Appendix B8

Construction Flood Management Sub-plan

M12 Motorway – Central

January 2025

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Document control

File Name	**Appendix B08 Flood MP**
Title	M12 Central CEMP: Appendix B8 Construction Flood Management Sub-plan
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Approval and authorisation

Plan reviewed by:	Plan endorsed by:
[redacted] Seymour Whyte Environmental Site Representative	[redacted] Seymour Whyte Project Manager
18/01/2025	18/01/2025
	

Revision history

Revision	Date	Description
A	18/02/2022	First draft for TfNSW review
B	29/04/2022	Updated in response to TfNSW review
C	29/06/2022	Updated in response to TfNSW review
D	27/07/2022	Updated in response to TfNSW and ER review
E	14/08/2023	Updated in response to OCEMP update
F	18/01/2025	Updated in response to OCEMP update

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Glossary / Abbreviations

Abbreviation	Expanded text
AEP	Annual exceedance probability (AEP) represents the probability of a flood event occurring or being exceeded in any one year.
Areas of vegetation to be retained	These areas present potential opportunities for the Construction Contractor to avoid and minimise potential vegetation impacts if possible. As vegetation impacts may occur during construction, these impacts have been considered in biodiversity off-set calculations.
ARI	Average Recurrence Interval
ARSR	Amendment Report Submissions Report
AWS	Automatic Weather Station
Best practice	A procedure or management measure that has been shown through experience, at the time of writing, to minimise environmental impact and that is established or proposed as a standard suitable for widespread adoption.
BOM	Bureau of Meteorology
CEMP	Construction Environmental Management Plan
CFMP	Construction Flood Management Sub-plan
CoA	Condition of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out to complete prior to the approval of the OCEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix B of the Infrastructure Approval and approved under an environmental management plan(s) in accordance with Condition A24.
Commonwealth CoA	Federal Conditions of Approval under the EPBC Act
CSSI	Critical State Significant Infrastructure
CSWMP	Construction Soil and Water Management Plan
CWRMP	Construction Waste and Resources Management Plan
DAWE	Former Commonwealth Department of Agriculture, Water and the Environment (now Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW))
DCCEEW	Commonwealth Department of Climate Change, Energy, Environment and Water
DPE	Former NSW Department of Planning and Environment

Abbreviation	Expanded text
EAD	Environmental Assessment Documentation
EHG	Environment and Heritage Group (a part of NSW DPE)
EIS	Environmental Impact Statement
EMS	Environmental Management System

Environmental Assessment Documentation	The set of documents that comprise the Division 5.2 Approval: • Roads and Maritime Services (October, 2019) M12 Motorway, Environmental Impact Statement (EIS) • Transport for NSW (October, 2020) M12 Motorway, Submissions Report (the Submissions Report) • Transport for NSW (October, 2020) M12 Motorway, Amendment Report (AR) • Transport for NSW (December, 2020) M12 Motorway, Amendment Report submissions report (ARSR) • Transport for NSW (March, 2021) The M12 Motorway Amendment Report Submissions Report – Amendment (ARSR amendment) • WSP (October, 2021) M12 Motorway – West Package Detailed Design Consistency Assessment • GHD (October, 2021) M12 Motorway – Central Package Detailed Design Consistency Assessment • Arcadis (June, 2022) M12 Motorway – Sydney Water Crossings Consistency Assessment • Arcadis (July, 2022) M12 Motorway – Design Boundary Changes Consistency Assessment • Arcadis (August, 2022) M12 Motorway – Minor Consistency Assessment for Proposed Change to the M12 Motorway Project (M12 Central) • Arcadis (September 2023) M12 Motorway Devonshire Road Temporary Roundabout Consistency Assessment • WSP (September, 2023) M12 Motorway – Elizabeth Drive Connections Consistency Assessment • TfNSW (September, 2023) M12 Motorway – Minor Consistency Assessment M12 West demolition of structures as 752 Luddenham Road • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East AF9 Power Supply • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Cecil Road Laydown Area • TfNSW (October, 2023) M12 Motorway – Minor Consistency Assessment M12 East Temporary Construction Signage • Arcadis (December, 2023) M12 Motorway Project (M12 East) Sites 48, 50 and 51 • Arcadis (January 2024) M12 Motorway – Minor Consistency Assessment M12 Central Water Tower Access Road

Abbreviation	Expanded text
	The documents that comprise the EPBC referral: • Submission #3486 – The M12 Motorway Project between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham, NSW • Notification of referral decision and designated proponent - controlled action; date of decision 19 October 2018; ID: 2018-8286.
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection License
ER	Environmental Representative A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. A key point of contact for the Planning Secretary in relation to environmental performance of the CSSI.
ERSED	Erosion and Sediment Control
ESM	TfNSW Environment and Sustainability Manager
ESR	Environmental Site Representative (Seymour Whyte)
EWMS	Environmental Work Method Statement
Federal Approval	Approval (EPBC 2018/8286) for carrying out the M12 Project under Part 8 of the Environmental Protection and Biodiversity Conservation Act 1999 subject to specific CoA as detailed in Annexure A of the approval.
FCC	Fairfield City Council
Final construction footprint	The area shown in the map(s) submitted under Commonwealth CoA 2, determined by TfNSW in accordance with a consistency assessment(s) or a modification assessment under the *NSW Environmental Planning and Assessment Act 1979* where no new significant impacts to protected matters are identified.
Hold Point	A point beyond which a work process must not proceed without express written authorisation from Transport for New South Wales
Infrastructure Approval	Approval (SSI 9364) for carrying out of the M12 Project under Section 5.19 of the Environmental Planning and Assessment Act 1979 subject to specific CoA as detailed in Schedule 2 of the approval.
LCC	Liverpool City Council
NSW CoA	NSW Conditions of Approval

Abbreviation	Expanded text
OCEMP	Overarching Construction Environmental Management Plan
OCFMP	Overarching Construction Flood Management Sub-plan
OCSWMP	Overarching Construction Soil and Water Management Sub-plan
OCS	Overarching Communication Strategy
PCC	Penrith City Council
PIRMP	Pollution Incident Response Management Plan
Primary CoA/REMM	CoA or REMM that is specific to the development of this Plan
Project, the	The CSSI as approved by the Minister for Planning and Public Spaces on the 23 April 2021 (SSI 9364)
QA	Quality Assurance
REMM	Revised Environmental Management Measure as provided in the Amendment Report
SEARs	Secretary's Environmental Assessment Requirements
Secondary CoA/ REMM	CoA or REMM that is related to, but not specific to, the development of this Plan
SEMP	Site Establishment Management Plans
SES	State Emergency Services
TfNSW	Transport for New South Wales
Waterway	Refers to all areas of land submerged by water, permanently or intermittently, and include both artificial and natural bodies of water. It includes wetlands, creeks, floodplains, and dry river beds
WSIA	Western Sydney International Airport

1 Introduction

1.1 Context

This Construction Flood Management Sub-plan (CFMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – Central package.

This CFMP has been prepared under the Overarching Construction Environmental Management Plan (OCEMP) and relevant sub-plans developed for M12 Motorway (the Project), to address the requirements of the Minister's Conditions of Approval (CoA), Revised Environmental Management Measures (REMMs) listed in the Environmental Impact Statement (EIS), Submissions Report, Amendment Report, and Amendment Report Submissions Report (ARSR), ARSR Amendment Report, all applicable legislation, and Transport for New South Wales (TfNSW) specifications.

1.2 Background

1.2.1 M12 Motorway (the Project)

TfNSW is planning to construct and operate the M12 Motorway (the Project) to provide direct access between the Western Sydney International Airport (WSIA) at Badgerys Creek and Sydney's motorway network. The M12 Motorway will run between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham for about 16 kilometres (km) and is expected to be opened to traffic prior to opening of the WSIA.

Key features of the Project include:

- An east-west 16 km motorway between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham
- A motorway built for four lanes (with provision for up to six lanes) with a median to separate opposing traffic flows
- A direct connection to Western Sydney International Airport
- A new connection to The Northern Road with traffic lights
- A motorway-to-motorway interchange at the M7 Motorway
- Provision for a future interchange connecting Mamre Road and Devonshire Road at the M12 Motorway.

A detailed Project description is provided in Section 2.1 of the CEMP.

1.2.2 Statutory Context

The Project is subject to an approval under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as Critical State Significant Infrastructure (CSSI). The Project is also a controlled action under Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), requiring a separate approval from the Australian Minister for the Environment.

The Project was assessed as part of an EIS, Submission Report, Amendment Report, ARSR and ARSR amendment report which are herein referred to as the Environmental Assessment Documentation. REMMs are nominated in these assessments to manage the identified impacts.

The following additional assessments have since been undertaken:

- Two Consistency Assessments (CA) for M12 West and Central addressing detailed design changes for the Project construction boundary approved in October 2021
- Sydney Water Consistency Assessment related to construction boundary extensions associated with Sydney Water utility crossings; approved in June 2022
- Design Boundary Change Consistency Assessment related to design boundary changes within the M12 alignment. This required an extension of the construction footprint and operational footprint, property adjustments and the demolition of Building No.1 at McMasters Field Station; approved in July 2022. Threatened Species Surveys were also undertaken along the M12 alignment between September and December 2021 to satisfy the NSW Conditions of Approval (CoA) E4, E5 and E6; the outcomes of which captured within the Design CA.
- Minor Consistency Assessment required amendments to the construction footprint as a result of utility adjustments and tie in works, property adjustments for flood alleviation and improvements to ancillary facility access due to safety concerns, temporary widening of Elizabeth Drive and signage installation; approved in August 2022.

1.2.3 M12 Motorway Delivery Strategy

The Project will be constructed in three separate stages under separate construction contracts:

- **M12 West**– between The Northern Road, Luddenham and about 250 metres east of Badgerys Creek
- **M12 Central** (the subject of this Plan) – between about 500 metres west of South Creek and the Western Sydney Parklands at Duff Road, Cecil Park
- **M12 East**– Elizabeth Drive connections, at Cecil Park
- **M12 East**– the M7/M12 interchange.

Each package of work is to be delivered under separate contracts on behalf of the proponent TfNSW. While the packages will commence at different times there will be periods during which the packages works will overlap. Co-ordination between the contractors will be required to manage cumulative impacts.

1.3 M12 Central

Seymour Whyte has been engaged to deliver the M12 Central package. Construction of the M12 Central package involves building 7.5 km of motorway from west of Badgerys Creek to the Water Tower Access Road within Western Sydney Parklands.

The M12 Central package will provide a dual carriageway with a wide median to allow for future widening to six lanes. Safety barriers will be provided along the length of the package. Emergency stopping bays and emergency crossovers will also be provided at regular intervals. A shared user path with lighting will provide an active transport link along the motorway and eastward to the M7.

The M12 Central package includes the following bridges:

- Twin bridges over South Creek
- A bridge for Clifton Avenue over the M12 Motorway
- Twin bridges over Kemps Creek
- Twin bridges over Elizabeth Drive near Mamre Road

- Twin Bridges over Range Road
- A bridge for the Water Tower Access Road over the M12 Motorway
- A private property access bridge in University of Sydney land.

Retaining walls will be provided around Range Road to help limit Project impacts on Range Road. Adjustments will be made to local roads including Clifton Avenue and Salisbury Road.

The M12 Central package also requires relocation of utility services including electricity, water, gas and telecommunications. Urban design features of this package include Aboriginal artwork on bridges, rest areas on shared user paths, interpretive signage and landscape planting.

A detailed description of the M12 Central package is provided in Section 2.3 of the CEMP.

1.4 Scope of the Plan

The scope of this CFMP is to describe how the potential impacts from flooding will be minimised and managed during construction of the M12 Central package. Where low impact works are undertaken prior to the approval of this Plan they will be governed by the Low Impact Works EWMS outlined in Section 3.3.8 of the CEMP.

This Plan has been prepared under and consistent with the OCEMP, and in particular the Overarching Construction Flood Management Sub-plan (OCFMP) considering the existing flooding environment and construction activities. In the preparation and ongoing implementation of this Plan, SMART (Specific, Measurable, Achievable, Realistic and Timely) principles are to be considered and applied.

This Plan is applicable to all activities during construction of the M12 Central package, including all areas where physical works will occur or areas that may be otherwise impacted by the construction works, and under the control of Seymour Whyte. All Seymour Whyte staff and sub-contractors are required to operate fully under the requirements of this Plan and related environmental management plans, over the full duration of the construction program.

A copy of this CFMP will be kept on the premises for the duration of construction.

Operational flood impacts and operation measures do not fall within the scope of this CFMP and therefore are not included within the processes contained within this CFMP.

1.5 Environmental Management Systems overview

The Environmental Management System (EMS) for the M12 Central package is described in Section 3 of the CEMP. The EMS is consistent with the overarching EMS described in Section 3 of the OCEMP.

To achieve the intended environmental performance outcomes, Seymour Whyte have established, implemented, maintained and continually improved an EMS in accordance with the requirements of ISO14001:2015. The Seymour Whyte EMS will be adopted as the guiding environmental management framework for the M12 Central package.

The EMS consists of governance documentation, incorporating environmental management plans, policies, procedures and tools including:

- **M12 Central Environment and Sustainability Policy**. Outlines the commitments and intentions established by Seymour Whyte to ensure environmental performance and sustainability objectives and targets are achieved (Appendix A3 of the CEMP)
- **CEMP**. Details the processes and procedures to be implemented during the M12 Central package to comply with applicable CoA, REMMs, Environment Protection Licence (EPL), legislative obligations and contractual requirements. The relevant compliance obligations are detailed in Appendix A1, with a cross reference to where they are met in this Plan
- **Environmental Management Sub-plans**. These documents describe procedures and controls for specific environmental aspects requiring more rigorous management strategies
- **Monitoring Programs**. Details the monitoring regime to be implemented during construction to compare the actual performance of construction against the objectives outlined in the relevant Plan, including setting specific triggers and associated responses
- **Sensitive Area Plans (SAPs)**. A series of maps providing key features of the alignment and relevant environmental constraints. Features include waterways, flood prone lane, heritage, biodiversity contamination and sensitive receivers amongst other site relevant features.
- **Flood Warning and Evacuation Procedure (Appendix C to this plan)**. This procedure outlines the response from notification of a flood warning, actions to be taken prior to and during a flood and then flood recovery. This procedure should be following in conjunction with the M12 Central Incident Response Plan (refer to Section 1.5.2).
- **Environmental Work Method Statements (EWMS)**. Management measures identified in this Plan may also be incorporated into site or activity specific Environmental Work Method Statements (EWMS). EWMS incorporate appropriate mitigation measures and controls and identify key procedures to be used concurrently with the EWMS Construction personnel undertaking a task governed by an EWMS must undertake the activity in accordance with the mitigation and management measures identified in the EWMS. See Section 3.3.3 of the CEMP for details of the EWMS preparation and approval requirements.
- **Erosion and Sediment Control Plans (ESCPs)**. A practical guide to provide progressive planning of site-specific erosion and sediment control measures including management of temporary stormwater drainage and locations of stockpiles. ESCPs will be developed ESR in accordance with the Erosion and Sediment Control Procedure in the CSWMP Appendix D and reviewed by the Project Soil Conservationist.
- **Procedures, strategies and protocols**. Detailed procedures for inclusion in work packs.

1.5.1 CFMP preparation, endorsement and approval

The OCFMP has been prepared to satisfy NSW REMM FD03 in relation to the management of flood events during construction of the Project. This stage-specific CFMP for the M12 Central package has been developed under and consistent with the approved OCFMP.

This CFMP will be reviewed by the TfNSW Environment and Sustainability Manager (ESM) (or delegate) and the independent Environmental Representative (ER) to confirm it is consistent with, and incorporates, all relevant elements of the approved OCEMP, prior to submission to the Planning Secretary for information. Construction of the M12 Central package will not commence until the CFMP has been reviewed to the satisfaction of the TfNSW ESM and ER and provided to the Planning Secretary for information.

1.5.2 Interactions with other management plans

This Plan has the following interrelationships with other management plans and documents:

- Site Establishment Management Plan (SEMP), provides a detailed description of the proposed activities to be carried out at each ancillary facility and includes details of site-specific flood management requirements
- M12 Central Community and Stakeholder Engagement Strategy which has been developed under the Overarching Communication Strategy (OCS), which details procedures and processes for community notification, consultation and complaints management. It also outlines communication processes for adjacent developments to facilitate communication of cumulative impacts within the floodplain
- The Construction Soil and Water Management Plan (CSWMP) addresses the erosion and sedimentation impacts associated with construction activities
- Safety Management Plan, which addresses safety risk management including an safety of construction workers in the event of flooding and emergency and incident management
- M12 Central Incident Response Plan is a Sub-plan to the Safety Management Plan which outlines the emergency incident response process, including in the event of a flood during construction
- Climate Change Monitoring and Adaptative Management Framework which includes measures to address climate variability and associated potential for extreme conditions such as flooding and heatwaves
- M12 Central Sustainability Management Plan which has been developed under the overarching Project Sustainability Strategy which sets out a framework covering energy management, workforce travel, resource use and procurement.
- Quality Plan describes the process for managing non-conforming work practices and initiating corrective / preventative actions or system improvements in accordance with the process outlined in Section 7.3 of the CEMP.

1.6 Consultation

The State Infrastructure Approval and Federal Approval do not have any consultation requirements relating to the preparation or endorsement of the OCFMP or this Plan.

Ongoing consultation between TfNSW, Seymour Whyte, neighbouring Project packages, other construction projects, stakeholders, the community and relevant agencies regarding the management of impacts of flooding will be undertaken during the construction of the M12 Central package include consultation with, but not be limited to emergency services such as the NSW State Emergency Service (SES) and NSW Police, and adjacent affected landowners. The process for the consultation will be consistent with the OCS and as described in the M12 Central Communication and Stakeholder Engagement Strategy.

Key organisations identified in this CFMP are listed in Table 1-1.

Table 1-1: List of key organisations

Organisation	Responsibility
NSW State Emergency Service	Flood planning and intelligence, dissemination of flood warnings, evacuations, and emergency help in a flood event.
Bureau of Meteorology (BoM)	Flood forecasting, dissemination of flood warning, provision of real time river and rain data.
Councils	Flood intelligence and planning through flood studies and floodplain risk management studies and plans.

Organisation	Responsibility
NSW Police	Coordination of resources or services in response to a flood emergency, respond to time critical emergency situations.

2 Purpose and objectives

2.1 Purpose

The purpose of this CFMP is to describe how Seymour Whyte will manage potential flood related impacts during construction of the M12 Central package.

2.2 Objectives

The key objective of the CFMP is to ensure that impacts to the local community and the built environment from flooding are minimised. To aid in achieving this objective all CoA, REMMs and licence/permit requirements relevant to flooding are described, scheduled and assigned responsibility as outlined in:

- Environmental Assessment Documentation
- Infrastructure Approval CoA (SSI 9364)
- Environment Protection Licence
- TfNSW Quality Assurance (QA) Specifications
- TfNSW Sustainability Strategy 2019-2023
- All relevant legislation and other requirements described in Section 3.1 of this Plan

2.3 Targets

Targets for the management of flood related impacts during construction of the M12 Central package are to:

- Achieve full compliance with relevant legislative requirements and the NSW CoA and environmental management measures
- Follow correct procedures for monitoring, preparation and evacuation of construction areas prior to a flood event
- Undertake construction in a manner that does not materially adversely affect existing flood behaviour in the vicinity of the M12 Central package
- Avoid any significant adverse impacts to people and property directly arising from the construction works
- Ensure training is provided in the form of inductions and toolboxes to all construction personnel on flood risks, protection measures and evacuation procedures before they begin work on site.

3 Environmental requirements

In accordance with NSW CoA A7, references in the terms of this Plan to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in at the date of the Infrastructure Approval (CSSI 9364).

3.1 Relevant legislation and guidelines

3.1.1 Legislation and regulatory requirements

Legislation relevant to flooding includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *State Emergency and Rescue Management Act 1989*
- *State Emergency Service Act 1989*

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

3.1.2 Guidelines

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

- Australia Rainfall and Runoff – A Guide to Flood Estimation, Commonwealth of Australia (Geoscience Australia), 2019
- Floodplain Development Manual (OEH, 2005)
- Flood plain management in Australia: best practice principles and guidelines
- Floodplain Risk Management Guidelines (DPIE, 2020)
- Managing Urban Stormwater, Soils and Construction, Volume 1 4th Edition, March 2004 (Landcom 2004) and Managing Urban Stormwater, Volume 2D – Main Road Construction (DECC 2008)
- New South Wales State Emergency Management Plan (EMPLAN) (Office of Emergency Management, 2012)
- New South Wales State Flood Plan (a sub-plan of EMPLAN) (State Emergency Management Committee, 2015)
- New South Wales State Emergency Management Plan – Evacuation Management Guidelines (SEMC Evacuation Working Group, 2014)
- TfNSW Erosion and Sedimentation Management Procedure (Roads and Traffic Authority 2009)
- TfNSW QA Specification G36 – Environmental Protection (Management System)
- TfNSW QA Specification G38 – Soil and Water Management
- TfNSW Technical Guideline: Temporary Stormwater Drainage for Road Construction (TfNSW 2011)
- TfNSW Stockpile Management Guideline (TfNSW 2011)
- Penrith City Council LGA, South Creek Floodplain Risk Management Study and Plan (Penrith City Council, 2019)

- Liverpool City Council LGA, Austral Floodplain Risk Management Study & Plan (Liverpool City Council, 2003)
- Fairfield City Council LGA, Rural Area Flood Study (BMT WBM, 2013).

3.2 Minister's Conditions of Approval

There are no primary NSW CoA relevant to the development of this CFMP. Secondary conditions relevant to this Plan have been listed in Appendix A. A cross reference is also included to indicate where the secondary condition is addressed in this Plan or other Project management documents.

3.3 Revised Environmental Management Measures

The primary REMMs relevant to the development of this CFMP are listed in Table 3-1. Secondary REMMs relevant to this CFMP are listed in Appendix A. A cross reference is also included to indicate where the REMM is addressed in this CFMP or other project management documents.

Table 3-1: Primary REMMs

ID	Measure/requirement	Timing	Document Reference
F03	A flood management plan will be prepared as part of the CEMP for the project and will detail the processes for flood preparedness, materials management, weather monitoring, site management and flood incident management. The flood management plan will be developed in accordance with: • Managing Urban Stormwater, Soils and Construction, Volume 1 4th Edition, March 2004 (Landcom 2004) and Managing Urban Stormwater, Volume 2D – Main Road Construction (DECC 2008) • TfNSW Erosion and Sedimentation Management Procedure (Roads and Traffic Authority 2009) • TfNSW Technical Guideline: Temporary Stormwater Drainage for Road Construction (Roads and Maritime Services 2011) • TfNSW Stockpile Management Guideline (Roads and Maritime Services 2011)	Prior to construction	OCFMP This CFMP Guidelines - Section 3.1.2 Processes for flood preparedness – Section 6.1 Materials management – Table 6-1 (FL12 - FL14) Weather monitoring – Section 6.1, Section 6.2 Site Management – Section 6, Section 7 Flood incident management – Section 6.2, Section 6.3

3.4 Environment Protection Licence

The M12 Central package is subject to EPL 21596 as a Scheduled Activity for 'road construction'. Management and protection of potential flooding impacts is not typically addressed in an Environment Protection Licence however compliance with the obligations of the EPL assist in avoiding indirect impacts through pollution or other disturbances arising from flooding. The M12 Central package will be constructed so as to meet requirements identified in the EPL.

3.5 TfNSW QA Specifications

The TfNSW QA Specifications set out the minimum requirements for the detailed outcomes in terms of quality or performance expected in the finished product for construction projects and are relevant to various construction activities on work sites to minimise impacts to the environment.

This CFMP incorporates the relevant requirements for flood management from the TfNSW QA Specifications prepared for the *M12 Motorway (Central), Construction between Badgerys Creek and the Water Tower Access Road, Cecil Hills* including:

- G36 – Environmental Protection
- G38 – Soil and Water Management (Soil and Water Management Plan).

The specifications set out environmental protection requirements, including Hold Points and Witness Points that must be complied with during construction of the M12 Central package. A Hold Point is a point beyond which a work process must not proceed without express written authorisation from TfNSW. Witness Points are an identified point in the process where TfNSW request to, review, witness, inspect method and/or process of work. The activities, however, may proceed. For processes under the CEMP, the request for release of Hold Points and Witness Points is to be made through the TfNSW ESM (or delegate).

Details of the Hold Points and Witness Points relevant to this Plan are outlined in Section 7.4.

Cross references are included in Appendix A, to indicate where the relevant TfNSW QA specifications have been addressed in this Plan or other Project documents.

3.6 Infrastructure Sustainability Council

The M12 Central package will employ an integrated approach to sustainability to ensure effective implementation and tracking of initiatives. This approach includes the identification of requirements in Plans for clarity of objectives and transparency in implementation. While the M12 Central Sustainability Management Plan details the overall requirements and targets for the M12 Central package, Table 3-2 summarises the sustainability requirements for flooding design to demonstrate compliance with Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) Version 1.2 Rating Tool credit benchmarks.

Table 3-2: Flooding design sustainability targets

ISC Reference	Commitment	Document reference
Lan-4	The run-off, flood risk, and potential increased flood risk elsewhere as a result of the project have all been assessed over their expected working life, in line with the requirements of 'Flood plain management in Australia: best practice principles and guidelines' and appropriate flood resilience measures have been included in the design so that there is no increase in flood risk.	Construction phase flooding design is addressed in Section 6.1.2

4 Existing Environment

This section summarises the existing flooding conditions within and adjacent to the M12 Central package, based on information contained in the Environmental Assessment Documentation. The key reference documents are:

- TfNSW M12 Motorway EIS, 2018
- Surface water quality and hydrology assessment (EIS Appendix I)
- Surface water quality and hydrology supplementary technical memorandum (Amendment Report Appendix I)
- Groundwater quality and hydrology supplementary technical memorandum (Amendment Report Appendix J).

4.1 Catchment and waterways

The Project is located primarily within the South Creek sub-catchment of the Hawkesbury-Nepean catchment, within the Lower Nepean River Management Zone. Within the South Creek catchment, the M12 Central package intersects Kemps Creek and South Creek. These creeks generally flow to the north, into South Creek which then flow north to join the Hawkesbury River at Windsor. The south eastern end of the M12 Central package drains to Hinchinbrook Creek that drains easterly into the Cabramatta Creek sub-catchment. This lies within the Georges River catchment and does not intersect with the M12 Central package, or wider Project. The M12 Central package also intersects a number of minor drainage lines, including Ropes Creek which is an ephemeral first order tributary of South Creek.

An overview of the catchment and waterways associated with the M12 Central package is provided in Figure 4-1.

The South Creek catchment has been extensively modified and disturbed due to increasing urbanisation and associated land clearing for agriculture and rural land uses. The Hawkesbury River is the ultimate downstream receiving environment and is located about 29 kilometres from the Project at the closest point. The catchment is derived from Wianamatta Group Shales and characterised by meandering streams. The Cabramatta Creek catchment was in poor condition and flows through urban areas draining to the Georges River, a highly urbanised catchment.

4.2 Topography

The topography of the M12 Central package construction area may be characterised into two general terrain types:

- Flat to gently undulating terrain
- Creek channels/alluvial floodplain terrain, which dissects the flat to gently undulating terrain.

The topography of the flat to gently undulating terrain typically comprises gentle rises and undulations with broad rounded crests with slopes of zero to five degrees. The flat to gently undulating terrain type is dissected by the Creek channel/alluvial floodplain terrain type South Creek and Kemps Creek, with each creek flowing to the north.

The topography of the alluvial floodplains next to the creeks comprises low slopes of around zero to two degrees, which extend from the creek channels out to a maximum distance of about 500 metres.

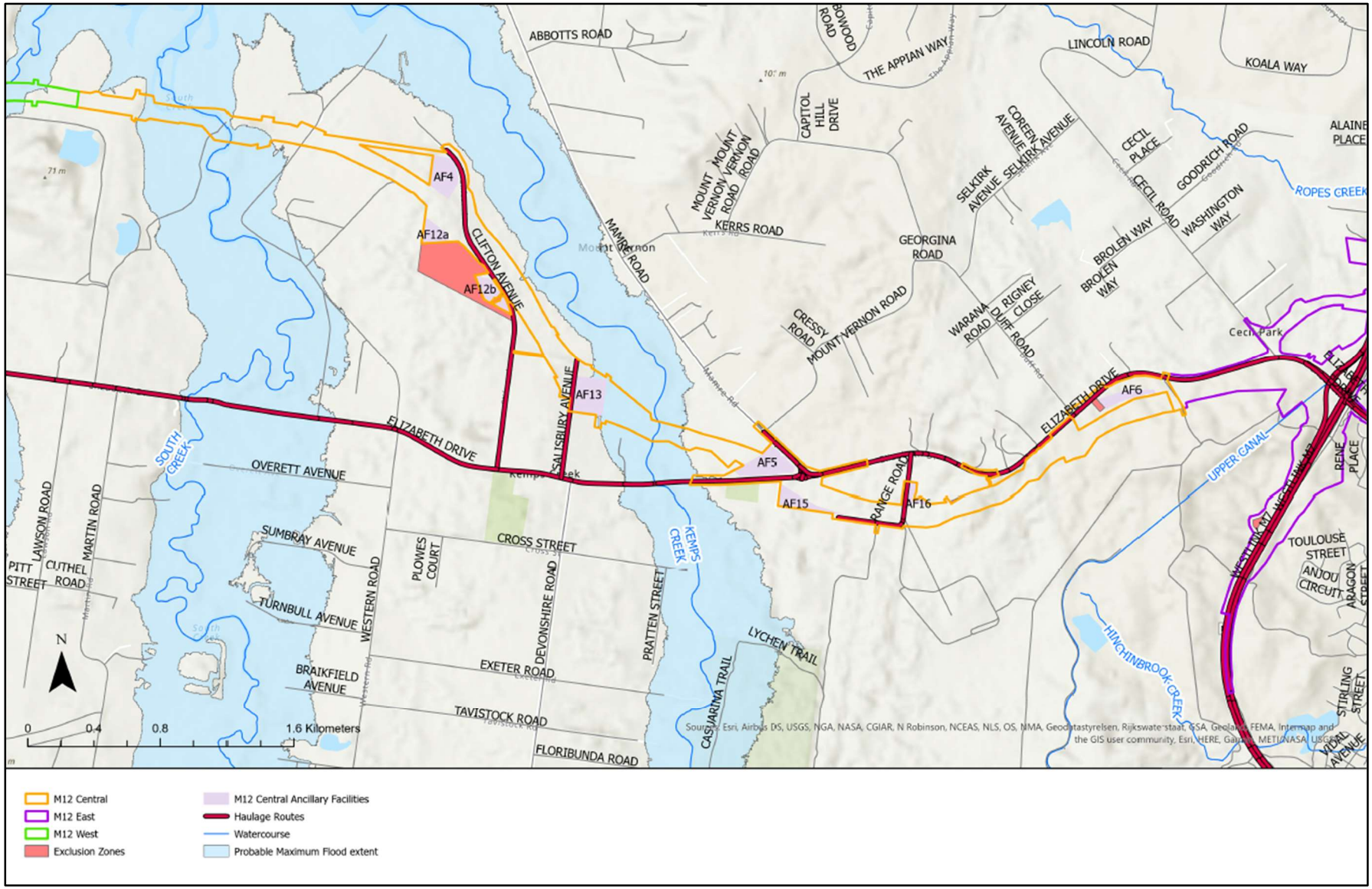

Figure 4-1: Waterways and flood prone land along the M12 Central package alignment

4.3 Rainfall and climate

The average yearly rainfall in the vicinity of the M12 Central package, based on data collected at the Badgerys Creek Automatic Weather Station (AWS) and averaged from 2014 to 2018, is 680.9 millimetres. The wettest month is February, with an average rainfall of 98.5 millimetres, while the driest month is July with an average of 23.6 millimetres (BOM, 2018).

Average maximum temperatures at the Badgerys Creek AWS, averaged from 2014 to 2018 are lowest in June at 21.2 degrees Celsius and highest in January at 41.2 degrees Celsius. Average minimum temperatures were lowest in July at 13.7 degrees Celsius, and highest in December at 21.1 degrees Celsius (BOM, 2018).

Rainfall that may cause flooding at the site will vary depending on the total rainfall, rainfall intensity and soil moisture at the time of the rainfall event. Seymour Whyte will monitor BoM weather forecasts and flood alerts (http://www.bom.gov.au/australia/warnings/). Rainfall events that may cause flooding are those events that are identified by the BOM as a 'Flood Watch'. Pre-flood inspections and preparations will also be initiated in response to any forecast rainfall event predicted to be > 50mm in 24hrs (refer to Section 7.3).

4.4 Summary of Existing Flood Behaviour

Flood modelling was carried out to assess the existing flood conditions during stormwater events (TfNSW M12 Motorway EIS, 2018). Table 4-1 provides an overview of the flood behaviour associated with major waterways along the M12 Central package. Flood extent mapping is provided in Figure 4-1 and Appendix B.

Table 4-1: Existing flood conditions along the M12 Central package during 100-year Average Recurrence Interval (ARI) flood event

Catchment	Flood conditions during the 100 year ARI flood event
South Creek	South Creek has a peak 100-year ARI runoff of 490 cubic metres per second along a flow-path about 500 metres wide. The low-flow channel of the creek crosses under the operational footprint at an angle and runs virtually parallel for several hundred metres. During a 100-year ARI flood the creek fills the wider floodplain and flows almost perpendicular to the construction footprint.
Kemps Creek	Kemps Creek has a peak 100-year ARI runoff of 260 cubic metres per second along a flow-path heavily influenced by a large, oval embankment on its western side. The embankment confines the width of the flow but is built at a height that results in some overtopping in large floods. The 100-year ARI flow-path width is therefore variable, ranging from about 170 metres to about 310 metres across, or wider if the secondary flow-path inside the oval is considered.

4.5 Flood extents

The extents of inundation have been modelled for the 20 and 100-year ARI flood events. The extent of flooding in the pre-construction scenario are provided in Appendix B for these two flood event scenarios.

The extents of inundation are described in either EY or AEP, as are the units in following sections of this Plan. Table 4-2 explains the conversion of EY and AEP units to the ARI flood event unit.

Table 4-2: EY and AEP to ARI conversions for extents of inundation

EY and AEP	ARI
0.2 EY	5-year ARI flood event
10% AEP event	10-year ARI flood event
5% AEP event	20-year ARI flood event
1% AEP event	100-year ARI flood event

5 Environmental aspects and impacts

5.1 Construction activities

Key construction activities associated with the M12 Central package that have the potential to affect the existing flood conditions include:

- Earthworks: the fill associated with the construction of the motorway embankments will cause flow constriction / blockages and loss of storage
- Stockpiling and ancillary facilities: platforms and stockpiles, may affect flow paths and reduce floodplain storage
- Temporary creek crossings and bridge work platforms: the crossings and bridge work platforms present a minor obstruction to the creek flow (i.e. the crossing will become overwhelmed by much deeper and wider flows).

Additionally, partial or complete infilling of farm dams will be required for the construction of the M12 Central package. During construction, these dams would need to dewatered and there will be permanent loss of floodplain storage associated with the changes to the dam footprints.

5.2 Bridge construction and instream works

Following the approval of the M12 Central Consistency Assessment (TfNSW, October 2021), the design of South Creek twin bridge (BR06) and Kemps Creek twin bridge (BR08) was refined in consideration of impacts associated with installing bridge piers within the channels of the creeks or the alternative of realigning creek channels. Given the angle of the road in respect to the creek channels and the length of the bridge spans, piers in the channel or creek realignment are required.

The detailed design for each bridge is as follows:

- South Creek Bridge (BR06). The refined bridge structure includes a design where bridge piers are positioned within the creek channel. This reduces impacts to the existing creek by removing the need to re-align the creek. Pier 9 of the eastbound carriageway and Pier 10 of the westbound carriageway have been positioned at the edge of the creek and not within the low flow portion
- Kemps Creek Bridge (BR08) - The refined bridge structure includes a design where bridge piers are positioned within the creek channel. This reduces impacts to the existing creek by removing the need to re-align the creek. Pier 3 on both carriageways is located within the creek, although the piers are positioned towards the creek bank and not within the low flow portion.

Additional environmental assessment was undertaken by TfNSW as per REMM B15 to assess the bridge pier locations during the early stages of detailed design development. Placement of piers wholly outside of the creek channel and banks was not considered feasible without the need to realign the creeks. Use of piers within the low flow portion rather than channel realignment would limit the modification of the waterway and aquatic habitat in the long term. The design met the requirement of REMM F04 by reviewing and avoiding the need for creek realignment.

Pier locations have also been designed to minimise the number of piers in the creeks and have been positioned in order to limit changes to flow velocity and scouring.

While instream works are required to construct South Creek Bridge and Kemps Creek Bridge, the installation of piers within the creek channels will reduce the amount of instream works and impacts to riparian habitats in comparison to realigning the creeks. Impacts associated with instream works

will be managed through activity specific Environmental Work Method Statements (EWMS). Section 3.3.3 of the CEMP outlines the requirements for the on preparation and approval of EWMS.

5.3 Ancillary facilities

To support the construction of the M12 Central package, construction ancillary facilities would be required as identified in the Environmental Assessment Documentation. The majority of the construction ancillary facilities for the M12 Central Package are located outside of the major floodplains to avoid and minimise impacts from earthworks on flow behaviour in the floodplains. During the 100-year ARI flood events, the north-eastern corner of construction ancillary facility AF13 may be subject to inundation. The other construction ancillary facilities are located above the 100-year ARI flood extents.

The inclusion of any temporary fill within the floodplain, such as platforms and stockpiles, could affect flow paths and reduce floodplain storage.

Prior to establishment of these construction ancillary facilities, Seymour Whyte will prepare a Site Establishment Management Plan (SEMP) that will detail how the site establishment of the construction ancillary facilities will be carried out to meet the performance outcomes in relation to flooding outlined in the Environmental Assessment Documentation as per the requirements of NSW CoA A16.

Additional construction ancillary facilities, not assessed in the Environmental Assessment Documentation, will only be established if the establishment and use of the facility will be in accordance with the flood impacts identified in the assessment and approval of the Project as per the requirements of NSW CoA A15 (refer to Section 3.3.6 of the CEMP for requirements for establishment of a construction ancillary facility not identified by description and location in the Environmental Assessment Documentation). Any minor ancillary facilities will need to be assessed by the ER to have minor environmental impact with respect to flooding as outlined in NSW CoA A20.

5.4 Impacts

Potential impacts from flooding depend on the nature, extent and magnitude of construction activities, the magnitude of the storm event and the natural environment. These impacts have the potential to affect flood resilience and may include:

- Increases in the rate of flow in the receiving drainage lines could result in scour and channel erosion, as well as a possible widening of the watercourse through a process of bank erosion
- Partial or total blockage of transverse drainage and temporary creek crossings by debris could result in floodwater surcharging onto the road and /or adversely affecting private property
- Surface water contamination if chemical storage areas are breached and hazardous chemicals migrate offsite
- Restricted access to ancillary construction areas and construction areas
- Safety risks associated with high flow velocities and/or deep water, constituting a hazard to personnel and equipment
- Inundation and damage to construction plant and equipment
- Increased runoff and sedimentation, especially if erosion and sediment controls (ERSED) are damaged
- Increase in flood affectation of properties adjacent the M12 Central package.

Works on waterfront land will be undertaken in accordance with the CSWMP to minimise the potential for soil and erosion impacts.

Construction works such as road closures and traffic diversions may also have the potential to impact on flood evacuation routes. Discussion of flood emergency response is provided in Section 6.2.

5.5 Cumulative impacts

The concurrent construction of various projects within the vicinity of the M12 Central package gives rise to the potential of cumulative flooding impacts, however it is noted that the scale of impact is dependent upon timing, location and type of construction activities.

Projects within the vicinity of the M12 Central package include, but is not limited to:

- M12 Motorway – M12 East, M12 West and other work packages
- Western Sydney International Airport
- Sydney Metro – Western Sydney Airport
- Western Sydney Aerotropolis
- Sydney Water Treatment Facility and water upgrades
- Other potential road projects such as Elizabeth Drive upgrade, Mamre Road upgrade and Outer Sydney Orbital
- Development land releases such as Southwest Growth Area and Western Sydney Employment Area.

Regular interface meetings will be undertaken with government authorities, neighbouring Project packages, other projects, and stakeholders as detailed in Section 5.5.2 and 5.5.3 of the CEMP and within the Overarching Communication Strategy (OCS).

6 Environmental mitigation and management measures

Management actions prescribed by this CFMP aim to minimise flooding impacts and are summarised in Table 6-1 and discussed in this section.

6.1 Pre-flood actions

6.1.1 Preventative measures

The following actions will be undertaken as preventative measures to prepare for flooding on site:

- Daily monitoring of weather forecasts and flood alerts, using the BoM (http://www.bom.gov.au/australia/warnings/). A “Flood Watch” is typically issued several days before rainfall events which may cause flooding at the site
- Training in flood emergency response will be provided to key personnel including Construction Manager and Foreman / Site Supervisor(s)
- Activities that may affect existing drainage systems during construction will be planned and carried out so that existing hydraulic capacity of these systems is maintained where practicable. These activities will include:
    - Temporary waterway crossings and instream work platforms
    - Bridge Construction
    - Culvert construction
    - Earthworks within flood prone land

  The potential impact of these activities to existing hydraulic capacity will be modelled prior to the commencement of works (refer to Section 6.1.2)
- Construction activities that may affect existing drainage systems or with a high risk of impact from flooding (such as in-stream works) will be assessed through detailed activity-specific EWMS which will consider site specific controls and flood response measures.
- Pre-rainfall inspections which include the following tasks:
    - Minimise obstructions within flood prone areas, including stockpiles
    - Relocate waste containers, chemicals and dangerous goods above flood prone areas
    - Identify plant and equipment that can be moved to higher ground
    - Inspect/repair erosion and sediment controls in accordance with the CSWMP.

6.1.2 Flood modelling of construction activities

In accordance with NSW CoA E17 the M12 Central package will be designed and constructed in a manner that limits the impacts on flooding characteristics in areas outside the M12 Central package construction boundary during any flood event up to and including the 1% AEP flood event, to the following:

- A maximum increase in inundation time of one hour
- A maximum increase of 10 mm in above-floor inundation to habitable rooms where floor levels are currently exceeded
- No above-floor inundation of habitable rooms which are currently not inundated

- A maximum increase of 50 mm in inundation of land zoned as residential, industrial or commercial
- A maximum increase of 100 mm in inundation of land zoned as rural, primary production environment zone or public recreation
- No significant increase in the flood hazard or risk to life
- Maximum relative increase in velocity of 10%, where the resulting velocity is greater than 1.0 m/s, unless adequate scour protection measures are implemented and/or the velocity increases do not exacerbate erosion as demonstrated through site-specific risk of scour or geomorphological assessments.

TfNSW will complete the hydrologic and hydraulic assessments to demonstrate compliance with the flood criteria. Temporary works can also impact on stormwater behaviour with potential consequences for surrounding properties. Design of temporary drainage works will comply with the estimate peak flows and other parameters needed to design drains and drainage structures using the methods described in Australian Rainfall and Runoff.

In accordance with TfNSW QA Specification G38, TfNSW will run up to three modelling scenarios for the proposed temporary works using its flood model to understand flooding impacts during construction (Seymour Whyte will be responsible for any time and cost associated with any further required modelling). Seymour Whyte will provide TfNSW with a 3D model of the proposed temporary drainage and earthwork extents for TfNSW to run the flood modelling. The modelling must be completed prior to the commencement of any temporary works in drainage lines (including temporary waterway crossings of diversions), or any earthworks in flood prone areas (including stockpiling) of South Creek and Kemps Creek (refer to Figure 4-1). Seymour Whyte will allow 14 days for each model to be set up and analysed.

In the event that the works cannot be designed and constructed to achieve the flood criteria for maximum increase of inundation of land, or maximum relative increase in velocity, during any flood event up to and including the 1% AEP flood event, alternative flood levels or mitigation measures may be agreed with the affected landowner. When consulting with affected landowner, the affected landowner will be provided with sufficient information to understand the predicted impact of the proposed alternative flood levels or mitigation measures including results from the TfNSW flood modelling.

In the event the affected landowner does not agree on the measures to mitigate the impacts resulting from exceeding the maximum increase of inundation of land, or maximum relative increase in velocity, during any flood event up to and including the 1% AEP flood event, a suitably qualified and experienced independent person may be engaged by Seymour Whyte to advise and assist in determining the impact and relevant mitigation measures. The advice of the independent person will be provided to the affected landowner to explain why the proposed actions are considered acceptable.

Work adjacent to creek lines that generally maintain the same grade will not be modelled as temporary works, as flood levels will not be impacted.

6.2 Flood emergency response

Flood response operations will begin on receipt of BoM advice, or when other evidence leads to an expectation of flooding.

The key principles of emergency flood response, according to the NSW State Flood Plan (March 2018) include the following:

- Protection and preservation of human life (including the lives of responders and the community) is the highest priority

- Evacuation is the primary response strategy for people impacted by flooding.

In the event a flood warning, or localised heavy rainfall occurs with an associated observation of rising water levels on-site or in an adjacent waterway, it will be communicated to the workforce to stop what they are doing and follow the M12 Central Flood Warning and Evacuation Procedure (refer to Appendix C).

The BoM will issue Flood Warnings for the Hawkesbury-Nepean catchment through their website. BoM also issue Severe Thunderstorm Warnings and Severe Weather Warnings for weather which may cause flooding in the Hawkesbury-Nepean catchment.

The SES is the designated Agency for 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 SES provides public information management strategies and provides information to the community relating to the potential impacts of flooding and what actions need to be undertaken. The SES issue Local Flood Bulletins, Evacuation Warnings, Evacuation Orders and All Clears for areas impacted by floods in the Hawkesbury-Nepean catchment and share these on the SES website. This website will also be monitored by Seymour Whyte following flood warnings.

Local radio stations and other media outlets also provide information updates and advice.

The Environmental Site Representative (ESR) in conjunction with the Safety Manager, Construction Manager and TfNSW will regularly consult these resources to maintain awareness of any flood threats that may arise.

During a flood event, the following will be undertaken:

- Continue to monitor the BoM website / app for warnings, ABC radio broadcasts, local emergency services social media pages, and local news outlets
- Follow all advice and instructions given by emergency services and maintain open communication with the SES
- Ensure all occupants on-site are informed of the incident response procedures (i.e. evacuation routes, assembly areas)
- Implementation of the flood mitigation measures as detailed in Table 6-1.

6.3 Post-flood emergency response

Following flooding of the M12 Central package, the initial response will be to determine whether or not it is safe to return to work. A safety walk through of the construction work areas will be conducted by the Construction Manager and Supervisors (or delegates), in conjunction with the ESR and Safety Manger. The team will assess the following:

- Likelihood of flood damage to access roads and construction works
- Determine whether flood waters have receded
- Power boxes and electrical equipment that have been inundated or water affected. The power is to remain off until assessed by the electrician.

Once it is deemed safe to return to work, the following will be undertaken:

- Any equipment, materials or debris moved by the flood water will be returned to correct area, or disposed of in accordance with the Construction Waste and Resources Management Plan (CWRMP) if damaged beyond repair/use

- Check stockpiles for erosion or losses. Restore erosion and sediment control devices as per the CSWMP
- Temporary onsite structures or partly constructed structures should be checked for erosion or other water damage prior to entering them or continuing work
- Determine whether any water held in excavations can be pumped to sediment basins/holding tanks for treatment prior to discharge. Undertake water testing/sampling in line with the CSWMP and EPL.
- Make good any damage to partially constructed works or temporary works caused by the flood event. This includes clearing away of debris, sedimentation and blockage of uncompleted and temporary flood mitigation structures, as well as repairs required due to failures from overtopping of any temporary or partially constructed embankments and damage to partially constructed scour protection.

At all times, Seymour Whyte will instruct flood emergency responses in accordance with the M12 Central Incident Response Plan.

Table 6-1: Flood management and mitigation measures

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
General					
FL1	Any works that will impact on waterways including construction of temporary diversion and works that reduce drainage capacity, must be planned to be undertaken in drier months where possible and minimum of two weeks dry weather to enable controls to be established. This will be achieved through the development of the construction program for instream works in South Creek and Kemps Creek and the development of EWMS for In stream works.	Prior to construction	Construction Manager	Best practice	Program Monitoring records EWMS
FL2	The siting of ancillary facilities will be chosen such that they do not worsen the existing flood characteristics of the area.	Prior to construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	SEMP Ancillary Facility Assessment
FL3	All construction personnel will be provided with information/training regarding the importance of flood warning and evacuation requirements.	Prior to construction, and during construction	Construction Manager Safety Advisor	Best practice	Training Records
FL4	Minimise the extent of obstructions within flood prone areas as far as practicable at all times during construction. The Sensitive Area Plans (SAP) prepared for the M12 Central Package identify the extent of flood prone land. Earthworks, including stockpiles, must only occur in flood prone land if the potential impacts on flooding have been included in the modelling of temporary earthworks extents.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	SAPs (CEMP Appendix A6) Weekly inspections Pre-Rainfall Inspection Flood modelling of temporary drainage and earthworks extent

ID	Management Measure	When to implement	implementation	source	Evidence of implementation
FL5	Remove construction infrastructure and equipment from the flood prone areas in the event of a forecast flood to minimise both the risk of damage to infrastructure /equipment and the risk of flood impacts on properties. The Sensitive Area Plans (SAP) prepared for the M12 Central Package identify the extent of flood prone land.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	Pre-Rainfall Inspection SAPs (CEMP Appendix A6)
FL6	Activities that may affect existing drainage systems during construction will be carried out so that existing hydraulic capacity of these systems is maintained where practicable. Prior to commencement any in-stream works an EWMS will be prepared to plan the works to maintain hydraulic capacity. The design of temporary waterway crossings, stream diversions, drainage swales and depressions must be carried out by a suitably qualified and experienced professional in accordance with TfNSW Technical Guideline: Temporary Stormwater Drainage for Road Construction (TfNSW 2011) and in consultation with DPI Fisheries. The potential flooding impacts of any temporary drainage works, including temporary waterway crossing and instream works platforms, must be modelled in the TfNSW flood model to demonstrate the hydraulic capacity will be maintained where practical.	During construction	Construction Manager Superintendent / Foreman / Site Supervisor	REMM F08	Weekly inspections EWMS Flood modelling of temporary drainage and earthworks extent
FL7	Providing designated impervious bunded washdown facilities for concrete trucks and other vehicles at least 100 metres from areas prone to flash flooding or 50 metres away from other natural and built drainage lines.	During construction	Construction Manager Superintendent / Foreman / Site Supervisor	TfNSW QA G38	Weekly inspections EWMS

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
Monitoring and pre-flood measures					
FL8	The M12 Central package must be constructed to limit impacts on flooding characteristics in areas outside the project boundary during any flood event up to and including the 1% AEP flood event, to the following: (a) a maximum increase in inundation time of one hour; (b) a maximum increase of 10 mm in above-floor inundation to habitable rooms where floor levels are currently exceeded; (c) no above-floor inundation of habitable rooms which are currently not inundated; (d) a maximum increase of 50 mm in inundation of land zoned as residential, industrial or commercial; (e) a maximum increase of 100 mm in inundation of land zoned as rural, primary production, environment zone or public recreation; (f) no significant increase in the flood hazard or risk to life; and (g) maximum relative increase in velocity of 10%, where the resulting velocity is greater than 1.0 m/s, unless adequate scour protection measures are implemented and/or the velocity increases do not exacerbate erosion as demonstrated through site-specific risk of scour or geomorphological assessments.	Prior to temporary works	Construction Manager ESR Site Engineers	NSW CoA E17 G38	Modelling outputs

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
FL9	TfNSW will run flood modelling scenarios for the Seymour Whyte's proposed temporary works. Seymour Whyte will provide TfNSW with a 3D model of any temporary earth work extents for TfNSW to run the model.	Prior to temporary works	TfNSW Site Engineers	NSW CoA E17 G38	Modelling outputs
FL10	Monitor Bureau of Meteorology forecast for heavy rainfall events in order to allow sufficient time to vacate and prepare the site prior to the commencement of heavy rainfall and flood events.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor / ESR / Safety Advisor	Best practice	Pre-starts
FL11	Monitor Bureau of Meteorology flood warnings and the SES Website for the Hawkesbury-Nepean catchment and the latest river heights at the South Creek at Mulgoa Road (Station Number: 567070) (http://www.bom.gov.au/fwo/IDN60233/IDN60233.567070.tbl.shtml)	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor / ESR / Safety Advisor	Best practice	Pre-starts
FL12	In the event of a flood warning, or rainfall forecast exceeding 50mm in 24hrs, take all measures necessary to protect the water quality of the waterways and prevent potential pollution incidents during flood events including: • cease all work in the vicinity of flood-prone areas • protecting disturbed ground from erosion • collect all loose materials and wastes • relocate waste containers, chemicals and dangerous goods above flood prone areas • Silt curtains or other in-river environmental controls are to be removed. The Sensitive Area Plans (SAP) prepared for the M12 Central Package identify the extent of flood prone land.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Blue Book (Landcom, 2004) Section 6.2	Pre-Rainfall Inspection SAPs (CEMP Appendix A6)

ID	Management Measure	When to implement	implementation	source	Evidence of implementation
FL13	Locate plant and equipment on high ground when flooding is expected. The Sensitive Area Plans (SAP) prepared for the M12 Central Package identify the extent of flood prone land.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	Pre-Rainfall Inspection
FL14	Stockpile areas and storage of chemicals, fuels and lubricants will be located above the 1 in 20 year flood level (Appendix B). Designated stockpile areas will be reviewed by the Soil Conservationist and illustrated on the Progressive Erosion Sediment Control Plans (PESCPs, refer to the CSWMP). Storage of chemicals, fuels and lubricants must only occur on site at approved construction ancillary facilities (including minor construction ancillary facilities) which will be located above the 1 in 20 year flood level.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	Progressive Erosion Sediment Control Plans Ancillary Facility Checklist / SEMP Pre-Rainfall Inspection
FL15	Inspect/repair erosion and sediment controls in accordance with the CSWMP.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor	Best practice	Pre-Rainfall Inspection
Notification and Evacuation					
FL16	Upon determination of heavy rainfall event, advise staff and workers to prepare for a potential flood event and follow flood procedures for evacuation in accordance with the Flood Warning and Evacuation Procedure (Appendix C).	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor / Safety Advisor	Best practice	Pre-start Pre-Rainfall Inspection Incident

ID	Management Measure	When to implement	implementation	source	implementation
FL17	An Flood Warning and Evacuation Procedure (Appendix C) has been developed and will be implemented for the M12 Central package. Where a flood results in an incident, this will be managed in accordance with the M12 Central Environmental Incident Classification and Reporting procedure (CEMP Appendix A7). The response to incidents within the road will be managed in accordance with the memorandum of understanding between TfNSW and the NSW Police Service, NSW Rural Fire Service, NSW Fire Brigade and other emergency services.	Prior to construction, and during construction	Construction Manager Safety Advisor	REMM HS03	M12 Central Flood Warning and Evacuation Procedure Incident Report
Assessment of damage and remediation after flood					
FL18	Conduct safe walk through to determine whether or not it is safe to return to work.	Prior to construction, and during construction	Construction Manager Superintendent / Foreman / Site Supervisor / Safety Advisor	Best practice	Safety Inspection
FL19	Review and restore erosion and sediment control devices as per the CSWMP.	Prior to construction, and during construction	Construction Manager / Foreman / Site Supervisor / Environmental Site Representative	Best practice	Post-Rainfall Inspection
FL20	Any equipment, materials or debris moved by the flood water will be returned to correct area, or disposed of in accordance with the CWRMP if damaged beyond repair/use	Prior to construction, and during construction	Construction Manager / Foreman / Site Supervisor /	Best practice	CWRMP Waste dockets
FL21	Dewater site water in accordance with CSWMP (Appendix C Dewatering Management Plan).	Prior to construction, and during construction	Construction Manager / Foreman / Site Supervisor / ESR	Best practice	Dewatering Records

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
FL22	Make good any damage to partially constructed works or temporary works caused by the flood event following passage of a flood event including: • clearing away of debris, sedimentation and blockage of uncompleted and temporary flood mitigation structures • repairs required due to failures from overtopping of any temporary or partially constructed embankments • and damage to partially constructed scour protection.	During construction	Construction Manager / Foreman / Site Supervisor / ESR	G38	Post-flood inspection report

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7 Compliance management

7.1 Roles and responsibilities

The organisational structure for the M12 Central package and overall roles and responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

To ensure that this Plan is effectively implemented, all site personnel (including sub-contractors) will undergo site induction training that includes the flood preparation, warning and evacuation requirements prior to undertaking their duties. The induction training will address elements related to flood management, including:

- Existence and requirements of the OCFMP, this CFMP and all procedures prepared under CFMPs relevant to the M12 Central package
- Flood management measures – before, during and after a flood event
- Flood monitoring requirements
- Relevant legislation, regulations and EPL conditions (where applicable)
- Incident response, management and reporting.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in flood management or those undertaking an activity with a high risk of environmental impact from flooding. This will include testing the flood emergency response / evacuation in accordance the M12 Central Incident Response Plan at nominated intervals throughout the construction period.

The ER will review and approve the induction and training program prior to the commencement of construction and monitor implementation.

Daily pre-start meetings conducted by the Foreman / Site Supervisor (or delegate) will inform the site workforce of any environmental issues relevant to flood management that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are provided in Section 5.3 of the CEMP.

7.3 Monitoring and inspections

Inspection and monitoring requirements relevant to flooding are summarised in Table 7-1.

Table 7-1: Inspections and monitoring relevant to flooding

Inspection / monitoring	Frequency	Responsibility	Document Reference
Review BoM forecast for heavy rainfall events and flood warnings for the Hawkesbury-Nepean catchment http://www.bom.gov.au/nsw/warnings/	Daily	Construction Manager / Superintendent / Foreman / Site Supervisor / ESR	Section 6.1
Weekly environmental site inspection	Weekly	Construction Manager / Superintendent / Foreman / Site Supervisor / ESR	CEMP Section 7.1
Pre-flood inspection Minimise obstructions within flood prone areas, identify plant and equipment that can be moved to higher ground and to inspect/repair erosion and sediment controls in accordance with the CSWMP. Review SES website for Local Flood Bulletins, Evacuation Warnings and Evacuation Orders.	Prior to heavy rainfall (>50mm in 24hrs) or in response to Local Flood Bulletins, Evacuation Warnings and Evacuation Orders.	Construction Manager / Superintendent / Foreman / Site Supervisor / ESR	Section 6.1 Section 6.2 CEMP Section 7.1
BoM automated river heights telemetry systems at South Creek at Mulgoa Road (Station Number: 567070) (http://www.bom.gov.au/fwo/IDN60233/IDN60233.567070.tbl.shtml)	During periods of Flood Watch	ESR	Appendix C
Post-flood inspection Conduct safe walk through to determine whether or not it is safe to return to work. Identification of erosion and sediment controls which require maintenance/repair in accordance with the CSWMP. Review SES website for All Clears for flood affected areas.	Following flood event	Construction Manager / Superintendent / Foreman / Site Supervisor / ESR	Section 6.2 Section 6.3

Site inspections will be recorded (along with actions and issues observed) and actioned appropriately within agreed timeframes. These inspections will be recorded as part of the Weekly Environmental Inspection Checklist, and will also be used as a record of activities and observations related to flooding. Additional requirements and responsibilities in relation to inspections are documented in Section 5.1 of the CEMP.

Weekly and other routine inspections by the TfNSW ESM (or delegate), the Environmental Review Group (ERG) representatives and the ER will also occur throughout construction. Detail on the nature and frequency of these inspections are documented in Section 7.1 of the CEMP.

7.4 Hold Points and Witness Points

Hold Points and Witness Points relevant to this Plan are outlined in Table 7-2.

Table 7-2: Hold Points and Witness Points applicable to this Plan

TfNSW QA spec	Clause	Type	Description	Plan reference
G36	3.2.4	Hold Point	At least 20 working days prior to the commencement of work activities not previously addressed by an endorsed EWMS, Seymour Whyte must provide an EWMS addressing the issues listed Clause 3.2.4 of G36 for the nominated work activities.	Section 5.2
G38	3.9	Hold Point	At least 10 working days prior to commencing construction of any activity in / around waterways, submit your Flood Management Sub-Plan.	This Plan

7.5 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of flood management measures, compliance with this CFMP, CoA, EPL and other relevant approvals, licenses, and guidelines. Audit requirements are detailed in Section 7.4 of the CEMP.

7.6 Reporting and identified records

Reporting requirements relevant to the management of flooding are identified in Table 7-3. Requirements and responsibilities for reporting are further described in Section 7.5 of the CEMP.

Accurate records will be maintained substantiating all construction activities associated with the M12 Central package or relevant to the conditions of approval, including measures taken to implement this CFMP. Records will be made available to the DPE and Commonwealth Department of Agriculture, Water and the Environment (DAWE) upon request, within the timeframe nominated in the request.

Table 7-3: Reporting requirements relevant to this Plan

Item	Frequency	Standards	External reporting	Responsibility
Incident and non-compliance reports	At each occurrence	Reporting of incidents and non-compliances in accordance with CoA, EPL, PIRMP, G36 and the TfNSW Environmental Incident Classification and Reporting Procedure	Appropriate authority dependant on nature of the incident (e.g. EPA, DPE) (see Section 6 of CEMP)	ESR
Complaint register	Daily (ER, EPA) as received DPE as requested	Reporting of complaints, in accordance with the CoA, EPL and OCS, through the complaints register, to the ER and EPA for any complaints received (on the day they are received). Communication, notification and complaints handling requirements regarding flooding matters will be managed through the Complaints Management System and the OCS.	ER (NSW CoA A35) EPA (in accordance with EPL conditions) DPE (as requested by the Secretary)	ESR Stakeholder and Engagement Manager
Weekly environmental inspection	Weekly	Inspection of the environmental controls and implementation including the measures outlined in Table 6-1.	TfNSW ER	ESR
Pre-flood inspection	At each occurrence	Record of inspection of flood prone areas in response to BoM flood warning with focus on the implementation of pre-flood measures in outlined in Table 6-1.	TfNSW ER	ESR
Post-flood inspection	At each occurrence	Record of inspection of flood prone areas following flooding event with focus on the implementation of the assessment of damage and remediation after flood measures in outlined in Table 6-1.	TfNSW ER	ESR

8 Review and improvement

8.1 Continuous improvement

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

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of flood management and performance
- Identify environmental risks not already included in the risk register
- 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.

The ESR is responsible for ensuring stage-specific environmental risks are identified and included in the M12 Central package risk register and appropriate mitigation measures implemented throughout the construction, as part of the continuous improvement process. The process for ongoing risk identification and management during construction is outlined in Section 4.1.2 of the CEMP.

8.2 CFMP update and amendment

The processes described in Section 7.7 of the CEMP may result in the need to update or revise this CFMP. This will occur as needed. Any revisions to this CFMP will be in accordance with the process outlined in Section 1.12 of the CEMP.

A copy of the updated CFMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure (refer to Section 7.6.2 of the CEMP).

Construction Flood Management Sub-plan

Appendix A – Secondary CoA, Secondary REMMs and TfNSW QA specifications

M12 Motorway - Central

August 2023

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Appendix A – Secondary CoA, Secondary REMMs and TfNSW QA Specifications

Secondary requirements that are related, but not specific to, the development of this Plan are outlined in this appendix. Cross references are provided to indicate where the requirements are addressed in this Plan or other Project management documents. This includes:

- Secondary NSW Conditions of Approval (CoA) which are listed in Table A1
- Secondary Revised Environmental Management Measures (REMMs) which are listed in Table A2
- Relevant requirements of the TfNSW QA Specifications which are listed in Table A3.

Table A1: Secondary NSW CoA

CoA No.	Condition Requirements	Document Reference
A20	Lunch sheds, office sheds, portable toilet facilities, and the like, can be established and used where they have been assessed in the documents listed in Condition A1 or satisfy the following criteria: iii) minor environmental impact with respect to waste management, soil, water and flooding	Section 5.3
E17	Unless otherwise agreed by the Planning Secretary, the CSSI must be designed and constructed to limit impacts on flooding characteristics in areas outside the project boundary during any flood event up to and including the 1% AEP flood event, to the following: (a) a maximum increase in inundation time of one hour; (b) a maximum increase of 10 mm in above-floor inundation to habitable rooms where floor levels are currently exceeded; (c) no above-floor inundation of habitable rooms which are currently not inundated; (d) a maximum increase of 50 mm in inundation of land zoned as residential, industrial or commercial; (e) a maximum increase of 100 mm in inundation of land zoned as rural, primary production, environment zone or public recreation; (f) no significant increase in the flood hazard or risk to life; and	Section 1.5.1 Section 6.1 Table 6-1

CoA No.	Condition Requirements	Document Reference
	(g) maximum relative increase in velocity of 10%, where the resulting velocity is greater than 1.0 m/s, unless adequate scour protection measures are implemented and/or the velocity increases do not exacerbate erosion as demonstrated through site-specific risk of scour or geomorphological assessments. Where the Proponent cannot meet the requirements set out in clauses (d), (e) and (g) alternative flood levels or mitigation measures may be agreed to with the affected landowner. In the event that the Proponent and the affected landowner cannot agree on the measures to mitigate the impact as described in clauses (d), (e) and (g), the Proponent must engage a suitably qualified and experienced independent person to advise and assist in determining the impact and relevant mitigation measures.	

Table A2: Secondary REMMs

ID	Revised environmental management measure	Timing	Document Reference
F08	Activities that may affect existing drainage systems during construction will be carried out so that existing hydraulic capacity of these systems is maintained where practicable.	Construction	Table 6-1
HS03	An incident response management plan will be developed and implemented. The response to incidents within the road will be managed in accordance with the memorandum of understanding between TfNSW and the NSW Police Service, NSW Rural Fire Service, NSW Fire Brigade and other emergency services.	Prior to construction	M12 Central Environmental Incident Classification and Reporting procedure (CEMP Appendix A7). Table 6-1 Section 6.2 Appendix C

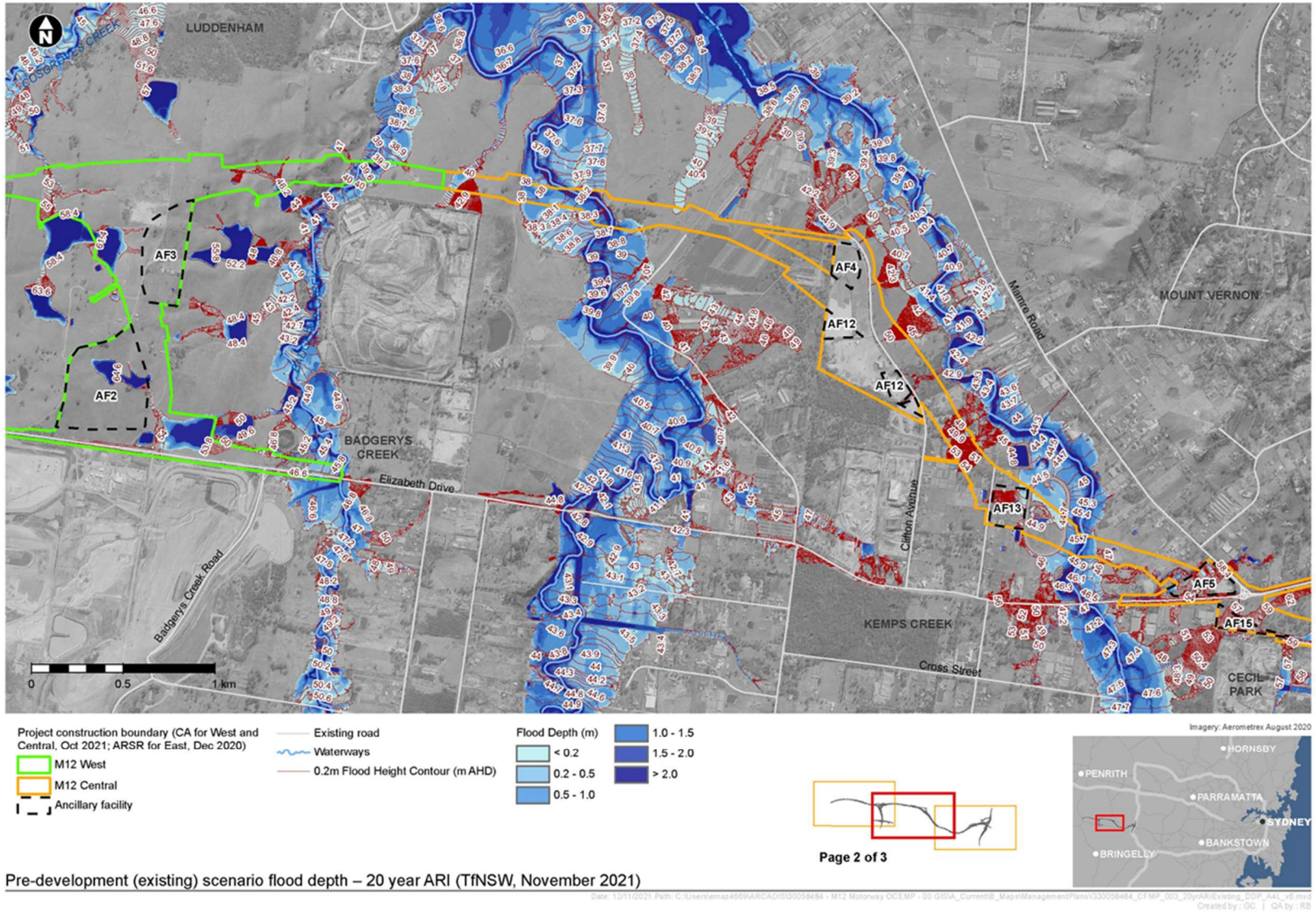
Table A3: TfNSW QA specifications

Specification	Measure/requirement	CFMP Reference
G1 Section 26	Temporary works can also impact on stormwater behaviour with potential consequences for surrounding properties. Design and undertake all temporary works to comply with TfNSW G38 “Flood Management”. Assess any temporary works to ensure no adverse impacts in accordance with the requirements of the environmental approvals for the project.	Table A3, G38 Section 3.9 Section 6.1.2
G38 Section	Comply with the following requirements: (i) estimate peak flows and other parameters needed to design drains and drainage structures using the methods described in Australian Rainfall and Runoff;	Section 6.1.2
G38 Section 3.7.2	Temporary Waterway Crossings The design of temporary waterway crossings, stream diversions, drainage swales and depressions must be carried out by your suitably qualified and experienced professional in consultation with DPI Fisheries. (e) Flood risks and impacts on surrounding properties as per Clause 3.9; and	Table 6-1, FL6
G38 Section 3.9	As part of your CEMP and prior to commencing any work in flood prone areas and to minimise the Risk of damage from flooding, prepare and implement a Flood Management Sub-Plan to determine warning and evacuation procedures as well as address the potential for flooding and manage flood impacts on construction activities.	This Plan
	Limit impact on flooding characteristics in areas outside the project boundary during any flood event up to and including the 1% AEP flood event, to the following: (a) a maximum increase in inundation time of one hour; (b) a maximum increase of 10 mm in above-floor inundation to habitable rooms where floor levels are currently exceeded; (c) no above-floor inundation of habitable rooms which are currently not inundated; (d) a maximum increase of 50 mm in inundation of land zoned as residential, industrial or commercial; (e) a maximum increase of 100 mm in inundation of land zoned as rural, primary production environment zone or public recreation; (f) no significant increase in the flood hazard or risk to life; and	Section 6.1 Table 6-1, FL8

Specification	Measure/requirement	CFMP Reference
	(g) maximum relative increase in velocity of 10%, where the resulting velocity is greater than 1.0 m/s, unless adequate scour protection measures are implemented and/or the velocity increases do not exacerbate erosion as demonstrated through site-specific risk of scour or geomorphological assessments.	
	To assist you, the Principal will run, at no cost, up to three flood modelling scenarios (for a suite of events) for your proposed temporary works, using its flood model. Provide the Principal with a suitable 3D model of any proposed temporary drainage and earthwork extents. Allow 14 days for each model to be setup and analysed by the Principal.	Section 6.1 Table 6-1, FL9
	Where you cannot meet the requirements set out in (d), (e) and (g) alternative flood levels or mitigation measures may be agreed with the affected landowner.	Section 6.1
	In the event that you and the affected landowner cannot agree on the measures to mitigate the impact as described in (d), (e) and (g), engage a suitably qualified and experienced independent person to advise and assist in determining the impact and relevant mitigation measures.	Section 6.1
	Make good any damage to partially constructed works or temporary works caused by the flood event following passage of a flood event. This includes clearing away of debris, sedimentation and blockage of uncompleted and temporary flood mitigation structures, as well as repairs required due to failures from overtopping of any temporary or partially constructed embankments and damage to partially constructed scour protection.	Section 6.3
	Take all measures necessary to protect the water quality of the waterways during flood events.	Section 6.1
	The Flood Management Sub-Plan must include as a minimum;	-
	(i) Identification of the rainfall events which may cause flooding at the site;	Section 4
	(ii) procedures for monitoring the Bureau of Meteorology weather forecast to predict heavy rainfall events that could cause flooding; and	Section 6.1
	(iii) contingency procedures when risk of flooding is imminent including removal of plant and equipment from high risk flooding areas.	Section 6.2 Appendix C

Specification	Measure/requirement	CFMP Reference
G36 Section 4.4.1	In the event of forecast storm events, heavy rainfall or flooding events:	-
	A. inspect the Site to ensure that all erosion/sedimentation and stabilisation controls are in place and in effective working order (refer Clause 4);	Appendix C
	B. cease all work in the vicinity of flood-prone areas and collect all loose materials and wastes; and	Appendix C
	C. if there is a possibility that work sites could be flooded, take action to prevent any environmental incidents such as potential pollution incidents and protecting disturbed ground from erosion, including relocating all materials that could cause harm onto higher ground and away from flood prone areas.	Appendix C

Appendix B – Existing conditions flood extent maps



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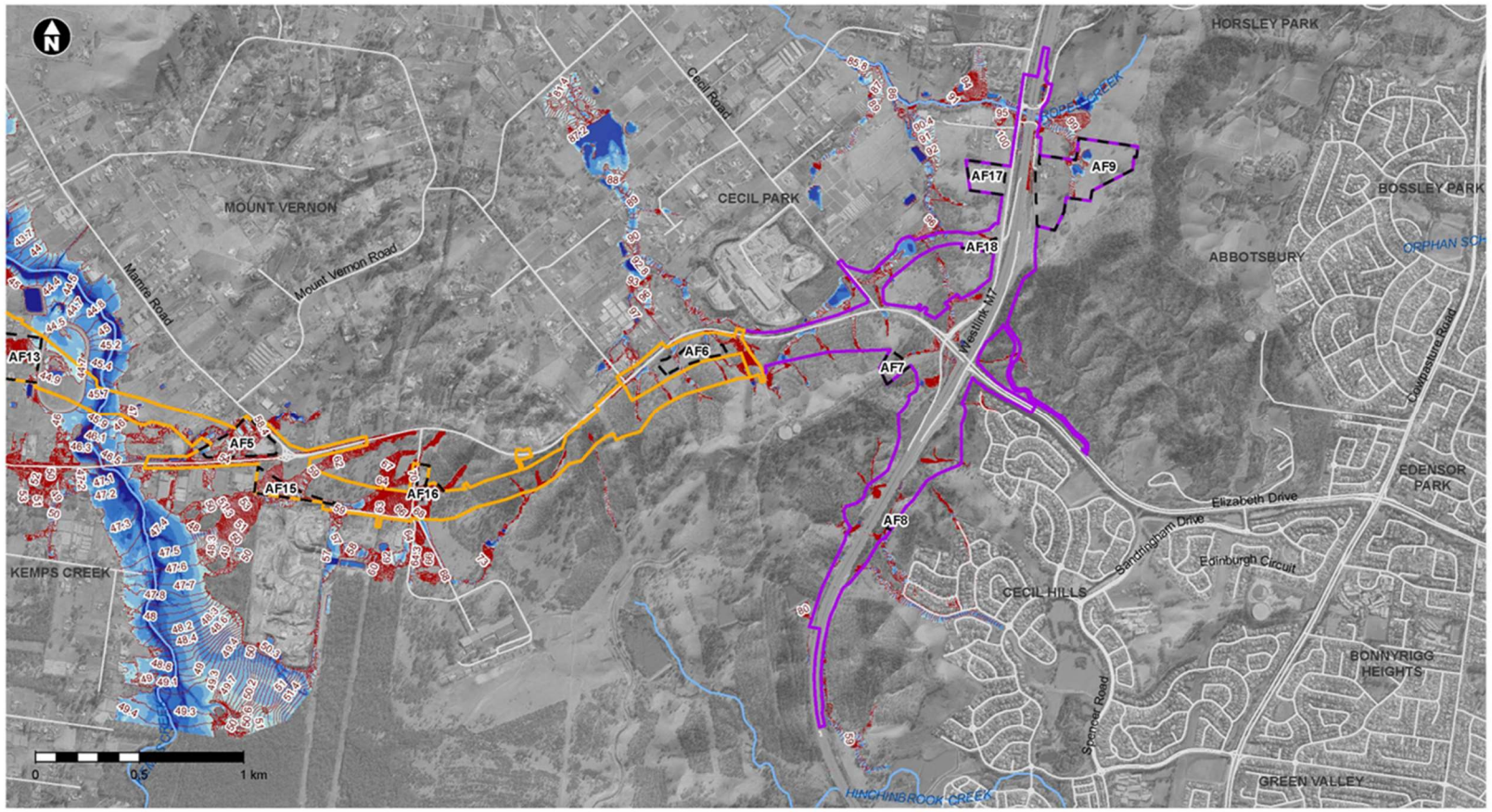
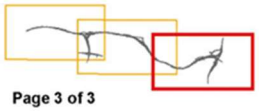
Pre-development (existing) scenario flood depth – 20 year ARI (TfNSW, November 2021)



Project construction boundary (CA for West and Central, Oct 2021; ARSR for East, Dec 2020)
- M12 Central
- M12 East
- Ancillary facility

- Existing motorway
- Existing road
- Waterways
- 0.2m Flood Height Contour (m AHD)

Flood Depth (m)
- < 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0



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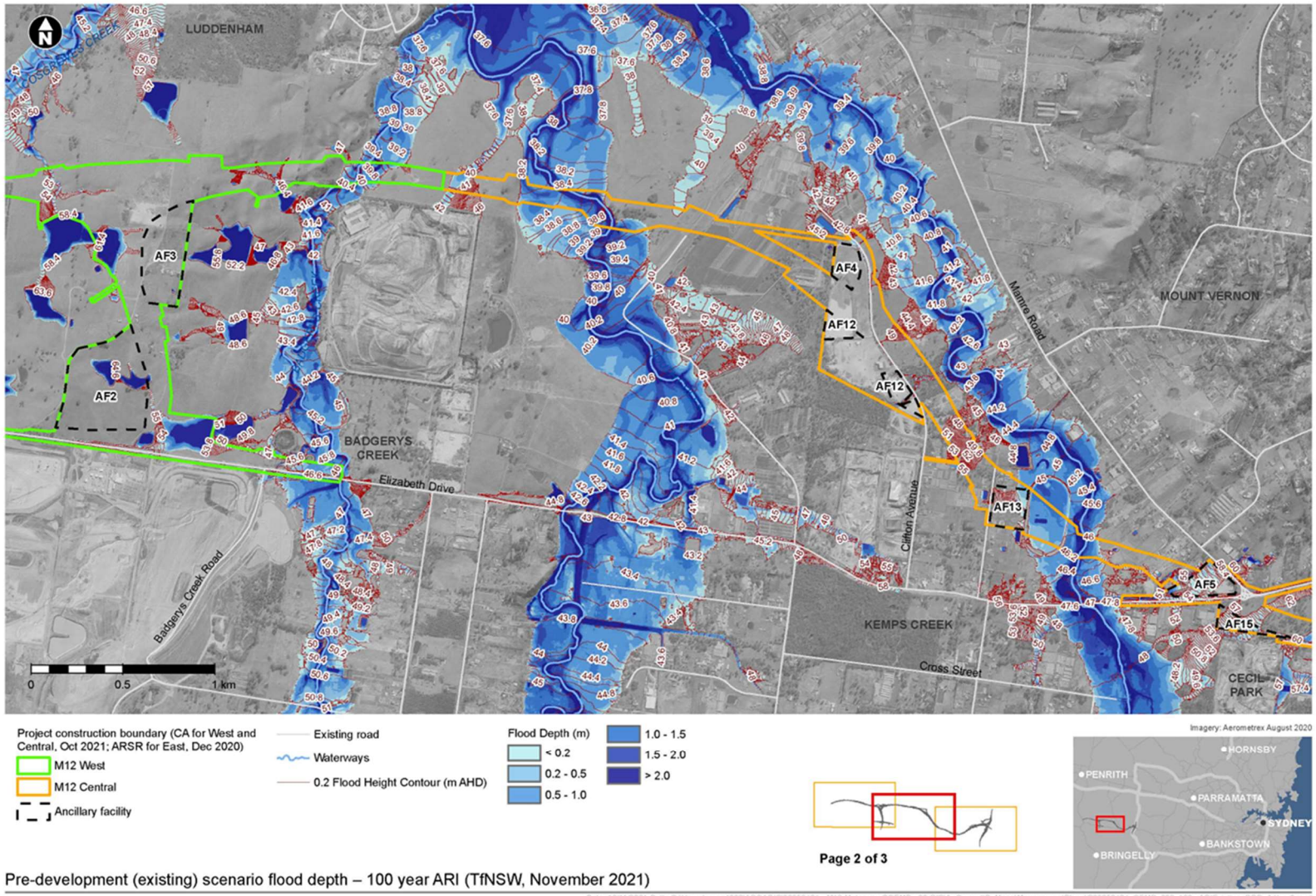
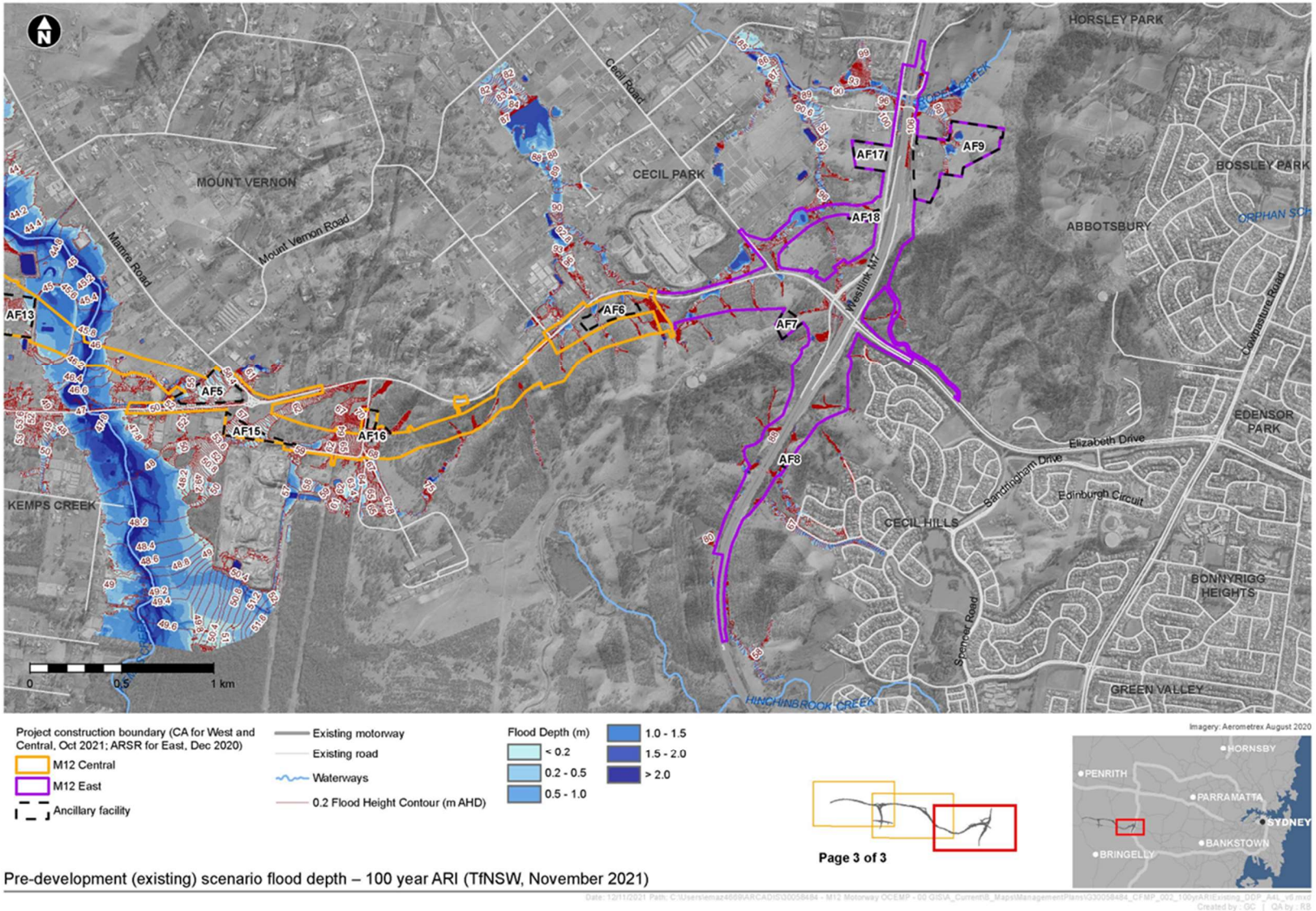
Imagery: Aerometrex August 2020

Pre-development (existing) scenario flood depth – 20 year ARI (TfNSW, November 2021)



Pre-development (existing) scenario flood depth – 100 year ARI (TfNSW, November 2021)



Pre-development (existing) scenario flood depth – 100 year ARI (TfNSW, November 2021)

Appendix C – Flood warning and evacuation procedure

C1. Emergency Planning Committee

Upon the issuing of a "Flood Watch", the Emergency Planning Committee (EPC) will meet as soon as reasonably possible to:

- Establish and maintain internal and external communicate lines
- Notify site personnel
- Prepare the site
- Coordinate response during the flood including potential evacuations
- Oversee flood recovery and re-open the site.

The members of the EPC are detailed in Table C-1.

Table C-1: Emergency Planning Committee members

EPC Member	Contact Number	Role	Focus area
Project Director,	Scott Calleja 0404 058 351	EPC Chair	Overarching coordination and decision making. Re-opening the site.
Construction Manager / Superintendent	Frank Callanan 0448 968 722	EPC Member / Alternate chair	Site preparation, response during the flood, flood recovery and re-opening the site. Direction of flood preparation, flood response and site recovery activities. Relay site events back to the EPC
Project Manager	Construction Manager / Superintendent	EPC Member / Alternate chair	Assists the Construction Manager with co-ordination of response.
Safety Manager	Peter Lawrence 0445 777 352	EPC Member / Alternate chair	Ensure personnel safety during flood response activities
ESR	Tom Bath 0447 491 159	EPC Member / Alternate chair	Monitor and report to the EPC on changes in the flood forecast observations Maintain flood event log Manage environmental issues associated with the flood.
Community and Stakeholder Engagement Manger	Jennifer Gatt 0402 063 586	EPC Member / Alternate chair	Implementation of external notification protocol

C2. Monitor flood warning services

All members of the EPC will register to the BoM Flood Warning Service Program (http://www.bom.gov.au/nsw/warnings/) to receive flood warnings. A “Flood Watch” is typically issued several days before the event is anticipated. The Bureau of Meteorology’s (BOM) severe weather and severe thunderstorm warning systems will also be used to notify designated personnel of severe weather (ranging from high winds to heavy rainfall) and/ or severe thunderstorms via a text message.

After receiving the initial Flood Watch notification, the ESR is responsible for ongoing monitoring of the Flood Warning status and water depths via the BoM automated river heights telemetry systems at South Creek at Mulgoa Road (Station Number: 567070) (http://www.bom.gov.au/fwo/IDN60233/IDN60233.567070.tbl.shtml) and informing the EPC on changing conditions.

C2. External notification protocol

When Flood Watch has been issued and monitoring of river heights indicates that flooding of the site is imminent, communication and consultation with the organisations identified in Table C-2 must be undertaken as and when required in accordance with the M12 Central Communication and Stakeholder Engagement Strategy and M12 Central Incident Management Plan.

The Community and Stakeholder Engagement Manger is responsible for implementation of the external notification protocol and maintaining records of all external communications.

Table C-2: List of key organisations

Organisation	Number	Website
NSW State Emergency Service	132 500	www.ses.nsw.gov.au
Bureau of Meteorology (BoM)	1300 659 218	www.bom.gov.au/nsw/warnings
NSW Police (Green Valley)	02 9607 1799	www.police.nsw.gov.au
NSW Fire and Rescue (Orchard Hills)	(02) 9318 4399	www.fire.nsw.gov.au
Fairfield City Council	(02) 9725 0222	www.fairfieldcity.nsw.gov.au/Home
Liverpool City Council	1300 36 2170	www.liverpool.nsw.gov.au/
Penrith City Council	(02) 4732 7777	www.penrithcity.nsw.gov.au/
Traffic Management Centre	(02) 8396 1400	https://www.livetraffic.com
M12 East Contractors	0475 804 214	-
M12 West Contractor	1800 517 155	-
Western Sydney International Airport	0452 210 138	-
Sydney Metro – Western Sydney Airport	048 1457 484	-

C3. Internal notification protocol

In the event of a Flood Watch or severe weather warning (equivalent or exceeding the 5% AEP / 20 year ARI), inform all site staff well in advance of a predicted storm event and confirm flood emergency procedures including evacuation procedures.

The Construction Manager, with assistance from the Project Managers, is responsible for the internal notifications and communications throughout the Flood Water and flood event.

C4. Preparation of the site prior to flood event

Project Managers will ensure adequate supplies of flood response equipment, including sand bags, 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 Project Manager.

Upon receipt of a Flood Watch warning the following actions will be considered by the EPC prior to a predicted flood event:

- Ensure all utilities (e.g. gas, electricity water) connected to the site office have been put to the OFF position and main valves closed, if safe to do so
- Secure all items in ancillary facilities that may become hazardous and cause damage if moved by flood water
- Tie down timber, drums and other loose, buoyant items to prevent them from being carried away by flood water or battered against other items or structures
- Relocate dangerous and hazardous goods and store at the construction support sites, outside the extent of a 5% AEP flood level
- Ensure no materials are stockpiled in areas of concentrated overland flow and remove as necessary
- Inspect existing surface drainage to close pits that connect to uncommissioned drainage and open pits that are part of the active drainage system
- All plant and equipment, including earthworks plant and cranes, is to be moved and parked in areas outside the 5% AEP flood level flood extent, equivalent to 20 year ARI (as shown in Appendix B), or higher depending on information from the Flood Warning Service.
- Silt curtains or other in-river environmental controls are to be secured or removed to a location outside the 10% AEP flood level
- Place geofabric and silt fences (or similar) on/around material stockpiles that cannot be located outside of the 10% AEP flood level flood extent, to minimise erosion and loss of material.

The Superintendent is responsible for the coordination of the actions to protect and secure the site prior to flooding. The Safety Manager is to assist with these non-routine activities to ensure they are completed safely.

C5. During a flooding event

The SES is the designated Agency for floods and is responsible for coordinating the evacuation and welfare of affected communities. 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. Upon the issuing of a “Flood Warning”, Seymour Whyte will maintain open communication with the SES and cooperate with their instructions.

Evacuation

All workers and visitors will be briefed on emergency procedures in the site 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 CFMP.

The decision by the EPC to advise or direct people to evacuate should be considered whenever there is a potential need to move people to a safer place. The decision process of the EPC should take into consideration where an evacuation has already been instigated, whether by an emergency service (e.g. SES), members of the public or site personnel self-evacuating. During a flood event, the site office will serve as an emergency assembly area where workers will gather before an evacuation order is issued.

Following any decision to evacuate, site personnel and emergencies services will be notified of the following:

- 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.

C6. Flood recovery

Site inspections would be undertaken within 24 hours of the flood event or as soon as allowable (given safety requirements). The site inspection will include a review of any potential flood damage, and of material which may have been lost during the event. Records would be retained of post-flood inspections and actions undertaken in response to the event and be provided TfNSW.

The following list of actions will be undertaken by the Project Managers / Superintendents when returning to site:

- Assess damage to access roads prior to entering
- Do not turn power back on until all electrical equipment on site has been checked and certified by a qualified electrician
- 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
- Maintain and repair any damaged or at capacity erosion control structures/ devices
- 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
- Check construction materials/equipment and record any that were damaged during flooding
- Review dewatering requirements. All dewatering will be undertaken in accordance with the CSWMP unless there is an overriding risk to people or property.
- Prepare an incident report on the flood event in accordance with the Environmental incident classification and reporting procedure (CEMP Appendix A7). Include information on how the site was evacuated and document the resulting flood depths and damage to the site.

The Project Director will re-open site only when it is deemed safe to continue work.