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Appendix B8

Construction Flood Management Sub-plan

M12 Motorway

March 2024

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B	23/10/2020	Response to TfNSW comments
C	10/11/2020	Response to TfNSW comments
D	22/07/2021	Updated with Final NSW and Commonwealth CoA
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F	16/12/2021	Updated to close out ER comments
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K	22/03/2024	Updated in response to comments from TfNSW, ER and Construction Contractors

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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 to the 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 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 CEMP, 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
DCCEEW	Commonwealth Department of Climate Change, Energy, Environment and Water
DPE	Former NSW Department of Planning and Environment
DPIE	Former Department of Planning, Industry and Environment

Abbreviation	Expanded text
DPHI	NSW Department of Planning, Housing and Infrastructure (formerly NSW DPE which has now been split into NSW DCCEEW and NSW DPHI, with all planning functions falling to DPHI)
EAD	Environmental Assessment Documentation
EDC	Elizabeth Drive Connection
EHG	Environment and Heritage Group
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 – East Site 48, 50 and 51 Boundary Changes Minor Consistency Assessment • Arcadis (January, 2024) M12 Motorway – Minor Consistency Assessment M12 Central Water Tower Access Road 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.

Abbreviation	Expanded text
EPA	NSW Environmental Protection Agency
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	Transport for New South Wales Environmental and Sustainability Manager
ESR	Construction Contractor Environmental Site Representative
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.
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.
M7 Motorway (MOD 6 Widening)	Refers to the State Significant Infrastructure project (SSI-663-MOD 6) to construct and operate an additional lane in both directions within the existing median of the M7 Motorway, south of the Kurrajong Road overhead bridge at Prestons to the M7 Motorway bridge at Richmond. This project interacts with the M12 East stage at the M7 interchange.
M7 Widening	Shorthand term for M7 Motorway (MOD 6 Widening)

Abbreviation	Expanded text
M7-M12 Integration Project	The M7-M12 Integration project incorporates the following: • M7 Motorway (Mod 6 Widening) (SSI 663 Mod 6) – modification (mod) to the M7 Motorway approved on 17 February 2023 under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) • M12 Motorway (CSSI 9364) – approved on 23 April 2021 under Division 5.2 of the EP&A Act and split into separate stages or packages of work (West, Central (main construction), Central (temporary roundabout) and East). The M12 Motorway is also subject to a federal approval under the Environment Protection and Biodiversity Conservation Act 1999. The M7-M12 Integration project incorporates the M12 East package only.
NSW CoA	NSW Conditions of Approval
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water (formerly NSW DPE which has now been split into NSW DCCEEW and NSW DPHI)
OCEMP	Overarching Construction Environmental Management Plan
OCS	Overarching Communication Strategy
PIRMP	Pollution Incident Response Management Plan
Primary CoA/REMM	CoA or REMM that is specific to the development of this Plan
Project, the	M12 Motorway
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
WSIA	Western Sydney International Airport
WSPT	Western Sydney Parklands Trust

1 Introduction

1.1 Context

This Construction Flood Management Sub-plan (CFMP or Plan) forms part of the Overarching Construction Environmental Management Plan (OCEMP) for the M12 Motorway (the Project).

This CFMP has been prepared to address the requirements of the NSW Conditions of Approval (CoA), the Revised Environmental Management Measures (REMMs) listed in the M12 Motorway Environmental Impact Statement (EIS) as amended by M12 Amendment Report, Transport for New South Wales (TfNSW) specifications and all applicable legislation.

1.2 Background and Project description

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

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

- M12 West – between The Northern Road, Luddenham and about 250 metres east of Badgerys Creek
- M12 Central (main construction) – between about 250 metres east of Badgerys Creek and the Western Sydney Parklands at Duff Road, Cecil Park
- M12 Central (Temporary Roundabout) - temporary roundabout installation at Elizabeth Drive and Devonshire Road, Kemps Creek
- M12 East – (as part of the M7/M12 Integration Project)
    - Elizabeth Drive Connections (EDC) – a two-kilometre section from Duff Road to about 300 metres east of the M7 Motorway
    - M7/M2 Interchange – An interchange between the M12 Motorway and M7 Motorway and tie-in works for approximately four kilometres on the M7 Motorway

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.

An EIS was prepared to describe and assess the Project and recommend management measures to address impacts. The EIS was exhibited by the NSW Department of Planning, Industry and Environment (DPIE; now split into the NSW Department of Planning, Housing and Infrastructure and Environment (DPHI) and Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW)) for 34 days from 16 October 2019 to 18 November 2019 to give the community and stakeholders the opportunity to provide comment.

In accordance with Section 5.17 of the EP&A Act, the Planning Secretary requested TfNSW to provide a Response to Submissions on 29 November 2019 to address the identified issues. Due to design developments since the exhibition of the EIS, an Amendment Report (AR) has been developed to assess the impacts of these amendments. The AR was exhibited by DPIE for 14 days

from 21 October 2020 to 4 November 2020. Following exhibition of the AR, an Amendment Report Submissions Report (ARSR) was developed in December 2020 to address the identified issues, followed by the ARSR – Amendment in March 2021 which addressed biodiversity matters only.

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 (M12 Central) 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.
- Devonshire Road Temporary Roundabout Consistency Assessment required to address the requirements of REMM TT10. This has resulted in an increase to the construction footprint at the Elizabeth Drive and Devonshire Road intersection to allow for the construction of a temporary roundabout; approved in September2023.
- Elizabeth Drive Connections Consistency Assessment addressed detailed design changes for the Elizabeth Drive Connections. This involved minor construction and operation boundary adjustments, design changes, new sediment basin locations, utility works, property access changes and property adjustments; approved in September 2023.
- M12 West Minor Consistency Assessment for the demolition of structures as 752 Luddenham Road required to address the need for the demolition of structures within Ancillary Facility 11. Whilst this ancillary facility is already located within the construction footprint and was previously assessed in the M12 Motorway Amendment Report, the demolition and disposal of structures in this location required assessment; approved in September 2023.
- M12 East AF9 Power Supply Minor Consistency Assessment required to address a minor temporary amendment to the construction footprint in order to provide permanent site power to the construction ancillary facility 9 (AF9); approved in October 2023.
- M12 East Cecil Road Laydown Area Minor Consistency Assessment required to address temporary amendment to the construction boundary to facilitate the installation of a DN150 Steel Secondary Gas main within Cecil Road; approved in October 2023.
- M12 East Temporary Construction Signage Minor Consistency Assessment required to address temporary traffic signage installed prior to the start of temporary barriers on the M7 Motorway; approved in October 2023.M12 East Site 48, 50 and 51 Boundary Changes Minor Consistency Assessment addressed the required amendments to the construction footprint in three locations as a result of temporary traffic control measures, pavement build up and resurfacing; approved in December 2023.

- M12 Central Water Tower Access Road Minor Consistency Assessment addressed changes to the construction boundary to facilitate the construction of concrete slabs over the Sydney Water main, the construction of a temporary access road to the existing water town and radar tower, and the subsequent reinstatement of this temporary access road to pre-construction conditions; approved in January 2024.

The Project must be carried out generally in accordance with the EIS, Submissions Report, AR, ARSR and the ARSR - Amendment, M12 West and Central CA, Sydney Water CA, Design Boundary Change CA, Minor CA, Devonshire Road Temporary Roundabout CA, Elizabeth Drive Connections CA, M12 West Demolition of Structures as 752 Luddenham Road CA, M12 East AF9 Power Supply CA, M12 East Cecil Road Laydown Area CA, M12 East Temporary Construction Signage CA, M12 East Sites 48, 50 and 51 CA and M12 Central Water Tower Access Road CA in accordance with NSW CoA A1. These documents are collectively referred to as the Environmental Assessment Documentation (EAD). The CSSI must also be carried out in accordance with all procedures, commitments, preventative actions, performance outcomes and mitigation measures set out in the Environmental Assessment Documentation EAD as required by NSW CoA A2.

The EIS assessed flooding impacts during the construction of the Project. As part of EIS development, a Flooding Assessment Report was prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the former NSW Department of Planning and Environment (DPE; now DPHI) and the Commonwealth EIS Guidelines issued by the Commonwealth Department of the Water, Agriculture and Environment (DAWE; now Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW)). The Flooding Assessment Report was included in the EIS as Appendix L.

Further assessment of flooding impacts was undertaken subsequent to exhibition of the EIS and incorporated into the Amendment Report. The additional assessment considered the impacts on flooding due to amendment and refinements in the Project design, including changes in the Project footprint and ancillary facilities. A Flooding supplementary technical memorandum was included in the Amendment Report as Appendix H. REMMs were provided within the Amendment Report. Where applicable, the REMMs from the Amendment Report have been included in this CFMP.

Additionally, the M12 East Stage is being delivered as part of the M7-M12 Integration Project which includes the M7 Motorway Widening Project (MOD 6 Widening (SSI-663-MOD 6)) (referred to herein as M7 Widening) delivered by Western Sydney Orbital Company (WSO Co). Additional assessments were undertaken as a part of the EAD for this project. Additional assessments were undertaken as a part of the EAD for this project.

Section 2 of the OCEMP provides a detailed project description.

1.3 Scope of the Plan

The OCEMP and Sub-plans are related to the construction phase only. Where low impact works are undertaken prior to the Construction Contractors Construction Environmental Management Plan (CEMP) approval they will be governed by the LIWMS outlined in Section 2.4 of the OCEMP. Where low impact work is undertaken during the construction phase following approval of the Construction Contractors CEMP and Sub-plans, they will be governed by the Construction Contractors CEMP and Sub-plans.

The scope of this CFMP is to describe how the Construction Contractors will minimise environmental impacts resulting from flooding of the Project site during construction. The Construction Contractor responsible for each stage of the Project; M12 West, M12 Central (main construction), M12 Central (temporary roundabout), M12 East (Elizabeth Drive connections) and M12 East (M7/M12 interchange) must use this CFMP as the basis for their stage-specific CFMP.

Early Works, as defined in the EIS Section 5.24.4 and OCEMP Section 2.4 are not within the scope of the OCEMP and Sub-plans. Furthermore, operational flood impacts and operation measures do not fall within the scope of this CFMP and are therefore not included within the processes contained within the CFMP.

1.4 Environmental Management Systems overview

The overarching Environmental Management System (EMS) for the Project is described in Section 3 of the OCEMP. The Construction Contractor delivering the Project will have a certified EMS consistent with the overarching EMS described in the OCEMP. The Construction Contractor will develop stage specific CFMPs in accordance with the OCEMP, the Environmental Protection License (EPL) and their EMS. This overarching CFMP forms part of the environmental management framework for the Project, as described in Section 3.3 of the OCEMP.

The Construction Contractor will be required to develop, as part of their stage specific CFMPs, detailed procedures and plans to address specific requirements of the CoA and REMMs identified in this overarching CFMP. The purpose of these environmental management documents in regard to minimisation and management of impacts on flooding associated with the Project is outlined in Section 6 of this CFMP.

The review and document control processes for this CFMP are described in Section 7.6.2 and Section 7.7 of the OCEMP.

Management measures identified in this CFMP 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.

An EWMS template for use by the Construction Contractors is provided in Appendix A8 of the OCEMP. Appendix A8 also contains a template EWMS register and template EWMS training register. EWMS will be prepared by the Construction Contractor's Environmental Site Representatives (ESR) and reviewed by the TfNSW Environmental and Sustainability Manager (ESM)(or delegate) and independent Environmental Representative (ER) prior to the commencement of the construction activities to which they apply.

Construction personnel undertaking a task governed by a EWMS will undertake the activity in accordance with the mitigation and management measures identified in the EWMS. Used together, the OCEMP, strategies, procedures and EWMS form management guides that clearly identify required environmental management actions for reference by TfNSW and its Construction Contractors.

1.4.1 CFMP preparation, endorsement and approval

This overarching CFMP has been prepared to satisfy NSW REMM FD03 in relation to the management of flood event during construction of the Project.

This CFMP was reviewed by the TfNSW Project Director and the Environment and Sustainability Manager (or delegate) and reviewed by the ER prior to implementation.

1.4.2 Interactions with other management plans

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

- The Construction Soil and Water Management Plan (CSWMP) addresses the erosion and sedimentation impacts associated with construction activities
- The Site Establishment Management Plans (SEMP) provides details on the environmental controls to be installed at each ancillary worksite.

1.5 Consultation

1.5.1 Consultation for preparation of the CFMP

The State Infrastructure Approval and Federal Approval do not have any consultation requirements relating to CFMP preparation or endorsement.

1.5.2 Ongoing consultation during construction

Consultation between TfNSW and its Construction Contractor, stakeholders, the community and relevant agencies will be undertaken during the construction of the Project as required. The process for the consultation will be documented in the Overarching Communication Strategy (OCS).

Ongoing consultation related to flood related impacts will include consultation with, but not be limited to emergency services such as the NSW State Emergency Service (SES), NSW Police and adjacent affected landowners.

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

As required by NSW CoA E17, the Project must be designed and constructed to limit impacts on flooding characteristics during any flood event up to an including 1% AEP as prescribed in NSW CoA E17(a)-(g). During detailed design of M2 East, the Elizabeth Drive Connections CA identified two locations where design did not meet these criteria for afflux and four locations where design did not meet these criteria for water velocities. These locations were all identified within land owned by WSPT and consultation with WSPT was required. An agreement between TfNSW and WSPT was reached on 20 March 2022 that identified the management measure FI20, detailed in Table 6-1, as a suitable action plan.

To ensure that the Construction Contractor's proposed temporary works comply with the requirements outlined in NSW CoA E17, TfNSW will run three modelling scenarios for the Construction Contractor's proposed temporary works. The Construction Contractor will need to provide TfNSW with a 3D model of any temporary earthwork extents for TfNSW to run the model. The findings of this modelling will inform the Construction Contractor's stage specific CFMP.

2 Purpose and objectives

2.1 Purpose

The purpose of this CFMP is to describe flood related impacts will be managed during construction of the Project.

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:

- The Environmental Assessment Documentation
- NSW CoA granted to the Project on 23 April 2021
- TfNSW Quality Assurance Specifications
- All relevant legislation and other requirements described in Section 3.1 of this Plan

2.3 Target

Targets for the management of flood related impacts during the Project 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
- Minimise and manage construction impacts on flooding avoid significant impacts to people and property
- Ensure training is provided in the form of inductions and toolboxes to all Project personnel on flood risks, protection measures and evacuation procedures before they begin work on site.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation and regulatory requirements

Legislation relevant to flooding includes:

- *State Emergency and Rescue Management Act 1989*
- *State Emergency Service Act 1989.*

Legislation relevant to flood management also includes the *Environmental Planning and Assessment Act 1979* (EP&A Act), under which the Infrastructure Approval was granted. Relevant provisions of the EP&A Act are explained in the register of legal and other requirements included in Appendix A2 of the OCEMP.

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)
- 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 Specification G36 – Environmental Protection (Management System)
- TfNSW 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 Revised Environmental Management Measures

The primary REMMs relevant to the development of this CFMP are listed in Table 3-1 below. Secondary REMMs relevant to this CFMP are listed in Appendix B. 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	Applicability			Document Reference
			M12 West	M12 Central	M12 East	
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	✓	✓	✓	This CFMP Section 3.1.2 Processes for flood preparedness – Section 6.1 Materials management – Table 6-1 (FL10 – FL12) Weather monitoring – Section 6.1, Section 6.2 Site Management – Section 6, Section 7 Flood incident management – Section 6.2, Section 6.3

3.3 TfNSW Specifications

The TfNSW 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.

The specifications set out environmental protection requirements, including Hold Points that must be complied with by the Construction Contractor during construction of the Project. A Hold Point is a point beyond which a work process must not proceed without express written authorisation from TfNSW.

The Construction Contractor will incorporate the appropriate M12 TfNSW Specifications into the stage specific CFMPs including the requirements from, but not limited to:

- TfNSW G36 – Environmental Protection
- TfNSW G38 – Soil and Water Management.

The TfNSW Specifications are Project contract documents and are not publicly accessible.

4 Existing Environment

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 Project intersects Cosgroves Creek, Badgerys Creek, Kemps Creek, South Creek and Ropes 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 Project 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 Project. An overview is provided in Figure 4-1.

The South Creek catchment was 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 Project area may be characterised into three general terrain types:

- Rolling hills terrain; which occurs in the western and eastern portions of the Project
- Flat to gently undulating terrain; which occurs in the central portion of the Project
- Creek channels/alluvial floodplain terrain, which dissects the flat to gently undulating terrain within the central portion of the Project.

Within the rolling hills terrain, the topography typically comprises rounded hills with slopes of five to 20 degrees.

The topography of the flat to gently undulating terrain in the central portion of the construction footprint 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 by four meandering creeks, Cosgroves Creek, Badgerys Creek, 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.

4.3 Rainfall and climate

The average yearly rainfall in the vicinity of the Project, 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).

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 for the Project. Flood extent mapping is provided in Appendix C.

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

Catchment	Flood conditions during the 100-year ARI flood event
Luddenham Road valley	The Luddenham Road valley is small compared to the catchments of the other waterways. Peak flows tend to occur with short duration, high intensity storms rather than the long duration, saturating storms that produce peak flows in the main waterways. The main flow-path along the valley floor contains numerous farm dams that intercept and capture runoff. If these dams become full during a storm, the dams overflow, and excess runoff bypasses them to their side. Luddenham Road is not raised far above the valley floor so would be susceptible to regular flooding. The peak runoff during the 100-year ARI event is 10 cubic metres per second along a flow-path about 90 metres wide.
Cosgroves Creek	Cosgroves Creek has a peak 100-year ARI runoff of 80 cubic metres per second along a flow-path about 120 metres wide.
Badgerys Creek	Badgerys Creek has a peak 100-year ARI runoff of 130 cubic metres per second along a flow-path about 170 metres wide. The project crosses this floodplain at a substantial angle. The effective floodplain is about 300 metres wide as it crosses the operational footprint.
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 project.
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.
Ropes Creek	It is noted that although the Project traverses Ropes Creek near the tie-in to the existing M7 Motorway, flood modelling for the Ropes Creek Catchment was not undertaken as the design of the bridge at this location was developed to match the existing bridge (including bridge type, spans, piers and vertical alignment). The existing bridge deck is above the 2000-year ARI flood level, and the total opening and flood conveyance beneath the bridge provides capacity in excess of the 100-year ARI flood immunity requirement. The proposed bridge widening will maintain the same span widths and therefore total opening for flood conveyance would be the same and no changes to current flood conditions are expected.

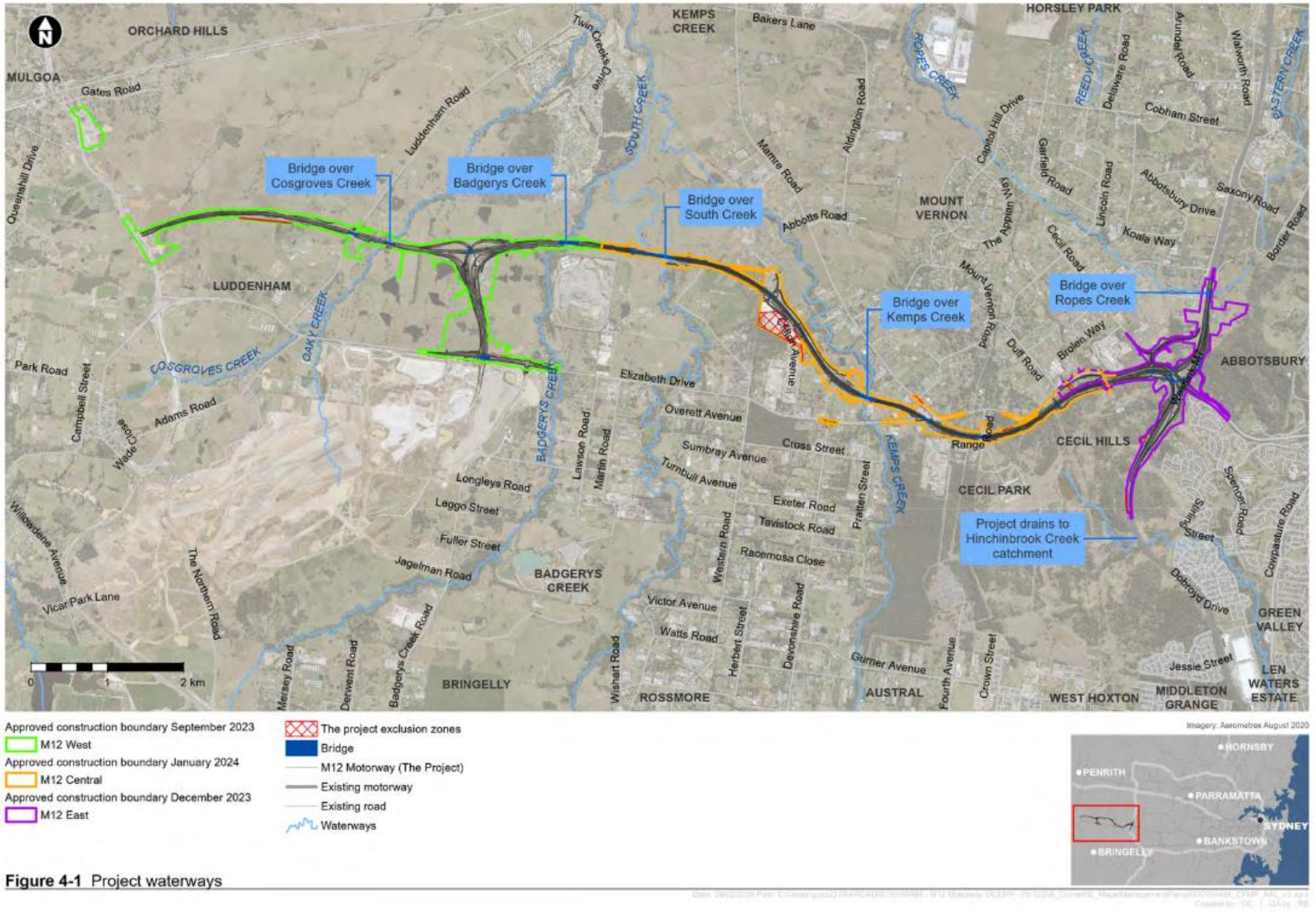


Figure 4-1 Project waterways

Figure 4-1: Waterways along the Project alignment

5 Environmental aspects and impacts

5.1 Construction activities

Key construction activities 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 Project. 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.

In the event of a major flood event during construction, the overland flow path connecting farm dams eastwards to Cosgroves Creek would need to be replicated by the new open channels and culverts associated with the M12 West property adjustment works along Luddenham Road. As such, the works at these dams will be completed in a similar period as the new open channels and culverts along Luddenham Road.

5.1.1 Ancillary facilities

To support the construction of the Project, construction ancillary facilities would be required as identified in the Environmental Assessment Documentation. The majority of the construction ancillary facilities are located outside of the major floodplains to avoid and minimise impacts from earthworks on flow behaviour in the floodplains. 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, the Construction Contractor will prepare a 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.

The Construction Contractor may only establish additional construction ancillary facilities not assessed in the Environmental Assessment Documentation 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. 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.

5.2 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 Project site
- Cumulative impacts as a result of multiple concurrent projects within the area.

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.

Further flooding assessments were completed as a result of the Elizabeth Drive Connections CA and identified two locations where the increase in flood level is above the criteria set out in the NSW CoA E17(e) and four locations where velocity exceeds the criteria in the NSW CoAE17(g). All affected land is owned by Western Sydney Parklands Trust (WSPT) and in accordance with CoA E17, Transport for NSW and WSPT reached an agreement on 20 March 2022. The management measures required as a result of this agreement are detailed further in Section 6.5 below.

Investigations and monitoring agreed to in consultation with WSPT will be carried out by TfNSW prior to, during and after construction to verify the expected afflux and velocity impacts.

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 below.

6.1 Pre-flood actions

In accordance with NSW CoA E17, the Project will be constructed in a manner that limits the impacts on flooding characteristics in areas outside the Project boundary during any flood event up to and including the 1% AEP flood event. TfNSW will run modelling scenarios for the Construction Contractor's proposed temporary works. The Construction Contractor will provide TfNSW with a 3D model of any temporary earth work extents for TfNSW to run the model. 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.

Additionally, the following actions will be undertaken as preventative measures to prepare for flooding on site:

- The Construction Contractor to develop, as part of their stage specific CFMPs, detailed procedures and plans to address specific requirements of the CoA and REMMs identified in this overarching CFMP.
- Daily monitoring of weather forecasts and flood alerts, using the BoM
- Training in flood emergency response will be provided to key personnel including Construction Contractor Superintendent and Foreman / Site Supervisor
- 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
- 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.

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

6.2 Flood emergency response

The key principles of emergency flood response, according to the NSW State Flood Plan (March Mi2018) 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 flood.

If localised heavy rainfall occurs with associated observation of rising water level on-site or adjacent waterway, site personnel will be directed to follow the Construction Contractors' incident response management plans.

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

The SES augments this information to coordinate public information management strategies and provide information to the community relating to the potential impacts of flooding and what actions need to be undertaken. The SES will 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.

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

The Environmental Site Representative in conjunction with the Safety Advisor and Superintendent will regularly consult these resources to stay abreast of any flood threats that may arise.

In accordance with REMM HS03, 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.

During the 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
- 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 site, the initial response will be to determine whether or not it is safe to return to work. A safety walk through will be conducted the Construction Contractor. 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.

At all times, the Construction Contractors will instruct flood emergency responses in accordance with stage specific incident response management plans.

6.4 Cumulative Impacts

Planning provisions require that future development cannot result in a significant change in peak flood flows. The magnitude of cumulative construction flooding impacts would be dependent on the specific construction locations, activities and impacts of concurrent construction projects. However, M12 Motorway is expected to have minor and localised flood impacts during construction and would therefore only have a minor contribution to cumulative construction flooding impacts. These impacts are sufficiently managed by the management measures detailed in Table 6-1 below.

6.5 Management Measures

Specific measures and requirements to meet the objectives of this CFMP and to address flooding impacts as a result of the Project are outlined in Table 6-1 .

Table 6-1: Flood management and mitigation measures

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
General								
FL01	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	Prior to construction	Construction Contractor Project Manager	✓	✓	✓	Best practice	Program Monitoring records
FL02	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 Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Best practice	Site Establishment Management Plan
FL03	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 Contractor Safety Advisor	✓	✓	✓	Best practice	Training Records
FL04	Minimise the extent of obstructions within flood prone areas as far as practicable at all times during construction	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Best practice	Weekly inspections Pre-Rainfall Inspection
FL05	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	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Best practice	Pre-Rainfall Inspection

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
FL06	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.	During construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	REMM F08	Weekly inspections
Monitoring and pre-flood measures								
FL07	TfNSW will run modelling scenarios for the Construction Contractor's proposed temporary works. The Construction Contractor will provide TfNSW with a 3D model of any temporary earth work extents for TfNSW to run the model.	Prior to temporary works	TfNSW Construction Contractor	✓	✓	✓	NSW CoA E17	Construction Contractor's stage specific CFMP
FL08	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 Contractor Superintendent / Foreman / Site Supervisor / Environmental Site Representative / Safety Advisor	✓	✓	✓	Best practice	Pre-starts
FL09	Monitor Bureau of Meteorology flood warnings and the SES Website for the Hawkesbury-Nepean catchment	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor / Environmental Site Representative / Safety Advisor	✓	✓	✓	Best practice	Pre-starts
FL10	Relocate waste containers, chemicals and dangerous goods above flood prone areas	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Blue Book (Landcom, 2004) Section 6.2	Pre-Rainfall Inspection

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
FL11	Locate plant and equipment on high ground when flooding is expected	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Best practice	Pre-Rainfall Inspection
FL12	Stockpile areas and storage of chemicals, fuels and lubricants will be located above the 1 in 20-year flood level (Appendix C)	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	Best practice	Pre-Rainfall Inspection
FL13	Inspect/repair erosion and sediment controls in accordance with the CSWMP	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor	✓	✓	✓	CSWMP	Pre-Rainfall Inspection
Notification and Evacuation								
FL14	Upon determination of heavy rainfall event, advise staff and workers to prepare for a potential flood event and follow flood procedures for evacuation	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor / Safety Advisor	✓	✓	✓	Best practice	Pre-start Pre-Rainfall Inspection Verbal
FL15	Incident response management plans will be developed and implemented by the Construction Contractors. 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 Contractor Safety Advisor	✓	✓	✓	REMM HS03	Incident response management plan

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
Assessment of damage and remediation after flood								
FL16	Conduct safe walk through to determine whether or not it is safe to return to work.	Prior to construction, and during construction	Construction Contractor Superintendent / Foreman / Site Supervisor / Safety Advisor	✓	✓	✓	Best practice	Safety Inspection
FL17	Review and restore erosion and sediment control devices as per the Construction Soil and Water Management Plan.	Prior to construction, and during construction	Construction Contractor / Foreman / Site Supervisor / Environmental Site Representative	✓	✓	✓	Best practice	Post-Rainfall Inspection
FL18	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 Management Plan if damaged beyond repair/use	Prior to construction, and during construction	Construction Contractor / Foreman / Site Supervisor /	✓	✓	✓	Best practice	Construction Waste Management Plan
FL19	Dewater site water in accordance with Construction Soil and Water Management Plan	Prior to construction, and during construction	Construction Contractor / Foreman / Site Supervisor / Environmental Site Representative	✓	✓	✓	Best practice	Dewatering Records
Other								
FL20	Implement the action plan agreed between TfNSW and WSPT, as follows: **Prior to construction** • TfNSW will obtain a good baseline of WSPT flood affected location 1 and location 2. This would include a memorandum/report with photographic points from a number of locations. With	Prior to construction, during construction and post construction	TfNSW			✓	M12 Motorway – Elizabeth Drive Connections Consistency Assessment	Prior to construction, during construction and post construction

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
	the significant rainfall we have had in the last year (i.e. 2022), it would give a good indication of how the existing environment copes with significant rainfall events. • Suggested rainfall event for monitoring: ◦ Transport for NSW has proposed a rainfall event >50 mm in a 24 hr period ◦ Transport for NSW expert's advice based on the rainfall data for the area suggests that this type of event happens about 3 times a year • Badgerys Creek Weather Station would be used to obtain rainfall data. **During construction** • Carry out annual inspection and inspection following a >50 mm rainfall event in 24 hr period. • Document inspections. **Post construction/contract completion** • Carry out annual inspection and inspection following a >50 mm rainfall event in 24 hr period for a 12 month period following construction/contract completion. • If there are no significant rain events in the twelve-month period, when the rain							

ID	Management Measure	When to implement	Responsibility for implementation	Applicability			Reference or source	Evidence of implementation
				M12 West	M12 Central	M12 East		
	events do occur a follow up assessment would be undertaken by TfNSW and appropriate actions taken if required. • Document inspections							

7 Compliance management

7.1 Roles and responsibilities

The Project organisational structure and overall roles and environmental responsibilities are outlined in Section 5.1 of the OCEMP. Specific responsibilities for the implementation of flood management are detailed in Table 6-1 of this CFMP.

7.2 Training

All site personnel (including sub-contractors) will undergo site induction training that include details of this CFMP and the flood preparation, warning and evacuation requirements prior to construction commencing.

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. This will include testing the flood emergency response / evacuation in accordance the Construction Contractors incident response management plans at nominated intervals throughout the construction period.

Daily pre-start meetings conducted by the Superintendent will inform the site workforce of any environmental issues relevant to flooding that could potentially be impacted by, or impact on, the day's activities.

7.3 Communication

TfNSW will prepare and implement an OCS in accordance with the requirements of NSW CoA B1 and B2 to document the approach to stakeholder and community communications for the Project. The OCS will identify opportunities and tools for providing information and consulting with the community and stakeholders during the construction of the Project. The Construction Contractors will support the delivery of the OCS.

In the event a flood warning is received it will be communicated to the workforce in accordance with the stage specific CFMPs or emergency response plans prepared by the Construction Contractor and relevant stakeholders notified.

Flood management information will be communicated to the community and stakeholders in accordance with the principles and procedures outlined in the OCS. Construction Contractors will provide timely, accurate, relevant and accessible information, with provision for feedback through a complaints line during construction.

7.4 Inspections and Monitoring

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	Daily	Construction Contractor Superintendent / Foreman / Site Supervisor / Environmental Site Representative	Section 6.1
Weekly environmental inspection	Weekly	Construction Contractor Superintendent / Foreman / Site Supervisor / Environmental Site Representative	OCEMP Section 7.1.1
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	Construction Contractor Superintendent / Foreman / Site Supervisor / Environmental Site Representative	Section 6.1 Section 6.2 OCEMP Section 7.1.2
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 Contractor Superintendent / Foreman / Site Supervisor / Safety Representative	Section 6.2 Section 6.3
Inspection of flood location 1 and flood location 2 on WSPT WSPT lands as per management measure FL20	Annual inspection	TfNSW	Section 5.2 Section 6.5
	Inspection following a >50 mm rainfall event in 24 hrs	TfNSW	Section 5.2 Section 6.5

Requirements and responsibilities in relation to monitoring and inspections are documented in Section 5.1 and Section 5.2 of the OCEMP.

7.5 Auditing

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

Audit requirements are detailed in Section 7.4 of the OCEMP.

7.6 Reporting and identified records

Reporting requirements and responsibilities are documented in Section 7.3 of the OCEMP.

The Construction Contractor will be required to maintain accurate records substantiating all construction activities associated with the Project or relevant to the CoA, including measures taken to implement this CFMP. Should an environmental incident occur as a result of flooding on the Project site, it will be reported in accordance with the M12 Environmental Incident Reporting Procedure provided in Appendix A7 of the OCEMP.

Key identified records relevant to this CFMP as specified by TfNSW specifications are to be maintained by the Construction Contractor.

Report	Frequency	Recipient	Responsibility	Reference
Monthly Environmental Reporting	Monthly	TfNSW	Construction Contractor ESR	TfNSW specification G36
Incident and Non-compliance Reports	At each occurrence	Appropriate authority dependant on nature of the incident (e.g. EPA, DPHI, NSW DCCEEW) (see Section 6 and Section 7 of the OCEMP)	Construction Contractor ESR	NSW CoA A44, A45 and A46 Commonwealth COA 11 and 12
Construction Phase Watercourse Geomorphological Condition Report (M12 East only)	Annually	WSPT	TfNSW	M12 EDC CA

8 Review and improvement

8.1 Continuous improvement

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

The continuous improvement process will be designed to:

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

The Construction Contractor will be responsible for ensuring project environmental risks are identified and included in the risk register and appropriate mitigation measures implemented throughout the construction of the Project as part of the continuous improvement process. The process for ongoing risk identification and management during construction is outlined in Section 4.1 of the OCEMP.

8.2 CFMP update and amendment

The processes described in Section 7 of the OCEMP may result in the need to update or revise this CFMP. This will occur as needed.

Any revisions to the CFMP will be in accordance with the process outlined in Section 1.6.2 and Section 7.6 of the OCEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 7.6.2 of the OCEMP.

Appendix A – Secondary CoA and REMMs

NSW CoA

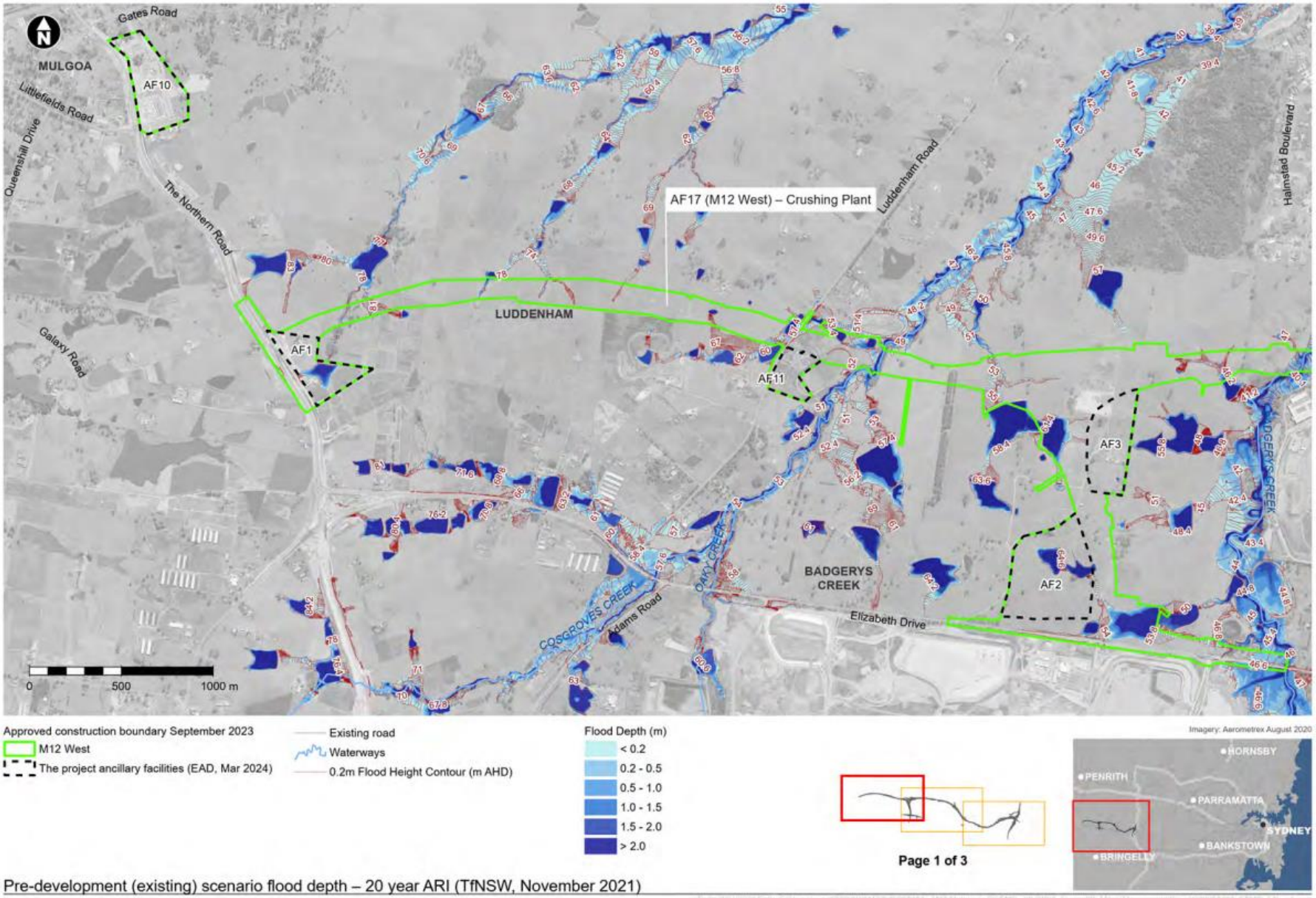
CoA No.	Condition Requirements	Applicability			Document Reference
		M12 West	M12 Central	M12 East	
A20	Lunch sheds, office sheds, portable toilet facilities, and the like, can be established and used where they have been assessed in the documents listed in Condition A1 or satisfy the following criteria: ii) minor environmental impact with respect to waste management, soil, water and flooding	✓	✓	✓	Section 5.1
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 (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.	✓	✓	✓	Section1.5.2 Section 6.1 Table 6-1

CoA No.	Condition Requirements	Applicability			Document Reference
		M12 West	M12 Central	M12 East	
	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.				

REMMs

ID	Revised environmental management measure	Timing	Applicability			Document Reference
			M12 West	M12 Central	M12 East	
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	✓	✓	✓	Construction Contractors incident response management plans

Appendix B – Existing conditions flood extent maps



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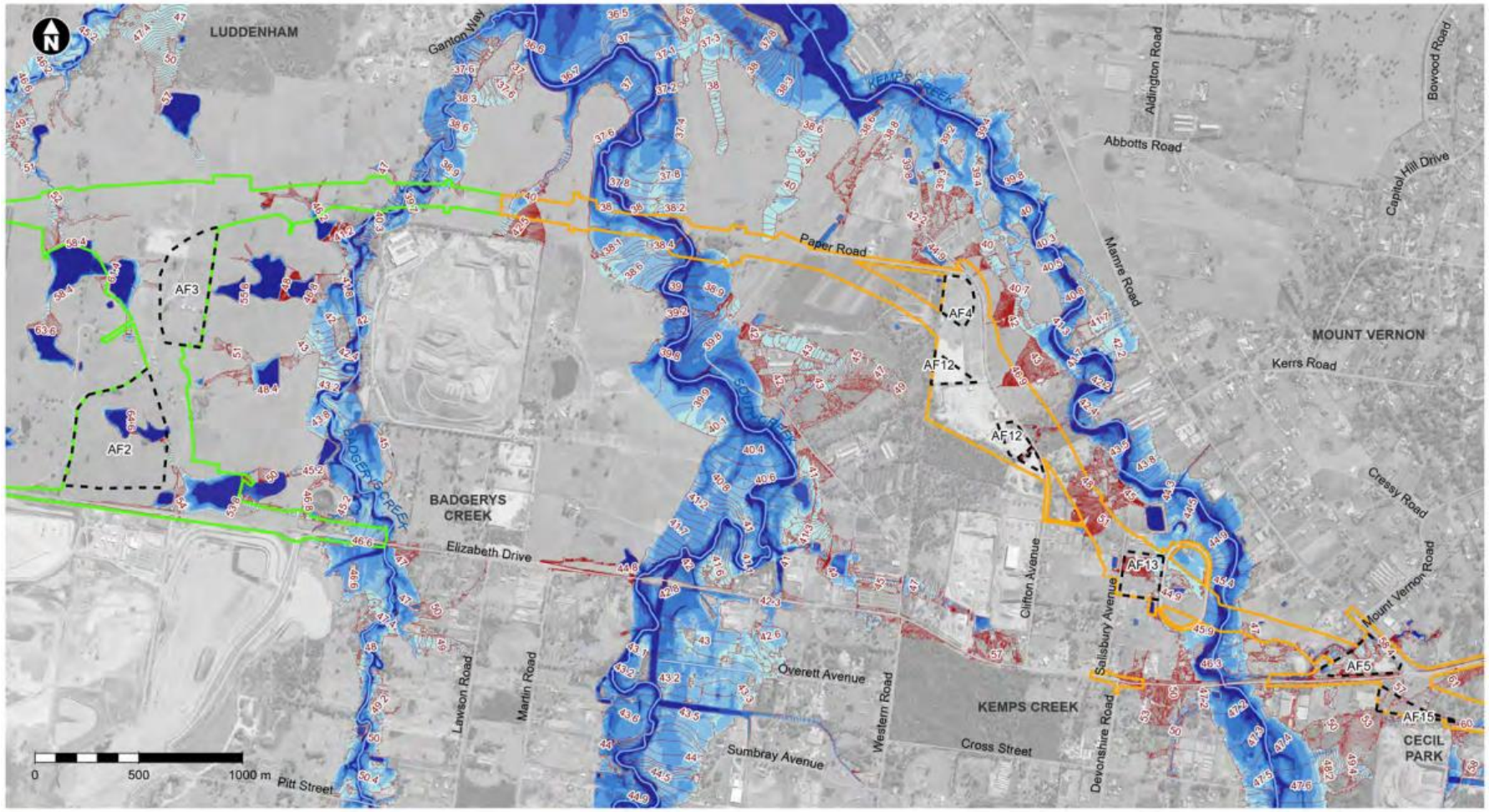
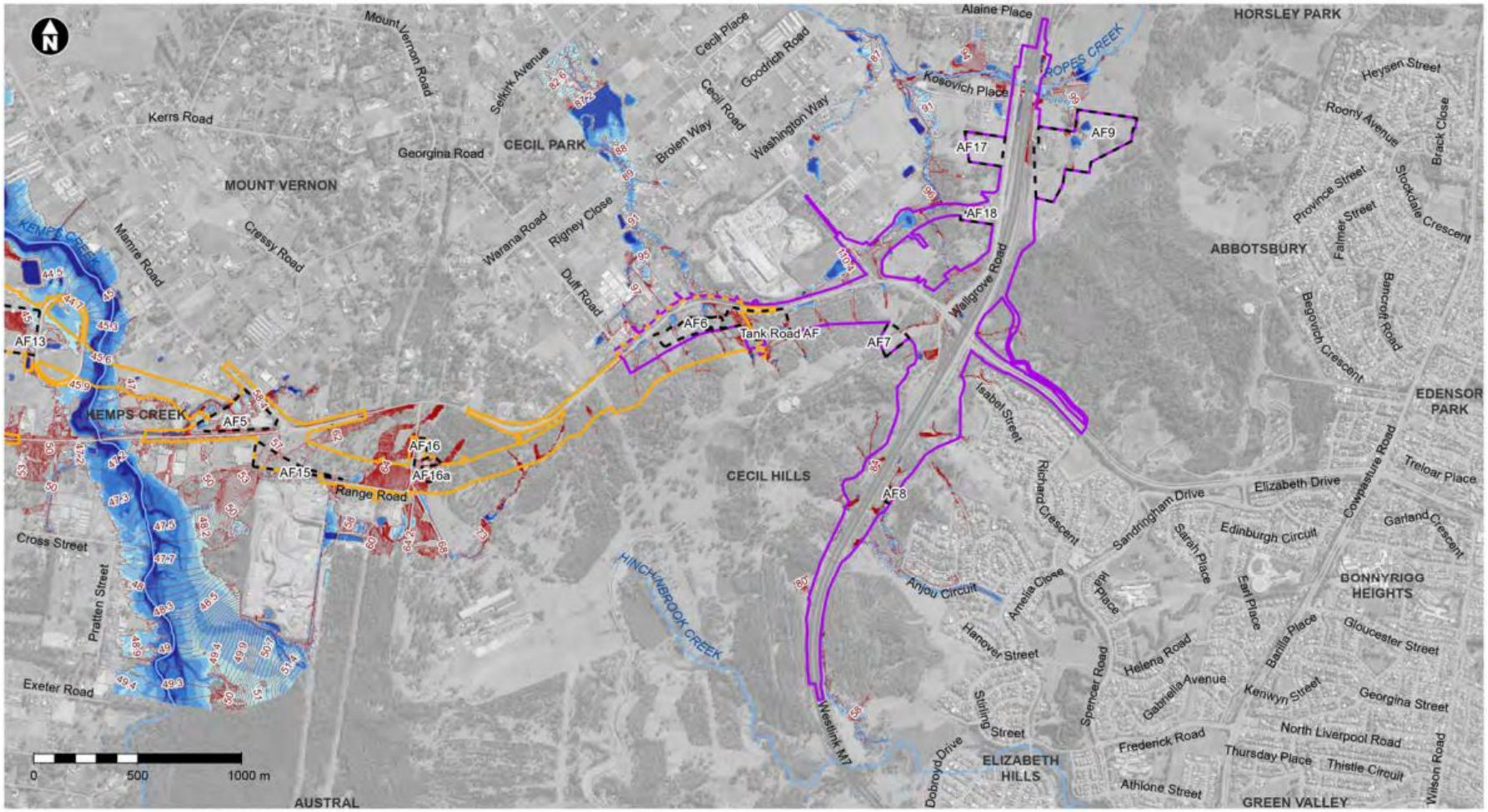
Pre-development (existing) scenario flood depth – 20 year ARI (TfNSW, November 2021)



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


Approved construction boundary January 2024
M12 Central
Approved construction boundary December 2023
M12 East
The project ancillary facilities (EAD, Mar 2024)
Existing road
Existing motorway
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
Imagery: Aerometrex August 2020
HORNSBY
PENRITH
PARRAMATTA
SYDNEY
BANKSTOWN
BRINGELLY
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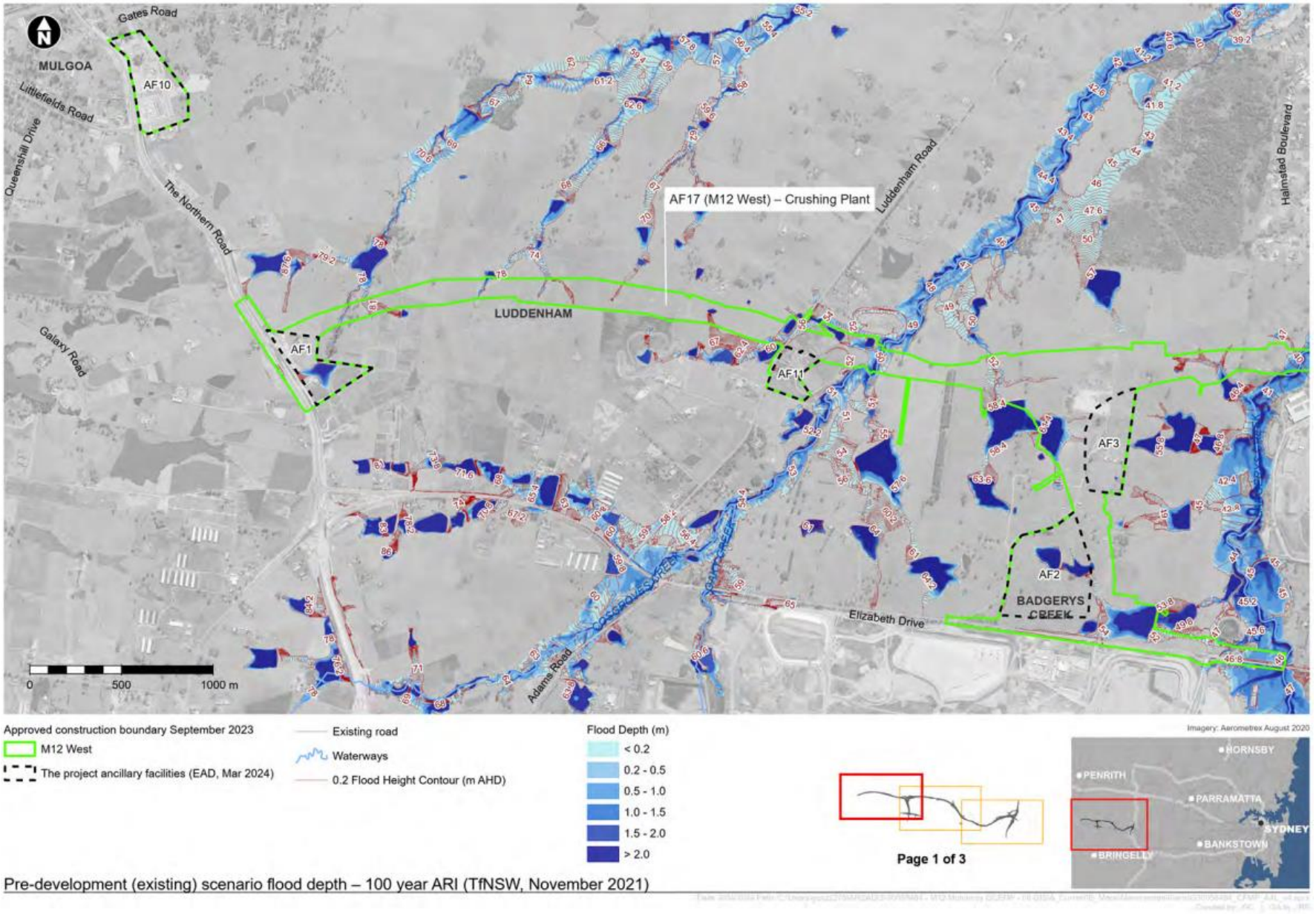
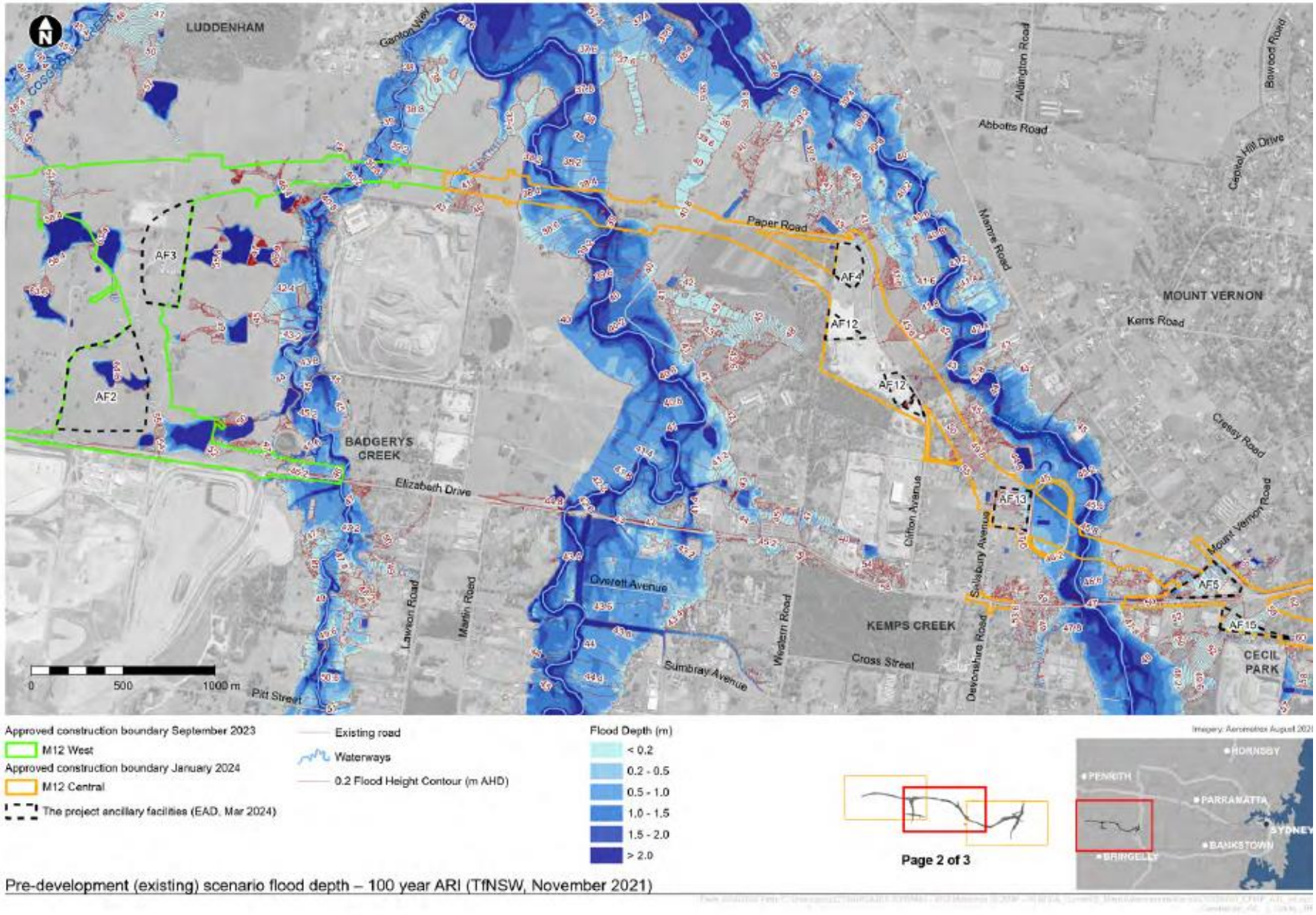
Pre-development (existing) scenario flood depth – 20 year ARI (TfNSW, November 2021)



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



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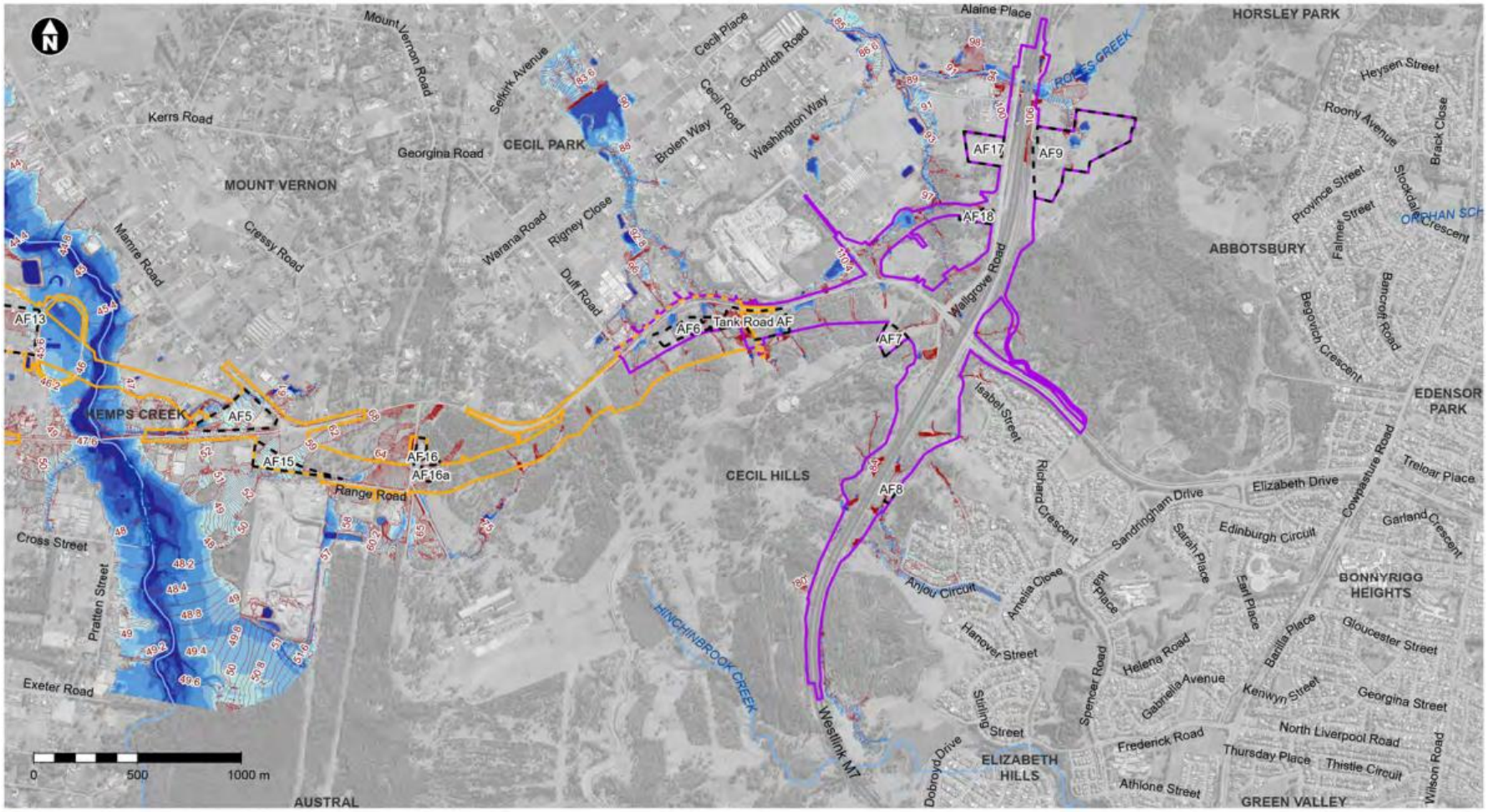
Pre-development (existing) scenario flood depth – 100 year ARI (TfNSW, November 2021)



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