a result of the works. As indicated in Appendix A, the impact on flood behaviour in the area is minor with differences in peak flood levels observed in discrete locations around the periphery of the sites. These flood differences from pre-construction to post-construction comparisons of flood behaviour are a result of all the works undertaken in construction of the Project sites.

### **6.2.3 Changes to emergency response and evacuation**

Key factors that influence how the Project would impact evacuation operations include:

- Potential obstructions to evacuation routes
- Changed traffic conditions impacting evacuation routes.

The environmental control measures consider these potential impacts and propose mitigation including changes to the evacuation procedures for the duration of the project in case of major flooding.

# 7 Environmental control measures

A range of environmental requirements and control measures are identified in the various environmental documents, including the EIS, Conditions of Approval and other TfNSW documents. Mitigation and management measures will be implemented to avoid, minimise or manage impacts to hydrology and to minimise impacts to construction in the event of a flood. Measures and requirements to address impacts on hydrology and minimise flooding impacts are outlined in Table 7-1.

**Table 7-1: Environmental management for flooding and hydrology impacts**

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference
FMP1	Avoid placing obstruction within flood risk areas and overland flowpaths in the first instance and minimise if avoidance is not feasible or reasonable.	Planning time to identify alternative locations or re-locate obstructions.	Construction/ Construction planning	Design and Construct Environment and Sustainability Manager / Project Site Engineer	Best practice
FMP2	Remove construction equipment from flood risk or overland flow areas if severe rainfall is approaching and at the completion of each day's work activity. The extent of the flood risk and overland flow areas would be defined during the detailed construction planning phase.	Site personnel to demobilise, relocate plant and materials.	Construction/ construction planning	Design and Construct Environment and Sustainability Manager	Best practice GEN-3
FMP3	Stage earthworks located within the floodplain to ensure that the extent of works exposed at any one time is minimised.	Planning time to develop staging.	Construction Construction planning	Site Supervisor Project Site Engineer	Best practice
FMP4	Remove all temporary structures, embankments, haul barriers and working pads as soon as feasible after serving their purpose.	Site personnel for decommissioning of completed areas.	Construction	Project Site Engineer	Best practice

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference
FMP5	<p>Locate stockpile sites and all hazardous material storage outside the 20 year ARI flood. This is a more conservative level than required by GEN-2 and HY-8.</p> <p>The flood immunity provided to stockpile sites would depend on the duration of stockpiling operations, the type of material stored and the nature of the downstream waterway or any other specified requirements. Locations to be defined during detailed construction planning.</p>	<p>Planning time to demobilise, re-locate, consider alternatives for obstructions.</p>	<p>Construction/ construction planning</p>	<p>Site Supervisor Project Site Engineer</p>	<p>Best practice GEN-2 HR-5 HY-8</p>
FMP6	<p>Include flood risk areas within site induction material, with stormwater and flood management to be addressed in regular toolbox/project start-up meetings.</p>	<p>Planning time to compile site risk and safe-work material.</p>	<p>Pre- construction/ Construction</p>	<p>Design and Construct Environment and Sustainability Manager / Project Site Engineer</p>	<p>Best practice</p>
FMP7	<p>Monitor temperature, humidity, wind velocity and rainfall onsite daily, using data available from Bureau of Meteorology. Refer section 8.5 of this plan. Note evacuation strategy, section 7.3.</p>	<p>Personnel to monitor forecasts and live data.</p>	<p>Construction</p>	<p>Design and Construct Environment and Sustainability, or delegate</p>	<p>Best practice See section 7.3.</p>



ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference
FMP8 / SW6	<p>Follow SW6 measure set out in SWMSP sub-plan and quoted below:</p> <p>“A Soil and Water Management Plan will be prepared in accordance with the principles and guidelines set out Soils and Construction – Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008).”</p>	<p>Planning time to develop erosion and sediment strategy.</p>	<p>Construction/ construction planning</p>	<p>Design and Construct Environment and Sustainability Manager / Project Site Engineer</p>	<p>HY-5 HY-9 Best practice</p>
FMP9 / SW7	<p>Follow SW7 measure set out in SWMSP sub-plan and quoted below:</p> <p>“Erosion and sediment controls to be installed prior to the commencement of works and shall remain installed and maintained until sufficient stabilisation is achieved as per Managing Urban Stormwater series, comprising Volume 1 (Landcom, 2004) and Volume 2D – Main Roads (DECC, 2008).”</p>	<p>Qualified personnel to install measures.</p>	<p>Construction</p>	<p>Design and Construct Environment and Sustainability Manager / Project Site Engineer</p>	<p>HR-6 Best practice</p>
FMP10	<p>Check the operation of all project-related sediment and erosion controls at least once per day during operational hours, to maintain flow capacity.</p>	<p>Qualified personnel to inspect and advise changes.</p>	<p>Construction</p>	<p>Design and Construct Environment and Sustainability Manager Site Supervisor</p>	<p>HR-6 Best practice</p>

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference
FMP11	Follow SW12 measure set out in SWMP sub-plan, to avoid built-up of sediment in flow path and drains.	Personnel to maintain work areas.	Construction	Design and Construct Environment and Sustainability Manager / Project Site Engineer Site Supervisor	HR-6 Best practice
FMP12	Follow SW12 measure as set out in SWMP sub-plan to ensure flows follow stabilised drains and avoid sediment transport.	Qualified personnel to verify location of appropriate erosion and sediment control measures.	Construction	Design and Construct Environment and Sustainability Manager / Project Site Engineer	HY-5 HY-9 Best practice
FMP13	Follow SW13 measure set out in SWMP and locate bunded chemical and hazardous material storage areas within secure compound outside the 20% AEP flood extent and have provision for protection from rainfall. To avoid the cumulative effect of multiple container failure the bund will be sufficient to contain 110% of all materials contained within the bund.	Planning time to allocate appropriate storage areas.	Construction	Design and Construct Environment and Sustainability Manager / Project Site Engineer	Best practice GEN-2 HR-5 HY-8

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference
FMP14	Follow SW6 and SW7 measures set out in SWMP. Preparation to include all items in section 7.2 of this plan.	Qualified personnel to verify location of appropriate erosion and sediment control measures.	Construction	Design and Construct Environment and Sustainability Manager / Project Site Engineer	HY-5 HY-9 Best practice See section 7.2
FMP15	Upon predicted rainfall in excess of the action level (10mm in any 24hr period), erosion and sediment controls will be inspected to ensure maintenance is not required. Inspection of controls during rainfall event will occur to ensure they are performing.	Qualified personnel to verify condition of installed erosion and sediment control measures.	Construction	Design and Construct Environment and Sustainability Manager / Project Site Engineer	GEN-3 Best practice See section 7.4

## **7.1 Probabilities and consequences of flood damages and personnel safety**

GRCLR undertook an assessment of the potential impacts of the project relating to flooding and hydrology. The study included a flooding and hydrology assessment technical report titled PLR1 SOM R17 Flood Study Report (2019). This modelling used in this assessment was based upon the modelling developed for the Parramatta Light Rail EIS (ARUP, August 2017)

The modelling assessment indicates ponding in the surrounding streets and low points in the vicinity of the site(s) in events up to and including the 1% AEP. For reference the flood extents and depths in the vicinity of the Project have been included in Appendix A. For each of these flood extents, it is the probability of AEP event description which subsequently informs the likelihood of flood damages and personnel safety over the likely construction period, or one year.

The consequences of flood damages are likely to be lost time and financial costs of repairing damaged plant or the rehabilitation of work areas after a flood event. Construction activities located in areas susceptible to flooding include trenching work for services and stormwater relocations, footing preparation for ancillary buildings and general earthworks.

It should be noted that extreme flooding, including the PMF would result in significant inundation of the local roads and private sites adjacent, with access to the site cut off. The focus in extreme flooding would be on clearing, securing and evacuating the site prior to the extreme weather event.

## **7.2 Measures to be implemented prior to a flooding event**

### **7.2.1 Monitor flood warning services**

The Design and Construct Environment Manager shall monitor the Bureau of Meteorology, SES and CoP information pages so preparations are enabled for upcoming severe weather events. Monitoring is to be carried out on a daily basis taking note of the future forecasts.

- BoM Flood Warning website: <http://www.bom.gov.au/nsw/warnings>
- City of Parramatta Flood Warning Service: <https://www.cityofparramatta.nsw.gov.au/recreation-environment/floodsmart-parramatta/flood-warning-service>

### **7.2.2 Preparation of the site**

Upon the issuing of “Severe Weather Warnings”, site preparations to protect and secure plant, materials and the public are to be directed by the Senior Construction and Staging Manager following a warning issued by the Design and Construct Environment Manager.

Senior Construction and Staging Manager will ensure adequate supplies of flood response equipment, including sandbags, geofabric and pegs, are maintained at each ancillary facility at all times.

Quantities of equipment will vary depending on the construction stage and shall be reviewed regularly by the Senior Construction and Staging Manager. Following the receipt of a “Flood Watch” the following actions will be considered, as a minimum:

- Inform all site staff well in advance of a predicted flood event and confirm flood emergency procedures
- Ensure no materials are stockpiled in areas of concentrated overland flow
- All dangerous and hazardous goods will be stored outside the extent of a 20% AEP flood level, in a dangerous goods (shipping) container which is purpose built, bunded and compliant with the Australian Standard for the storage and handling of flammable and combustible liquids (AS 1940:2004)

- Power off all plant and electrical equipment
- All plant and equipment will be moved and parked in areas outside the 10% AEP flood level flood extent or higher depending on information from the Flood Warning Service
- Back-up all computer files and network information off-site
- Install sandbags at site office doors and equipment shed doors to impede the ingress of floodwaters into the buildings, when a flood is predicted to exceed the 0.2EY
- Large areas of disturbance such as compound areas and stockpile sites would, where feasible and reasonable, be located away from any surface runoff flow paths and above the 10% AEP flood levels. However, where material stockpiles that cannot be located outside of the 10% AEP flood level flood extent will be protected with geofabric and silt fences to minimise erosion and loss of material.

It should be noted that a “Flood Watch” can be issued without an actual flood occurring. Therefore, consideration of the actions listed above will be determined by the Design and Construct Environment Manager and Senior Construction and Staging Manager in consultation with TfNSW and the ER on a case-by-case basis depending on the most current information available and advice received from SES.

All workers and visitors will be briefed on emergency procedures in their project induction and periodically during toolbox talks to ensure they are prepared for a flood event. Should evacuation of the site be ordered, it is essential site personnel on site are familiar with the evacuation procedure and routes described in this FMP.

All procedures in the flood recovery stage, section 7.4, shall be prepared for, on the assumption that major flooding is to occur during the construction period.

### **7.2.3 Mobilisation of Emergency Planning Committee**

The approach to consultation with the relevant emergency planning stakeholders is included in Section 4. The CEMP and this FMP is to be shared with CoP, SES, NSW Police and Fire and Rescue for integration of evacuation procedures for the Project with the regional strategies in place for the wider Parramatta local government areas.

Once a “Flood Watch” or “Flood Warning” is issued, the Emergency Planning Committee will determine the actions to be implemented by the Project. The Design and Construct Environment Manager and Senior Construction and Staging Manager in consultation with TfNSW and the ER will determine actions on a case-by-case basis depending on the most current information available and advice received from SES, CoP, NSW Police and Fire and Rescue.

## **7.3 Measures to be implemented during a flooding event**

Upon the issuing of a “Flood Warning”, the Design and Construct Environment Manager will inform the Senior Construction and Staging Manager to prepare the site for evacuation and coordinate with GRCLR, who will continuously monitor BoM Flood Warning Service and maintain open communications with the SES.

The SES is the designated Agency for dealing with floods and is responsible for coordinating the evacuation and welfare of affected communities (SES Act 1989; EMPLAN, 2012). In response to a flood event, SES will operate a 24 hours a day, 7 days a week “Operations Centre” to manage the Emergency Assistance telephone number 132 500 and co-ordinate their activities.

The decision to evacuate is to be made by GRCLR in conjunction with the Senior Construction and Staging Manager and under the advice from the SES. The decision to respond to flooding events includes the switching off of site power supply where appropriate.

## 7.4 Flood recovery

A flood event during the construction phase could cause considerable damage to property and the environment. If the site is properly prepared for the flood event, then damage could be minimised. The following list of actions should be considered when returning to site:

- Wait until authorities have declared the area safe before entering
- Access roads to site may have been damaged during the flood event so drive carefully and approach the site safely
- Check power boxes and electrical equipment on site. These may have been inundated and require a qualified electrician to check for damage
- Do not turn power back on until all electrical equipment on site has been checked and certified by a qualified electrician;
- Check the structural integrity of all buildings on site by a suitably qualified professional. Buildings on site will be of a temporary nature so may not be designed to withstand extreme flood flows and depths. Even if floodwaters have not entered the buildings check foundations for erosion;
- Check to see if any equipment has been moved by flood waters and relocate equipment back to a safe position/location;
- Check material stockpiles for erosion and losses;
- Check water and waste water systems on site. Water systems may need to be flushed or repaired following the flood event. Clean up any ponded water around site to prevent the spread of waterborne disease;
- Prepare an incident report on the flood event. Include information on how the site was evacuated and document the resulting flood depths and damage to the site; and
- Contractor Project Manager to re-open site only when it is deemed safe to continue work.

## 7.5 Communication and notification

Timely and accurate warning information is vital during emergencies and is integral to minimising panic and ensuring suitable actions can be taken to minimise risk to life and property.

When heavy rainfall is being experienced and throughout the implementation of this FMP, communication and consultation with the organisations stipulated in Table 7-2 must be undertaken continuously.

**Table 7-2: Relevant contacts in relation to flood emergency**

Organisation Contact	Number	Website
State Emergency Services (SES)	132 500	<a href="http://www.ses.nsw.gov.au">www.ses.nsw.gov.au</a>
Bureau of Meteorology (BOM)	1300 659 218	<a href="http://www.bom.gov.au/nsw/warnings">www.bom.gov.au/nsw/warnings</a>
NSW Police (local)	02 9633 0799	<a href="http://www.police.nsw.gov.au">www.police.nsw.gov.au</a>
NSW Fire and Rescue (local)	02 9895 4620	<a href="http://www.fire.nsw.gov.au">www.fire.nsw.gov.au</a>

City of Parramatta Council	1300 617 058	<a href="https://www.cityofparramatta.nsw.gov.au/">https://www.cityofparramatta.nsw.gov.au/</a>
Design and Construct Environment Manager	Internal and agency distribution only	
Senior Construction and Staging Manager	Internal and agency distribution only	

Communication and the distribution of information to site personnel leading up to, and throughout a flood event, must be implemented. Following any decision to evacuate, site personnel and emergency services will be notified of the following:

- Relevant contact details of responsible personnel and emergency contacts
- The decision to evacuate
- Type of evacuation (full, partial or shelter in place)
- The stages of withdrawal (if applicable)
- Evacuation routes and any heavy or oversized equipment to be removed from site;
- Location of any potential hazardous materials and how these have been secured or protected.

# 8 Compliance management

## 8.1 Roles and responsibilities

The GRCLR Project Team's organisational structure and overall roles and responsibilities are outlined in Section 4.2 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 7 of this Plan.

This flood management plan may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one month before construction. It is the responsibility of the GRCLR Environment and Sustainability Manager to coordinate review and endorsement of this sub-plan.

The CEMP must be endorsed by the ER and then submitted to the Secretary for approval no later than one month before the commencement of construction.

## 8.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to flooding and hydrology management issues. The induction training will address elements related to flood management.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in flooding management, including:

- All REMMMs as identified in this plan
- Roles and responsibilities for the monitoring of site conditions prior to and during storm events
- Emergency procedures and notification contacts specific to storm events and potential flooding.

When storm events are predicted daily pre-start meetings will include general information on flood management and response to the wider team. This training is to include an awareness of the REMMMs and contacts for further guidance.

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

## 8.3 Monitoring and inspection

The D&C Environment Manager and/or delegate will undertake pre-work inspections, weekly, and pre and post-rainfall inspections of the work sites to evaluate the effectiveness of environmental controls, and to ensure controls are in place in accordance with the ECMs and CEMP plans. This includes the monitoring and inspections specific to flood management, and are identified below:

- Inspect drainage assets weekly for clear openings and build-up of sediments and debris likely to reduce the capacity of underground drainage infrastructure

The D&C Site Supervisor is to monitor the drainage infrastructure and flood risk areas daily, including the following specific checks:

- Inspect overland flow paths for blockages and objects which have been moved in prior storm events
- Inspect temporary works areas and stockpiles for consistency with the nominated storage locations



The monitoring is to be carried out with the relevant ER and TfNSW representatives and is to be coordinated by the GRCLR Environment and Sustainability Manager.

Additional requirements and responsibilities in relation to inspections are documented in Section 8.1 and Section 8.2 of the CEMP.

**Table 8-1: Relevant monitoring and inspection**

Activity	Type of Inspection	Frequency	Responsibility
Weather forecasts and observations	Desktop	Daily	Site Supervisor or delegate
Pre-flood site overland flow management	Visual	Daily, and in response to severe weather/flood warnings	Site Supervisor
Post-flood site overland flow management	Visual	Following inundation events	Site Supervisor
Environmental inspection	Visual	Weekly	D&C Environment and Sustainability Manager or delegate.

## 8.4 Licences and permits

In addition to the Project Planning Approval, provided to TfNSW by DPIE on 29 May 2018, as modified, GRCLR is required to secure the permits and licenses as detailed in Section 3.4 of the CEMP. No flood management specific licenses are required for the construction of the Project.

## 8.5 Weather monitoring

The Design and Construct Environment and Sustainability Manager is to monitor weather forecasts, alerts, warnings and advice from the following sources and direct preparations of the site for severe warnings and enact preparations for emergency management in the event of extreme warnings:

- Australian Bureau of Meteorology's Commercial Weather Services to provide advanced notice of large rainfall events.
- COP FloodSmart system notification warnings of impending flooding of the CBD and upstream catchment areas to the west of the CBD.

Rainfall at the premises will be measured and recorded in millimetres per 24-hour period at the same time each day from the time that the site office associated with the activities is established.

## 8.6 Auditing

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

Audit requirements are detailed in Section 8.3 of the CEMP.

## **8.7 Reporting**

The pre-construction compliance report is a key document prepared by GRCLR in ensuring the appropriate environmental management controls for flooding are followed from the commencement of works.

Input to the Construction Compliance Reports by the GRCLR Environment and Sustainability Manager is required, including a summary of any flood events that eventuated during the reporting period. These are prepared quarterly, coordinated by GRCLR for submission to TfNSW. Refer Section 8.4 of the CEMP for the content of these reports.

In addition to compliance reporting other reporting may be required through the project, section 8.5 of the CEMP details the response in these situations.

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# 9 Review and improvement

## 9.1 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.

## 9.2 FMP 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 flood management for the project.

Only the GRCLR Environment and Sustainability Manager, or delegate, has the authority to change any of the environmental management documentation. Amendments will be included in the six-monthly construction compliance report in accordance with CoA A37. Minor changes may be approved by the Environmental Representative. More significant changes would require the approval of DPIE.

Minor changes would typically include those that:

- Are editorial in nature (e.g. staff and agency/Authority name changes)
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively
- Are in response to audit findings or periodic reviews
- Do not comprise the ability of the Project to meet approval or legislative requirements.

Where the Environmental Representative deems it necessary, the revised plans would be provided to relevant stakeholders for review and comment if required and forwarded to the Secretary of DPIE for information. The revised plan would be provided to TfNSW for review prior to submission to any stakeholders or the Secretary.

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 – Flood Mapping

# Appendix A – Flood Mapping

## Existing Flooding Conditions

PLR SOM 18%AEP Existing Flood Depth – SaM Facility  
PLR SOM 18%AEP Existing Flood Depth – TPS04  
PLR SOM 5%AEP Existing Flood Depth – SaM Facility  
PLR SOM 5%AEP Existing Flood Depth – TPS04  
PLR SOM 1%AEP Existing Flood Depth – SaM Facility  
PLR SOM 1%AEP Existing Flood Depth – TPS04  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Depth – SaM Facility  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS01  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS02  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS03  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS04  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS06  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – TPS07  
PLR SOM 1%AEP Climate Change (2090) Existing Flood Extent and Depth – BOCC  
PLR SOM PMF Existing Flood Depth – SaM Facility  
PLR SOM PMF Existing Flood Depth – TPS04

## Locations of Identified Flood Impacts

PLR SOM 18%AEP Afflux (Water Level Change) – SaM Facility  
PLR SOM 18%AEP Afflux (Water Level Change) – TPS04  
PLR SOM 5%AEP Afflux (Water Level Change) – SaM Facility  
PLR SOM 5%AEP Afflux (Water Level Change) – TPS04  
PLR SOM 1%AEP Afflux (Water Level Change) – SaM Facility  
PLR SOM 1%AEP Afflux (Water Level Change) – TPS04  
PLR SOM 1%AEP Climate Change (2090) Afflux (Water Level Change) – SaM Facility  
PLR SOM 1%AEP Climate Change (2090) Afflux (Water Level Change) – TPS04

---



**Legend**

- SaM Facility
- Existing Flood Depth (m)
- $\le 0.5$
- 0.5-1.0
- 1.0-1.5
- $> 1.5$

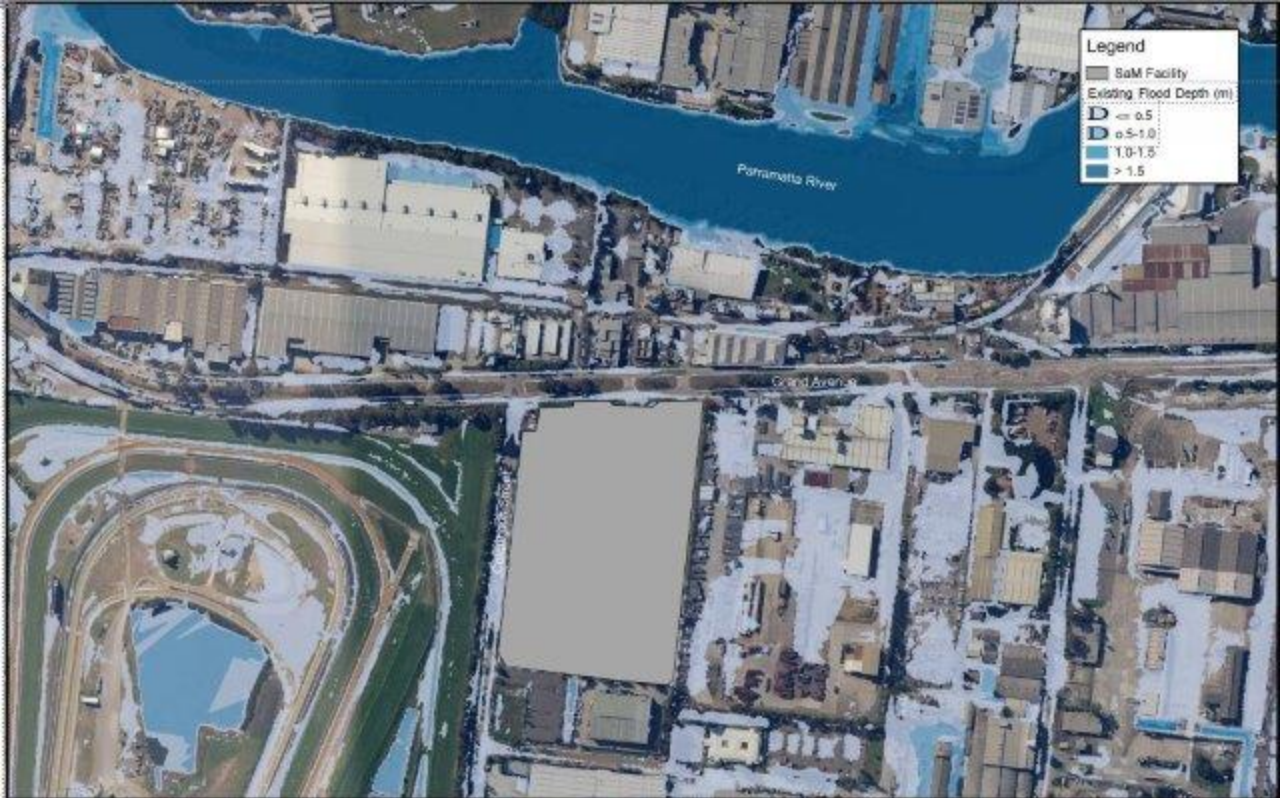


**Legend**

TPS04

Existing Flood Depth (m)

- $0 < 0.5$
- $0.5 - 1.0$
- $1.0 - 1.5$
- $> 1.5$



**Legend**

- SaM Facility
- Existing Flood Depth (m)
- 0-0.5
- 0.5-1.0
- 1.0-1.5
- > 1.5





Legend	
	TPS04
Existing Flood Depth (m)	
	< 0.5
	0.5-1.0
	1.0-1.5
	> 1.5

**A**



DISCLAIMER: THIS PLAN IS FOR INFORMATION ONLY AND DOES NOT REPRESENT A CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DATA AND CONDITIONS ON SITE.

**GREAT RIVER CITY LIGHT RAIL**

Rev A For Information Only

**Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract**  
 PDR Flood Study

Prepared By: [Redacted]

S:\AEP\existing flood depth, TPS04



**A**



Coordinate system: GDA94 MGA Zone 55  
 North: South Africa SA Map  
 Scale: 1:50,000 (unless printed at A3)

**GREAT RIVER CITY LIGHT RAIL**

For Information Only

Date: 09/9/2019

Prepared by:

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
 FDR Flood Study

1% AEP existing flood depth, SaM Facility



**Legend**

- TP504
- Existing Flood Depth (m)
  - 0-0.5
  - 0.5-1.0
  - 1.0-1.5
  - > 1.5

**A**



**GREAT RIVER CITY LIGHT RAIL**

Plan A for Information Only

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract

FOR Flood Study

Date: 29/03/19

Prepared By: [Redacted]

1% AEP existing flood depth, TP504



**Legend**

- SaM Facility
- Existing Flood Depth (m)
- 0.1 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- > 1.5

**Legend**

Traction Power Station Site

Existing Flood Depth (m)

-  0.05-0.5
-  0.5-1.0
-  1.0-1.5
-  > 1.5

**A**

Coordinate system: GDA94 MGA Zone 56  
Data Source: NSW Gov Web  
Scale: 1:5000 (not to scale, printed at A3)

**GREAT RIVER CITY LIGHT RAIL**

Plan A For Information Only

Date: 25/3/2019

Prepared By: 1-

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
PDR Flood Study

1% AEP Climate Change (2090) extent and depth\_TPS10

### Legend

Traction Power Station Site

Existing Flood Depth (m)

0.05-0.5

0.5-1.0

1.0-1.5

> 1.5



A

0 50m

Coordinate system: GDA94 MGA Zone 56

Aerial Source: SRM by Map

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**GREAT RIVER CITY LIGHT RAIL**

Rev A: For Information Only

Date: 25/9/2019

Prepared By:

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract

PDR Flood Study

1% AEP Climate Change (2050) extent and depth\_TPS02

### Legend

Traction Power Station Site  
Existing Flood Depth (m)

0.05-0.5

0.5-1.0

1.0-1.5

> 1.5



A

0 40 80m

Copyright © 2019 by MTR Corp.  
Aerial Source: 1970 Aerial Map  
Scale: 1:50,000 (approx. 1:50,000)

GREAT RIVER CITY LIGHT RAIL

Rev A: For Information Only

Date: 25/9/2019

Prepared By:

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
PDR Flood Study

1% AEP Climate Change (2050) extent and depth\_TPS03



Legend	
	TP504
Existing Flood Depth (m)	
	0.1 - 0.5
	0.5 - 1.0
	1.0 - 1.5
	> 1.5

<b>A</b>		<b>GREAT RIVER CITY LIGHT RAIL</b> <small>STATION, LIGHT RAIL AND LIGHT RAIL STATION</small>	Rev A: For Information Only	Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract
			Date: 25/9/2019	FDR Flood Study
			Prepared By: _____	1% AEP Climate Change (2030) extent and depth, TP504

TP504 for site works for 200 year return period (1:200)



**Legend**

Traction Power Station Site

Existing Flood Depth (m)

-  0.05-0.5
-  0.5-1.0
-  1.0-1.5
-  > 1.5



**A**

Coordinate system: GDA94 MGA Zone 56  
 Azim. Source: NSW Gls Map  
 Note: null values where not shown at all

**GREAT RIVER CITY LIGHT RAIL**

For Ac For Information Only  
 Date: 25/9/2019  
 Prepared By:

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
 FDR Flood Study

1% ACP Climate Change (2030) extent and depth\_TFS06

**Legend**

Traction Power Station Site

Existing Flood Depth (m)

0.05-0.5

0.5-1.0

1.0-1.5

> 1.5



**A**



**GREAT RIVER CITY LIGHT RAIL**

Rev A For Information Only

Date: 25/9/2019

Prepared by:

**Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract**  
PLR Flood Study

1% AEP Climate Change (2090) extent and depth\_TPS07

### Legend

Backup Operational Control Centre Site

Existing Flood Depth (m)

0.05-0.5

0.5-1.0

1.0-1.5

> 1.5



A

0 50m

Coordinate system: GDA94 MGA Zone 55  
Aerial Source: NSW GDA  
Note: null values where printed as 0.0

GREAT RIVER CITY LIGHT RAIL

Raw As For Information Only

Date: 11/11/2019

Prepared by:

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
PDR Flood Study

1% AEP Climate Change (2090) extent and depth\_BOCC

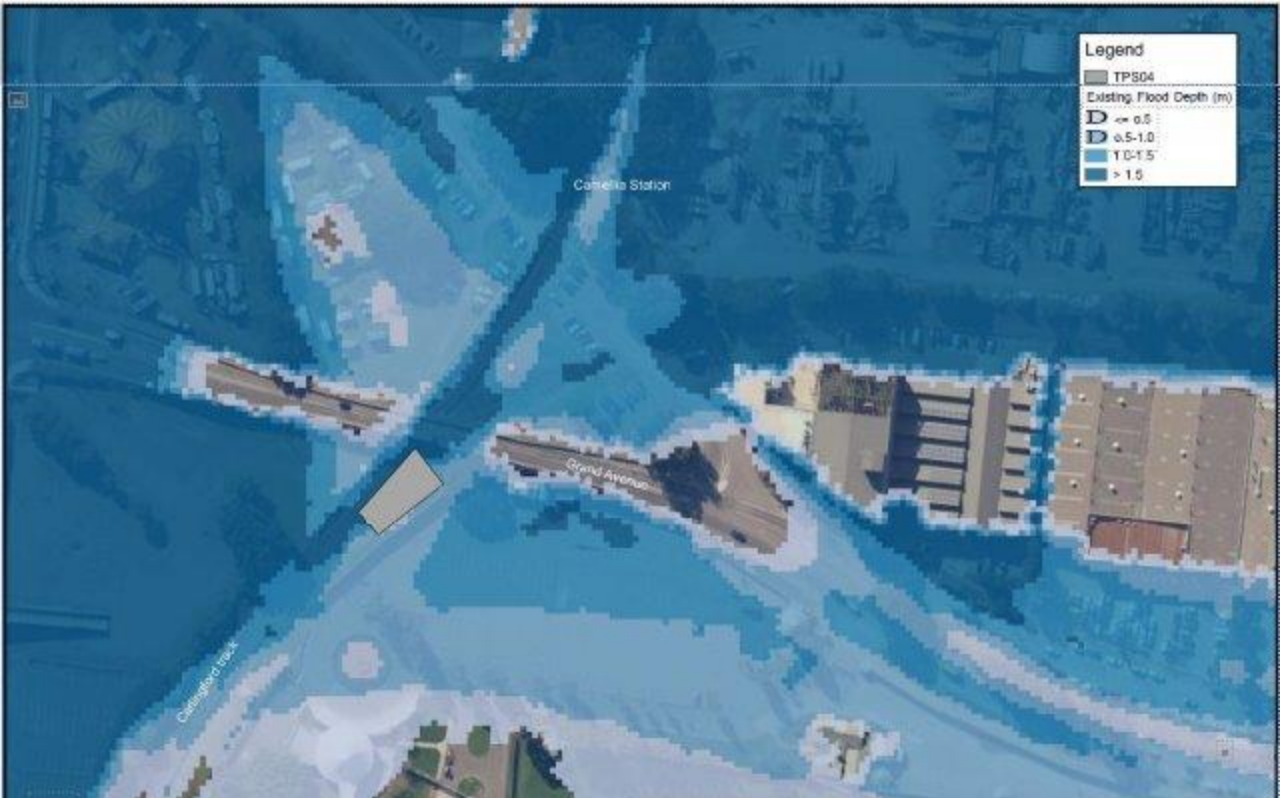


**Legend**

- SaM Facility
- Existing Flood Depth (m)
- < 0.5
- 0.5-1.0
- 1.0-1.5
- > 1.5

Legend

- TPS04
- Existing Flood Depth (m)
  - <= 0.5
  - 0.5-1.0
  - 1.0-1.5
  - > 1.5



A



Coordinate system: GDA94 MGA Zone 55  
Aerial Source: NSW DSIR  
Scale: 1:600 or 1:600 at A3, 1:1200 at A2

GREAT RIVER CITY LIGHT RAIL

For A: For Information Only

Parramatta Light Rail - Stage 1, Supply, Operate and Maintain Contract  
PDR Flood Study

Date: 20/9/2019

Prepared By:

PMF existing flood depth\_TPS04



**Legend**

**SaM Facility**

Afflux (m)

- 0.01
- 0.01-0.01
- 0.01-0.05
- 0.05-0.075
- 0.075-0.1
- 0.1



**Legend**

- TPS04
- Afluk (m)
  - < -0.1
  - 0.01 - 0.01
  - 0.01 - 0.05
  - 0.05 - 0.075
  - 0.075 - 0.1
  - > 0.1

Camelia Station

Grand Avenue

Chattanooga track

**A**



CHATTANOOGA METRO LOCAL HIGH ZONE 30  
 NORTH BOUND TERRY DR ROAD  
 SCALE WILL CHANGE WHEN PRINTED AT A1

**GREAT RIVER CITY LIGHT RAIL**

Rev A For Information Only

**Parransatta Light Rail - Stage 1, Supply, Operate and Maintain Contract**  
 PDR Flood Study

Date: 2/9/2019

Prepared By: -

18% AEP Afluk\_TPS04



**Legend**

**D** SoM Facility

Afflux (m)

- $< 0.1$
- $0.01-0.05$
- $0.05-0.075$
- $0.075-0.1$
- $> 0.1$





Legend	
	TPS04
Afflux (m)	
	$\le -0.1$
	$-0.01-0.01$
	$0.01-0.05$
	$0.05 - 0.075$
	$0.075 - 0.1$
	$\ge 0.1$

Coordinate system: GDA94 MGA Zone 56  
 North arrow: North on map  
 Scale: see context when printed at A3



**Legend**

**SoM Facility**

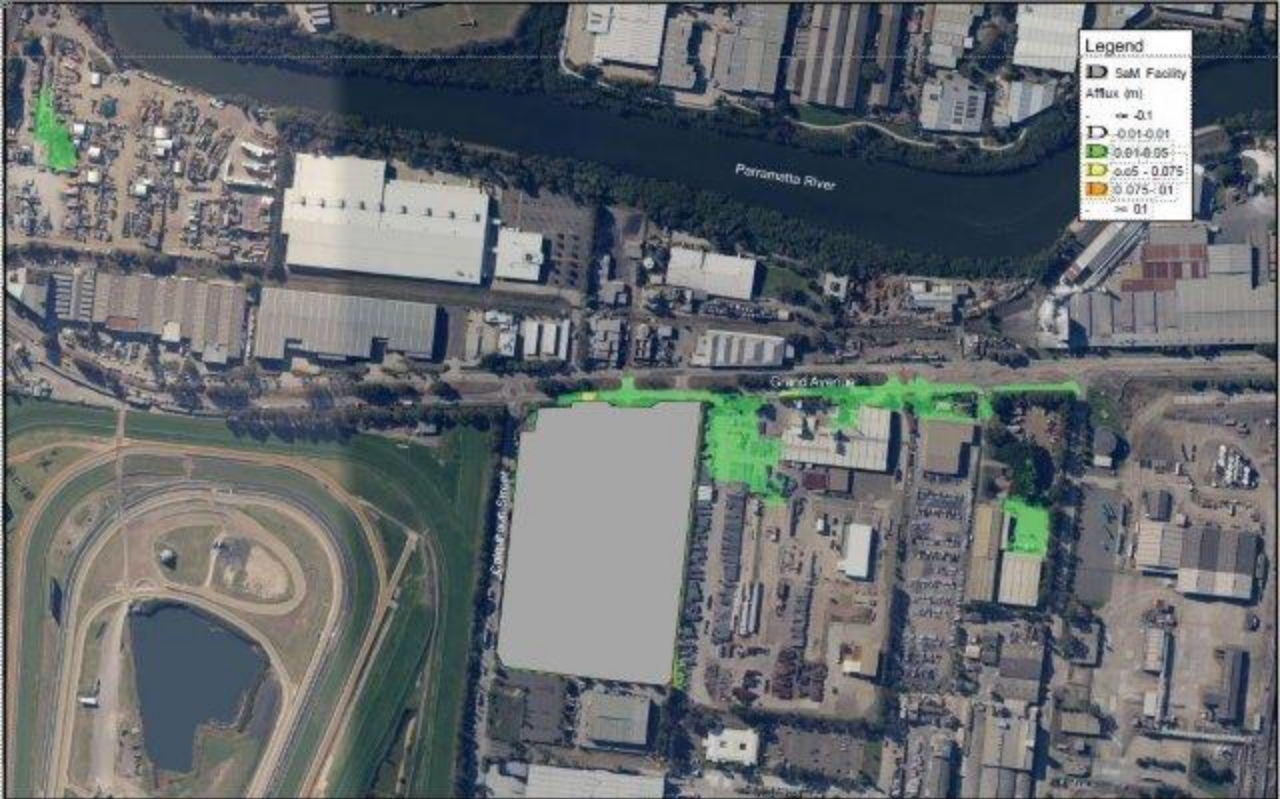
**Flood (m)**

- 0.01
- 0.01-0.01
- 0.01-0.05
- 0.05 - 0.075
- 0.075-0.1
- 0.1



**Legend**

- TP504
- Afflux (m)
  - $\le 0.1$
  - 0.01-0.05
  - 0.05-0.075
  - 0.075-0.1
  - $\ge 0.1$



**Legend**

**SaM Facility**

**Attrix (m)**

- <math>0.01-0.01</math>
- <math>0.01-0.05</math>
- <math>0.05-0.075</math>
- <math>0.075-0.1</math>
- > 0.1



**Legend**

TPS04

AtRisk (m)

- < 0.1
- 0.01-0.05
- 0.05-0.075
- 0.075-0.1
- >= 0.1

# Appendix B – Summary of Stakeholder Consultation

# CoA A5 Consultation Report – Construction Flood Management Plan

Transport for NSW  
Stage 3 / Package 5

Parramatta Light Rail  
April 2021  
PLR1SOM-GLR-ALL-EN-RPT-001008\_Revision E

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# A5 Consultation Report – Construction Flood Management Plan

Parramatta Light Rail – Stage 1

April 2021

PLR1SOM-GLR-ALL-EN-RPT-001008 / Revision  
#E

## Version control

Revision	Date	Description	Approval
A	7 September 2020	CoA A5 Compliance	
B	28 September 2020	Responding to ER Comments	
C	23 October 2020	Responding to ER Comments	
D	26 October 2020	Editorial Changes	
E	21 April 2021	Update to include Package 5 Activity B Consultation as per Staging Report Rev 7.02.	

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# Glossary/Abbreviations

Abbreviation	Expanded text
CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CFMP	Construction Flood Management Plan
CHMP	Construction Heritage Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CNVMonP	Construction Noise and Vibration Monitoring Program
CTTAMP	Construction Traffic, Transport and Access Management Plan
CWQ(T)MonP	Water Quality (Turbidity) Monitoring Program
CoA	NSW Minister for Planning Conditions of Approval
CoPC	City of Parramatta Council
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
FMDR	Flood Management Design Report
Minister, the	Minister for Planning, Industry and Environment
OEH	Office of Environment and Heritage
ONVR	Operational Noise and Vibration Review
PIRMP	Pollution Incident Response Management Plan
Planning Approval	The Planning Approval includes the Conditions of Approval, the EIS and the Submissions and Preferred Infrastructure Report
Proponent, the	Transport for NSW
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Project, the	Parramatta Light Rail – Westmead to Carlingford
REMMM	Revised Environmental Mitigation and Management Measure as outlined in the Project SPIR documentation.
ROL	Road occupancy licence
SEMP	Site Establishment Management Plan
SPIR	Submission and Preferred Infrastructure Report

Abbreviation	Expanded text
TfNSW RM	TfNSW Roads and Maritime
UDRR	Urban Design Requirements Report

# 1 Introduction

## 1.1 Background

Parramatta Light Rail is one of the NSW Government's major infrastructure projects being delivered to serve a growing Sydney.

Parramatta Light Rail will connect Westmead to Carlingford via Parramatta Central Business District (CBD) and Camellia. PLR 1 is expected to be operational in 2023.

The project 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 the project include:

- A new dual track light rail network of approximately twelve (12) kilometres in length, including approximately seven (7) 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 (16) 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 (SaM) Facility 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 Parramatta Light Rail Route is shown in Figure 1-1.



**Figure 1-1: Parramatta Light Rail Route**

### 1.1.1 Statutory Context

The Parramatta Light Rail is 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).

Detailed environmental impact assessments have been carried out and approved by the Minister for Planning. The Planning Approval for the project is described in Section 1.1.2.

### 1.1.2 Parramatta Light Rail Planning Approval

The Environmental Impact Statement (EIS) assessed impacts for Parramatta Light Rail (Westmead to Carlingford). This covered the light rail and associated works including road enabling work. It was approved by the Minister for Planning on 29 May 2018.

The planning approval (Infrastructure approval SSI 8285) and related environmental assessment documents are located on Department of Planning and Environment's Major Project website:

## 1.2 Purpose of this Consultation Report

This Consultation Report has been prepared to meet the requirements of the CSSI approval, in particular Condition of Approval (CoA) A5. A5 outlines the requirements for undertaking and documenting consultation undertaken during the preparation of certain plans, programs and reports required under the CoA. Deliverables that GRCLR is responsible (in full or part) for as part of the SOM package, which required to comply with CoA A5 include the following:

- Construction Environmental Management Plan (CoA C1, C2);
- Traffic, Transport and Access Management Plan (CoA C3(a));
- Noise and Vibration Management Plan (CoA C3(b));
- Flood Management Plan (CoA C3(c));
- Heritage Management Plan (CoA C3(d));
- Flora and Fauna Management Plan (CoA C3(e));
- Water Quality (Turbidity) Monitoring Program (CoA C9(a));
- Noise and Vibration Monitoring Program (CoA C9(b));
- Site Establishment Management Plan (CoA C18);
- Pedestrian and Cyclist Network and Facilities Strategy (parts (f) – signage and wayfinding and (g) only – cycle facilities on LRVs) (CoA E14);
- Operational Noise and Vibration Review (CoA E48);
- Heritage Interpretation Strategy (CoA E64) – Implementation Component only;
- Electromagnetic Management Plan (CoA E117);
- Final Hazard Analysis and Construction Safety Study (CoA E132).

This particular Consultation Report has been prepared in support of the Construction Flood Management Plan (CFMP) which is required to be prepared under CoA C3(c) and for which consultation is required to be undertaken with the following agencies and stakeholders under CoA C5:

- Relevant government agencies (including relevant Council(s)), which for this CFMP includes:
  - Office of Environment and Heritage (OEH) (now Environment, Energy and Science (EES));
  - Sydney Water; and
  - City of Parramatta Council (CoPC).

This report includes consultation evidence for both:

- CEMP – Package 5 Activity A (Staging Report Revision 7.02); and
- CEMP – Package 5 Activity B (Staging Report Revision 7.02).



### 1.3 Compliance with CoA

This section discusses the compliance of this Consultation Report with the relevant CoA as applicable to consultation required to be undertaken during the development of the Construction Flood Management Plan (CFMP).

Table 1 lists the applicable CoA, where and how they have been addressed in this Consultation Report.

Table 1: Compliance with Applicable CoA

CoA ID	CoA Detail	Where Addressed	How Addressed
A5	Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Secretary with the document or monitoring program or review. The evidence must include:	This Consultation Report.	This consultation report provides of each of the stakeholders and agencies consulted in the preparation of this plan (Section 1.2).  Full correspondence and documentation exchanged during consultation is found the Appendix A1 through A3 inclusive.
A5	(a) documentation of the engagement with the party(ies) identified in the relevant condition of approval before submitting the document for approval;	This Consultation Report.	Full correspondence and documentation exchanged during consultation is found the Appendix A1 through A3 inclusive.  Each appendix relates to a different stakeholder/ agency, thereby ensuring all evidence for each is consolidated in a single appendix. All correspondence is provided in a chronological order.
A5	(b) log of the points of engagement or attempted engagement with the identified party(ies) and a summary of the issues raised by the identified party(ies);	Section 2 of this Report.	Section 2 includes, by Stakeholder / agency, a log of all points of engagement completed or attempted for Activity A, and Section 3 for Activity B.  It also summarises the issues raised by each stakeholder.
A5	(c) documentation of any follow-up with the identified party(ies), where feedback has not been provided, to confirm that the identified party(ies) has none or has failed to provide feedback after repeated requests;	Section 2 of this Report.	Section 2 includes, by Stakeholder / agency, a log of all points of engagement completed or attempted for Activity A, and Section 3 for Activity B.
A5	(d) outline of the issues raised by the identified party(ies) and how they have been addressed, including evidence that the party(ies) is satisfied the issues have been addressed; and	Section 2 of this Report and Appendix A1 through A5.	Sections 2 and 3 identify all the issues raised during consultation. They provide in tabular format: <ul style="list-style-type: none"> <li>• Issue raised;</li> <li>• Date raised;</li> </ul>

CoA ID	CoA Detail	Where Addressed	How Addressed
			<ul style="list-style-type: none"> <li>• How it was addressed or justification as to why it wasn't addressed;</li> <li>• Details of whether the Stakeholder was satisfied with the outcome.</li> </ul> <p>Section 2 and Section 3 then provide cross-referencing to the relevant Appendix identifying where evidence of the above is documented in full within this Report.</p> <p><i>Note: Sections 2 and 3 are broken down into each Stakeholder consulted with, and each has their own table addressing the above.</i></p>
A5	(e) where there are outstanding issues raised by the identified party(ies) that have not been adopted, the reasons why they have not been/could not be adopted must be provided, including evidence of consultation with the relevant party(ies).	Section 2 of this Report.	<p>Sections 2 and 3 identify all the issues raised during consultation. It provides in tabular format:</p> <ul style="list-style-type: none"> <li>• Issue raised;</li> <li>• Date raised;</li> <li>• How it was addressed or justification as to why it wasn't addressed;</li> <li>• Details of whether the Stakeholder was satisfied with the outcome.</li> </ul> <p><i>Note: Sections 2 and 3 are broken down into each Stakeholder consulted with, and each has their own table addressing the above.</i></p>
C5	The CEMP Sub-plans must be developed in consultation with relevant government agencies (including Relevant Council(s)).	This Report.	<p>This Consultation Report has been prepared to address the consultation undertaken on the CFMP for the SOM Works.</p> <p>A summary of the content of this Report is contained in Appendix B of the CFMP, however all the consultation requirements of CoA A5 and C5 are addressed in detail in this Report.</p>
C5	Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including all copies of	Other Consultation Reports.	Each CEMP Sub-plan will include a summary of consultation undertaken for that plan. Additionally, each will also have a

CoA ID	CoA Detail	Where Addressed	How Addressed
	correspondence from those agencies, must be provided to the Secretary with the relevant CEMP Sub-plan.		separate Consultation Report which addresses in detail CoA A5 and C5.

## 1.4 Consultation Process

Below Figure 2 presents the consultation process that was undertaken for the SOM Construction Flood Management Plan. It should be noted that consultation was undertaken during COVID-19 lockdown, and as such, was undertaken using non-face to face means, including:

- Formal correspondence; (Team Binder);
- Formal correspondence (standard email);
- Phone Calls; and
- Teams Meetings (only when requested by the stakeholder).

**CONSULTATION PROCESS FOR DOCUMENTS REQUIRING CONSULTATION BY THE COA**

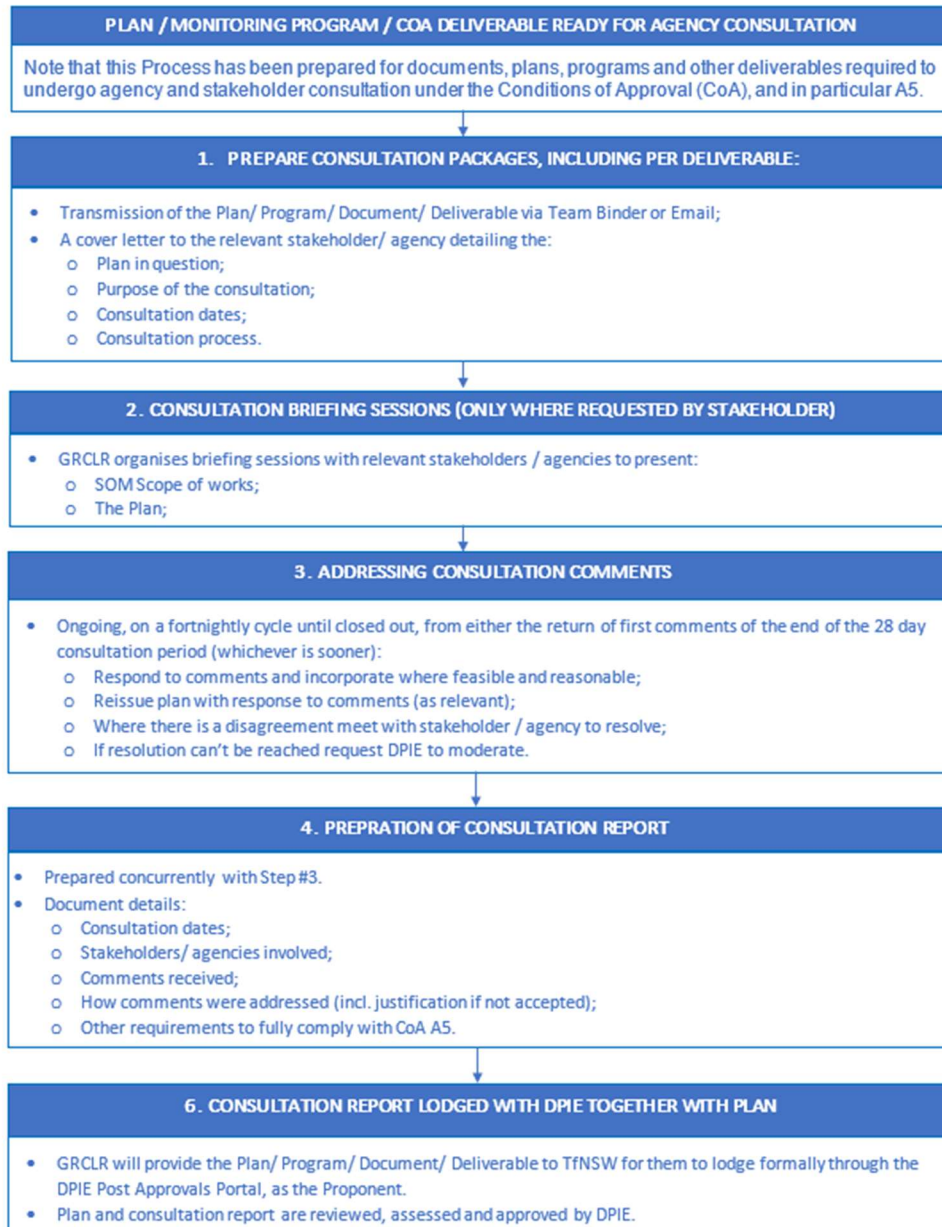


Figure 2: Consultation Process

## 2 Stakeholder / Agency Consultation – Package 5 Activity A CFMP

This Section of the Consultation Report provides detail of consultation undertaken with each stakeholder and agency in the preparation of the initial CFMP for Package 5 Activity A (Staging Report Rev 7.02), being for the SaMF site only. In particular it contains:

A consultation log that identifies:

- Consultation dates (actual and attempted);
- Form of consultation;
- Whether responses and / or comments were received;
- Summary of the issues raised, including how they have been addressed;
- Justification for not addressing an issue raised.

Documentary evidence of all the correspondence received and sent through the consultation phase is contained in the Appendices at the end of this Report. The Appendices and this Section are broken down by Stakeholder / Agency not by issue.

### 2.1 Environment, Energy and Science (EES)

Consultation with EES (formerly OEH) commenced on 5 August 2020 and concluded 7 September 2020.

Table 2 below includes the details of engagement between GRCLR and the EES regarding the CFMP. Table 3, following, includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendices A1 to this report.

Table 2: Engagement Log – EES

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	5 August 2020	Email	Initial request for stakeholder review and comment.	GRCLR	EES	Open.
2	7 September 2020	Email	Response to request for comments – no comments.	EES	GRCLR	Closed.

Table 3: Summary of Issues – EES

Aspect	Issue Raised	Date Raised	How Addressed / Justification Why Not Addressed	Stakeholder Satisfied / Issue Closed Out?
Not applicable to EES as no comments were provided.				

## 2.2 Sydney Water

Consultation with Sydney Water commenced on 5 August 2020 and concluded 7 September 2020.

Table 4 below includes the details of engagement between GRCLR and Sydney Water regarding the CFMP. Table 5, following, includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendices A2 to this report.

Table 4: Engagement Log – Sydney Water

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	5 August 2020	Email	Initial request for stakeholder review and comment.	GRCLR	Sydney Water	Open.
2	7 September 2020	Email	Response to request for comments – no comments.	Sydney Water	GRCLR	Closed.

Table 5: Summary of Issues – Sydney Water

Aspect	Issue Raised	Date Raised	How Addressed / Justification Why Not Addressed	Stakeholder Satisfied / Issue Closed Out?
Not applicable to Sydney Water as no comments were provided.				

## 2.3 City of Parramatta Council

Consultation with the City of Parramatta Council (CoPC) commenced on 7 August 2020 and concluded 23 September 2020.

Table 6 below includes the details of engagement between GRCLR and the CoPC regarding the CFMP. Table 7 following includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix A3 to this report.

Table 6: CoPC Engagement Log

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	7 August 2020	Team Binder	Initial request for stakeholder review and comment.	GRCLR	CoPC	Open.
2	23 September 2020	Team Binder	Response to request for comments – Response to request for comments – One Statement received stating that the FMP	CoPC	GRCLR	Closed.

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
			<p>did not impact any Council Assets. No further comment provided.</p> <p>No further comment provided.</p>			

Table 7: CoPC: Summary of Issues

Aspect	Issue Raised	Date Raised	How Addressed / Justification Why Not Addressed	Stakeholder Satisfied / Issue Closed Out?
Not applicable to CoPC as no comments were provided.				

# 3 Stakeholder / Agency Consultation – Package 5 Activity B CFMP

This Section of the Consultation Report provides detail of consultation undertaken with each stakeholder and agency in the preparation of the updated CFMP for Package 5 Activity B (Staging Report Rev 7.02). In particular it contains:

A consultation log that identifies:

- Consultation dates (actual and attempted);
- Form of consultation;
- Whether responses and / or comments were received;
- Summary of the issues raised, including how they have been addressed;
- Justification for not addressing an issue raised.

Documentary evidence of all the correspondence received and sent through the consultation phase is contained in the Appendices at the end of this Report. The Appendices and this Section are broken down by Stakeholder / Agency not by issue.

## 3.1 Environment, Energy and Science (EES)

Consultation with EES (formerly OEH) commenced on 17 February 2021 and concluded 17 March 2021.

Table 8: Engagement Log – EES below includes the details of engagement between GRCLR and the EES regarding the CFMP. Table 9: Summary of Issues – EES, following, includes a summary of the issues raised, how those were addressed and closed out. Full evident of correspondence is in Appendices A1 to this report.

Table 8: Engagement Log – EES

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	17 February 2021	Email	Initial request for stakeholder review and comment.	GRCLR	EES	Open.
	17 March 2021	Email	Follow-up request for comments.	GRCLR	EES	Open.
2	17 March 2021	Email	Response to request for comments – no comments.	EES	GRCLR	Closed.



Table 9: Summary of Issues – EES

Aspect	Issue Raised	Date Raised	How Addressed / Justification Why Not Addressed	Stakeholder Satisfied / Issue Closed Out?
Not applicable to EES as no comments were provided.				

### 3.2 Sydney Water

Consultation with Sydney Water commenced on 19 February 2021 and concluded 17 March 2021.

Table 10: Engagement Log – Sydney Water below includes the details of engagement between GRCLR and Sydney Water regarding the CFMP. Table 11: Summary of Issues – Sydney Water, following, includes a summary of the issues raised, how those were addressed and closed out. Full evident of correspondence is in Appendices A2 to this report.

Table 10: Engagement Log – Sydney Water

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	19 February 2021	Email	Initial request for stakeholder review and comment.	GRCLR	Sydney Water	Open.
2	11 March 2021	Email	Response to request for comments – comments not related to SOM (Package 5) scope of work or FMP.	Sydney Water	GRCLR	Open.
3	15 March 2021	Email	Response to point out that comments do not relate to SOM works, and that they have been passed to TfNSW to be considered.	GRCLR	Sydney Water	Open.
4	17 March 2021	Email	Sydney Water thanked GRCLR for forwarding the comments to the relevant contractor.	Sydney Water	GRCLR	Closed.

Table 11: Summary of Issues – Sydney Water

Aspect	Issue Raised	Date Raised	How Addressed / Justification Why Not Addressed	Stakeholder Satisfied / Issue Closed Out?
Not applicable to Sydney Water as no comments related to the Package 5 scope of works were received.				

### 3.3 City of Parramatta Council

Consultation with the City of Parramatta Council (CoPC) commenced on 17 February 2021 and concluded 20 April 2021.

Table 12: CoPC Engagement Log below includes the details of engagement between GRCLR and the CoPC regarding the CFMP. Table 13: CoPC: Summary of Issues following includes a summary of the issues raised, how those were addressed and closed out. Full evident of correspondence is in Appendix A3 to this report.

Table 12: CoPC Engagement Log

#	Date	Correspondence		From	Recipient	Consultation Open / Closed
		Form / Type	Purpose			
1	17 February 2021	Team Binder	Initial request for stakeholder review and comment.	GRCLR	CoPC	Open.
2	16 March 2021	Team Binder	Follow-up requesting response.	GRCLR	CoPC	Open.
3	15 April 2021	Team Binder	Response to request for comments.	CoPC	GRCL	Open.
4	19 April 2021	Team Binder	GRCLR requested clarification on the comment.	GRCLR	CoPC	Open.
5	19 April 2021	Team Binder	CoPC confirmed which document they have reviewed.	CoPC	GRCL	Open.
6	19 April 2021	Team Binder	GRCLR pointed out that CoPC had not reviewed the correct document.	GRCLR	CoPC	Open.
5	20 April 2021	Team Binder	Response to clarification – No further comment provided.	CoPC	GRCL	Closed.

Table 13: CoPC: Summary of Issues

<b>Aspect</b>	<b>Issue Raised</b>	<b>Date Raised</b>	<b>How Addressed / Justification Why Not Addressed</b>	<b>Stakeholder Satisfied / Issue Closed Out?</b>
Not applicable to CoPC as no comments were provided.				

# **Appendix A1 – Environment and Energy Science (EES)**

---

**From:** @environment.nsw.gov.au>  
**Sent:** Monday, 7 September 2020 8:48 AM  
**To:**  
**Subject:** GRCLR - Flood Management Plan - Parramatta Light Rail - Stage 1 - CSSI-8285 - Consultation Request  
**Attachments:** GRCLR - Flood Management Plan Consultation Request (DPIE EES).pdf; FMP Consultation Comments Template.xlsx; GRCLR - Flood Management Plan Rev C.pdf

Dear

Thank you for your email below and inviting the Environment, Energy and Science (EES) Group to comment on the Flood Management Plan for the Parramatta Light Rail - Stage 1 - CSSI-8285 - Stabling and Maintenance Facility at Grand Avenue Camellia.

Please be advised EES provides a 'nil response' on this plan

kind regards from  
7/9/2020

**Senior Conservation Planning Officer**

Climate Change & Sustainability | Department of Planning, Industry and Environment

Level 10, 12 Darcy Street, 4 Parramatta Square, Parramatta NSW 2150 | Locked Bag 5022  
[www.dpie.nsw.gov.au](http://www.dpie.nsw.gov.au)



*The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.*

---

**From:** @greatrivercity.com.au>  
**Sent:** Wednesday, 5 August 2020 10:50 AM  
**To:** OEH ROG Greater Sydney Region Planning Unit Mailbox @environment.nsw.gov.au>; INFOEnvironment <info@environment.nsw.gov.au>  
**Cc:** @greatrivercity.com.au>; caf.net>; <@transport.nsw.gov.au>; <  
**Subject:** GRCLR - Flood Management Plan Consultation Request

Good Morning,

Great River City Light Rail (GRCLR) has been engaged by Transport for NSW (TfNSW) to design and construct the Supply Operate Maintain (SOM) portion of the Parramatta Light Rail (PLR) Project.

GRCLR has prepared the Flood Management Plan (FMP) as a sub-plan to the Construction Environmental Management Plan (CEMP) required under the CSSI Approval (8285) the Conditions of Approval (CoA) C1 and C2, and under CoA C3 and C5 are required to undertake consultation with key Stakeholders. Please note this plan is for the Stabling and Maintenance Facility only, which has been remediated, and you will receive a revised FMP covering all GRCLR construction works which will be released at a later date for consultation prior to commencement of GRCLR works along the main alignment.

GRCLR invites the Department of Planning, Industry and Environment – Environment, Energy and Science Group (EES) to review and comment on the FMP, attached to this email with a comments sheet to place your comments within.

GRCLR requests that if EES Group would like to review and provide comments on the GRCLR FMP, would you please return these to GRCLR by **Wednesday 2<sup>nd</sup> September 2020**.

Please contact myself on the below details should additional information be required, or you have any further questions regarding the attached FMP.

If you do intend to make any comments on this plan, please also let us know.

We look forward to your response.

Regards

**Environment, Planning and Sustainability Manager**

**M  
E**

Level 1, 31 Macquarie St, Parramatta NSW 2150

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---

**From:** @greatrivercity.com.au>  
**Sent:** Wednesday, 17 February 2021 3:15 PM  
**To:** @environment.nsw.gov.au;  
**Cc:** Parramatta Light Rail – Supply, Operate and Maintain Package 5 – Updated Flood Management Plan for Stakeholder Consultation  
**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047\_Consultation on FMP with DPIE EES\_20210217.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2 v C Tracked Changes.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2\_Review Comments Register.xlsx  
**Attachments:**

As discussed today, I'm emailing you this request as you reviewed an earlier version of the Flood Management Plan in August/September last year.

Please find attached a cover letter requesting your review of the plan, plus three enclosures.

Please call me to discuss if needed and we'd be happy to meet with you to explain the changes that have been made.

Thanks

Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150

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---

**From:** @environment.nsw.gov.au>  
**Sent:** Wednesday, 17 March 2021 9:46 AM  
**To:** R  
**Subject:** RE: Parramatta Light Rail – Supply, Operate and Maintain Package 5 – Updated Flood Management Plan for Stakeholder Consultation

Hi Thank you for providing EES with a copy of the Parramatta Light Rail -Updated Flood Management Plan

I'm sorry for the delay in replying.

EES has nil response

kind regards from  
17/3/2021

**Senior Conservation Planning Officer**

Climate Change & Sustainability | Department of Planning, Industry and Environment

Level 10, 12 Darcy Street, 4 Parramatta Square, Parramatta NSW 2150 | Locked Bag 5022  
[www.dpie.nsw.gov.au](http://www.dpie.nsw.gov.au)



**Planning,  
Industry &  
Environment**

*The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.*

---

**From:** @greatrivercity.com.au>  
**Sent:** Tuesday, 16 March 2021 10:03 AM  
**To:** J@environment.nsw.gov.au>  
**Cc:** OEH ROG Greater Sydney Region Planning Unit Mailbox @environment.nsw.gov.au>; @caf.net;  
**Subject:** RE: Parramatta Light Rail – Supply, Operate and Maintain Package 5 – Updated Flood Management Plan for Stakeholder Consultation

I'm chasing up regarding our request for comments on this document.

Is there anything you need from us to assist with your review?

Thanks



Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150



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**From:**

**Sent:** Wednesday, 17 February 2021 3:15 PM

**To:** @environment.nsw.gov.au' <[environment.nsw.gov.au](mailto:environment.nsw.gov.au)>

@environment.nsw.gov.au'

**Cc:** @greatrivercity.com.au>; '@caf.net>;

'@transport.nsw.gov.au>

**Subject:** Parramatta Light Rail – Supply, Operate and Maintain Package 5 – Updated Flood Management Plan for Stakeholder Consultation

As discussed today, I'm emailing you this request as you reviewed an earlier version of the Flood Management Plan in August/September last year.

Please find attached a cover letter requesting your review of the plan, plus three enclosures.

Please call me to discuss if needed and we'd be happy to meet with you to explain the changes that have been made.

Thanks

Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150

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# Appendix A2 – Sydney Water

---

**From:** @sydneywater.com.au >  
**Sent:** Monday, 7 September 2020 11:04 AM  
**To:**  
**Cc:**  
**Subject:** RE: GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Hi ,

Apologises for not being clearer, like the Flood Management Plan, we have no comments on the submitted Soil and Water Management Subplan either.

**Infrastructure Account Manager**

**City Growth & Development** | Business Development Group  
Sydney Water, Level 13, 1 Smith St Parramatta NSW 2150

[sydneywater.com.au](http://sydneywater.com.au)

---

**From:**  
**Sent:** Wednesday, 2 September 2020 4:44 PM  
**To:** '@greatrivercity.com.au >  
**Cc:** @sydneywater.com.au >  
**Subject:** RE: GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Hi ,

The current report deals with the proposed rail facility at No 6 Grand Avenue Camelia. The site is not located near existing Sydney Water stormwater assets and is unlikely to have a consequential impact on Sydney Water's stormwater operations. Apologises I didn't get this response to you sooner.

Please note for future plans for the GRCLR reports, we have noticed that the general Flooding Reporting (from Parramatta Connect) are very generic and descriptive in nature and does not attempt to address the principal queries / concerns raised previously:

- The increased flood risk associated with the general strategy to substitute pit / pipe / surcharge drainage works for existing overland flow paths in order to provide enhanced flood immunity for the rail line.
- The specific nature and extent of works at Tramway Avenue where a 3.5m channel likely in close vicinity to Sydney Waters existing stormwater channel has been noted.

I thought I'd make this points to you as well as I am not sure when the flood study for the broader track works will come in.

Happy to chat about my broader comments.

Regards,

**Infrastructure Account Manager**

**City Growth & Development** | Business Development  
Group Sydney Water, Level 13, 1 Smith St Parramatta NSW  
2150

[sydneywater.com.au](http://sydneywater.com.au)

---

**From:** [@greatrivercity.com.au](mailto:@greatrivercity.com.au)>  
**Sent:** Tuesday, 1 September 2020 9:17 PM  
**To:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Cc:** [S@sydneywater.com.au](mailto:S@sydneywater.com.au)>  
**Subject:** RE: GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Thanks heaps Linda, give me a buzz if you have any major concerns happy to discuss as you know.

Regards

**Environment, Planning and Sustainability Manager**

**M**  
**E**

Level 1, 31 Macquarie St, Parramatta NSW 2150

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**From:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Sent:** Tuesday, 1 September 2020 7:20 PM  
**To:** [@greatrivercity.com.au](mailto:@greatrivercity.com.au)>  
**Cc:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Subject:** RE: GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Hi ,

Thanks for checking in. I'll email my colleague now to check if he has reviewed the document and has comments.

Cheers

**Infrastructure Account Manager**

[sydneywater.com.au](http://sydneywater.com.au)

---

**From:** [greatrivercity.com.au](mailto:greatrivercity.com.au)>  
**Sent:** Friday, 28 August 2020 10:58 AM  
**To:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Cc:** [@transport.nsw.gov.au](mailto:@transport.nsw.gov.au); [N@sydneywater.com.au](mailto:N@sydneywater.com.au)>; [@caf.net](mailto:@caf.net)>; <[@greatrivercity.com.au](mailto:@greatrivercity.com.au)>  
**Subject:** GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Morning ,

Just following up, as a reminder, on the below request for consultation on the Flood Management and Soil and Water sub plans, sent to yourself on 5 August 2020, due on **Wednesday 2nd September 2020**.

Would Sydney Water like to provide review comments on the subplans? If you would like to go through our project scope or have any particular queries, please let me know and I'm happy to arrange a meeting to discuss further.

We look forward to your response.

Regards

**Environment, Planning and Sustainability Manager**

**M**  
**E**

Level 1, 31 Macquarie St, Parramatta NSW 2150

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**From:**  
**Sent:** Wednesday, 5 August 2020 4:21 PM  
**To:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Cc:** [@transport.nsw.gov.au](mailto:@transport.nsw.gov.au); [G@caf.net](mailto:G@caf.net)>; [@greatrivercity.com.au](mailto:@greatrivercity.com.au)>; <[@transport.nsw.gov.au](mailto:@transport.nsw.gov.au)> **Subject:**  
GRCLR - Flood Management and Soil and Water Management Sub Plans - Consultation Request

Good Afternoon ,

In follow up to our recent consultation on GRCLR's Construction Environment Management Plan, GRCLR has now prepared the Flood Management Plan (FMP) and Soil and Water Management Plan (SWMP) as sub-plans to the Construction Environmental Management Plan (CEMP) required under the CSSI Approval (8285) the Conditions of Approval (CoA) C1 and C2, and under CoA C3 and C5 are required to undertake consultation with key Stakeholders. Please note these plans are for the Stabling and Maintenance Facility only, which has been remediated, and you will receive a revised FMP and SWMP covering all GRCLR construction works which will be released at a later date for consultation prior to commencement of GRCLR works along the main alignment.

GRCLR invites Sydney Water to review and comment on the FMP and SWMP, attached to this email along with its corresponding review comment sheet.

GRCLR requests that if Sydney Water would like to review and provide comments on the GRCLR FMP or SWMP, would you please return these to GRCLR by **Wednesday 2<sup>nd</sup> September 2020**.

Please contact myself on the below details should additional information be required, or you have any further questions regarding the attached Sub-Plans.

If you do intend to make any comments on these plans, please also let us know.

We look forward to your response.

Regards

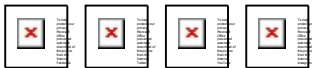
Regards

**Environment, Planning and Sustainability Manager**

**M  
E**

Level 1, 31 Macquarie St, Parramatta NSW 2150

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---

**From:** @greatrivercity.com.au>  
**Sent:** Friday, 19 February 2021 3:04 PM  
**To:** @sydneywater.com.au  
**Cc:** 'Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation  
**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047\_Consultation on FMP with SWC\_20210217.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2 v C Tracked Changes.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2\_Review Comments Register.xlsx  
**Attachments:**

Dear

As discussed last week, I'm emailing you to consult with Sydney Water on an updated version of the Flood Management Plan that was reviewed in August/September last year.

Please find attached a cover letter requesting your review of the plan, plus three enclosures.

Please call me to discuss if needed and we'd be happy to meet with you to explain the changes that have been made.

Thanks

Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150

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**From:** @sydneywater.com.au>  
**Sent:** Friday, 19 February 2021 3:43 PM  
**To:**  
**Cc:**  
**Subject:** RE: [External] Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation (SWC ref: 186546)

Hi ,

Thanks for your email and the updated Flood Management Plan.

I have forwarded to the Senior Engineer to review.

Please feel free to contact myself or Gina if you require any update/further info.

Thanks

[Infrastructure Account Manager](#)

City Growth & Development | Business Development Group  
Sydney Water, Level 13, 1 Smith Street, Parramatta NSW  
2150

---

**From:** @greatrivercity.com.au>  
**Sent:** Friday, 19 February 2021 3:04 PM  
**To:** l@sydneywater.com.au>  
**Cc:** '@transport.nsw.gov.au>; @greatrivercity.com.au>; @caf.net>;  
**Subject:** [External] Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation

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Dear

As discussed last week, I'm emailing you to consult with Sydney Water on an updated version of the Flood Management Plan that was reviewed in August/September last year.

Please find attached a cover letter requesting your review of the plan, plus three enclosures.

Please call me to discuss if needed and we'd be happy to meet with you to explain the changes that have been made.

Thanks

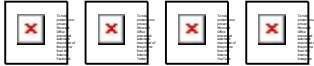
Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150



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**From:** @sydneywater.com.au >  
**Sent:** Wednesday, 17 March 2021 12:31 PM  
**To:**  
**Cc:** @caf.net;  
**Subject:** Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation (Head Case: 186546)

Thank you . Kind

Regards,

[Development Project Manager | Infrastructure Development](#)  
City Growth and Development, Liveable City Solutions  
Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150  
PO Box 399 Parramatta NSW 2124



---

**From:** @greatrivercity.com.au >  
**Sent:** Tuesday, 16 March 2021 12:30 PM  
**To:** @sydneywater.com.au >  
**Cc:** @sydneywater.com.au >; @sydneywater.com.au >; @caf.net;  
**Subject:** RE: Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation (Head Case: 186546)

We note your response and comments relating to flood management for the project.

These relate to the Parramatta Light Rail Package 4 scope of work (under the Parramatta Light Rail Staging Report Rev 7.02) being delivered by the TfNSW's Infrastructure Contractor, Parramatta Connect. We will pass your comments on to TfNSW.

Thanks

Environment, Planning & Sustainability Manager

M +

Level 1, 31 Macquarie St, Parramatta NSW 2150



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**From:** @sydneywater.com.au>  
**Sent:** Thursday, 11 March 2021 12:35 PM  
**To:** @greatrivercity.com.au>  
**Cc:** @sydneywater.com.au>; Greatrivercity.com.au>  
**Subject:** Re: Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation (Head Case: 186546)

Hi ,  
A review has been carried out by Sydney Water as requested for: **Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation.**

See below our comments:

- The flooding issues associated with this section of the light rail are principally associated with overland flow path obstruction by the rail tracks. There is potential for this to adversely impact upstream properties in severe local storms.
- In previous assessment of design drawings the proponents generally implemented a design strategy to permit the raised rail tracks to obstruct overland flow paths and to provide enhanced piped drainage / surcharge systems to compensate.
- **We had indicated concern with this approach as the later are notoriously liable to blockage by mobilised debris in severe storm events and are less reliable than clear and mostly failsafe open overland flow paths.**
- The proponents have previously indicated they would persist with the piped drainage / surcharge strategy and the current submission documents appear to be silent on this matter.

- In effect we retain only limited direct involvement in this issue. We raise our concerns again and note the concern has been raised previously.
- Otherwise, the submission is noted.

Kind Regards,

[Development Project Manager | Infrastructure Development](#)  
City Growth and Development, Liveable City Solutions  
Sydney Water, Level 13, 1 Smith Street, Parramatta NSW 2150  
PO Box 399 Parramatta NSW 2124

---

**From:** [@greatrivercity.com.au](mailto:@greatrivercity.com.au)>  
**Sent:** Friday, 19 February 2021 3:04 PM  
**To:** [@sydneywater.com.au](mailto:@sydneywater.com.au)>  
**Cc:** '[@transport.nsw.gov.au](mailto:@transport.nsw.gov.au)>; [transport.nsw.gov.au](mailto:transport.nsw.gov.au)>; [@greatrivercity.com.au](mailto:@greatrivercity.com.au)>; [@caf.net](mailto:@caf.net)>;  
**Subject:** [External] Parramatta Light Rail - Supply, Operate and Maintain Package 5 - Updated Flood Management Plan for Stakeholder Consultation

**CAUTION:** This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

As discussed last week, I'm emailing you to consult with Sydney Water on an updated version of the Flood Management Plan that was reviewed in August/September last year.

Please find attached a cover letter requesting your review of the plan, plus three enclosures.

Please call me to discuss if needed and we'd be happy to meet with you to explain the changes that have been made.

Thanks

Environment, Planning & Sustainability Manager

M +

Level 1, 31 Macquarie St, Parramatta NSW 2150

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# **Appendix A3 – City of Parramatta Council**







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**From:** InEight Document <system@teambinder.com>  
**Sent:** Wednesday, 17 February 2021 3:28 PM  
**To:**  
**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation  
**Attachments:** PLR1SOM-GLR-ALL-PM-PLN-000047\_Consultation on FMP with CoPC\_20210217.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2 v C Tracked Changes.pdf; PLR1SOM-GLR-ALL-PM-PLN-000047\_2\_Review Comments Register.xlsx

# Document Transmittal

**Project Number:** PLRM

**Transmittal No:** PLRM-GLR-COP-TX-000009

**Project Title:** Parramatta Light Rail - Main Works

**Date:** 17 February 2021 03:28 PM

**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation

**Reason for Issue:** Issued For Review

**Message:**

Dear ,

PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2) is transmitted for your review.

In addition, the following are attached:

- Cover letter
- PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2 v C Tracked Changes)
- Comments Register

Thanks

Environment, Planning & Sustainability Manager

**M**

Level 1, 31 Macquarie St, Parramatta NSW 2150

Please submit your comments by 17 March 2021

**Transmitted to:**

Company	Name
City of Parramatta	

**Transmitted cc:**

Company	Name
Transport for NSW	
Transport for NSW	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	

[Click here to download all Transmittal files.](#)

Click on Document Nos to download them individually.

Item	Document No	Rev	Sts	Title	Alt Doc Number	Design Package No
1	<a href="#">PLR1SOM-GLR-ALL-PM-PLN-000047</a>	02	S3	Flood Management Plan	PLR-SOM-GLR-PJT-PM-PLN-000040	

**Transmitted by:** Great River City Light Rail Pty Ltd

TeamBinder Transmittal Reference: {989C119A-7A48-4C37-AD39-D87703CA7A73}

15 April 2021, 10:07

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

Great River City Light Rail Pty Ltd

Attention:

**Project Name Parramatta Light Rail - Main Works  
RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood  
Management Plan for Stakeholder Consultation**

Good morning

Please find attached CoP's comments relating to the Updated Flood Management Plan.

Apologies for the delay in responding.

Program Interface Manager  
Parramatta Light Rail | City of Parramatta

Project Reference No: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

To: (GLR)

Cc: (GLR) , PLR Document Controller (TFNSW) , (COP)

City of Parramatta

----- Original Message -----

## **General Correspondence**

**Reference No.:** **PLR-PLR1SOM-GLR-COP-CORR-000026**

**Project Title:** Parramatta Light Rail - Main Works

**Date:** 16 March 2021, 12:55  
**To:** City of Parramatta  
**Cc:** Great River City Light Rail Pty Ltd

**From:** RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation  
**Subject:**

I am chasing up CoPC's comments on the updated Flood Management Plan.

If we can assist Council's review in any way please let me know.

Thanks

Environment, Planning & Sustainability Manager

**M**

Level 1, 31 Macquarie St, Parramatta NSW 2150

**Design Pkg:**  
**Discipline:** Environmental

**Contract / Program:** Stage 1 Supply Operate and Maintain Contract  
**Location:**

----- Original Message -----

## Document Transmittal

**Project Number:** PLRM **Transmittal No:** PLRM-GLR-COP-TX-000009  
**Project Title:** Parramatta Light Rail - Main Works  
**Date:** 17 February 2021 03:28 PM  
**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation  
**Reason for Issue:** Issued For Review

**Message:**

██████████

PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2) is transmitted for your review.

In addition, the following are attached:

- Cover letter
- PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2 v C Tracked Changes)
- Comments Register

Thanks

Environment, Planning & Sustainability Manager

**M**

Level 1, 31 Macquarie St, Parramatta NSW 2150

Please submit your comments by 17 March 2021

**Transmitted to:**

<b>Company</b>	
City of Parramatta	

**Transmitted cc:**

<b>Company</b>	
Transport for NSW	
Transport for NSW	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	

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Click on Document Nos to download them individually.

Item	Document No	Rev	Sts	Title	Alt Doc Number	Design Package No
1	<a href="#">PLR1SOM-GLR-ALL-PM-PLN-000047</a>	02	S3	Flood Management Plan	PLR-SOM-GLR-PJT-PM-PLN-000040	

**Transmitted by:** Great River City Light Rail Pty Ltd

Attachments

PLR1SOM-GLR-ALL-PM-PLN-000047\_2\_Review Comments Register.xlsx (62 KB)

20 April 2021, 15:54

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

Great River City Light Rail Pty Ltd

Attention:

**Project Name Parramatta Light Rail - Main Works**  
**RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation**

CoPC refer to your clarification below and advised that we have no further comment on the Flood Management Plan, Rev 02

Regards

Senior Engineering & Project Manager

City of Parramatta  
Level 11, 126 Church Street, Parramatta NSW 2150  
PO Box 32, Parramatta, NSW 2124  
cityofparramatta.nsw.gov.au

Project Reference No: **PLR-PLR1SOM-COP-GLR-LETTER-000024**

To: (GLR) ,  
Cc: (DWJV) , PLR SOM Document Controller (GLR) , (TFNSW) , PLR Document Controller (TFNSW)

City of Parramatta

----- Original Message -----

19 April 2021, 15:32

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

City of Parramatta

Attention:

**Project Name Parramatta Light Rail - Main Works**  
**RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation**

GRCLR was seeking CoPC's comments on Rev 02 of the FMP dated February 2021 and transmitted to CoPC in PLRM-GLR-COP-TX-000009 on 17/02/21.

A comparison version of the document comparing Rev 02 with Rev C (the previous version CoPC reviewed) was attached for information. Apologies for any confusion.

In any case, the reference to "18% AEP" was removed from the plan in a revision subsequent to Rev C and does not appear on Rev 02.

As this was CoPC's only comment, please advise whether GRCLR can consider that CoPC has no comments on the Flood Management Plan Rev 02.

Thanks



Environment, Planning & Sustainability Manager

M

Level 1, 31 Macquarie St, Parramatta NSW 2150

Project Reference No: **PLR-PLR1SOM-GLR-COP-LETTER-000011**

To: COP),  
Cc: (DWJV), PLR SOM Document Controller (GLR), (TFNSW), PLR Document Controller (TFNSW),

Great River City Light Rail Pty Ltd  
ABN 622 239 605

----- Original Message -----

19 April 2021, 14:42

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

Great River City Light Rail Pty Ltd Attention:

**Project Name Parramatta Light Rail - Main Works**  
**RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation**

Hi

The comment was made with reference to the FMP, Document Version, PLR1SOM-GLR-ALL-PM=PLN-000047 Rev C, dated July 2020. CoPC understand this was the version supplied for comment. The subject comment was found in Section 5.2 in excerpt as below

## 5 Existing environment

The following sections describes the existing flood regime within the Project area for the SaMF, based on the information contained in the Parramatta Light Rail EIS and GRCLR SOM Flood Study Reports. For a description of the Flood study refer section 5.5.

### 5.1 Existing flood regime

The site is situated south of Parramatta River and experiences flooding from the surface water (rainfall) falling on the Camellia precinct in addition to overbank flows from the Parramatta river in large flood events. Flows leave the area towards the Parramatta River channel via underground drainage infrastructure, with excess overland flows travelling through adjacent sites.

### 5.2 Flood extents

Flood extents for minor flood events including the 18% AEP (5yr ARI equivalent) and 5% AEP (20yr ARI equivalent) are limited to sag points in the road network and depressions or low points in the private lot areas adjacent. In major flood events 1% AEP (100yr ARI equivalent) and 1% AEP with climate change, this flooding of local roads and adjacent site increases in extent and fills the Grand Avenue road carriageways. The extreme flood event (PMF) indicates a scenario where the entire precinct is inundated and overbank flooding from the Parramatta River joins with surface water flooding of the Camellia precinct. Refer to Appendix A for flood maps.

Senior Engineering & Project Manager

City of Parramatta  
Level 11, 126 Church Street, Parramatta NSW 2150  
PO Box 32, Parramatta, NSW 2124

Project Reference No: **PLR-PLR1SOM-COP-GLR-LETTER-000023**

To: (GLR),  
Cc: (GLR), (DWJV), PLR SOM Document Controller (GLR), (TFNSW), PLR Document Controller (TFNSW)

City of Parramatta

----- Original Message -----

19 April 2021, 13:47

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

City of Parramatta

Attention:

**Project Name Parramatta Light Rail - Main Works**  
**RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation**

Thank you for CoPC's comment.

We have reviewed the comment and the plan, but can't find a reference to "18% AEP" in the plan - see attached spreadsheet.

Could you please provide a clarification with regard to CoPC's comment.

Environment, Planning & Sustainability Manager

**M**

Level 1, 31 Macquarie St, Parramatta NSW 2150

Project Reference No: **PLR-PLR1SOM-GLR-COP-LETTER-000010**

To: (COP)

Cc: (COP) , (GLR) , (TFNSW) , PLR Document Controller (TFNSW) , (DWJV) , PLR SOM Document Controller (GLR) ,

Great River City Light Rail Pty Ltd  
ABN 622 239 605

----- Original Message -----

15 April 2021, 10:07

Reference No.: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

Great River City Light Rail Pty Ltd

Attention:

**Project Name Parramatta Light Rail - Main Works**  
**RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation**

Good morning

Please find attached CoP's comments relating to the Updated Flood Management Plan.

Apologies for the delay in responding.

Program Interface Manager  
Parramatta Light Rail | City of Parramatta

Project Reference No: **PLR-PLR1SOM-COP-GLR-LETTER-000022**

To: GLR)  
Cc: (GLR) , PLR Document Controller (TFNSW) , (TFNSW) , (COP)

City of Parramatta

----- Original Message -----

## General Correspondence

**Reference No.:** PLR-PLR1SOM-GLR-COP-CORR-000026

**Project Title:** Parramatta Light Rail - Main Works

**Date:** 16 March 2021, 12:55

**To:** City of Parramatta

**Cc:** Great River City Light Rail Pty Ltd

**From:** RE: PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation

**Subject:**

I am chasing up CoPC's comments on the updated Flood Management Plan.

If we can assist Council's review in any way please let me know.

Thanks

Environment, Planning & Sustainability Manager

**M**

Level 1, 31 Macquarie St, Parramatta NSW 2150

**Design Pkg:**

**Discipline:** Environmental

**Contract / Program:** Stage 1 Supply Operate and Maintain Contract

**Location:**

----- Original Message -----

## Document Transmittal

**Project Number:** PLRM

**Transmittal No:** PLRM-GLR-COP-TX-000009

**Project Title:** Parramatta Light Rail - Main Works

**Date:** 17 February 2021 03:28 PM

**Subject:** PLR1SOM-GLR-ALL-PM-PLN-000047 REV 2 - Updated Flood Management Plan for Stakeholder Consultation

**Reason for Issue:** Issued For Review

**Message:**

Dear ,

PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2) is transmitted for your review.

In addition, the following are attached:

- Cover letter
- PLR1SOM-GLR-ALL-PM-PLN-000047 Flood Management Plan (Rev 2 v C Tracked Changes)
- Comments Register

Thanks

Environment, Planning & Sustainability Manager

M +

Level 1, 31 Macquarie St, Parramatta NSW 2150

Please submit your comments by 17 March 2021

**Transmitted to:**

Company	Name
City of Parramatta	

**Transmitted cc:**

Company	Name
Transport for NSW	
Transport for NSW	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	
Great River City Light Rail Pty Ltd	

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Item	Document No	Rev	Sts	Title	Alt Doc Number	Design Package No
1	<a href="#">PLR1SOM-GLR-ALL-PM-PLN-000047</a>	02	S3	Flood Management Plan	PLR-SOM-GLR-PJT-PM-PLN-000040	

**Transmitted by:** Great River City Light Rail Pty Ltd

# Appendix C – ER Endorsement

10 May 2021

**Transport for NSW**

Attention to: Senior Manager Environment Parramatta Light Rail  
[REDACTED]

**Review of Flood Management Plan.  
Supply, Operate, Maintain (SOM) Package - Parramatta Light Rail  
(PLR1SOM-GLR-ALL-PM-PLN-000047 Rev 2)**

Pursuant to SSI8285 Condition of Approval A23 (d) i), as the approved Environmental Representative, I confirm that I have reviewed the updated Flood Management Plan, Supply, Operate, Maintain (SOM) Package - Parramatta Light Rail (PLR1SOM-GLR-ALL-PM-PLN-000047 Rev 2), dated 01/02/2021, updated by Great River City Light Rail, for consistency with the requirements of the Conditions of Approval.

In my opinion the aforementioned updated document, including the A5 Consultation Report, Rev E, dated 21 April 2021, is consistent with the requirements included in or required under the terms of the Conditions of Approval for the Parramatta Light Rail (Stage 1) development.

This management plan and A5 Consultation Report have been updated to include the full scope of construction works associated with the SOM package.

Yours sincerely,  
[REDACTED]

Environmental Representative

Filename : *AQ1148.05 PLR GLR FloodMP Rev2 endorsement 210510*

[REDACTED]

