Review of Environmental Factors

Proposed flood mitigation and revitalisation works at Muttama Creek, Cootamundra NSW



Final Report

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1 Introduction

1.1 Overview

This Review of Environmental Factors (**REF**) has been prepared by Martens and Associates Pty Ltd (**Martens**) on behalf of Cootamundra-Gundagai Regional Council (the **Council**) to accompany an application submitted under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**) proposing flood mitigation and revitalisation works (the **Project**) to an approximate 2 km long segment of Muttama Creek (the **Creek**) within the township of Cootamundra.

1.2 Scope

This REF describes the site and proposed activity, and provides an assessment against the relevant planning framework, including the environmental factors stipulated in section 171 (2) of the *Environmental Planning and Assessment Regulation 2021* (NSW) (**EP&A Regulation**).

1.3 Determining Authority

Cootamundra-Gundagai Regional Council is the proponent and the determining authority for the Project.

1.4 Supporting Documentation

The following documents should be read the information provided at Appendices A – I:

1. Site Photos (Appendix A).
2. REF Maps (Martens 2025a) (Appendix B).
3. Preliminary Civil Engineering Plans (Martens,2025b) (**Preliminary Civil Plans**) (Appendix C).
4. Master Plan Report (AE design studio, 2025) (**Master Plan Report**) (Appendix D).
5. Flora and Fauna Impact Assessment Report (Land Eco Consulting, 2025) (**Ecology Report**) (Appendix E).
6. Government Agency Consultation Letters (Martens, 2025c) (Appendix F).
7. NSW Crown Lands Consultation Response (Appendix G).
8. NSW DPI Fisheries Consultation Response (Appendix H).
9. Early Community Consultation Letter (Appendix I).
10. Flood Assessment Report (Martens, 2025d) (**Flood Report**) (Attachment J).

2 Creek Description

2.1 Location

The segment of Muttama Creek subject to this Part 5 Application (the **Creek**), is located within the township of Cootamundra and is approximately 2 km in length and varying width, located between Adams Street in the north and Hovell Street in the south. Refer to Figure 1.

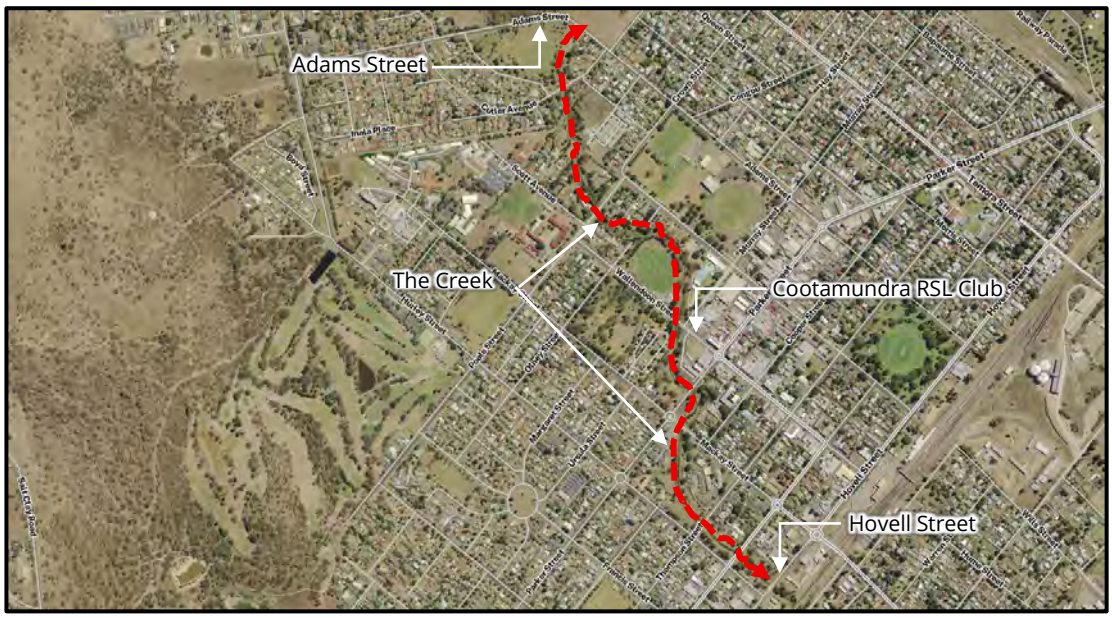


Figure 1: Aerial image showing the Creek location and extent (Source: Nearmap, 2025).

As per the Master Plan Report, the Creek is divided into four 'precincts' described in the following subsections.

2.1.1 Bradman Precinct

The Bradman Precinct is located between Adams Street and Poole Street. It is the northernmost precinct and is approximately 550 m in length. Cutler Avenue dissects the Bradman Precinct approximately 150 m south of Adams Street.

Between Adams Street and Cutler Avenue, the Creek is located between private residential properties (east) and Bradman Oval (west). The Creek commences at a culvert and is characterised as a shallow drainage depression with no defined bed or banks morphology. A number of smaller overland flow paths drain into the Creek. A pedestrian creek crossing is located adjacent to Cutler Avenue.

Between Cutler Avenue and Poole Street, the Creek is between a retirement village (east) and residential properties (west). At this location, the Creek consists of deeper waters and ponds with limited pedestrian access. A Council stormwater culvert discharges into this Creek segment.

Refer to Figures 2 – 4 of Appendix A.

2.1.2 Sports and Recreation Precinct

The Sports and Recreation Precinct is located between Poole Street and Wallendoon Street and is approximately 500 m in length. This precinct generally runs adjacent to Clarke Oval (west) and Gordon Vesperman Park and public recreation facilities (east) including outdoor fitness equipment, skate park, and Cootamundra Municipal Olympic Swimming Pool. Services including telecommunication services are located in the north.

Between Poole Street and Clarke Oval, the Creek is heavily vegetated with limited access. Between Clarke Oval and Wallendoon Street, the Creek is heavily eroded with unstable bed and banks with a number of canopy trees located away from the channel. A number of stormwater outlets discharge into the Creek. The Creek segment adjacent to the Wallendoon Street bridge is heavily vegetated with Kumbungi.

Refer to Figures 5 – 10 of Appendix A.

2.1.3 Town Centre Precinct

The Town Centre Precinct is located between Wallendoon Street and Mackay Street and is approximately 350 m in length. This precinct traverses Parker Street which is approximately 200 m from Wallendoon Street.

This Creek segment is currently a meandering drainage channel and heavily vegetated with Kumbungi. Canopy trees are located away from the Creek, above gentle, grassed batter slopes. Services including water services and gross pollutant traps are located in this precinct and Council stormwater culverts discharge into the Creek. A pedestrian footpath is located adjacent to the Creek on the east.

Refer to Figures 11 – 13 of Appendix A.

2.1.4 Local Community Precinct

The Local Community Precinct is located between MacKay Stret and Hovell Street and is approximately 560 m in length.

The Creek is wider in this precinct and is of a similar nature to that of the Town Centre Precinct, although vegetation generally becomes less dense further south. This precinct also includes several public features adjacent to the Creek including local bird sculptures, seating and pedestrian footpath and a dog park. A pedestrian bridge adjacent to Thompson Street provides pedestrian access over the Creek. Local infrastructure including a concrete stormwater channel located adjacent to Olympic Highway discharges into the Creek.

Refer to Figures 14 – 18 of Appendix A.

2.2 Creek Environmental Characteristics

Table 1 describes key environmental characteristics of the Creek.

Table 1: Creek Environmental Characteristics.

Item	Description / Comment
Site ownership	The Creek traverses a number of land parcels with landowners including NSW Crown Lands, the Council and private landowners. Refer to Table 2 below for a list of Lot / DPs and ownership, and Maps 01 – 08, Appendix B.
Watercourse classification	The Creek is mapped as a hydroline on the *Water Management (General) Regulation 2025* (NSW) (**Water Management Regulation**) hydroline spatial data. Based on the mapping, the Creek would be classified as a 4th order watercourse in accordance with the Strahler system of watercourse classification.
Heritage	A segment of the Creek in the Town Centre Precinct is located in proximity to the following local heritage items listed under *Cootamundra Local Environmental Plan 2013* (NSW) (**Cootamundra LEP**): 1. I30 – Stratton Bridge. 2. I33 – Drill Hall. 3. I34 Remnant sandstone kerb. The Creek also traverses a segment of the C1 Cootamundra Heritage Conservation Area.
Flooding	The land adjacent to the Creek is affected by overland flows from the local upstream catchments and overbank flows from the Creek itself. Flood affectation is documented in Cootamundra Flood Study (2021) prepared by WMA Water.
Biodiversity	Based on the Ecology Report, the majority of the Creek and surrounds have been historically degraded and cleared from understorey maintenance and weed infestation. The Creek and surrounds include native vegetation representative of the following Plant Community Types (**PCTs**): 1. **PCT 79:** Rier Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion. This PCT is not associated with any Threatened Ecology Communities (**TECs**) under *Biodiversity Conservation Act 2016* (NSW) (**Biodiversity Conservation Act**). 2. **PCT 276**: Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion. This PCT is associated with *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* (**WBYB**) Critically Endangered Ecological Community (**CEEC**) listed under Biodiversity Conservation Act. Additionally, Cumbungi (*Typha orientalis*) is located within the creek and surrounds as well as a diverse array of exotic, planted and remnant riparian vegetation which varies in quality based on historical clearing and land use. The Creek is also a part of the Murray River and hence forms part of the Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment (**Murray River EEC**).

Item	Description / Comment
	No threatened flora or fauna species were recorded within or adjacent to the Creek during ecology fieldworks.

Table 2 below identifies relevant land parcels and ownership.

Table 2: Land Parcel Identification and Ownership.

Lot/DP	Ownership
Lot 1 DP238550	Council
Lot 9 DP 20405	Private land
Lot 1 DP 725571	Private land
Lot 20 DP 1189748	Private land
Lot 7009 DP 1021379	Crown
Lot 7010 DP 1021379	Crown
Lot 702 DP 1021380	Crown
Lot 7306 DP 1140506	Crown
Lot 5 DP 867363	Crown
Lot 4 DP 838858	Crown
Lot 9 DP 758287	Crown
Lot 8 DP 758287	Crown
Lot 7008 DP 1123211	Crown
Lot 11 DP 758287	Crown
Lot 8 DP 758287	Crown
Lot 7007 DP 1123211	Crown

3 Project Description

3.1 Objectives

The **Project** objectives are:

1. Improve the Creek's ability to convey flood water.
2. Reduce flood affectation within surrounding residential land whilst ensuring no unacceptable offsite flood impacts are to arise.
3. Increase the Creek's aesthetic qualities and available range of passive recreational activities.
4. Maintain, as much as possible, the Creek's ecology and riparian integrity.
5. Provide opportunities for public recreation and improving understanding of local history and culture.

3.2 Description

3.2.1 Flood Mitigation Works

The Project involves the following **flood mitigation works** as per the Preliminary Civil Plans (Appendix C):

1. Earthworks (primarily cut) to improve flood conveyance by:
    a. Creating a widened and deepened Creek channel generally of 10 m width and generally between 0.5 m – 1.2 m depth. A defined top of channel bank will be provided.
    b. Formalising the Creek channel invert.
    c. Creating a 'bench' between the top of channel bank and extent of civil works to lower the local floodplain.
2. Creation of two new instream pools and retention/widening of an existing instream pool to increase local flood storage and attenuate concentrated flood flows. 15 new smaller instream pools will be created which will provide areas of standing water and improve local aquatic habitat.

Construction staging, methodology and timeframes are to be confirmed by the future head contractor prior to commencement of works. An indicative construction methodology for the flood mitigation works is provided as follows:

1. Install Sediment and Erosion Control (**SEC**) measures.
2. Identify and relocate any services.
3. Install measures to divert creek flows around works area.

4. Undertake vegetation clearing and tree removal.
5. Carry out bulk earthworks and construction of retaining walls using appropriate plant and equipment.
6. Remove creek diversion measures.
7. Revegetate new slopes.

3.2.2 Revitalisation Works

The Project involves the following **revitalisation works** as per the Master Plan Report (Appendix D):

1. Provision of new pedestrian footpaths and bridge crossings. Indicative potential alignments have been shown.
2. Interpretive signs and information boards to provide historical, ecological and Aboriginal cultural knowledge of the Creek.
3. Installation of lights, seating and waste bins to enhance public amenities and safety along the Creek corridor.
4. Provision of a community garden in Apex Park along Hurley Street.
5. Increasing the tree canopy along the Creek.
6. New picket fencing surrounding Bradman Oval and Clarke Oval.

Additionally, the existing bird sculptures adjacent to CGRC Cootamundra Youth Club will be retained and will continue to provide knowledge of local wildlife. The sculptures will be relocated to accommodate the proposed flood mitigation works.

3.2.3 Ancillary Works

The following ancillary works are required to enable the flood mitigation and revitalisation works:

1. Vegetation clearing consisting of:
    a. Approximately 0.46 ha of PCT 276.
    b. Approximately 4.61 ha of PCT 79, including up to 20 trees characteristic of PCT 79 (including *Eucalyptus camaldulensis* and *Casuarina cunninghamiana subsp. Cunninghamiana*).
    c. Maximum 0.66 ha of Cumbungi.

    A range of measures to mitigate impacts to biodiversity are proposed which are further detailed in the Ecology Report (Appendix E) and Section 7.2 of this REF.
2. Relocation of all existing services (these including stormwater, water, sewer and telecommunications) as required.

3.3 Consideration of Alternatives

3.3.1 Do Nothing Option

The 'do nothing' option is not a suitable option because it would not achieve the Project objectives and would not provide the intended public benefits.

3.3.2 Construction of levee

This option would involve construction of a levee along the northern side of McGowan Street and Adams Street to detain flood waters north of the town during a flood event, and not require any earthworks within the Creek channel. However, this option was not considered suitable because of the following reasons:

1. Significant cost in design and construction.
2. Potentially adverse visual impacts.
3. Likely offsite flood impacts to properties adjacent to the levee as a result of diversion of flood waters.
4. Potentially significant adverse impacts to properties immediately downstream in the event of levee failure.
5. There would be no opportunity for revitalisation of the Creek.

3.3.3 Partial channel regrading

This option would involve regrading (widening and deepening) to specific segments of the Creek located between Adams Street and Hovell Street, as opposed to the entire Creek channel length. This option was not selected because:

1. Widening of the Creek in only some areas would result in channel constrictions which would potentially worsening flood outcomes compared to the current Creek.
2. There would be no opportunity for revitalisation of the entire Creek.

3.3.4 Preferred Option (the Project)

The Project, as defined in Section 3.2, is considered to be the most suitable option because it would achieve the Project objectives.

4 Consultation

4.1 Government Agencies

Consultation letters dated 30 July 2025 (Appendix F) were emailed to the following government agencies:

1. NSW Crown Lands.
2. NSW Department of Primary Industries – Fisheries (**DPI Fisheries**).

The government agencies were given 31 days to make submissions in relation to the Project. Government agency responses are provided at Appendix G and H.

A summary of government agency comments received and our response is provided in Table 3.

Table 3: Summary of government agency comments and response.

Government agency comment	Response
NSW Crown Lands	
Several of the land parcels are the subject of undetermined Aboriginal Land Claims under the *Aboriginal Land Rights Act 1983* (NSW), which can limit how the land can be used. The land parcels are shown in the Figure at Appendix G.	It is understood that Council will be seeking consent from the claimant Aboriginal land council for the Project which will be required prior to owners consent being provided by NSW Crown Lands. Aboriginal land claims are a significant consideration in any REF and must be addressed with appropriate due diligence. The Council acknowledges there are active Aboriginal Land Claims on certain parcels of Council managed crown lands within the Proposal area. The Council commits to ongoing consultation with NSW Crown Lands and relevant Aboriginal land councils to understand potential Aboriginal heritage significance of the Creek, and whether the Project will result in any impacts to the significance.
DPI Fisheries	
The REF should: 1. Include an aquatic ecology assessment including an assessment of any impacts on waterways or any mapped key fish habitat. 2. A permit for dredging and reclamation activities must be obtained under Part 7 of Fisheries Management Act prior to commencement of works. 3. Construction of waterway crossings should be in accordance with sections 4.2-4.5 of DPI Fisheries Policy and Guidelines for Fish Habitat Conservation and Management (2013) (**DPI Fisheries Guideline**).	The Ecology Report provides: 1. An aquatic ecological assessment including assessment of impacts on mapped key fish habitat. 2. Assessment for threatened species listed under Fisheries Management Act. 3. Whether there are likely to be any significant impacts on Murray River CEEC. 4. Measures to mitigate/offset residual impacts to biodiversity including details of habitat rehabilitation following completion of works. 5. Refer to the Ecology Report (Appendix E) and Section 7.2 of this REF for further details.

Government agency comment	Response
4. Identify proposed habitat rehabilitation and/or environmental compensation to result in a 'no net loss' habitat policy. 5. Deepening and widening of the Creek should be carefully managed and introduction of structural habitat elements should be considered.	6. In respect of waterway crossings, these can be designed to comply with the relevant requirements of the DPI Fisheries Guideline.

4.2 Community Consultation

The local community was consulted in relation to the Project as follows:

Distribution of a letter dated 28 April 2025 notifying the community of the Project in its early stages and requesting early feedback for inclusion into the masterplan (Appendix I). The community was given 24 days to respond and a total of 20 submissions were received. Based on the feedback received, the following particular areas were identified (it is noted this is not an exhaustive list):

1. Flooding – generally, flood mitigation works appeared to be the most important aspect of the masterplan. There were also concerns with rising insurance premiums.
2. Creek management / maintenance – comments received indicated that debris (shopping trolleys, waste etc.), in-stream vegetation and silt accumulation exacerbates flooding and needs to be removed, and the creek should be managed on an ongoing basis by Council to manage weed regrowth and buildup of debris.
3. Ecology – retaining and improving ecological characteristics of the creek should be undertaken but flood mitigation works should be prioritised.
4. Alternative proposals – ideas such as a levee bank along McGowan Street and including land north of Adams Street were suggested. Consideration of alternative proposals is to be provided in Section 3.3 of this REF.
5. Public recreation and enjoyment – the masterplan should incorporate improvements such as new footpaths, enhancement of current walking trails a community garden, signage etc.
6. Aboriginal cultural significance – the masterplan should include aspects to incorporate local Aboriginal cultural significance and history. These include Wiradjuri signs that relate to the landscape e.g. native vegetation and local wildlife.

Following the above, a draft master plan with proposed flood mitigation works was prepared for the Council.

Community consultation as part of the REF was undertaken by Council. The local community was given 41 days to respond. Table *4* below provides a summary of comments raised during consultation of the Master Plan Report.

Table 4: Summary of community consultation and responses.

Comment	Response
Impacts of tree planting on vehicular access to properties along Short Lane.	Masterplan replanting showed indicative tree locations, these are to be confirmed in consultation with Council. Trees would be planted so that no vehicular traffic would be obstructed.
Local community groups not being appropriately consulted.	An early request for community feedback was undertaken to facilitate engagement. It is considered there has been ample opportunity to provide early comment.
Damage to bridges during a flood event.	Proposed bridges would be designed to structurally withstand forces of flooding.
Construction material used to build future playground areas/fencing being mobilised during a flood event and causing damage.	Future construction activities would be undertaken to ensure that no materials/equipment are located in flood waters during a flood event.
Trees and vegetation planted and maintained by local community group/s will be removed.	Proposed tree/vegetation removal is to be undertaken on land either owned by managed by the Council, and will be undertaken at an appropriate planting ratio.
Council staff may not be able to fully resource required maintenance.	Council will ensure adequate resources are available for maintenance.
Some proposed works (including proposed footpaths and fence around Bradman Oval) are unnecessary.	Proposed footpaths will facilitate improved access to the Creek without the need for road crossings. The proposed fence will define the oval and integrate it with the revised Creek.
Relocation of bird walk sculptures cannot be undertaken as the sculptures are owned by a local community group.	The Project is located on land either owned or managed by the Council. The Council is therefore the appropriate landowner.

It is also noted that a number of comments were positive, highlighting the following:

1. Flood mitigation works as being the priority of the Project.
2. The proposed pools and ponds to increase local flood storage.
3. Creek widening and removal of sediment build up.
4. The proposed fence around Bradman Oval to improve aesthetics.

5 Strategic Planning Considerations

5.1 Riverina Murray Regional Plan 2041

The Riverina Murray Regional Plan 2041 (**Regional Plan**) provides the 20 year vision for land use planning within the Riverina Murray region (including the Cootamundra LGA). The plan contains three 'parts' relating to the environment, communities and places, and the economy with each part containing their own objectives. Table 5 provides an assessment of the Project against the relevant objectives of the Regional Plan.

Table 5: Regional Plan assessment.

Provision	Assessment
Part 1 Environment	
Objective 1 *Protect, connect and enhance biodiversity throughout the region.*	The Project is consistent with Objective 1 because: 1. Areas of ecological significance (including areas of Yellow Box Woodland and River Red Gum) have been identified early in the design process. Clearing of vegetation has been avoided to the maximum extent possible, given the narrow width of the Creek and limited options available for alternative alignments that could reduce clearing whilst still resulting in a good flood mitigation/revitalisation outcome. 2. Impacts to biodiversity are to be minimised through a range of design measures which have been incorporated into the design of the Project; these include establishing meanders and a chain of pools within the creek channel to provide areas of permanent standing water which can improve aquatic habitat values. 3. The Creek is currently characterised by unstable banks and stagnant water with ongoing risk of erosion and sedimentation which limits the potential for quality habitat for native aquatic species. The Project will provide a stable bankform and improve conveyance of water which will improve local water quality. Additionally, placement of woody debris will be undertaken to increase the potential for good quality aquatic habitat. Refer to the Ecology Report and Section 7.2 of this REF for a detailed assessment of the Project's impacts to ecology.
Objective 2 *Manage development impacts within riverine environments.*	The Project is consistent with Objective 2 because: 1. The Creek has been designed to maintain and improve the Vegetated Riparian Zone (**VRZ**) – refer to Section 6.5.2 of this REF. 2. Impacts on riparian biodiversity (including River Red Gum) have been avoided and minimised to the maximum extent

Provision	Assessment
	possible, with measures to be implemented to mitigate any residual impact. 3. The Project will allow for increased pedestrian and ecological connectivity through new pedestrian pathways and crossings and an increase in the tree canopy.
Objective 3 *Increase natural hazard resilience*	The Project is consistent with Objective 3 as it increases resilience to flooding by reducing flood affectation for the town in a range of flood events.
Part 2 Communities and places	
Objective 4 *Support Aboriginal aspirations through land use planning*	The Project is consistent with Objective 4 because local Aboriginal cultural significance has been integrated into the Project through provision of interpretive signage.
Objective 5 *Ensure housing supply, diversity, affordability and resilience*	The Project is consistent with Objective 5 because it supports housing resilience by reducing flood affectation for the town in a range of flood events.
Objective 9 *Plan for resilient places that respect local character*	The Project is consistent with Objective 9 because proposed revitalisation works (including those such as interpretive Aboriginal cultural signage, increased pedestrian connections within and along the Creek and improved flood mitigation) will revitalise the Creek and contribute to integration of local character and history.
Part 3 Economy	
Objective 16 *Support the visitor economy*	The Project is consistent with Objective 16 because it will support tourism by revitalising the Creek.

5.2 Local Strategic Planning Statement 2020

The Cootamundra Gundagai Regional Council Local Strategic Planning Statement (**LSPS**) is a plan for the economic, social and environmental land use needs over the next 20 years. The LSPS is separated into five themes: liveability, sustainability, productivity, technology, and infrastructure and planning, with each having their own planning priorities. Table *6* provides an assessment of the Project against relevant planning priorities of the LSPS.

Table 6: LSPS assessment.

Provision	Assessment
Theme: Liveability	
Planning Priority 2: *Opportunities to celebrate and protect our heritage.*	The Project is consistent with Planning Priority 2 because: 1. Local Aboriginal cultural history and culture will be integrated into the revitalised Creek. 2. Non-Aboriginal heritage will be protected.
Planning Priority 3: *Opportunities to express and engage with arts and culture*	The Project is consistent with Planning Priority 3 because the existing bird sculptures adjacent to CGRC Cootamundra Youth Club will be relocated to will continue to provide knowledge of local wildlife.
Theme: Sustainability	
Planning Priority 5: *Opportunities to adapt to the changing climate.*	The Project is consistent with Planning Priority 5 as flood mitigations works will reduce flood affectation in a range of flood events, improving the local community's resilience to climate change.
Theme: Infrastructure and Planning	
Planning Priority 13: *Opportunities to promote active living*	The Project is consistent with Planning Priority 13 because new pedestrian footpaths and connections will be created which will promote physical activity and active living.
Planning Priority 15: *Opportunities to provide access to quality water and sewer infrastructure*	The Project is consistent with Planning Priority 15 because it does not impede access to existing water infrastructure and any sewer infrastructure will be relocated as required.

5.3 Community Strategic Plan 2022-32

The Cootamundra-Gundagai Community Strategic Plan (**CSP**) is a plan for next 10 years which outlines the community's priorities and aspirations for the future, and the strategies to achieve them. The CSP is divided into five key focus areas, each with their own objectives. Table 7 provides an assessment of the Project against the relevant objectives of the CSP.

Table 7: CSP Compliance Assessment.

Provision	Assessment
Focus area: A vibrant, safe and inclusive community.	
Objective 1.1: Our health and wellbeing needs are met	The Project will provide new pedestrian footpaths and bridge crossings which will support opportunities for active living, meeting health needs of all community members.
Focus area: A region for the future	
2.1 Recognised as a must visit tourist destination	The Project involves beautification of the Creek, enhancing its visual appeal and recreational value as well as bolstering local culture including pedestrian links to Bradman's Birthplace. These will support tourism potential by contributing to the attractiveness of the regions.
Focus area: A protected and enhanced environment	
3.1 Our natural environment is valued and protected	The Project protects the natural surrounding environment by: 1. Avoiding and minimising vegetation clearing to the maximum extent possible. 2. Improving local aquatic habitat by providing a stable bankform and a series of instream pools with areas of permanent standing water. 3. Undertaking weed management on an ongoing basis.
3.2 We have attractive towns and villages	The Project will revitalise the Creek and improve its attractiveness by new pedestrian connections, increase in tree canopy and a defined channel with stable bankform.
3.3 Responsive and adaptive community to climate change risks and impacts	The Project increases the community's resilience to flooding by reducing flood affectation for the town in a range of flood events.
Collaborative and progressive leadership	
4.3 Actively engaged and supportive community	The residents of Cootamundra have played a vital role in the development of the Project. As part of the REF, community consultation has been conducted throughout the development process to obtain their input. Further details are provided in section 4.2 of this REF.

Provision	Assessment
4.4 Recognised as a premier local government Council that represents and advocates for community needs	
4.4d Planning and decision making is holistic and integrated and has due regard to the long-term and cumulative impacts	The Project adopts a holistic and integrated approach to planning and decision-making, carefully considering long-term and cumulative impacts to ensure sustainable outcomes for the Creek corridor and surrounding community.

6 Statutory Planning Considerations

6.1 Planning approval pathway

The Project is an application to be assessed under Division 5.1, Part 5 of the EP&A Act. Hence, this REF has been prepared to assess the environmental impacts of the Project.

6.2 Proponent and determining authority

The Council is both the proponent and determining authority for the Project.

6.3 Permissibility

The Project is permissible without development consent under the following sections of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW) (**Transport and Infrastructure SEPP**):

1. For the **flood mitigation works**: Section 2.56 (1) which permits flood mitigation works to be carried out by or on behalf of a public authority without consent on any land.

2. For the **revitalisation works**: Section 2.73 (3)(a) which relevantly permits pedestrian pathways and bridges, recreation areas, information boards, lighting, landscaping, and amenities without consent on land owned or controlled by a public authority (in this case, on land owned by the Crown and managed by the Council). All proposed revitalisation works are located within land owned or controlled by Council.

6.4 Planning assessment

6.4.1 EP&A Regulation

Section 171 of the EP&A Regulation outlines the environmental factors the determining authority must take into account when considering the likely impact of an activity on the environment. Table 8 provides an assessment of the Project against section 171 (2) of the EP&A Regulation.

Table 8: Section 171 (2) assessment.

	Factors for Consideration	Assessment
(2)	*If there are no environmental factors guidelines in force, the determining authority must take into account the following environmental factors—*	
(a)	*the environmental impact on the community,*	The Project will not result in any adverse environmental impacts on the community. It will result in improved flooding and visual outcomes. Refer to Section 7 of this REF for an environmental impact assessment.
(b)	*the transformation of the locality,*	The Project involves a significant positive transformation of the locality by:

	Factors for Consideration	Assessment
		1. Providing a defined creek channel with stable bankform. 2. Improving flood conveyance. 3. Providing new access and public recreation opportunities. 4. Minimising impacts to biodiversity and providing a range of measures to mitigate the risk of any residual impact.
(c)	*the environmental impact on the ecosystems of the locality,*	The Project will not result in any adverse impacts on biodiversity within the Creek and surrounds. Refer to Section 7.2 of this REF for an assessment of the Project's impacts to biodiversity.
(d)	*reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality,*	The Project improves the aesthetic and recreational values of the Creek through a defined channel and stable bankform, new plantings and new opportunities for public recreation. Any impacts to biodiversity are acceptable and measures are proposed to mitigate the risk of any residual impact.
(e)	*the effects on any locality, place or building that has—* *(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or* *(ii) other special value for present or future generations,*	The Project will not result in any material impacts to local heritage items or heritage conservation area listed under Cootamundra LEP. Refer to Section 6.4.2 of this REF. Interpretive signage will be provided to inform people of the historical, ecology and cultural (particularly Aboriginal cultural) importance of Muttama Creek.
(f)	*the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016,*	Based on the Ecology Report, no threatened fauna species were identified within or near the Creek during field surveys.
(g)	*the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air,*	Based on the Ecology Report, the Project will not result in any adverse impacts to biodiversity such that any flora or fauna species or TECs will be at risk of extinction. A range of measures (including construction phase measures) are proposed to mitigate risk of impacts to biodiversity.
(h)	*long-term effects on the environment,*	The Project delivers long-term environmental benefits by stabilising the Creek, improving flood conveyance, rehabilitating the Creek with native vegetation and providing improved public open space and recreation opportunities.
(i)	*degradation of the quality of the environment,*	The Project will improve the currently degraded quality of the Creek by providing a stable bank form and rehabilitation through new plantings. In respect of potential land contamination, review of historical aerial imagery does not indicate any potentially contaminating land uses have historically occurred adjacent to the Creek. Notwithstanding, excavated material subject to waste classified will be reused onsite as needed, and any excess excavated material shall be waste

	Factors for Consideration	Assessment
		classified and transported to an appropriately licensed facility by an appropriately licenced contractor.
(j)	*risk to the safety of the environment,*	The Project will improve flood conveyance and generally reduced flood levels which will result in evacuation routes being cut for shorter durations and at higher rainfall intensities, improving overall community flood safety and evacuation capacity. Construction phase measures (including sediment and erosion control measures) will be established to minimise construction phase risks to the receiving environment.
(k)	*reduction in the range of beneficial uses of the environment,*	The Project improves range of beneficial uses of the Creek.
(l)	*pollution of the environment,*	Sediment and erosion control measures and other construction management measures will be implemented during construction to minimise risk of pollution to the receiving environment. Bins will be provided to minimise littering during ongoing use.
(m)	*environmental problems associated with the disposal of waste,*	Any excavated materials which require offsite disposal shall be waste classified and disposed by an appropriately licenced contractor to an appropriately licenced facility.
(n)	*increased demands on natural or other resources that are, or are likely to become, in short supply,*	The Project does not involve any material increase in demand for natural resources that are, or are likely to become, in short supply.
(o)	*the cumulative environmental effect with other existing or likely future activities,*	The Project does not result in any adverse environmental impacts. Hence, the potential for cumulative impacts is unlikely.
(p)	*the impact on coastal processes and coastal hazards, including those under projected climate change conditions,*	The Creek is not located in a coastal area.
(q)	*applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1,*	The Project is consistent with the Regional Plan, LSPS and CSP. Refer to Section 5 of this REF.
(r)	*other relevant environmental factors.*	N/A

6.4.2 Cootamundra LEP

6.4.2.1 Land Zoning

The Project is located in the following land use zones under Cootamundra LEP:

1. RE1 - Public Recreation
2. R1 – General Residential
3. R3 – Medium Density Residential

An assessment of the Project against the zone objectives of the RE1, R1 and R3 land zones is provided below, demonstrating the Project is consistent with the zone objectives.

Table 9: RE1 Zone Objectives Compliance Assessment.

RE1 Zone Objectives	Assessment
To enable land to be used for public open space or recreational purposes.	The Project is consistent with the objective as it provides opportunities for public open space and recreation.
To provide a range of recreational settings and activities and compatible land uses.	The Project is consistent with this objective as it provides a variety of new recreational settings and activities.
To protect and enhance the natural environment for recreational purposes.	The Project is consistent with this objective as it protects and enhances the natural environment by proposing a range of biodiversity measures (refer to Section 7.2 of this REF).

Table 10: R1 Zone Objectives Compliance Assessment.

R1 Zone Objectives	Assessment
To provide for the housing needs of the community.	The Project is not antipathetic with this objective as it does not restrict, compromise, constrain or interfere with the ability of other sites to provide housing needs of the community.
To provide for a variety of housing types and densities.	The Project is not antipathetic with this objective as it does not restrict, compromise, constrain or interfere with the ability of other sites to provide a range of housing types and densities.
To enable other land uses that provide facilities or services to meet the day to day needs of residents.	The Project is consistent with this objective because it provides opportunities for public recreation and physical activity to meet the daily health and wellbeing needs of residents.

Table 11: R3 Zone Objectives Compliance Assessment.

R3 Zone Objectives	Assessment
To provide for the housing needs of the community within a medium density residential environment.	The Project is not antipathetic with this objective as it does not restrict, compromise, constrain or

R3 Zone Objectives	Assessment
	interfere with the ability of other sites to provide housing needs of the community.
To provide a variety of housing types within a medium density residential environment.	The Project is not antipathetic with this objective as it does not restrict, compromise, constrain or interfere with the ability of other sites to provide medium density housing.
To enable other land uses that provide facilities or services to meet the day to day needs of residents.	The Project is consistent with this objective because it provides opportunities for public recreation and physical activity to meet the daily health and wellbeing needs of residents.

6.4.2.2 Remaining Cootamundra LEP Assessment

Table 12 below provides an assessment of the Project against relevant provisions of the Cootamundra LEP.

Table 12: Cootamundra LEP Compliance Assessment.

Clause	Requirements	Assessment	Compliance (Y/N/NA)
5.10 Heritage conservation			
	Clause 5.10 (4) states that the consent authority must, before granting development consent under clause 5.10 in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned.	As identified in Section 2.2 of this REF, a segment of the Creek is located in proximity to a number of local heritage items and the C1 Cootamundra Heritage Conservation Area listed under Cootamundra LEP. The Project will involve works in the curtilage of local heritage item I30 Stratton Bridge and also the C1 Cootamundra Heritage Conservation Area. The Project will not result in any adverse impacts on the heritage significance of these items because: 1. <u>In respect of I30 – Stratton bridge:</u> the heritage significance is specifically attributed to its aesthetic appearance (based on the following assessment of significance from the State Heritage Inventory): *'The structure and its setting contributes to the significant fabric and streetscapes that retain the late 19th century and Federation Period character of the town'.* Works proposed within the curtilage of heritage item I30 are limited to minor earthworks (cut) for channel creek widening, a new recreation area and pedestrian connections. These works will not materially	Y

Clause	Requirements	Assessment	Compliance (Y/N/NA)
		impact the heritage item because they will not affect the appearance of the bridge. 2. In respect of the C1 Cootamundra Heritage Conservation Area: the Project will not materially impact the heritage significance of the conservation area because it will not result in any adverse changes to the streetscape appearance. 3. In respect of other local heritage items: a. I34 – Remnant sandstone kerb: a new pedestrian crossing is to be constructed in vicinity of the heritage item. The crossing can be located and designed so that it will not materially affect the heritage significance. I33 – Drill Hall: new plantings are proposed within the site but will not materially affect the heritage significance.	
5.21 Flood planning			
	Clause 5.21 (2) and (3) stipulate matters the consent authority must consider in deciding whether to grant development consent to land the consent authority considers to be within the flood planning area.	The Flood Report (Appendix J) which accompanies this REF provides a compliance assessment against clause 5.21 matters, demonstrating the Project is consistent with clause 5.21.	Y
6.1 Earthworks			
(3)	*(3) Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters—*		
	(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development,	The proposed earthworks will not have any disruptive or detrimental effects on: 1. Drainage patterns, because all existing stormwater discharge points will be relocated as required. 2. Soil stability, because earthworks will be undertaken using conventional earthmoving equipment using standard engineering practice, and soils will be appropriately compacted in accordance with AS 3978 to ensure stability.	Y
	(b) the effect of the development on the likely future use or redevelopment of the land,	The proposed earthworks will improve flood mitigation and facilitate public recreation which is a positive effect.	Y

Clause	Requirements	Assessment	Compliance (Y/N/NA)
	(c) the quality of the fill or the soil to be excavated, or both,	Excavated material shall (subject to waste classification) be reused onsite as needed. Any excess excavated material shall be waste classified and transported to an appropriately licenced facility by an appropriately licenced contractor.	Y
	(d) the effect of the development on the existing and likely amenity of adjoining properties,	The earthworks will likely improve existing and likely amenity of adjoining properties because: 1. A stable bankform and defined channel will be provided which will improve the visual appearance of the Creek compared to the current condition. 2. Proposed batter slopes are maximum 1V:3H which are not excessively steep. 3. Flood mitigation will be improved. 4. Construction phase impacts (such as increased noise due to plant and equipment) are short term and can be appropriately mitigated.	Y
	(e) the source of any fill material and the destination of any excavated material,	Excavated material shall (subject to waste classification) be reused onsite as needed. Should excavated material not be suitable for reuse as fill, fill material imported to site shall be Virgin Excavated Natural Material (**VENM**), Excavated Natural Material (**ENM**) or other waste material subject to an NSW EPA resource recovery exemption. Any excess excavated material will be waste classified and transported offsite to an appropriately licenced facility by an appropriately licenced contractor.	Y
	(f) the likelihood of disturbing relics,	The likelihood of disturbing relics is considered to be low given the majority of the Creek is not located in proximity to any heritage items listed under Cootamundra LEP. This would likely be confirmed upon further Council discussions with NSW Crown Lands and relevant local Aboriginal land councils as per Section 4.1 of this REF. A unexpected finds protocol can be prepared prior to the commencement of works to manage the risk of unexpected finds during construction.	Y
	(g) the proximity to, and potential for adverse impacts on, any waterway,	The proposed earthworks are to be undertaken within and adjacent to the Creek which is a waterway. However, the	Y

Clause	Requirements	Assessment	Compliance (Y/N/NA)
	drinking water catchment or environmentally sensitive area,	earthworks are not considered to result in any adverse impacts on the waterway because: 1. Sediment and erosion control measures will be established prior to commencement of works and maintained for the duration of the earthworks to protect the downstream environment until such time as the site soils are adequately stabilised (e.g. vegetated or protected by some other means). 2. The earthworks will provide a stable bankform and improve flow conveyance which will likely result in improvements to water quality which will benefit the downstream environment.	
	(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.	The proposed earthworks are not considered to result in any impacts on environmental functions and processes, neighbouring uses, cultural or heritage items or features of surrounding land. To mitigate any residual risk of impact, sediment and erosion control measures will be established during the construction phase and maintained for the full duration of earthworks until such time as the site soils are adequately stabilised (e.g. vegetated or protected by some other means).	Y
6.4	***Groundwater vulnerability***		
	(2) This clause applies to land identified as "Groundwater Vulnerable" on the Groundwater Vulnerability Map.	The Creek is on land identified as 'Groundwater Vulnerable' on the Groundwater Vulnerability Map.	
	(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider the following—		
	(a) the likelihood of groundwater contamination from the development (including from any on-site storage or disposal of solid or liquid waste and chemicals),	Ongoing use of the Creek for flood mitigation and public recreation is unlikely to have any material risk of groundwater contamination. During construction works, measures can be implemented to mitigate any risk of contamination to groundwater (these including those such as maintenance of plant and equipment so as to avoid any unintended oil leaks, storage of any liquids in a bunded area and maintaining spill kits in the site office).	Y

Clause	Requirements	Assessment	Compliance (Y/N/NA)
	(b) any adverse impacts the development may have on groundwater dependent ecosystems,	The Project will not result in any adverse effects on any downstream Groundwater Dependent Ecosystems (**GDEs**) because no take of water is proposed and any increase in impervious area is negligible. Rather, the Project will likely result in a net benefit to GDEs because creation of a stable bankform and defined channel will eliminate potential for ongoing sediment and erosion, improve local water quality flowing downstream.	Y
	(c) the cumulative impact the development may have on groundwater (including impacts on nearby groundwater extraction for a potable water supply or stock water supply),	The Project is unlikely to result in any adverse impacts on groundwater, therefore the potential for cumulative impacts is negligible.	Y
	(d) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.	The Project is not considered to result in any adverse groundwater impacts. Construction phase measures can be implemented to mitigate any residual risk and include those specified above in relation to (a).	Y
	(4) *Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—* *(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or* *(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or* *(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.*	The proposed Creek revitalisation works are designed and managed to avoid any adverse impacts on groundwater. Any minor disturbance to soil or vegetation will be minimised through erosion and sediment controls, and mitigated by weed removal and native revegetation. The Project therefore satisfies the requirements of the clause 4 (a) and (b), with appropriate safeguards to ensure no significant impact on groundwater or related ecosystems occurs.	Y
6.5	***Riparian land and watercourses***		
	(2) This clause applies to all of the following— *(a) land identified as "Watercourse" on the Watercourses Map,* *(b) all land that is within 40 metres of the top of the bank of each watercourse on land identified as "Watercourse" on that map.*	The Creek and adjacent area is on land identified "Watercourse" on the Watercourses Map.	Y
	(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider—		

Clause	Requirements	Assessment	Compliance (Y/N/NA)
	(a) whether or not the development is likely to have any adverse impact on the following— *(i) the water quality and flows within the watercourse,* *(ii) aquatic and riparian species, habitats and ecosystems of the watercourse,* *(iii) the stability of the bed and banks of the watercourse,* *(iv) the free passage of fish and other aquatic organisms within or along the watercourse,* *(v) any future rehabilitation of the watercourse and riparian areas, and*	The Project is unlikely to have any adverse impacts, because of the following reasons: 1. In respect of (i): The Project will provide a stable bank form which limits the risk of erosion and sedimentation and improve conveyance of water which will improve local water quality and flows within the Creek and hence the potential for good quality aquatic habitat will increase and benefit the downstream environment. 2. In respect of (ii): Measures are proposed to improve riparian habitat which include establishing a chain of pools within the creek channel to provide areas of permanent standing water and placement of woody debris within the Creek. 3. In respect of (iii): The Creek is currently characterised by unstable bed and banks, with stagnant water and an ongoing risk of erosion and sedimentation. Therefore, the Project will provide a stable bank form and defined channel, improving the stability of the watercourse. 4. In respect of iv): The proposed flood mitigation works will not obstruct fish passage. 5. In respect of v): Proposed will stabilise the reformed Creek, improving water quality, and enhancing biodiversity values.	Y
	(b) whether or not the development is likely to increase water extraction from the watercourse, and	The Project does not involve or require any water extraction from the Creek.	Y
	(c) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.	The Project has been designed to minimise environmental impacts on the Creek. While some vegetation clearing is required, it is minor and supported by mitigation measures, including nest box installation and improved in-stream management. To mitigate any residual risk of impact, sediment and erosion control measures	Y

Clause	Requirements	Assessment	Compliance (Y/N/NA)
		will be established during the construction phase.	

6.4.3 Cootamundra Shire Council Development Plan Council 2013

Table 13 below provides assessment of the Project against the remaining relevant controls of Cootamundra DCP.

Table 13: Cootamundra DCP Compliance Assessment

Clause	Requirements	Assessment	Compliance
Chapter 6 Environmental Management			
6.2 Flood Prone Land			
	Performance criteria *That flood risk to life and property associated with the use of land is minimised.* *Acceptable Solutions* *An assessment of the impact of a 1:100 ARI flood event and of flood protection measures is to be carried out and submitted with all applications to develop land that is mapped as a flood planning area in the Cootamundra LEP 2013.*	The Project reduces flood risk to lift for existing and future development in the area as, based on the Flood Report: 1. The Project generally has an improvement on the floodplain, with flood level decreases of up to 300 mm in some areas of the catchment. 2. Flood depths and velocities are redistributed within the drainage channels and public reserve, and provide more favourable flooding outcomes compared to existing conditions. 3. A number of residential properties experience decreased flood levels in the 5%, 10% and 1% AEP flood events.	Y
	Performance criteria *New development on flood prone land is compatible with the flood hazard of the land.* *New development does not affect flood behaviour that causes an increase in the potential flood affectation of other development or properties, or the natural environment.* *New development incorporates measures that manage risk to life from flood and does not result in unsustainable social and economic costs to the community as a consequence of flooding.*	Based on the Flood Report: 1. Flood hazards on private lands are generally reduced, resulting in reduced flood extents as well as safer land use. Minor increases of H6 flood hazard category are generally confined to the widened segments of the Creek. 2. Improved conveyance and flood storage will result in decreased flood affectation of surrounding development and properties, with areas of flood level increase generally confined to public and Crown land, which is a net	Y

Clause	Requirements	Assessment	Compliance
	Acceptable Solutions *Building envelopes that are located above the flood planning level are shown on subdivision plans.* *A Certificate is provided by a registered Surveyor certifying that all habitable floor areas are constructed 500mm above the known 1: 100 ARI flood height AHD and certifying the actual finished level of the total site.*	benefit impact for the floodplain environment. 3. Creek widening will reduce flood levels and durations, thereby enhancing the safe occupation of surrounding properties and improving evacuation conditions. The reduced flood levels will result in evacuation routes being cut for shorter durations and at higher rainfall intensities, improving overall community flood safety and evacuation capacity.	
Chapter 7 Heritage			
General requirements	*Performance Criteria* *The fabric of heritage items and places, including landscaping and vegetation that contributes to heritage significance, is conserved.* *Acceptable Solutions* *An assessment of the impact of new development on heritage significance may be required where the development proposed is on a property that is listed in Schedule 5 of Cootamundra LEP 2013 or is on land that is within the vicinity of a listed heritage item, or is within the Cootamundra; Stockinbingal and Wallendbeen Heritage Conservation Areas*	The Project will not materially impact the significance of local heritage items and heritage conservation area located in proximity. Refer to Section 6.4.3 of this REF. The Project is within the curtilage of heritage item I30 Stratton Bridge and the Cootamundra Conservation Area. Proposed minor earthworks and recreational improvements will not materially impact the heritage fabric or appearance of the bridge or the historic streetscape. No adverse effects are expected on nearby heritage items. Therefore, the heritage significance is conserved, and no further heritage assessment is required.	Y
	Performance Criteria *Settlement identity, scenic values, historic streetscapes and traditional patterns of settlement are retained.* *Acceptable Solutions* *A heritage conservation management plan may be required that contains conservation policy and actions to be taken to conserve heritage significance where the development proposed is on a property that is listed in Schedule 5 of Cootamundra LEP 2013.*	No changes have been proposed to the settlement's identity, scenic values, historic streetscape and traditional patterns of settlement.	Y
	Performance Criteria *New development, including alterations and additions to a heritage item and development within the Cootamundra;*	Potential raised pedestrian crossing have been proposed to access the listed heritage item in C1 Cootamundra Heritage Conservation Area. Additionally, a new pedestrian bridge crossing is proposed along	Y

Clause	Requirements	Assessment	Compliance
	Stockinbingal and Wallendbeen Heritage Conservation Areas, demonstrates an understanding of the heritage significance and context of the place. *Acceptable Solutions* *When upgrading access to heritage buildings, reference should be made to the document Improving Access to Heritage Buildings, A practical guide to meeting the needs of people with disabilities published by the Australian Council of National Trusts and the Australian Heritage Commission, 1999, to assist with providing access facilities.*	the eastern side of Stratton Bridge to provide a safe movement along the Creek's corridor. The structure and setting of the Stratton Bridge will remain unchanged. These proposed access updates will be implemented in accordance with the *document Improving Access to Heritage Buildings, A practical guide to meeting the needs of people with disabilities published by the Australian Council of National Trusts and the Australian Heritage Commission, 1999, to assist with providing access facilities* to ensure heritage sensitive implementation.	
	New development, including alterations and additions to a heritage item and development within the Cootamundra; Stockinbingal and Wallendbeen Heritage Conservation Areas, retains the visual setting and streetscape and landscape character that contributes to heritage significance	The proposed development retains the visual setting, streetscape, and landscape character that contribute to the heritage significance of the Cootamundra, Stockinbingal, and Wallendbeen Heritage Conservation Areas. The proposed works have been designed to respect and prevent these key heritage values by reducing flood risk and enhance public amenity, aligning with heritage conservation criteria.	Y
	New development, including alterations and additions to a heritage item and development within the Cootamundra; Stockinbingal and Wallendbeen Heritage Conservation Area respects the historical context, the scale and proportion of buildings, and the overall setting	No physical changes have been proposed to any of the heritage buildings.	Y

6.5 Other legislation

6.5.1 Fisheries Management Act 1994 (NSW)

Based on the Ecology Report, the following comments are made in respect of *Fisheries Management Act 1994* (NSW) (**Fisheries Management Act**):

1. The Creek is mapped as key fish habitat, is within the Murray River EEC and is upstream of a number of threatened species listed under Fisheries Management Act. An assessment of significance was undertaken for each species which concludes that the Project is unlikely to result in a significant impact to threatened species listed under Fisheries Management Act. Therefore, a Species Impact Statement (**SIS**) not required.

2. The Project will require an approval under Part 7 of Fisheries Management Act to carry out dredging work and removal of aquatic vegetation, prior to commencement of works.

6.5.2 Water Management Act 2000 (NSW)

6.5.3 Controlled activity approval exemption

The Council, as a public authority, is exempt from requiring a Controlled Activity Approval (CAA) section 91E (1) of *Water Management Act 2000* (**Water Management Act**), based on the exemption conferred under Section 64 of Division 2 of *Water Management (General) Regulation 2025 (NSW)* (**Water Management Regulation**).

6.5.4 Consideration of riparian guidelines

Relevant development principles described in the guidelines *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* (**Riparian Guidelines**) are considered in Table *14*, which finds that the Project satisfies the outlined principles.

Table 14: Consideration of principles contained in Riparian Guidelines.

Principle	Consideration
(a) Maintain or rehabilitate the riparian corridor with fully structured native vegetation	The Creek is classified as a fourth order watercourse in accordance with the Strahler stream classification system. Adopting a 40 m average Vegetation Riparian Zone (**VRZ**) as is recommended by the Riparian Guidelines for a fourth order watercourse is not considered reasonable or necessary for the Creek because: 1. The existing riparian corridor is highly constrained by adjacent development. On average, the VRZ is approximately 15-20 m in width. 2. A 40 m VRZ would be inconsistent with the existing VRZ widths upstream and downstream of the Creek. Based on the above, a preferable approach is to maximise the existing VRZ where possible and integrate new areas where the Creek is to be widened. This principle is therefore achieved because: 1. The existing riparian corridor will be retained and widened where possible. 2. The Creek will be rehabilitated with native vegetation, which improves the riparian corridor compared to the current condition.
(b) Minimise disturbance and harm to the recommended riparian corridor	This principle is achieved because: 1. The Creek will provide a stable bankform and rehabilitate the reestablished VRZ with native vegetation, noting the existing riparian corridor is highly disturbed and eroded.
(c) Minimise the number of creek crossings and separate development from the riparian corridor	This principle is achieved because: 1. Potential future pedestrian creek crossings have been minimised to the maximum extent possible so as to not materially interfere with riparian function of the Creek, while still improving pedestrian access over the Creek.

Principle	Consideration
(d) Locate services and infrastructure outside the riparian corridor	This principle is achieved because: 1. All existing services will be relocated as required, and outside the riparian corridor (where possible). 2. No new services are proposed to be located within the riparian corridor.
(e) Treat stormwater run-off before discharging into the riparian corridor	This principle is achieved because: 1. No additional discharge points are proposed.

7 Environmental Impact Assessment

7.1 Flooding

The Project will not result in any adverse flooding impacts and will result in a net community benefit. Based on the Flood Report, the following comments are made:

1. Generally, the proposed works have an improvement on the floodplain, with flood level decreases of up to 300 mm in some areas of the catchment.
2. Flood depths and velocities are redistributed within the drainage channels and public reserve and hence provide more favourable flooding outcomes compared to existing conditions.
3. A number of residential properties experience decreased flood levels in the 5%, 10%, 1% AEP and 0.2% flood events.
4. Flood hazards on private lands are generally reduced, resulting in reduced flood extents as well as safer land use. Minor increases of H6 flood hazard category are generally confined to the widened segments of the Creek.
5. Improved conveyance and flood storage will result in decreased flood affectation of surrounding development and properties, with areas of flood level increase generally confined to public and Crown land, which is a net benefit impact for the floodplain environment.
6. Creek widening will reduce flood levels and durations, thereby enhancing the safe occupation of surrounding properties and improving evacuation conditions. The reduced flood levels will result in evacuation routes being cut for shorter durations and at higher rainfall intensities, improving overall community flood safety and evacuation capacity.

7.2 Biodiversity

Based on the Ecology Report, the Project will not result in any significant impacts on biodiversity of the Creek and surrounds for the following reasons:

1. In respect of vegetation clearing:
    a. The Creek and surrounding area have been highly modified due to previous land use, understorey maintenance and weed infestation. Approximately 5.73 ha of vegetation is to be cleared which notably consists of:
        i. 0.46 ha of PCT 276 WBYB CEEC. Removal of approximately 0.46 ha is unlikely to put the community at risk of extinction because approximately 273 ha of PCT 279 will remain within 2 km of the Creek.

ii. Up to 0.66 ha of Cumbungi which is part of the Murray River CEEC. Clearing of up to 0.66 ha of Cumbungi may improve overall health and functionality of the Creek. Any impacts of clearing are expected to be indirect, localised and temporary in nature. Further, rehabilitation of the Creek would likely provide the opportunity to return the return the composition of the local community to an improved state.

2. In respect of flora impacts:

    a. No threatened flora or fauna species listed under Biodiversity Conservation Act and Fisheries Management Act were recorded during site ecology surveys.

    b. All threatened flora species are unlikely to occur in or near the Creek due to ongoing understorey maintenance and weed infestation.

3. In respect of flora impacts:

    a. Removal of riparian vegetation, canopy trees and understorey may reduce foraging and/or breeding habitat. However, this is unlikely to result in any significant impacts to fauna because the habitat within the Creek and surrounds is unlikely to represent an important breeding or foraging habitat due to the disturbed and edge affected nature of the area and there is an abundance of food/breeding sources in surrounding areas.

4. Measures are proposed to mitigate residual risk of any impacts to biodiversity. These include:

    a. Undertaking a pre-clearing and clearing survey to relocate any nesting or sheltering fauna, prior to earthworks and vegetation clearing.

    b. Establishment of tree protection fencing around the Tree Protection Zones (**TPZs**) of retained trees.

    c. Replacement plantings at a rate of:

        i. Five native trees planted for every native tree removed, and

        ii. Planting of one locally indigenous shrub per 5 m^2.

    d. Establishment of signage during construction to delineate 'no go areas'.

    e. Ensuring all plant and equipment are well maintained to avoid leaks/spills, and undertaking any refuelling or chemical refills away from the Creek.

    f. Use dust and noise suppression measures and low spill lighting or shielding to minimise disturbance to fauna.

g. Relocating felled tree trunks and root balls into the Creek to create new aquatic habitat opportunities. These are to be placed so as to not obstruct fish passage.

h. Undertake weed eradication.

i. Install 10 nest boxes along the Creek.

j. Preparation of terrestrial and aquatic management plans to guide the revegetation and habitat restoration efforts.

7.3 Visual and Local Character

The Project will greatly improve the visual character of the Creek for the following reasons:

1. The flood mitigation works will provide a stable bankform and defined channel which will improve the visual appearance of the Creek compared to the current condition.
2. Proposed plantings will visually identify the new riparian corridor and improve the ecology and function of the Creek.
3. New pedestrian pathways and crossings will increase accessibility within and across the Creek and will connect the Creek to surrounding streets and parks.
4. New accessible recreation opportunities (including new green spaces, community garden and seating/tables) will be established.
5. Interpretive signage will be provided to inform people of the historical, ecology and cultural (particularly Aboriginal cultural) importance of Muttama Creek.
6. The heritage significance of nearby local heritage will not be materially impacted because there will be no adverse changes to the streetscape appearance.

8 Conclusion

This REF has been prepared on behalf of Cootamundra-Gundagai Regional Council to accompany an application submitted for proposing flood mitigation and revitalisation works to an approximate 2 km long segment of the Muttama Creek within the township of Cootamundra. In summary:

1. The Project will improve flood conveyance and reduce flood affectation in the town of Cootamundra, safeguarding both risk to life and properties.
2. The Project is designed to be compatible with the current flood function and behaviour, improving the Creek's capacity to manage flood flows.
3. The Project preserves the visual setting and heritage significance of Stratton Bridge and the Cootamundra Heritage Conservation Area, ensuring no adverse impacts on heritage values.
4. The Project proposes minor clearing of native vegetation, however based on the FFA, the Project will not significantly affect threatened species or ecological communities.
5. The Project will have a positive effect on the environment, including enhanced public access, safer recreational areas, and increased flood resilience for the community.

Appendices

Appendix A

Site Photos



Figure 2: Creek within Bradman Precinct looking towards Adams Street.



Figure 3: Creek within Bradman Precinct looking southeast towards Bradman Oval.



Figure 4: Overland flow path within Bradman Precinct flowing into the Creek.



Figure 5: Creek south of Cutler Avenue.



Figure 6: Creek and permanent pond south of Cutler Avenue.



Figure 7: Creek within Sport and Recreation Precinct immediately south of Poole Street.



Figure 8: Creek within Sport and Recreation Precinct looking south. Clarke Oval is on the right.



Figure 9: Creek within Sport and Recreation Precinct with stormwater outlets on left hand bank.



Figure 10: Creek within Sport and Recreation Precinct with overgrown Cumbungi.



Figure 11: Creek segment within Town centre precinct looking south.



Figure 12: Creek segment within Town centre precinct looking south with overgrown Cumbungi.



Figure 13: Creek segment within Town centre precinct looking north with overgrown Cumbungi.



Figure 14: Creek within Local community precinct looking south.



Figure 15: Creek within Local community precinct looking south.



Figure 16: Creek within Local community precinct looking south.



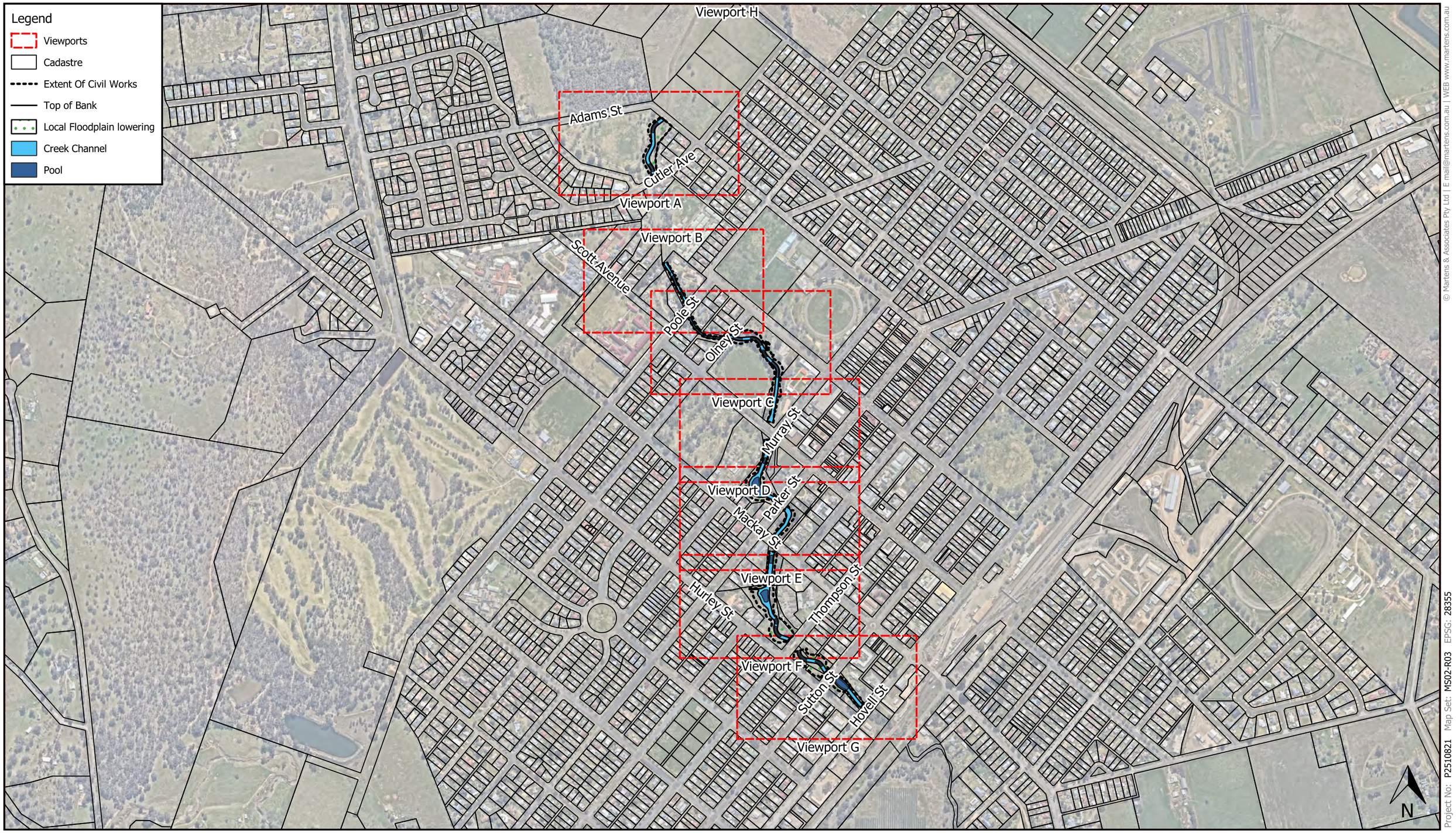
Figure 17: Creek segment and permanent pool within local community precinct looking south.



Figure 18: Creek segment within local community precinct looking south towards rail line.

Appendix B

Maps



0 100 200 300 400 500 m

1:10000 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).

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Map Title / Figure:

Layout Reference Plan

Map 01	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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Legend

- Cadastre
- Extent Of Civil Works
- Top of Bank
- Local Floodplain lowering
- Creek Channel
- Pool
- Council Land

Adams St

1 / DP238550

Cutler Ave

6 / DP1083148

N

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

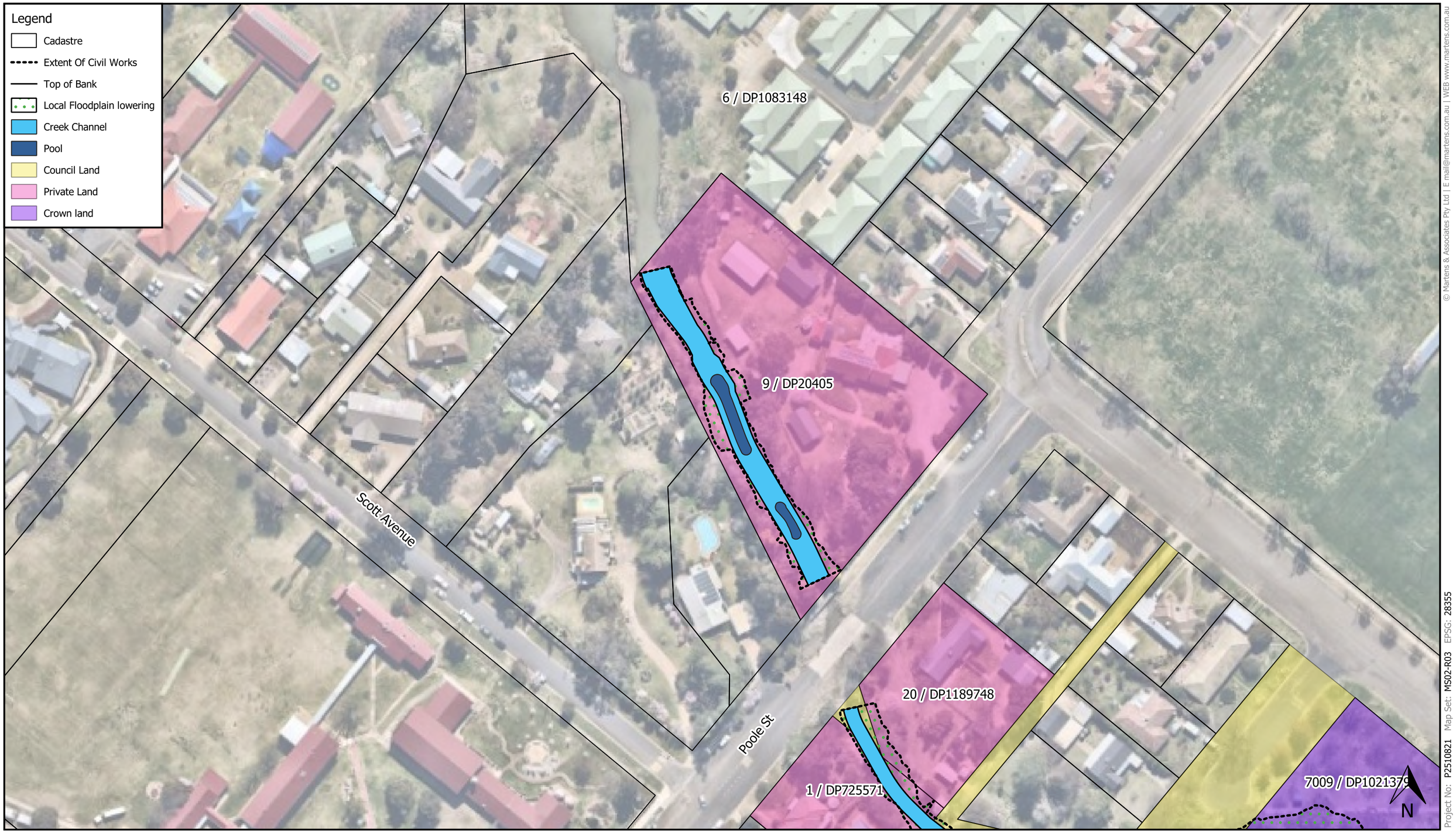
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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Map Title / Figure:
Land Ownership

Map 02	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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1:1250 @ A3

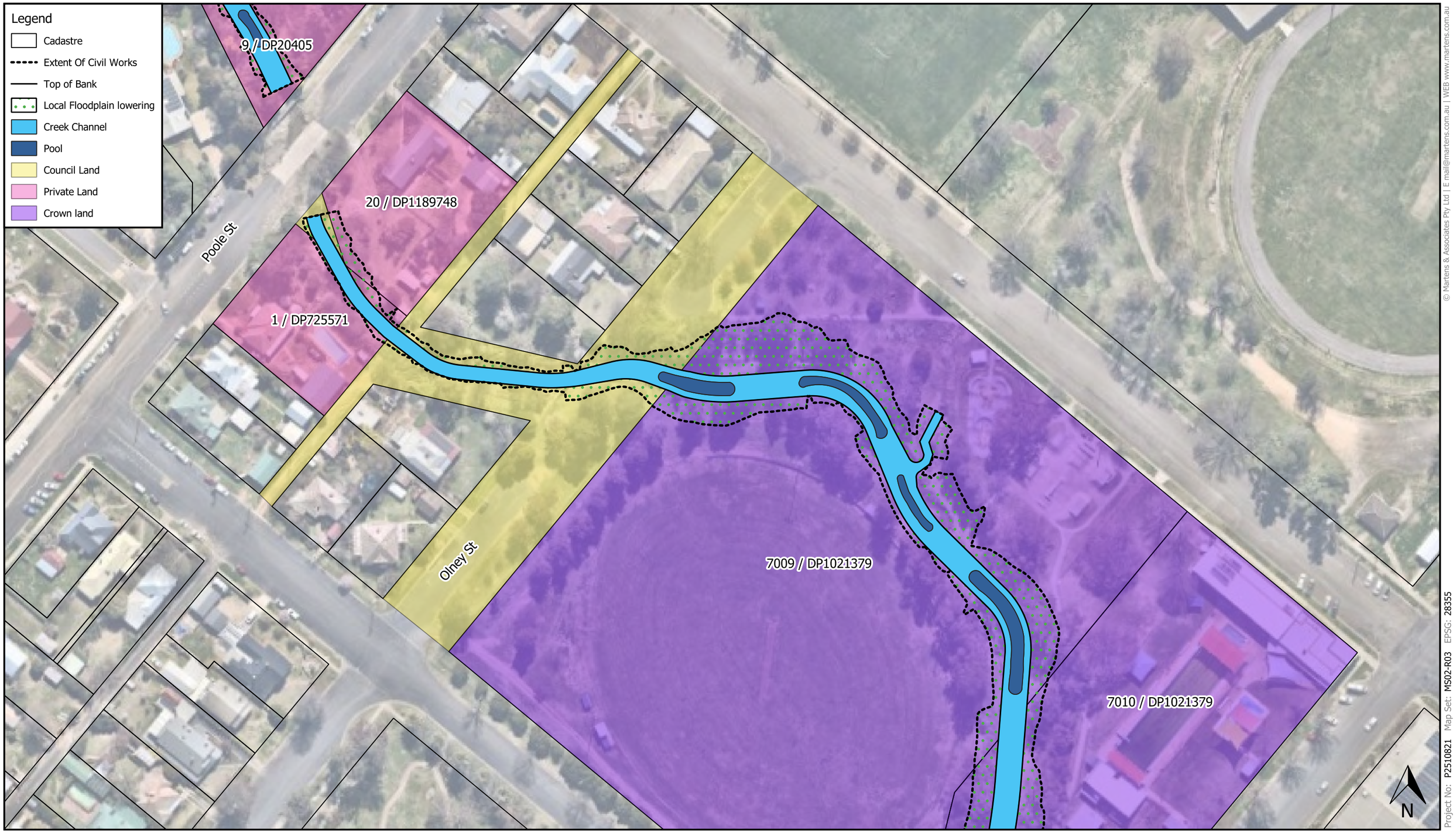
Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

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Map Title / Figure:
Land Ownership

Map 03	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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1:1250 @ A3

Viewport

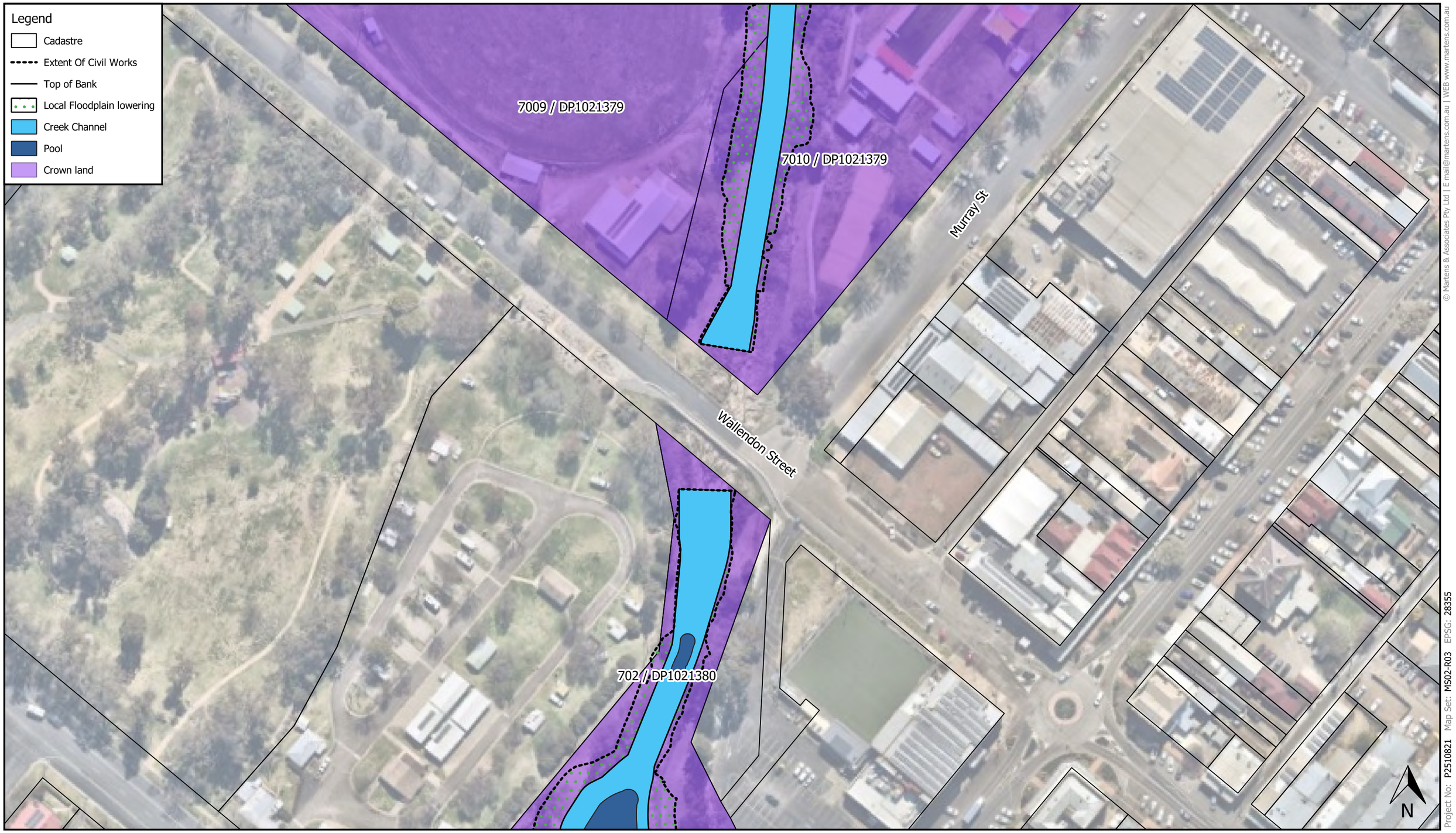
Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

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Map Title / Figure:

Land Ownership

Map 04	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

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Map Title / Figure:
Land Ownership

Map 05	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Legend
- Cadastre
- Extent Of Civil Works
- Top of Bank
- Local Floodplain lowering
- Creek Channel
- Pool
- Crown land

Mackay St

Parker St

702 / DP1021380

7306 / DP1140506

5 / DP867363

N

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

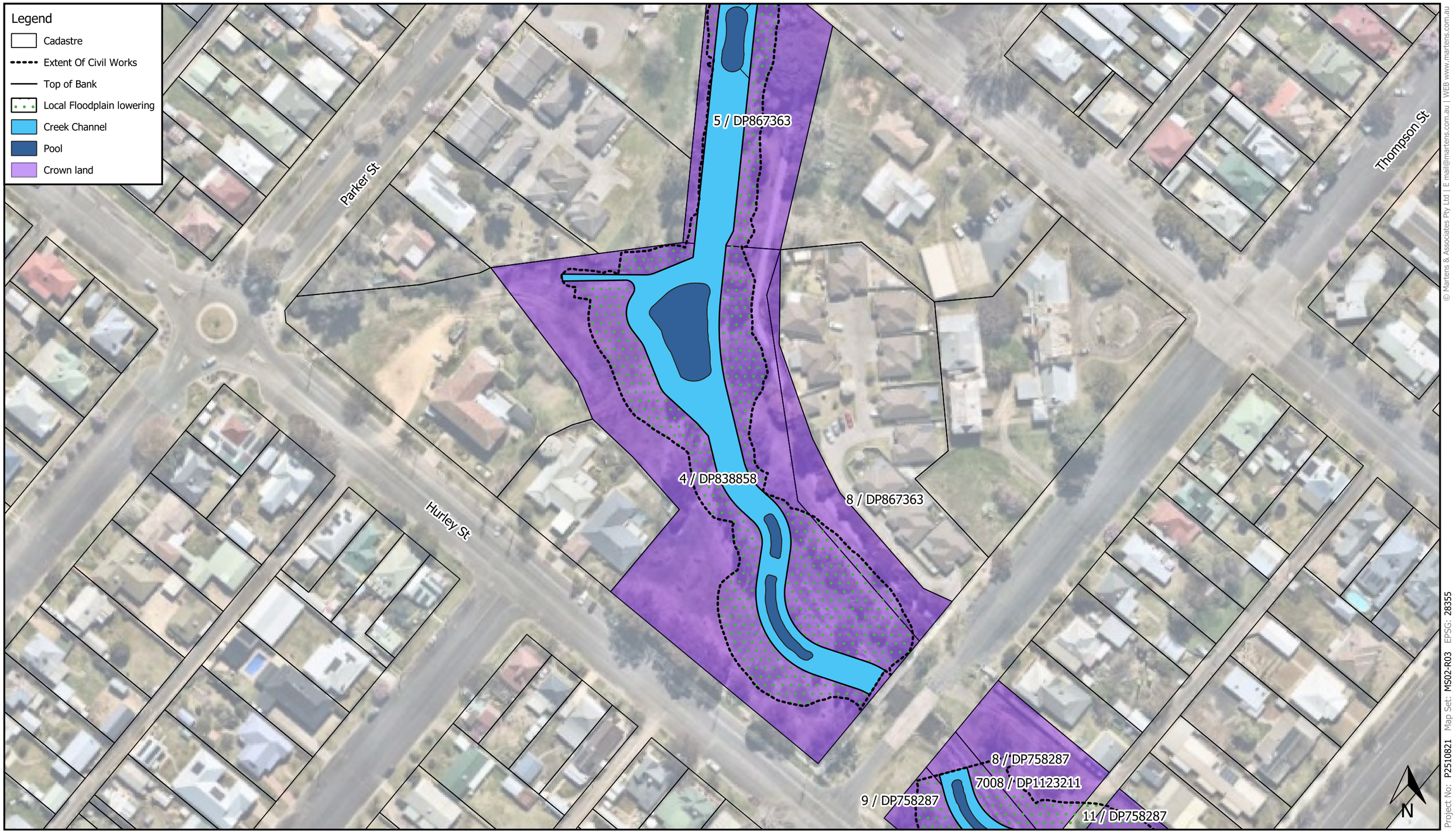
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Map Title / Figure:
Land Ownership

Map 06	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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1:1250 @ A3

Viewport

Note:
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- Land Ownership fro NSW Spatial Viewer (2025).

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Map Title / Figure:
Land Ownership

Map 07	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Legend

- Cadastre
- Extent Of Civil Works
- Top of Bank
- Local Floodplain lowering
- Creek Channel
- Pool
- Crown land

4 / DP838858

8 / DP758287

9 / DP758287

7008 / DP1123211

11 / DP758287

10 / DP758287

Sutton St

1 / DP1009458

8 / DP758287

7007 / DP1123211

Howell St

N

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Ownership fro NSW Spatial Viewer (2025).

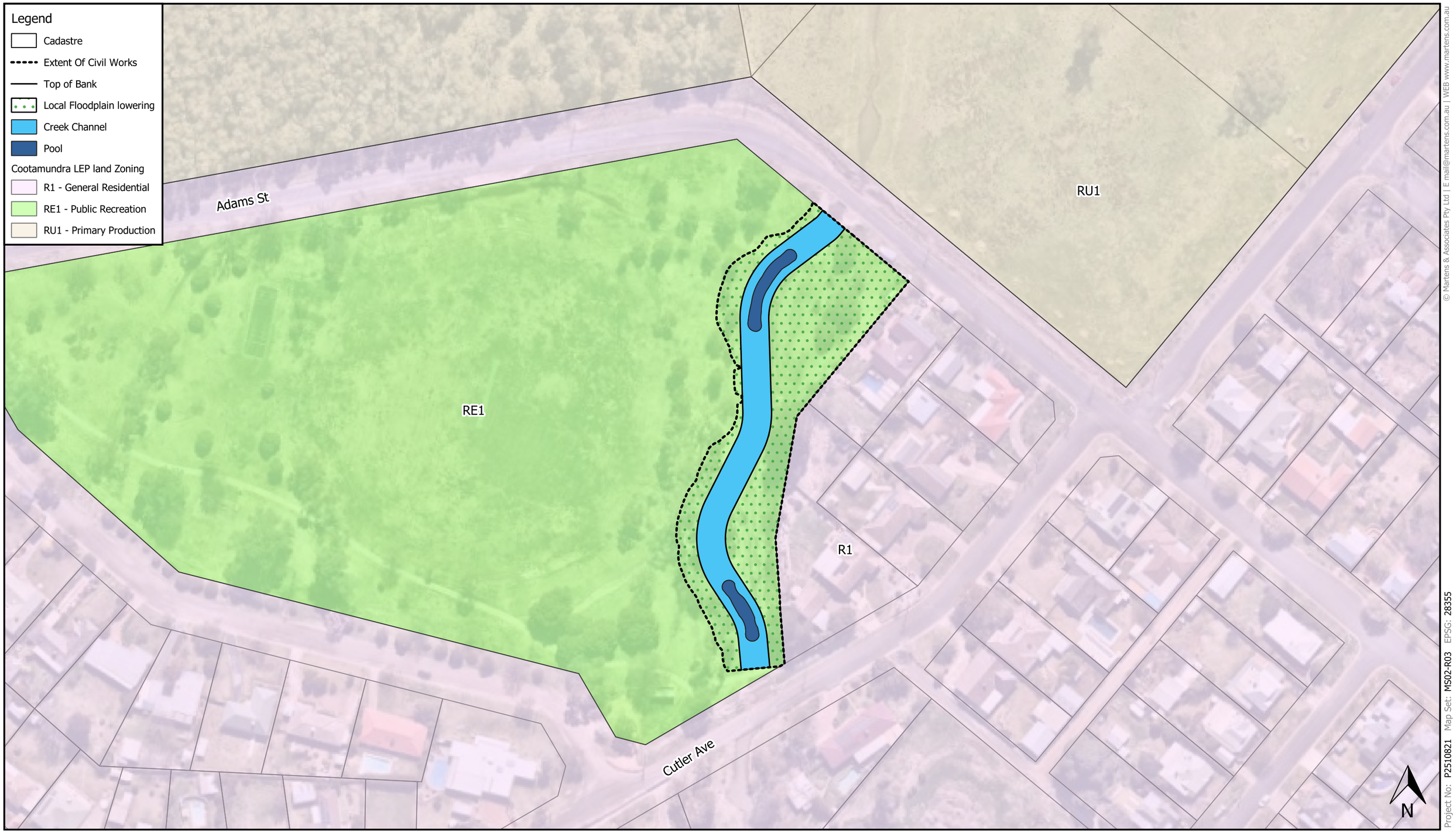
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Map Title / Figure:
Land Ownership

Map 08	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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1:1250 @ A3

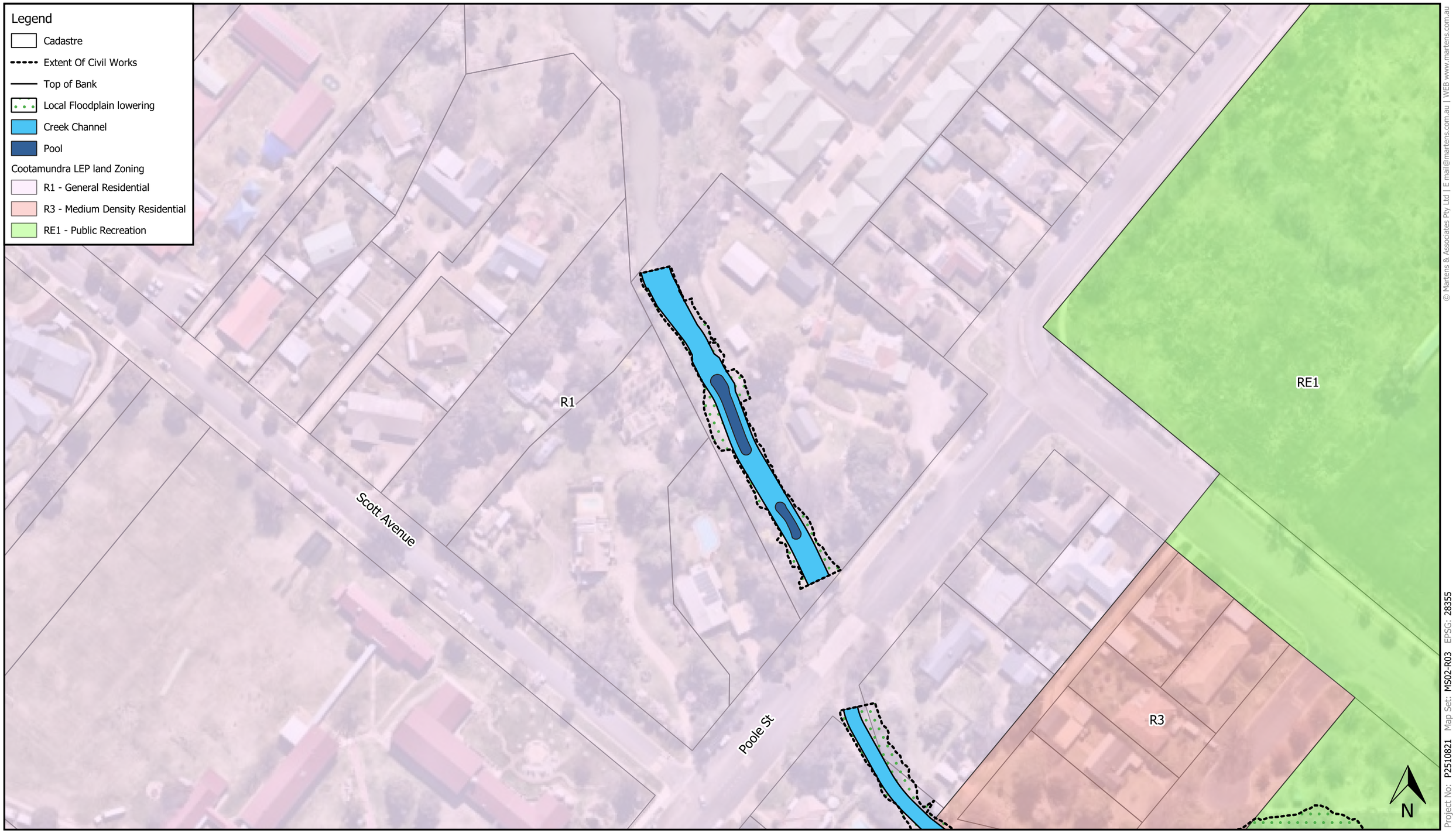
Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

Map Title / Figure:
Land Zoning

Map 09	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 10 20 30 40 50 m

1:1250 @ A3

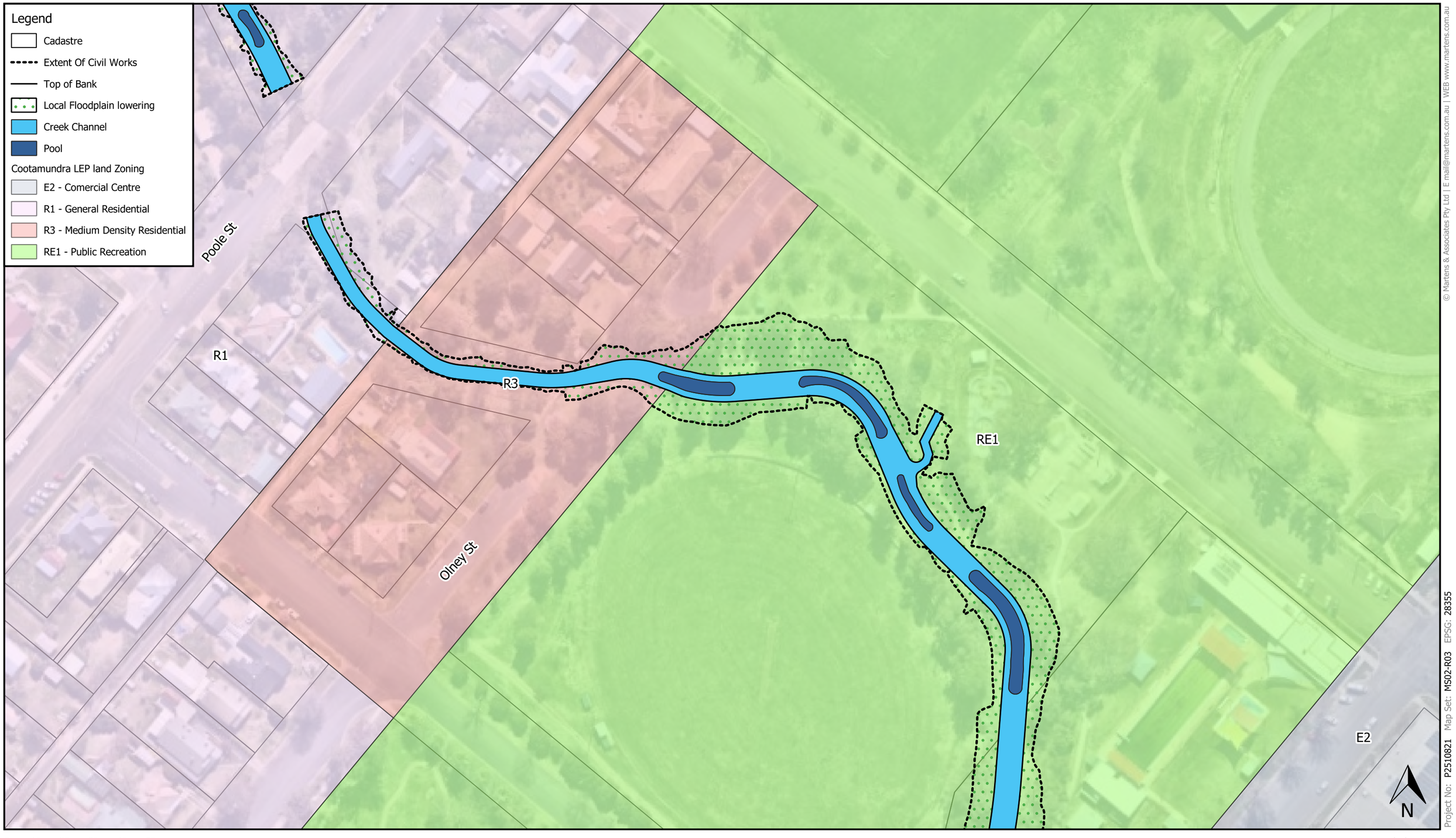
Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
Land Zoning

Map 10	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Map Title / Figure:
Land Zoning

Map 11	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
Land Zoning

Map 12	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 10 20 30 40 50 m

1:1250 @ A3

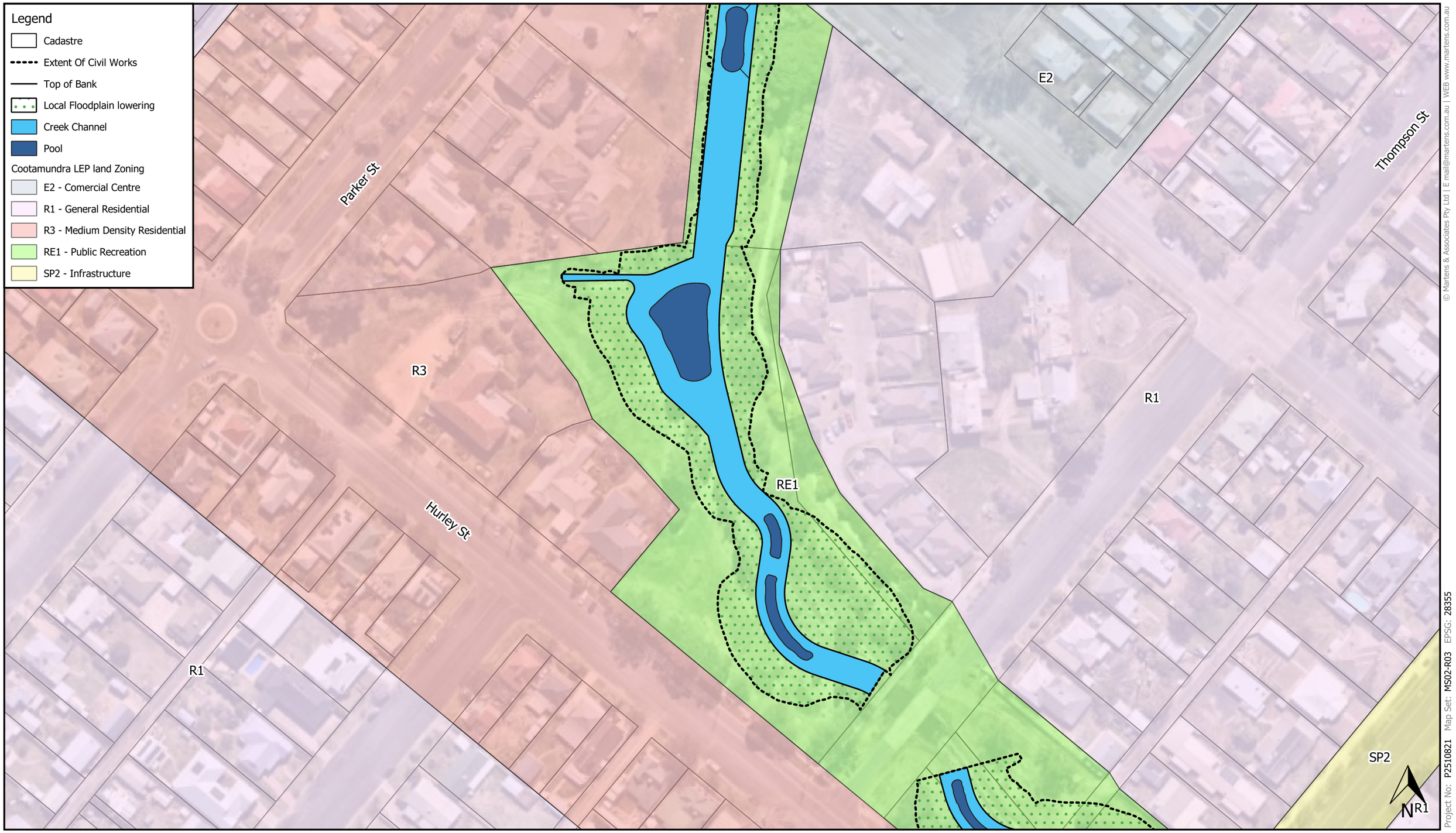
Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
Land Zoning

Map 13	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
Land Zoning

Map 14	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Land Zoning from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
Land Zoning

Map 15	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

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Legend

- Cadastre
- Extent Of Civil Works copy
- hydroline

Adams St
Cutler Ave
Scott Avenue
Poole St
Olney St
Wallendon Street
Murray St
Mackay St
Parker St
Parker St
Thompson St
Hurley St
Sutton St
Hovell St

N

0 100 200 300 400 500 m

1:10000 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre and Hydroline from NSW Spatial Services Clip and Ship (2025).

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Map Title / Figure:

Mapped Hydrolines

Map 16	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 100 200 300 400 500 m

1:10000 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).

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Map Title / Figure:
Key Fish Habitat

Map 17	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Legend

- Cadastre
- Extent Of Civil Works
- Top of Bank
- Local Floodplain lowering
- Creek Channel
- Pool

EPI Heritage

- Conservation Area - General
- Item - General

Mackay St

Parker St

I29
I57
I55
I34
I32
I56
I30
I54
I7
C1
I53
I9
I33

N

0 10 20 30 40 50 m

1:1250 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Heritage from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:

LEP Heritage Map

Map 18	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Legend

- Cadastre
- Extent Of Civil Works copy

EPI Groundwater Vulnerability

- Groundwater Vulnerable

Adams St
Cutler Ave
Scott Avenue
Poole St
Olney St
Murray St
Wallendon Street
Mackay St
Parker St
Parker St
Thompson St
Hurley St
Sutton St
Hovell St

N

0 100 200 300 400 500 m

1:10000 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Groundwater Vulnerability from Cootamundra Local Environmental Plan 2013.

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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

Map Title / Figure:

LEP Groundwater Vulnerability

Map 19	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date



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Project No: P2510821 Map Set: MS02-R03 EPSG: 28355

0 100 200 300 400 500 m

1:10000 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Cadastre from NSW Spatial Services Clip and Ship (2025).
- Watercourses from Cootamundra Local Environmental Plan 2013.

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Map Title / Figure:
LEP Watercourses

Map 20	Map
Muttama Creek, Cootamundra, NSW	Site
Masterplan for Muttama Creek	Project
Review of Environmental Factors	Sub-Project
Cootamundra-Gundagai Regional Council	Client
16/01/2026	Date

Appendix C

Preliminary Civil Plans

PROJECT: MASTER PLAN FOR MUTTAMA CREEK

PLANSET: PRELIMINARY CIVIL ENGINEERING PLANS

CLIENT: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL



LOCALITY PLAN
NOT TO SCALE

LGA: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS01-A000	C	COVER SHEET
PS01-A010	A	LAYOUT REFERENCE PLAN
PS01-A300	C	PROPOSAL (LAYOUT-1)
PS01-A310	C	PROPOSAL (LAYOUT-2)
PS01-A320	C	PROPOSAL (LAYOUT-3)
PS01-A330	C	PROPOSAL (LAYOUT-4)
PS01-A340	C	PROPOSAL (LAYOUT-5)
PS01-A350	C	PROPOSAL (LAYOUT-6)
PS01-A360	C	PROPOSAL (LAYOUT-7)
CONSTRUCTION MANAGEMENT WORKS		
PS01-B310	A	EROSION & SEDIMENT CONTROL DETAILS
GRADING		
PS01-C100	C	GRADING AND EARTHWORKS (LAYOUT-1)
PS01-C110	C	GRADING AND EARTHWORKS (LAYOUT-2)
PS01-C120	C	GRADING AND EARTHWORKS (LAYOUT-3)
PS01-C130	C	GRADING AND EARTHWORKS (LAYOUT-4)
PS01-C140	C	GRADING AND EARTHWORKS (LAYOUT-5)
PS01-C150	C	GRADING AND EARTHWORKS (LAYOUT-6)
PS01-C160	C	GRADING AND EARTHWORKS (LAYOUT-7)
PS01-C600	C	EARTHWORK SITE SECTION (SHEET-1)
PS01-C610	C	EARTHWORK SITE SECTION (SHEET-2)
PS01-C611	B	EARTHWORK SITE SECTION (SHEET-3)
PS01-C612	B	EARTHWORK SITE SECTION (SHEET-4)
PS01-C613	B	EARTHWORK SITE SECTION (SHEET-5)
PS01-C614	B	EARTHWORK SITE SECTION (SHEET-6)
PS01-C660	B	EARTHWORK SITE SECTION (SHEET-7)
PS01-C661	B	EARTHWORK SITE SECTION (SHEET-8)
PS01-C662	B	EARTHWORK SITE SECTION (SHEET-9)
PS01-C663	B	EARTHWORK SITE SECTION (SHEET-10)
PS01-C664	B	EARTHWORK SITE SECTION (SHEET-11)
PS01-C665	B	EARTHWORK SITE SECTION (SHEET-12)
PS01-C666	B	EARTHWORK SITE SECTION (SHEET-13)

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID	DATUM	PROJECT MANAGER
---	---	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A000	C

DRAWING ID: P2510821-PS01-R03-A000

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REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 40 80 120 160 200 240 280 320 360 400 METRES
A1 (A3) 1:4,000 (1:8,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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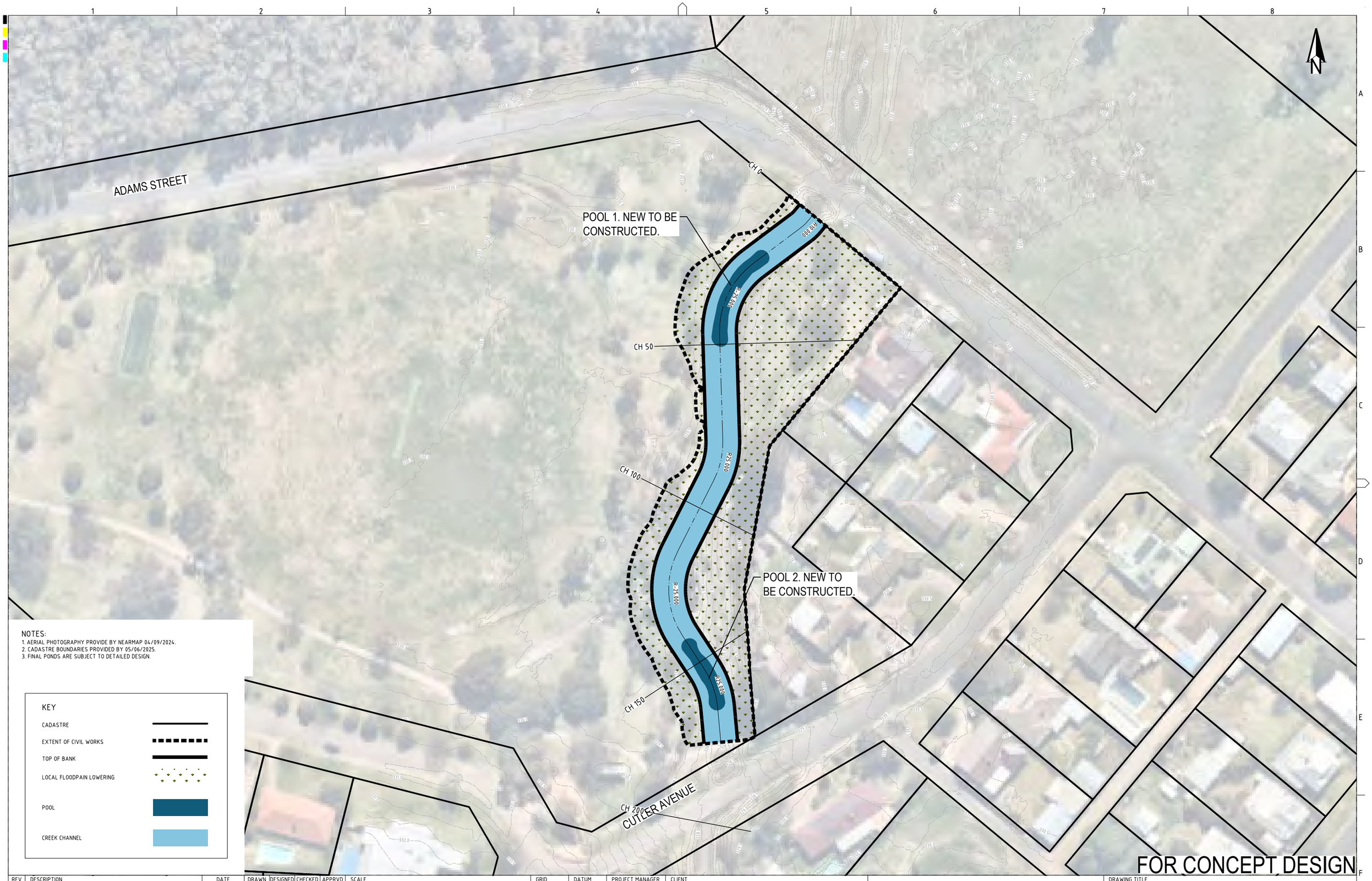
DRAWING TITLE
LAYOUT REFERENCE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A010	A

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KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
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B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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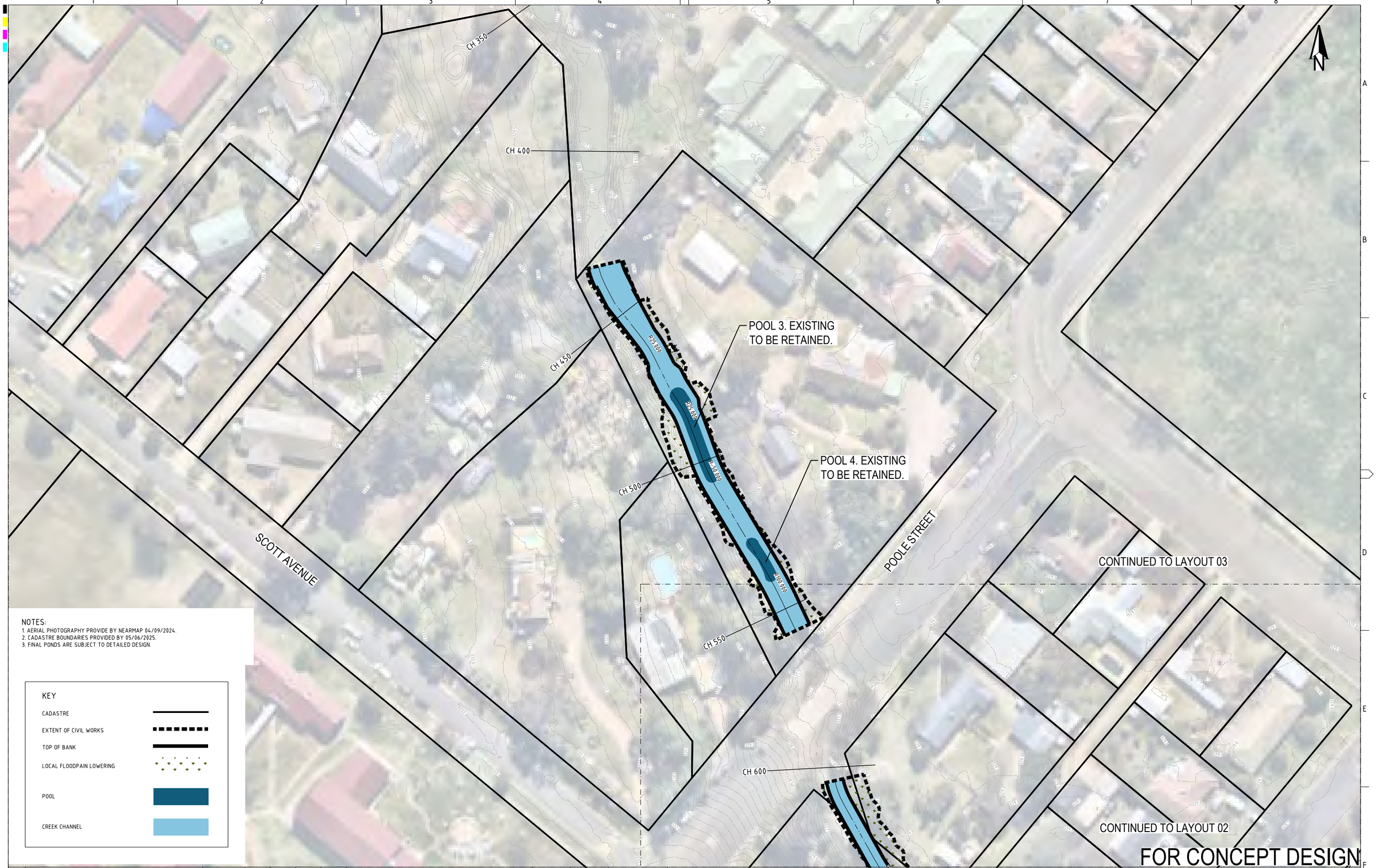
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DRAWING TITLE
PROPOSAL
LAYOUT - 1

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FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
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PROJECT NAME/PLANSET TITLE
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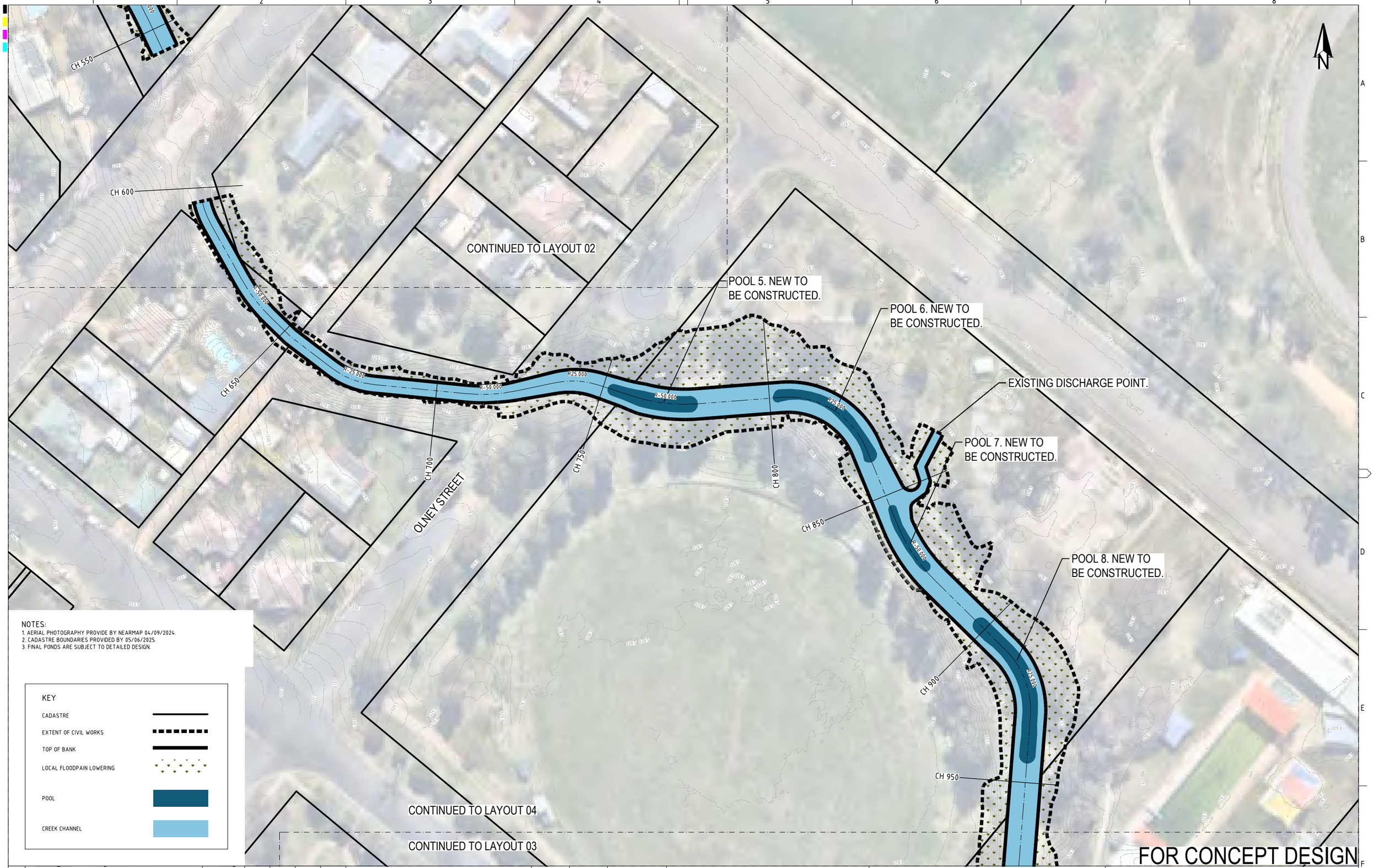
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DRAWING TITLE
PROPOSAL
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A310	C

DRAWING ID: P2510821-PS01-R03-A310

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



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- CREEK CHANNEL

CONTINUED TO LAYOUT 04

CONTINUED TO LAYOUT 03

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
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DRAWING TITLE
PROPOSAL
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A320	C

DRAWING ID: P2510821-PS01-R03-A320

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A1 / A3 LANDSCAPE (ATLC_v02.0.01)

CONTINUED TO LAYOUT 03

WALLENDOON STREET

MURRAY STREET

CH 1000

CH 1050

CH 1100

CH 1150

CH 1200

R200.000

R-50.000

R50.000

R75.000

POOL 9. NEW TO BE CONSTRUCTED.

N

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- EXTENT OF CIVIL WORKS
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B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

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A1 / A3 LANDSCAPE (ATLC_v02.0.01)

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A330	C

DRAWING ID: P2510821-PS01-R03-A330

CONTINUED TO LAYOUT 04

POOL 10. NEW TO BE CONSTRUCTED.

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

POOL 11. NEW TO BE CONSTRUCTED.

MACKAY STREET

PARKER STREET

CH 1250

CH 1300

CH 1350

CH 1400

CH 1450

CH 1500

R=50.000

R=25.000

R=50.000

R100.000

R25.000

R=50.000

R25.000

R=200.000

N

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FOR CONCEPT DESIGN

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B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A340	C

DRAWING ID: P2510821-PS01-R03-A340

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



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FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

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A1 / A3 LANDSCAPE (ATLC_v02.0.01)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 6

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DRAWING ID: P2510821-PS01-R03-A350



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FOR CONCEPT DESIGN

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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

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SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 7

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P2510821	PS01	R03	PS01-A360	C

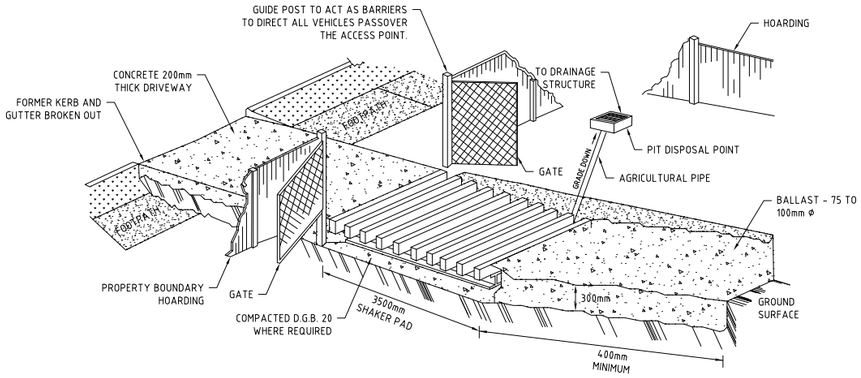
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STABILISED ACCESS POINT

TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

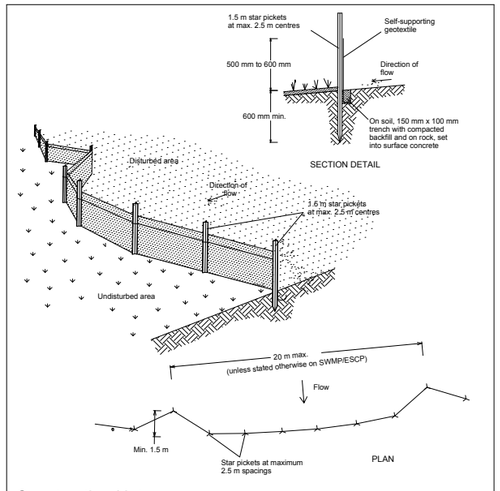
STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:

- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST) . IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJCENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

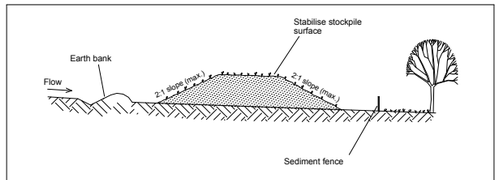
IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

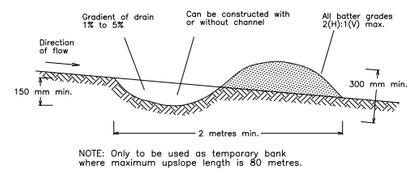
SEDIMENT FENCE — SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES — SD 4-1

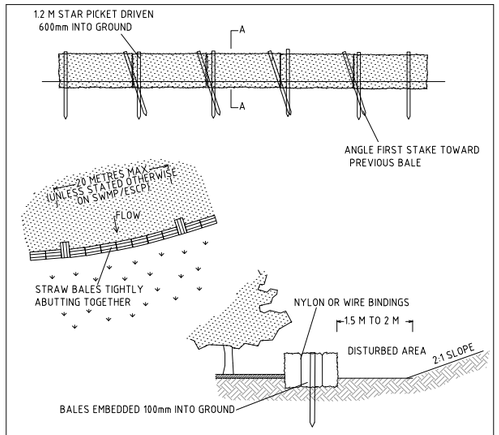


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

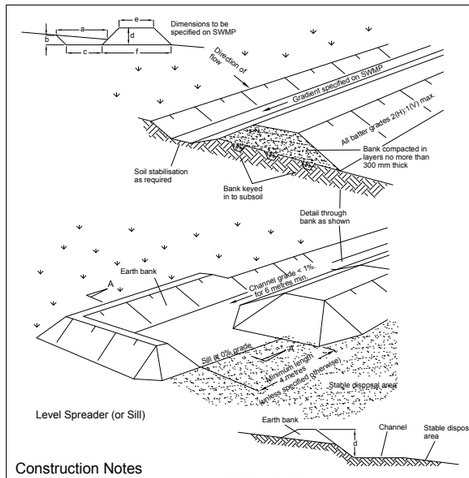
EARTH BANK (LOW FLOW) — SD 5-5



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE. 2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND. 3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE. 4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS. 5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE. 6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER — SD 6-7



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) — SD 5-6

SEDIMENT AND EROSION CONTROL PLAN

1 TEMPORARY SEDIMENTATION AND EROSION CONTROLS (SEC) ARE TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORK TO ELIMINATE THE DISCHARGE OF SEDIMENT FROM THE SITE. THE CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION", VOLUME 1, 4TH EDITION, MARCH 2004, (THE BLUE BOOK).

2 THE CONTRACTOR IS TO INFORM ALL SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN RELATION TO SEC.

3 THE CONTRACTOR SHALL REGULARLY MAINTAIN SEC DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES BEFORE NO MORE THAN 60% OF THEIR SEDIMENT STORAGE CAPACITY IS LOST. ALL THE SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.

4 NO SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL ASPHALTING WORKS ARE COMPLETED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR ENGINEER.

5 ALL WORKS MUST BE PERFORMED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.

6 THE FOLLOWING SEDIMENT CONTROL MEASURES ARE REQUIRED TO BE PROVIDED IN CONJUNCTION WITH THE ATTACHED SEDIMENT AND EROSION CONTROL PLAN.

- A ALL RUNOFF AND EROSION CONTROLS ARE TO BE INSTALLED BEFORE ANY WORKS ARE CARRIED OUT AT THE SITE.
- B ALL CONTAMINATED SURFACE WATERS AND DEBRIS FROM THE SITE MUST BE SCREENED, COLLECTED AND POLLUTANTS CAPTURED WITHIN THE SITE.
- C CONTAMINATION OF SURFACE WATERS ON DOWNSLOPE LANDS MUST BE MITIGATED BY INSTALLING SEDIMENT CONTROL FENCES DOWNSLOPE OF THE DISTURBED AREAS TO CAPTURE SEDIMENT AND DEBRIS ESCAPING FROM THE SITE.
- D SEDIMENT FENCING MUST BE SECURED BY POST (WHERE METAL STAR PICKETS ARE USED, PLASTIC SAFETY CAPS SHALL BE USED) AT TWO-METRE INTERVALS WITH THE GEOTEXTILE FABRIC EMBEDDED 200MM INTO SOIL. ONE METRE RETURNS MUST BE INSTALLED AT TWENTY-METRE INTERVALS ALONG THE SEDIMENT FENCING.
- E SEDIMENT TRAPS ARE TO BE INSTALLED DOWNSLOPE OF THE SITE TO FACILITATE THE CAPTURE OF SEDIMENT.
- F THE CONTRACTOR SHALL MAINTAIN DUST CONTROL UNTIL FINAL COMPLETION OF WORKS.
- G DURING WINDY WEATHER, LARGE, DISTURBED, UNPROTECTED AREAS SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- H EROSION AND SEDIMENT CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER, AND BE REPAIRED OR REPLACED THROUGHOUT THE COURSE OF WORKS ON SITE.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID | DATUM | PROJECT MANAGER: JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
Consulting Engineers
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Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
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DRAWING TITLE: SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-B310	A

DRAWING ID: P2510821-PS01-R03-B310

PRINTED ----- USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE: MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE: GRADING AND EARTHWORKS LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C100	C

DRAWING ID: P2510821-PS01-R03-C100

PRINTED ---- - USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C110	C

DRAWING ID: P2510821-PS01-R03-C110

PRINTED ---- USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000		m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN	2.000		m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C120	C

DRAWING ID: P2510821-PS01-R03-C120

PRINTED: ---- - USER: WASSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY		
	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C130	C

DRAWING ID: P2510821-PS01-R03-C130

PRINTED: ---- - USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN		-2.000	m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN		2.000	m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C140	C

DRAWING ID: P2510821-PS01-R03-C140

PRINTED: ---- - USER: NASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 05

CH 1550

CH 1600

CH 1650

CH 1700

CH 1750

HURLEY STREET

THOMPSON STREET

CONTINUED TO LAYOUT 07

CONTINUED TO LAYOUT 06

EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

PRINTED ---- USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C150	C

DRAWING ID: P2510821-PS01-R03-C150



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

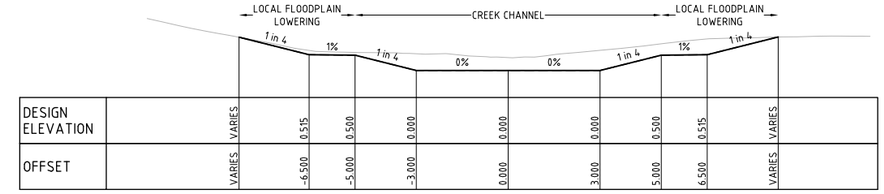
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C160	C

DRAWING ID: P2510821-PS01-R03-C160

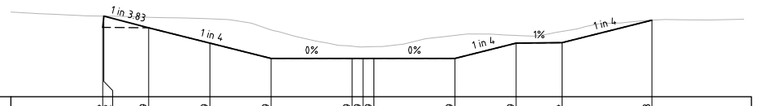
PRINTED: ---- - USER: MAKSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



DESIGN ELEVATION	VARIES	0.515	0.500	0.000	0.000	0.000	0.500	0.515	VARIES	
OFFSET	VARIES	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	VARIES	

TYPICAL SECTION

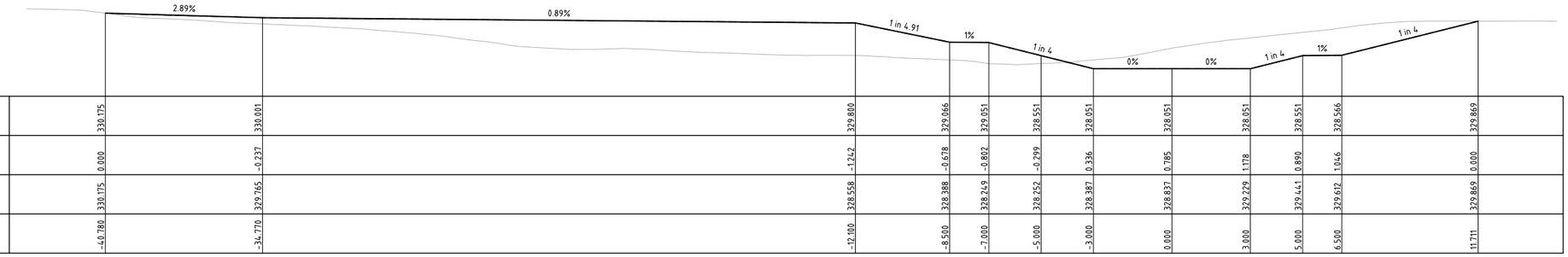
SCALE: HORIZONTAL - 1:100
VERTICAL - 1:100



RL327.0

DESIGN LEVELS	329.964	329.632	329.249	328.749	328.249	328.249	328.249	328.249	328.764	329.498
CUT / FILL DEPTH	0.368	0.000	0.342	0.795	0.931	0.399	0.376	0.286	0.752	0.250	0.367	0.000
EXISTING LEVELS	329.632	329.632	329.591	329.544	329.181	328.649	328.625	328.696	329.001	328.999	329.132	329.498
OFFSET	-8.500	-8.464	-7.000	-5.000	-3.000	-0.355	0.000	0.355	3.000	5.000	6.500	9.433

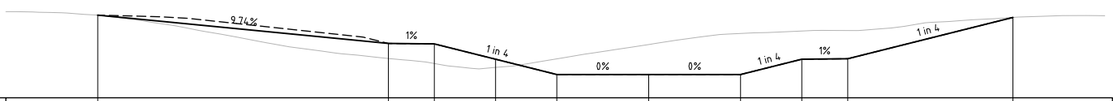
CH 0.000



RL327.0

DESIGN LEVELS	330.175	330.001	329.800	329.066	329.051	328.551	328.051	328.051	328.051	328.551	328.566	329.869
CUT / FILL DEPTH	0.000	-0.237	-1.242	-0.678	-0.802	-0.299	0.336	0.785	1.178	0.890	1.046	0.000
EXISTING LEVELS	330.175	329.765	328.558	328.388	328.249	328.252	328.387	328.837	329.229	329.441	329.612	329.869
OFFSET	-40.780	-34.770	-12.100	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.711

CH 50.000



RL327.0

DESIGN LEVELS	329.698	328.774	328.759	328.259	327.759	327.759	327.759	328.259	328.274	329.623
CUT / FILL DEPTH	0.000	0.492	0.640	0.267	0.511	0.979	1.340	0.920	0.921	0.000
EXISTING LEVELS	329.698	328.282	328.119	327.992	328.271	328.738	329.099	329.180	329.196	329.623
OFFSET	-17.992	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.895

CH 100.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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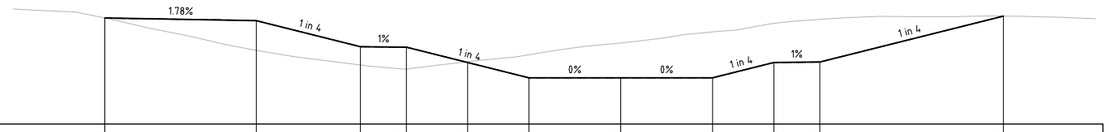
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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C600	C

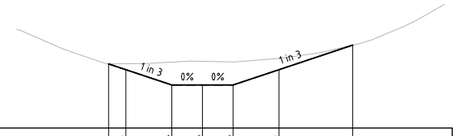
DRAWING ID: P2510821-PS01-R03-C600

PRINTED: ---- - USER: MASSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



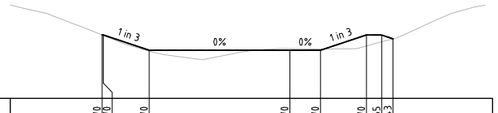
RL326.0										
DESIGN LEVELS	329.461	329.373	328.523	328.508	328.008	327.508	327.508	327.508	328.008	328.023	329.522
CUT / FILL DEPTH	0.000	-0.970	-0.597	-0.712	0.026	0.752	1.136	1.498	1.276	1.391	0.000
EXISTING LEVELS	329.461	328.403	327.926	327.796	328.035	328.260	328.644	329.006	329.284	329.414	329.522
OFFSET	-16.848	-11.900	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	12.496

CH 150.000



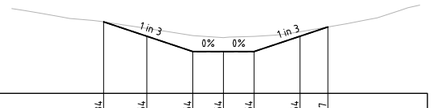
RL325.0							
DESIGN LEVELS	327.091	326.904	326.404	326.404	326.404	326.904	327.706
CUT / FILL DEPTH	0.000	0.193	0.746	0.772	0.752	0.370	0.000
EXISTING LEVELS	327.091	327.097	327.150	327.176	327.157	327.274	327.706
OFFSET	-3.063	-2.502	-1.000	0.000	1.000	2.502	4.907

CH 650.000



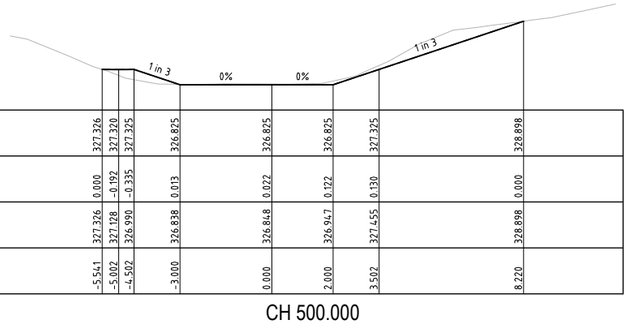
RL326.0									
DESIGN LEVELS	328.070	328.070	327.570	327.570	327.570	328.070	328.065	327.943	
CUT / FILL DEPTH	0.000	0.015	-0.029	0.053	0.040	-0.359	-0.477	0.000	
EXISTING LEVELS	328.070	328.055	327.541	327.623	327.610	327.711	327.843	327.943	
OFFSET	-6.130	-4.593		0.000	1.000	2.502	3.002	3.969	

CH 450.000



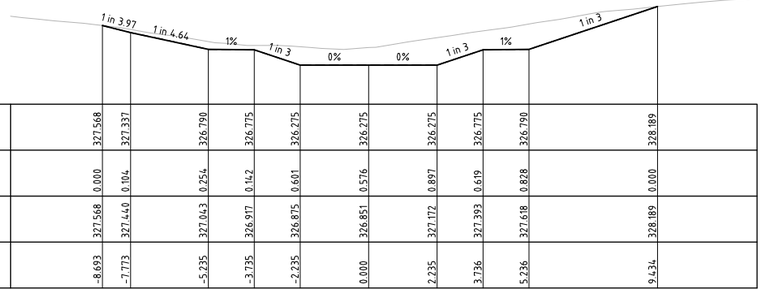
RL325.0							
DESIGN LEVELS	327.334	326.864	326.364	326.364	326.364	326.864	327.167
CUT / FILL DEPTH	0.000	0.255	0.522	0.455	0.495	0.147	0.000
EXISTING LEVELS	327.334	327.120	326.886	326.819	326.859	327.012	327.167
OFFSET	-3.912	-2.502	-1.000	0.000	1.000	2.502	3.410

CH 700.000



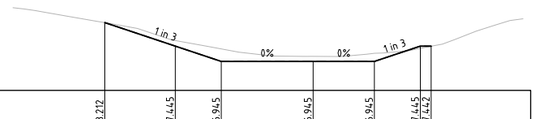
RL326.0									
DESIGN LEVELS	327.326	327.320	327.325	326.825	326.825	326.825	327.325	328.898	
CUT / FILL DEPTH	0.000	-0.192	-0.335	0.013	0.022	0.122	0.130	0.000	
EXISTING LEVELS	327.326	327.128	326.990	326.838	326.848	326.947	327.455	328.898	
OFFSET	-5.541	-5.002	-4.502	-3.000	0.000	2.000	3.502	8.220	

CH 500.000



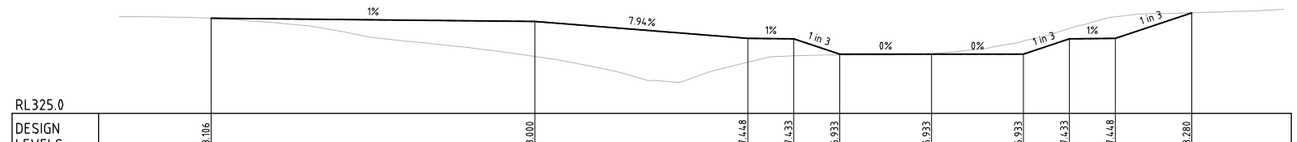
RL325.0										
DESIGN LEVELS	327.568	327.337	326.790	326.775	326.275	326.275	326.275	326.775	326.790	328.189
CUT / FILL DEPTH	0.000	0.104	0.254	0.142	0.601	0.576	0.897	0.619	0.828	0.000
EXISTING LEVELS	327.568	327.440	327.043	326.917	326.875	326.851	327.172	327.393	327.618	328.189
OFFSET	-8.693	-7.773	-5.235	-3.735	-2.235	0.000	2.235	3.736	5.236	9.434

CH 750.000



RL326.0							
DESIGN LEVELS	328.212	327.445	326.945	326.945	326.945	327.445	327.442
CUT / FILL DEPTH	0.000	0.182	0.409	0.165	0.266	-0.073	0.000
EXISTING LEVELS	328.212	327.626	327.353	327.110	327.210	327.371	327.442
OFFSET	-6.803	-4.502	-3.000	0.000	2.000	3.502	3.854

CH 550.000



RL325.0									
DESIGN LEVELS	328.106	328.000	327.448	327.433	326.933	326.933	326.933	327.433	327.448	328.280
CUT / FILL DEPTH	0.001	-1.144	-0.779	-0.554	-0.027	0.020	0.429	0.339	0.705	0.000
EXISTING LEVELS	328.106	326.856	326.669	326.879	326.906	326.953	327.362	327.772	328.153	328.280
OFFSET	-23.526	-12.951	-6.000	-4.500	-3.000	0.000	3.000	4.502	6.002	8.498

CH 800.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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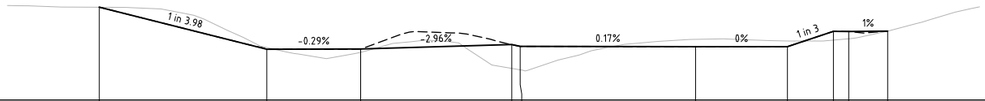
martens & Associates Pty Ltd
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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C610	C

DRAWING ID: P2510821-PS01-R03-C610

PRINTED: --- - USER: MAKSSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL325.0

DESIGN LEVELS	328.031	326.657	326.666	326.812	326.751	326.742	326.742	327.242	327.249
CUT / FILL DEPTH	-0.002	0.056	-0.108	-0.780	-0.766	0.238	0.185	-0.286	0.000
EXISTING LEVELS	328.028	326.713	326.557	326.032	325.986	326.980	326.927	326.956	327.249
OFFSET	-19.473	-14.001	-10.937	-6.001	-5.727	0.000	3.000	4.502	5.002	6.273

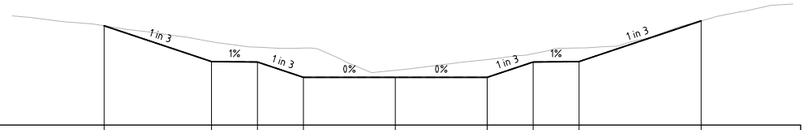
CH 850.000



RL324.0

DESIGN LEVELS	327.689	325.903	325.888	325.388	325.388	325.388	325.888	325.903	326.571
CUT / FILL DEPTH	0.000	1.566	1.309	1.422	0.728	0.962	0.833	0.838	0.000
EXISTING LEVELS	327.689	327.469	327.197	326.810	326.116	326.350	326.721	326.741	326.571
OFFSET	-11.360	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	8.007

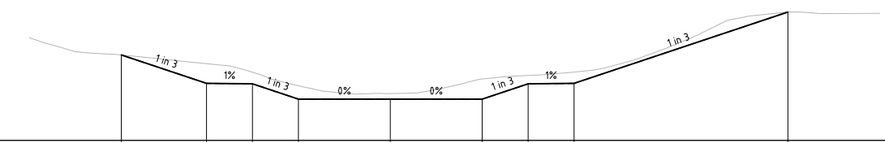
CH 900.000



RL324.0

DESIGN LEVELS	327.240	326.072	326.057	325.557	325.557	325.557	326.057	326.072	327.400
CUT / FILL DEPTH	0.000	0.649	0.485	0.955	0.230	0.579	0.272	0.445	0.000
EXISTING LEVELS	327.240	326.721	326.541	326.512	325.787	326.135	326.328	326.516	327.400
OFFSET	-9.508	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	9.987

CH 950.000



RL324.0

DESIGN LEVELS	326.788	325.861	325.846	325.346	325.346	325.346	325.846	325.861	328.189
CUT / FILL DEPTH	0.000	0.643	0.378	0.437	0.181	0.657	0.272	0.366	0.000
EXISTING LEVELS	326.788	326.504	326.225	325.783	325.527	326.003	326.118	326.227	328.189
OFFSET	-8.783	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	12.984

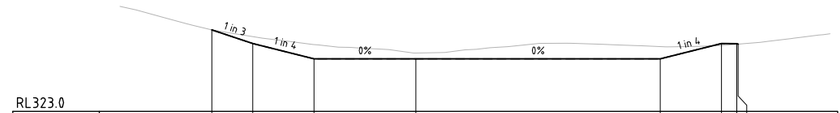
CH 1000.000



RL324.0

DESIGN LEVELS	325.842	325.636	325.136	325.136	325.136	325.636	325.778
CUT / FILL DEPTH	0.000	0.170	0.589	0.464	0.580	0.128	0.000
EXISTING LEVELS	325.842	325.805	325.725	325.600	325.715	325.764	325.778
OFFSET	-5.224	-4.605	-3.103	0.000	3.361	4.862	5.288

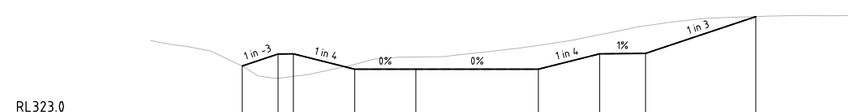
CH 1050.000



RL323.0

DESIGN LEVELS	325.659	325.214	324.714	324.714	324.714	325.214	325.209	325.194
CUT / FILL DEPTH	0.000	0.225	0.465	0.190	0.399	-0.059	-0.019	0.000
EXISTING LEVELS	325.659	325.439	325.179	324.904	325.114	325.155	325.190	325.194
OFFSET	-6.663	-5.327	-3.327	0.000	7.980	9.980	10.480	10.524

CH 1150.000



RL323.0

DESIGN LEVELS	324.607	324.997	325.002	324.502	324.502	324.502	325.002	325.017	326.217
CUT / FILL DEPTH	0.000	-0.789	-0.733	0.155	0.398	0.775	0.625	0.901	0.000
EXISTING LEVELS	324.607	324.208	324.270	324.657	324.901	325.277	325.627	325.918	326.217
OFFSET	-5.669	-4.500	-4.000	-2.000	0.000	4.000	6.000	7.500	11.100

CH 1200.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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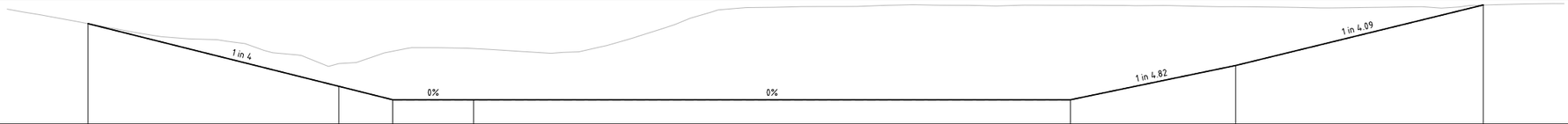
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C611	B

DRAWING ID: P2510821-PS01-R03-C611

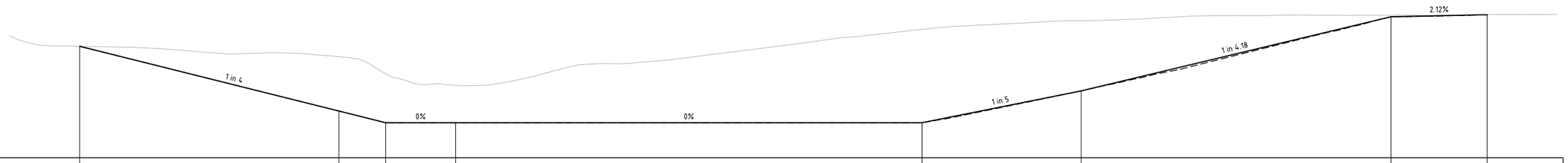
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



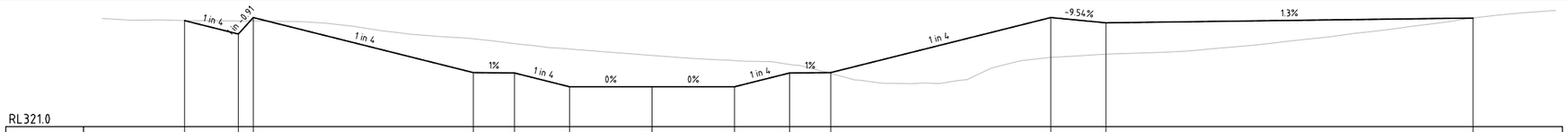
RL322.0

| | | |



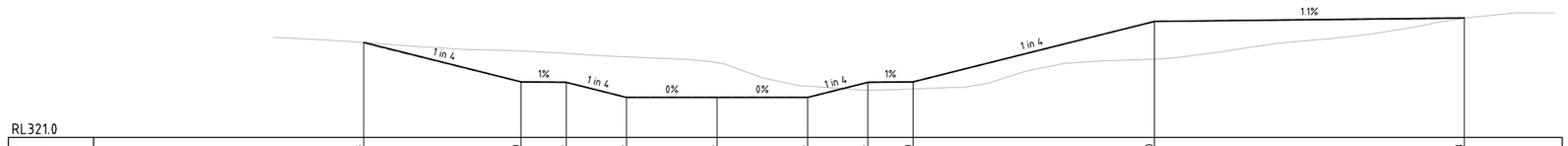
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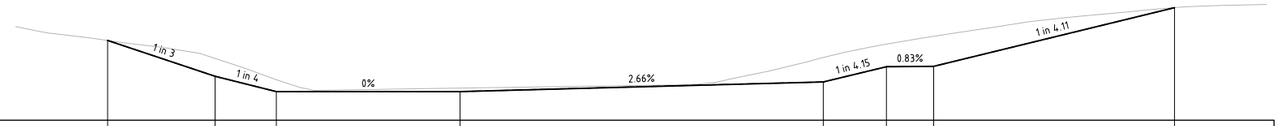
RL321.0														
DESIGN LEVELS	324.854	324.366	324.964	322.964	322.949	322.449	322.449	322.449	322.949	322.964	324.964	324.773	324.947	
CUT / FILL DEPTH	0.000	0.478	-0.125	1.229	1.068	1.372	1.138	0.951	0.310	-0.031	-1.447	-1.138	0.004	
EXISTING LEVELS	324.855	324.844	324.839	324.193	324.018	323.822	323.588	323.401	323.259	322.933	323.518	323.635	324.950	
OFFSET	-16.998	-15.042	-14.500	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	14.500	16.506	29.855	

CH 1850.000



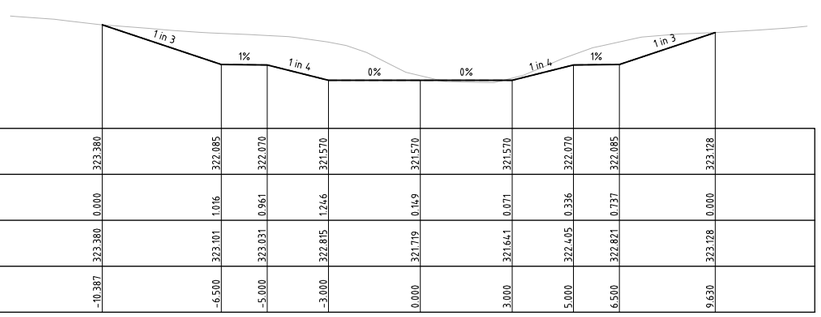
RL321.0										
DESIGN LEVELS	324.143	322.840	322.825	322.325	322.325	322.325	322.825	322.840	324.840	324.953
CUT / FILL DEPTH	0.000	1.018	0.956	1.341	1.148	0.371	-0.257	-0.237	-1.245	-0.009
EXISTING LEVELS	324.143	323.858	323.781	323.666	323.472	322.696	322.567	322.603	323.594	324.945
OFFSET	-11.713	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	14.500	24.773

CH 1900.000



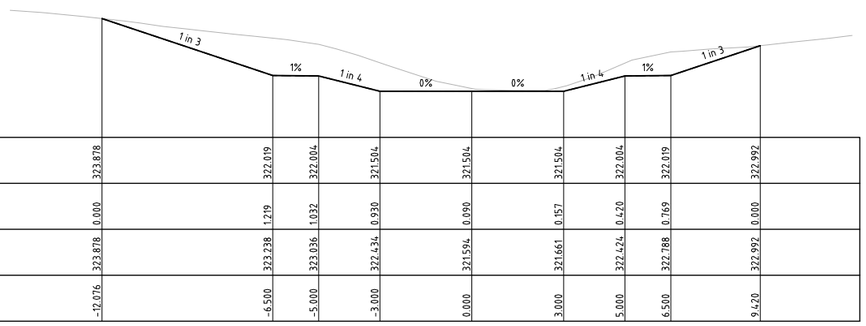
RL321.0										
DESIGN LEVELS	323.693	322.433	321.933	321.933	322.248	322.745	322.758	324.673		
CUT / FILL DEPTH	0.000	0.581	0.387	0.114	0.799	0.739	0.980	0.001		
EXISTING LEVELS	323.693	323.015	322.320	322.048	323.047	323.484	323.738	324.674		
OFFSET	-11.569	-8.000	-6.000	0.000	11.861	13.923	15.466	23.331		

CH 1950.000



RL320.0									
DESIGN LEVELS	323.380	322.085	322.070	321.570	321.570	321.570	322.070	322.085	323.128
CUT / FILL DEPTH	0.000	1.016	0.961	1.246	0.149	0.071	0.336	0.737	0.000
EXISTING LEVELS	323.380	323.101	323.031	322.815	321.719	321.641	322.405	322.821	323.128
OFFSET	-10.387	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.630

CH 2000.000



RL320.0									
DESIGN LEVELS	323.878	322.019	322.004	321.504	321.504	321.504	322.004	322.019	322.992
CUT / FILL DEPTH	0.000	1.219	1.032	0.930	0.090	0.157	0.420	0.769	0.000
EXISTING LEVELS	323.878	323.238	323.036	322.434	321.594	321.661	322.424	322.788	322.992
OFFSET	-12.076	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.420

CH 2023.275

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) METRES

GRID: ---
DATUM: mAHD
PROJECT MANAGER: JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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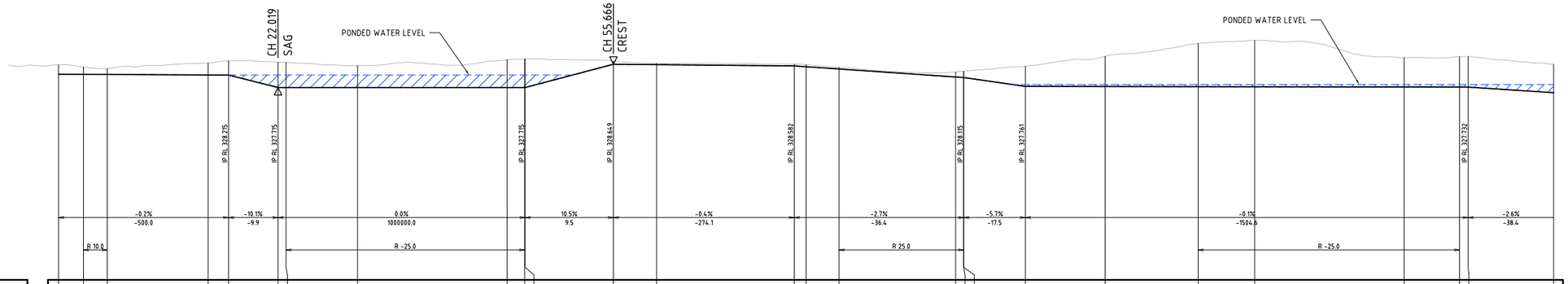
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C614	B

DRAWING ID: P2510821-PS01-R03-C614

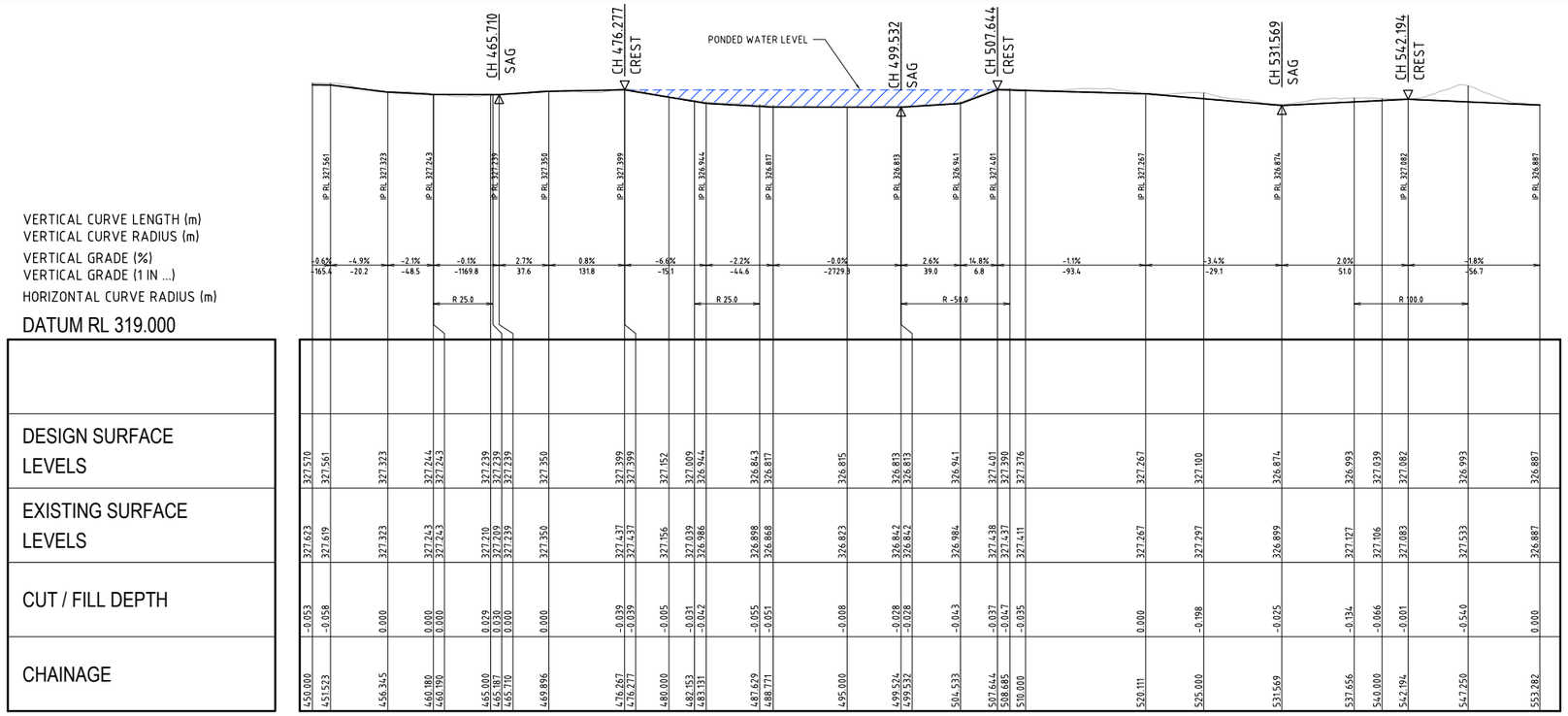
PRINTED: --- - USER: MMASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

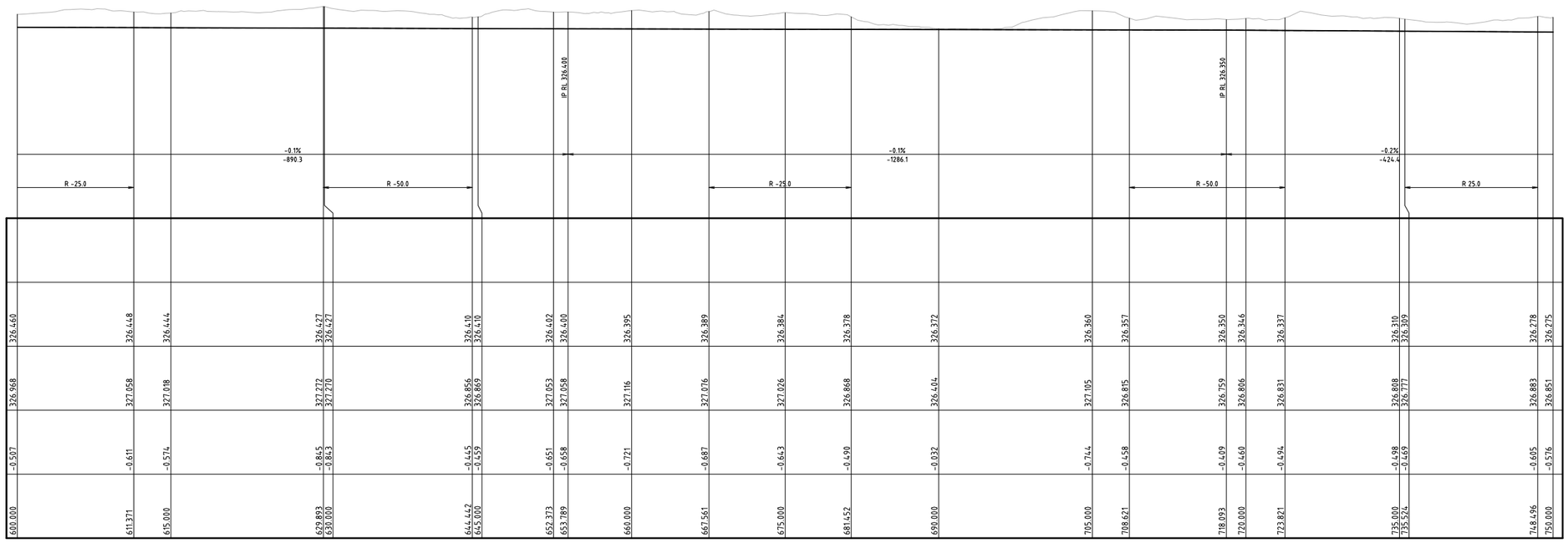
DATUM RL 320.000

| | | |



CREEK CHANNEL LONG. SECTION (CH 450 - CH 553.282)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 600 - CH 750)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) 0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID: ---
DATUM: mAHD
PROJECT MANAGER: JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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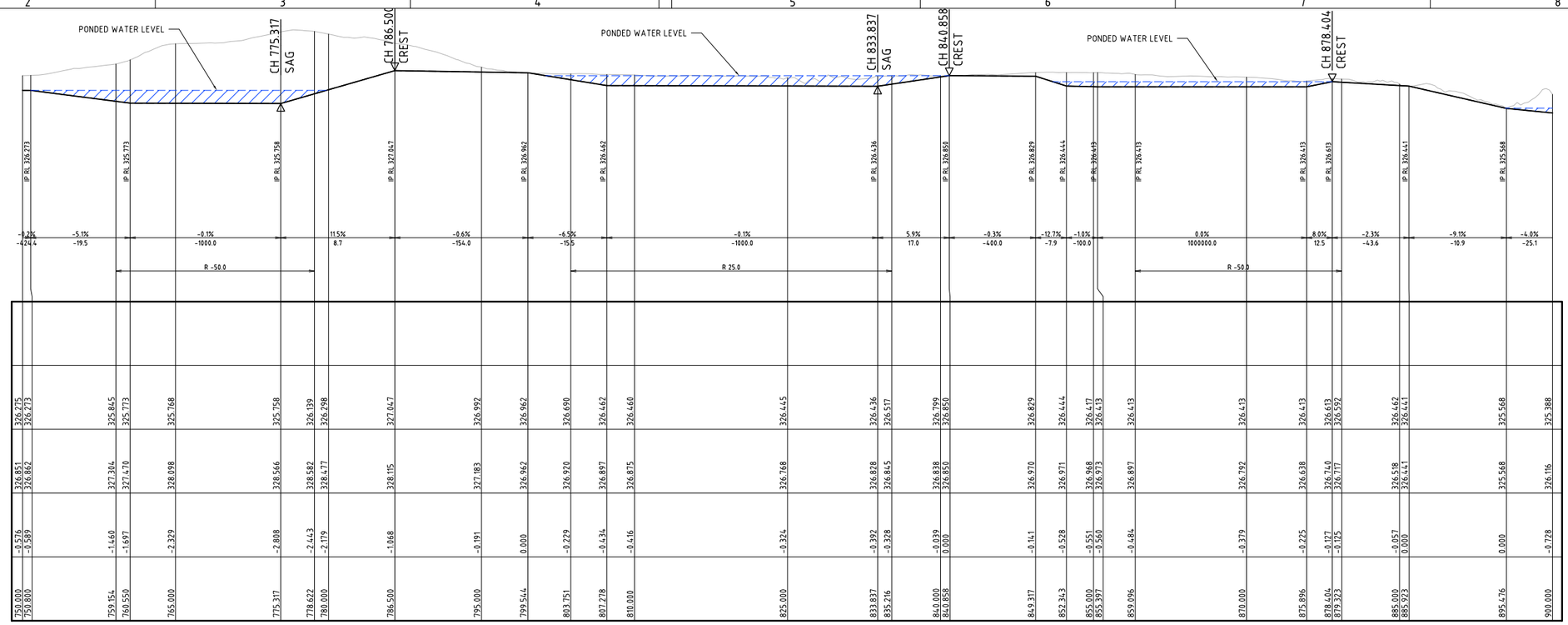
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 8

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C661	B

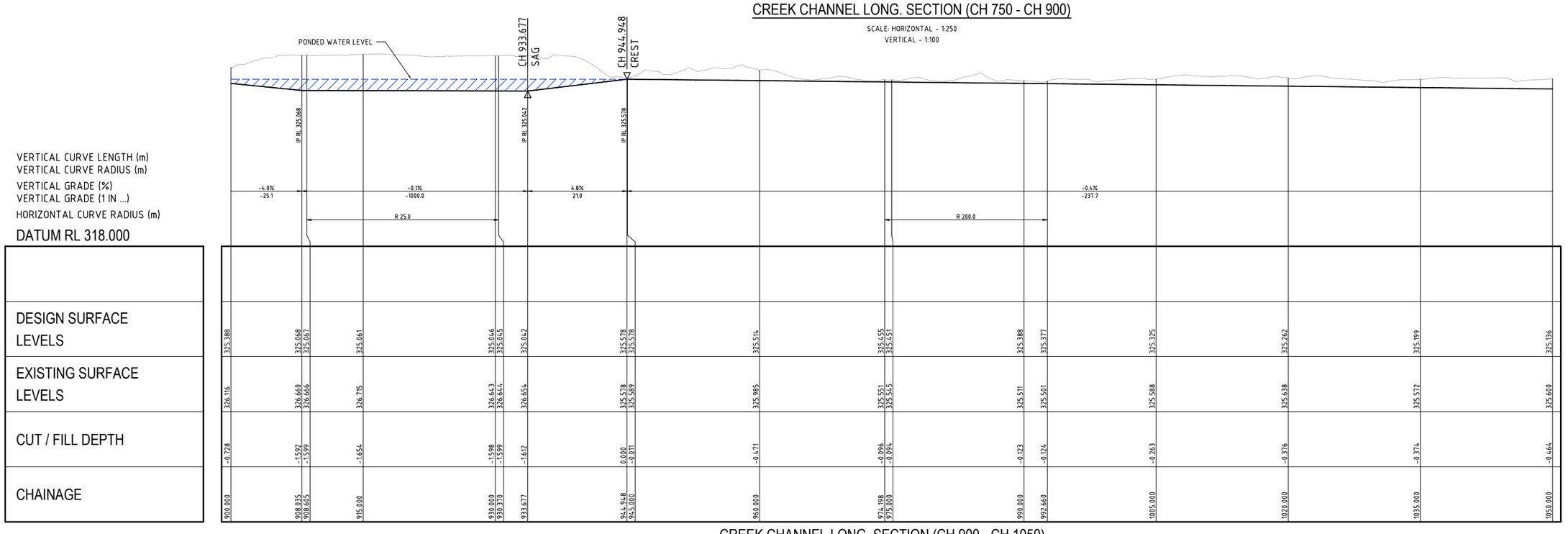
DRAWING ID: P2510821-PS01-R03-C661

PRINTED: ---- - USER: MHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 750 - CH 900)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 900 - CH 1050)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) 0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

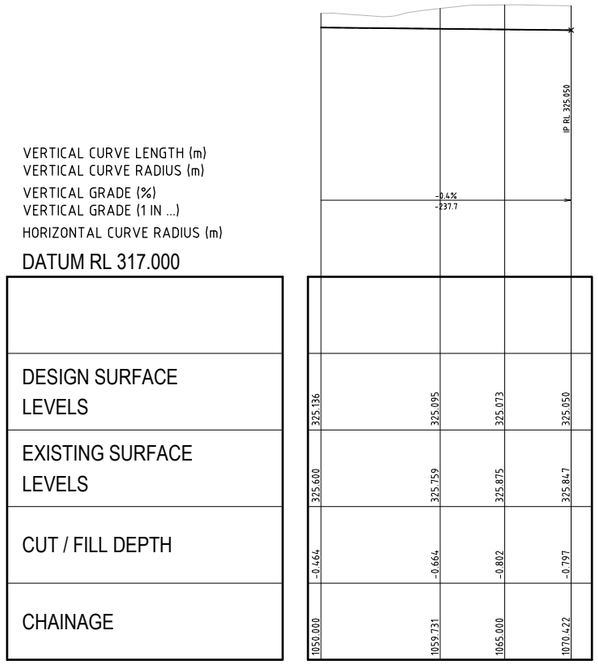
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 9

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C662	B

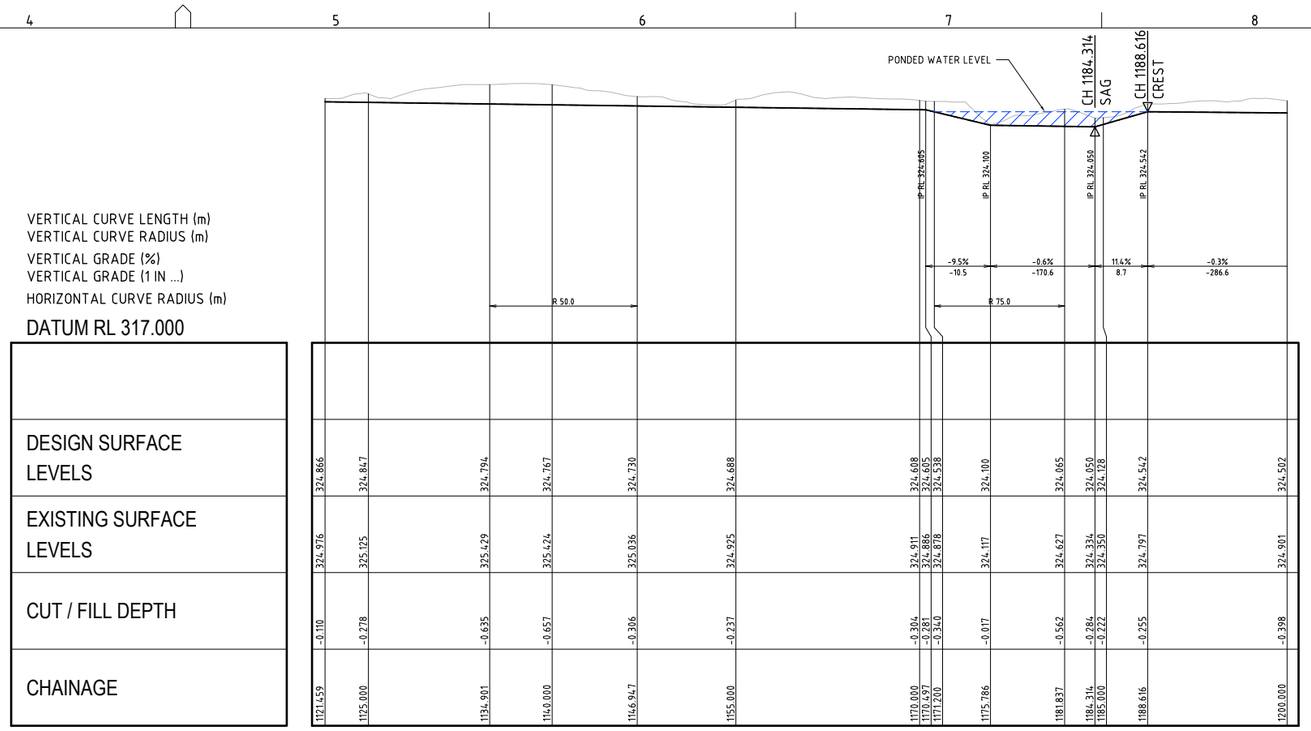
DRAWING ID: P2510821-PS01-R03-C662

PRINTED: ---- - USER: MWASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



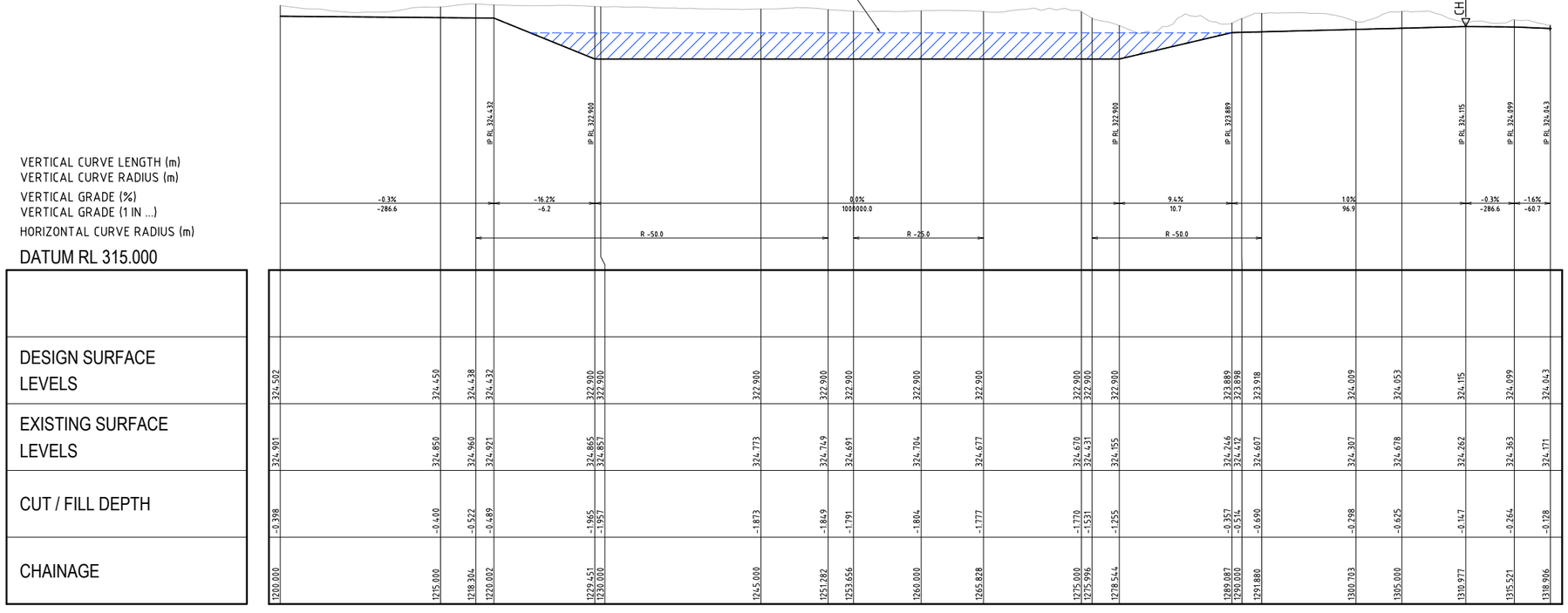
CREEK CHANNEL LONG. SECTION (CH 1050 - CH 1070.422)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1121.459 - CH 1200)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1200 - CH 1318.906)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

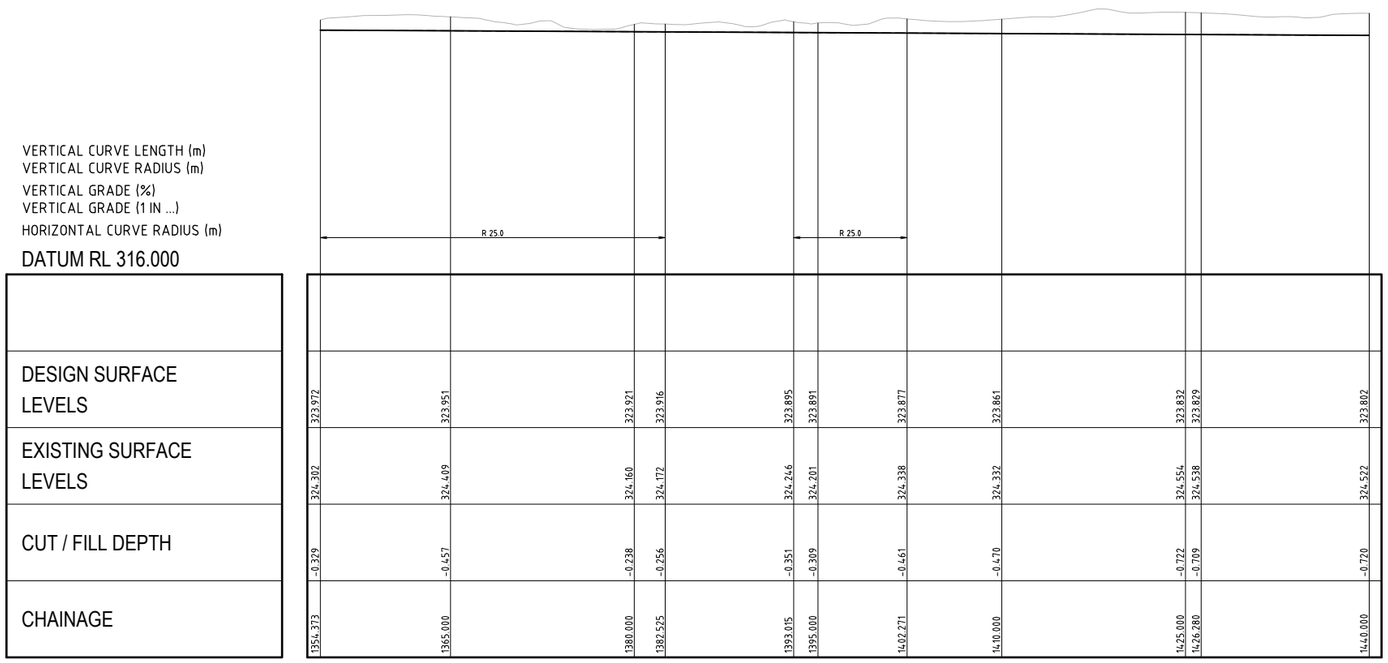
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 10

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C663	B

DRAWING ID: P2510821-PS01-R03-C663

PRINTED: --- - USER: MHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



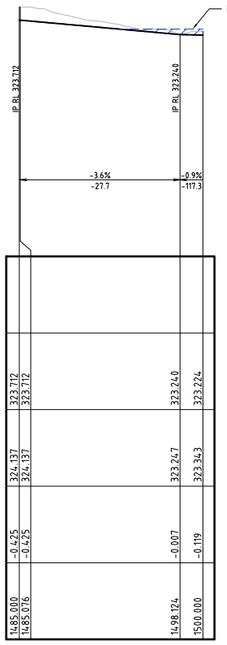
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 316.000

DESIGN SURFACE LEVELS	323.972	323.951	323.921	323.916	323.895	323.891	323.877	323.861	323.832	323.829	323.802
EXISTING SURFACE LEVELS	324.302	324.409	324.160	324.172	324.246	324.201	324.338	324.332	324.554	324.538	324.522
CUT / FILL DEPTH	-0.329	-0.457	-0.238	-0.256	-0.351	-0.309	-0.461	-0.470	-0.722	-0.709	-0.720
CHAINAGE	1354.373	1365.000	1380.000	1382.525	1393.015	1395.000	1402.271	1410.000	1425.000	1426.280	1440.000

CREEK CHANNEL LONG. SECTION (CH 1354.373 - CH 1440)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



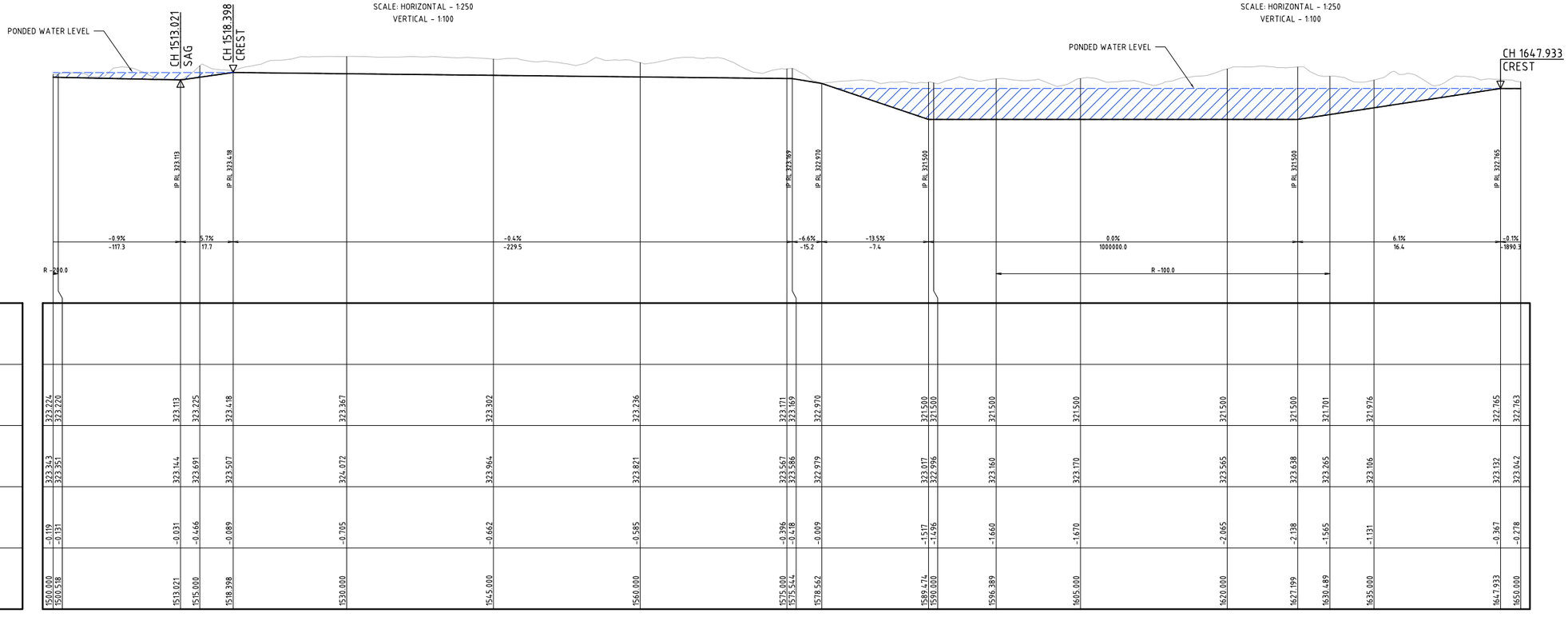
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 316.000

DESIGN SURFACE LEVELS	323.212	323.212	323.240	323.224
EXISTING SURFACE LEVELS	324.137	324.137	323.247	323.343
CUT / FILL DEPTH	-0.425	-0.425	-0.007	-0.119
CHAINAGE	1485.000	1485.076	1498.174	1500.000

CREEK CHANNEL LONG. SECTION (CH 1485 - CH 1500)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 314.000

DESIGN SURFACE LEVELS	323.224	323.220	323.113	323.225	323.418	323.367	323.302	323.236	323.171	323.169	322.970	321.500	321.500	321.500	321.500	321.500	321.500	321.500	321.701	321.976	322.765	322.763
EXISTING SURFACE LEVELS	323.343	323.351	323.144	323.691	323.507	324.072	323.964	323.821	323.567	323.586	322.979	323.017	322.996	323.160	323.170	323.565	323.638	323.265	323.106	323.132	323.042
CUT / FILL DEPTH	-0.119	-0.131	-0.031	-0.466	-0.089	-0.705	-0.662	-0.585	-0.396	-0.418	-0.009	-1.517	-1.496	-1.660	-1.670	-2.065	-2.138	-1.565	-1.131	-0.367	-0.278
CHAINAGE	1500.000	1500.518	1513.021	1515.000	1518.398	1530.000	1545.000	1560.000	1575.000	1575.544	1578.562	1589.474	1590.000	1596.389	1605.000	1620.000	1627.199	1630.489	1635.000	1647.933	1650.000

CREEK CHANNEL LONG. SECTION (CH 1500 - CH 1650)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

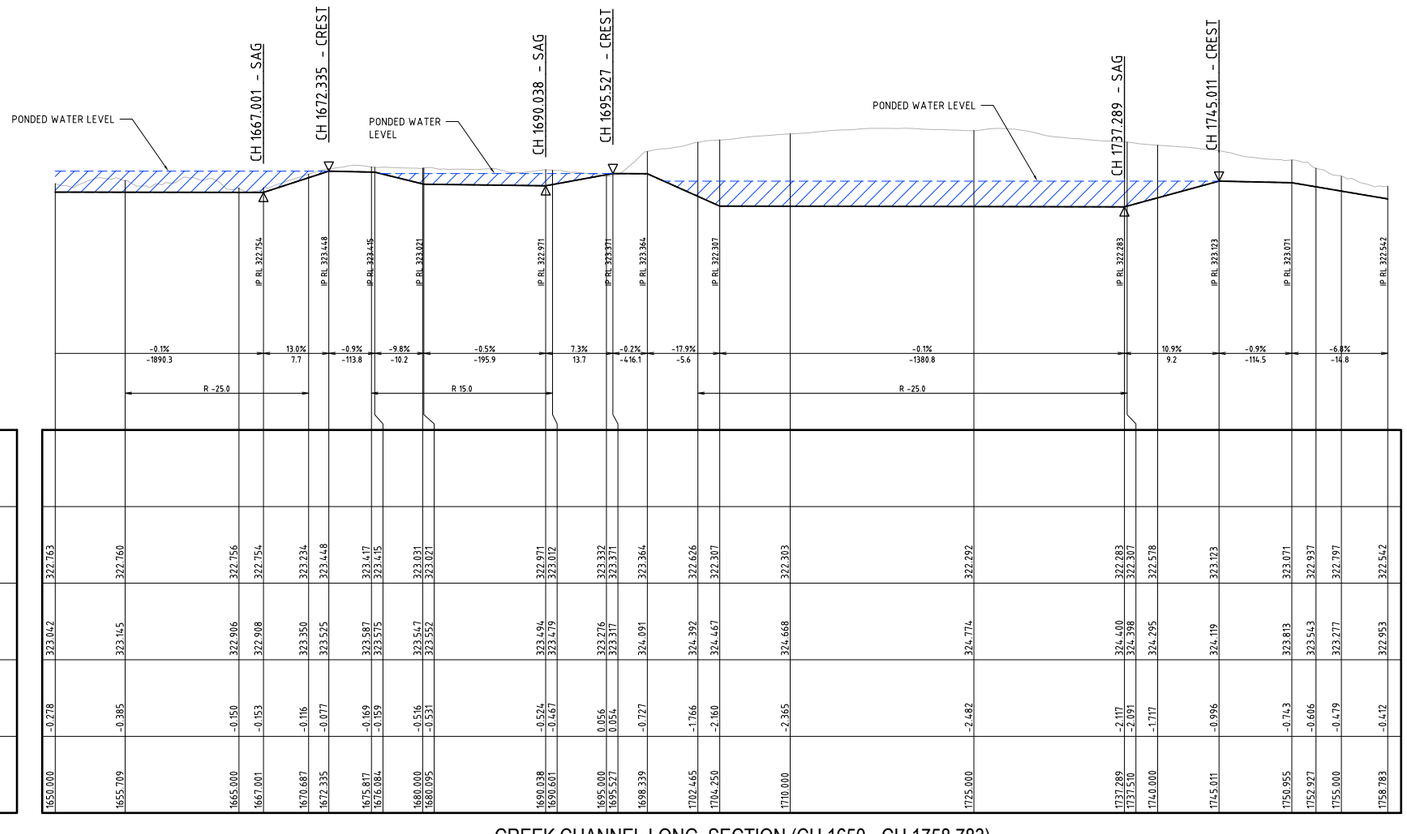
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 11

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C664	B

DRAWING ID: P2510821-PS01-R03-C664

PRINTED: ---- - USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 1650 - CH 1758.783)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

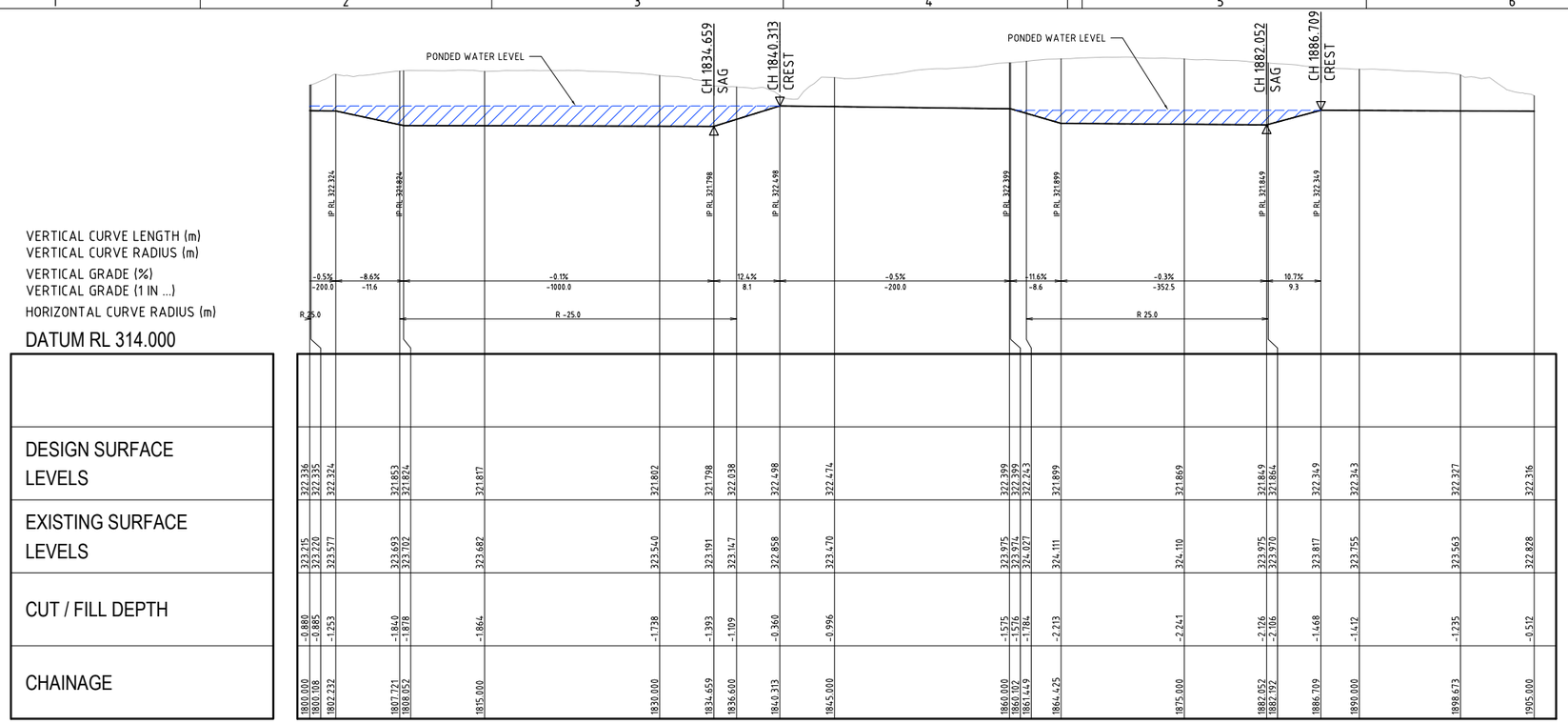
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 12

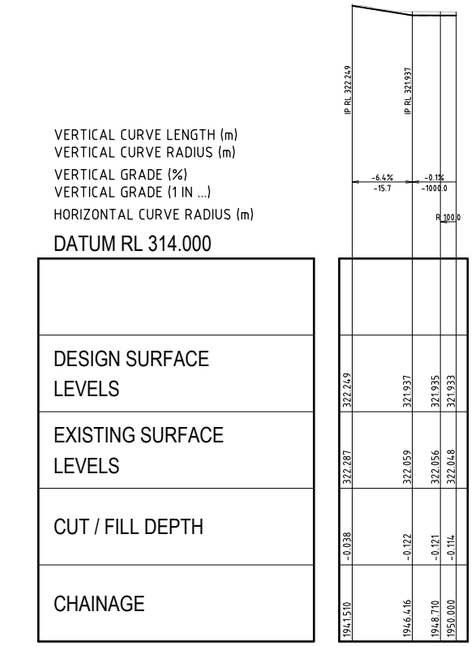
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C665	B

DRAWING ID: P2510821-PS01-R03-C665

PRINTED ---- USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



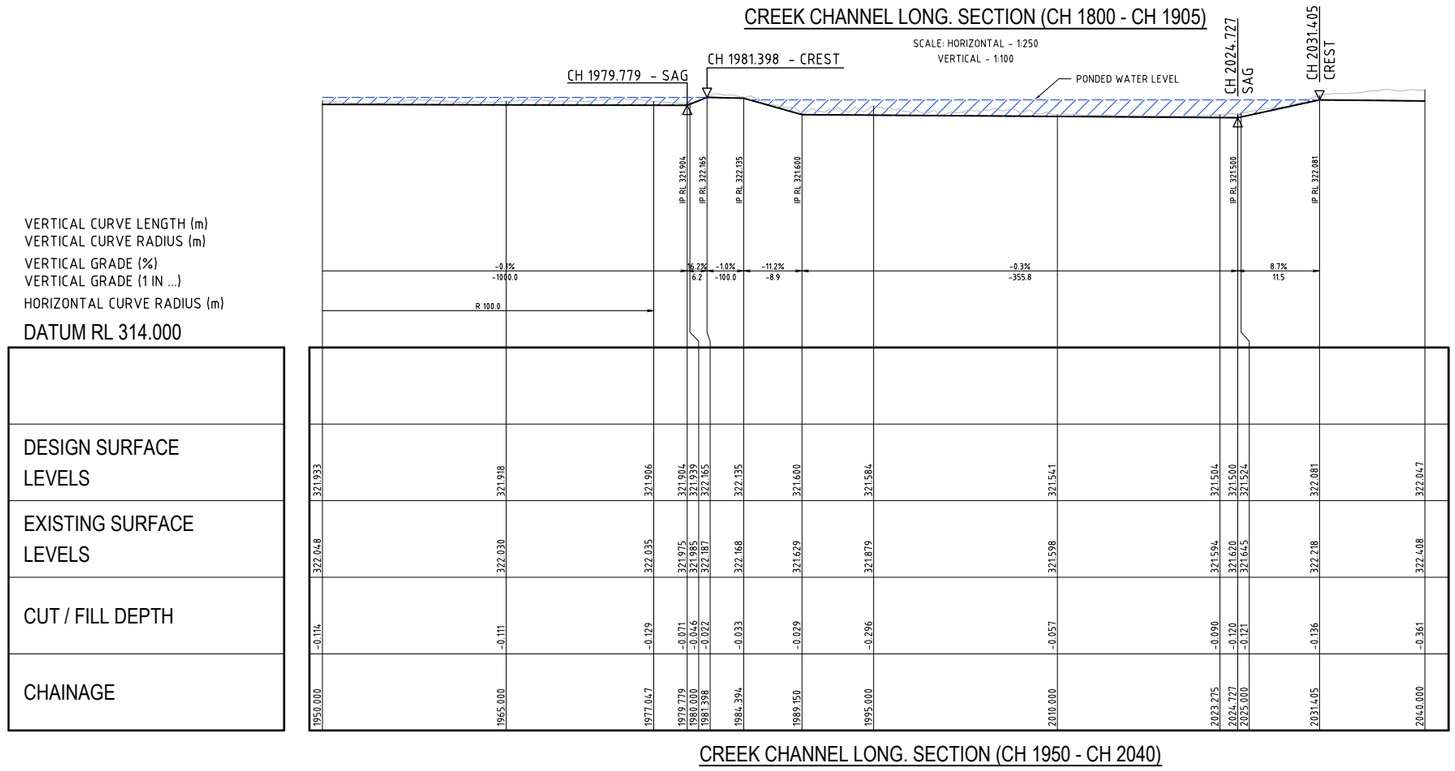
CREEK CHANNEL LONG. SECTION (CH 1800 - CH 1905)



CREEK CHANNEL LONG. SECTION (CH 1941.510 - CH 1950)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1950 - CH 2040)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 13

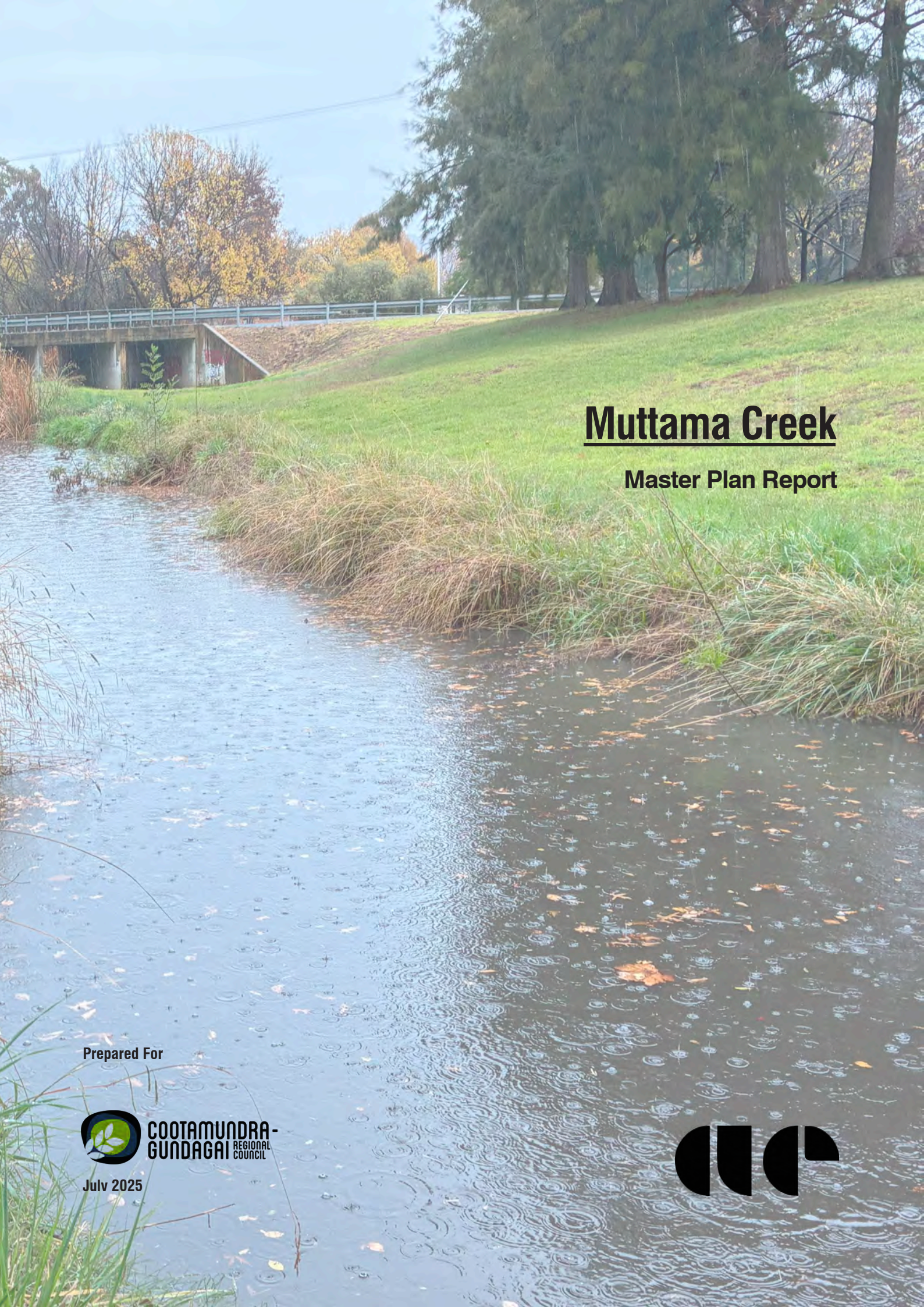
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C666	B

DRAWING ID: P2510821-PS01-R03-C666

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Appendix D

Master Plan Report



Muttama Creek

Master Plan Report

Prepared For

COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL

July 2025

1.0 Introduction

The Master Plan for Muttama Creek (the Creek) in Cootamundra, Wiradjuri country, has been prepared in conjunction with proposed flood mitigation works and preliminary community consultation by Martens and Associates and ecological assessment by Land Eco Consulting for the Cootamundra Gundagai Regional Council (CGRC).

The Master Plan will

- provide a framework to revitalise the riparian corridor,
- integrate flood mitigation, and
- create a sustainable open space ecological network within the town centre of Cootamundra.

The study area is limited to a 2km length from Adams Street to Lloyd Conkey Avenue as shown in Figure 1 below.



Figure 1 Study Area

2.0 Context

Muttama Creek, a major tributary of the Murrumbidgee River system traverses the town centre of Cootamundra. Aboriginal for swamp and turtles, the town has long experienced localised flooding and inundation of properties along the riparian corridor.

Rivers and creeks are an inherent part of many regional town centres and contribute to the identity and vitality of the place. The revitalisation of Muttama Creek provides an opportunity to reduce the impact of flooding, contribute to the well-being of the town centre and its residents, enhance its sense of place, acknowledge the Traditional Owners and their continued connection to country and attract tourism to Cootamundra.

The Master Plan is consistent with key focus areas in the Cootamundra-Gundagai Community Strategic Plan which includes:

1. A Vibrant, Safe and Inclusive Community
2. A Region for the Future
3. A Protected and Enhanced Environment

3.0 Precincts

There are four distinct character precincts along the 2km length of Muttama Creek within the Master Plan.

- Bradman Precinct
- Sport and Recreation Precinct
- Town Centre Precinct
- Local Community Precinct



3.1
Bradman Precinct



1. Existing creek line
2. Potential gateway
3. Low level tree canopy
4. Bradman's Birthplace Museum
5. Potential walking trail + signage
6. Historic creek line
7. Pedestrian crossing below road
8. Land on private ownership
9. Potential green link to Sports and Recreation Precinct

Bradman Precinct

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3.1 Bradman Precinct

This precinct comprises two blocks commencing at Adams Street through to Cutler Avenue and extends south to Poole Street.



3.11 The Place

The precinct comprises two key important places:
•The oval, named after Sir Donald Bradman; and
•Bradman's Birthplace Museum, which is a Local Heritage Item and tourist attraction.

The oval has no definition and minimal surrounding tree canopy and there is no signage to Bradman's Birthplace nor any reference to Bradman other than the name of the oval.

Characterised by the cricket oval, the Bradman precinct contains, cricket nets, public amenities, pathways and play equipment with residential dwellings to the east of the creek. These properties have been severely affected by flooding and the riparian corridor is barely discernible, appearing as a grassed swale along the edge of the oval.

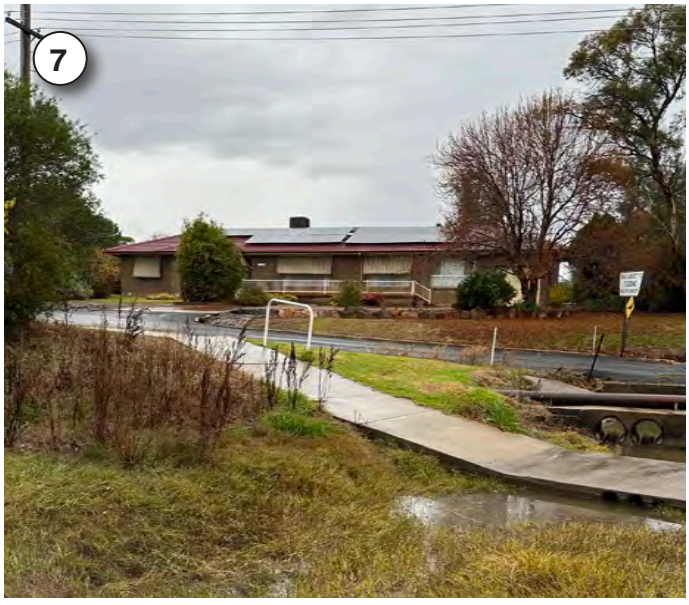


The original alignment of the creek was located to west of the current crossing on Adams Street, in the centre of Bradman Oval.

Flood mitigation works only are proposed for the block between Cutler Avenue and Poole Street.

3.12 Opportunities

Bradman's Birthplace Museum is a tourist attraction within walking distance of the creek. It presents an opportunity to integrate with the Creek and develop a walking trail and signage along Cutler Avenue and Adams Street to and from this tourist attraction.



There is an opportunity to define the oval with a traditional fence in honour of Sir Donald Bradman and integrate it with the revitalised creek.

Additional trees surrounding the oval and along the Creek will provide shade and improve the aesthetic quality of the riparian corridor.

The proposed flood mitigation provides an opportunity to both revitalise the waterway and increase the trees and plantings alongside the Creek to visually reinforce and link it to the town centre, and also increase the tree canopy surrounding the oval and integrate it into the revitalised waterway.

The current pedestrian crossing at Cutler Avenue is not disabled accessible and below the level of the road. There is an opportunity to provide a level crossing to the oval and improve the flow of water. The flood mitigation work creates a wider deeper waterway and may necessitate an additional Creek crossing to improve pedestrian access to Bradman Oval from the town centre to the east.

The section of creek to the south of Bradman Oval is in private ownership and does not permit a continuous walk along the waterway.

There is an opportunity however to connect this precinct with the Sport and Recreation Precinct from Cutler Avenue to Crown Street and Nicholson Park along the right of way or along a right of way on land in private ownership.

The revitalisation provides an opportunity to reduce the impact of flooding with mitigation work which widens and deepens the Creek as well as create a gateway to Muttama Creek at Adams Road.

In this precinct there is the potential to acknowledge its historic alignment in swampland as well as its cultural significance to the Wiradjuri Traditional Owners of the land.

3.2
Sport and Recreation Precinct



8 Land in private ownership

10 Passive recreation areas

11 Enhance visual connection and integration

12 Existing chain link fence

13 Opportunity for investment in unused buildings

14 Lack of vehicular crossing

Sport and Recreation Precinct

0 20 50 100m

1:2,000 @ A3

3.2 Sport and Recreation Precinct

This precinct comprises two blocks, commencing at Poole Street and extends alongside Clarke Oval to the John Rees Bridge and Wallellendoon Street. It is surrounded by Nicholson Park and Fisher Park to the north, residential to the north west, Jubilee Park to the south west and the town centre to the east.

3.21 The place

The upper section of the Creek, either side of Poole Street is in private ownership and includes a pedestrian bridge as the road has a very steep incline and is subject to inundation.

The waterway adjacent to private property on the Onley Street side of the block is currently not easily accessible due largely to the topography. A pedestrian bridge provides access over the Creek at Onley Street as there is no vehicular access.

The character of this large open space precinct is dominated with active recreation uses such as Clark Oval, Nicholson Park, Fisher Park and the sports stadium as well as the Cootamundra Pool.

There is a skateboard park and outdoor fitness equipment and the passive recreation area in the George Vesperman Park. These spaces currently provide disparate recreation uses for several different user groups.

There are no continuous paths along the creek and the tree canopy is relatively low.

The existing remnant chain-link fence around the oval is unnecessary and visually obtrusive.

The existing waterway is very narrow in parts and does not positively contribute to the aesthetic quality of the precinct. The realignment of the Creek occurred around Clarke oval.

3.22 Opportunities

The existing topography and vegetation in the Poole Street block presents an opportunity to improve this section of creek for flood mitigation and ecological purposes, limiting public access.







There is an opportunity to enhance the visual connection of the creek to the surrounding ovals and better integrate the revitalised creek as a passive recreation space and as a destination.

The proposed flood mitigation works would provide a wider waterway with deeper sections for ponds within the corridor which will also improve the ecology of the Creek and reinforce the presence of the riparian corridor during times of limited rainfall.

The revitalisation of the creek provides an opportunity to define Clarke Oval with new fencing and provide a nature playground as a concurrent activity.

There is an opportunity to provide a new creek crossing and paths in this precinct to connect to the town centre precinct.

A revitalised waterway may also provide opportunities for investment in the existing disused buildings along Murray Street.

3.3
Town Centre Precinct



3 Low level tree canopy

15 New feature pond

16 Access to main streets of the town centre

17 Community destinations

18 Dense and overgrown Cumbungi along the creek

19 Potential pedestrian crossing

20 Opportunity to formalise under utilised spaces to encourage activities

21 Restricted pedestrian access to open space

Town Centre Precinct

0 20 50 100m

1:2,000 @ A3

3.3 Town Centre Precinct

The town centre precinct comprises two blocks commencing at John Rees Bridge, Wallendoon Street and extends under the Stratton Bridge to Mackay Street.

3.31 The Place

It is characterised by its proximity to the main street of the town, with access from Parker Street and Wallendoon Street. It is bounded by the Ex-Servicemen and Citizens Memorial Club to the north, the Scout Hall to the south and the caravan park to the west.

The topography in the section at the rear of the Ex-Servicemen and Citizens Memorial Club is quite steep, and the existing concrete path is located along its boundary. There appears to be an informal track along the edge of the creek indicating pedestrian use. There is no pedestrian crossing other than the pedestrian bridge along Wallendoon Street and there is no seating or picnic tables.

The tree canopy is also relatively low and the cumbungi within the Creek in this section is particularly dense. It should be noted that at the time of writing this report Council recently cleared the cumbungi and undertook minor desilting works either side of the bridge, consistent with the permit from Fisheries NSW.

There is a footbridge on the western side of Stratton Bridge and a fence which prohibits access to the open space adjacent to the Scout Hall with access limited to the northern side.

The southern section of the creek extends under Stratton bridge and the existing accessible pedestrian route is via the driveway of the Ex-Servicemen and Citizens Memorial Club.

The section of Creek on the other side of Stratton Bridge is linked by a footpath from the town centre, however the ramp is located opposite the driveway to the Ex-Servicemen and Citizens Memorial Club and is not easily accessible. There is no continuous footpath from the town centre to the creek on the eastern side as it terminates at the Court House.







The recent addition of a concrete path and additional trees have improved the scenic quality of the open space in this section, and it presents as an attractive location however there are no tables and seating.

There is a small informal car park along Parker Street with direct access to the open space however there are no tables or seats.

3.32 Opportunities

In this precinct there are several opportunities to visually link the Creek to the town and enhance it as a destination within Cootamundra, improve safe access and enhance opportunities for passive activities such as having lunch and enjoying the local environment.

The flood mitigation proposes a new pond on the western side of Parker Street which would be the feature of this precinct and ensure water is retained, similar to the existing ponds to the north and south. It would both enhance the aesthetic of the environment and provide habitat opportunities. The existing tree canopy is relatively low and additional trees with the new pond would provide a shady cool location close to the town centre to mitigate urban heat in the summer months.

Jubilee Park and the Captain's Walk tourist attraction are proximate to the creek in this precinct. An opportunity to enhance the connection with signage and street tree planting would encourage movement between the spaces; footpaths along the creek to John Rees Bridge and along Wallendoon Street

The informal carpark on Parker Street provides an opportunity to encourage visitation and include a nature playground.

Improved access across Parker Street at the Stratton bridge, such as a raised pedestrian crossing would assist to link the open space .

3.4
Local Community Precinct



3 Low level tree canopy

10 Passive recreation areas

22 Cootamundra Bird Walk and Sculptures

23 Historic Nurses Home Bridge

24 Opportunity for interpretive signage

25 Relocation of the fence

26 Pedestrian bridge

27 Olympic Highway visitation into the town

28 Access to the creek from the laneway

29 Potential for a community garden

30 Potential ecological preservation

Local Community Precinct

0 20 50 100m

1:2,000 @ A3

3.4 Local Community Precinct

This precinct comprises four blocks and extends from Mackay Street to the Railway line and Lloyd Conkey Avenue .

3.41 The Place

The four blocks within the precinct are characterised by large open areas with the central riparian corridor. The existing tree canopy is relatively low, however the significant work from the local Muttama Creek Regeneration Group is clearly visible. The cumbungi within the Creek in this precinct is quite dense in some sections and this may contribute to flooding issues.

The block between Parker Street and Thompson Street, commencing at the Simpson Bridge on Mackay Street contains a pathway, seating and picnic tables on the eastern side. It is surrounded by the dog park, the historic district hospital and the CGRC Youth Club. There is some interpretive signage and some recent plantings by the Muttama Creek Regeneration Group. The Bird Walk and sculptures on the eastern side of the creek are to be retained and relocated as required to accommodate the revitalised creek corridor.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities, picnic tables and seats.

3.42 Opportunities

An opportunity to acknowledge the Traditional Owners in this precinct with interpretive signage describing the historic Aboriginal cultural significance of the Creek as a travel route to







ceremony with Wiradjuri language used to describe the local flora and fauna.

A new large pond is proposed to assist with flood mitigation and provides an opportunity to create a water feature in this precinct and re establish the historic Nurses' Home Bridge which would overlook the new pond. The proposed batters also provide the potential for additional appropriate riparian plant species and rocks which also provide informal seating.

The proposed flood mitigation works and the addition of a new bend in the creek will impact part of the existing dog park and require the relocation of the fence.

The creek revitalisation provides the potential to increase the tree canopy cover which creates additional ecological habitat and shade and assists with flood and heat mitigation.

The elevated pedestrian crossing on the northern side of Thompson Street would be retained to ensure safe access with pedestrian crossings across Thompson and Sutton Streets.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street. The revitalisation of the creek along Olympic Highway has the potential to attract visitation into the town; an attractive open space with walking trails. Additional signage illustrating the creek and direction into town.

This section of the waterway is also accessible through the mid-block laneways which provides an opportunity to formalise access from the laneway to paths along either side of the revitalised waterway.

The lack of existing distinct uses provides the opportunity to create a small community garden on the western side along the Hurley Street and the mid-block laneway improves connection to the residential areas. The community garden could also include native and local bush foods.

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities and picnic tables

4.0 Community Engagement

A letter was prepared informing the community of the proposed masterplan and included a request for early feedback on what should be considered in the masterplan process. A page on Council's website was created informing the community of the early feedback phase (which included a link to the letter) and also indicated that residents were to receive a mailout and details on how to make comment/submission. The early consultation period was between 6 May and 21 May 2025.

Based on the feedback received, the following particular areas were identified (we note this is a summary and not an exhaustive list):

• Flooding – generally, flood mitigation works appeared to be the most important aspect of the masterplan. There were also concerns with rising insurance premiums.
• Creek management / maintenance – comments received indicated that debris (shopping trolleys, waste etc.), in-stream vegetation and silt accumulation exacerbates flooding and needs to be removed, and the creek should be managed on an ongoing basis by Council to manage weed regrowth and buildup of debris.
• Ecology – retaining and improving ecological characteristics of the creek should be undertaken but flood mitigation works should be prioritised.
• Alternative proposals – ideas such as a levee bank along McGowan Street and including land north of Adams Street were suggested. Consideration of alternative proposals is to be included in the future Review of Environmental Factors (REF).
• Public recreation and enjoyment – the masterplan should incorporate improvements such as new footpaths, enhancement of current walking trails a community garden, signage etc.
• Aboriginal cultural significance – the masterplan should include aspects to incorporate local Aboriginal cultural significance and history. These include Wiradjuri signs that relate to the landscape e.g. native vegetation and local wildlife.

5.0 Master Plan

5.1 Objectives

• Ensure the impact of flooding is reduced to the surrounding properties

• Establish new recreation opportunities to accommodate all users

• Revitalise and enhance the ecology and biodiversity of the Creek

• Provide new habitat opportunities along the Creek

• Connect the open space creek corridor to the surrounding streets and parks

• Improve the access to the Creek to ensure all users are accommodated

• Encourage the protection and biodiversity of the riparian corridor

• Acknowledge the Traditional Owners of the land and ensure the Aboriginal cultural significance of the Creek is identified

• Ensure the European history of the creek is also acknowledged

• Provide locations for passive recreation, picnics and nature play

• Establish street tree planting to increase tree canopy cover in and around the creek.

• Ensure pedestrian waterway crossings are designed to the appropriate engineering standards.

• Ensure water sensitive urban design principles are incorporated into the revitalisation of the Creek


Privately Owned Portion of Muttama Creek
McGowan Street
Queen Street
O'Donnell Street
Bradman Oval
Bradman's Birthplace
Cutler Avenue
Privately Owned Portion of Muttama Creek
Poole Street
Congou Street
Hay Street
Scott Avenue
Nicholson Park
Fisher Park
Gordon Vesperman Park
Murray Street
Parker Lane
Clarke Oval
Poole Street
Cooper Street
Bassingthwaighte Park
Jubilee Park
Parker Street
Cooper Lane
Albert Park
Bowling Greens
Olney Street
Margaret Street
Thompson Street
Ursula Street
Walledon Street
Hurley Street
Mackay Street
Howell Street
Southee Park
Sutton Street
Mitchell Park
LEGEND
Existing Trees
Proposed Trees
Overall Master Plan
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5.2 Overall Strategies

• Increase the existing tree canopy in and around the creek and town centre

Street tree benefits (source Local Government NSW 2025)

Biodiversity support and provision of important habitat corridors for native plants and animals

Lowering heat through transpiration, shade and passive cooling

Increasing energy efficiency by reducing the need for air conditioning

Improving air and water quality

Increasing human health and wellbeing

Enhancing water absorption by slowing stormwater and reducing peak flows

Enhancing property values

Reducing noise

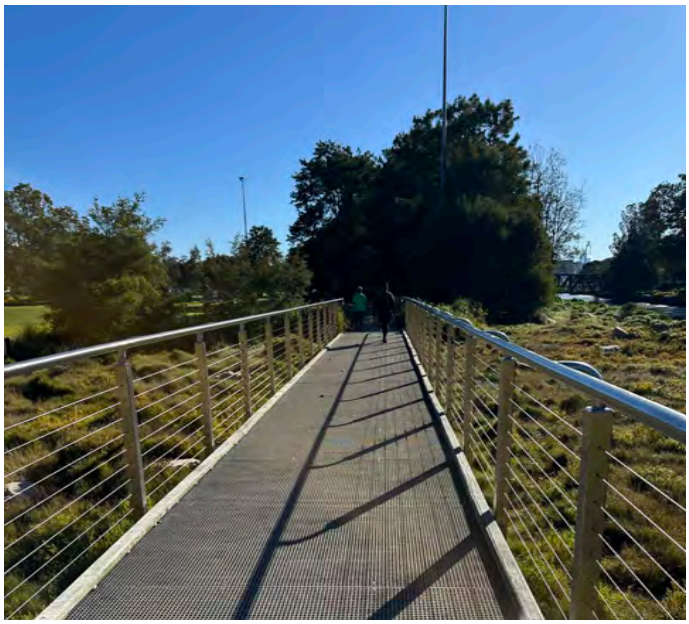
Potential wild life corridors especially birds, connecting the creek to the surrounding rural area

• Protect the existing habitat and offset any unavoidable impacts required to reduce flooding

• Connect existing paths and propose new wider paths to facilitate continuous movement along the open space network

• Introduce new passive recreation areas for rest, relaxation and to enjoy nature

• Provide interpretive signage to inform people of the historical, ecological and cultural importance of Muttama Creek







5.31
Bradman Precinct


Privately Owned Portion of Muttama Creek
Adams Street
Gateway to Muttama creek
New pedestrian paths to Bradman's Birthplace
Indicative alignment of potential crossing
Bradman Oval
1
New traditional style picket fence
Indicative alignment of potential crossing
Northcott Avenue
Public Toilet
New pedestrian paths to connect the creek
Privately Owned Portion of Muttama Creek
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
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Privately Owned Portion of Muttama Creek
Nicholson Park
New pedestrian paths to connect the creek
Poole Street
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
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5.3 Precinct Strategies

5.31 Bradman Precinct

• Plant new trees and shrubs in clumps to identify the commencement of the waterway at Adams Road

• Locate new paths commencing at Adams Road along the creek to Cutler Avenue and a new bridge crossing to improve access to the oval and amenities

• New interpretive signage illustrating the original Creek alignment and its importance and cultural significance to the Traditional Owners, the Wiradjuri people and its meaning; Cootamundra derived from the Wiradjuri word Gudhamangdhuray, swampland long-necked turtles and swamp.

• Plant new trees and shrubs in clumps along the creek to visually identify the riparian corridor and improve the ecology and function of the Creek

• Install solar lighting along the path and additional seating and bins

• Provide signage with directions to Bradman's birthplace from the Creek to Cutler Avenue

• A new traditional style picket fence to define and enhance the cricket oval named in honour of Sir Donald Bradman

• Provide signage and street trees along the right of way from Cutler Avenue to create a continuous path back to the Creek, diverting around the waterway that is within private property, for walking and cycling

• Plant new trees around the oval to increase the tree canopy cover.







5.32
Sport and Recreation Precinct


Bourke Street
Poole Street
Preserved for ecological purpose
Wallendoon Street
New traditional style picket fence
Clarke Oval
Olney Street
Captain's Walk
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Sport and Recreation Precinct Master Plan
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Olney Street
Gordon Vesperman Park
Outdoor Fitness Equipment
Bourke Street
Indicative alignment of potential crossing
Skate Park
Proposed Fencing
2
Clarke Oval
Olympic Swimming Pool
New nature-play area
Widening of existing path
Captain's Walk
NSW Govt. Building
Jubilee Park
Wallendoon Street
Murray Street
New raised pedestrian crossing
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Caravan Park
Sport and Recreation Precinct Master Plan
New raised pedestrian crossing
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5.32 Sport and Recreation Precinct

• Limit access and preserve the section of Creek between Olney Street and the laneway

• Provide a new pedestrian crossing over the Creek

• Provide new wide footpaths to accommodate a variety of users.

• Remove the existing chain link wire fence around the oval and replace with a new traditional picket fence.

• Provide additional seating and tables adjacent to the revitalised Creek to integrate with George Vesperman Park.

• New street trees along Murray Street and Wallendoon Street to provide visual linkages to the Creek.

• Interpretive signage illustrating the historic alignment of the Creek, the transition from the ox bow lakes in the middle of the last century to the current alignment around Clark oval.

• The signage would also include the ecological and cultural significance of Muttama Creek to the Traditional owners and its historic refuge for the eastern snake neck turtle.

• Signage incorporating Wiradjuri language for the local flora and fauna along

• A new nature playground alongside the Creek

• Provide new solar lighting

• New raised pedestrian crossing at Murray Street and Wallendoon Street







5.33
Town Centre Precinct


Jubilee Park
Caravan Park
Murray Street
Parker Lane
Wallendoon Street
Parker Street
MacKay Street
New raised pedestrian crossing
New raised pedestrian crossing
Widening of existing path
3
Indicative alignment of potential crossing
4
New raised pedestrian crossing
New pedestrian bridge
New nature-play area, tables and seatings
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Town Centre Precinct Master Plan
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5.33 Town Centre Precinct

• A new raised pedestrian crossing on Parker Street to provide safe movement between the open space

• Widen the existing path to accommodate all users

• Planting and rocks used for seating around the proposed new feature pond

• A new accessible crossing and lookout over the feature pond

• New solar lighting

• New trees along the creek to increase the tree canopy cover

• Remove the fence alongside the Scout Hall

• Interpretive signage describing the history of the Creek and the town

• A new nature-play area, tables and seatings adjacent to the informal carpark and new public amenities

• A new pedestrian bridge crossing along the eastern side of Stratton Bridge









5.34
Local Community Precinct


Parker Street
Mackey Street
Thompson Street
Hurley Street
Centenary Avenue
Indicative alignment of potential crossing
Cootamundra Bird Walk
CGRC Cootamundra Youth Club
Bird Sculptures
Indicative alignment of potential crossing
Dog Park
5
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Local Community Precinct Master Plan
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Olympic Highway
Sutton Street
Hurley Street
Hovell Street
5
Indicative alignment of potential crossing
New pedestrian crossing
Indicative alignment of potential crossing
New nature playground
Public Toilet
New community garden
Preserved for ecological purpose
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Community Garden
Local Community Precinct Master Plan
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5.34 Local Community Precinct

• New paths along the creek to accommodate all users

• New trees around the Creek to increase the tree canopy cover

• New street trees along Thompson Street and Mackay Street to link to the open space

• Interpretive signage of the Aboriginal cultural significance of the Creek

• A community garden in Apex Park along Hurley Street including native and local bush foods

• A new nature playground adjacent to the existing coloured tractors

• New seats along the paths

• New pedestrian crossings at Thompson Street and Sutton Street

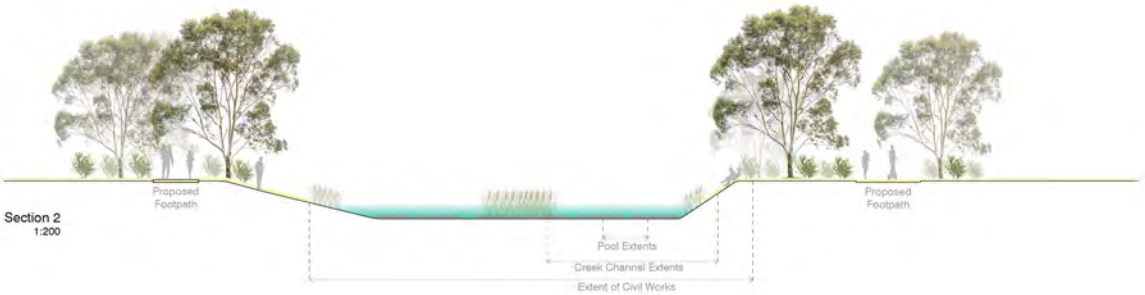




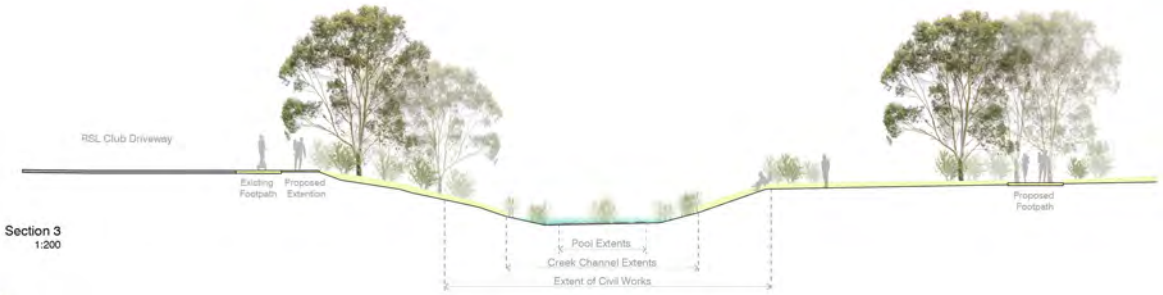




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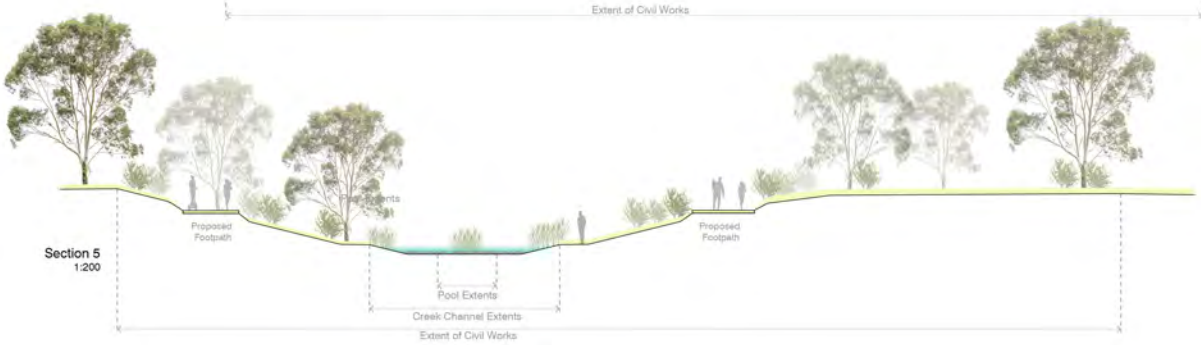
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6.0 Implementation

Precinct	Immediate	Medium term	Long term
Bradman Precinct	• Flood mitigation • New trees and shrubs • New paths • Signage to Bradman's birthplace	• Solar lights, seats and bins • Interpretive signage	• Picket fence around oval • Pedestrian bridge crossing
Sport and Recreation Precinct	• Flood mitigation • New trees and shrubs • New paths • Remove chain link fence	• Tables, seats, bins • Solar lights • Interpretive signage • New nature play-ground	• Picket fence around oval • Increase width of existing paths • Pedestrian bridge crossing
Town Centre Precinct	• Flood mitigation • New trees and shrubs • Solar lights • New raised pedestrian crossing • Remove fence along-side the Scout Hall	• New nature play-ground • Picnic tables and seats and bins • Interpretive signage • New footpath to creek along Parker Street • Interpretive signage	• New public amenities • Increase width of existing paths • Improvements to carpark • Pedestrian bridge crossing alongside Stratton bridge
Local Community Precinct	• Flood mitigation • New trees and shrubs • Pedestrian zebra crossings • New paths	• Community garden • Solar lights, seats and bins • Interpretive signage • New nature play-ground	• Pedestrian bridge crossing

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Appendix E

Ecology Report

Flora and Fauna Impact Assessment Report

Muttama Creek, Cootamundra

NSW 2590

13 January 2026



Report:	**Flora and Fauna Impact Assessment Report** **Muttama Creek, Cootamundra** **NSW 2590**
Prepared for:	Martens
Prepared by:	Land Eco Consulting
Date:	13 January 2026
Version:	**Final 1.0**

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Glossary

Acronym/ Term	Definition
ALA	Atlas of Living Australia
APZ	Asset Protection Zone
BAM	Biodiversity Assessment Method (NSW)
BC Act	New South Wales Biodiversity Conservation Act 2016
BDAR	Biodiversity Activity Assessment Report
BOS	Biodiversity Offset Scheme
BV	Biodiversity Values
CAA	Controlled Activity Approval
CEEC	Critically Endangered Ecological Community
DA	Activity Application
DCCEEEW	Department of Climate Change, Energy, the Environment and Water
DCP	Activity Control Plan
Activity	The use of land, and the subdivision of land, and the carrying out of a work, and the demolition of a building or work, and the erection of a building, and any other act, matter or thing referred to in section 26 that is controlled by an environmental planning instrument but does not include any activity of a class or description prescribed by the regulations for the purposes of this definition (Environmental Planning and Assessment Act 1979).
DPI	Department of Primary Industries
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
FFA	Flora and Fauna Assessment
FM Act	*Fisheries Management Act 1994 (NSW)*
Ha	Hectares
Km	Kilometre
KPOM	Koala Plan of Management
KTP	Key Threatening Process (as listed in the BC Act)
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
Locality	The area within a 50km radius of the Study Area. The same meaning when describing a local population of a species or local occurrence of an ecological community.
M	Metres
Mm	Millimetres
MNES	Matters of National Environmental Significance
NPWS	NSW National Parks and Wildlife Services
NSW	The state of New South Wales, Australia
OEH	Office of Environment and Heritage
PCT	Plant Community Type
Proposal	The activity, activity or action proposed.
Ramsar Wetlands	Wetlands of international importance designated under the Ramsar Convention
RRGW	PCT 79: River Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion
SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policies
SIS	Species Impact Statement
Study Area	Location of the proposed activity footprint and associated works including indigenous native vegetation removal.
Study Area	Muttama Creek, Cootamundra

Acronym/ Term	Definition
Threatened species, populations and ecological communities	Species, populations and ecological communities specified in Schedules 1, 1A and 2 and *threatened species, population or ecological community* means a species, population or ecological community specified in any of those Schedules.
TSSC	Threatened Species Scientific Committee
VRZ	Vegetation Riparian Zone
WBYB	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*
WM Act	*Water Management Act 2000 (NSW)*

1. Introduction

1.1 Background and Project Proposal

Land Eco Pty Ltd (Land Eco) was engaged by Martens ('the proponent') to deliver a terrestrial and aquatic Flora and Fauna Impact Assessment Report (FFA) for the proposed Muttama Creek Masterplan at Cootamundra NSW 2590, here forward referred to as the 'Study Area' (**Figure 1**).

1.1.1 Proposed Activity

The proposed activity application (DA) is for the implementation of the Muttama Creek Masterplan (Martens 2025; **Figure 3; Figure 4; Figure 5; Figure 6**). This masterplan involves the improvement of the ecological values, flood mitigation and community value of Muttama Creek and the surroundings.

1.1.1.1 Ecological and Flood Mitigation Improvements

The Muttama Creek Masterplan aims to improve the ecological health of Muttama Creek and adjacent riparian vegetation, as well as decrease the flood risks that currently affect the creek. The following are to be completed to address these aims:

- Redirection and cut and fill of Muttama Creek to improve the shape and reduce erosion potential
- Native tree and shrub plantings to increase canopy cover and improve biodiversity of riparian vegetation
- Installation of rocks and snags (woody debris in rivers) to increase flora and fauna habitat options
- Creation of large ponds via excavation along the creek to allow for water retention during periods of low rainfall, increase areas of suitable aquatic and wetland species habitat, and improve flood mitigation
- Preservation of existing areas of greater biodiversity/ecological importance that currently exist around the creek

1.1.1.2 Community Value Improvements

The Muttama Creek Masterplan also aims to improve the accessibility, enjoyment, number of amenities and educational opportunities surrounding the creek in order to improve community value. Improving the ecological and flood mitigation capabilities of Muttama Creek as seen above will also address this aim, however the following will also be installed:

- New or improved footpaths and crossings (including pedestrian crossings and bridges)
- Interpretive signage about the importance of the area and Muttama Creek to the local Aboriginal community
- Amenities such as bins, lighting and seating
- Informal carpark
- Directional signage to points of interest throughout Cootamundra and to walking tracks around the creek
- Traditional white picket fencing around sports ovals
- Nature playgrounds
- Community garden with native and local bush foods

1.1.2 Site Description and Location

The Study Area is approximately 16.85 ha and surrounds the section of Muttama Creek that runs through the town centre of Cootamundra, in the Cootamundra–Gundagai Regional Council region. The Study Area is contained within multiple zones including: 'RE1 – Public Recreation', 'R1 – General Residential', 'R3 – Medium Density Residential' and 'SP2 – Infrastructure' (NSW DCCEEW 2025a). The same zones are assigned to different properties along the outside of the Study Area, as well as 'E2 – Commercial Centre' and 'E4 – General Industrial'. The land outside of the town centre is predominantly zoned 'RU1 – Primary Production', 'RU4 – Primary Production Small Lots' and 'C3 – Environmental Management' (NSW DCCEEW 2025a).

The Study Area contains a mixture of remnant canopy trees and several planted native, non-indigenous and exotic trees. The majority of the understorey and midstorey throughout the Study Area has historically cleared and ongoingly managed, while a minority has been left relatively unmanaged, allowing a number of exotic weeds and a smaller proportion of natives to proliferate.

1.1.3 Proposed Impact

The proposed activity will result in the removal of approximately 5.79 ha of vegetation (**Figure 2**), including 5.73 ha of indigenous native vegetation. Tree removal required for the proposal has not yet been finalised, however this assessment has assumed that all trees within the 'Vegetation Clearing Extent' (**Figure 2**) will be removed for the proposed activity, except for those found to contain hollows during site surveys which will be retained (Martens 2025a). The area of vegetation removal considered under this assessment includes all proposed cut and fill areas (**Figure 7**), as well as the area within and around community value improvements outlined in the masterplan (**Figure** 3; **Figure 4; Figure 5; Figure 6**).

The indigenous native vegetation within the Study Area is representative of:

- PCT 79: River Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion. This PCT is not associated with any threatened ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act). This vegetation is hereafter referred to as 'RRGW'. A derived version of this community also occurs within the Study Area (ie. historically cleared grassland where this community is likely to have been historically present).
- PCT 276: Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion. This PCT is associated with '*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*' (WBYB) Critically Endangered Ecological Community (CEEC) that is listed under Schedule 2 of the BC Act. This vegetation community is hereafter referred to as 'WBYB CEEC'. A derived version of this community also occurs within the Study Area (ie. historically cleared grassland derived from this community).

The proposed activity will directly impact WBYB CEEC through vegetation removal. This includes the removal of approximately 0.46 ha of vegetation belonging to WBYB CEEC, including the potential removal of two characteristic *Eucalyptus melliodora* trees. The proposed activity will also remove approximately 4.61 ha of vegetation belonging to RRGW, including the potential removal of approximately 20 trees belong to species characteristic of this community (including *Eucalyptus camaldulensis* and *Casuarina cunninghamiana subsp. cunninghamiana*).

The proposed activity may also involve the removal of a maximum of 0.66 ha of native Cumbungi (*Typha orientalis*) which occurs along the bank and creek bed of sections of Muttama Creek. The areas proposed for potential removal have become overrun by Cumbungi and may be removed to improve overall health and functionality of Muttama Creek.

Potential indirect impacts from the proposed activity include introduction and spread of weeds, increased lighting, noise/vibration, vehicle strikes, erosion, soil disturbance, accidental chemical spill from machinery, and stormwater release. These potential impacts will be managed through mitigation measures (**Section 6**) which will help avoid any significant impacts on the surrounding habitat.

1.1.4 Landscape, Soils and Geology

The Study Area is mapped on the 'Muttama Creek' soil landscape which is described as alluvial plains formed on Quaternary alluvium (NSW DCCEEW 2025d). Elevation 240–260 m near Muttama to 315–340 m north of Cootamundra, local relief <9 m, slopes <1%. The landscape is limited by salinity hazard, poor drainage (localised), flood hazard (localised), engineering hazard (localised), dieback (localised), sodicity/dispersibility–subsoil (localised), high erodibility–subsoil (localised), salinity–subsoil (localised), low permeability–subsoil (localised), hardsetting soil surface (localised), high plasticity–subsoil (localised). From the surface to a depth of approximately one meter, the soil profile recorded for the landscape, closest to the Study Area, is as follows: dark reddish-brown fine sandy clay loam, reddish-brown clay loam, yellowish-red light medium clay, and yellowish-red medium heavy clay (NSW DCCEEW 2025d).

1.1.5 Hydrology

Muttama Creek runs through the middle of the Study Area (**Figure 1**). This creek is classified as a 4th order or greater watercourse (NSW Spatial Services 2025) and is approximately 50 km long (NSW Spatial Services 2025). Muttama Creek intercepts the Murrumbidgee River approximately 50 km downstream and forms part of the Murray-Darling Basin (NSW Spatial Services 2025). The area of Muttama Creek in the Study Area is approximately 2.2 km in length and is slow-moving and occasionally dry in some portions, likely due to the man-made barriers impeding the water flow such as the stormwater drains and bridges.

There are two dammed pools present in the Study Area along Muttama Creek (**Figure 14; Figure 15**):

- the first is in the northern portion of the creek and is approximately 2000 m^2
- the second is in the southern portion and is approximately 600 m^2.

Several small pools are also present along the Study Area in various locations.

A diverse array of native and exotic, planted and remnant riparian vegetation is present within the Study Area, varying in accordance with historical clearing, land use and management regime. A large section in the southern portion of the creek is occupied by dense *Typha orientalis* which may be influencing waterflow patterns.

Due to the presence of Muttama Creek within the Study Area, the proposed activity encroaches upon the waterfront (within 40 m of a watercourse) and the Vegetated Riparian Zone (VRZ) (See **Section 1.8**). This qualifies the Subject Land as 'Waterfront Land' under the Water Management Act 2000 (WM Act) due to the presence of these waterbodies, however this activity is being assessed under Part 5, Division 5.1 of the EP&A Act, and is therefore exempt from WM Act approval.



Figure 1. Map of the Study Area in reference to Muttama Creek (watercourse)



Figure 2. Vegetation Clearing Extent within the Study Area



Figure 3. Plan for 'Bradman Precinct' (northern) from Muttama Creek Masterplan (Martens 2025a)



Figure 4. Plan for 'Sport and Recreation Precinct' (northern/centre) from Muttama Creek Masterplan (Martens 2025a)



Figure 5. Plan for 'Town Centre Precinct' (southern/centre) from Muttama Creek Masterplan (Martens 2025a)



Figure 6. Plan for 'Local Community Precinct' (southern) from Muttama Creek Masterplan (Martens 2025a)

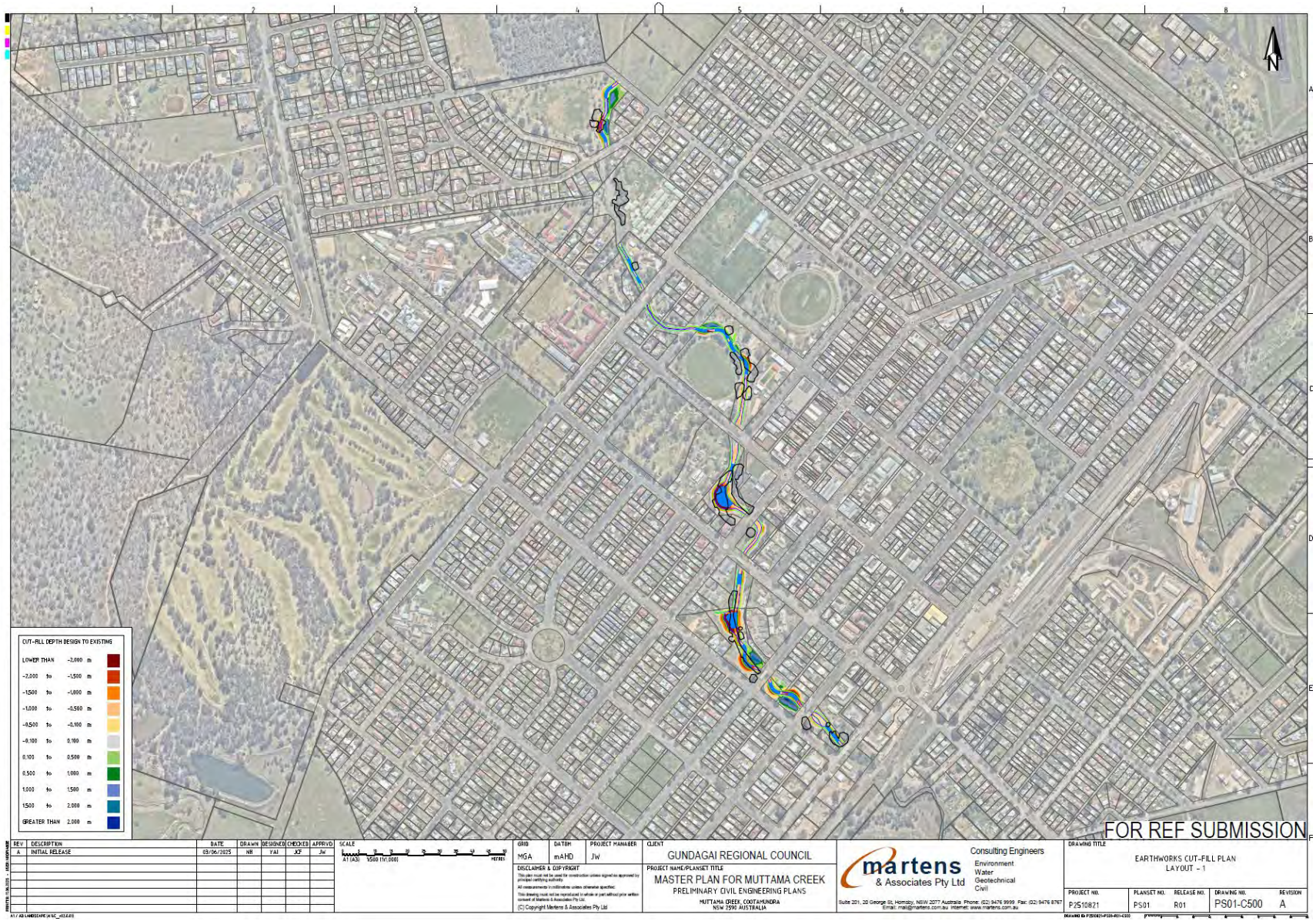


Figure 7. Cut and Fill Plans for Muttama Creek (Martens 2025b)

1.2 Matters for Consideration

The following list of legislation and policy are addressed in this report (**Table 1**).

Table 1. Relevant Legislation and Policy Addressed

Legislation/ Policy	Relevance	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	The proposed activity is being assessed under Part 5, Division 5.1 of the EP&A Act. This requires the activity to be assessed of impacts to threatened species, populations or communities that are listed under the BC Act.	Yes	This Flora and Fauna Impact Assessment Report (FFA) will consider the environmental impact of the proposed activity, as required under Part 5 of the EP&A Act.
Cootamundra Local Environmental Plan 2013	Cootamundra–Gundagai Regional Council regulates land use within the Cootamundra–Gundagai LGA through the provisions of the LEP. The proposed activity is being assessed under Part 5 of the EP&A Act. This does not require the activity to be assessed under the LEP.	No	The proposed activity is not required to be assessed under the LEP, however this report will consider the proposed activity under the LEP as best practice.
Cootamundra Shire Council Activity Control Plan 2013	The proposed activity is being assessed under Part 5 of the EP&A Act. This does not require the activity to be assessed under the DCP.	No	The proposed activity is not required to be assessed under the DCP, however this report will consider the proposed activity under the DCP as best practice.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The proposed activity may impact on the Matter of National Significance (MNES) - Wetlands of International Importance (Ramsar Wetlands). The closest Ramsar Wetland is the Ginini Flats Wetland Complex, located 120 km south-east of the Study Area	Yes	The proposed activity may have an impact on migratory/nomadic wetland bird species that use both the Ramsar Wetland and the Study Area, however the impact is unlikely to have a significant or long-term negative effect. Referral to the Commonwealth is not recommended for the proposed activity.
Biodiversity Conservation Act 2016 (BC Act)	It is possible that important habitat for threatened species or populations will be impacted by the proposed activity.	Yes	Tests of Significance (5-part Test) in accordance with Section 7.3 of the BC Act were undertaken to assess the impact of the proposed activity (**Appendix 3**). The proposed activity is unlikely to have significant impacts on any threatened species that may utilise habitat within the Study Area.
Biosecurity Act 2015 (Bio Act)	A number of weeds were identified within the Study Area.	Yes	It is recommended the weeds within the Study Area should be managed and biosecurity duties be carried out.
Water Management Act 2000 (WM Act)	Muttama Creek, which is a 4th order or greater watercourse, runs through the Study Area. The proposed activity will take place around the creek, therefore qualifying the Study Area as 'Waterfront Land'. However, activities assessed under Part 5 of the EP&A Act are exempt from approval under the WM Act.	No	No further action.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The Study Area is not located in a Local Government Area listed in the SEPP meaning Chapter 2 nor Chapter 3 of this SEPP apply to the Study Area.	No	No further action.

Legislation/ Policy	Relevance	Triggered	Action Required
Fisheries Management Act 1994 (FM Act)	The Study Area contains areas mapped as 'Key Fish Habitat' (NSW DPI 2025b). Threatened fish species have been recorded downstream from the Study Area (NSW DPI 2025b). Dredging and reclamation, and removal of native aquatic vegetation is to occur for the proposed activity.	Yes	An Assessment of Significance has been undertaken in accordance with Part 7A of the FM Act for all threatened species upon which the proposed activity is likely to have an impact (**Appendix 4**). A permit is required under Part 7 of the FM Act to allow for dredging and reclamation, and removal of native aquatic vegetation.

1.3 Cootamundra Local Environmental Plan 2013

The Study Area is located in the Cootamundra–Gundagai Regional Council. This section details Environmental Controls relevant to the terrestrial and aquatic biodiversity associated with the Study Area and surrounds (**Table 2**).

Table 2. Environmental Controls relevant to the terrestrial and aquatic biodiversity associated with the Study Area and surrounds.

Local Environmental Plan Reference	Application	Suitable Action
Part 2.1 Land Use Zones	The Study Area is zoned as multiple applications including: 'RE1 – Public Recreation', 'R1 – General Residential', 'R3 – Medium Density Residential' and 'SP2 – Infrastructure'	'Environmental Protection Works' are permitted with consent within all zones mapped along the Study Area. 'Recreational Areas' are permitted with consent within all zones mapped along the Study Area except zone 'SP2 – Infrastructure'. Consent will not be required due to the proposed activity being assessed under Part 5 of the EP&A Act.
Part 6.1 Earthworks	The proposed activity will require earthworks that have the potential to indirectly impact environmental features of the surrounding land.	Given there is a risk of sedimentation into Muttama Creek from the vegetation clearing and earthworks, strict erosion and sediment controls will need to be implemented. It is recommended that a comprehensive Erosion and Sediment Control Risk Assessment and Management Plan is prepared detailing the mitigation controls.
Part 6.3 Terrestrial Biodiversity	Mapped Terrestrial Biodiversity does not occur within the Study Area (NSW DCCEEW 2025a).	No further action required.
Part 6.4 Groundwater Vulnerability	Mapped Groundwater Vulnerability occurs across the entirety of the Study Area (**Figure 8**) (NSW DCCEEW 2025a).	Consent would typically be required for proposed works that may impact on areas of groundwater vulnerability. In accordance with clause 4: *Activity consent must not be granted to activity on land to which this clause applies unless the consent authority is satisfied that - (a) the activity is designed, sited and will be managed to avoid any significant adverse environmental impact, or (b) if that impact cannot be reasonably avoided—the activity is designed, sited and will be managed to minimise that impact, or (c) if that impact cannot be minimised—the activity will be managed to mitigate that impact.* In this case, consent is not required due to the proposed activity being assessed under Part 5 of the EP&A Act. However, best practice guidelines for protecting groundwater quality will be implemented. As per best practice, the *Guidelines for Groundwater Quality Protection in Australia* are recommended to minimise risks to areas of groundwater vulnerability (DAWR 2013).
Part 6.5 Riparian Land and Watercourses	Mapped 'Wetland' does not occur within the Study Area (NSW DCCEEW 2025a).	No further action required.

1.4 Cootamundra Shire Council Development Control Plan 2013

Table 3. Environmental Controls relevant to the terrestrial and aquatic biodiversity associated with the Study Area and surrounds.

Development Control Plan Reference	Application	Suitable Action
1.2 Statement of Environmental Effects	All development applications are required to include a Statement of Environmental Effects (SEE).	The council is not required to follow the DCP, and is therefore not required to present a Statement of Environmental Effects (SEE). However, this Flora and Fauna Assessment has been submitted in lieu of a SEE, as it addresses similar planning considerations.
1.3 Additional Information – Flora and Fauna	Significant areas of vegetation are proposed to be removed.	Tests of Significance (5-part Test) in accordance with Section 7.3 of the BC Act were undertaken to assess the impact of the proposed activity on flora and fauna that may utilise the Study Area (**Appendix 3**).

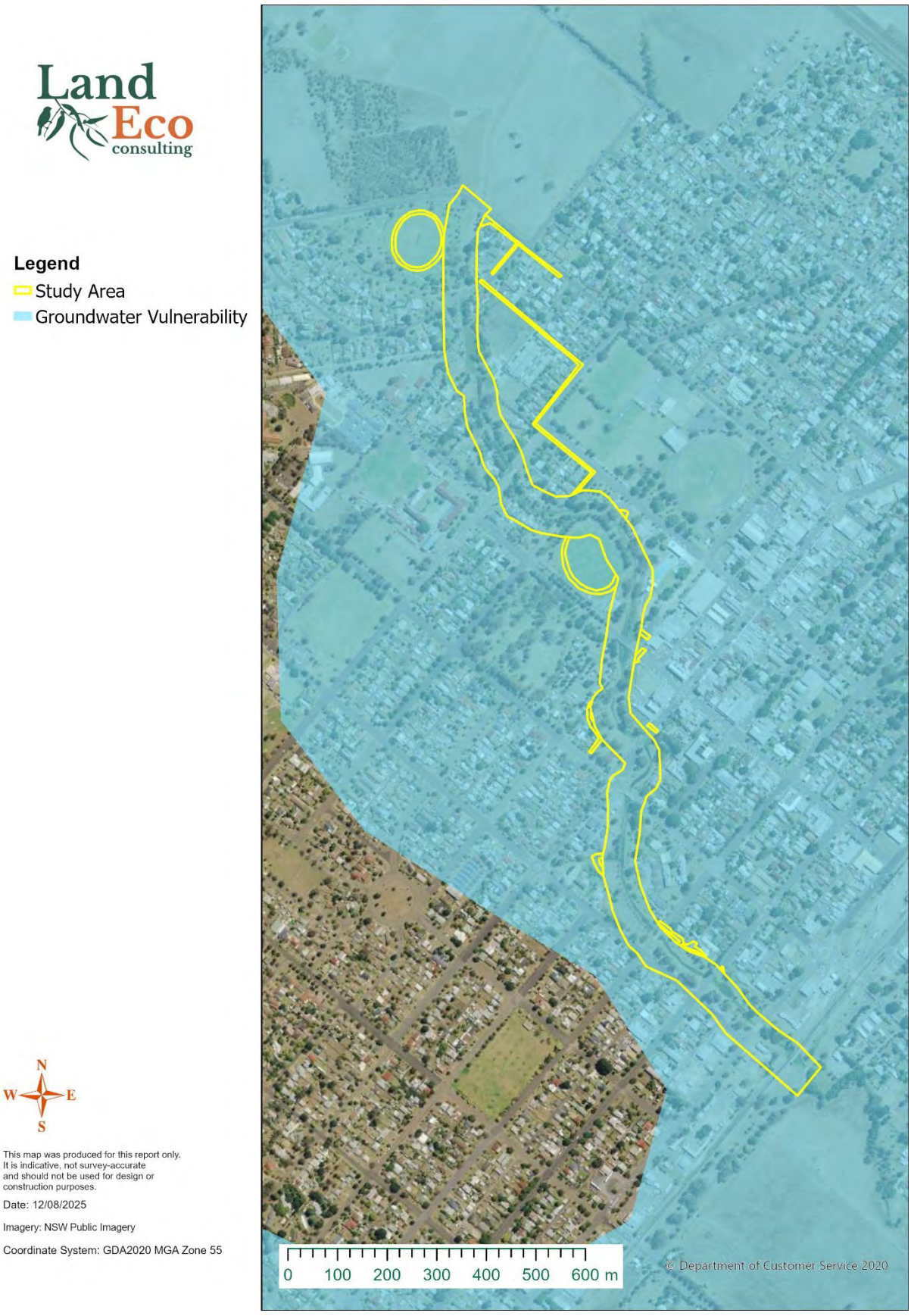


Figure 8. Groundwater Vulnerability Mapping in proximity to the Study Area (NSW DCCEEW 2025a)

1.5 Environment Protection and Biodiversity Conservation Act 1999

The proposed activity may impact the Matter of National Significance (MNES) – Wetlands of International Importance (Ramsar Wetlands). Ramsar Wetlands in proximity include Fivebough Swamp and Tuckerbil Swamp approximately 150km west, and Ginini Flats Wetland Complex 120 km south-east of the Study Area (DCCEEW 2025a). Although these wetlands are a considerable distance from the Study Area, migratory bird species that would visit these wetlands, including Latham's Snipe (*Gallinago hardwickii*) (Wild et. al. 2010), the Sharp-tailed Sandpiper (*Calidris acuminata*), Black-tailed Godwit (*Limosa limosa*) and Australiasian Bittern (*Botaurus poiciloptilus*), and nomadic wetland birds including the Australian Painted Snipe (*Rostratula australis)* and Magpie Goose *(Anseranas semipalmata)* (NSW DPIE n.d.) are known to travel hundreds of kilometres every day. Given the Ramsar Wetlands occur to the west and east of the Study Area, it is possible that these birds may pass over, forage or temporarily roost within the Study Area during their migration/movements between wetlands. Altering the Study Area may interfere with migratory/nomadic routes and affect the visitation and subsequent health of the Ramsar Wetlands. However, given the current poor quality of habitat within the Study Area for wetland species and high mobility of migratory/nomadic species, it is highly unlikely that the Study Area serves as frequently used habitat for these species and is unlikely to have a significant effect on the migration/movement routes to Ramsar Wetlands. Therefore, referral to the Commonwealth is not recommended.

1.6 Fisheries Management Act 1994

1.6.1 Threatened Species and Communities

In accordance with the *Fisheries Management Act 1994* (FM Act), planned activities that have the potential to impact a threatened species listed under this act must be assessed to determine whether a significant impact is likely. If a significant impact is considered likely, a species impact statement (SIS) must be prepared and approval from NSW Department of Primary Industries (DPI) is required.

According to the Fisheries NSW Spatial Data Portal (NSW DPI 2025b), Key Fish Habitat under the FM Act occurs within the section of Muttama Creek within the Study Area (**Figure 9**). The proposed activity occurs upstream to habitat for the following species that are listed threatened under the FM Act (**Figure 10**):

- Flathead Galaxias (*Galaxias rostratus*) – Critically Endangered Population
- Macquarie Perch (*Macquaria australasica*) – Endangered Population
- Murray Crayfish (*Euastacus armatus*) – Vulnerable population
- Silver Perch (*Bidyanus bidyanus*) – Vulnerable population
- Trout Cod (*Maccullochella macquariensis*) – Endangered population

The Atlas of Living Australia (ALA 2025) and BioNet (NSW DCCEEW 2025b) have not recorded any threatened fish species listed under the FM Act within a 50km locality of the Study Area.

The *Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment* Endangered Ecological Community (Murray River EEC) is also present within the Study Area as the community includes any natural creeks of the regulated portion of the Murray River (i.e. Muttama Creek).

An 'Assessment of Significance' was conducted for each of these species and this community (**Appendix 4**). No significant impacts were considered likely for any of these species or this community as a result of the proposal.

1.6.2 Classification of Muttama Creek and Implications under the FM Act

The sensitivity of the aquatic habitat in Muttama Creek within the Study Area is classified as 'TYPE 1 – highly sensitive key fish habitat' as it meets the requirement of 'freshwater habitats that contain in-stream gravel beds, rocks greater than 500 mm in two dimensions, snags greater than 300 mm in diameter or 3 metres in length, or native aquatic plants' (DPI 2013).

The fish passage quality of the aquatic habitat in Muttama Creek within the Study Area is classified as 'CLASS 2 - moderate key fish habitat' as it meets the requirements of 'non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present' (DPI 2013).

The TYPE 1 and CLASS 2 classification means that NSW Fisheries needs to be notified and approve any activities that alter/harm riparian and aquatic habitat (DPI 2013). These activities include dredging and reclamation, and aquatic vegetation removal. Dredging and reclamation are required for the proposed reshaping of Muttama Creek (also referred to as 'cut and fill'). Indirect native aquatic vegetation removal will result as a consequence of cut and fill, and access and amenity additions around the bank of the creek. Removal would also include the direct clearing of native Cumbungi (*Typha orientalis*) which may potentially occur for the proposed activity. Due to the aforementioned activities, notification to and a permit from NSW Fisheries under Part 7 of the FM Act is required.

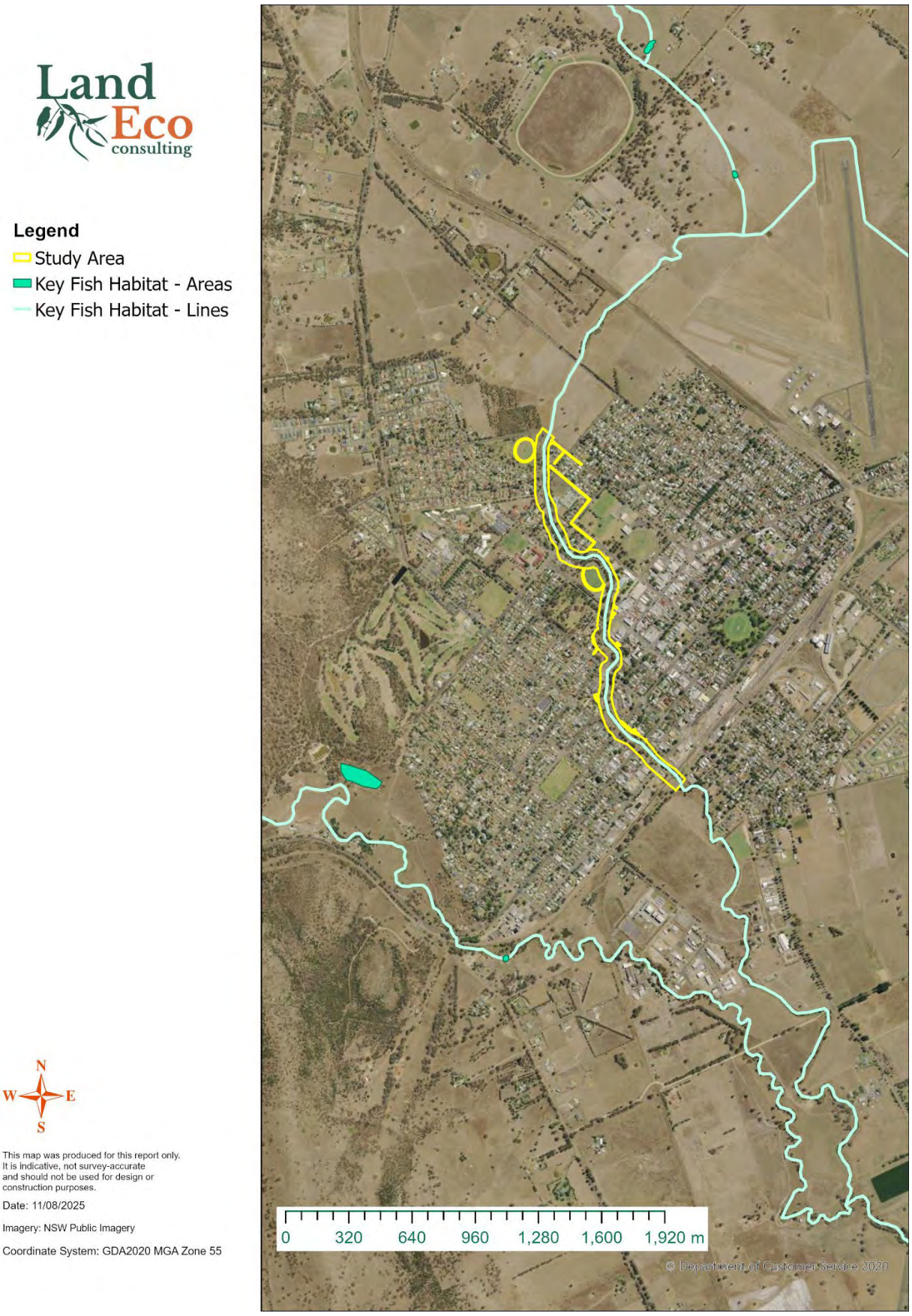


Figure 9. Key Fish Habitat Areas and Lines mapped in proximity to the Study Area (NSW DPI 2025)

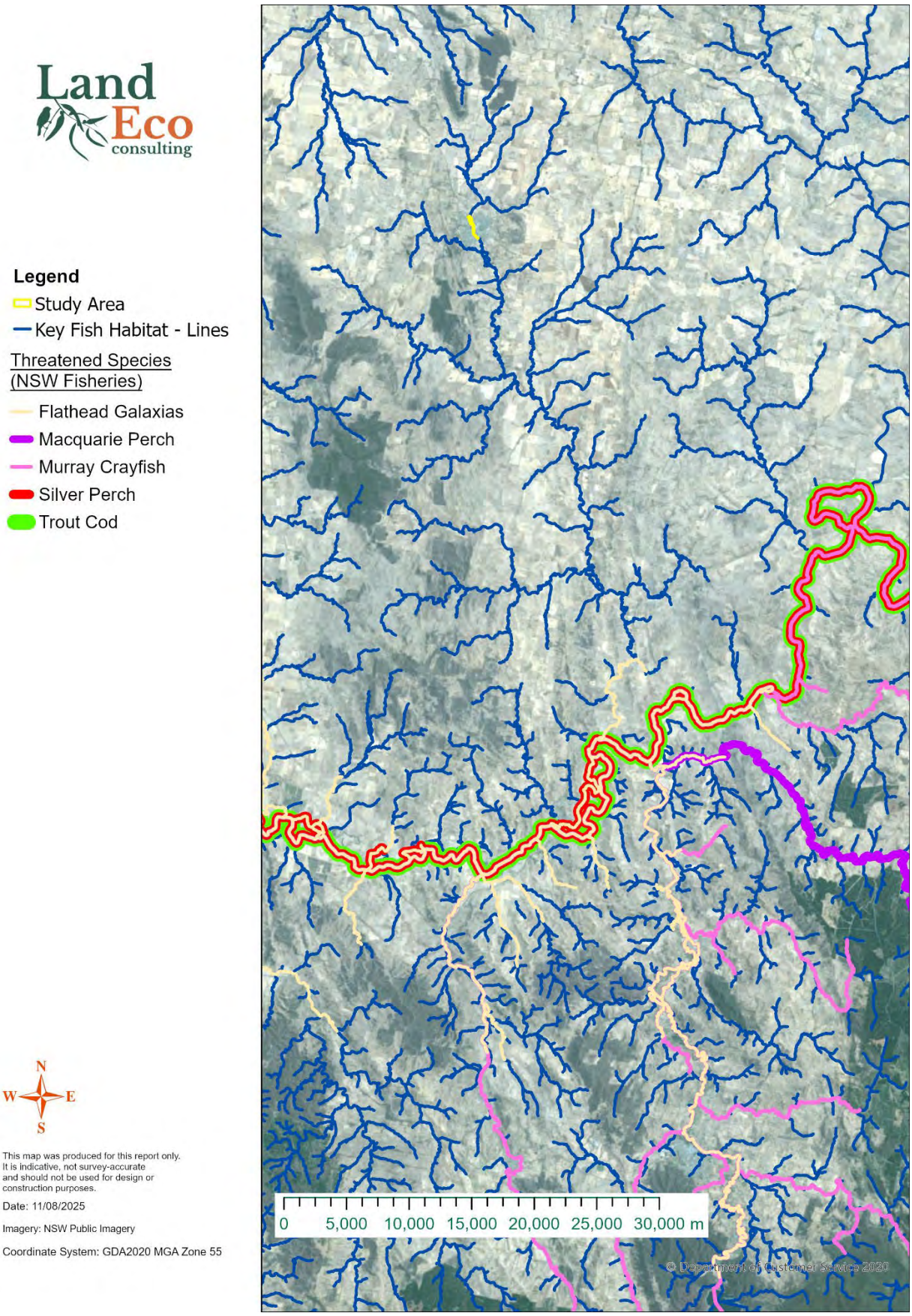


Figure 10. Threatened Freshwater Fish Species habitat areas downstream from the Study Area (NSW DPI 2025)

1.7 Qualifying for the NSW Biodiversity Offset Scheme

The activity is a 'public works' project which is being assessed under Part 5 of the EP&A Act. The BC Act and *Biodiversity Conservation Regulation 2017* requires a test of significance pursuant to section 7.3 of the BC Act to be completed to help the assessing authority determine whether an activity is likely to constitute a significant impact to a threatened species, population, or ecological community. In the event an activity is confirmed by the assessing authority to have a significant impact, the 'Biodiversity Offset Scheme' (BOS) applies and a 'Species Impact Statement' (SIS) is required.

Owing to the small area of vegetation clearing and threatened species habitat impacted, it is considered that the activity will not significantly impact upon a threatened species, threatened population, or threatened ecological community and therefore will not trigger the BOS or require an SIS.

1.8 Water Management Act 2000

The proposed activity is located within 40m of Muttama Creek, a 4th order or greater watercourse, therefore it is a Waterfront Activity. Typically consent would be required for works on Waterfront Land, however the proposed activity is being assessed under Part 5 of the EP&A Act and does not require consent.

2. Methods

2.1 Sources of Information Used

A thorough literature review of local information relevant to the locality and the Cootamundra-Gundagai Regional Council Local Government Area (LGA) was undertaken. Relevant literature that was reviewed in preparation of this report included:

Relevant State and Commonwealth Databases and Guidelines
- Protected Matters Search Tool (Commonwealth DCCEEW 2025a)
- NSW BioNet. The website of the Atlas of NSW Wildlife (NSW DCCEEW 2025b)
- Atlas of Living Australia Spatial Portal (ALA 2025)
- Planning Portal ePlanning Spatial Viewer (NSW DCCEEW 2025a)
- Fisheries NSW Spatial Data Portal (DPI 2025b)
- DPI Threatened Species Lists (DPI 2025c)
- Policy and guidelines for fish conservation and management Update 2013 (DPI 2013)

Vegetation and Landscape Mapping
- eSpade Soil and Land Information (NSW DCCEEW 2025d)
- NSW State Vegetation Type Map (NSW DCCEEW 2024)
- NSW WeedWise (DPI 2025a)

Council Documents
- Cootamundra Local Environmental Plan 2013
- Cootamundra Shire Council Activity Control Plan 2013

Online databases and literature review were utilised to gain an understanding of the natural environment and ecology of the Study Area and its surrounds to an area of approximately 50 km². Searches utilising NSW Wildlife Atlas (NSW DCCEEW 2025b), the Atlas of Living Australia (ALA 2025) and the Commonwealth Protected Matters Search Tool (Commonwealth DCCEEEW 2025a) were conducted to identify current threatened and migratory flora and fauna records within a 50km² search area centred on the Study Area. This data was used to assist in establishing the presence or likelihood of any such ecological values as occurring on or adjacent the Study Area and helped inform our Ecologists on what to look for during the site assessment.
Soil landscape and geological mapping was examined to gain an understanding of the environment on the Study Area and assist in determining whether any threatened flora or ecological communities may occur there (NSW DCCEEW 2025d).

2.2 Ecological Site Assessment

The following sections of this report detail the site assessments undertaken by Land Eco.

2.2.1 General Ecological Survey

On the 12th-14th May 2025, Land Eco Ecologists visited the Study Area. During the assessment, the following activities were carried out:
- Identifying and recording the vegetation communities present on the Study Area, with a focus on identifying any threatened ecological communities (TEC);
- Searching for threatened species and species diagnostic of threatened ecological communities;
- Recording opportunistic sightings of any fauna species seen or heard within the immediate surrounds of the Study Area;
- Identifying and recording the locations of threatened fauna habitat such as important nesting, roosting or foraging microhabitats;
- Targeting the habitat of any threatened and regionally significant fauna including:
  - Tree hollows (habitat for threatened large forest owls, parrots, cockatoos and arboreal mammals);
  - Caves and crevices (habitat for threatened reptiles, small mammals and microbats);
  - Termite mounds (habitat for threatened reptiles and the echidna);
  - Soaks (habitat for threatened frogs and dragonflies);
  - Wetlands (habitat for threatened fish, frogs and water birds);
  - Drainage lines (habitat for threatened fish and frogs);
  - Fruiting trees (food for threatened frugivorous birds and mammals);
  - Flowering trees (food for threatened nectarivores mammals and birds);
  - Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals), and
  - Any other habitat features that may support fauna (particularly threatened) species.
  - Assessing the connectivity and quality of the vegetation within the Study Area and surrounding area.

2.2.2 Vegetation Community Assessment

Land Eco examined local satellite imagery, geological mapping, soil landscape mapping and topographic mapping, in addition to existing vegetation mapping (NSW DCCEEW 2024) in order to stratify the Study Area and advise the site assessment survey efforts.

The vegetation community was determined based on desktop and field analysis of the geomorphology and geology of the Study Area, in addition to a quantitative analysis of the 'positive diagnostic' flora species.

3. Native Vegetation

3.1 Historical Vegetation Mapping

3.1.1 NSW State Vegetation Type Mapping

Historical Vegetation Mapping for the 'NSW State Vegetation Type Map' by the NSW DCCEEW (2024) mapped the Study Area as containing no remnant native vegetation (i.e. PCT: 0) (**Figure 11**).

The 'NSW State Vegetation Type Map' (NSW DCCEEW 2024) mapped the following Plant Community Type (PCT) within close proximity to the Study Area (**Figure 11**):

- PCT 277: *Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*, associated with the *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* Critically Endangered Ecological Community ('WBYB CEEC').

The 'NSW State Vegetation Type Map' (NSW DCCEEW 2024) also mapped the following PCT outside of the Study Area, but downstream of Muttama Creek:

- PCT 79: *River Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion* ('RRGW')
- PCT 276: *Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion*, also associated with the WBYB CEEC.



Figure 11. Historical Vegetation Mapping in refence to the Study Area (NSW DCCEEW 2024)

3.2 Confirmed Vegetation

The Study Area contains a mixture of remnant canopy trees as well as planted native, non-indigenous and exotic trees. Much of the understorey vegetation has been historically modified, managed, infill planted and/or weed-infested.

***PCT 276:* Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion**

Patches of remnant tree species, primarily within the northern section of the Study Area, are dominated by *Eucalyptus melliodora* (**Figure 12**). This vegetation was found to be representative of PCT 276: Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion, and covers 0.076 ha of the Study Area. This PCT is associated with the *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* (WBYB) Critically Endangered Ecological Community (WBYB CEEC) that is listed under the BC Act (**Table 4**). PCT 277: *Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion* was considered due to its similarities to PCT 276, however *Eucalyptus blakelyi* is not present within the Study Area making PCT 277 an unlikely candidate. A derived version of WBYB CEEC also occurs within the Study Area and is approximately 0.45 ha (**Figure 12**).

***PCT 79*: River Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion**

The vegetation along the bank of the portion of Muttama Creek within the Study Area include remnant trees *Eucalyptus camaldulensis* and *Casuarina cunninghamiana subsp. cunninghamiana*, as well as native ground species such as *Carex appressa* (**Figure 12**). This vegetation was found to be representative of PCT 79: River Red Gum shrub/grass riparian tall woodland or open forest wetland mainly in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion (RRGF), and covers 1.55 ha of the Study Area. This PCT is not associated with any Threatened Ecological Community listed under the BC Act. A derived form of RRGF also occurs within the Study Area and is approximately 10.21 ha (**Figure 12**).

Ornamental trees that are native to Australia, but not NSW were found to have been historically planted, included *Eucalyptus argophloia*, *Eucalyptus cephalocarpa* and *Eucalyptus globulus*.

Several exotic/weed species were recorded within the Study Area such as *Echium plantagineum*, *Ligustrum lucidum*, *Rosa rubiginosa*, and *Sorghum halepense*.

Typha orientalis, a native riparian plant, has adopted a weed-like habit in the southern portion of the Study Area and has begun to exclude the establishment of other native species. However, this species remains ecologically important in providing refuge to native fish and terrestrial fauna.

The proposed activity will result in the loss of approximately 0.46 ha of vegetation belonging to WBYB CEEC (**Figure 13**). The proposed activity will also involve the removal of 4.61 ha of non-threatened RRGF native vegetation.

Table 4. Final Determination for WBYB CEEC under the BC Act (NSW TSSC 2020)

Final Determination	Characteristics of Vegetation within the Study Area
White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland (hereafter referred to as WBYB CEEC) is characterised by the assemblage of species in the final determination.	The canopy of the northern section of the Study Area predominantly contains *Eucalyptus melliodora*.
WBYB CEEC comprises an aggregation of Grassy Woodlands occurring on the tablelands and western slopes of the Great Dividing Range from the Darling Downs in southern Queensland south to central Victoria.	Located in south New South Wales within the Inland Slopes IBRA subregion. Historically modified woodland structure.
WBYB CEEC is characterised by widely-spaced trees with canopies not touching and projected foliage cover generally less than 30%.	The WBYB CEEC within the Study Area contains widely spaced trees. Areas of dense canopy are likely planted or contain exotic species.
WBYB CEEC is characteristically dominated by one or more of the species *Eucalyptus albens* (White Box), *E. melliodora* (Yellow Box) and *E. blakelyi* (Blakely's Red Gum). A number of understorey species are typically found throughout almost the entire range of the community, with the exception of the extreme north of its distribution and areas where they have been excluded by grazing. These include: "the dominant tussock grasses *Themeda triandra* and *Poa sieberiana* and a range of other forbs and grasses such as *Chrysocephalum apiculatum, Hypericum gramineum, Geranium solanderi, Glycine clandestina, Dianella revoluta, D. longifolia, Asperula conferta, Leptorhynchos squamatus, Goodenia pinnatifida, Pimelea curviflora, Stackhousia monogyna,*	The WBYB CEEC Study Area is dominated by *Eucalyptus melliodora*. Native understorey sparse.

Final Determination	Characteristics of Vegetation within the Study Area
Cheilanthes sieberi, Austrostipa scabra, Bulbine bulbosa, Lomandra filiformis* and *Oxalis perennans occupying the inter-tussock spaces"	
The distribution of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland spans a range in elevation from approximately 170 m ASL on the western slopes of the Great Dividing Range to approximately 1200 m on the Northern Tablelands of NSW, although occurrences on the ranges are typically at lower elevations.	The Study Area occurs at approximately 318m ASL.

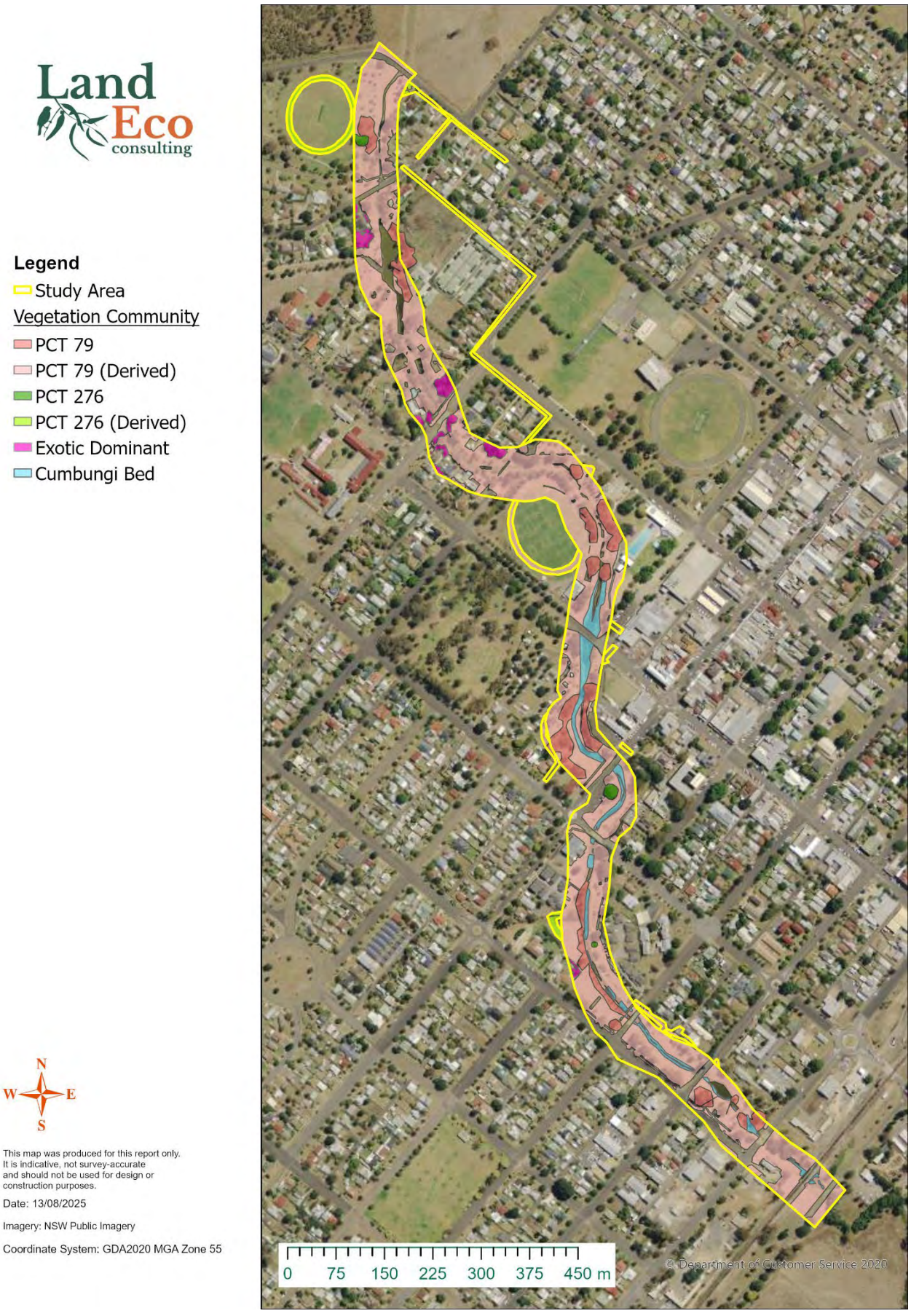


Figure 12. Land Eco Consulting Field-validated Vegetation Mapping

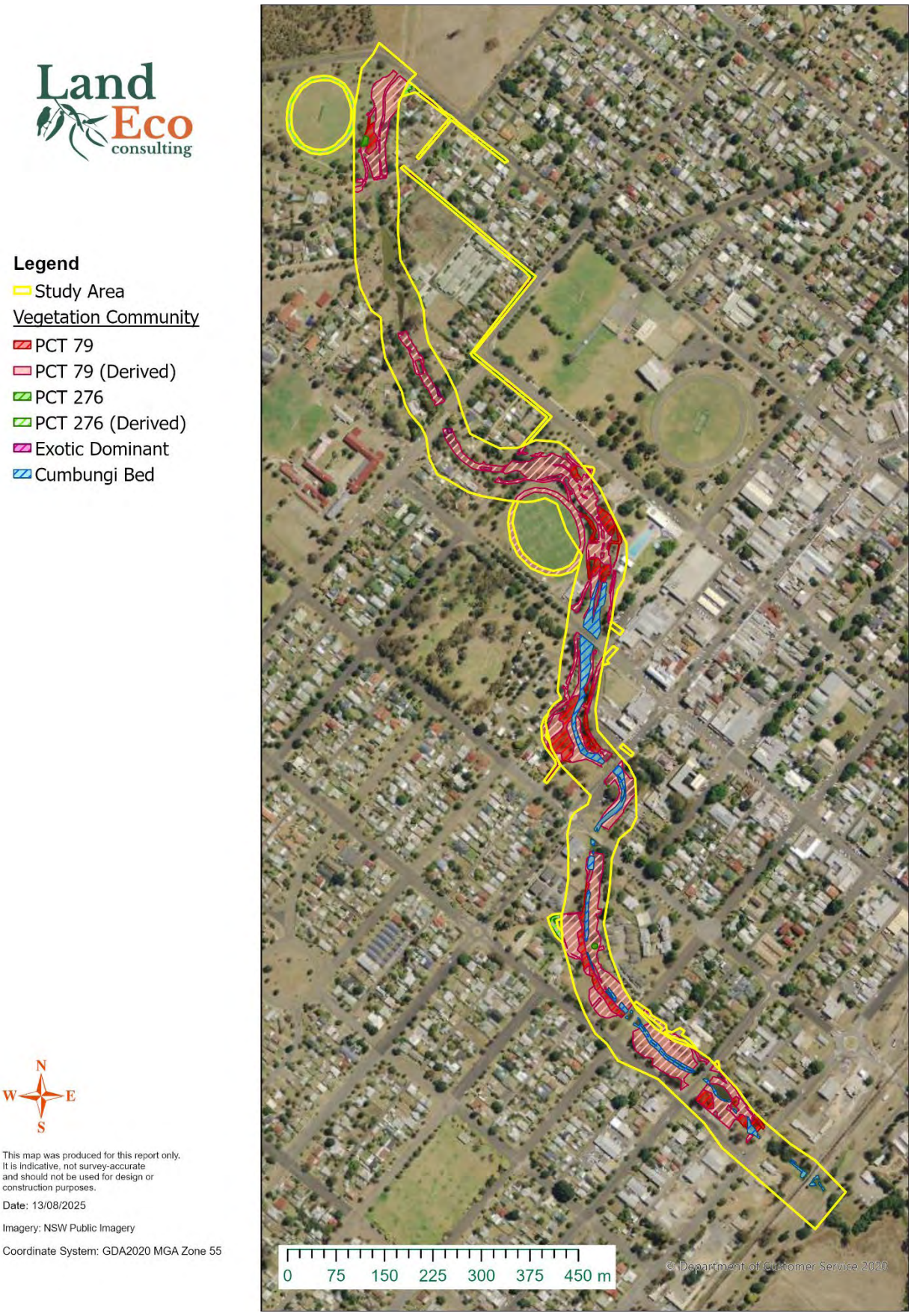


Figure 13. Clearing extent of confirmed PCTs within the Study Area

4. Threatened Species

4.1 Threatened Flora

No threatened flora species were found on the Study Area during site assessment by Land Eco.

The NSW Wildlife Atlas online survey tool (NSW DCCEEW 2025b) was used to obtain a list of threatened flora previously recorded within a 50km radius of the Study Area (**Table 5**). There were no historical records of threatened flora within the Study Area. The habitat requirements of each species were assessed (NSW DCCEEW 2025c) to determine the likelihood of species occurrence and/or impact from the proposed activity.

Table 5. List of Threatened Flora that May Occupy the Study Area at Some Stage of their Lifecycles as Identified by BioNet (NSW DCCEEW 2024b)

Scientific Name	BC Act	EPBC Act	Likelihood of Occurrence within the Study Area	5-Part Test Required?
Ammobium craspedioides	Vulnerable	Vulnerable	Low. Typically associated with presence of *Eucalyptus mannifera* which does not occur within Study Area. Habitat too disturbed by ground layer maintenance. Closest record is more than 20km south-west of the Study Area at Ulandra Nature Reserve.	No
Caladenia arenaria	Endangered	Endangered	Unlikely. Prefers sandy soils which are not present within the Study Area. Habitat too disturbed by ground layer maintenance. Closest record is 12.7km south-west of the Study Area near Migurra Reserve.	No
Caladenia concolor	Endangered	Vulnerable	Unlikely. *Eucalyptus spp.* typically associated with this species including *E. blakelyi, E. macrorhyncha, E. polyanthemos* and *E. albens* not present in Study Area. Habitat too disturbed by ground layer maintenance. Closest record is 15km south-west of the Study Area near Migurra Reserve.	No
Diuris tricolor	Vulnerable	-	Unlikely. No associated species such as *Callitris glaucophylla, Eucalyptus populnea* and *Eucalyptus intertexta* occur within the Study Area. Habitat too disturbed by ground layer maintenance. Closest record is 11km south-west of the Study Area near Migurra Reserve.	No
Senecio garlandii	Vulnerable	-	Unlikely. Occurs in sheltered areas of rocky outcrops which are not present within the Study Area. Closest record is more than 20km south-west of the Study Area at Ulandra Nature Reserve.	No

4.2 Threatened Fauna

The NSW Wildlife Atlas online survey tool (NSW DCCEEW 2025b) was used to obtain a list of threatened fauna previously recorded within a 50km radius of the Study Area (**Table 8**). There were no historical records of threatened fauna within the Study Area. The habitat requirements of each species were assessed (NSW DCCEEW 2025c) to determine the likelihood of species occurrence and/or impact from the proposed activity. The habitat features in or adjacent to the Study Area are presented within **Table 6, Figure 14** and **Figure 15**.

Table 6. Threatened terrestrial fauna habitat features in or adjacent to the Study Area

Habitat component	Site values
Hollow-bearing trees, including living trees and dead stags	21 hollow bearing trees and three dead trees (stag) are present on the Study Area and have the potential to provide habitat for fauna such as gliders, microbats, owls and various other birds.
Large trees with basal cavities	Nil
Rock outcrops and bush rock	Nil
Caves, crevices and overhangs	Four bridges with crevices large enough for microbat habitation occur within the Study Area.
Natural burrows	One large burrow present on site. The occupants of the burrow are unknown.
Coarse woody debris (logs)	Nil
Wetlands, soaks and streams	Muttama Creek, along with the two dams present in the north and south portions provides habitat for fish, frogs and waterbirds.
Open water bodies	Nil
Nests and roosts	Nil
Sap and gum sources (feed trees for gliders)	*Eucalyptus spp.* and *Corymbia spp.* within the Study Area may provide sap and gum sources for gliders.
Distinctive scats or latrine sites	Nil

Habitat component	Site values
She-oak fruit (Glossy Black Cockatoo feed)	The she-oak *Casuarina cunninghamiana subsp. cunninghamiana* present in the Study Area may be a feed source for Glossy Black Cockatoos (*Calyptorhynchus lathami*)
Culverts, bridges, mine shafts, or abandoned structures (microbat subterranean roosts)	Four suitable bridges that occur within the Study Area have the potential for microbat habitation.
Decorticating bark or palm fronds suitable for microbat roosts	Decorticating bark from *Eucalyptus spp.* present within the Study Area which may provide roosting habitat for microbats. No palms are present within the Study Area.
Flying-fox camps	Absent within the Study Area. The nearest known Flying-fox camp is approximately 42km north-east of the Study Area in Young (Commonwealth DCCEEEW 2025b).
Nectar-bearing trees (e.g. winter-flowering)	The *Eucalyptus spp.* and *Corymbia spp.* present on the Study Area may provide a food source for nectivorous fauna such as birds and Flying-foxes when these trees are in flower.
Lerp-bearing trees	*Eucalyptus spp.* and *Corymbia spp.* within the Study Area and the surrounding area have the potential to provide lerp for fauna such as birds.
Nectar-bearing shrubs	*Banksia spp., Callistemon spp., Grevillea spp.* and *Melaleuca spp.* are present in the Study Area and may provide a food source for nectivorous fauna such as birds and Flying-foxes when these shrubs are in flower.
Mistletoes	*Amyema spp.* occur in the Study Area and may be used for foraging by birds.
Koala use trees	*Eucalyptus melliodora* and *E. viminalis* occur within the Study Area and have been documented as Koala use trees in neighbouring LGAs (OEH 2018).
Seed-bearing trees and shrubs	Seed-bearing trees such as *Eucalyptus spp.* and *Corymbia spp.* within the Study Area may provide a food source for fauna such as Cockatoos.
Soft-fruit-bearing trees or shrubs	*Solanum spp., Ligustrum lucidum* and *Einadia nutans* may provide soft-fruit for bird species.
Dense shrubbery and leaf litter	Dense shrubbery occurs in areas overrun by exotic flora species; however most of the understorey of the Study Area is maintained.
Dense grassland	Nil
Estuarine, beach, mudflats, and rocky foreshores	Nil

Table 7. Threatened aquatic fauna habitat features in or adjacent to the Study Area

Habitat component	Site values
Riparian Vegetation	River Red Gum Forest community present surrounding the creek. Species such as *Typha orientalis* along creek edge.
Snags	Four substantial snags occur throughout the watercourse within the Study Area and have the potential to provide habitat and protection for fish species.
Pools	Two man-made dammed pools are present in the north and south portion of Muttama Creek that runs through the Study Area. Smaller pools are also located throughout the creek. The dams provide habitat for various types of aquatic species such as fish, crustaceans and molluscs.
Riffles	Nil
Rock/Gravel Beds	One rock bed occurs in the southern portion of the Study Area which may provide habitat for various types of aquatic species such as molluscs
Palustrine Wetlands	Nil
Emergent Macrophytes / Reed Beds	Nil
Submerged Macrophytes	None observed; however they may occur within the pools along Muttama Creek.
Open water bodies	Nil
Estuarine, beach, mudflats, and rocky foreshores	Nil

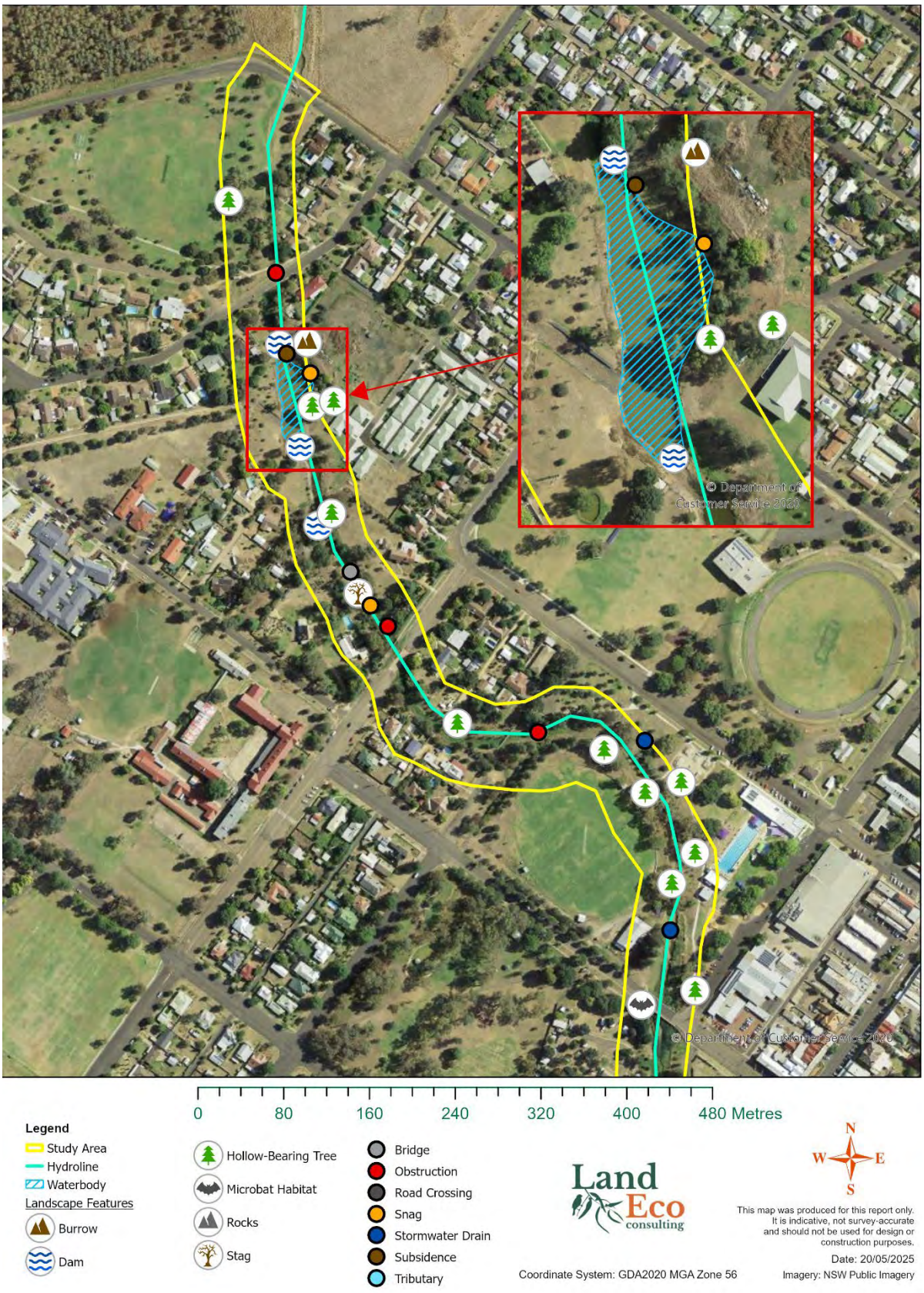


Figure 14. Location of key habitat features and threatened species identified within the north portion of the Study Area by Land Eco in May 2025



Figure 15. Location of key habitat features and threatened species identified within the south portion of the Study Area by Land Eco in May 2025

Table 8. List of Threatened Fauna that May Occupy the Study Area at Some Stage of their Lifecycles as Identified by BioNet (NSW DCCEEW 2025b)

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
Aves	*Anthochaera phrygia*	Regent Honeyeater	Critically Endangered	Critically Endangered	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Moderate. Suitable riparian forest habitat along Muttama Creek though most has been cleared within the Study Area. Main food source is *Eucalyptus melliodora* which is present within the Study Area. Closest record approximately 14km north of Study Area, however all 4 records in the locality were recorded before 1999.	Yes
Aves	*Aphelocephala leucopsis*	Southern Whiteface	Vulnerable	Vulnerable	Southern Whiteface lives in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. This species are typically considered sedentary.	Moderate. Open woodlands with grass and shrub understorey on plain present within Study Area. Suitable habitat present for foraging and breeding. The closest record is 6.5 km north-west of Study Area.	Yes
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	Vulnerable	-	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	High. This species may forage amongst the tree canopies, shrubs and grassland in the Study Area. This species may also nest within the decorticated bark fissures, hollows or amongst the tree branches. 65 records in locality, as recently as 2022 though largely restricted to national parks and conservation reserves. Closest record 6 km north-west of Study Area	Yes
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Endangered	Endangered	In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas.	High. Dry woodlands/eucalypt forests preferred by species not present within Study Area. May forage on remnant and planted *Eucalyptus spp.* within the Study Area. Hollow-bearing trees present within Study Area for nesting.	Yes
Aves	*Circus assimilis*	Spotted Harrier	Vulnerable	-	Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is most commonly found in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Preys on terrestrial mammals (eg bandicoots, bettongs, and rodents), birds and reptile, occasionally insects and rarely carrion.	High. May forage throughout Study Area. Suitable riparian woodland present within Study Area and species may utilise the trees to hunt, perch or build nests. Two records in locality, both more than 20km away from the Study Area from before 2012.	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	Vulnerable	Vulnerable	Found in eucalypt woodlands and dry open forest of the inland slopes and plains inland of the Great Dividing Range. This species can also be found in mallee and River Red Gum Forest bordering wetlands. Usually not found in woodlands with a dense shrub layer or in woodlands on the coastal ranges and plains. The Brown Treecreeper will use hollows in standing dead or live trees and tree stumps for nesting.	High. River Red Gum present within the Study Area and Muttama Creek flows through the Study Area. This species may forage amongst the tree trunks within the Study Area. May utilise the tree hollows within the Study Area for breeding. 169 records within the locality, 15 of which were recorded later than 2020. The closest record was 1.7km from the Study Area within Cootamundra.	Yes
Aves	*Daphoenositta chrysoptera*	Varied Sittella	Vulnerable	-	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland	High. Suitable habitat present. This species may forage amongst the tree canopy and tree trunks. May nest within the decorticated bark fissures and amongst the tree branches. 19 records in locality, predominantly recorded in nearby nature reserves. One record from 2003 located approximately 2km south-west of the Study Area.	Yes
Aves	*Epthianura albifrons*	White-fronted Chat	Vulnerable	-	Found foraging on bare or grassy ground in wetland areas. Nests in low vegetation and may also use low isolated mangroves.	Moderate. Suitable low open grassy areas, low shrubs and wetland habitat within the Study Area and the managed ground layer may provide foraging habitat for this species. Four records in the locality, all occurring approximately 14km from the Study Area.	Yes
Aves	*Falco subniger*	Black Falcon	Vulnerable	-	The Black Falcon inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalypt-dominated) watercourses; it also uses agricultural land with scattered remnant trees. The Falcon is often associated with streams or wetlands, visiting them in search of prey. It uses standing dead trees as lookout posts. Preys on birds, especially flocking, ground-feeding granivores but also some small mammals.	Moderate. Suitable stream/wetland habitat in Study Area. This species may utilise the Study Area to forage, perch or build nests in the dead and living trees. Four records in locality, 2 of which occurred in 2019 more than 19km away from the Study Area.	Yes
Aves	*Grantiella picta*	Painted Honeyeater	Vulnerable	Vulnerable	Inhabits Boree/Weeping Myall, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. This species feeds on the fruits and nectar of mistletoes of woodland eucalypts and acacias. These are typically found on the inland slopes of the Great Dividing Range.	Moderate. Flowering Eucalypts and mistletoe present within the Study Area may provide food source for this species. May breed within the Study Area. All records in locality were recorded before 2006.	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
Aves	*Hamirostra melanosternon*	Black-breasted Buzzard	Vulnerable	-	Lives in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat. Also hunts over grasslands and sparsely timbered woodlands.	Unlikely. One record in locality from 1997, listed as a likely vagrant.	No
Aves	*Hieraaetus morphnoides*	Little Eagle	Vulnerable	-	Occupies open eucalypt forest, woodland or open woodland. Sheoak or *Acacia* woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	High. Suitable riparian woodlands within the Study Area. This species may utilise the Study Area to forage, perch or build nests in the trees. 14 records within the locality. One record from 2005 located approximately 2km south-west of the Study Area.	Yes
Aves	*Hirundapus caudaccutus*	White-throated Needletail	Vulnerable	Vulnerable	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest. They are known to roost in tall trees and hollows on occasion. Does not breed in Australia.	Moderate. Likely to forage over the Study Area. Is an aerial forager only. Does not breed in Australia.	No
Aves	*Lathamus discolor*	Swift Parrot	Endangered	Critically Endangered	Migrates to the Australian south-east mainland between February and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.	Moderate. This species may roost or forage within the Study Area given the presence of nectar/lerp-bearing trees such as *Eucalyptus spp.* This species does not breed on mainland Australia. All records within locality recorded prior to 2011. The closest record is 1.2 km from the Study Area within Cootamundra, however the record is from 1992.	Yes
Aves	*Lophochroa leadbeateri*	Pink Cockatoo	Vulnerable	Endangered	Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water.	Unlikely. Only one record in the locality from 1997. This species would only occur as a vagrant to the area, it is primarily an arid to a semi-arid species.	No
Aves	*Lophoictinia isura*	Square-tailed Kite	Vulnerable	-	Inhabit coastal and subcoastal, eucalypt-dominated open forests and woodlands, and inland riparian woodland. It also forages over coastal heathlands, and often near openings and edges of forest but also around suburban trees and shrubs, and nest in urban bushland.	Moderate. Suitable riparian woodlands within the Study Area. This species may utilise the Study Area to hunt, perch or build nests in the trees. Three records within the locality, all recorded before 1993.	Yes
Aves	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	Endangered	Endangered	This species prefers lightly wooden country, usually open eucalypt woodland, acacia scrub and mallee, often near clearings or open areas.	Moderate. Suitable foraging habitat present within the Study Area. The habitat is likely to be too disturbed for Hooded Robin. Four records in	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
						the locality, all recorded prior to 2000 in nearby nature reserves.	
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	-	This species occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts. They also inhabit open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks and tea-trees	Moderate. This species may feed on insects in tree canopies, *Eucalyptus* blossom and clumps of mistletoe. May nest within clumps of mistletoe and dense tree branches. 15 records in the locality, all recorded prior to 2010, with the closest record occurring approximately 8.3km from the Study Area.	Yes
Aves	*Neophema pulchella*	Turquoise Parrot	Vulnerable	-	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Nests in tree hollows, logs or posts.	Moderate. This species may forage amongst the ground and midstorey cover within the Study Area. May nest in the tree hollows in the Study Area. 10 records in the locality. One record from 2003 located approximately 2km south-west of the Study Area.	Yes
Aves	*Ninox connivens*	Barking Owl	Vulnerable	-	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey found on these fertile riparian soils. It nests in large hollows greater than 20cm in diameter in trees that are at least eight metres above ground.	High. This species may utilise the Study Area to hunt and perch. The hollow-bearing trees on the Study Area may support roosting or breeding of this species. Two records in the locality occurred in 2018 adjacent to the Study Area.	Yes
Aves	*Oxyura australis*	Blue-billed Duck	Vulnerable	-	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed, but prefers to dive if approached.	Low. Only smaller, less vegetated permanent wetlands present in the Study Area which are not preferred by the species. Three records in the locality, all in areas with larger wetlands.	No
Aves	*Parvipsitta pusilla*	Little Lorikeet	Vulnerable	-	Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.	High. Suitable riparian habitat within the Study Area. Species may forage in *Eucalyptus spp.* in Study Area. Hollow-bearing trees could be used for nesting. 22 records within the locality. Closest record is 7.2km north-west of the Study Area.	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
Aves	*Petroica boodang*	Scarlet Robin	Vulnerable	-	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude.	High. Suitable foraging habitat present within the Study Area. This species is not likely to breed within the Study Area, it typically breeds in highlands. 32 records in the locality, the closest of which was recorded in 2020 approximately 1.4km west of the Study Area.	Yes
Aves	*Petroica phoenica*	Flame Robin	Vulnerable	-	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Occasionally occurs in temperate rainforest, and also in herbfields, heathlands, shrublands and sedgelands at high altitudes. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains).	High. Suitable foraging habitat present within the Study Area. This species is not likely to breed within the Study Area, it typically breeds in highlands. 31 records in the locality, the closest of which was recorded in 2021 approximately 2km south-west of the Study Area.	Yes
Aves	*Polytelis swainsonii*	Superb Parrot	Vulnerable	Vulnerable	Inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest. They nest in the hollows of large trees which often have an entrance diameter of 6 cm or wider, and that are at least 3.5 m above the ground. Species known to be used as nest trees are Blakely's Red Gum, Yellow Box, Apple Box and Red Box.	High. River Red Gum habitat present within the Study Area. May feed amongst trees and understorey plants on grass seeds, and herbaceous plants. May also feed on nectar, buds, flowers and insects. Suitable hollows for this species to nest within in the Study Area. 431 records in the locality, 76 of which have been recorded after 2020, and 16 of which were recorded less than 300m away from the Study Area.	Yes
Aves	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	Vulnerable	-	Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low	Moderate. May forage and nest amongst *Eucalyptus spp.* in the Study Area. 76 records in the locality, 10 of which were recorded after 2020. The closest record was from 2018	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
					branches of large eucalypts. Territories range from one to fifty hectares.	approximately 2.1km south-east of the Study Area within Cootamundra.	
Aves	*Pyrrholaemus sagittatus*	Speckled Warbler	Vulnerable	-	The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.	Moderate. Eucalyptus dominated community present within the Study Area; however most areas are disturbed meaning the species is unlikely to persist in the area. 95 records in the locality, 20 of which have been recorded after 2020. The closest record to the Study Area was recorded 800m within Cootamundra in 2020.	Yes
Aves	*Stagonopleura guttata*	Diamond Firetail	Vulnerable	Vulnerable	Found in a variety of habitats including grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands, open forest, mallee, Natural Temperate Grassland, secondary grassland derived from other communities and in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. This species has also been recorded in some towns and near farm houses. This species feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season).	Moderate. The riparian woodland in the Study Area may provide suitable habitat for this species. This species may breed in tree hollows present in the Study Area. May forage on the ground within the Study Area. 43 records in the locality, 4 of which were recorded after 2020. 3 of these recorded were located in Cootamundra.	Yes
Aves	*Stictonetta naevosa*	Freckled Duck	Vulnerable	-	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Moderate. Section of Muttama Creek and associated dams with heavy growth of Cumbungi could provide preferrable habitat for the species. Only two recent recordings in Ulandra Nature Reserve approximately 16.8km south-west of the Study Area.	Yes
Insecta	*Keyacris scurra*	Key's Matchstick Grasshopper	Endangered	Endangered	Typically found in native grasslands and grassy woodlands but it has also been recorded in other vegetation associations usually containing a native grass understory (especially kangaroo grass Themeda triandra) and known food plants (particularly Asteraceae). Opportunistic sightings (as opposed to records from systematic surveys) have been reported in a wide range of vegetation types in south-east NSW, including wet sclerophyll forest, montane low forest, dry woodlands, heathland, and montane grasslands.	Unlikely. The only potential habitat in the Study Area is regularly mown and not of the structure required for the species. Only one record in locality approximately 16km north-east of the Study Area in Wallendbeen.	No
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	Vulnerable	-	Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern	Unlikely. Prefer woodland/forest habitats with dense to grassy understorey which are not present across most of the Study Area.	No

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
					NSW where they are most frequently encountered in rainforest. They may occupy small patches of vegetation in fragmented landscapes and although the species prefers habitat with a rich shrub understory, they are known to occur in grassy woodlands and the presence of Eucalypts alone is sufficient to support populations in low densities. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (Pseudocheirus peregrinus) dreys or thickets of vegetation, (e.g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks.	Hollow-bearing trees may be used as shelter. Only one record in the locality from 2000 in Jindalee National Park approximately 11.8km north of the Study Area - the habitat in that location is more of a shrubby forest/woodland which differs from that of the Study Area.	
Mammalia	*Macrotis lagotis*	Bilby	Extinct	Vulnerable	Once widespread in arid, semi-arid and relatively fertile areas, the Bilby is now restricted to arid regions and remains a threatened species. The Bilby prefers arid habitats because of the spinifex grass and acacia shrub.	Unlikely. Classified as Extinct in NSW.	No
Mammalia	*Petaurus norfolcensis*	Squirrel Glider	Vulnerable	-	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Squirrel Glider will roost in tree hollows with a diameter between 5-10cm. Their diet consists of Acacia gum, eucalypt sap, nectar, honeydew and manna.	Moderate. Suitable River Red Gum forest is present within the Study Area; however the community is heavily managed. May feed on the *Eucalyptus spp.* in the Study Area. May utilise tree hollows for breeding and roosting within the Study Area. 18 records within the locality. The closest record was recorded in 2018 within Cootamundra, however the precise location of the record is uncertain due to the record being noted as a 'wildlife rescue'	Yes
Mammalia	*Phascolarctos cinerus*	Koala	Endangered	Endangered	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size.	Moderate. May feed on and inhabit *Eucalyptus spp.* in the Study Area. Only two records in the locality. One recording is from 2020 within Cootamundra, however the precise location of the record is uncertain due to the record being noted as a 'wildlife rescue'	Yes
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	Vulnerable	Vulnerable	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia. Occur in	High. May fly over and forage on nectar and/or soft-fruit bearing trees	Yes

Class	Scientific Name	Common Name	BC Act	EPBC Act	Habitat Required (NSW DCCEEW 2025c)	Likelihood of Occurrence within the Study Area	NSW BC Act Test of Significance Required?
					subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km.	in the Study Area. The nearest known Flying-fox camp is approximately 42km north-east of the Study Area in Young (Commonwealth DCCEEEW 2025b). Three recordings within Cootamundra, one of which was recorded adjacent to the Study Area in 2010.	
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	Vulnerable	-	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.	Moderate. This species may forage amongst the tree canopy. Hollow-bearing trees and microbat habitat present within the Study Area may be used by the species. Only one record in the locality, recorded 28km south-west of the Study Area near Illabo in 2022.	Yes
Reptilia	*Aprasia parapulchella*	Pink-tailed Legless Lizard	Vulnerable	Vulnerable	Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (Themeda australis). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites.	Unlikely. Habitat in the Study Area is too disturbed and lacks the habitat structure (large coarse woody debris and surface rock) required for persistence. Only one record in locality approximately 22km south-west of the Study Area near Ulandra Nature Reserve.	No

5. Impact Summary

This section of the report provides a summary of impacts to biodiversity because of the proposed activity upon threatened species, populations and ecological communities listed under the BC Act or FM Act.

5.1 Vegetation Effects

The majority of the Study Area has been historically degraded and cleared from understorey maintenance and weed infestation, and is mapped as 'Category 1 Exempt' vegetation under the LLS Act (Local Land Services 2013). The proposed activity will result in the removal of approximately 5.73 ha of native indigenous vegetation (**Table 9; Figure 13**).

The proposed activity will result in the loss of vegetation belonging to a threatened ecological community (TEC) - approximately 0.46 ha of WBYB CEEC, including the potential removal of two *Eucalyptus melliodora* trees. The proposed activity will also involve the removal of 4.61 ha of non-threatened RRGW native indigenous vegetation, including the potential removal of approximately 20 characteristic trees of this community (including *Eucalyptus camaldulensis* and *Casuarina cunninghamiana subsp. cunninghamiana*).

Additionally, 0.66 ha of Cumbungi (*Typha orientalis*) may be removed from sections of the creek.

A test of significance pursuant to section 7.3 of the BC Act was prepared in this report to assess the significance of the proposed action including the removal of approximately 0.46 ha of WBYB CEEC vegetation (**Appendix 4**).

Table 9. Clearing Extent of Vegetation Communities within the Study Area

Vegetation Community	Clearing Extent		
PCT 79	0.84 ha	4.61 ha	5.73 ha
PCT 79 (Derived)	3.77 ha		
PCT 276	0.019 ha	0.46 ha	
PCT 276 (Derived)	0.44 ha		
Cumbungi Beds	0.66 ha	0.66 ha	
Exotic Dominant	0.06 ha	-	-
Total	5.79 ha	5.73 ha	-

5.2 Threatened Flora Species Effects

No threatened flora species have been recorded within or adjacent to the Study Area during the site assessment by Land Eco. All threatened flora species recorded in the locality are unlikely to occur within the Study Area due to the understorey maintenance and weed infestation present across the area.

5.3 Threatened Fauna Species Effects

No threatened fauna species have been recorded within or adjacent to the Study Area during the site assessment by Land Eco.

A suite of nomadic nectivorous birds including the Little Lorikeet, Painted Honeyeater, Black-chinned Honeyeater (eastern subspecies) and Swift Parrot may forage upon nectar and/or lerp-bearing trees in the Study Area. The Little Lorikeet may breed within the tree hollows in the Study Area. The Painted Honeyeater and Black-chinned Honeyeater may breed within the outer canopy of the trees and mistletoe branches in the Study Area. The Swift Parrot is known to only breed in Tasmania. Clearing of vegetation within the Study Area including the removal of the nectar and/or lerp-bearing trees will reduce foraging and/or breeding habitat for these nomadic nectivorous birds in the locality.

The Scarlet Robin, Brown Treecreeper (eastern subspecies), Varied Sittella, Turquoise Parrot, Superb Parrot, Dusky Woodswallow, Flame Robin, Grey-crowned Babbler (eastern subspecies), Southern Whiteface, Speckled Warbler and Diamond Firetail may forage within the Study Area amongst the grassland, shrubs, tree trunks and/or tree canopy. All these woodland species, except for the Flame Robin and Scarlet Robin, may breed within the Study Area building nests amongst vegetation or utilising tree hollows. Clearing of vegetation within the Study Area including the removal of the trees and understorey vegetation will reduce foraging and/or breeding habitat for these sensitive woodland bird species in the locality.

Threatened wetland bird species such as the White-fronted Chat and Freckled Duck may inhabit areas surrounding the section of Muttama Creek within the Study Area. These species may forage and nest in riparian vegetation along the edge of the creek. Clearing of vegetation within the Study Area including the removal of riparian vegetation will reduce foraging and/or breeding habitat for these wetland bird species in the locality.

Threatened predatory birds species including Spotted Harrier, Black Falcon, Little Eagle, Square-tailed Kite and Barking Owl are likely to fly over the Study Area hunting for prey within the vegetation in the Study Area. These species may perch/roost within the tall trees within the Study Area, occupying hollows or building large stick nests in the canopy. Clearing of vegetation within the Study Area including the removal of the trees and understorey vegetation will reduce foraging and breeding habitat for these predatory species in the locality.

Koalas and Squirrel gliders may use the Study Area for foraging and/or breeding habitat. Both species may forage upon the *Eucalyptus spp.* within the Study Area. The Squirrel Glider and Koala are expected to move across the habitat corridor along Muttama Creek for breeding and foraging. The proposed activity may potentially result in the removal of 22 trees that may form potential breeding/sheltering and foraging habitat for both species which could affect the habitat extent for both species in the locality. However, the habitat within the Study Area is unlikely to represent an important breeding or foraging habitat due to the disturbed and edge-effected nature of the area.

The Grey-headed Flying-fox is likely to utilise the Study Area on occasion when the nectar-bearing trees are in flower. No known Grey-headed Flying-fox breeding camps occur within or near the Study Area (Commonwealth DCCEEW 2025b). Clearing of the vegetation within the Study Area, potentially including a maximum of 22 trees, most of which are nectar-bearing trees, will reduce foraging habitat for the Grey-headed Flying-fox in the locality. However this species is highly mobile, and therefore the localised loss of isolated and/or historically planted paddock and shelter trees is not likely to cause a significant effect upon this species.

Threatened microbat species such as the Yellow-bellied Sheathtail-bat may fly throughout the Study Area and roost in the trees. The Yellow-bellied Sheathtail-bat may forage amongst the tree canopy within the Study Area. This species may utilise the hollows within the Study Area for breeding. The crevices in bridges within the Study Area may also provide suitable roosting habitat for microbats. Clearing of vegetation within the Study Area will reduce foraging and/or breeding habitat for these microbats in the locality. Albeit unlikely, light spillage and other indirect impacts from the proposed activity may impact upon microbats in the Study Area.

A test of significance pursuant to section 7.3 of the BC Act was prepared in this report to assess the significance of the proposed activity including the removal of vegetation within the Study Area (**Appendix 3**).

5.4 Threatened Aquatic Species Effects

A suite of threatened aquatic species listed under the FM Act are likely to occur downstream from Muttama Creek and may be indirectly impacted by the proposed activity. This includes threatened fish species such as the Silver Perch, Trout Cod, Macquarie Perch, and Flathead Galaxias, along with the threatened Murray Crayfish that may occur in the water of the greater Murray-Darling Basin system. The Murray River EEC present within and downstream of the Study Area may also be indirectly impacted. Indirect impacts from the proposed activity including stormwater runoff, erosion, sedimentation, and accidental chemical spill from machinery have the potential to occur, however they are unlikely due to the mitigation measures put in place (**Table 10**).

An Assessment of Significance as required under the EP&A Act for species and community listed under the FM Act has been undertaken to assess the potential and significance of impact for each FM Act listed threatened species/population considered as having potential to utilise the aquatic habitat within/adjacent to the Study Area (**Appendix 4**).

6. Impact Mitigation Measures

A suite of impact mitigation measures are proposed in order to avoid, minimise and mitigate impacts to threatened species from the proposed activity (**Table 10**).

Table 10. Measures to be Implemented Before, During and After Construction to Avoid and Minimise the Impacts of the Project

Action	Mitigation Measure / Outcome	Timing	Responsibility
Project Location and Design	The proposed activity has been designed to avoid habitat features used by threatened flora and fauna species within the Study Area (**Table 6; Table 7**). Cumbungi beds should be sensitively managed and retained where feasible to continue to provide habitat to aquatic and wetland fauna. Engineering solutions should be pursued to minimise tree impacts where possible.	Pre-construction phase Construction Phase	▪ Proponent
Engage Terrestrial Project Ecologist	A suitably qualified and experience Ecologist with a minimum of a tertiary degree in a relevant discipline, and licensed under NSW Biodiversity Conservation Act 2016 must be engaged to oversee the implementation of the relevant impact mitigation measures in this report.	Pre-construction phase	▪ Proponent
Engage Aquatic Project Ecologist	A suitably qualified and experience Ecologist with a minimum of a tertiary degree in a relevant discipline, and appropriate license under NSW Fisheries Management Act 1994 must be engaged to oversee the implementation of the relevant impact mitigation measures in this report.	Pre-construction phase	▪ Proponent
Undertake Pre-clearing and Clearing Supervision for Fauna Protection	Project Ecologist is to undertake a pre-clearing and clearing survey of the Study Area. The Project Ecologist is to check for any nesting or sheltering fauna, to be relocated prior to earthworks and tree, shrub or groundcover clearing. Further to this, all felling of native trees, shrubs or *Typha spp.* should be supervised by a Project Ecologist who will be available on site to capture, treat/relocate any displaced fauna. The Project Ecologist will be present to advise fauna protections only. The Project Ecologist will advise best course of action if any sensitive fauna or flora are found.	Pre-construction phase Construction Phase	▪ Terrestrial Project Ecologist
Aquatic Fauna Protection and Relocation (Dam Dewatering)	Prior to any engineering works taking place in the stream, after any body of water is 'dammed-off' an Aquatic Ecologist should be engaged to capture and relocate all native fish to suitable habitat either upstream or downstream of the proposed works. Any incidental non-native fish that are captured should be humanely euthanised.	Pre-construction phase Construction Phase	▪ Aquatic Project Ecologist
Tree Protections	All trees to be retained must be protected in accordance with Australian Standard - *Protection of Trees on Activity Sites* (AS-4970-2009), which outlines that a Tree Protection Zone (TPZ) is the principal means of protecting trees on activity sites. It is an area isolated from construction disturbance so that the tree remains viable. Works are to be avoided within the TPZ and the Structural Root Zone (SRZ) of any trees that require retention. This includes trees on neighbouring properties.	Pre-construction phase Construction Phase	▪ Construction Contractor ▪ Arborist and fence contractor under guidance of Arboriculturist.

Action	Mitigation Measure / Outcome	Timing	Responsibility
Tree Replacement	Native vegetation cleared for the proposed activity should be matched by the following levels of replacement: • For every native tree cleared, at least five native trees within the same community should be planted in a suitable location on Council land • Locally indigenous shrubs (e.g. *Acacia spp., Callistemon spp.*) should be planted at one shrub per 5 m^2 The 'Long-Stem Method' should be utilised for tree planting to improve survival rates.	Construction phase	▪ Construction Contractor
Signage - Temporary	Temporary signage should be erected within the Study Area to inform construction staff to keep away from the retained WBYB CEEC located outside of the clearing and construction footprint. Signs to state 'Critically Endangered Vegetation Keep Out' and 'Refuelling of machinery must be undertaken off site'. This will ensure that operators and construction personnel are aware of the presence of WBYB CEEC impact risk. Temporary signage should be erected within the Study Area within the Study Area to warn of the potential of runoff into Muttama Creek and into key fish habitat. Signs should state "Refuelling of machinery must be done offsite" and "Beware of potential impacts to Muttama Creek and fish populations".	Pre-construction phase	▪ Construction Contractor ▪ Terrestrial Project Ecologist
Signage - Permanent	Install three, permanent, metal podium (or similar) signs to educate the public on the riparian ecology, the threatened ecological communities that exist in the corridor, and the purpose of the riparian restoration works.	Pre-construction phase	▪ Construction Contractor ▪ Terrestrial Project Ecologist
Stormwater	Stormwater will be managed as per best practice requirements of Cootamundra-Gundagai Regional Council. The proposed stormwater network needs to be adequately engineered to minimise stormwater runoff into Muttama Creek.	Design and construction phase	▪ Construction Contractor ▪ Engineer
Release of Hydrocarbons or Other Pollutants	All plant and machinery will be checked daily for any signs of leaks/spills. No refuelling or chemical refill will occur within close proximity to Muttama Creek. Spill kits will be available in the event of a spill.	Construction phase	▪ Construction Contractor
Erosion and Sedimentation	Given there is a risk of sedimentation into Muttama Creek from the vegetation clearing and earthworks, strict erosion and sediment controls will need to be implemented. It is recommended that a comprehensive Erosion and Sediment Control Risk Assessment and Management Plan is to be prepared detailing the mitigation controls. Examples of mitigation controls include: erosion control matting, armouring, check dams, sediment traps (OEH 2012).	Construction phase	▪ Construction Contractor
Dust Suppression	During hot and dry weather, soil will be covered, and other suitable dust suppression techniques will be enforced to reduce impacts on local fauna. Dust release should be avoided or minimised. If dust becomes prominent, implement site-appropriate dust suppression techniques such as wetting the source of dust with a watercart.	Construction phase	▪ Construction Contractor

Action	Mitigation Measure / Outcome	Timing	Responsibility
Noise Suppression	Noise suppression techniques will be enforced to reduce impacts on local fauna including restricting construction hours to daytime hours only.	Construction phase	▪ Construction Contractor
Minimising Artificial Lighting Impacts	Construction should be restricted to day-time hours only where possible. Low spill lighting or shielding should be used where possible and restrictions around night-time construction work will be enforced to minimise the impacts on nocturnal fauna using nearby habitats.	Construction phase	▪ Construction Contractor
Storage and Stockpiling (Soil and Materials)	All storage, stockpile and laydown sites will be established away from any native vegetation that is planned to be retained. Never stockpile under the 'drip zone' of a tree. Avoid importing any soil from outside the site as this can introduce weeds and pathogens to the site.	Construction phase	▪ Construction Contractor
Coarse Woody Debris 'Re-snagging'	Where possible, felled tree trunks and root balls should be carefully relocated into an appropriate pool of Muttama Creek to provide habitat for fish including threatened species. This debris will need to be carefully placed as to not create a barrier for fish movement or risk flooding (DPI 2013).	Construction phase Post-construction phase	▪ Construction Contractor
Prevention of Novel Pathogens and Weeds	To limit impacts to the native vegetation in the Study Property and surrounds, importing topsoil in the Study Area should be avoided where possible. Where necessary, the substrate must be sanitised fill of local provenance. All construction equipment must be thoroughly sanitised each time before entering the Study Area.	Construction phase	▪ Construction Contractor
Eradication of Weeds	All pines, elms, willows and other weed trees that occur within the Study Area must be eradicated and replaced with native vegetation. On-going weed removal should be undertaken to prevent weeds from spreading and outcompeting native vegetation.	Construction phase Post-construction phase	▪ Construction Contractor
Landscaping	The proposed activity will involve landscaping (**Figure 3; Figure 4; Figure 5; Figure 6**). It is recommended that this landscaping incorporates locally indigenous species that occur within the Study Area, particularly trees belonging to WBYB CEEC and/or RRGF PCT. Historical landscaping has resulted in the planting of non-indigenous natives and cultivars. This should be avoided for future planting efforts.	Construction phase Post-construction phase	▪ Proponent ▪ Construction Contractor
Habitat Enhancement	To compensate for part of the fauna habitat lost from vegetation clearing, Council should consider engaging a Local Men's Shed or supplier to construct / source 10 nestboxes suitable for Superb Parrot and Squirrel Glider (5 of each type) and install in trees along the riparian corridor	Pre-construction phase Post-construction phase	▪ Proponent ▪ Construction Contractor
Terrestrial Biodiversity Management Plan	Council should engage an Ecologist to prepare a Terrestrial Biodiversity Management Plan to guide the revegetation and habitat restoration efforts prior to construction phase commencing. This plan should interact with the landscape plan and engineering design. It will guide the plant supply and install and all other terrestrial habitat enhancements. Most importantly the plan will guide the effective weed management of the corridor.	Pre-construction phase	Terrestrial Project Ecologist

Action	Mitigation Measure / Outcome	Timing	Responsibility
Aquatic Biodiversity Management Plan	Council should engage an Aquatic Ecologist to prepare an Aquatic Biodiversity Management Plan prior to construction phase commencing. This plan should interact with the landscape plan and engineering design. It will guide the native fish, and invertebrate salvage and translocation, re-snagging and all other aquatic habitat enhancements.	Pre-construction phase	▪ Aquatic Project Ecologist

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8. Appendices

Appendix 1. Fauna species identified during survey of Study Area by Land Eco Consulting

Class	Scientific Name	Common Name	NSW Biodiversity Conservation Act 2016 Status	Environment Protection and Biodiversity Conservation Act 1999 Status
Amphibia	*Crinia parinsignifera*	Eastern sign-bearing Froglet	Protected	-
Amphibia	*Crinia signifera*	Common Eastern Froglet	Protected	-
Aves	*Acanthiza nana*	Yellow Thornbill	Protected	-
Aves	*Accipiter fasciatus*	Brown Goshawk	Protected	-
Aves	*Anas platyrhynchos*	Mallard	-	-
Aves	*Anthochaera carunculata*	Red Wattlebird	Protected	-
Aves	*Cacatua galerita*	Sulphur-crested Cockatoo	Protected	-
Aves	*Cacatua sanguinea*	Little Corella	Protected	-
Aves	*Chenonetta jubata*	Australian Wood Duck	Protected	-
Aves	*Columba livia*	Rock Dove	-	-
Aves	*Egretta novaehollandiae*	White-faced Heron	Protected	-
Aves	*Entomyzon cyanotis*	Blue-faced Honeyeater	Protected	-
Aves	*Eolophus roseicapilla*	Galah	Protected	-
Aves	*Falco cenchroides*	Nankeen Kestrel	Protected	-
Aves	*Fulica atra*	Eurasian Coot	Protected	-
Aves	*Gallinula tenebrosa*	Dusky Moorhen	Protected	-
Aves	*Grallina cyanoleuca*	Magie-lark	Protected	-
Aves	*Gymnorhina tibicen*	Australian Magpie	Protected	-
Aves	*Lichenostomus chrysops*	Yellow-faced Honeyeater	Protected	-
Aves	*Lichenostomus penicillatus*	White-plumed Honeyeater	Protected	-
Aves	*Malurus cyaneus*	Superb Fairywren	Protected	-
Aves	*Manorina melanocephala*	Noisy Miner	Protected Key Threatening Process	-
Aves	*Microcarbo melanoleucos*	Little Pied Cormorant	Protected	-
Aves	*Neochmia temporalis*	Red-browed Finch	Protected	-
Aves	*Ocyphaps lophotes*	Crested Pigeon	Protected	-
Aves	*Pardalotus punctatus*	Spotted Pardalote	Protected	-
Aves	*Platycercus eximius*	Eastern Rosella	Protected	-
Aves	*Psephotus haematonotus*	Red-rumped Parrot	Protected	-
Aves	*Rhipidura albiscapa*	Grey Fantail	Protected	-
Aves	*Rhipidura leucophrys*	Willie Wagtail	Protected	-
Aves	*Smicrornis brevirostris*	Weebill	Protected	-
Aves	*Strepera graculina*	Pied Currawong	Protected	-
Aves	*Sturnus vulgaris*	Common Starling	-	-
Aves	*Threskiornis moluccus*	Australian White Ibis	Protected	-
Aves	*Threskiornis spinicollis*	Straw-necked Ibis	Protected	-
Aves	*Trichoglossus moluccanus*	Rainbow Lorikeet	Protected	-
Aves	*Turdus merula*	Common Blackbird	-	-
Aves	*Vanellus miles*	Masked Lapwing	Protected	-
Aves	*Zosterops lateralis*	Silvereye	Protected	-
Mammalia	*Macropus giganteus*	Eastern Grey Kangaroo	Protected	-
Mammalia	*Wallabia bicolor*	Swamp Wallaby	Protected	-

Appendix 2. Flora species identified during survey of Study Area by Land Eco Consulting

Species	Stratum	Status
Celtis spp.	Canopy	Exotic
Albizia julibrissin	Canopy	Exotic
Cedrus deodara	Canopy	Exotic
Fraxinus angustifolia	Canopy	Exotic
Fraxinus spp.	Canopy	Exotic
Ligustrum lucidum	Canopy	Exotic
Pinus radiata	Canopy	Exotic
Populus nigra	Canopy	Exotic
Pyrus spp.	Canopy	Exotic
Quercus ilex	Canopy	Exotic
Schinus molle	Canopy	Exotic
Ulmus americana	Canopy	Exotic
Ulmus minor	Canopy	Exotic
Amyema spp.	Canopy (Mistletoe)	Native
Brachychiton populneus	Canopy	Native
Casuarina cunninghamiana subsp. cunninghamiana	Canopy	Native
Corymbia maculata	Canopy	Native
Eucalyptus camaldulensis	Canopy	Native
Eucalyptus cinerea	Canopy	Native
Eucalyptus melliodora	Canopy	Native
Eucalyptus viminalis	Canopy	Native
Melaleuca armillaris subsp. armillaris	Canopy	Native
Eucalyptus argophloia	Canopy	Native (Non-indigenous)
Eucalyptus cephalocarpa	Canopy	Native (Non-indigenous)
Eucalyptus globulus	Canopy	Native (Non-indigenous)
Eucalyptus leucoxylon	Canopy	Native (Non-indigenous)
Grevillea robusta	Canopy	Native (Non-indigenous)
Convolvulus arvensis	Climbing	Exotic
Hedera helix	Climbing	Exotic
Vicia sativa	Climbing	Exotic
Juncus spp.	Ground	-
Pyracantha spp.	Mid-stratum	-
Agapanthus praecox	Mid-stratum	Exotic
Aster subulatus	Ground	Exotic
Cotoneaster spp.	Mid-stratum	Exotic
Euphorbia oblongata	Mid-stratum	Exotic
Nerium oleander	Mid-stratum	Exotic
Phalaris aquatica	Mid-stratum	Exotic
Polypogon monspeliensis	Mid-stratum	Exotic
Rosa rubiginosa	Mid-stratum	Exotic
Rumex crispus	Ground	Exotic
Setaria spp.	Mid-stratum	Exotic
Solanum pseudocapsicum	Mid-stratum	Exotic
Acacia acinacea	Mid-stratum	Native
Acacia baileyana	Mid-stratum	Native
Acacia decurrens	Mid-stratum	Native
Callistemon sieberi	Mid-stratum	Native
Grevillea rosmarinifolia	Mid-stratum	Native
Melaleuca styphelioides	Mid-stratum	Native

Species	Stratum	Status
Typha orientalis	Mid-stratum	Native
Alocasia brisbanensis	Mid-stratum	Native (Non-indigenous)
Callistemon viminalis	Mid-stratum	Native (Non-indigenous)
Lomandra hystrix	Mid-stratum	Native (Non-indigenous)
Melaleuca bracteata	Mid-stratum	Native (Non-indigenous)
Oxalis spp.	Ground	Exotic
Wahlenbergia spp.	Ground	Native
Bromus catharticus	Ground	Exotic
Cenchrus clandestinum	Ground	Exotic
Cichorium intybus	Ground	Exotic
Cirsium vulgare	Ground	Exotic
Cyperus eragrostis	Ground	Exotic
Echinochloa crus-galli	Ground	Exotic
Echium plantagineum	Ground	Exotic
Erigeron bonariensis	Ground	Exotic
Euphorbia serpens	Ground	Exotic
Fumaria capreolata	Ground	Exotic
Gazania rigens	Ground	Exotic
Hypericum spp.	Ground	Exotic
Lactuca serriola	Ground	Exotic
Modiola caroliniana	Ground	Exotic
Paspalum dilatatum	Ground	Exotic
Plantago lanceolata	Ground	Exotic
Setaria pumila	Ground	Exotic
Solanum americanum	Ground	Exotic
Sonchus oleraceus	Ground	Exotic
Sorghum halepense	Ground	Exotic
Stellaria media	Ground	Exotic
Taraxacum officinale	Ground	Exotic
Trifolium repens	Ground	Exotic
Verbena bonariensis	Ground	Exotic
Vinca major	Ground	Exotic
Bothriochloa macra	Ground	Native
Carex appressa	Ground	Native
Chloris truncata	Ground	Native
Cynodon dactylon	Ground	Native
Einadia nutans	Ground	Native
Einadia trigonos	Ground	Native
Panicum effusum	Ground	Native
Paspalum distichum	Ground	Native
Persicaria decipiens	Ground	Native
Plantago varia	Ground	Native
Portulaca oleracea	Ground	Native
Pratia concolor	Ground	Native
Veronica plebeian	Ground	Native
Acacia spp.	Mid-stratum	Native
Callistemon spp.	Mid-stratum	Native
Hakea spp.	Mid-stratum	Native
Rytidosperma spp.	Ground	Native
Amaranthus spp.	Ground	Exotic

Appendix 3. Biodiversity Conservation Act 2016 - Test of Significance (5 Part Test)

Vegetation Community

- *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* - critically endangered (BC Act)

Nomadic Nectarivorous Birds

- *Anthochaera Phrygia* (Regent Honeyeater) – critically endangered (BC Act); critically endangered (EPBC Act)
- *Grantiella picta* (Painted Honeyeater) – vulnerable (BC Act); vulnerable (EPBC Act)
- *Lathamus discolor (*Swift Parrot) – endangered (BC Act); critically endangered (EPBC Act)
- *Melithreptus gularis gularis* (Black-chinned Honeyeater – eastern subspecies) – vulnerable (BC Act)
- *Parvipsitta pusilla* (Little Lorikeet) – vulnerable (BC Act)

Woodland Birds

- *Aphelocephala leucopsis* (Southern Whiteface) – vulnerable (BC Act); vulnerable (EPBC Act)
- *Artamus cyanopterus cyanopterus* (Dusky Woodswallow) – vulnerable (BC Act)
- *Callocephalon fimbriatum* (Gang-gang Cockatoo) – endangered (BC Act); endangered (EPBC Act)
- *Climacteris picumnus victoriae* (Brown Treecreeper – eastern subspecies) – vulnerable (BC Act); vulnerable (EPBC Act)
- *Daphoenositta chrysoptera* (Varied Sittella) – vulnerable (BC Act)
- *Melanodryas cucullata cucullata* (South-eastern Hooded Robin) – endangered (BC Act); endangered (EPBC Act)
- *Neophema pulchella* (Turquoise Parrot) – vulnerable (BC Act)
- *Petroica boodang* (Scarlet Robin) – vulnerable (BC Act)
- *Petroica phoenicea* (Flame Robin) – vulnerable (BC Act)
- *Polytelis swainsonii* (Superb Parrot) – vulnerable (BC Act); vulnerable (EPBC Act)
- *Pomatostomus temporalis temporalis* (Grey-crowned Babbler – eastern subspecies) – vulnerable (BC Act)
- *Pyrrholaemus sagittatus* (Speckled Warbler) – vulnerable (BC Act)
- *Stagonopleura guttata* (Diamond Firetail) – vulnerable (BC Act); vulnerable (EPBC Act)

Wetland Birds

- *Epthianura albifrons* (White-fronted Chat) – vulnerable (BC Act)
- *Stictonetta naevosa* (Freckled Duck) – vulnerable (BC Act)

Predatory Birds

- *Circus assimilis (*Spotted Harrier) – vulnerable (BC Act)
- *Falco subniger* (Black Falcon) – vulnerable (BC Act)
- *Hieraaetus morphnoides (*Little Eagle) – vulnerable (BC Act)
- *Lophoictinia isura (*Square-tailed Kite) – vulnerable (BC Act)
- *Ninox connivens* (Barking Owl) – vulnerable (BC Act)

Marsupials

- *Petaurus norfolcensis* (Squirrel Glider) - vulnerable (BC Act)
- *Phascolartos cinereus* (Koala) - endangered (BC Act); endangered (EPBC Act)

Flying-foxes

- *Pteropus poliocephalus* (Grey-headed Flying-fox) - vulnerable (BC Act); vulnerable (EPBC Act)

Microbats

- *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat) - vulnerable (BC Act)

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* Status: Critically Endangered	
Ecology (NSW DCCEEW 2025c)	Characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum and a generally grassy understorey. The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees, including wattles. Shrubs are generally sparse or absent, though they may be locally common. Remnants generally occur on fertile lower parts of the landscape where soil fertility is relatively high compared to the surrounding landscape. Sites with particular characteristics, including varying age classes in the trees, patches of regrowth, old trees with hollows and fallen timber on the ground are very important as wildlife habitat. Sites in the lowest parts of the landscape often support very large trees which have leafy crowns and reliable nectar flows - sites important for insectivorous and nectar feeding birds. Sites that retain only a grassy groundlayer and with few or no trees remaining are important for rehabilitation, and to rebuild connections between sites of better quality. Remnants support many species of threatened fauna and flora. Retention of remnants is important as they contribute to productive farming systems (stock shelter, seed sources, sustainable grazing and water-table and salinity control). The fauna of remnants (insectivorous birds, bats, etc) can contribute to insect control on grazing properties. Some of the component species (e.g. wattles, she-oaks, native legumes) fix nitrogen that is made available to other species in the community, while fallen timber and leaves recycle their nutrients. Disturbed remnants are considered to form part of the community, including where the vegetation would respond to assisted natural regeneration.
Habitat Impacted by this Activity/Activity	WBYB CEEC including mature canopy trees occurs within the Study Area. The WBYB CEEC within the Study Area has been disturbed by historical clearing and exotic planting, and is subject to ongoing understorey management. The proposed activity will involve the removal of a maximum area of approximately 5.79 ha vegetation. The vegetation in proximity to the activity consists of a mixture of remnant bushland belonging to WBYB CEEC and RRGW along with maintained gardens and lawns. Albeit unlikely due to mitigation measures in place (**Table 10**), the vegetation that will be retained within the Study Area may be impacted indirectly through introduction and spread of novel weeds, soil disturbance and accidental chemical spill from machinery.
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	N/A

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* Status: Critically Endangered		
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	The proposed activity is not likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The WBYB CEEC within the Study Area is mostly degraded through ongoing understorey management and previous exotic planting. The removal of the small fragment (0.46 ha) of vegetation is unlikely to put the community at risk of extinction. The total extent of WBYB CEEC within a 2000m buffer of the Study Area is 273 ha which represents 13.0% of the total buffer area. The proposed activity will remove a maximum of approximately 0.46 ha of vegetation which is less than 0.2% of the total area of WBYB CEEC within 2000m. Unmapped WBYB CEEC of 0.07 ha will continue to occur within the Study Area post-activity, which represents approximately 0.03% of total area of WBYB CEEC within 2000m.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	The removal of 0.46 ha of vegetation is unlikely to modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The extent of this community within the Study Area is currently small and degraded, and hectares of WBYB CEEC will continue to occur within the locality.
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	A maximum of approximately 0.46 ha of vegetation will be removed for the proposed activity that represents WBYB CEEC. This represents less than 0.2% of the total area of WBYB CEEC within 2000m. Indirect impacts to the remaining habitat is likely to be negligible after the implementation of the mitigation practices (**Table 10**).
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	The habitat is already disturbed and fragmented due to understorey management. Several remnant canopy trees will remain within the Study Area post-activity which will maintain habitat connectivity to surrounding WBYB CEEC. Albeit unlikely due to mitigation measures in place (**Table 10**), the retained trees may be indirectly impacted by the proposed activity through the introduction and spread of novel weeds, accidental chemical spill and soil disturbance. Despite these direct and indirect impacts, the proposed activity is not likely to cause an area of habitat to become fragmented or isolated from other areas of habitat beyond its current condition.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	The habitat to be removed/modified is not important to the long-term survival of the WBYB CEEC in the locality. The condition of the community within the Study Area is degraded and underscrubbed – better quality WBYB CEEC vegetation exists in the locality. The vegetation to be removed is a maximum of approximately 0.46 ha which represents less than 0.2% of the total area of BMBF EEC within 2000m. WBYB CEEC will continue to remain across the locality.
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* Status: Critically Endangered	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Nomadic Nectarivorous Birds • Regent Honeyeater (*Anthochaera Phrygia*)[3] • Painted Honeyeater (*Grantiella picta*)[1] • Swift Parrot (*Lathamus discolor*)[2] • Black-chinned Honeyeater – eastern subspecies (*Melithreptus gularis gularis*) [1] • Little Lorikeet (*Parvipsitta pusilla*) [1] Status: Vulnerable[1]; Endangered[2]; Critically Endangered[3]		
Ecology (NSW DCCEEW 2025c)	These species are nomadic nectarivorous birds that travel across New South Wales following food availability. The main sources of food are nectar from flowering *Eucalyptus spp./Corymbia spp.*, honeydew, mistletoe and lerp (psyllid bug exudate) on *Eucalyptus spp./Corymbia spp./Angophora spp.* leaves. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria. An open cup-shaped nest is constructed of bark, grass, twigs and wool by the female. The Little Lorikeet is known to nest in hollows of smooth-barked trees. The Painted Honeyeater builds nests within the outer canopy of drooping eucalypts, she-oaks, paperbark and mistletoe branches. The Black-chinned Honeyeater (eastern subspecies) build nests high in the crown of trees. The Swift parrot is known to only breed in Tasmania.	
Habitat Impacted by this Activity/Activity	The Study Area contains tree species that may form potential foraging habitat for these five species, foraging on flowering *Eucalyptus spp.*, mistletoes and/or lerp of *Eucalyptus spp.* The Study Area contains 21 hollow-bearing trees which may provide suitable breeding habitat for the Little Lorikeet, though these will not be directly impacted. The Regent Honeyeater, Painted Honeyeater and Black-chinned Honeyeater may breed within the outer canopy of the trees and mistletoe branches in the Study Area.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	These birds are highly mobile and may forage across a large range including within the Study Area. The Little Lorikeet breeds across its distribution in NSW and may use hollow-bearing trees within the Study Area to breed. The Painted Honeyeater, Regent Honeyeater and Black-chinned Honeyeater may breed in the trees of the Study Area. The Swift Parrot is known to only breed in Tasmania. The proposed activity will potentially result in the removal of approximately 22 trees. These trees did not appear to contain hollows during the site assessment. This vegetation proposed for removal may provide foraging habitat for this species. The habitat to be removed is likely to form only a small portion of the overall habitat used by this species in the locality and more habitats will be available in the Study Area and surrounding area. Suitable foraging and breeding habitat will continue to occur in the surrounding reserves and parks including: Pioneer Park, Ulandra Nature Reserve and Jindalee National Park.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	The proposed activity will potentially result in the removal of approximately 22 trees which provide suitable foraging and/or breeding habitat for these species. These trees did not appear to contain hollows during the site assessment. Indirect impacts to the remaining habitat are likely to be negligible after the implementation of the mitigation practices (**Table 10**).

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Nomadic Nectarivorous Birds • Regent Honeyeater (*Anthochaera Phrygia*)[3] • Painted Honeyeater (*Grantiella picta*)[1] • Swift Parrot (*Lathamus discolor*)[2] • Black-chinned Honeyeater – eastern subspecies (*Melithreptus gularis gularis*) [1] • Little Lorikeet (*Parvipsitta pusilla*) [1] Status: Vulnerable[1]; Endangered[2]; Critically Endangered[3]		
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	These birds are highly mobile and known to forage and breed across its distribution in NSW. The proposed activity will not prevent access to the surrounding habitat. The proposed activity is not likely to cause the area of habitat to become further fragmented or isolated from other areas of habitat beyond its current condition.
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	The proposed activity will potentially result in the removal of approximately 22 trees which provides suitable foraging habitat for these species, however it is not important to the long-term survival of this species in the locality as there is an abundance of food/breeding sources in surrounding areas.
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners (*Manorina melanocephala*) • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Woodland Birds • Southern Whiteface (*Aphelocephala leucopsis*)[1] • Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)[1] • Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] • Brown Treecreeper – eastern subspecies (*Climacteris picumnus victoriae*)[1] • Varied Sittella (*Daphoenositta chrysoptera*)[1] • South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)[2] • Turquoise Parrot (*Neophema pulchella*)[1] • Scarlet Robin (*Petroica boodang*)[1] • Flame Robin (*Petroica phoenicea*)[1] • Superb Parrot (*Polytelis swainsonii*)[1] • Grey-crowned Babbler – eastern subspecies (*Pomatostomus temporalis temporalis*)[1] • Speckled Warbler (*Pyrrholaemus sagittatus*)[1] • Diamond Firetail (*Stagonopleura guttata*)[1] Status: Vulnerable[1]; Endangered[2]	
Ecology **(NSW DCCEEW 2025c)**	Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. The bird mainly feeds on insects, spiders, and seeds, largely gleaned from the bare ground or leaf litter. The species nests in tree hollows and crevices of living and dead trees (Commonwealth DCCEEW 2023). The Dusky Woodswallow primarily inhabits dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. The Gang-gang Cockatoo In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (Eucalyptus pauciflora) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 metres or more above the ground. The Brown Treecreeper is found in eucalypt woodlands (including Box-Gum Woodland) and dry open forests. This species mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. Fallen timber is also an important habitat component for foraging. Brown Treecreepers nest in hollows of standing dead or live trees and tree stumps. The Varied Sitella inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland, building small nests in an upright tree fork high in the living tree canopy, often re-using the same fork or tree in successive years. The South-eastern Hooded Robin prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. The nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1 m to 5 m above the ground. The Turquoise Parrot lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants, or browsing on vegetable matter. Nests in tree hollows, logs or posts, from August to December. The Scarlet Robin lives in dry eucalypt forests and woodlands within an open understorey and abundant wooden debris, building nests in tree forks more than 2 metres above the ground. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Woodland Birds • Southern Whiteface (*Aphelocephala leucopsis*)[1] • Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)[1] • Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] • Brown Treecreeper – eastern subspecies (*Climacteris picumnus victoriae*)[1] • Varied Sittella (*Daphoenositta chrysoptera*)[1] • South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)[2] • Turquoise Parrot (*Neophema pulchella*)[1] • Scarlet Robin (*Petroica boodang*)[1] • Flame Robin (*Petroica phoenicea*)[1] • Superb Parrot (*Polytelis swainsonii*)[1] • Grey-crowned Babbler – eastern subspecies (*Pomatostomus temporalis temporalis*)[1] • Speckled Warbler (*Pyrrholaemus sagittatus*)[1] • Diamond Firetail (*Stagonopleura guttata*)[1] Status: Vulnerable[1]; Endangered[2]	
	The Flame Robin breeds in upland tall moist eucalypt forests and woodlands of with an open understorey, often on ridges and slopes. Prefers clearings or areas with open understoreys. Nests are often near the ground in sheltered sites such as shallow tree cavities. The Superb Parrot inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest. In the Riverina superb parrots nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum forest or woodland. Feed in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants. Also eaten are fruits, berries, nectar, buds, flowers, insects and grain. The Grey-crowned Babbler inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Birds are generally unable to cross large open areas. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. The Diamond Firetail is Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.
Habitat Impacted by this Activity/Activity	The Study Area contains suitable foraging and/or breeding habitat for all of these woodland species. The Flame Robin and Scarlet Robin are nomadic foragers that may forage upon insects on the ground or amongst the branches. The Robins are unlikely to breed within the Study Area as they tend to breed at high altitudes. The Southern Whiteface, Speckled Warbler, Diamond Firetail and Turquoise Parrot may forage on the ground within the Study Area on grass/herb seeds and/or insects. The Diamond Firetail and Speckled Warblers may nest under the trees, in the dense tussocks or small tree hollows. The Southern White Face and Turquoise Parrot may breed within the tree hollows. The Hooded Robin, Dusky Woodswallow, Varied Sitella and Grey-crowned Babbler may forage amongst the canopy, shrubs and grassland in the Study Area primarily feeding on insects. The Dusky Woodswallow and Varied Sitella may breed within the decorticated bark fissures, hollows or build nests on tree forks. The Grey-crowned Babbler may build its nest amongst the shrubs or on tree forks in the Study Area. The Superb Parrot may forage in the grassland on seeds/plants or forage amongst the trees on the Eucalyptus buds within the Study Area. This species may breed within the tree hollows of large trees. The Brown Treecreeper may forage on the tree trunks and amongst the grassland in the Study Area primarily feeding on insects. This species may breed within the tree hollows. The Gang-gang Cockatoo may forage in remnant and planted *Eucalyptus spp.* trees, and nest in hollow-bearing trees present within the Study Area.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Woodland Birds • Southern Whiteface (*Aphelocephala leucopsis*)[1] • Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)[1] • Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] • Brown Treecreeper – eastern subspecies (*Climacteris picumnus victoriae*)[1] • Varied Sittella (*Daphoenositta chrysoptera*)[1] • South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)[2] • Turquoise Parrot (*Neophema pulchella*)[1] • Scarlet Robin (*Petroica boodang*)[1] • Flame Robin (*Petroica phoenicea*)[1] • Superb Parrot (*Polytelis swainsonii*)[1] • Grey-crowned Babbler – eastern subspecies (*Pomatostomus temporalis temporalis*)[1] • Speckled Warbler (*Pyrrholaemus sagittatus*)[1] • Diamond Firetail (*Stagonopleura guttata*)[1] Status: Vulnerable[1]; Endangered[2]		
	The proposed activity will remove suitable foraging habitat for all of these woodland species along with breeding habitat for the nest-building species (except the robins). The impact involves the removal of a maximum of approximately 5.73 ha of native indigenous vegetation, potentially including approximately 22 trees. The species are aerially mobile and able to move between habitat patches. Suitable foraging and/or breeding habitat will continue to exist within the Study Area and surrounding properties for these species post-activity.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	These woodland birds are aerially mobile and forage across a large distribution. Suitable foraging habitat for all these species will continue to occur in the Study Area and surrounding locality post-activity. The Flame Robin and Scarlet Robin are unlikely to breed in the Study Area as they prefer higher altitudes for their breeding. While potential breeding habitat for all nest-building species (except the robins) is proposed to be cleared for the proposed activity, the Study Area is relatively open and disturbed compared to other parts of the riparian zone along Muttama Creek. As such, the habitat to be disturbed is unlikely to offer significant breeding habitat to a viable local population of these woodland species, minimising the risk of any adverse effect on their life cycle.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	The proposed activity involves the removal of a maximum of approximately 5.73 ha of native indigenous vegetation, potentially including approximately 22 trees.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	It is not likely that an area of habitat will become fragmented or isolated from other areas of habitat beyond the current state as a result of the proposed activity. The proposed activity will not restrict access to surrounding habitat as these woodland birds are aerially mobile and known to forage and breed across a large distribution.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Woodland Birds • Southern Whiteface (*Aphelocephala leucopsis*)[1] • Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)[1] • Gang-gang Cockatoo (*Callocephalon fimbriatum*)[2] • Brown Treecreeper – eastern subspecies (*Climacteris picumnus victoriae*)[1] • Varied Sittella (*Daphoenositta chrysoptera*)[1] • South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)[2] • Turquoise Parrot (*Neophema pulchella*)[1] • Scarlet Robin (*Petroica boodang*)[1] • Flame Robin (*Petroica phoenicea*)[1] • Superb Parrot (*Polytelis swainsonii*)[1] • Grey-crowned Babbler – eastern subspecies (*Pomatostomus temporalis temporalis*)[1] • Speckled Warbler (*Pyrrholaemus sagittatus*)[1] • Diamond Firetail (*Stagonopleura guttata*)[1] Status: Vulnerable[1]; Endangered[2]		
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	The habitat proposed to be removed, modified, fragmented or isolated is not important to the long-term survival of these species in the locality because the habitat is: 1. In poor condition owing to historical clearing and weed infestation. 2. No breeding habitat for the Flame Robin and Scarlet Robin is likely to be removed. 3. No significant breeding habitat for the woodland species is expected to be disturbed as the habitat is open and disturbed. 4. Substantial amount of habitat will remain available along Muttama Creek and surrounding landscape. Owing to these factors, the habitat is not considered important to these species in the locality
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners (*Manorina melanocephala*) • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Wetland Birds • White-fronted Chat (*Epthianura albifrons*) • Freckled Duck (*Stictonetta naevosa*) Status: Vulnerable		
Ecology **(NSW DCCEEW 2025c)**	The White-fronted Chat is a gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground. The species builds 'open-cup' nests built in low vegetation. Freckled Ducks prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nests are usually located in dense vegetation at or near water level.	
Habitat Impacted by this Activity/Activity	The proposed activity will result in the maximum loss of approximately 5.73 ha of native indigenous vegetation, potentially including the maximum removal of 0.66 ha of Cumbungi. The vegetation proposed to be removed could be used for foraging and habitation by these birds; however this only represents a small area compared to the rest of the foraging and habitation area available in the remainder of the Study Area. Indirect impacts such as water contamination and sedimentation may affect foraging and habitation opportunities for these bird species in the creek, however these impacts are unlikely to occur if mitigation measures (**Table 10**) are implemented.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	Although vegetation for foraging and habitation is proposed to be removed, the White-fronted Chat and Freckled Duck are highly mobile species and are known to migrate to new areas when food sources become scarce or waterways dry out. This means that these species will be able to move further down Muttama Creek or to nearby reserves to more suitable habitat when the proposed activity is undertaken. As such, the proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable local population is likely to be placed at risk of extinction.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	A maximum of approximately 5.73 ha of native indigenous vegetation in the Study Area will be removed/modified for the proposed activity potentially including the maximum removal of 0.66 ha of Cumbungi.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	These bird species are highly mobile and are naturally able to travel between patches of wetlands. Wetland habitats will continue to occur in Muttama Creek and nearby reserves. The Study Area is also highly disturbed and fragmented due to understorey maintenance and weed infestation, meaning the habitat is unlikely to become further fragmented/isolated beyond the current state.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Wetland Birds • White-fronted Chat (*Epthianura albifrons*) • Freckled Duck (*Stictonetta naevosa*) Status: Vulnerable		
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	These wetland bird species are highly mobile and will naturally migrate between patches of Wetland. Only a small portion of wetland habitat is proposed for removal. Suitable habitat will continue to occur in the locality within the Study Area and nearby National Parks. The habitat proposed to be removed for the activity is therefore, not important to the long-term survival of the species or ecological community in the locality.
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Predatory Birds • Spotted Harrier (*Circus assimilis*) • Black Falcon (*Falco subniger*) • Little Eagle (*Hieraaetus morphnoides*) • Square-tailed Kite (*Lophoictinia isura*) • Barking Owl (*Ninox connivens*) Status: Vulnerable		
Ecology (NSW DCCEEW 2025c)	The Spotted Harrier, Little Eagle, Square-tailed Kite and Black falcon are all diurnal predatory birds that prey upon birds, mammals and reptiles. These raptors build nests in large trees, often near a water source such as a river. Their preferred prey varies: • Spotted Harrier will feed on terrestrial mammals, birds, reptiles and occasionally insects and carrion. • Little Eagle has a preference for reptiles and ground-dwelling mammals such as rabbits. • Black Falcon feeds mostly on other birds, especially flocking, ground-feeding granivores such as pigeons and parrots, but also some small mammals. • Square tailed Kite is a specialist hunter of birds, especially honeyeaters, and nestlings. The Barking Owl is a nocturnal predator that nests in large hollows in mature trees, usually in dense bushland away from disturbance. The species preferentially hunts medium-sized birds and small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums.	
Habitat Impacted by this Activity/Activity	The Study Area contains native grassland vegetation and tree species that may form potential foraging habitat for these predatory birds as they attract vertebrate prey items such as birds, bats, reptiles and mammals. There is a total of 21 hollow-bearing trees on the Study Area, some of which may offer suitable breeding habitat to owl species. Trees are present within the Study Area that are large enough for large stick-nests to be built by diurnal predatory birds. The species are aerially mobile and able to move between habitat patches. Suitable foraging and/or breeding habitat will continue to exist within the Study Area and surrounding properties for these species post-activity.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	All these predatory birds are large, mobile bird species capable of moving multiple kilometres in a day. The habitat to be impacted by the activity forms only a small portion of the overall habitat used by these species in the locality and available in the surrounding remnant habitats. The proposed potential removal of approximately 22 large trees could reduce breeding habitat for raptors to build stick nests. Albeit unlikely due to the mitigation measures to be implemented (**Table 10**), light spillage has the potential to impact on foraging owls. It is unlikely that there will be any adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	The proposed activity will potentially result in the loss of 22 trees. The proposed activity will result in the removal of 5.73 ha of midstorey and ground vegetation which could be used as potential occasional hunting grounds for these predatory birds. Regardless of the vegetation clearing, these birds are aerially mobile and known to forage and breed across a

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Predatory Birds • Spotted Harrier (*Circus assimilis*) • Black Falcon (*Falco subniger*) • Little Eagle (*Hieraaetus morphnoides*) • Square-tailed Kite (*Lophoictinia isura*) • Barking Owl (*Ninox connivens*) Status: Vulnerable		
		large distribution meaning the proposed removal of habitat is unlikely to greatly affect these species.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	The Study Area is currently highly disturbed and fragmented due to understorey maintenance and weed infestation, therefore the proposed removal is unlikely to fragment or isolate the habitat beyond the current state. Regardless, the proposed activity will not restrict access to surrounding habitat as these predatory birds are aerially mobile and known to forage and breed across a large distribution.
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	The proposed activity will potentially result in the loss of approximately 22 trees. No trees with stick nests will be removed; however large trees proposed for potential removal may be used for stick nests. The removal of 22 trees will not impact on the long-term survival of these predatory birds in the locality as there is an abundance of food attracting sources in the wider surrounding area.
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Marsupials • Squirrel Glider (*Petaurus norfolcensis*)[1] • Koala (*Phascolartos cinereus*)[2] Status: Vulnerable[1]; Endangered[2]		
Ecology **(NSW DCCEEW 2025c)**	The Squirrel Glider occurs in mature Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range. This species typically requires trees to be between 30 to 80m apart to glide. The Squirrel Glider occupy a home range up to 9 ha but may use to up 19 hollows in their home range. This species is also very loyal to its territory given the food source available in the area. The Squirrel Glider may have multiple den trees within its territory and a single hollow may have multiple individuals at a time. This species will feed primarily on nectar, sap, honeydew and manna with pollen and insects. To extract sap, these gliders will bite into the trunks and branches of favoured food trees. The Koala inhabits eucalypt woodlands and forests. This species feeds on 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees.	
Habitat Impacted by this Activity/Activity	The Study Area contains a variety of *Eucalyptus spp.* that may form potential foraging habitat for Koalas and Squirrel Gliders (OEH 2018). 22 trees that may be used for foraging may potentially be removed. The Study Area contains 21 hollow-bearing trees, some of which could be inhabited by Squirrel Gliders. No hollow-bearing trees are proposed to be removed. The areas of vegetation proposed to be removed are edge effected which deters these species from inhabiting the Study Area. More suitable habitat will continue to occur further along Muttama Creek and in surrounding nature reserves.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	The potential removal of 22 trees will reduce the potential breeding and known foraging resources for these species within the Study Area. It is considered possible that the proposed activity could decrease the utilisation of the habitat within the Study Area. This could occur as a result of loss of suitable trees, and on-going urban disturbance (vehicles, lighting, human presence etc) and other edge effects. However, the habitat exists within an urban centre, is degraded and unlikely to be heavily relied upon by these species. It is expected that the Koala and Squirrel Gliders that may occur in the Study Area would form part of a population that is continuous with more suitable habitat in the locality. It is expected that if present, the Koala and Squirrel Glider will remain in the locality post activity. The potential removal of 22 trees including feed/shelter trees is unlikely to adversely impact the life cycle of a local population of this species such that a viable local population of the species is likely to be placed at risk of extinction. Suitable foraging habitat with direct connectivity will continue to occur adjacent to the Study Area along Muttama Creek.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	Vegetation within the Study Area will be removed/modified for the proposed activity, potentially including approximately 22 trees that may be used for foraging and sheltering. No hollow-bearing trees are proposed for removal.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	Corridors of trees will continue to remain on the Study Area, and these corridors will continue to connect to the riparian vegetation of Muttama Creek. The Study Area will become more urbanised as a result of the activity. Increased human activity and vehicle activity

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Marsupials • Squirrel Glider (*Petaurus norfolcensis*)[1] • Koala (*Phascolartos cinereus*)[2] Status: Vulnerable[1]; Endangered[2]		
		may reduce suitability of remaining habitat to be utilised by these species. The potential clearing of up to 22 trees will further reduce the availability of habitat. The most optimal habitat in the locality is along the bank of Muttama Creek. This vegetation and habitat will continue to provide suitable habitat for the Koala and Squirrel Glider in the locality.
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	The potential removal of 22 trees will reduce the potential breeding and known foraging resources for these species within the Study Area. It is considered possible that the proposed activity could decrease the utilisation of the habitat within the Study Area. This could occur as a result of loss of suitable trees, and on-going urban disturbance (vehicles, lighting, human presence etc) and other edge effects. However, the habitat exists within an urban centre, is degraded and unlikely to be heavily relied upon by these species. It is expected that the Koala and Squirrel Gliders that may occur in the Study Area would form part of a population that is continuous with more suitable habitat in the locality. It is expected that if present, the Koala and Squirrel Glider will remain in the locality post activity.
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.	
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation	

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Flying-foxes • Grey-headed Flying-fox (*Pteropus poliocephalus*) Status: Vulnerable		
Ecology (NSW DCCEEW 2025c)	The Grey-headed Flying-fox occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Can travel up to 50 km from their camp to forage; commuting distances are more often <20 km. Feeds on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	
Habitat Impacted by this Activity/Activity	The proposed activity will result in the potential loss of a maximum of 22 trees including *Eucalyptus spp.* that may form potential foraging habitat for the Grey-headed Flying-fox when the trees are in flower. There are no known Grey-headed Flying-fox breeding camps within the Study Area. The nearest known Flying-fox camp is approximately 42km north-east of the Study Area in Young (Commonwealth DCCEEEW 2025b). It is unlikely that they would breed in the Study Area due to the disturbed nature of the site. Indirect impacts to any potential nearby colonies will be negligible after the implementation of the mitigation practices.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	The Grey-headed Flying-fox is a mobile species, and the habitat to be impacted by the proposed activity forms only a small portion of the overall habitat available in the surrounding locality. As roosting or breeding is unlikely to occur on the Study Area for long periods of time, the life cycle of this species will largely remain unimpacted. Indirect impacts to any potential nearby colonies will be negligible after the implementation of the mitigation practices. Therefore it is unlikely for the activity or activity to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	Potential foraging habitat for this species will be removed for the proposed activity. The proposed activity will result in the potential loss of a maximum of 22 trees including *Eucalyptus spp.*
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	The Grey-headed Flying-fox is mobile and capable of moving long distances between forage trees. Suitable trees will continue to occur within the Study Area and in surrounding areas, and the habitat within the Study Area is already highly disturbed and fragmented meaning the proposed removal of vegetation is unlikely to further fragment habitat for the species.
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	The proposed activity will result in the potential loss of a maximum of 22 trees including *Eucalyptus spp.* Potential foraging habitat for this species will be removed for the proposed activity. However, there is an abundance of food sources in the surrounding area and this species is not likely to breed on the Study Area. No known breeding or permanent roosting habitat will be impacted by the proposed activity. Indirect impacts to any potential nearby colonies will be negligible after the implementation of the mitigation practices.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Flying-foxes • Grey-headed Flying-fox (*Pteropus poliocephalus*) Status: Vulnerable	
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Microbats • Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*) Status: Vulnerable		
Ecology (NSW DCCEEW 2025c)	The Yellow-bellied Sheathtail Bat roosts in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. This species can be found foraging high in the forest canopies but also in open country.	
Habitat Impacted by this Activity/Activity	The Study Area contains tree species that may form suitable foraging habitat for the Yellow-bellied Sheathtail-Bat. There are 21 hollow-bearing trees on the Study Area that may be used by the species for roosting and breeding. The proposed activity proposes to remove a maximum of approximately 5.73 ha of native indigenous vegetation, potentially including a maximum of 22 trees. No hollow-bearing trees are proposed for removal. Indirect impacts from the proposed activity include increased disturbance as a result of the construction work and light and noise disturbances from guests and visitors. However, no significant adverse effects are expected to occur with the implementation of impact mitigation measures outlined in **Table 10**.	
(a) in the case of a threatened species, whether the proposed activity or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	This microbat is highly mobile, aerial species with a wide distribution. The proposed activity is unlikely to impact the lifecycle of this species owing to the availability of other foraging, roosting and/or breeding habitat within the Study Area and the wider surrounding areas. Indirect impacts from the proposed activity include increased disturbance as a result of the construction work and light and noise disturbances from guests and visitors. However, no significant adverse effects are expected to occur with the implementation of impact mitigation measures outlined in **Table 11**and given these species are highly mobile. Therefore, it is unlikely for the activity or activity to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed activity or activity:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	NA
(c) in relation to the habitat of a threatened species or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the proposed activity or activity, and	The proposed activity proposes to remove a maximum of approximately 5.73 ha of native indigenous vegetation, potentially including a maximum of 22 trees. No hollow-bearing trees are proposed for removal.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed activity or activity, and	Yellow-bellied Sheathtail-bats are aerially mobile. The habitat to be removed would form only a small portion of the overall habitat used by these species. Access to the wider surrounding area, with suitable foraging, roosting and breeding habitat, will remain unobstructed.
	(iii) the importance of the habitat to be removed, modified, fragmented, or isolated to the long-term survival of the species or ecological community in the locality,	No breeding habitat is proposed for removal. The removal of a relatively small area of foraging habitat, a maximum of approximately 5.73 ha, is unlikely to be an important source of foraging habitat in the locality for the microbat. Suitable habitat is available in the wider surrounding area.

Test of Significance (Five Part Test) s.7.3 of the Biodiversity Conservation Act 2016 Microbats • Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*) Status: Vulnerable	
(d) whether the proposed activity or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The activity proposed is not likely to have an adverse effect on any declared area of outstanding biodiversity value, directly or indirectly.
(e) whether the proposed activity or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The Study Area is already impacted by several key threatening processes including: • Invasion of native plant communities by exotic perennial grasses • Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from any future activity include: • Clearing of native vegetation

Appendix 4. Fisheries Management Act – Assessment of Significance (7 Part Test)

Threatened Community

- *Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment* – Endangered (FM Act)

Threatened Fish

- *Bidyanus bidyanus* (Silver Perch) – Vulnerable (FM Act)
- *Maccullochella macquariensis* (Trout Cod) – Endangered (FM Act)
- *Macquaria australasica* (Macquarie Perch) – Endangered (FM Act)
- *Galaxias rostratus* (Flathead Galaxias) – Critically Endangered (FM Act)

Threatened Crustacean

- *Eucastacus armatus* (Murray Crayfish) – Vulnerable (FM Act)

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Communities *Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment* Status: Endangered		
Ecology **(DPI 2025d)**	The lower Murray ecological community occurs in a lowland riverine environment, characterised by meandering channels and wide floodplains. The land is generally flat to gently sloping. In their natural state, these lowland rivers experienced extremely variable water flows, ranging from floods to droughts. Variability in environmental conditions has led to adaptations in the native aquatic flora and fauna; for example, many species rely on floods to trigger spawning and create suitable breeding habitats. Lowland rivers provide a wide range of habitats for fish and invertebrates, including pools, runs or riffles, backwaters and billabongs, large woody habitats and aquatic plants. Floodplains also provide a mosaic of habitat types, including permanent and temporary wetlands, as well as terrestrial habitats	
(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	NA	
(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction	The potential direct removal of a maximum of 0.66 ha of Cumbungi may decrease the habitat options and protection capabilities for aquatic species that the dense vegetation offers. However, the removal some or all of the 0.66 ha of Cumbungi has the potential to improve connectivity and water availability. The proposed activity may indirectly impact fish species in the community through the increased risk of erosion/sedimentation, and accidental chemical spill from machinery. The effects of accidental sediment release may have an adverse effect on species lifecycles. However, the site will be managed with a strict erosion and sediment control plan (**Table 10**). Stormwater will be treated and release as per best practice guidelines (**Table 10**). As such, the proposed activity is not likely to have an adverse effect on the life cycle of fish species within this community such that a viable local population is likely to be placed at risk of extinction.	
(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	The current condition of the section of Muttama Creek within the Study Area is highly degraded from damming, man-made obstructions, Cumbungi overgrowth, exotic pests (eg. Carp) and erosion. The creek will remain and be rehabilitated which would not affect the extent of the community. Better quality sections of this community exist, and will continue to exist throughout Muttama Creek. As such, the extent of the community is highly unlikely to be adversely effected and place the community at risk of extinction as a result of the proposed activity.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction	The current condition of the section of Muttama Creek within the Study Area is highly degraded from damming, man-made obstructions, Cumbungi overgrowth, exotic pests (eg. Carp) and erosion. The proposed activity may substantially modify the composition of the community, however it is unlikely to be adverse. The activity involves rehabilitating the creek and would more likely provide the opportunity to return the community composition to an improved state. As such, the composition of the community is highly unlikely to be adversely effected and place the community at risk of extinction as a result of the proposed activity.
(d) in relation to the habitat of a threatened species, population or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and	The potential removal of a maximum of 0.66 ha of Cumbungi may decrease habitat options and protection opportunities for fish species, however, the removal some or all of the 0.66 ha of Cumbungi has the potential to improve connectivity and water availability.

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Communities *Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment* Status: Endangered		
		Aquatic habitat may be indirectly impacted particularly during the construction phase, however this is unlikely as mitigation measures are to be put in place (**Table 10**), and therefore any accidental releases are likely to be small, localised and non-significant.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and	The existing structures in the Study Area isolate the section of Muttama Creek within the Study Area from the rest of the creek. The proposed activity will not further fragment or isolate habitat from the current state.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality	While Muttama Creek may be important to the long-term survival of fish species in the community within the locality, no habitat important to the long-term survival of these species will be directly removed, modified, fragmented or isolated by the proposed activity. The impacts from the proposed activity are expected to be indirect, localised and mostly temporary due to mitigation strategies employed during construction.
(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)	The proposed activity will not adversely affect critical habitat, either directly or indirectly.	
(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan	There is no recovery plan or threat abatement plan for the Murray River EEC. The proposed activity is recommended to improve the aquatic habitat by re-snagging the river and removing man-made barriers to water flow along the creek within the Study Area. The proponent is recommended to explore the viability of re-snagging the river with felled tree trunks and root balls.	
(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of a key threatening process	The Study Area is already impacted by several key threatening processes including: • Degradation of native riparian vegetation along New South Wales water courses • Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams • Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from the activity include: • Degradation of native riparian vegetation along New South Wales water courses	

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Fish • Silver Perch (*Bidyanus bidyanus*)[1] • Trout Cod (*Maccullochella macquariensis*)[2] • Macquarie Perch (*Macquaria australasica*)[2] • Flathead Galaxias (*Galaxias rostratus*)[3] Status: Vulnerable[1]; Endangered[2]; Critically Endangered[3]		
Ecology (DPI 2025c)	These fish species are all known to occur in the Murray-Darling Basin system. The Silver Perch is typically found in fast-flowing waters and are dependent on high flows and overbank flooding for spawning and recruitment. The Trout Cod is typically found in fast flowing waters with rocky and gravel bottoms but can also be found in slower flowing, lowland rivers. Large woody snags are very important habitat for this species' life cycle. The Macquarie Perch occurs in waters with lots of cover such as aquatic vegetation, snags, boulders and overhanging banks. The Flathead Galaxias are typically found in slow flowing water bodies such as wetlands and lowland streams. They are usually associated with a range of habitat including rock and sandy bottoms and aquatic vegetation.	
(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	The potential direct removal of a maximum of 0.66 ha of Cumbungi may decrease the habitat options and protection capabilities that the dense vegetation offers. However, the removal some or all of the 0.66 ha of Cumbungi has the potential to improve connectivity and water availability. Given that the total 0.66 ha of Cumbungi is unlikely to be completely cleared and less dense patches will remain, it is high unlikely that the proposed activity will negatively impact fish populations – it is more likely that partial removal will improve access and habitat quality. Known populations of these fish species are located many kilometres downstream of the section of Muttama Creek in the Study Area, therefore other direct impacts are highly unlikely. The proposed activity may indirectly impact these fish species through the increased risk of erosion/sedimentation, and accidental chemical spill from machinery. The effects of accidental sediment release may have an adverse effect on species lifecycles. However, the site will be managed with a strict erosion and sediment control plan (**Table 10**). Stormwater will be treated and release as per best practice guidelines (**Table 10**). As such, the proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable local population is likely to be placed at risk of extinction.	
(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction	NA	
(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction	NA

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Fish • Silver Perch (*Bidyanus bidyanus*)[1] • Trout Cod (*Maccullochella macquariensis*)[2] • Macquarie Perch (*Macquaria australasica*)[2] • Flathead Galaxias (*Galaxias rostratus*)[3] Status: Vulnerable[1]; Endangered[2]; Critically Endangered[3]		
(d) in relation to the habitat of a threatened species, population or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and	The potential removal of a maximum of 0.66 ha of Cumbungi may decrease habitat options and protection opportunities for threatened fish species, however, the removal some or all of the 0.66 ha of Cumbungi has the potential to improve connectivity and water availability. Aquatic habitat may be indirectly impacted particularly during the construction phase, however this is unlikely as mitigation measures are to be put in place (**Table 10**), and therefore any accidental releases are likely to be small, localised and non-significant.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and	The existing structures in the Study Area isolate the section of Muttama Creek within the Study Area from the rest of the creek. The proposed activity will not further fragment or isolate habitat from the current state.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality	While Muttama Creek may be important to the long-term survival of these fish species in the locality, no habitat important to the long-term survival of these species will be directly removed, modified, fragmented or isolated by the proposed activity. The impacts from the proposed activity are expected to be indirect, localised and mostly temporary due to mitigation strategies employed during construction.
(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)	The proposed activity will not adversely affect critical habitat, either directly or indirectly.	
(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan	The proposed activity is consistent with the objectives of the recovery plans for the Silver Perch and Trout Cod. These include conserving populations by maintaining aquatic habitat values through the utilisation habitat protection and restoration mechanisms. There is no recovery plan or threat abatement plan for the Macquarie Perch or Flathead Galaxias. The proposed activity is recommended to improve the aquatic habitat by re-snagging the river and removing man-made barriers to water flow along the creek within the Study Area. The proponent is recommended to explore the viability of re-snagging the river with felled tree trunks and root balls.	
(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of a key threatening process	The Study Area is already impacted by several key threatening processes including: • Degradation of native riparian vegetation along New South Wales water courses • Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams • Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from the activity include: • Degradation of native riparian vegetation along New South Wales water courses	

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Crustacean • Murray Crayfish (*Eucastacus armatus*) Status: Vulnerable		
Ecology (DPI 2025c)	The Murray Crayfish is endemic to the southern tributaries of the Murray-Darling Basin. Murray Crayfish prefer cool, flowing water that is well oxygenated. The species is tolerant of water temperatures up to 27°C and moderate salinities, but are intolerant to low dissolved oxygen concentrations. They create burrows that vary in complexity, from deep burrows with multiple entrances to simple burrows under a rock or log.	
(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	The potential direct removal of a maximum of 0.66 ha of Cumbungi may decrease the habitat options and protection capabilities that the dense vegetation offers. However, the removal some or all of the 0.66 ha of Cumbungi has the potential to improve connectivity and water availability. Given that the total 0.66 ha of Cumbungi is unlikely to be completely cleared and less dense patches will remain, it is high unlikely that the proposed activity will negatively impact fish populations – it is more likely that partial removal will improve access and habitat quality. Known populations of these fish species are located many kilometres downstream of the section of Muttama Creek in the Study Area, therefore other direct impacts are highly unlikely. The proposed activity may indirectly impact Murray Crayfish through the increased risk of erosion/sedimentation, and accidental chemical spill from machinery. The effects of accidental sediment release may have an adverse effect on species lifecycles. However, the site will be managed with a strict erosion and sediment control plan (**Table 9**). Stormwater will be treated and release as per best practice guidelines (**Table 10**). As such, the proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable local population is likely to be placed at risk of extinction.	
(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction	NA	
(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:	(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	NA
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction	NA
(d) in relation to the habitat of a threatened species, population or ecological community:	(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and	The potential removal of a maximum of 0.66 ha of Cumbungi may decrease habitat options and protection opportunities for threatened fish species, however the beds have impeded the creek to a point where it is unlikely for any of these threatened fish species to occur, and partial removal is more likely to positively improve the habitat. Aquatic habitat may be indirectly impacted particularly during the construction phase, however this is unlikely as mitigation measures are to be put in place (**Table 10**), and

Assessment of Significance (Seven Part Test) Part 7 of Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 Crustacean • Murray Crayfish (*Eucastacus armatus*) Status: Vulnerable		
		therefore any accidental releases are likely to be small, localised and non-significant.
	(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and	The existing structures in the Study Area isolate the section of Muttama Creek within the Study Area from the rest of the creek. The proposed activity will not further fragment or isolate habitat from the current state.
	(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality	While Muttama Creek may be important to the long-term survival of Murray Crayfish in the locality, no habitat important to the long-term survival of this species will be directly removed, modified, fragmented or isolated by the proposed activity. The impacts from the proposed activity are expected to be indirect, localised and mostly temporary due to mitigation strategies employed during construction.
(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)	The proposed activity will not adversely affect critical habitat, either directly or indirectly.	
(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan	There is no current recovery plan or threat abatement plan for the Murray Crayfish. The proposed activity is recommended to improve the aquatic habitat by re-snagging the river and removing man-made barriers to water flow along the creek within the Study Area. The proponent is recommended to explore the viability of re-snagging the river with felled tree trunks and root balls.	
(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of a key threatening process	The Study Area is already impacted by several key threatening processes including: • Degradation of native riparian vegetation along New South Wales water courses • Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams • Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales These processes have degraded the condition of this habitat and its potential to be utilised by threatened species. Additional key threatening processes that will result from the activity include: • Degradation of native riparian vegetation along New South Wales water courses	

Land Eco consulting

www.landeco.com.au

Appendix F

Government Agency Consultation Letters

Contact
Jason Watkins

Our Ref
P2510821JC05V01

Pages
3 + Attachments

30 July 2025

NSW Crown Lands
By email

Agency Consultation with NSW Crown Land for Review of Environmental Factors: Masterplan for Muttama Creek, Cootamundra.

1 Introduction

Martens & Associates Pty Ltd (**Martens**) have prepared this letter on behalf of Cootamundra-Gundagai Regional Council (the **Council**) to consult with NSW Crown Land as part of a Review of Environmental Factors (**REF**) for works for Muttama Creek (the **Creek**) located in the Cootamundra-Gundagai LGA which are to be undertaken by the Council.

1.1 Approval pathway

An REF is currently being prepared by Martens under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) and will be submitted to the Council for consideration. The proposed development is classified as development without consent under the following sections of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW) (**Transport and Infrastructure SEPP**):

1. Section 2.56 (1) which permits flood mitigation works to be carried out by or on behalf of a public authority without consent.

2. Section 2.73 (3)(a) which relevantly permits recreation areas, pedestrian pathways, pedestrian bridges, landscaping, information boards and lighting without consent on land owned or controlled by a public authority.

1.2 Purpose

The Creek traverses a number of land parcels owned by the Crown, currently under the management of the Council. This letter has accordingly been prepared on behalf of Council to describe the Proposal, its benefits and preliminary measures to minimise any environmental impacts. This letter invites NSW Crown Lands to provide comments on the Proposal.

2 Proposal description

In summary, the following works are proposed to an approximate 2 km long segment of the Creek (the **Proposal**):

1. Flood mitigation works generally consisting of bulk earthworks (primarily cut) to widen and deepen the existing creek channel, lower the local floodplain, create two new instream pools to increase local floodplain storage. Additionally, ongoing management of in-stream vegetation (such as Cumbungi) is to be undertaken by Council.

2. Associated works to increase the Creek's aesthetic qualities and available range of passive recreational activities including new pedestrian footpaths and bridge crossings (indicative potential alignments have been shown), increasing the tree canopy, interpretive signage relating to local historical, ecological and Aboriginal cultural knowledge of the locality and new lights / seating.

The masterplan works are shown in the draft masterplan report (Attachment 1) and concept civil engineering plans (Attachment 2). Relevantly, the Proposal is to be located over the following NSW Crown land parcels that are currently managed by the Council:

- Lot 7009 DP 1021379
- Lot 7010 DP 1021379
- Lot 702 DP 1021380
- Lot 7306 DP 1140506
- Lot 5 DP 867363
- Lot 4 DP 838858
- Lot 9 DP 758287
- Lot 8 DP 758287
- Lot 8 DP 867363
- Lot 7008 DP 1123211
- Lot 11 DP 758287
- Lot 8 DP 758287
- Lot 7007 DP 1123211

3 Proposal benefits and environmental considerations

The Proposal is considered to have the following benefits to the Creek and the Cootamundra locality:

1. Flood mitigation – preliminary flood modelling indicates the Proposal is likely to improve conveyance of flood water and reduce the extent of inundation in a range of flood events up to and including the 1% Annual Exceedance Probability (**AEP**) flood event.

2. Increase to aesthetic qualities and range of recreational activities – new pedestrian footpaths and crossings will revitalise the creek, improve local amenity and integrate the Creek into existing public open spaces and other areas. Increases to the tree canopy will enhance green links to open space and address the impacts of climate change. Interpretive signs of historical, ecological and Aboriginal knowledge of the Creek will provide a unique insight into local history.

A comprehensive assessment of environmental impacts is currently being undertaken as part of the REF preparation. The following environmental considerations are noted:

1. Vegetation clearing – Approximately 0.01 ha of Yellow Box Woodland (*eucalyptus melliodora*) and approximately 0.82 ha of River Red Gum (*Eucalyptus camaldulensis*) are to be removed. The civil works footprint has avoided clearing of River Red Gum to the maximum extent possible; weed eradication and replacement planting with River Red Gum will be undertaken to minimise and/or offset any residual impact.

2. Hollow bearing trees – A small number of hollow bearing trees and microhabitat features are to be removed. Nest boxes are to be installed on retained trees to mitigate any impacts to habitat.

3. Sediment and erosion and water quality – Sediment and erosion control measures will be established prior to commencement of construction works to minimise the potential for erosion or sedimentation. It is important to note the Creek is currently characterised by unstable banks and stagnant water, limited potential for quality habitat for native aquatic flora and fauna. The Proposal will provide a stable bankform and improve flow conveyance which will result in improvements to water quality and aquatic habitat.

4 Invitation to comment on the proposal

We invite you to provide comments on the Proposal as part of the REF consultation. Please review this letter and accompanying documentation and provide any comments to the undersigned by close of business 29 August 2025.

If you require any further information, please do not hesitate to contact our offices.

For and on behalf of

Martens & Associates Pty Ltd

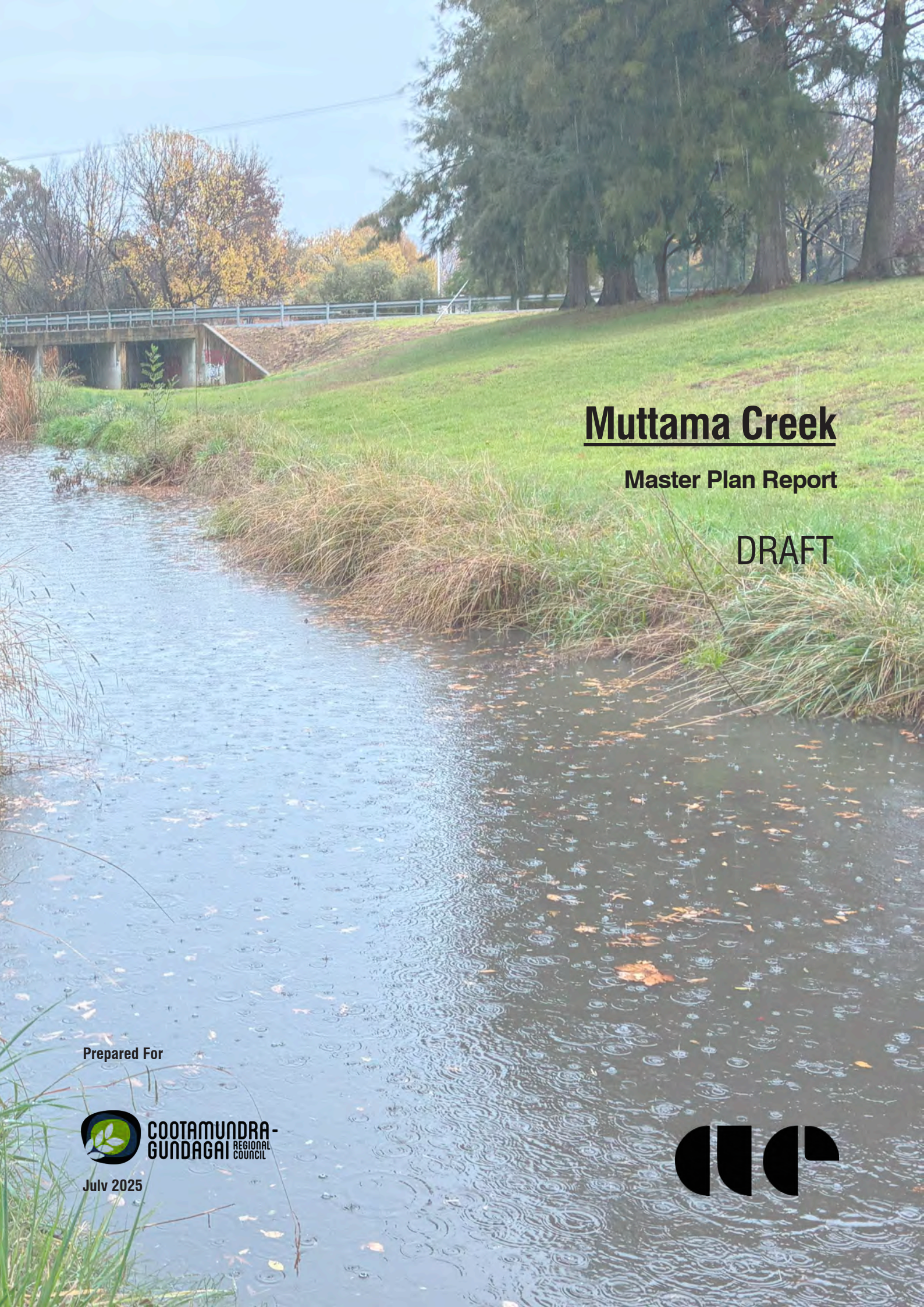


Jason Watkins

B. Planning

Senior Town Planner, Project Manager

Attachment 1: Draft masterplan report



Muttama Creek

Master Plan Report

DRAFT

Prepared For

COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL

July 2025

1.0 Introduction

The Master Plan for Muttama Creek (the Creek) in Cootamundra, Wiradjuri country, has been prepared in conjunction with proposed flood mitigation works and preliminary community consultation by Martens and Associates and ecological assessment by Land Eco Consulting for the Cootamundra Gundagai Regional Council (CGRC).

The Master Plan will

- provide a framework to revitalise the riparian corridor,
- integrate flood mitigation, and
- create a sustainable open space ecological network within the town centre of Cootamundra.

The study area is limited to a 2km length from Adams Street to Lloyd Conkey Avenue as shown in Figure 1 below.



Figure 1 Study Area

2.0 Context

Muttama Creek, a major tributary of the Murrumbidgee River system traverses the town centre of Cootamundra. Aboriginal for swamp and turtles, the town has long experienced localised flooding and inundation of properties along the riparian corridor.

Rivers and creeks are an inherent part of many regional town centres and contribute to the identity and vitality of the place. The revitalisation of Muttama Creek provides an opportunity to reduce the impact of flooding, contribute to the well-being of the town centre and its residents, enhance its sense of place, acknowledge the Traditional Owners and their continued connection to country and attract tourism to Cootamundra.

The Master Plan is consistent with key focus areas in the Cootamundra-Gundagai Community Strategic Plan which includes:

1. A Vibrant, Safe and Inclusive Community
2. A Region for the Future
3. A Protected and Enhanced Environment

3.0 Precincts

There are four distinct character precincts along the 2km length of Muttama Creek within the Master Plan.

- Bradman Precinct
- Sport and Recreation Precinct
- Town Centre Precinct
- Local Community Precinct



3.1
Bradman Precinct



1. Existing creek line
2. Potential gateway
3. Low level tree canopy
4. Bradman's Birthplace Museum
5. Potential walking trail + signage
6. Historic creek line
7. Pedestrian crossing below road
8. Land on private ownership
9. Potential green link to Sports and Recreation Precinct

Bradman Precinct

0 20 50 100m

1:2,000 @ A3

3.1 Bradman Precinct

This precinct comprises two blocks commencing at Adams Street through to Cutler Avenue and extends south to Poole Street.



3.11 The Place

The precinct comprises two key important places:
•The oval, named after Sir Donald Bradman; and
•Bradman's Birthplace Museum, which is a Local Heritage Item and tourist attraction.

The oval has no definition and minimal surrounding tree canopy and there is no signage to Bradman's Birthplace nor any reference to Bradman other than the name of the oval.

Characterised by the cricket oval, the Bradman precinct contains, cricket nets, public amenities, pathways and play equipment with residential dwellings to the east of the creek. These properties have been severely affected by flooding and the riparian corridor is barely discernible, appearing as a grassed swale along the edge of the oval.

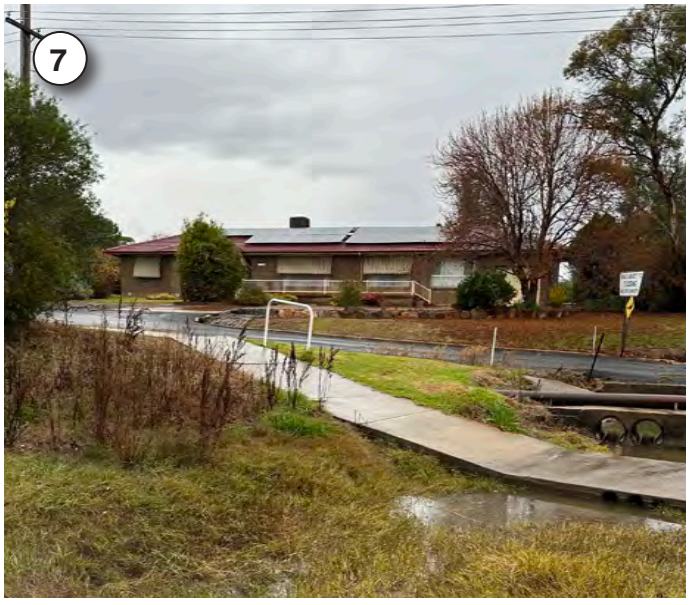


The original alignment of the creek was located to west of the current crossing on Adams Street, in the centre of Bradman Oval.

Flood mitigation works only are proposed for the block between Cutler Avenue and Poole Street.

3.12 Opportunities

Bradman's Birthplace Museum is a tourist attraction within walking distance of the creek. It presents an opportunity to integrate with the Creek and develop a walking trail and signage along Cutler Avenue and Adams Street to and from this tourist attraction.



There is an opportunity to define the oval with a traditional fence in honour of Sir Donald Bradman and integrate it with the revitalised creek.

Additional trees surrounding the oval and along the Creek will provide shade and improve the aesthetic quality of the riparian corridor.

The proposed flood mitigation provides an opportunity to both revitalise the waterway and increase the trees and plantings alongside the Creek to visually reinforce and link it to the town centre, and also increase the tree canopy surrounding the oval and integrate it into the revitalised waterway.

The current pedestrian crossing at Cutler Avenue is not disabled accessible and below the level of the road. There is an opportunity to provide a level crossing to the oval and improve the flow of water. The flood mitigation work creates a wider deeper waterway and may necessitate an additional Creek crossing to improve pedestrian access to Bradman Oval from the town centre to the east.

The section of creek to the south of Bradman Oval is in private ownership and does not permit a continuous walk along the waterway.

There is an opportunity however to connect this precinct with the Sport and Recreation Precinct from Cutler Avenue to Crown Street and Nicholson Park along the right of way or along a right of way on land in private ownership.

The revitalisation provides an opportunity to reduce the impact of flooding with mitigation work which widens and deepens the Creek as well as create a gateway to Muttama Creek at Adams Road.

In this precinct there is the potential to acknowledge its historic alignment in swampland as well as its cultural significance to the Wiradjuri Traditional Owners of the land.

3.2
Sport and Recreation Precinct



8 Land in private ownership

10 Passive recreation areas

11 Enhance visual connection and integration

12 Existing chain link fence

13 Opportunity for investment in unused buildings

14 Lack of vehicular crossing

Sport and Recreation Precinct

0 20 50 100m

1:2,000 @ A3

3.2 Sport and Recreation Precinct

This precinct comprises two blocks, commencing at Poole Street and extends alongside Clarke Oval to the John Rees Bridge and Wallellendoon Street. It is surrounded by Nicholson Park and Fisher Park to the north, residential to the north west, Jubilee Park to the south west and the town centre to the east.

3.21 The place

The upper section of the Creek, either side of Poole Street is in private ownership and includes a pedestrian bridge as the road has a very steep incline and is subject to inundation.

The waterway adjacent to private property on the Onley Street side of the block is currently not easily accessible due largely to the topography. A pedestrian bridge provides access over the Creek at Onley Street as there is no vehicular access.

The character of this large open space precinct is dominated with active recreation uses such as Clark Oval, Nicholson Park, Fisher Park and the sports stadium as well as the Cootamundra Pool.

There is a skateboard park and outdoor fitness equipment and the passive recreation area in the George Vesperman Park. These spaces currently provide disparate recreation uses for several different user groups.

There are no continuous paths along the creek and the tree canopy is relatively low.

The existing remnant chain-link fence around the oval is unnecessary and visually obtrusive.

The existing waterway is very narrow in parts and does not positively contribute to the aesthetic quality of the precinct. The realignment of the Creek occurred around Clarke oval.

3.22 Opportunities

The existing topography and vegetation in the Poole Street block presents an opportunity to improve this section of creek for flood mitigation and ecological purposes, limiting public access.







There is an opportunity to enhance the visual connection of the creek to the surrounding ovals and better integrate the revitalised creek as a passive recreation space and as a destination.

The proposed flood mitigation works would provide a wider waterway with deeper sections for ponds within the corridor which will also improve the ecology of the Creek and reinforce the presence of the riparian corridor during times of limited rainfall.

The revitalisation of the creek provides an opportunity to define Clarke Oval with new fencing and provide a nature playground as a concurrent activity.

There is an opportunity to provide a new creek crossing and paths in this precinct to connect to the town centre precinct.

A revitalised waterway may also provide opportunities for investment in the existing disused buildings along Murray Street.

3.3
Town Centre Precinct



3 Low level tree canopy

15 New feature pond

16 Access to main streets of the town centre

17 Community destinations

18 Dense and overgrown Cumbungi along the creek

19 Potential pedestrian crossing

20 Opportunity to formalise under utilised spaces to encourage activities

21 Restricted pedestrian access to open space

Town Centre Precinct

0 20 50 100m

1:2,000 @ A3

3.3 Town Centre Precinct

The town centre precinct comprises two blocks commencing at John Rees Bridge, Wallendoon Street and extends under the Stratton Bridge to Mackay Street.

3.31 The Place

It is characterised by its proximity to the main street of the town, with access from Parker Street and Wallendoon Street. It is bounded by the Ex-Servicemen and Citizens Memorial Club to the north, the Scout Hall to the south and the caravan park to the west.

The topography in the section at the rear of the Ex-Servicemen and Citizens Memorial Club is quite steep, and the existing concrete path is located along its boundary. There appears to be an informal track along the edge of the creek indicating pedestrian use. There is no pedestrian crossing other than the pedestrian bridge along Wallendoon Street and there is no seating or picnic tables.

The tree canopy is also relatively low and the cumbungi within the Creek in this section is particularly dense. It should be noted that at the time of writing this report Council recently cleared the cumbungi and undertook minor desilting works either side of the bridge, consistent with the permit from Fisheries NSW.

There is a footbridge on the western side of Stratton Bridge and a fence which prohibits access to the open space adjacent to the Scout Hall with access limited to the northern side.

The southern section of the creek extends under Stratton bridge and the existing accessible pedestrian route is via the driveway of the Ex-Servicemen and Citizens Memorial Club.

The section of Creek on the other side of Stratton Bridge is linked by a footpath from the town centre, however the ramp is located opposite the driveway to the Ex-Servicemen and Citizens Memorial Club and is not easily accessible. There is no continuous footpath from the town centre to the creek on the eastern side as it terminates at the Court House.







The recent addition of a concrete path and additional trees have improved the scenic quality of the open space in this section, and it presents as an attractive location however there are no tables and seating.

There is a small informal car park along Parker Street with direct access to the open space however there are no tables or seats.

3.32 Opportunities

In this precinct there are several opportunities to visually link the Creek to the town and enhance it as a destination within Cootamundra, improve safe access and enhance opportunities for passive activities such as having lunch and enjoying the local environment.

The flood mitigation proposes a new pond on the western side of Parker Street which would be the feature of this precinct and ensure water is retained, similar to the existing ponds to the north and south. It would both enhance the aesthetic of the environment and provide habitat opportunities. The existing tree canopy is relatively low and additional trees with the new pond would provide a shady cool location close to the town centre to mitigate urban heat in the summer months.

Jubilee Park and the Captain's Walk tourist attraction are proximate to the creek in this precinct. An opportunity to enhance the connection with signage and street tree planting would encourage movement between the spaces; footpaths along the creek to John Rees Bridge and along Wallendoon Street

The informal carpark on Parker Street provides an opportunity to encourage visitation and include a nature playground.

Improved access across Parker Street at the Stratton bridge, such as a raised pedestrian crossing would assist to link the open space .

3.4
Local Community Precinct



3 Low level tree canopy

10 Passive recreation areas

22 Cootamundra Bird Walk and Sculptures

23 Historic Nurses Home Bridge

24 Opportunity for interpretive signage

25 Relocation of the fence

26 Pedestrian bridge

27 Olympic Highway visitation into the town

28 Access to the creek from the laneway

29 Potential for a community garden

30 Potential ecological preservation

Local Community Precinct

0 20 50 100m

1:2,000 @ A3

3.4 Local Community Precinct

This precinct comprises four blocks and extends from Mackay Street to the Railway line and Lloyd Conkey Avenue .

3.41 The Place

The four blocks within the precinct are characterised by large open areas with the central riparian corridor. The existing tree canopy is relatively low, however the significant work from the local Muttama Creek Regeneration Group is clearly visible. The cumbungi within the Creek in this precinct is quite dense in some sections and this may contribute to flooding issues.

The block between Parker Street and Thompson Street, commencing at the Simpson Bridge on Mackay Street contains a pathway, seating and picnic tables on the eastern side. It is surrounded by the dog park, the historic district hospital and the CGRC Youth Club. There is some interpretive signage and some recent plantings by the Muttama Creek Regeneration Group. The Bird Walk and sculptures on the eastern side of the creek are to be retained and relocated as required to accommodate the revitalised creek corridor.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities, picnic tables and seats.

3.42 Opportunities

An opportunity to acknowledge the Traditional Owners in this precinct with interpretive signage describing the historic Aboriginal cultural significance of the Creek as a travel route to







ceremony with Wiradjuri language used to describe the local flora and fauna.

A new large pond is proposed to assist with flood mitigation and provides an opportunity to create a water feature in this precinct and re establish the historic Nurses' Home Bridge which would overlook the new pond. The proposed batters also provide the potential for additional appropriate riparian plant species and rocks which also provide informal seating.

The proposed flood mitigation works and the addition of a new bend in the creek will impact part of the existing dog park and require the relocation of the fence.

The creek revitalisation provides the potential to increase the tree canopy cover which creates additional ecological habitat and shade and assists with flood and heat mitigation.

The elevated pedestrian crossing on the northern side of Thompson Street would be retained to ensure safe access with pedestrian crossings across Thompson and Sutton Streets.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street. The revitalisation of the creek along Olympic Highway has the potential to attract visitation into the town; an attractive open space with walking trails. Additional signage illustrating the creek and direction into town.

This section of the waterway is also accessible through the mid-block laneways which provides an opportunity to formalise access from the laneway to paths along either side of the revitalised waterway.

The lack of existing distinct uses provides the opportunity to create a small community garden on the western side along the Hurley Street and the mid-block laneway improves connection to the residential areas. The community garden could also include native and local bush foods.

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities and picnic tables

4.0 Community Engagement

A letter was prepared informing the community of the proposed masterplan and included a request for early feedback on what should be considered in the masterplan process. A page on Council's website was created informing the community of the early feedback phase (which included a link to the letter) and also indicated that residents were to receive a mailout and details on how to make comment/submission. The early consultation period was between 6 May and 21 May 2025.

Based on the feedback received, the following particular areas were identified (we note this is a summary and not an exhaustive list):

• Flooding – generally, flood mitigation works appeared to be the most important aspect of the masterplan. There were also concerns with rising insurance premiums.
• Creek management / maintenance – comments received indicated that debris (shopping trolleys, waste etc.), in-stream vegetation and silt accumulation exacerbates flooding and needs to be removed, and the creek should be managed on an ongoing basis by Council to manage weed regrowth and buildup of debris.
• Ecology – retaining and improving ecological characteristics of the creek should be undertaken but flood mitigation works should be prioritised.
• Alternative proposals – ideas such as a levee bank along McGowan Street and including land north of Adams Street were suggested. Consideration of alternative proposals is to be included in the future Review of Environmental Factors (REF).
• Public recreation and enjoyment – the masterplan should incorporate improvements such as new footpaths, enhancement of current walking trails a community garden, signage etc.
• Aboriginal cultural significance – the masterplan should include aspects to incorporate local Aboriginal cultural significance and history. These include Wiradjuri signs that relate to the landscape e.g. native vegetation and local wildlife.

5.0 Master Plan

5.1 Objectives

• Ensure the impact of flooding is reduced to the surrounding properties

• Establish new recreation opportunities to accommodate all users

• Revitalise and enhance the ecology and biodiversity of the Creek

• Provide new habitat opportunities along the Creek

• Connect the open space creek corridor to the surrounding streets and parks

• Improve the access to the Creek to ensure all users are accommodated

• Encourage the protection and biodiversity of the riparian corridor

• Acknowledge the Traditional Owners of the land and ensure the Aboriginal cultural significance of the Creek is identified

• Ensure the European history of the creek is also acknowledged

• Provide locations for passive recreation, picnics and nature play

• Establish street tree planting to increase tree canopy cover in and around the creek.

• Ensure pedestrian waterway crossings are designed to the appropriate engineering standards.

• Ensure water sensitive urban design principles are incorporated into the revitalisation of the Creek


Privately Owned Portion of Muttama Creek
McGowan Street
Queen Street
O'Donnell Street
Bradman Oval
Bradman's Birthplace
Cutler Avenue
Privately Owned Portion of Muttama Creek
Poole Street
Congou Street
Hay Street
Scott Avenue
Nicholson Park
Fisher Park
Gordon Vesperman Park
Murray Street
Parker Lane
Clarke Oval
Poole Street
Cooper Street
Bassingthwaighte Park
Jubilee Park
Parker Street
Cooper Lane
Albert Park
Bowling Greens
Olney Street
Margaret Street
Thompson Street
Ursula Street
Walledon Street
Hurley Street
Mackay Street
Howell Street
Southee Park
Sutton Street
Mitchell Park
LEGEND
Existing Trees
Proposed Trees
Overall Master Plan
0
100
200
300m
N
1:5,000 @ A3

5.2 Overall Strategies

• Increase the existing tree canopy in and around the creek and town centre

Street tree benefits (source Local Government NSW 2025)

Biodiversity support and provision of important habitat corridors for native plants and animals

Lowering heat through transpiration, shade and passive cooling

Increasing energy efficiency by reducing the need for air conditioning

Improving air and water quality

Increasing human health and wellbeing

Enhancing water absorption by slowing stormwater and reducing peak flows

Enhancing property values

Reducing noise

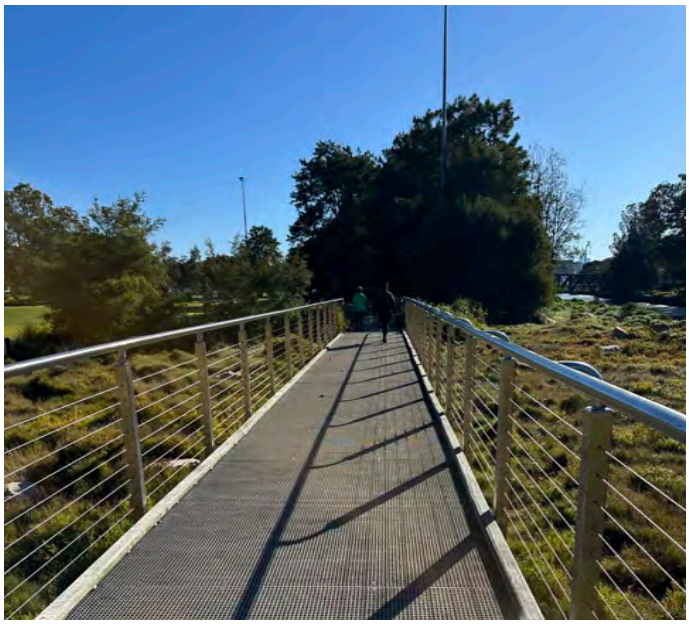
Potential wild life corridors especially birds, connecting the creek to the surrounding rural area

• Protect the existing habitat and offset any unavoidable impacts required to reduce flooding

• Connect existing paths and propose new wider paths to facilitate continuous movement along the open space network

• Introduce new passive recreation areas for rest, relaxation and to enjoy nature

• Provide interpretive signage to inform people of the historical, ecological and cultural importance of Muttama Creek







5.31
Bradman Precinct


Privately Owned Portion of Muttama Creek
Adams Street
Gateway to Muttama creek
New pedestrian paths to Bradman's Birthplace
Indicative alignment of potential crossing
Bradman Oval
1
New traditional style picket fence
Indicative alignment of potential crossing
Northcott Avenue
Public Toilet
New pedestrian paths to connect the creek
Privately Owned Portion of Muttama Creek
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Privately Owned Portion of Muttama Creek
Nicholson Park
New pedestrian paths to connect the creek
Poole Street
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N

5.3 Precinct Strategies

5.31 Bradman Precinct

• Plant new trees and shrubs in clumps to identify the commencement of the waterway at Adams Road

• Locate new paths commencing at Adams Road along the creek to Cutler Avenue and a new bridge crossing to improve access to the oval and amenities

• New interpretive signage illustrating the original Creek alignment and its importance and cultural significance to the Traditional Owners, the Wiradjuri people and its meaning; Cootamundra derived from the Wiradjuri word Gudhamangdhuray, swampland long-necked turtles and swamp.

• Plant new trees and shrubs in clumps along the creek to visually identify the riparian corridor and improve the ecology and function of the Creek

• Install solar lighting along the path and additional seating and bins

• Provide signage with directions to Bradman's birthplace from the Creek to Cutler Avenue

• A new traditional style picket fence to define and enhance the cricket oval named in honour of Sir Donald Bradman

• Provide signage and street trees along the right of way from Cutler Avenue to create a continuous path back to the Creek, diverting around the waterway that is within private property, for walking and cycling

• Plant new trees around the oval to increase the tree canopy cover.







5.32
Sport and Recreation Precinct


Bourke Street
Poole Street
Preserved for ecological purpose
Wallendoon Street
New traditional style picket fence
Clarke Oval
Olney Street
Captain's Walk
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Sport and Recreation Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Olney Street
Gordon Vesperman Park
Outdoor Fitness Equipment
Bourke Street
Indicative alignment of potential crossing
Skate Park
Proposed Fencing
2
Clarke Oval
Olympic Swimming Pool
New nature-play area
Widening of existing path
Captain's Walk
NSW Govt. Building
Jubilee Park
Wallendoon Street
Murray Street
New raised pedestrian crossing
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Caravan Park
Sport and Recreation Precinct Master Plan
New raised pedestrian crossing
0
10
25
50m
1:1,000 @ A3
N

5.32 Sport and Recreation Precinct

• Limit access and preserve the section of Creek between Olney Street and the laneway

• Provide a new pedestrian crossing over the Creek

• Provide new wide footpaths to accommodate a variety of users.

• Remove the existing chain link wire fence around the oval and replace with a new traditional picket fence.

• Provide additional seating and tables adjacent to the revitalised Creek to integrate with George Vesperman Park.

• New street trees along Murray Street and Wallendoon Street to provide visual linkages to the Creek.

• Interpretive signage illustrating the historic alignment of the Creek, the transition from the ox bow lakes in the middle of the last century to the current alignment around Clark oval.

• The signage would also include the ecological and cultural significance of Muttama Creek to the Traditional owners and its historic refuge for the eastern snake neck turtle.

• Signage incorporating Wiradjuri language for the local flora and fauna along

• A new nature playground alongside the Creek

• Provide new solar lighting

• New raised pedestrian crossing at Murray Street and Wallendoon Street







5.33
Town Centre Precinct


Jubilee Park
Caravan Park
Murray Street
Parker Lane
Wallendoon Street
Parker Street
MacKay Street
New raised pedestrian crossing
New raised pedestrian crossing
Widening of existing path
3
Indicative alignment of potential crossing
4
New raised pedestrian crossing
New pedestrian bridge
New nature-play area, tables and seatings
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Town Centre Precinct Master Plan
0
10
25
50m
1:1,000 @ A3
N

5.33 Town Centre Precinct

• A new raised pedestrian crossing on Parker Street to provide safe movement between the open space

• Widen the existing path to accommodate all users

• Planting and rocks used for seating around the proposed new feature pond

• A new accessible crossing and lookout over the feature pond

• New solar lighting

• New trees along the creek to increase the tree canopy cover

• Remove the fence alongside the Scout Hall

• Interpretive signage describing the history of the Creek and the town

• A new nature-play area, tables and seatings adjacent to the informal carpark and new public amenities

• A new pedestrian bridge crossing along the eastern side of Stratton Bridge









5.34
Local Community Precinct


Parker Street
Mackey Street
Thompson Street
Hurley Street
Centenary Avenue
Indicative alignment of potential crossing
Cootamundra Bird Walk
CGRC Cootamundra Youth Club
Bird Sculptures
Indicative alignment of potential crossing
Dog Park
5
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Local Community Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Olympic Highway
Sutton Street
Hurley Street
Hovell Street
5
Indicative alignment of potential crossing
New pedestrian crossing
Indicative alignment of potential crossing
New nature playground
Public Toilet
New community garden
Preserved for ecological purpose
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Community Garden
Local Community Precinct Master Plan
0
10
25
50m
1:1,000 @ A3
N

5.34 Local Community Precinct

• New paths along the creek to accommodate all users

• New trees around the Creek to increase the tree canopy cover

• New street trees along Thompson Street and Mackay Street to link to the open space

• Interpretive signage of the Aboriginal cultural significance of the Creek

• A community garden in Apex Park along Hurley Street including native and local bush foods

• A new nature playground adjacent to the existing coloured tractors

• New seats along the paths

• New pedestrian crossings at Thompson Street and Sutton Street

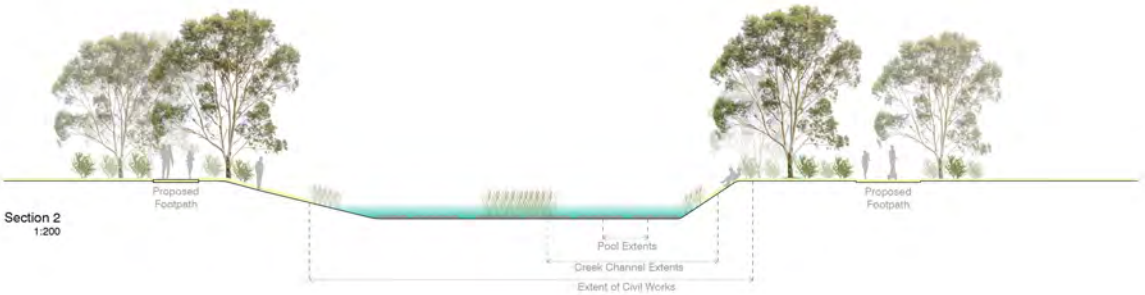




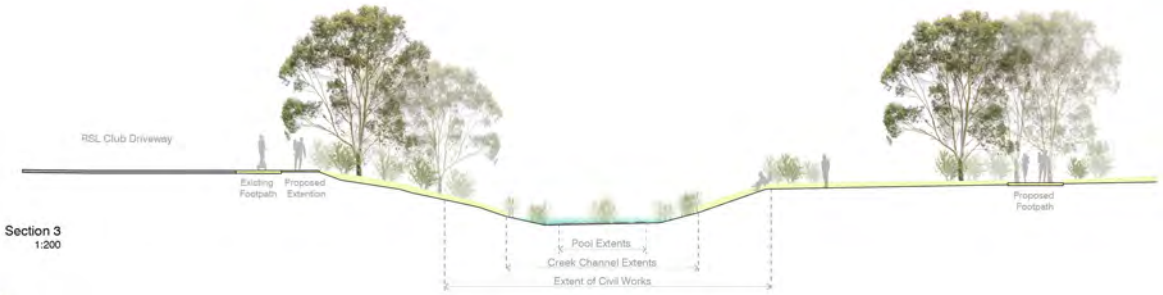




Section 1
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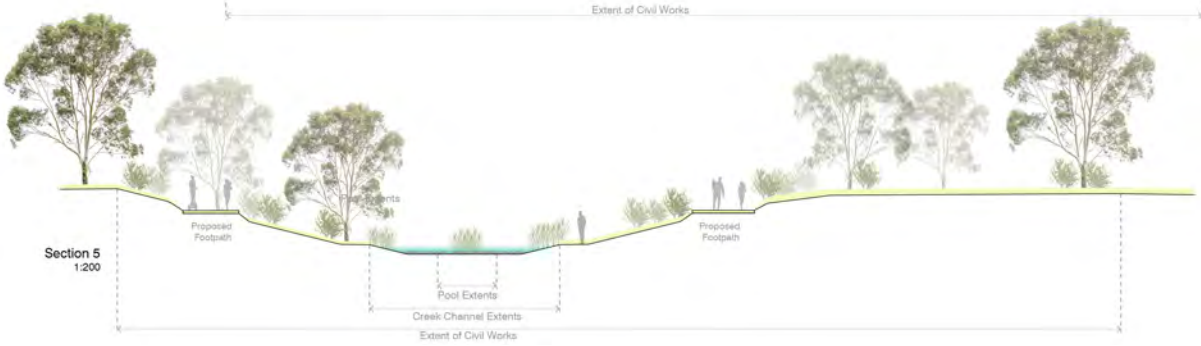
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1:200



Section 3
1:200



Section 4
1:200



Section 5
1:200

0 25 50 75m

1:200 @ A3

6.0 Implementation

Precinct	Immediate	Medium term	Long term
Bradman Precinct	• Flood mitigation • New trees and shrubs • New paths • Signage to Bradman's birthplace	• Solar lights, seats and bins • Interpretive signage	• Picket fence around oval • Pedestrian bridge crossing
Sport and Recreation Precinct	• Flood mitigation • New trees and shrubs • New paths • Remove chain link fence	• Tables, seats, bins • Solar lights • Interpretive signage • New nature play-ground	• Picket fence around oval • Increase width of existing paths • Pedestrian bridge crossing
Town Centre Precinct	• Flood mitigation • New trees and shrubs • Solar lights • New raised pedestrian crossing • Remove fence along-side the Scout Hall	• New nature play-ground • Picnic tables and seats and bins • Interpretive signage • New footpath to creek along Parker Street • Interpretive signage	• New public amenities • Increase width of existing paths • Improvements to carpark • Pedestrian bridge crossing alongside Stratton bridge
Local Community Precinct	• Flood mitigation • New trees and shrubs • Pedestrian zebra crossings • New paths	• Community garden • Solar lights, seats and bins • Interpretive signage • New nature play-ground	• Pedestrian bridge crossing

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design partnership may also have relied upon information provided by the Client and other third parties to prepare this document.

design partnership

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ABN: 85 162 968 103

Nominated Architect: N R Dickson #7061

Attachment 2: Draft concept civil engineering plans

PROJECT: MASTER PLAN FOR MUTTAMA CREEK

PLANSET: PRELIMINARY CIVIL ENGINEERING PLANS

CLIENT: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL



LOCALITY PLAN
NOT TO SCALE

LGA: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS01-A000	B	COVER SHEET
PS01-A010	A	LAYOUT REFERENCE PLAN
PS01-A300	B	PROPOSAL (LAYOUT-1)
PS01-A310	B	PROPOSAL (LAYOUT-2)
PS01-A320	B	PROPOSAL (LAYOUT-3)
PS01-A330	B	PROPOSAL (LAYOUT-4)
PS01-A340	B	PROPOSAL (LAYOUT-5)
PS01-A350	B	PROPOSAL (LAYOUT-6)
PS01-A360	B	PROPOSAL (LAYOUT-7)
CONSTRUCTION MANAGEMENT WORKS		
PS01-B310	A	EROSION & SEDIMENT CONTROL DETAILS
GRADING		
PS01-C100	B	GRADING AND EARTHWORKS (LAYOUT-1)
PS01-C110	B	GRADING AND EARTHWORKS (LAYOUT-2)
PS01-C120	B	GRADING AND EARTHWORKS (LAYOUT-3)
PS01-C130	B	GRADING AND EARTHWORKS (LAYOUT-4)
PS01-C140	B	GRADING AND EARTHWORKS (LAYOUT-5)
PS01-C150	B	GRADING AND EARTHWORKS (LAYOUT-6)
PS01-C160	B	GRADING AND EARTHWORKS (LAYOUT-7)
PS01-C600	B	EARTHWORK SITE SECTION (SHEET-1)
PS01-C610	B	EARTHWORK SITE SECTION (SHEET-2)
PS01-C611	A	EARTHWORK SITE SECTION (SHEET-3)
PS01-C612	A	EARTHWORK SITE SECTION (SHEET-4)
PS01-C613	A	EARTHWORK SITE SECTION (SHEET-5)
PS01-C614	A	EARTHWORK SITE SECTION (SHEET-6)
PS01-C660	A	EARTHWORK SITE SECTION (SHEET-7)
PS01-C661	A	EARTHWORK SITE SECTION (SHEET-8)
PS01-C662	A	EARTHWORK SITE SECTION (SHEET-9)
PS01-C663	A	EARTHWORK SITE SECTION (SHEET-10)
PS01-C664	A	EARTHWORK SITE SECTION (SHEET-11)
PS01-C665	A	EARTHWORK SITE SECTION (SHEET-12)
PS01-C666	A	EARTHWORK SITE SECTION (SHEET-13)

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

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GRID	DATUM	PROJECT MANAGER
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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A000	B

DRAWING ID: P2510821-PS01-R02-A000



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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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MGA	mAHD	JW

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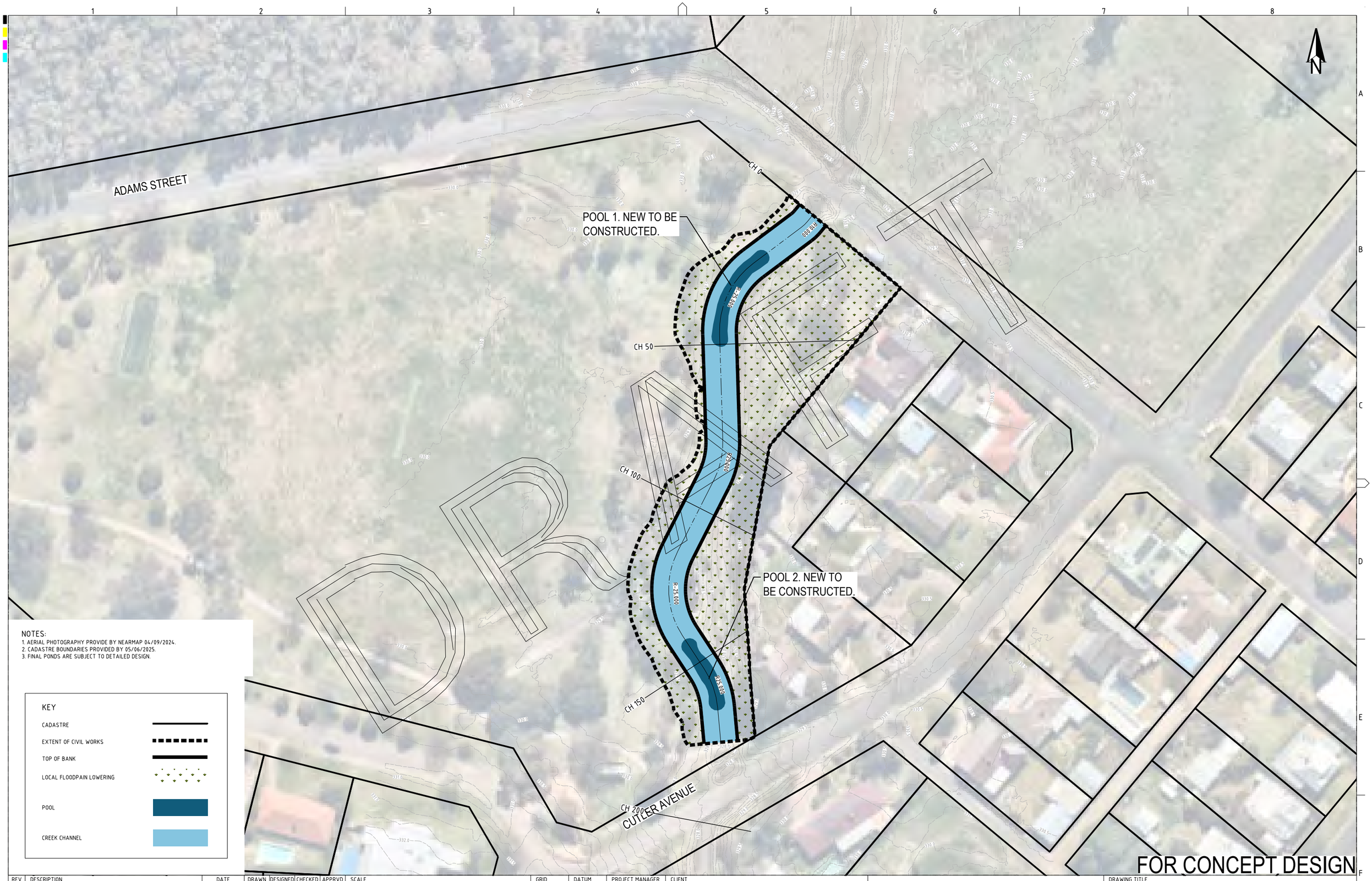
DRAWING TITLE
LAYOUT REFERENCE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A010	A

DRAWING ID: P2510821-PS01-R02-A010

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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

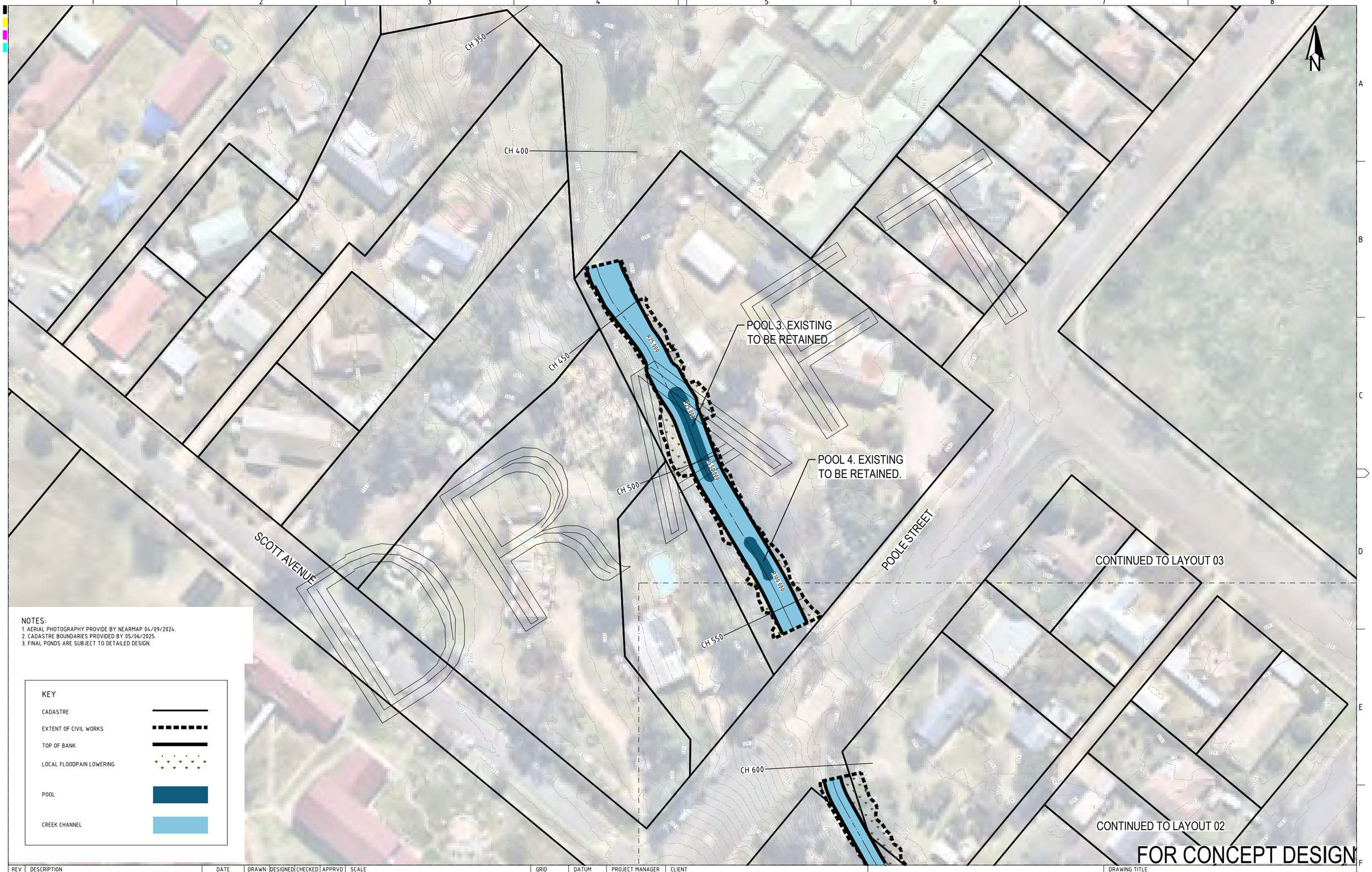
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DRAWING TITLE
PROPOSAL
LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A300	B

DRAWING ID: P2510821-PS01-R02-A300

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KEY

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- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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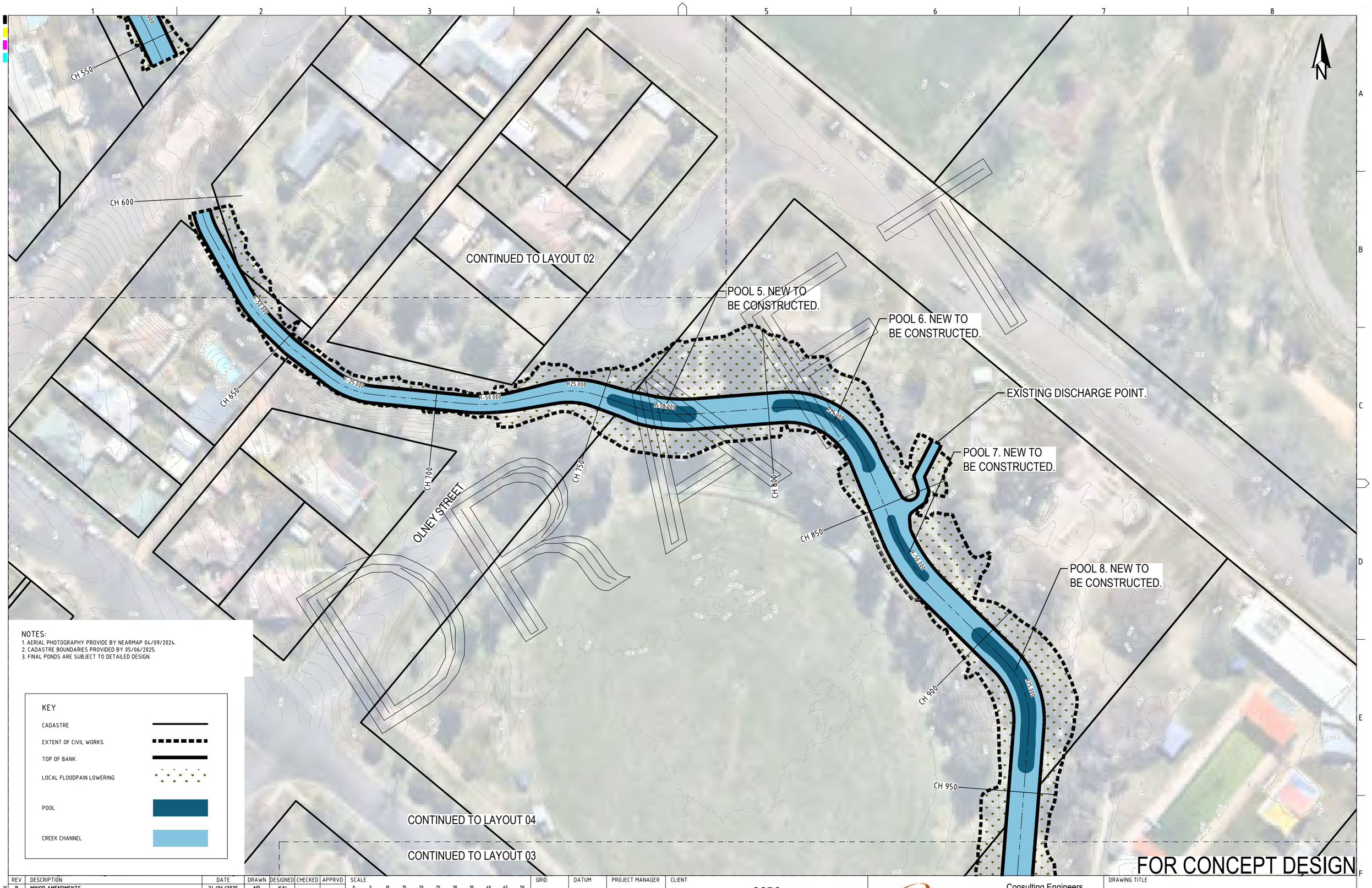
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DRAWING TITLE
PROPOSAL
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A310	B

DRAWING ID: P2510821-PS01-R02-A310

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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

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PRELIMINARY CIVIL ENGINEERING PLANS
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DRAWING TITLE: PROPOSAL LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A320	B

DRAWING ID: P2510821-PS01-R02-A320

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CONTINUED TO LAYOUT 03

WALLENDOON STREET

MURRAY STREET

CH 1000

CH 1050

CH 1100

CH 1150

CH 1200

R200.000

R150.000

R50.000

R75.000

POOL 9. NEW TO BE CONSTRUCTED.

N

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
2. CADASTRE BOUNDARIES PROVIDED BY 05/06/2025.
3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
PROPOSAL
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A330	B

DRAWING ID: P2510821-PS01-R02-A330

PRINTED: --- USER: NKPHAGE

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04

POOL 10. NEW TO BE CONSTRUCTED.

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

CH 1250

CH 1300

CH 1350

CH 1400

CH 1450

CH 1500

R=50.000

R=25.000

R=50.000

R100.000

R25.000

R=50.000

R=200.000

MACKAY STREET

PARKER STREET

POOL 11. NEW TO BE CONSTRUCTED.

N

NOTES:
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KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
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DRAWING TITLE
PROPOSAL
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A340	B

PRINTED ---- USER WORKPAGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P2510821-PS01-R02-A340

CONTINUED TO LAYOUT 05

CH 1550

POOL 11. NEW TO BE CONSTRUCTED.

EXISTING DISCHARGE POINT.

CH 1600

POOL 12. NEW TO BE CONSTRUCTED.

R-100.000

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

HURLEY STREET

CH 1650

R-25.000

POOL 13. NEW TO BE CONSTRUCTED.

R-25.000

POOL 14. NEW TO BE CONSTRUCTED.

CH 1700

THOMPSON STREET

CONTINUED TO LAYOUT 07

CH 1750

CONTINUED TO LAYOUT 06

FOR CONCEPT DESIGN

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
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REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
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MUTTAMA CREEK, COOTAMUNDRA
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DRAWING TITLE
PROPOSAL
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A350	B

DRAWING ID: P2510821-PS01-R02-A350

PRINTED: --- - USER: MDPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)

CONTINUED TO LAYOUT 06

CH 1750

CH 1800

CH 1850

CH 1900

CH 1950

CH 2000

CH 2050

R=225.000

R=225.000

R=300.000

R=200.000

POOL16. NEW TO BE CONSTRUCTED.

POOL 15. NEW TO BE CONSTRUCTED.

POOL 17. EXISTING IN-STREAM POND TO BE WIDENED.

POOL18. NEW TO BE CONSTRUCTED.

SUTTON STREET

HOVELL STREET

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

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KEY

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SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
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DRAWING TITLE
PROPOSAL
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A360	B

DRAWING ID: P2510821-PS01-R02-A360

PRINTED --- USER: NKPHAGE

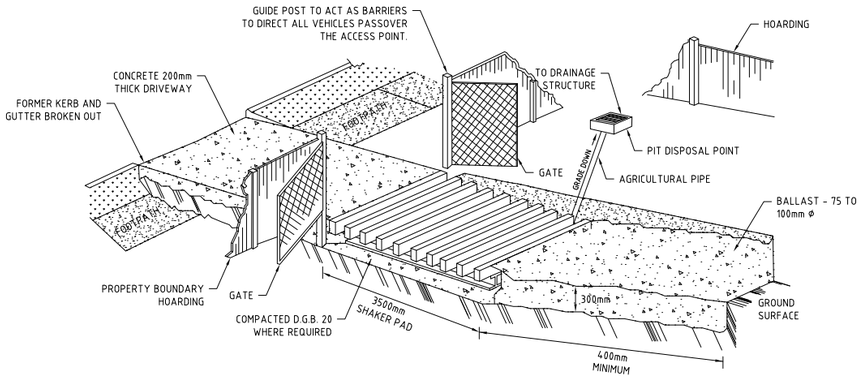
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

STABILISED ACCESS POINT

TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

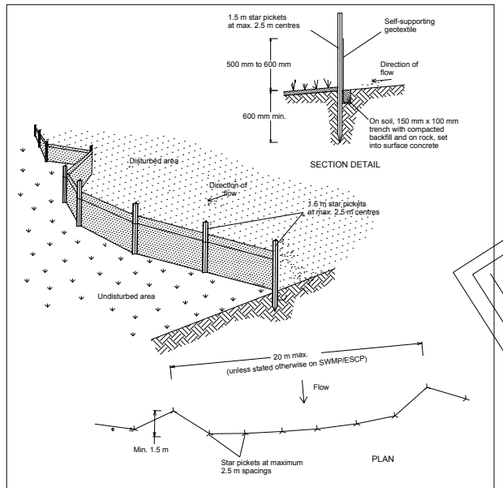
STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:

- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST) . IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJCENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

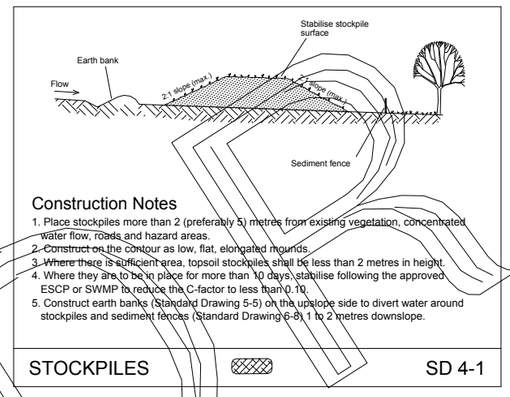
IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

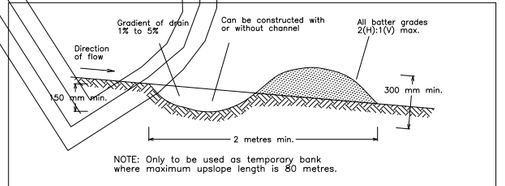
SEDIMENT FENCE SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES SD 4-1

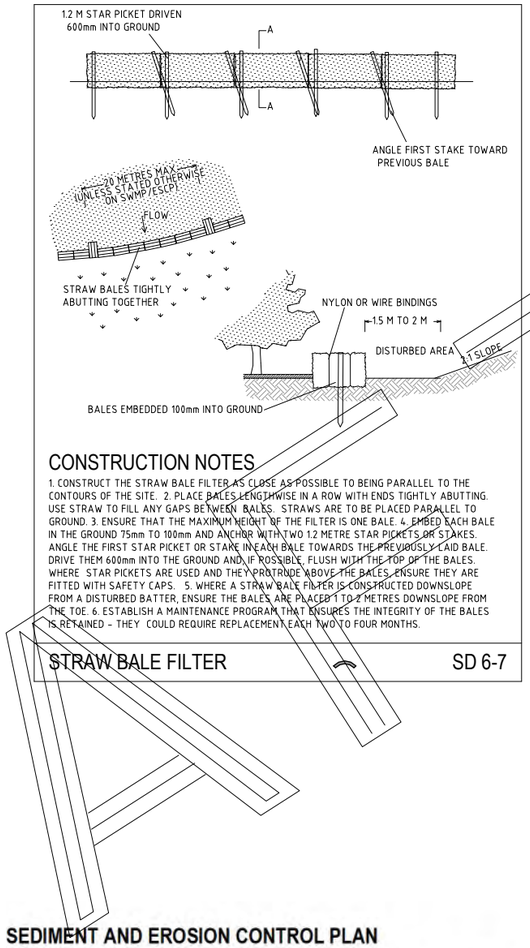


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

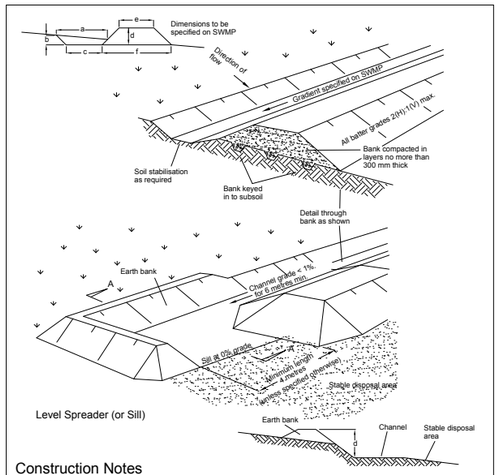
EARTH BANK (LOW FLOW) SD 5-5



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE. 2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND. 3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE. 4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS. 5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE. 6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) SD 5-6

SEDIMENT AND EROSION CONTROL PLAN

1 TEMPORARY SEDIMENTATION AND EROSION CONTROLS (SEC) ARE TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORK TO ELIMINATE THE DISCHARGE OF SEDIMENT FROM THE SITE. THE CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION", VOLUME 1, 4TH EDITION, MARCH 2004, (THE BLUE BOOK).

2 THE CONTRACTOR IS TO INFORM ALL SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN RELATION TO SEC.

3 THE CONTRACTOR SHALL REGULARLY MAINTAIN SEC DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES BEFORE NO MORE THAN 60% OF THEIR SEDIMENT STORAGE CAPACITY IS LOST. ALL THE SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.

4 NO SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL ASPHALTING WORKS ARE COMPLETED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR ENGINEER.

5 ALL WORKS MUST BE PERFORMED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.

6 THE FOLLOWING SEDIMENT CONTROL MEASURES ARE REQUIRED TO BE PROVIDED IN CONJUNCTION WITH THE ATTACHED SEDIMENT AND EROSION CONTROL PLAN.

- A ALL RUNOFF AND EROSION CONTROLS ARE TO BE INSTALLED BEFORE ANY WORKS ARE CARRIED OUT AT THE SITE.
- B ALL CONTAMINATED SURFACE WATERS AND DEBRIS FROM THE SITE MUST BE SCREENED, COLLECTED AND POLLUTANTS CAPTURED WITHIN THE SITE.
- C CONTAMINATION OF SURFACE WATERS ON DOWNSLOPE LANDS MUST BE MITIGATED BY INSTALLING SEDIMENT CONTROL FENCES DOWNSLOPE OF THE DISTURBED AREAS TO CAPTURE SEDIMENT AND DEBRIS ESCAPING FROM THE SITE.
- D SEDIMENT FENCING MUST BE SECURED BY POST (WHERE METAL STAR PICKETS ARE USED, PLASTIC SAFETY CAPS SHALL BE USED) AT TWO-METRE INTERVALS WITH THE GEOTEXTILE FABRIC EMBEDDED 200MM INTO SOIL. ONE METRE RETURNS MUST BE INSTALLED AT TWENTY-METRE INTERVALS ALONG THE SEDIMENT FENCING.
- E SEDIMENT TRAPS ARE TO BE INSTALLED DOWNSLOPE OF THE SITE TO FACILITATE THE CAPTURE OF SEDIMENT.
- F THE CONTRACTOR SHALL MAINTAIN DUST CONTROL UNTIL FINAL COMPLETION OF WORKS.
- G DURING WINDY WEATHER, LARGE, DISTURBED, UNPROTECTED AREAS SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- H EROSION AND SEDIMENT CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER, AND BE REPAIRED OR REPLACED THROUGHOUT THE COURSE OF WORKS ON SITE.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID | DATUM | PROJECT MANAGER: JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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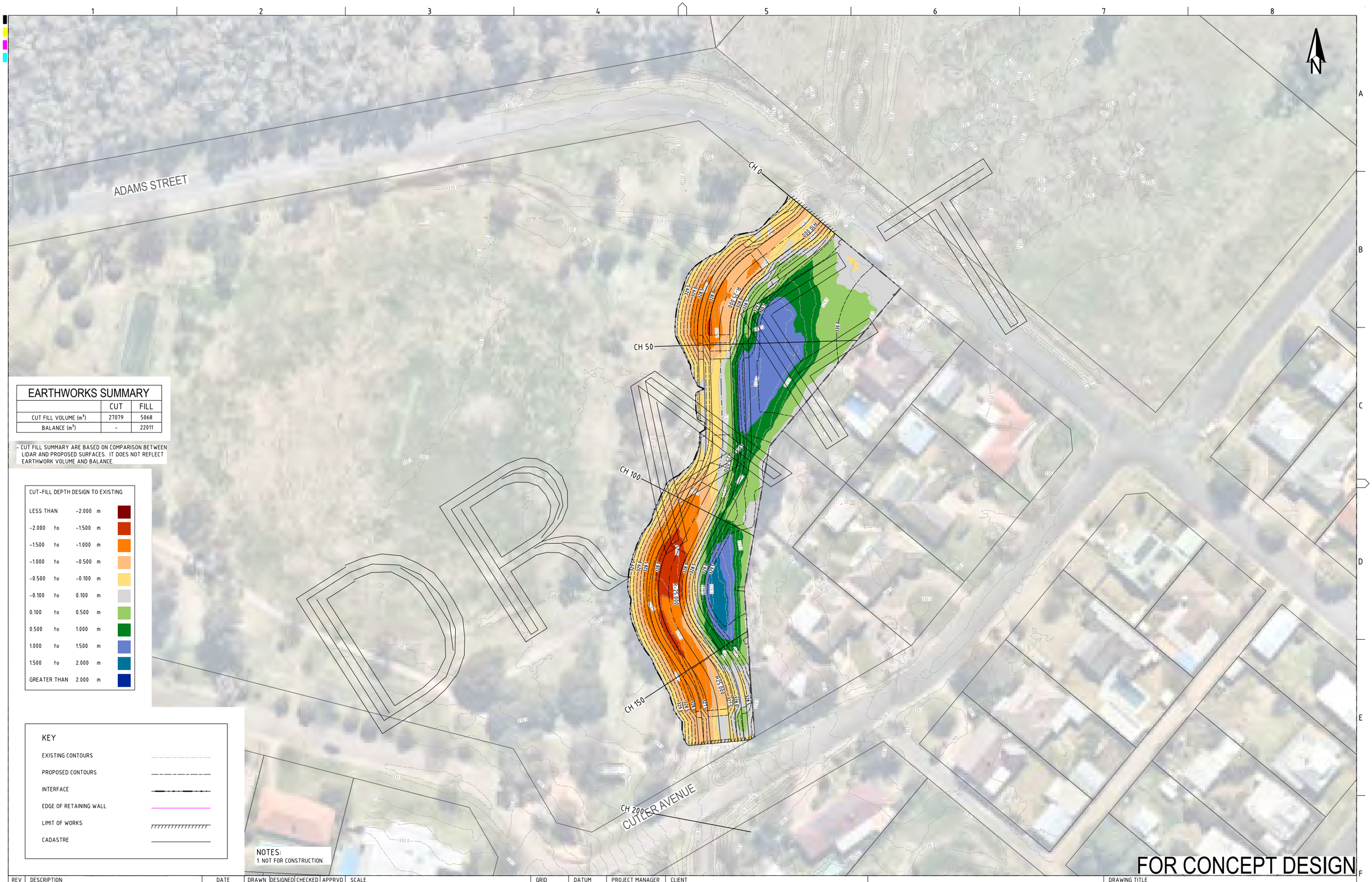
DRAWING TITLE
SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-B310	A

DRAWING ID: P2510821-PS01-R02-B310

PRINTED: ---- - USER: MDOHAGE

A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
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SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C100	B

DRAWING ID: P2510821-PS01-R02-C100

PRINTED: ---- - USER: MBPHAGGE

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
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BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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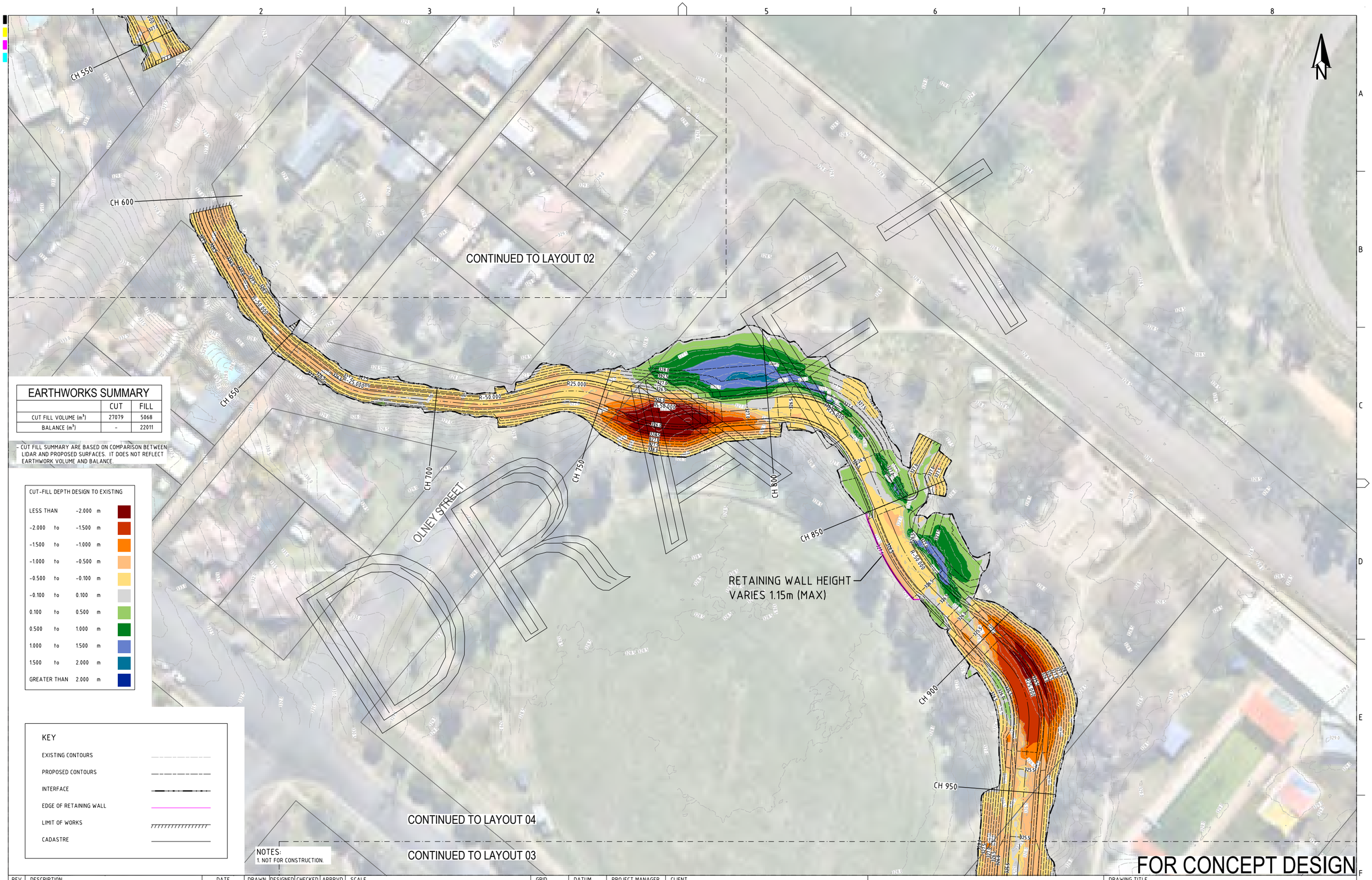
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C110	B

DRAWING ID: P2510821-PS01-R02-C110

PRINTED: ---- - USER: MDPHAGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000		m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN	2.000		m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C120	B

DRAWING ID: P2510821-PS01-R02-C120

PRINTED ---- - USER: MDPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN		-2.000	m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN		2.000	m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C130	B

DRAWING ID: P2510821-PS01-R02-C130

PRINTED ---- - USER: NKOPIASSE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C140	B

DRAWING ID: P2510821-PS01-R02-C140

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 05

CH 1550

CH 1600

CH 1650

CH 1700

CH 1750

HURLEY STREET

THOMPSON STREET

CONTINUED TO LAYOUT 07

CONTINUED TO LAYOUT 06

EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
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MUTTAMA CREEK, COOTAMUNDRA
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C150	B

DRAWING ID: P2510821-PS01-R02-C150

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m		
-2.000	to -1.500	m		
-1.500	to -1.000	m		
-1.000	to -0.500	m		
-0.500	to -0.100	m		
-0.100	to 0.100	m		
0.100	to 0.500	m		
0.500	to 1.000	m		
1.000	to 1.500	m		
1.500	to 2.000	m		
GREATER THAN	2.000	m		

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

PRINTED ---- : USER MDPAGGE

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

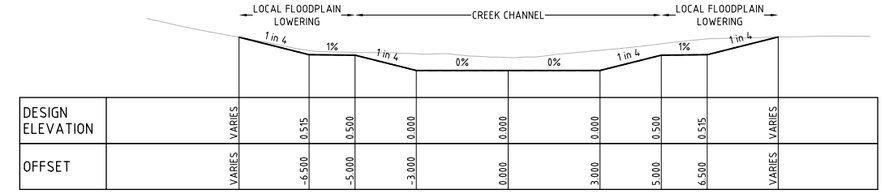
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C160	B

DRAWING ID: P2510821-PS01-R02-C160

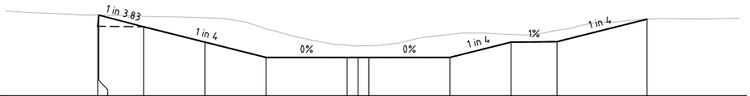
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



DESIGN ELEVATION	VARIES	0.515	0.500	0.000	0.000	0.000	0.500	0.515	VARIES	
OFFSET	VARIES	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	VARIES	

TYPICAL SECTION

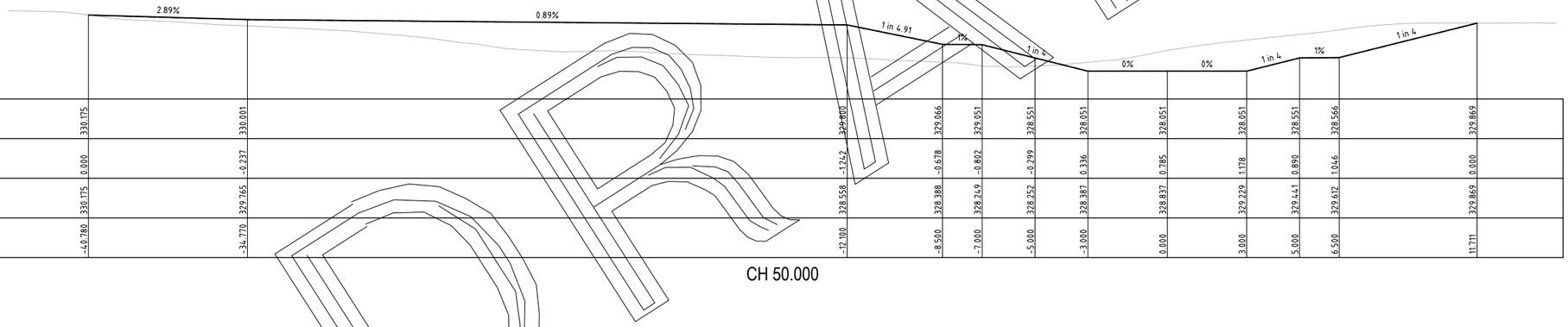
SCALE: HORIZONTAL - 1:100
VERTICAL - 1:100



RL327.0

DESIGN LEVELS	329.964	329.632	329.249	328.749	328.249	328.249	328.249	328.249	328.764	329.498
CUT / FILL DEPTH	0.368	0.000	0.342	0.795	0.931	0.399	0.376	0.286	0.752	0.250	0.367	0.000
EXISTING LEVELS	329.632	329.632	329.591	329.544	329.181	328.649	328.625	328.536	329.001	328.999	329.132	329.498
OFFSET	-8.500	-8.466	-7.000	-5.000	-3.000	-0.355	0.000	0.355	3.000	5.000	6.500	9.433

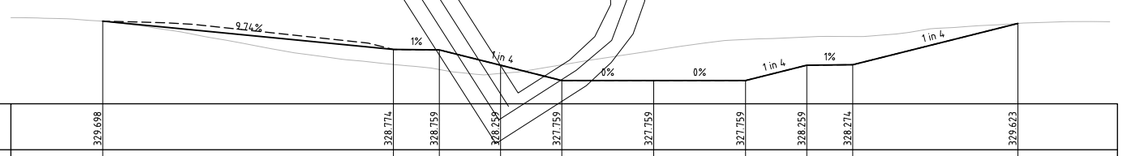
CH 0.000



RL327.0

DESIGN LEVELS	330.175	330.001	329.765	329.600	329.066	329.051	328.551	328.051	328.051	328.051	328.551	328.566	329.869
CUT / FILL DEPTH	0.000	-0.237	-1.242	-0.678	-0.802	-0.299	0.336	0.785	1.178	0.890	1.046	0.000
EXISTING LEVELS	330.175	329.765	328.558	328.388	328.249	328.252	328.387	328.837	329.229	329.441	329.612	329.869
OFFSET	-40.780	-34.770	-12.100	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.711

CH 50.000



RL327.0

DESIGN LEVELS	329.698	328.774	328.759	328.259	327.759	327.759	327.759	328.259	328.274	329.623
CUT / FILL DEPTH	0.000	-0.492	-0.640	-0.267	0.511	0.979	1.340	0.920	0.921	0.000
EXISTING LEVELS	329.698	328.282	328.119	327.992	328.271	328.738	329.099	329.180	329.196	329.623
OFFSET	-17.992	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.895

CH 100.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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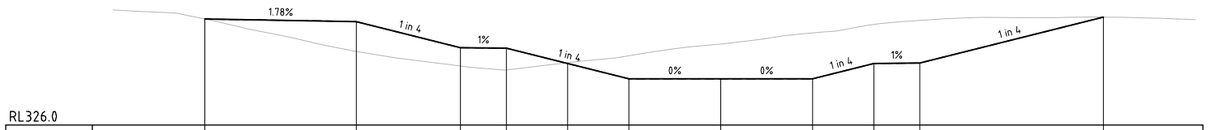
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C600	B

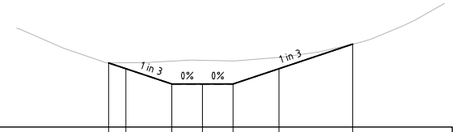
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PRINTED: ---- - USER: MORPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



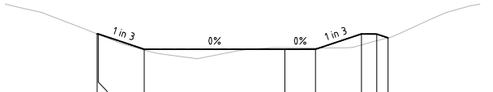
RL326.0										
DESIGN LEVELS	329.461	329.373	328.523	328.508	328.008	327.508	327.508	327.508	328.008	328.023	329.522
CUT / FILL DEPTH	0.000	-0.970	-0.597	-0.712	0.026	0.752	1.136	1.498	1.276	1.391	0.000
EXISTING LEVELS	329.461	328.403	327.926	327.796	328.035	328.260	328.644	329.006	329.284	329.414	329.522
OFFSET	-16.848	-11.900	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	12.496

CH 150.000



RL325.0							
DESIGN LEVELS	327.091	326.904	326.404	326.404	326.404	326.904	327.706
CUT / FILL DEPTH	0.000	0.193	0.746	0.772	0.752	0.370	0.000
EXISTING LEVELS	327.091	327.097	327.150	327.176	327.157	327.274	327.706
OFFSET	-3.043	-2.502	-1.000	0.000	1.000	2.502	4.907

CH 650.000



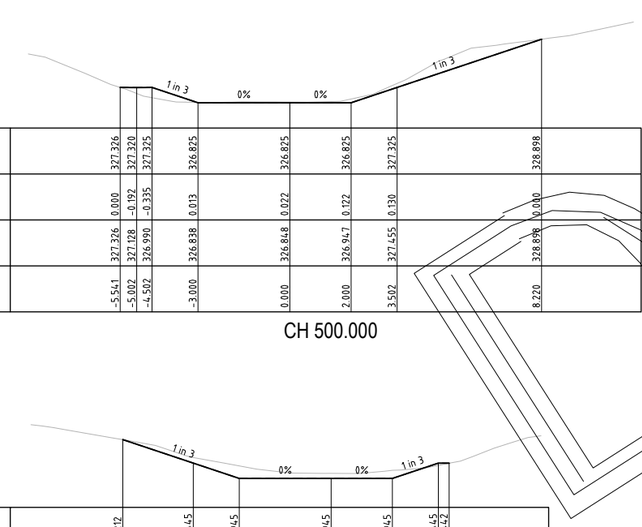
RL326.0								
DESIGN LEVELS	328.070	328.070	327.570	327.570	327.570	328.070	328.065	327.943
CUT / FILL DEPTH	0.000	0.015	-0.029	0.053	0.040	-0.359	-0.477	0.000
EXISTING LEVELS	328.070	328.055	327.541	327.623	327.610	327.711	327.843	327.943
OFFSET	-6.130	-5.095	-4.593	0.000	1.000	2.502	3.002	3.969

CH 450.000



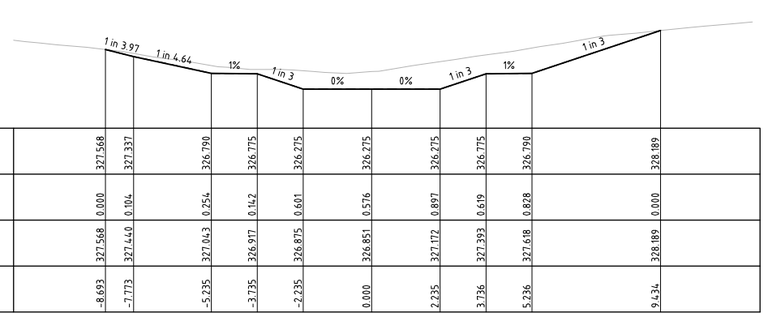
RL325.0							
DESIGN LEVELS	327.334	326.864	326.364	326.364	326.364	326.864	327.167
CUT / FILL DEPTH	0.000	0.255	0.522	0.455	0.495	0.147	0.000
EXISTING LEVELS	327.334	327.120	326.886	326.819	326.859	327.012	327.167
OFFSET	-3.912	-2.502	-1.000	0.000	1.000	2.502	3.410

CH 700.000



RL326.0							
DESIGN LEVELS	327.326	327.320	327.325	326.825	326.825	326.825	327.325	328.898
CUT / FILL DEPTH	0.000	-0.192	-0.335	0.013	0.022	0.122	0.130	0.000
EXISTING LEVELS	327.326	327.128	326.990	326.838	326.848	326.947	327.455	328.898
OFFSET	-5.541	-5.002	-4.502	-3.000	0.000	2.000	3.502	8.220

CH 500.000

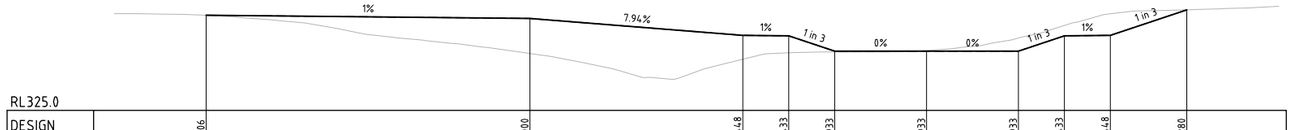


RL325.0									
DESIGN LEVELS	327.568	327.337	326.790	326.775	326.275	326.275	326.275	326.775	326.790	328.189
CUT / FILL DEPTH	0.000	0.104	0.254	0.142	0.601	0.576	0.897	0.619	0.828	0.000
EXISTING LEVELS	327.568	327.440	327.043	326.917	326.875	326.851	327.172	327.393	327.618	328.189
OFFSET	-8.693	-7.773	-5.235	-3.735	-2.235	0.000	2.235	3.736	5.236	9.434

CH 750.000

RL326.0								
DESIGN LEVELS	328.212	327.445	326.945	326.945	326.945	327.445	327.442	
CUT / FILL DEPTH	0.000	0.182	0.409	0.165	0.266	0.073	0.000	
EXISTING LEVELS	328.212	327.626	327.353	327.110	327.210	327.371	327.442	
OFFSET	-6.803	-4.502	-3.000	0.000	2.000	3.502	3.854	

CH 550.000



RL325.0										
DESIGN LEVELS	328.106	328.000	327.448	327.433	326.933	326.933	326.933	327.433	327.448	328.280
CUT / FILL DEPTH	0.001	-1.144	-0.779	-0.554	-0.027	0.020	0.429	0.339	0.705	0.000
EXISTING LEVELS	328.106	326.856	326.669	326.879	326.906	326.953	327.362	327.772	328.153	328.280
OFFSET	-23.526	-12.951	-6.000	-4.500	-3.000	0.000	3.000	4.502	6.002	8.498

CH 800.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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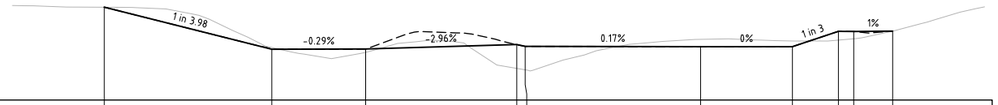
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C610	B

DRAWING ID: P2510821-PS01-R02-C610

PRINTED: --- - USER: MDPHAGE

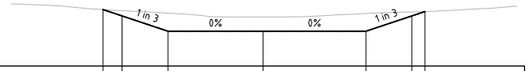
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL325.0

DESIGN LEVELS	328.031	326.657	326.666	326.812	326.751	326.742	326.742	327.242	327.249
CUT / FILL DEPTH	-0.002	0.056	-0.108	-0.780	-0.766	0.238	0.185	-0.286	0.000
EXISTING LEVELS	328.028	326.713	326.557	326.032	325.986	326.980	326.927	326.956	327.249
OFFSET	-19.473	-14.001	-10.937	-6.001	-5.727	0.000	3.000	4.502	5.002	6.273

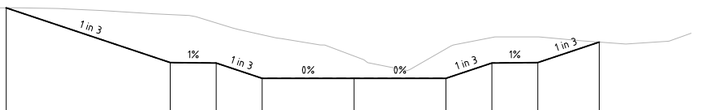
CH 850.000



RL324.0

DESIGN LEVELS	325.842	325.636	325.136	325.136	325.136	325.636	325.778
CUT / FILL DEPTH	0.000	0.170	0.589	0.464	0.580	0.128	0.000
EXISTING LEVELS	325.842	325.805	325.725	325.600	325.715	325.764	325.778
OFFSET	-5.224	-4.685	-3.103	0.000	3.361	4.862	5.288

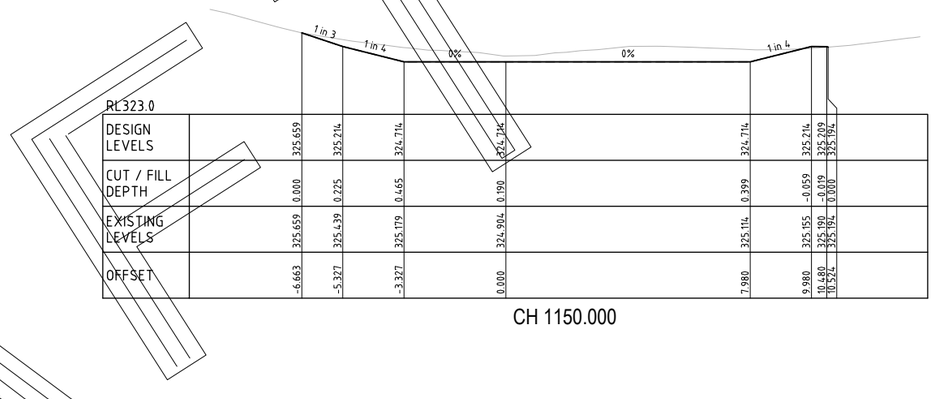
CH 1050.000



RL324.0

DESIGN LEVELS	327.689	325.903	325.888	325.388	325.388	325.388	325.888	325.903	326.571
CUT / FILL DEPTH	0.000	1.566	1.309	1.422	0.728	0.962	0.833	0.838	0.000
EXISTING LEVELS	327.689	327.469	327.197	326.810	326.116	326.350	326.721	326.741	326.571
OFFSET	-11.360	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	8.007

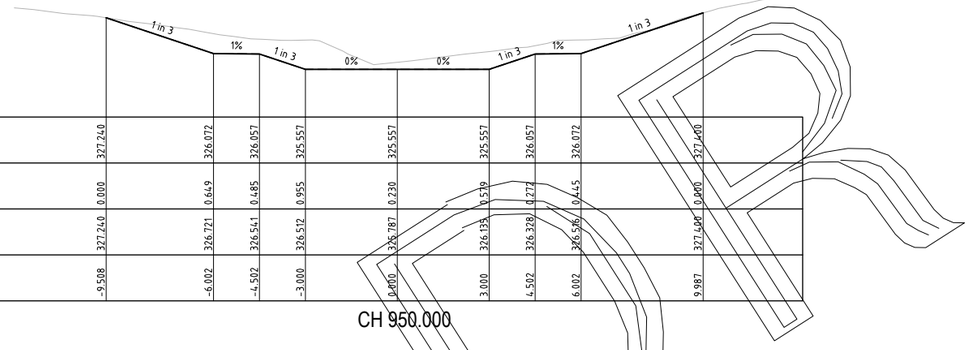
CH 900.000



RL323.0

DESIGN LEVELS	325.659	325.214	324.714	324.724	324.714	325.214	325.209	325.194
CUT / FILL DEPTH	0.000	0.225	0.465	0.190	0.399	-0.059	-0.019	0.000
EXISTING LEVELS	325.659	325.439	325.179	324.904	325.114	325.155	325.190	325.194
OFFSET	-6.663	-5.327	-3.327	0.000	7.980	9.980	10.480	10.924

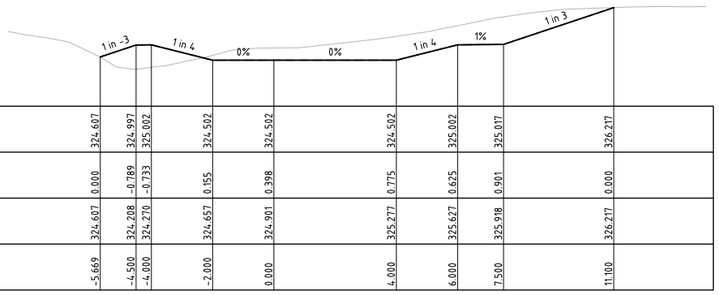
CH 1150.000



RL324.0

DESIGN LEVELS	327.240	326.072	326.057	325.557	325.557	325.557	326.057	326.072	327.400
CUT / FILL DEPTH	0.000	0.649	0.485	0.955	0.230	0.539	0.272	0.445	0.000
EXISTING LEVELS	327.240	326.721	326.541	326.512	326.781	326.135	326.378	326.586	327.400
OFFSET	-9.508	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	9.987

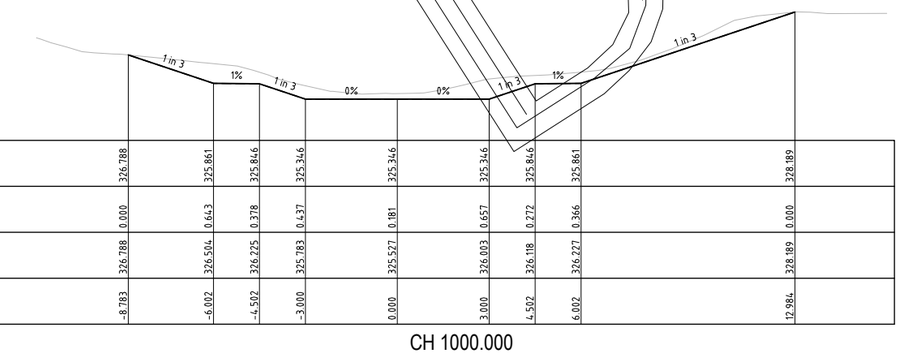
CH 950.000



RL323.0

DESIGN LEVELS	324.607	324.997	325.002	324.502	324.502	324.502	325.002	325.017	326.217
CUT / FILL DEPTH	0.000	-0.789	-0.733	0.155	0.398	0.775	0.625	0.901	0.000
EXISTING LEVELS	324.607	324.208	324.270	324.657	324.901	325.277	325.627	325.918	326.217
OFFSET	-5.669	-4.500	-4.000	-2.000	0.000	4.000	6.000	7.500	11.100

CH 1200.000



RL324.0

DESIGN LEVELS	326.788	325.861	325.846	325.346	325.346	325.346	325.846	325.861	328.189
CUT / FILL DEPTH	0.000	0.643	0.378	0.437	0.181	0.657	0.272	0.366	0.000
EXISTING LEVELS	326.788	326.504	326.225	325.783	325.527	326.003	326.118	326.227	328.189
OFFSET	-8.783	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	12.984

CH 1000.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:100 (1:200)
0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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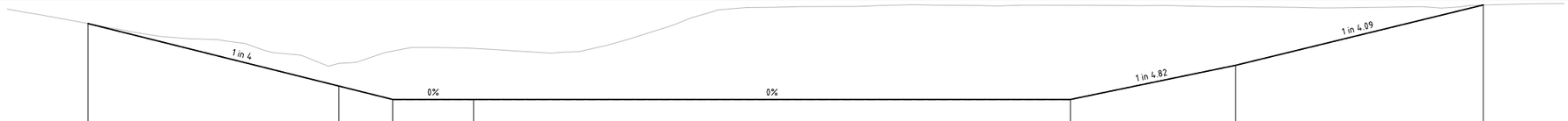
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C611	A

DRAWING ID: P2510821-PS01-R02-C611

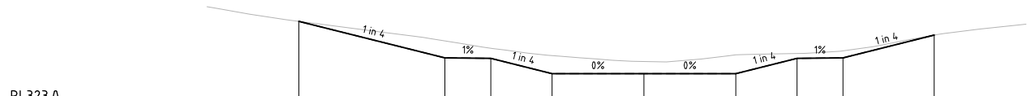
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL322.0

DESIGN LEVELS	325.725	323.400	322.900	322.900	322.900	324.172	326.419
CUT / FILL DEPTH	0.000	0.842	1.801	1.900	3.507	2.184	-0.005
EXISTING LEVELS	325.725	324.242	324.701	324.800	326.407	326.356	326.414
OFFSET	-14.301	-5.000	-3.000	0.000	22.140	28.266	37.450

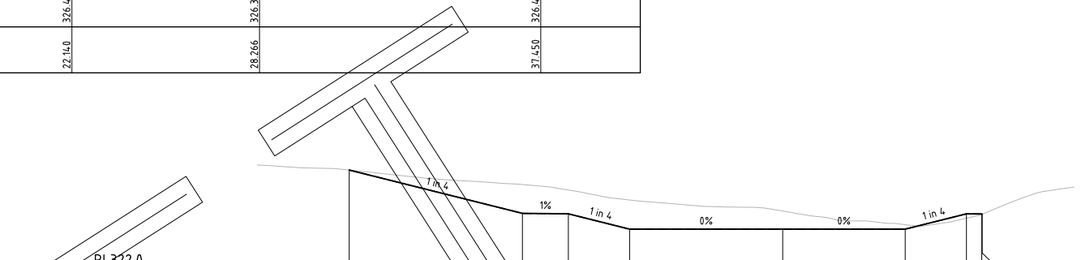
CH 1250.000



RL323.0

DESIGN LEVELS	325.709	324.517	324.502	324.002	324.002	324.002	324.502	324.517	325.261
CUT / FILL DEPTH	0.000	0.554	0.329	0.590	0.397	0.615	0.158	0.230	0.000
EXISTING LEVELS	325.709	325.071	324.831	324.592	324.399	324.617	324.660	324.746	325.261
OFFSET	-11.269	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.478

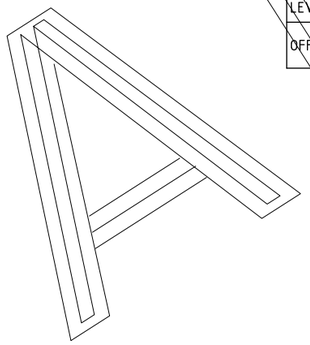
CH 1300.000

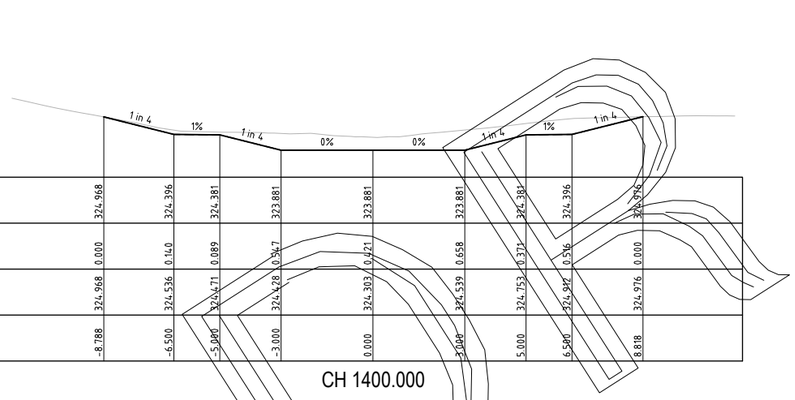


RL322.0

DESIGN LEVELS	325.209	323.795	323.780	323.280	323.280	323.280	323.780	323.775	323.770
CUT / FILL DEPTH	0.000	0.942	0.777	0.952	0.594	0.145	-0.144	-0.011	0.000
EXISTING LEVELS	325.209	324.737	324.557	324.232	323.874	323.425	323.636	323.766	323.770
OFFSET	-14.156	-8.500	-7.000	-5.000	0.000	4.000	6.000	6.500	6.574

CH 1550.000

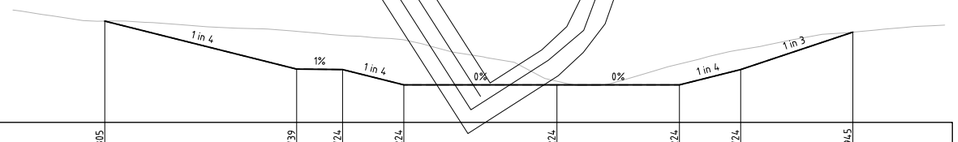




RL323.0

DESIGN LEVELS	324.968	324.396	324.381	323.881	323.881	323.881	324.381	324.396	324.976
CUT / FILL DEPTH	0.000	0.140	0.089	0.347	0.421	0.658	0.371	0.536	0.000
EXISTING LEVELS	324.968	324.536	324.471	324.428	324.303	324.539	324.753	324.932	324.976
OFFSET	-8.788	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	8.818

CH 1400.000



RL322.0

DESIGN LEVELS	325.305	323.739	323.724	323.224	323.224	323.224	323.724	324.945
CUT / FILL DEPTH	0.000	1.232	1.113	1.470	0.119	0.682	0.649	0.000
EXISTING LEVELS	325.305	324.971	324.837	324.694	323.343	323.906	324.373	324.945
OFFSET	-14.765	-8.500	-7.000	-5.000	0.000	4.000	6.000	9.663

CH 1500.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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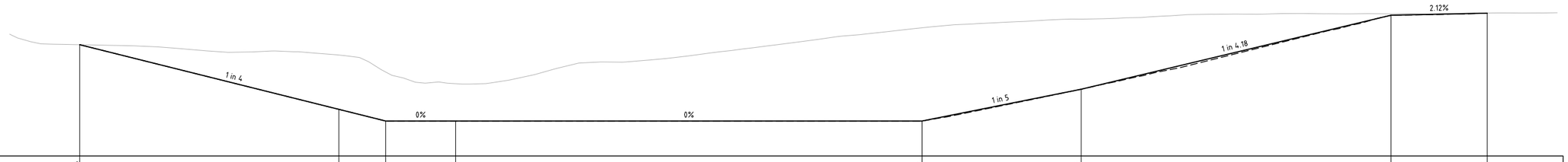
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C612	A

DRAWING ID: P2510821-PS01-R02-C612

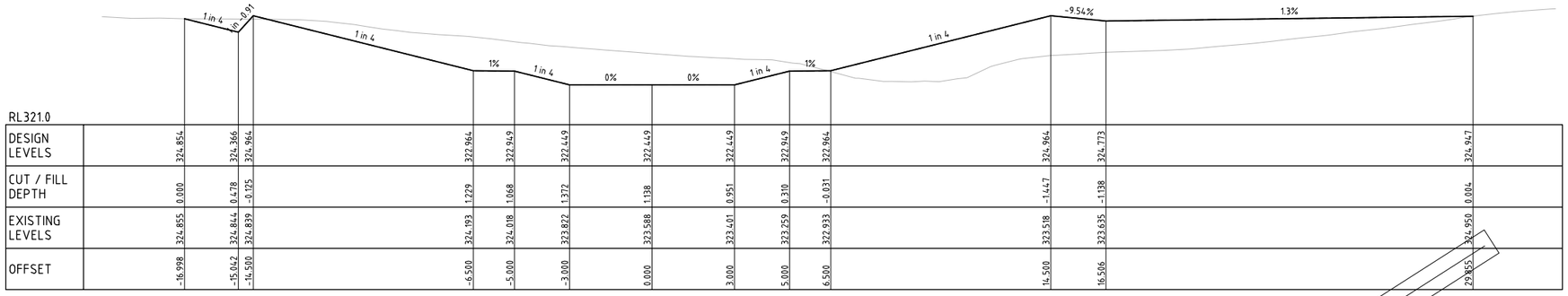
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



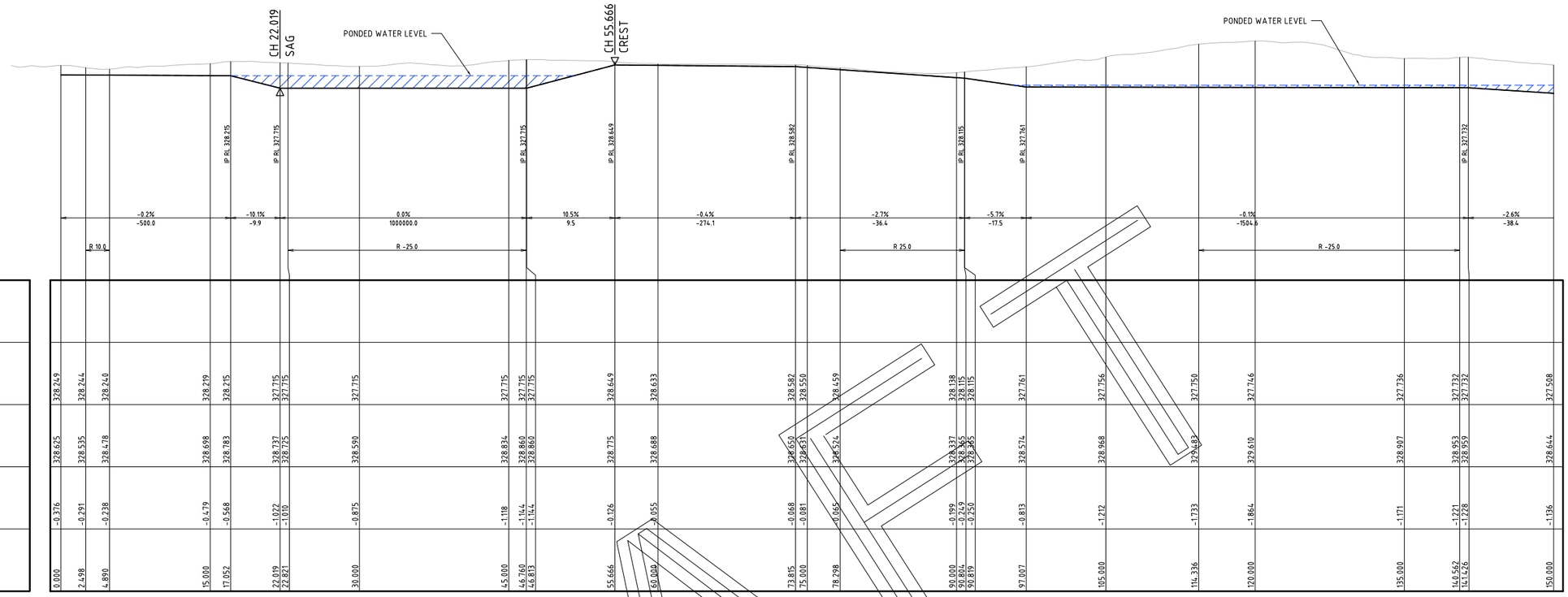
RL320.0

| | | |



RL321.0

| | | |



FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

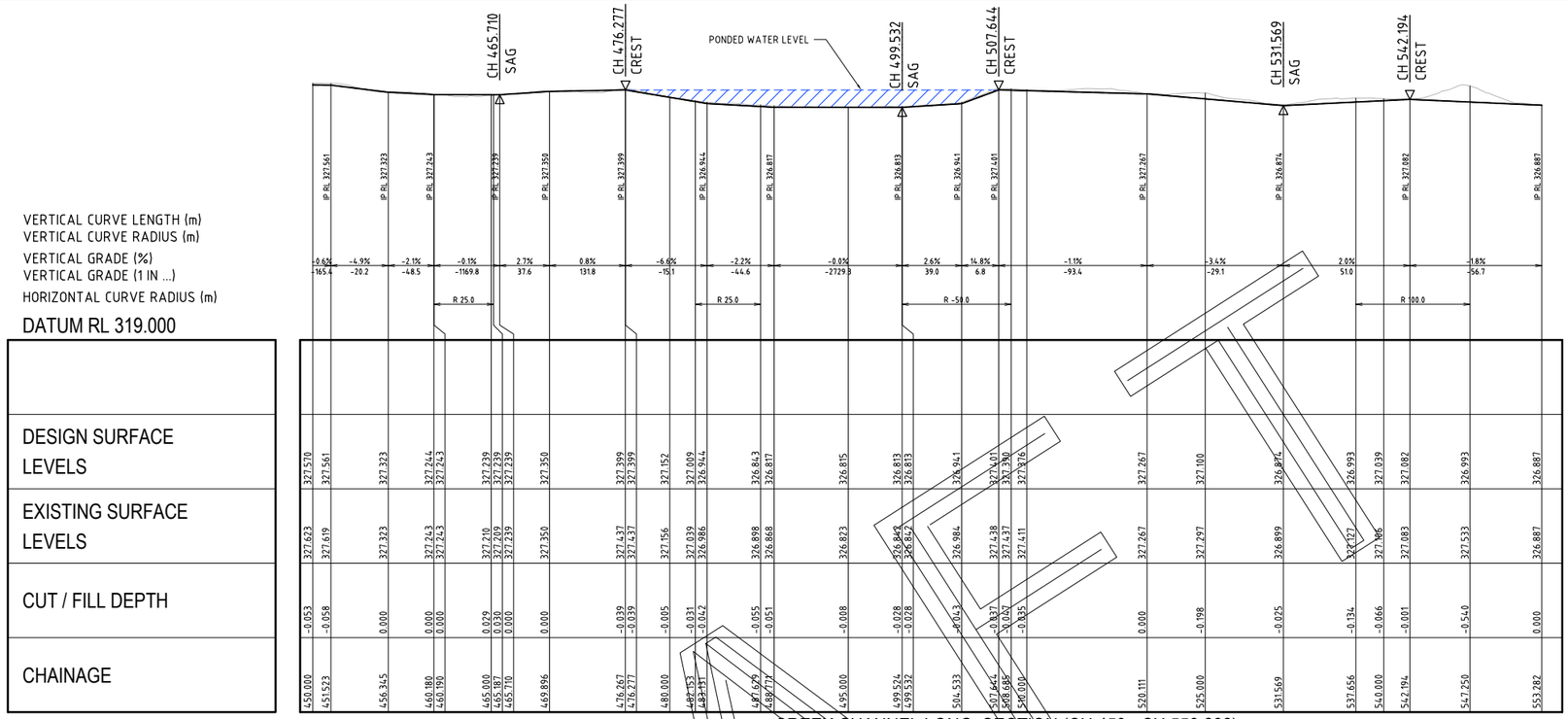
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C660	A

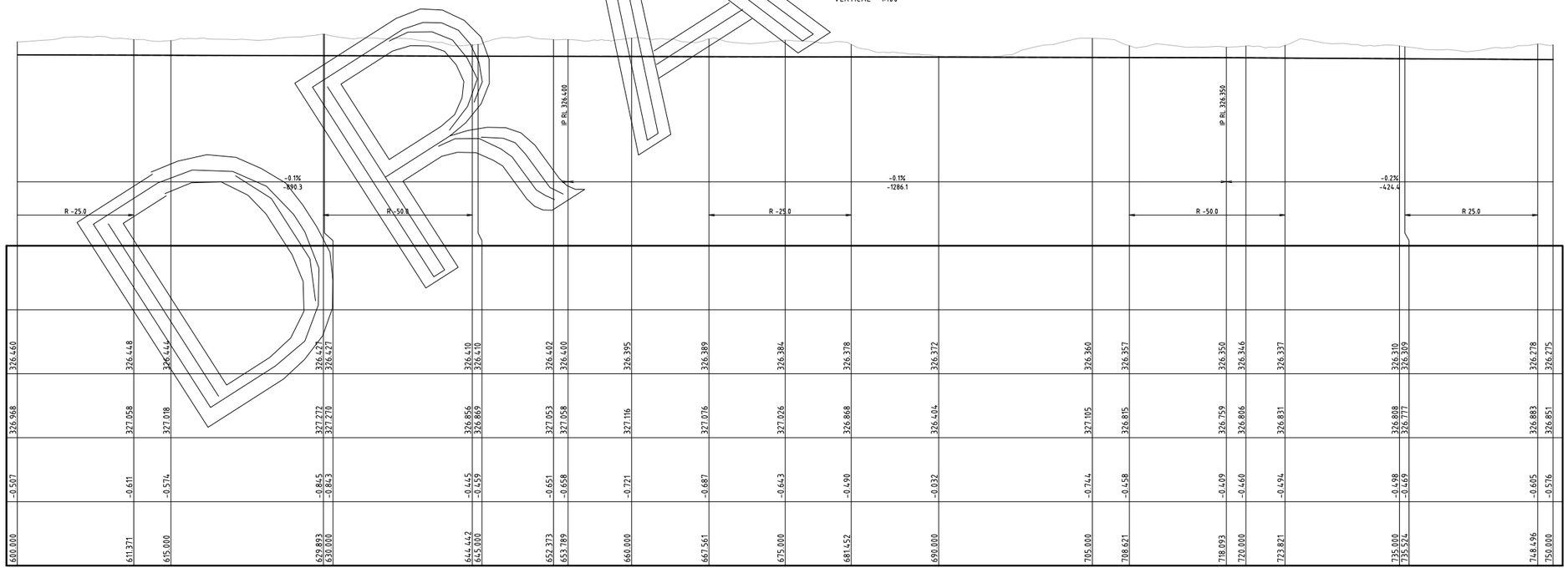
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A1 / A3 LANDSCAPE (ATLC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 450 - CH 553.282)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 600 - CH 750)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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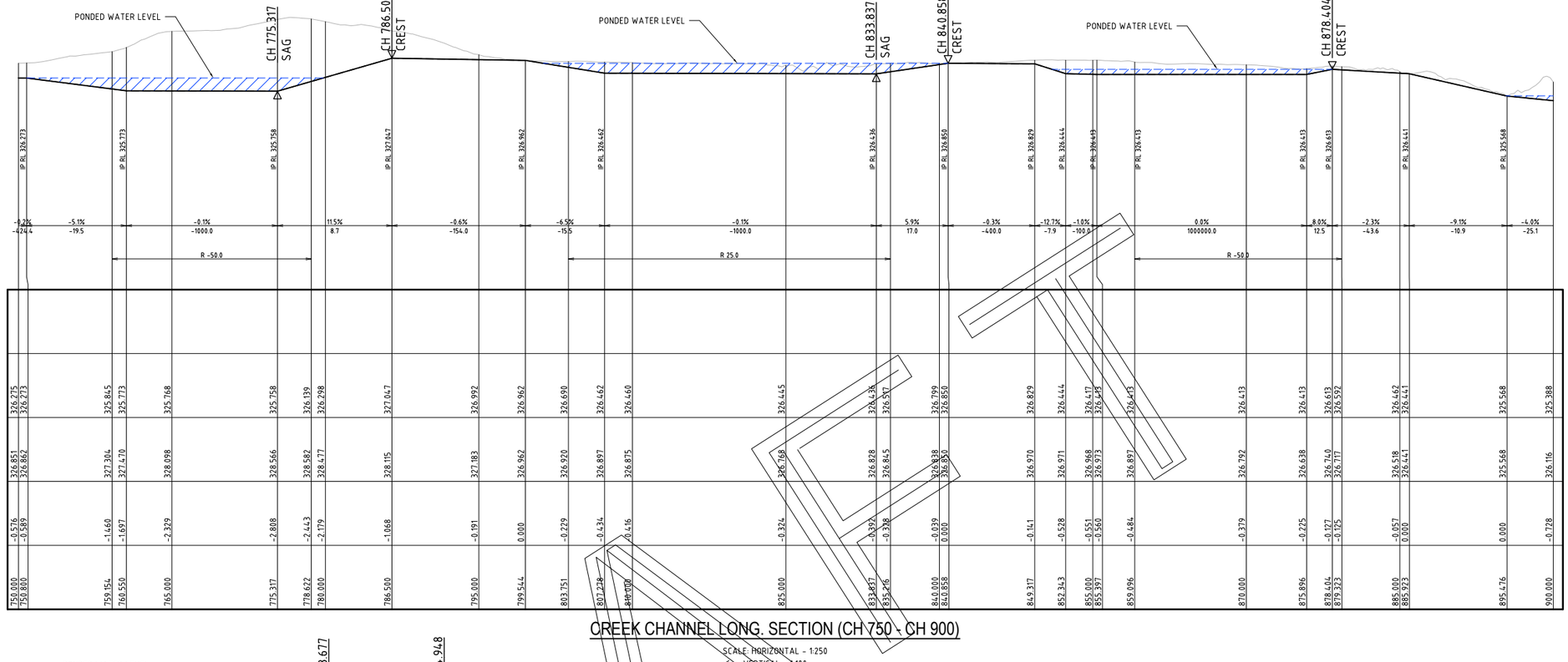
PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
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SHEET - 8

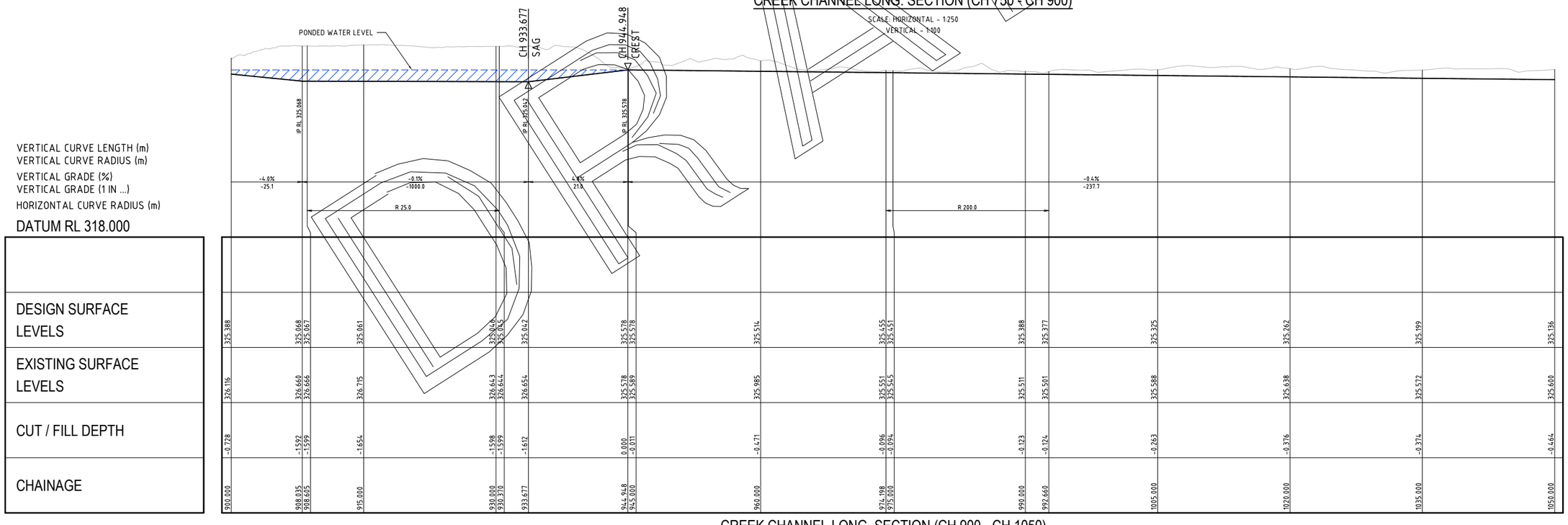
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CREEK CHANNEL LONG. SECTION (CH 750 - CH 900)

SCALE: HORIZONTAL - 1:250
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SCALE: HORIZONTAL - 1:250
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FOR CONCEPT DESIGN

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A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
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METRES

GRID	DATUM	PROJECT MANAGER
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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

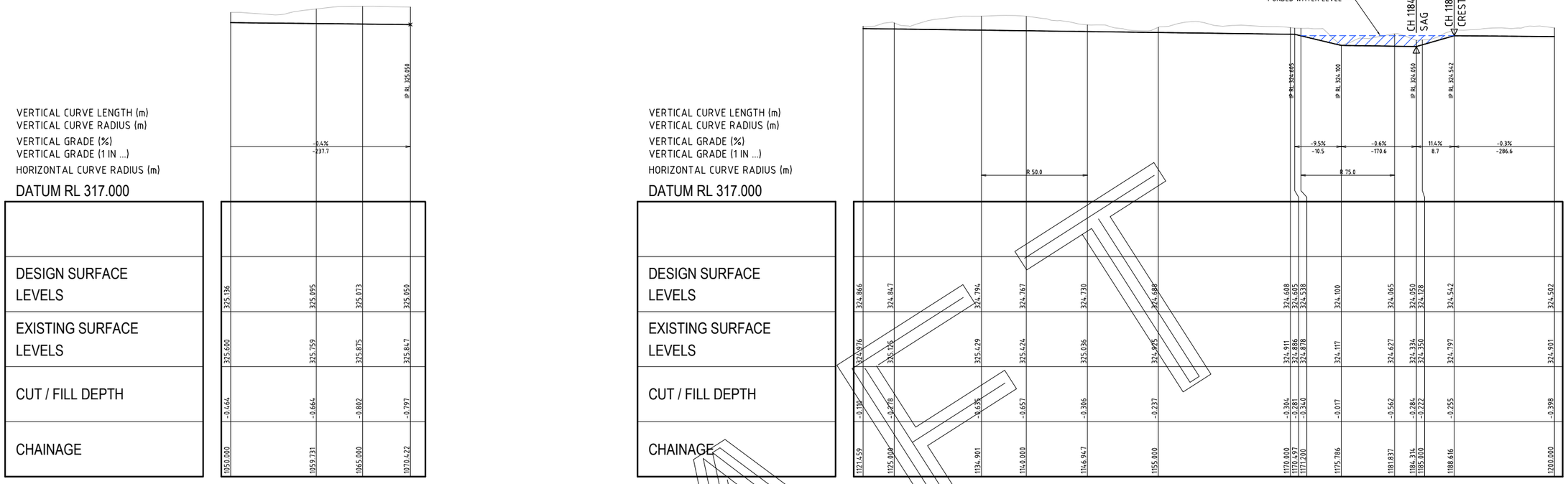
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PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
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DRAWING ID: P2510821-PS01-R02-C662

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GRID	DATUM	PROJECT MANAGER
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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
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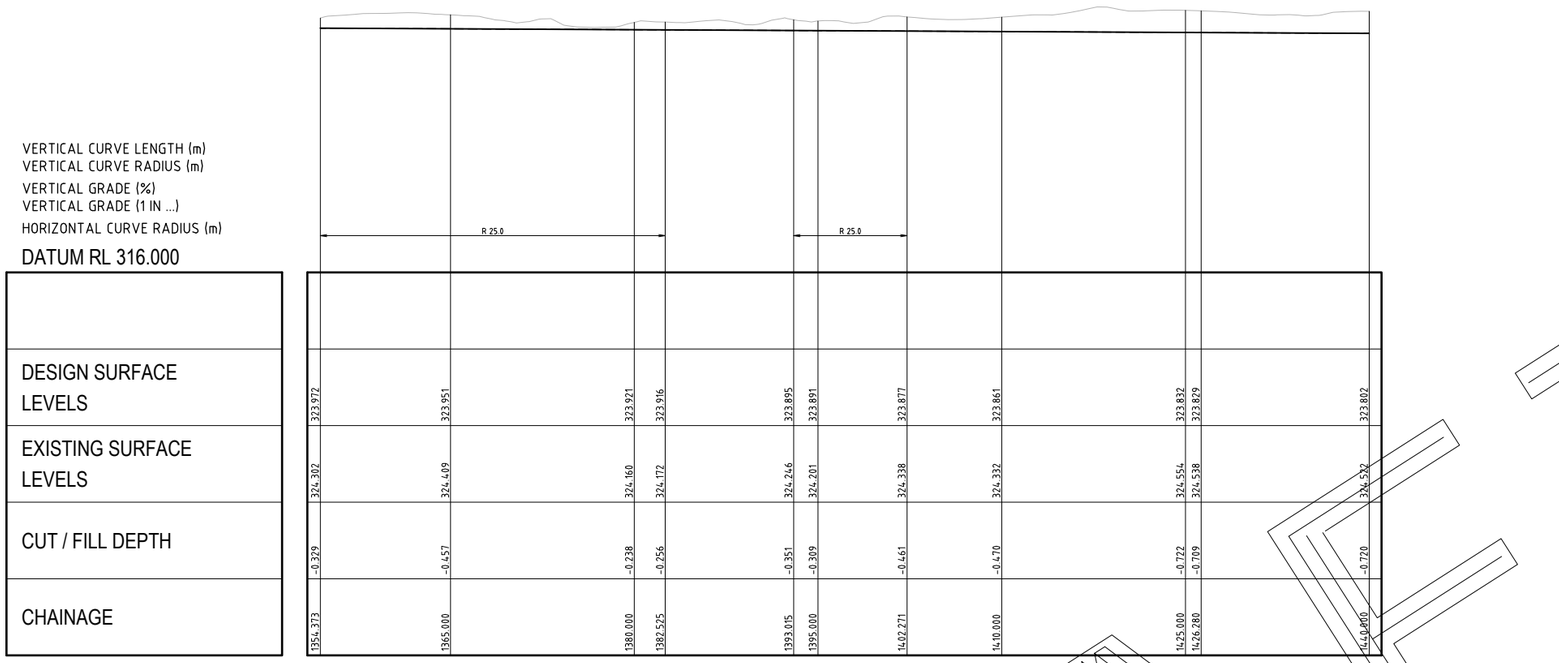
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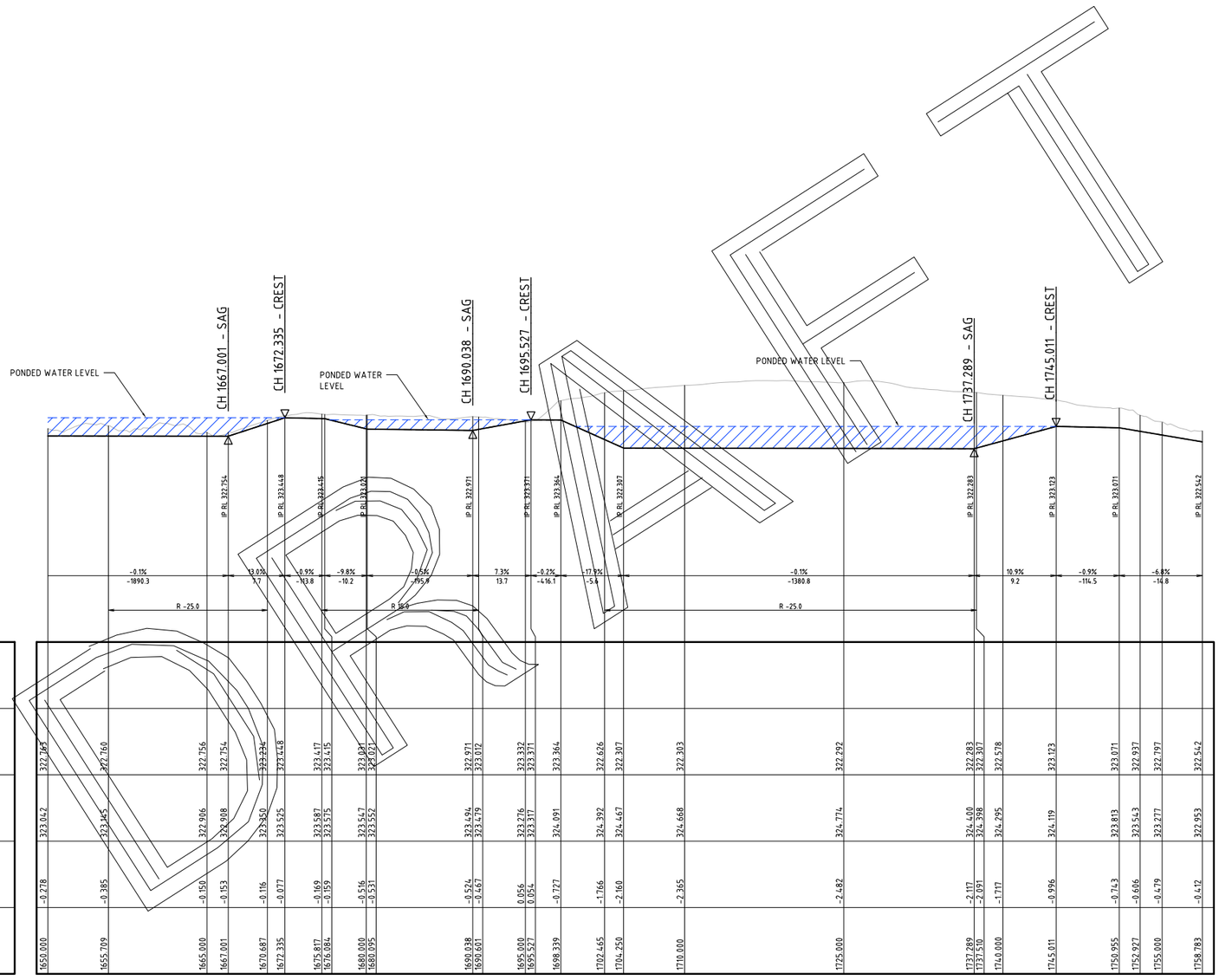
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DATUM RL 316.000

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GRID	DATUM	PROJECT MANAGER
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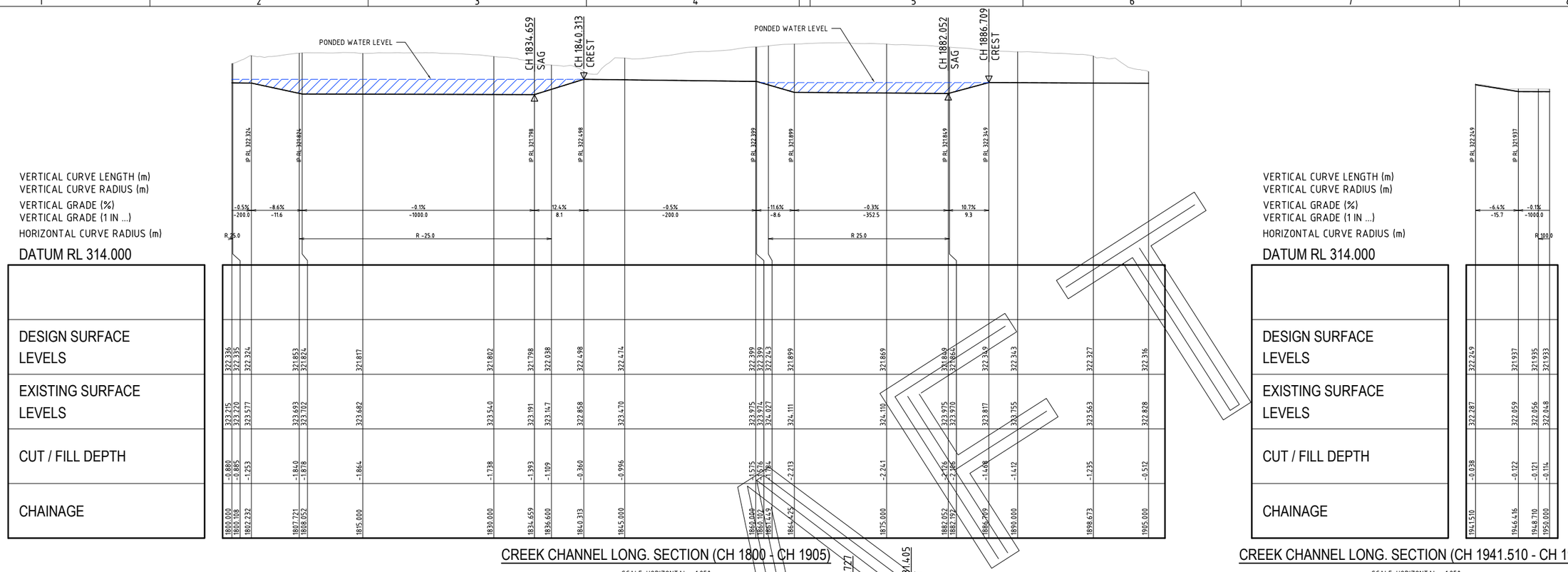
PROJECT NAME/PLANSET TITLE
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MUTTAMA CREEK, COOTAMUNDRA
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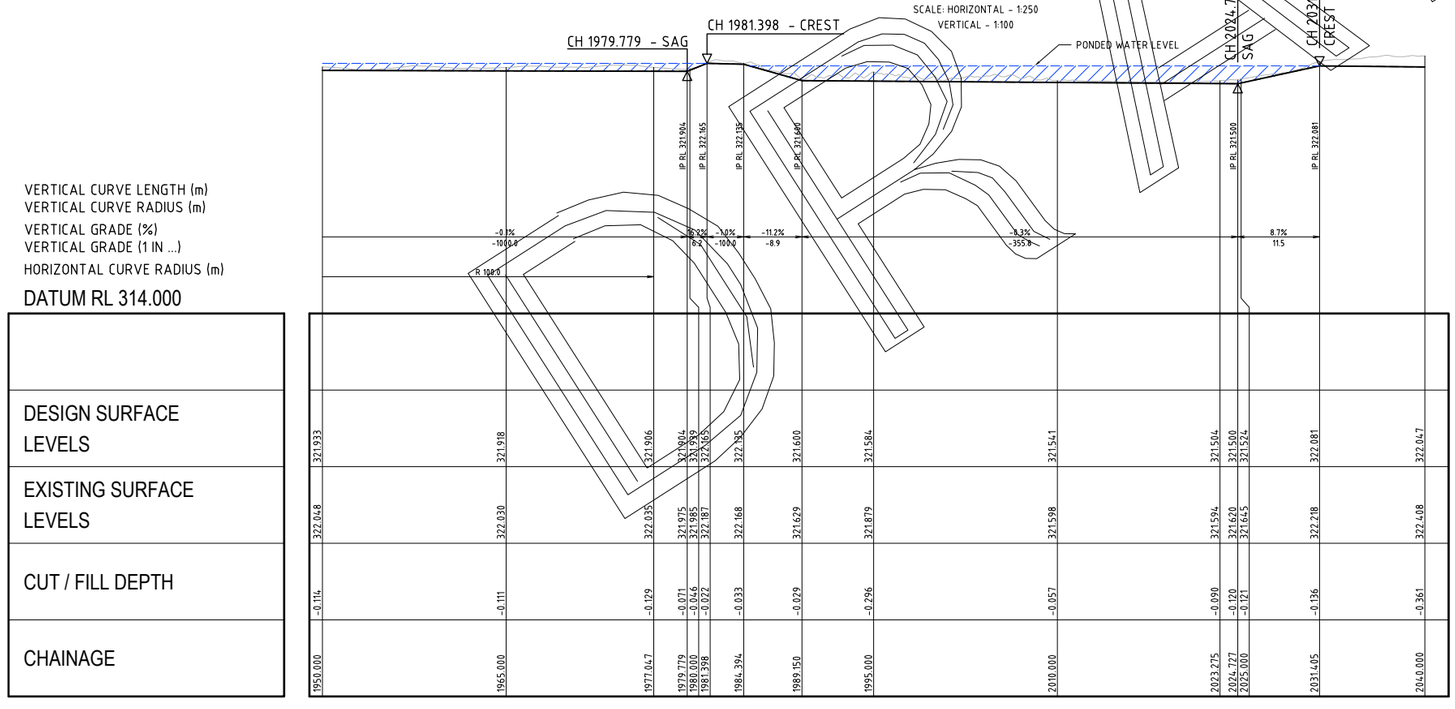
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SCALE: HORIZONTAL - 1:250
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SCALE
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GRID	DATUM	PROJECT MANAGER
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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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Contact
Jason Watkins

Our Ref
P2510821JC07V01

Pages
3 + Attachments

30 July 2025

NSW Department of Primary Industries – Fisheries
By email

Consultation with NSW Department of Primary Industries – Fisheries for proposed masterplan - Muttama Creek, Cootamundra NSW

1 Introduction

Martens & Associates Pty Ltd (**Martens**) have prepared this letter on behalf of Cootamundra-Gundagai Regional Council (the **Council**) to consult with NSW Department of Primary Industries – Fisheries (**DPI Fisheries**) in relation to proposed works at Muttama Creek (the **Creek**) located in the Cootamundra-Gundagai LGA which are to be undertaken by the Council.

1.1 Approval pathway

An REF is currently being prepared by Martens under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) and will be submitted to the Council for consideration. The proposed development is classified as development without consent under the following sections of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW) (**Transport and Infrastructure SEPP**):

1. Section 2.56 (1) which permits flood mitigation works to be carried out by or on behalf of a public authority without consent.

2. Section 2.73 (3)(a) which relevantly permits recreation areas, pedestrian pathways, pedestrian bridges, landscaping, information boards and lighting without consent on land owned or controlled by a public authority.

1.2 Purpose

This letter has been prepared on behalf of Council to inform DPI Fisheries about the proposed development and preliminary measures to minimise any potential impacts to aquatic fauna and riparian vegetation noting the Creek is identified as key fish habitat under *Fisheries Management Act 1994* (NSW) (**Fisheries Management Act**).

2 Proposal description

The following works are proposed to an approximate 2 km long segment of the Creek (the **Proposal**):

1. Flood mitigation works generally consisting of earthworks (primarily cut) to widen and deepen the existing creek channel, lower the local floodplain, create two new instream pools to increase local floodplain storage. Additionally, ongoing management of in-stream vegetation (such as Cumbungi) is to be undertaken by Council.

   It is noted that the proposed earthworks constitute 'dredging work' and hence will require a permit issued under Part 7 of Fisheries Management Act to carry out the Proposal.

2. Associated works to increase the Creek's aesthetic qualities and available range of passive recreational activities including new pedestrian footpaths and bridge crossings (indicative potential alignments have been shown), increasing the tree canopy, interpretive signage relating to local historical, ecological and Aboriginal cultural knowledge of the locality and new lights / seating.

The masterplan works are shown in the draft masterplan report (Attachment 1) and concept civil engineering plans (Attachment 2).

3 Environmental considerations

Ecological assessment including a terrestrial ecological assessment and aquatic/marine ecological assessment are currently being prepared as part of the REF. Approximately 0.82 ha of River Red Gum (*Eucalyptus camaldulensis*) is to be cleared as a result of the Proposal. It is understood that mature River Red Gum trees provide locally important fish habitat and that the Creek forms part of the Murray River Endangered Ecological Community (**Murray River EEC**). However, the Proposal is not considered to significantly affect threatened species, populations or ecological communities associated with the Murray River EEC, and will in fact provide a net benefit to aquatic habitat within the Creek, for the following reasons:

1. The Creek is currently characterised by unstable banks and stagnant water with ongoing risk of erosion and sedimentation which limits the potential for quality habitat for native aquatic species. The Proposal will provide a stable bankform and improve conveyance of water which will improve local water quality and hence the potential for good quality aquatic habitat will increase.

2. A number of in-stream ponds and pools are to be provided to create areas of permanent standing water which will allow for improvements to potential local aquatic habitat. Additionally, all existing in-stream pools are to be retained.

3. Other weeds are to be removed and Council will be undertaking ongoing management in accordance with their permit (PN23/297) issued under Part 7 of Fisheries Management Act for dredging and reclamation associated with general maintenance works which will remove impediments to longitudinal connectivity of upstream and downstream habitats.

Additionally, existing snags located between Cutler Avenue and Poole Street are to be retained and replacement planting with River Red Gum will be undertaken to minimise and/or offset any residual impact.

4 Request for comment

We invite you to provide comments on the Proposal as part of the REF consultation. In particular, we do not consider that the Proposal is likely to significantly affect threatened species, populations or ecological communities for reasons specified in Section 3 of this letter. We request that you please review this letter and accompanying documentation and provide concurrence with our assessment. Please provide any comments to the undersigned by close of business 29 August 2025.

If you require any further information, please do not hesitate to contact our offices.

For and on behalf of

Martens & Associates Pty Ltd

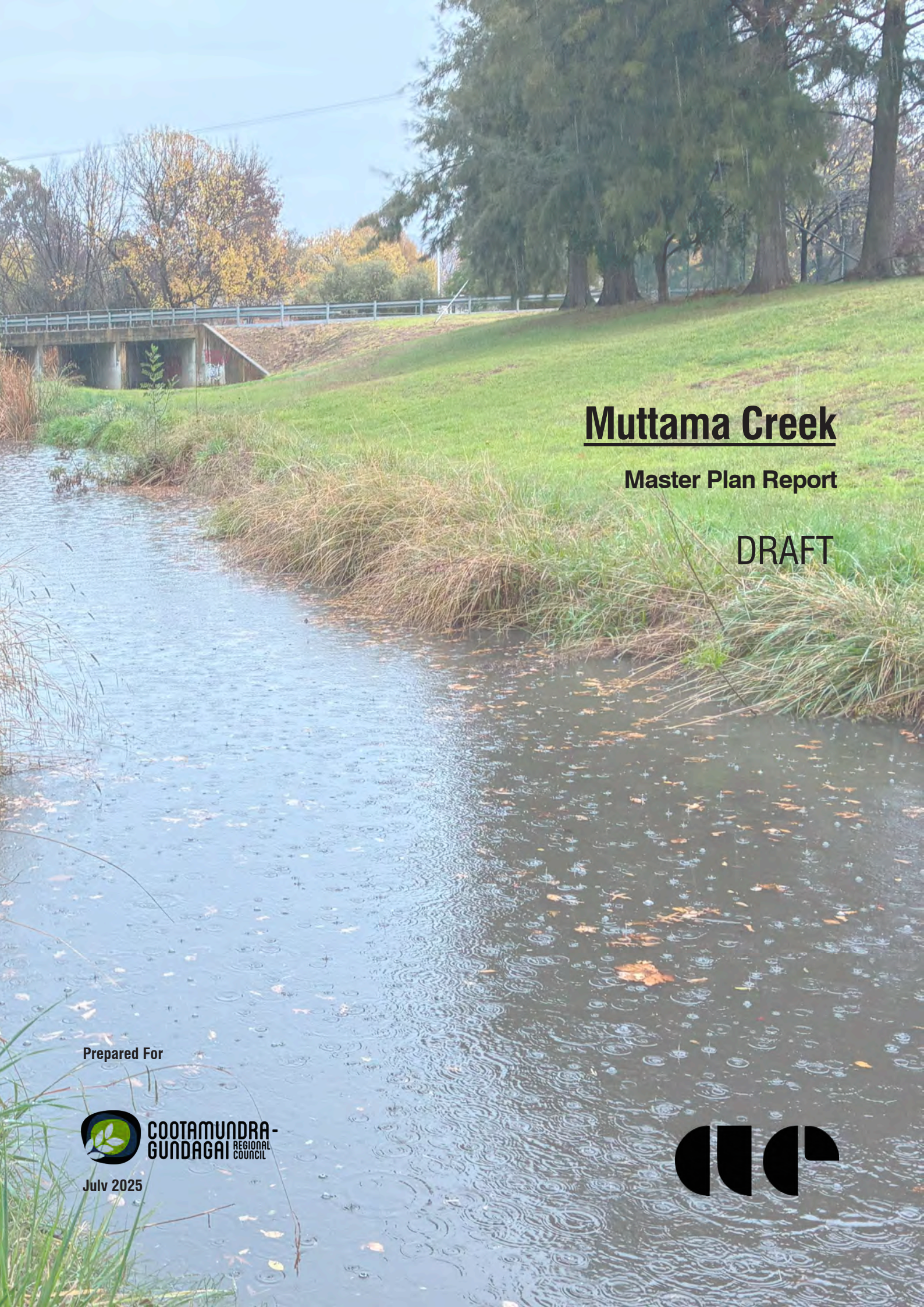


Jason Watkins

B. Planning

Senior Town Planner, Project Manager

Attachment 1: Draft masterplan report



Muttama Creek

Master Plan Report

DRAFT

Prepared For

COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL

July 2025

1.0 Introduction

The Master Plan for Muttama Creek (the Creek) in Cootamundra, Wiradjuri country, has been prepared in conjunction with proposed flood mitigation works and preliminary community consultation by Martens and Associates and ecological assessment by Land Eco Consulting for the Cootamundra Gundagai Regional Council (CGRC).

The Master Plan will

- provide a framework to revitalise the riparian corridor,
- integrate flood mitigation, and
- create a sustainable open space ecological network within the town centre of Cootamundra.

The study area is limited to a 2km length from Adams Street to Lloyd Conkey Avenue as shown in Figure 1 below.



Figure 1 Study Area

2.0 Context

Muttama Creek, a major tributary of the Murrumbidgee River system traverses the town centre of Cootamundra. Aboriginal for swamp and turtles, the town has long experienced localised flooding and inundation of properties along the riparian corridor.

Rivers and creeks are an inherent part of many regional town centres and contribute to the identity and vitality of the place. The revitalisation of Muttama Creek provides an opportunity to reduce the impact of flooding, contribute to the well-being of the town centre and its residents, enhance its sense of place, acknowledge the Traditional Owners and their continued connection to country and attract tourism to Cootamundra.

The Master Plan is consistent with key focus areas in the Cootamundra-Gundagai Community Strategic Plan which includes:

1. A Vibrant, Safe and Inclusive Community
2. A Region for the Future
3. A Protected and Enhanced Environment

3.0 Precincts

There are four distinct character precincts along the 2km length of Muttama Creek within the Master Plan.

- Bradman Precinct
- Sport and Recreation Precinct
- Town Centre Precinct
- Local Community Precinct



3.1
Bradman Precinct



1. Existing creek line
2. Potential gateway
3. Low level tree canopy
4. Bradman's Birthplace Museum
5. Potential walking trail + signage
6. Historic creek line
7. Pedestrian crossing below road
8. Land on private ownership
9. Potential green link to Sports and Recreation Precinct

Bradman Precinct

0 20 50 100m

1:2,000 @ A3

3.1 Bradman Precinct

This precinct comprises two blocks commencing at Adams Street through to Cutler Avenue and extends south to Poole Street.



3.11 The Place

The precinct comprises two key important places:
•The oval, named after Sir Donald Bradman; and
•Bradman's Birthplace Museum, which is a Local Heritage Item and tourist attraction.

The oval has no definition and minimal surrounding tree canopy and there is no signage to Bradman's Birthplace nor any reference to Bradman other than the name of the oval.

Characterised by the cricket oval, the Bradman precinct contains, cricket nets, public amenities, pathways and play equipment with residential dwellings to the east of the creek. These properties have been severely affected by flooding and the riparian corridor is barely discernible, appearing as a grassed swale along the edge of the oval.

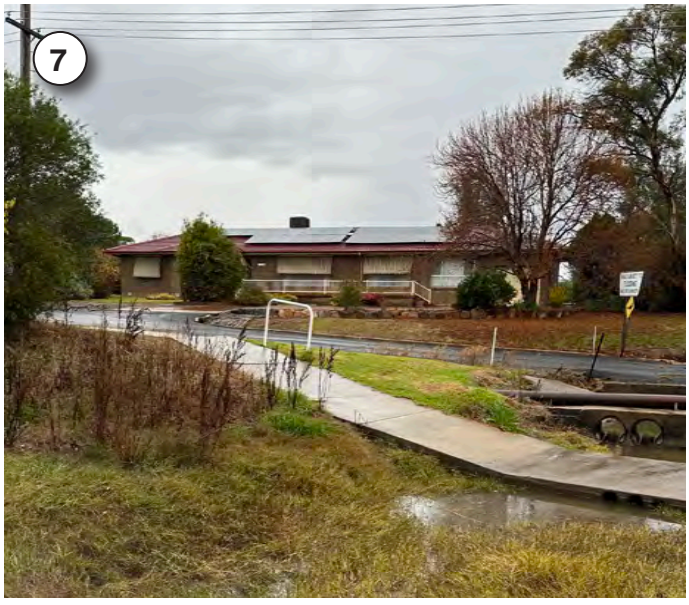


The original alignment of the creek was located to west of the current crossing on Adams Street, in the centre of Bradman Oval.

Flood mitigation works only are proposed for the block between Cutler Avenue and Poole Street.

3.12 Opportunities

Bradman's Birthplace Museum is a tourist attraction within walking distance of the creek. It presents an opportunity to integrate with the Creek and develop a walking trail and signage along Cutler Avenue and Adams Street to and from this tourist attraction.



There is an opportunity to define the oval with a traditional fence in honour of Sir Donald Bradman and integrate it with the revitalised creek.

Additional trees surrounding the oval and along the Creek will provide shade and improve the aesthetic quality of the riparian corridor.

The proposed flood mitigation provides an opportunity to both revitalise the waterway and increase the trees and plantings alongside the Creek to visually reinforce and link it to the town centre, and also increase the tree canopy surrounding the oval and integrate it into the revitalised waterway.

The current pedestrian crossing at Cutler Avenue is not disabled accessible and below the level of the road. There is an opportunity to provide a level crossing to the oval and improve the flow of water. The flood mitigation work creates a wider deeper waterway and may necessitate an additional Creek crossing to improve pedestrian access to Bradman Oval from the town centre to the east.

The section of creek to the south of Bradman Oval is in private ownership and does not permit a continuous walk along the waterway.

There is an opportunity however to connect this precinct with the Sport and Recreation Precinct from Cutler Avenue to Crown Street and Nicholson Park along the right of way or along a right of way on land in private ownership.

The revitalisation provides an opportunity to reduce the impact of flooding with mitigation work which widens and deepens the Creek as well as create a gateway to Muttama Creek at Adams Road.

In this precinct there is the potential to acknowledge its historic alignment in swampland as well as its cultural significance to the Wiradjuri Traditional Owners of the land.

3.2
Sport and Recreation Precinct



8 Land in private ownership

10 Passive recreation areas

11 Enhance visual connection and integration

12 Existing chain link fence

13 Opportunity for investment in unused buildings

14 Lack of vehicular crossing

Sport and Recreation Precinct

0 20 50 100m

1:2,000 @ A3

3.2 Sport and Recreation Precinct

This precinct comprises two blocks, commencing at Poole Street and extends alongside Clarke Oval to the John Rees Bridge and Wallellendoon Street. It is surrounded by Nicholson Park and Fisher Park to the north, residential to the north west, Jubilee Park to the south west and the town centre to the east.

3.21 The place

The upper section of the Creek, either side of Poole Street is in private ownership and includes a pedestrian bridge as the road has a very steep incline and is subject to inundation.

The waterway adjacent to private property on the Onley Street side of the block is currently not easily accessible due largely to the topography. A pedestrian bridge provides access over the Creek at Onley Street as there is no vehicular access.

The character of this large open space precinct is dominated with active recreation uses such as Clark Oval, Nicholson Park, Fisher Park and the sports stadium as well as the Cootamundra Pool.

There is a skateboard park and outdoor fitness equipment and the passive recreation area in the George Vesperman Park. These spaces currently provide disparate recreation uses for several different user groups.

There are no continuous paths along the creek and the tree canopy is relatively low.

The existing remnant chain-link fence around the oval is unnecessary and visually obtrusive.

The existing waterway is very narrow in parts and does not positively contribute to the aesthetic quality of the precinct. The realignment of the Creek occurred around Clarke oval.

3.22 Opportunities

The existing topography and vegetation in the Poole Street block presents an opportunity to improve this section of creek for flood mitigation and ecological purposes, limiting public access.







There is an opportunity to enhance the visual connection of the creek to the surrounding ovals and better integrate the revitalised creek as a passive recreation space and as a destination.

The proposed flood mitigation works would provide a wider waterway with deeper sections for ponds within the corridor which will also improve the ecology of the Creek and reinforce the presence of the riparian corridor during times of limited rainfall.

The revitalisation of the creek provides an opportunity to define Clarke Oval with new fencing and provide a nature playground as a concurrent activity.

There is an opportunity to provide a new creek crossing and paths in this precinct to connect to the town centre precinct.

A revitalised waterway may also provide opportunities for investment in the existing disused buildings along Murray Street.

3.3
Town Centre Precinct



3 Low level tree canopy

15 New feature pond

16 Access to main streets of the town centre

17 Community destinations

18 Dense and overgrown Cumbungi along the creek

19 Potential pedestrian crossing

20 Opportunity to formalise under utilised spaces to encourage activities

21 Restricted pedestrian access to open space

Town Centre Precinct

0 20 50 100m

1:2,000 @ A3

3.3 Town Centre Precinct

The town centre precinct comprises two blocks commencing at John Rees Bridge, Wallendoon Street and extends under the Stratton Bridge to Mackay Street.

3.31 The Place

It is characterised by its proximity to the main street of the town, with access from Parker Street and Wallendoon Street. It is bounded by the Ex-Servicemen and Citizens Memorial Club to the north, the Scout Hall to the south and the caravan park to the west.

The topography in the section at the rear of the Ex-Servicemen and Citizens Memorial Club is quite steep, and the existing concrete path is located along its boundary. There appears to be an informal track along the edge of the creek indicating pedestrian use. There is no pedestrian crossing other than the pedestrian bridge along Wallendoon Street and there is no seating or picnic tables.

The tree canopy is also relatively low and the cumbungi within the Creek in this section is particularly dense. It should be noted that at the time of writing this report Council recently cleared the cumbungi and undertook minor desilting works either side of the bridge, consistent with the permit from Fisheries NSW.

There is a footbridge on the western side of Stratton Bridge and a fence which prohibits access to the open space adjacent to the Scout Hall with access limited to the northern side.

The southern section of the creek extends under Stratton bridge and the existing accessible pedestrian route is via the driveway of the Ex-Servicemen and Citizens Memorial Club.

The section of Creek on the other side of Stratton Bridge is linked by a footpath from the town centre, however the ramp is located opposite the driveway to the Ex-Servicemen and Citizens Memorial Club and is not easily accessible. There is no continuous footpath from the town centre to the creek on the eastern side as it terminates at the Court House.







The recent addition of a concrete path and additional trees have improved the scenic quality of the open space in this section, and it presents as an attractive location however there are no tables and seating.

There is a small informal car park along Parker Street with direct access to the open space however there are no tables or seats.

3.32 Opportunities

In this precinct there are several opportunities to visually link the Creek to the town and enhance it as a destination within Cootamundra, improve safe access and enhance opportunities for passive activities such as having lunch and enjoying the local environment.

The flood mitigation proposes a new pond on the western side of Parker Street which would be the feature of this precinct and ensure water is retained, similar to the existing ponds to the north and south. It would both enhance the aesthetic of the environment and provide habitat opportunities. The existing tree canopy is relatively low and additional trees with the new pond would provide a shady cool location close to the town centre to mitigate urban heat in the summer months.

Jubilee Park and the Captain's Walk tourist attraction are proximate to the creek in this precinct. An opportunity to enhance the connection with signage and street tree planting would encourage movement between the spaces; footpaths along the creek to John Rees Bridge and along Wallendoon Street

The informal carpark on Parker Street provides an opportunity to encourage visitation and include a nature playground.

Improved access across Parker Street at the Stratton bridge, such as a raised pedestrian crossing would assist to link the open space .

3.4
Local Community Precinct



3 Low level tree canopy

10 Passive recreation areas

22 Cootamundra Bird Walk and Sculptures

23 Historic Nurses Home Bridge

24 Opportunity for interpretive signage

25 Relocation of the fence

26 Pedestrian bridge

27 Olympic Highway visitation into the town

28 Access to the creek from the laneway

29 Potential for a community garden

30 Potential ecological preservation

Local Community Precinct

0 20 50 100m

1:2,000 @ A3

3.4 Local Community Precinct

This precinct comprises four blocks and extends from Mackay Street to the Railway line and Lloyd Conkey Avenue .

3.41 The Place

The four blocks within the precinct are characterised by large open areas with the central riparian corridor. The existing tree canopy is relatively low, however the significant work from the local Muttama Creek Regeneration Group is clearly visible. The cumbungi within the Creek in this precinct is quite dense in some sections and this may contribute to flooding issues.

The block between Parker Street and Thompson Street, commencing at the Simpson Bridge on Mackay Street contains a pathway, seating and picnic tables on the eastern side. It is surrounded by the dog park, the historic district hospital and the CGRC Youth Club. There is some interpretive signage and some recent plantings by the Muttama Creek Regeneration Group. The Bird Walk and sculptures on the eastern side of the creek are to be retained and relocated as required to accommodate the revitalised creek corridor.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities, picnic tables and seats.

3.42 Opportunities

An opportunity to acknowledge the Traditional Owners in this precinct with interpretive signage describing the historic Aboriginal cultural significance of the Creek as a travel route to







ceremony with Wiradjuri language used to describe the local flora and fauna.

A new large pond is proposed to assist with flood mitigation and provides an opportunity to create a water feature in this precinct and re establish the historic Nurses' Home Bridge which would overlook the new pond. The proposed batters also provide the potential for additional appropriate riparian plant species and rocks which also provide informal seating.

The proposed flood mitigation works and the addition of a new bend in the creek will impact part of the existing dog park and require the relocation of the fence.

The creek revitalisation provides the potential to increase the tree canopy cover which creates additional ecological habitat and shade and assists with flood and heat mitigation.

The elevated pedestrian crossing on the northern side of Thompson Street would be retained to ensure safe access with pedestrian crossings across Thompson and Sutton Streets.

The block between Thompson Street and Sutton Street (Olympic Highway) is of similar character to the block to the north; open areas with a central waterway. There are however no formal paths or seating and the tree canopy is relatively low. It is bounded by residential on one side and roadway on the other three sides, including Olympic Highway and includes an elevated pedestrian crossing on Sutton Street. The revitalisation of the creek along Olympic Highway has the potential to attract visitation into the town; an attractive open space with walking trails. Additional signage illustrating the creek and direction into town.

This section of the waterway is also accessible through the mid-block laneways which provides an opportunity to formalise access from the laneway to paths along either side of the revitalised waterway.

The lack of existing distinct uses provides the opportunity to create a small community garden on the western side along the Hurley Street and the mid-block laneway improves connection to the residential areas. The community garden could also include native and local bush foods.

The section bounded by Sutton Street and Hovell Street is characterised by the existing pond, which creates a focal point to Apex Park. There are no continuous paths however there are public amenities and picnic tables

4.0 Community Engagement

A letter was prepared informing the community of the proposed masterplan and included a request for early feedback on what should be considered in the masterplan process. A page on Council's website was created informing the community of the early feedback phase (which included a link to the letter) and also indicated that residents were to receive a mailout and details on how to make comment/submission. The early consultation period was between 6 May and 21 May 2025.

Based on the feedback received, the following particular areas were identified (we note this is a summary and not an exhaustive list):

• Flooding – generally, flood mitigation works appeared to be the most important aspect of the masterplan. There were also concerns with rising insurance premiums.
• Creek management / maintenance – comments received indicated that debris (shopping trolleys, waste etc.), in-stream vegetation and silt accumulation exacerbates flooding and needs to be removed, and the creek should be managed on an ongoing basis by Council to manage weed regrowth and buildup of debris.
• Ecology – retaining and improving ecological characteristics of the creek should be undertaken but flood mitigation works should be prioritised.
• Alternative proposals – ideas such as a levee bank along McGowan Street and including land north of Adams Street were suggested. Consideration of alternative proposals is to be included in the future Review of Environmental Factors (REF).
• Public recreation and enjoyment – the masterplan should incorporate improvements such as new footpaths, enhancement of current walking trails a community garden, signage etc.
• Aboriginal cultural significance – the masterplan should include aspects to incorporate local Aboriginal cultural significance and history. These include Wiradjuri signs that relate to the landscape e.g. native vegetation and local wildlife.

5.0 Master Plan

5.1 Objectives

• Ensure the impact of flooding is reduced to the surrounding properties

• Establish new recreation opportunities to accommodate all users

• Revitalise and enhance the ecology and biodiversity of the Creek

• Provide new habitat opportunities along the Creek

• Connect the open space creek corridor to the surrounding streets and parks

• Improve the access to the Creek to ensure all users are accommodated

• Encourage the protection and biodiversity of the riparian corridor

• Acknowledge the Traditional Owners of the land and ensure the Aboriginal cultural significance of the Creek is identified

• Ensure the European history of the creek is also acknowledged

• Provide locations for passive recreation, picnics and nature play

• Establish street tree planting to increase tree canopy cover in and around the creek.

• Ensure pedestrian waterway crossings are designed to the appropriate engineering standards.

• Ensure water sensitive urban design principles are incorporated into the revitalisation of the Creek


Privately Owned Portion of Muttama Creek
McGowan Street
Queen Street
O'Donnell Street
Bradman Oval
Bradman's Birthplace
Cutler Avenue
Privately Owned Portion of Muttama Creek
Poole Street
Congou Street
Hay Street
Scott Avenue
Nicholson Park
Fisher Park
Gordon Vesperman Park
Murray Street
Parker Lane
Clarke Oval
Poole Street
Cooper Street
Bassingthwaighte Park
Jubilee Park
Parker Street
Cooper Lane
Albert Park
Bowling Greens
Olney Street
Margaret Street
Thompson Street
Ursula Street
Walledon Street
Hurley Street
Mackay Street
Howell Street
Southee Park
Sutton Street
Mitchell Park
LEGEND
Existing Trees
Proposed Trees
Overall Master Plan
0
100
200
300m
N
1:5,000 @ A3

5.2 Overall Strategies

• Increase the existing tree canopy in and around the creek and town centre

Street tree benefits (source Local Government NSW 2025)

Biodiversity support and provision of important habitat corridors for native plants and animals

Lowering heat through transpiration, shade and passive cooling

Increasing energy efficiency by reducing the need for air conditioning

Improving air and water quality

Increasing human health and wellbeing

Enhancing water absorption by slowing stormwater and reducing peak flows

Enhancing property values

Reducing noise

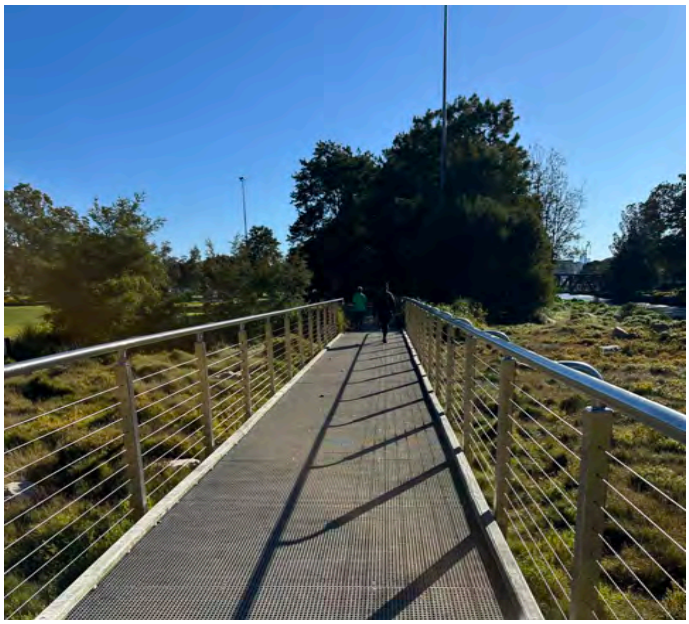
Potential wild life corridors especially birds, connecting the creek to the surrounding rural area

• Protect the existing habitat and offset any unavoidable impacts required to reduce flooding

• Connect existing paths and propose new wider paths to facilitate continuous movement along the open space network

• Introduce new passive recreation areas for rest, relaxation and to enjoy nature

• Provide interpretive signage to inform people of the historical, ecological and cultural importance of Muttama Creek







5.31
Bradman Precinct


Privately Owned Portion of Muttama Creek
Adams Street
Gateway to Muttama creek
New pedestrian paths to Bradman's Birthplace
Indicative alignment of potential crossing
Bradman Oval
1
New traditional style picket fence
Indicative alignment of potential crossing
Northcott Avenue
Public Toilet
New pedestrian paths to connect the creek
Privately Owned Portion of Muttama Creek
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Privately Owned Portion of Muttama Creek
Nicholson Park
New pedestrian paths to connect the creek
Poole Street
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Bradman Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N

5.3 Precinct Strategies

5.31 Bradman Precinct

• Plant new trees and shrubs in clumps to identify the commencement of the waterway at Adams Road

• Locate new paths commencing at Adams Road along the creek to Cutler Avenue and a new bridge crossing to improve access to the oval and amenities

• New interpretive signage illustrating the original Creek alignment and its importance and cultural significance to the Traditional Owners, the Wiradjuri people and its meaning; Cootamundra derived from the Wiradjuri word Gudhamangdhuray, swampland long-necked turtles and swamp.

• Plant new trees and shrubs in clumps along the creek to visually identify the riparian corridor and improve the ecology and function of the Creek

• Install solar lighting along the path and additional seating and bins

• Provide signage with directions to Bradman's birthplace from the Creek to Cutler Avenue

• A new traditional style picket fence to define and enhance the cricket oval named in honour of Sir Donald Bradman

• Provide signage and street trees along the right of way from Cutler Avenue to create a continuous path back to the Creek, diverting around the waterway that is within private property, for walking and cycling

• Plant new trees around the oval to increase the tree canopy cover.







5.32
Sport and Recreation Precinct


Bourke Street
Poole Street
Preserved for ecological purpose
Wallendoon Street
New traditional style picket fence
Clarke Oval
Olney Street
Captain's Walk
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Sport and Recreation Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Olney Street
Gordon Vesperman Park
Outdoor Fitness Equipment
Bourke Street
Indicative alignment of potential crossing
Skate Park
Proposed Fencing
2
Clarke Oval
Olympic Swimming Pool
New nature-play area
Widening of existing path
Captain's Walk
NSW Govt. Building
Jubilee Park
Wallendoon Street
Murray Street
New raised pedestrian crossing
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Caravan Park
Sport and Recreation Precinct Master Plan
New raised pedestrian crossing
0
10
25
50m
1:1,000 @ A3
N

5.32 Sport and Recreation Precinct

• Limit access and preserve the section of Creek between Olney Street and the laneway

• Provide a new pedestrian crossing over the Creek

• Provide new wide footpaths to accommodate a variety of users.

• Remove the existing chain link wire fence around the oval and replace with a new traditional picket fence.

• Provide additional seating and tables adjacent to the revitalised Creek to integrate with George Vesperman Park.

• New street trees along Murray Street and Wallendoon Street to provide visual linkages to the Creek.

• Interpretive signage illustrating the historic alignment of the Creek, the transition from the ox bow lakes in the middle of the last century to the current alignment around Clark oval.

• The signage would also include the ecological and cultural significance of Muttama Creek to the Traditional owners and its historic refuge for the eastern snake neck turtle.

• Signage incorporating Wiradjuri language for the local flora and fauna along

• A new nature playground alongside the Creek

• Provide new solar lighting

• New raised pedestrian crossing at Murray Street and Wallendoon Street







5.33
Town Centre Precinct


Jubilee Park
Caravan Park
Murray Street
Parker Lane
Wallendoon Street
Parker Street
MacKay Street
New raised pedestrian crossing
New raised pedestrian crossing
Widening of existing path
3
Indicative alignment of potential crossing
4
New raised pedestrian crossing
New pedestrian bridge
New nature-play area, tables and seatings
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Town Centre Precinct Master Plan
0
10
25
50m
1:1,000 @ A3
N

5.33 Town Centre Precinct

• A new raised pedestrian crossing on Parker Street to provide safe movement between the open space

• Widen the existing path to accommodate all users

• Planting and rocks used for seating around the proposed new feature pond

• A new accessible crossing and lookout over the feature pond

• New solar lighting

• New trees along the creek to increase the tree canopy cover

• Remove the fence alongside the Scout Hall

• Interpretive signage describing the history of the Creek and the town

• A new nature-play area, tables and seatings adjacent to the informal carpark and new public amenities

• A new pedestrian bridge crossing along the eastern side of Stratton Bridge









5.34
Local Community Precinct


Parker Street
Mackey Street
Thompson Street
Hurley Street
Centenary Avenue
Indicative alignment of potential crossing
Cootamundra Bird Walk
CGRC Cootamundra Youth Club
Bird Sculptures
Indicative alignment of potential crossing
Dog Park
5
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Local Community Precinct Master Plan
0 10 25 50m
1:1,000 @ A3
N


Olympic Highway
Sutton Street
Hurley Street
Hovell Street
5
Indicative alignment of potential crossing
New pedestrian crossing
Indicative alignment of potential crossing
New nature playground
Public Toilet
New community garden
Preserved for ecological purpose
LEGEND
Existing Trees
Proposed Trees
Proposed Creek Crossings
Existing Footpaths
Proposed Footpaths
Proposed Lights
Proposed Bench
Interpretive Signs
Community Garden
Local Community Precinct Master Plan
0
10
25
50m
1:1,000 @ A3
N

5.34 Local Community Precinct

• New paths along the creek to accommodate all users

• New trees around the Creek to increase the tree canopy cover

• New street trees along Thompson Street and Mackay Street to link to the open space

• Interpretive signage of the Aboriginal cultural significance of the Creek

• A community garden in Apex Park along Hurley Street including native and local bush foods

• A new nature playground adjacent to the existing coloured tractors

• New seats along the paths

• New pedestrian crossings at Thompson Street and Sutton Street

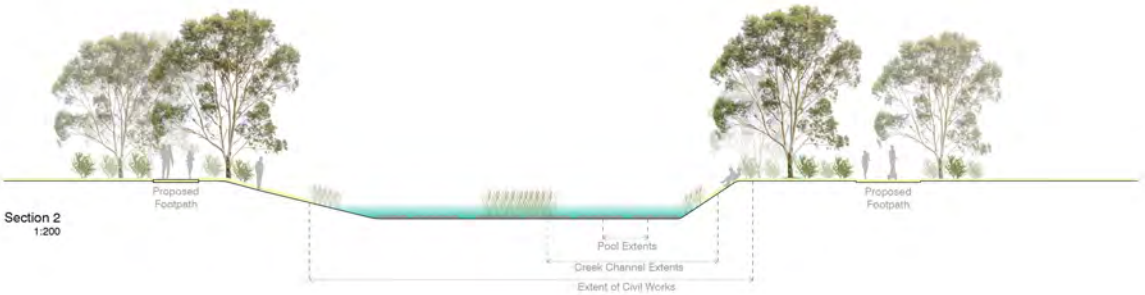




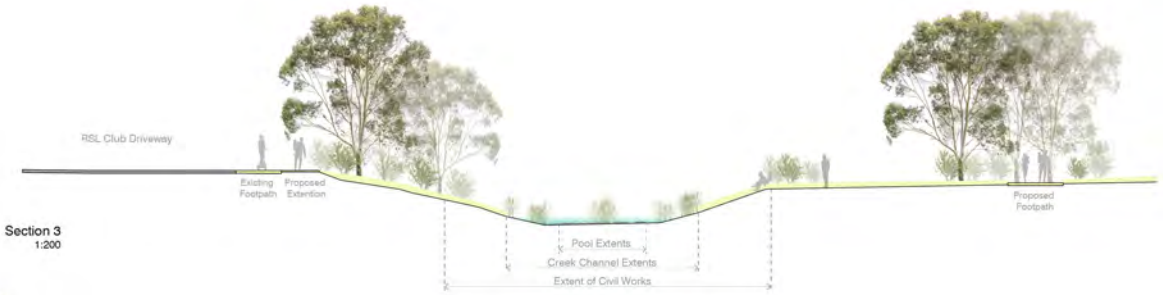




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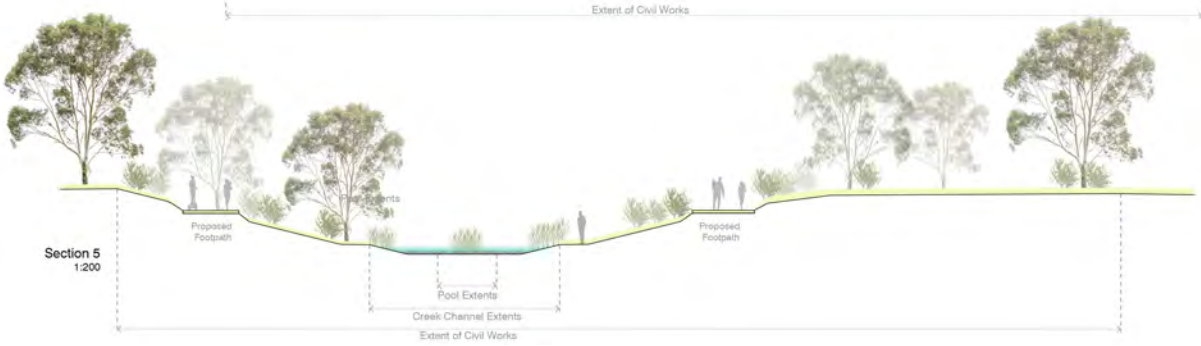
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Section 3
1:200



Section 4
1:200



Section 5
1:200

0 25 50 75m

1:200 @ A3

6.0 Implementation

Precinct	Immediate	Medium term	Long term
Bradman Precinct	• Flood mitigation • New trees and shrubs • New paths • Signage to Bradman's birthplace	• Solar lights, seats and bins • Interpretive signage	• Picket fence around oval • Pedestrian bridge crossing
Sport and Recreation Precinct	• Flood mitigation • New trees and shrubs • New paths • Remove chain link fence	• Tables, seats, bins • Solar lights • Interpretive signage • New nature play-ground	• Picket fence around oval • Increase width of existing paths • Pedestrian bridge crossing
Town Centre Precinct	• Flood mitigation • New trees and shrubs • Solar lights • New raised pedestrian crossing • Remove fence along-side the Scout Hall	• New nature play-ground • Picnic tables and seats and bins • Interpretive signage • New footpath to creek along Parker Street • Interpretive signage	• New public amenities • Increase width of existing paths • Improvements to carpark • Pedestrian bridge crossing alongside Stratton bridge
Local Community Precinct	• Flood mitigation • New trees and shrubs • Pedestrian zebra crossings • New paths	• Community garden • Solar lights, seats and bins • Interpretive signage • New nature play-ground	• Pedestrian bridge crossing

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design partnership may also have relied upon information provided by the Client and other third parties to prepare this document.

design partnership

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ABN: 85 162 968 103

Nominated Architect: N R Dickson #7061

Attachment 2: Draft concept civil engineering plans

PROJECT: MASTER PLAN FOR MUTTAMA CREEK

PLANSET: PRELIMINARY CIVIL ENGINEERING PLANS

CLIENT: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL



LOCALITY PLAN
NOT TO SCALE

LGA: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS01-A000	B	COVER SHEET
PS01-A010	A	LAYOUT REFERENCE PLAN
PS01-A300	B	PROPOSAL (LAYOUT-1)
PS01-A310	B	PROPOSAL (LAYOUT-2)
PS01-A320	B	PROPOSAL (LAYOUT-3)
PS01-A330	B	PROPOSAL (LAYOUT-4)
PS01-A340	B	PROPOSAL (LAYOUT-5)
PS01-A350	B	PROPOSAL (LAYOUT-6)
PS01-A360	B	PROPOSAL (LAYOUT-7)
CONSTRUCTION MANAGEMENT WORKS		
PS01-B310	A	EROSION & SEDIMENT CONTROL DETAILS
GRADING		
PS01-C100	B	GRADING AND EARTHWORKS (LAYOUT-1)
PS01-C110	B	GRADING AND EARTHWORKS (LAYOUT-2)
PS01-C120	B	GRADING AND EARTHWORKS (LAYOUT-3)
PS01-C130	B	GRADING AND EARTHWORKS (LAYOUT-4)
PS01-C140	B	GRADING AND EARTHWORKS (LAYOUT-5)
PS01-C150	B	GRADING AND EARTHWORKS (LAYOUT-6)
PS01-C160	B	GRADING AND EARTHWORKS (LAYOUT-7)
PS01-C600	B	EARTHWORK SITE SECTION (SHEET-1)
PS01-C610	B	EARTHWORK SITE SECTION (SHEET-2)
PS01-C611	A	EARTHWORK SITE SECTION (SHEET-3)
PS01-C612	A	EARTHWORK SITE SECTION (SHEET-4)
PS01-C613	A	EARTHWORK SITE SECTION (SHEET-5)
PS01-C614	A	EARTHWORK SITE SECTION (SHEET-6)
PS01-C660	A	EARTHWORK SITE SECTION (SHEET-7)
PS01-C661	A	EARTHWORK SITE SECTION (SHEET-8)
PS01-C662	A	EARTHWORK SITE SECTION (SHEET-9)
PS01-C663	A	EARTHWORK SITE SECTION (SHEET-10)
PS01-C664	A	EARTHWORK SITE SECTION (SHEET-11)
PS01-C665	A	EARTHWORK SITE SECTION (SHEET-12)
PS01-C666	A	EARTHWORK SITE SECTION (SHEET-13)

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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Email: mail@martens.com.au Internet: www.martens.com.au

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PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A000	B

DRAWING ID: P2510821-PS01-R02-A000



FOR CONCEPT DESIGN

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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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A1 (A3) 1:4,000 (1:8,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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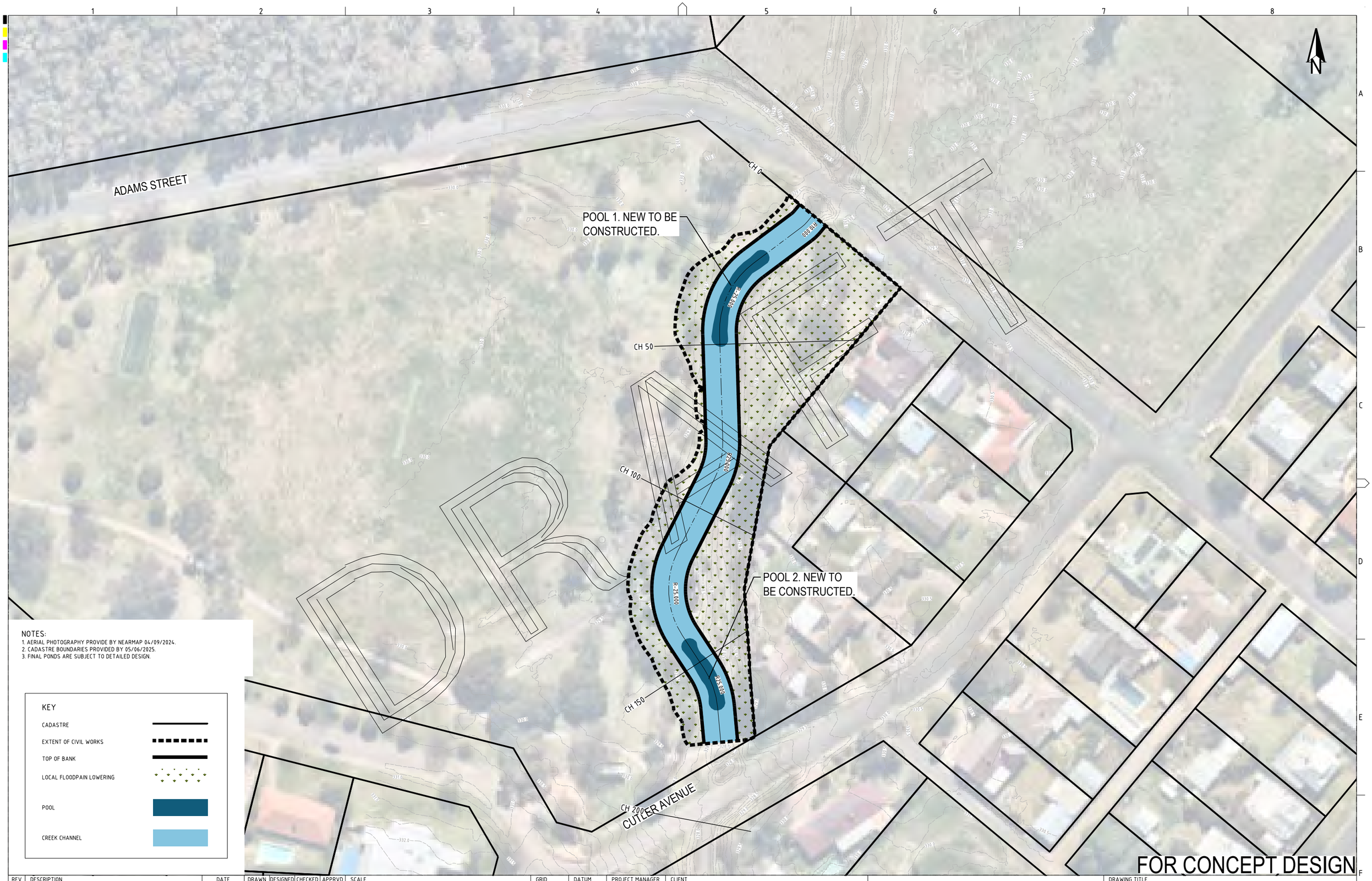
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LAYOUT REFERENCE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A010	A

DRAWING ID: P2510821-PS01-R02-A010

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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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GRID	DATUM	PROJECT MANAGER
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MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

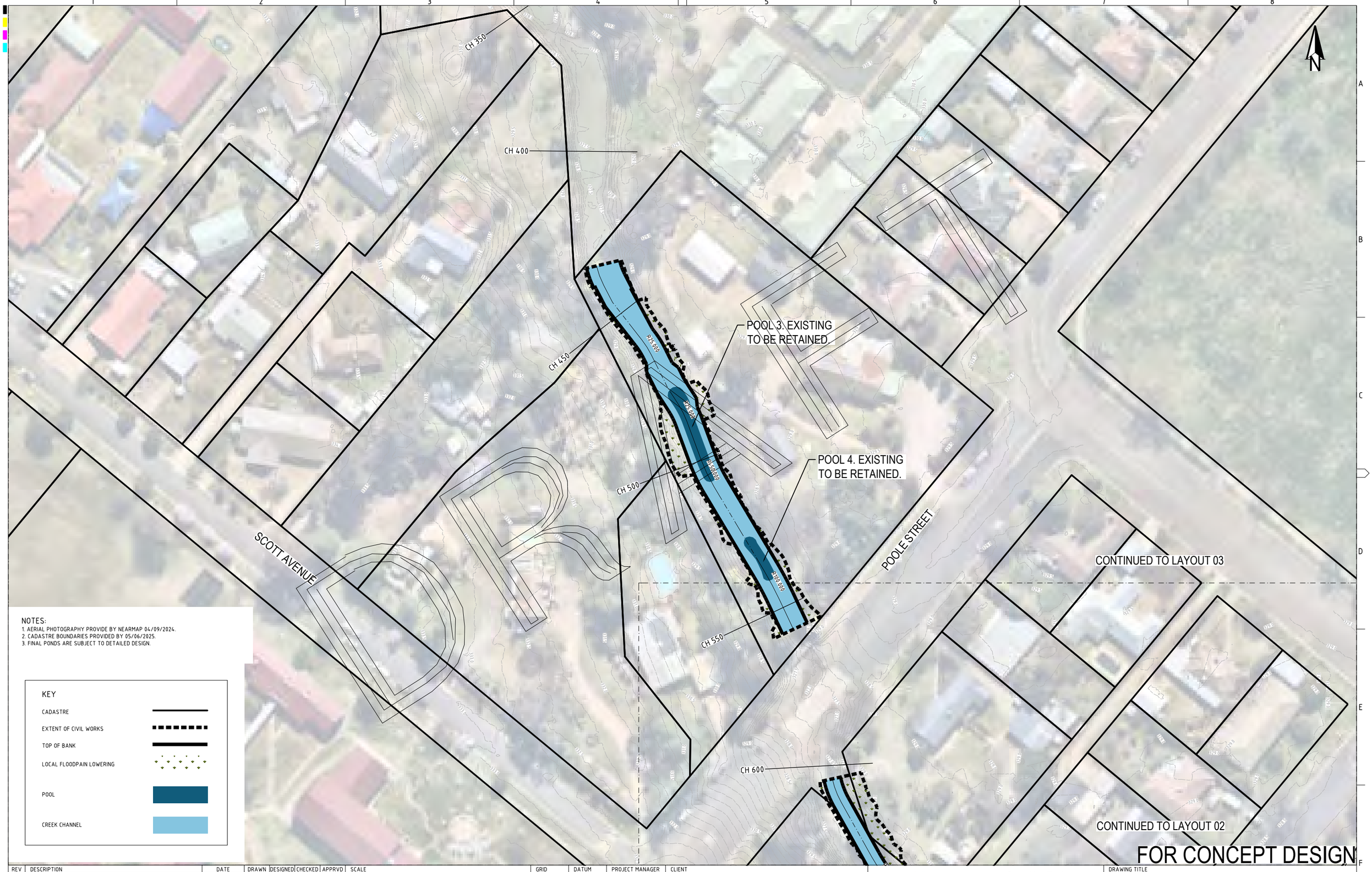
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DRAWING TITLE
PROPOSAL
LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A300	B

DRAWING ID: P2510821-PS01-R02-A300

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KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

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B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
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A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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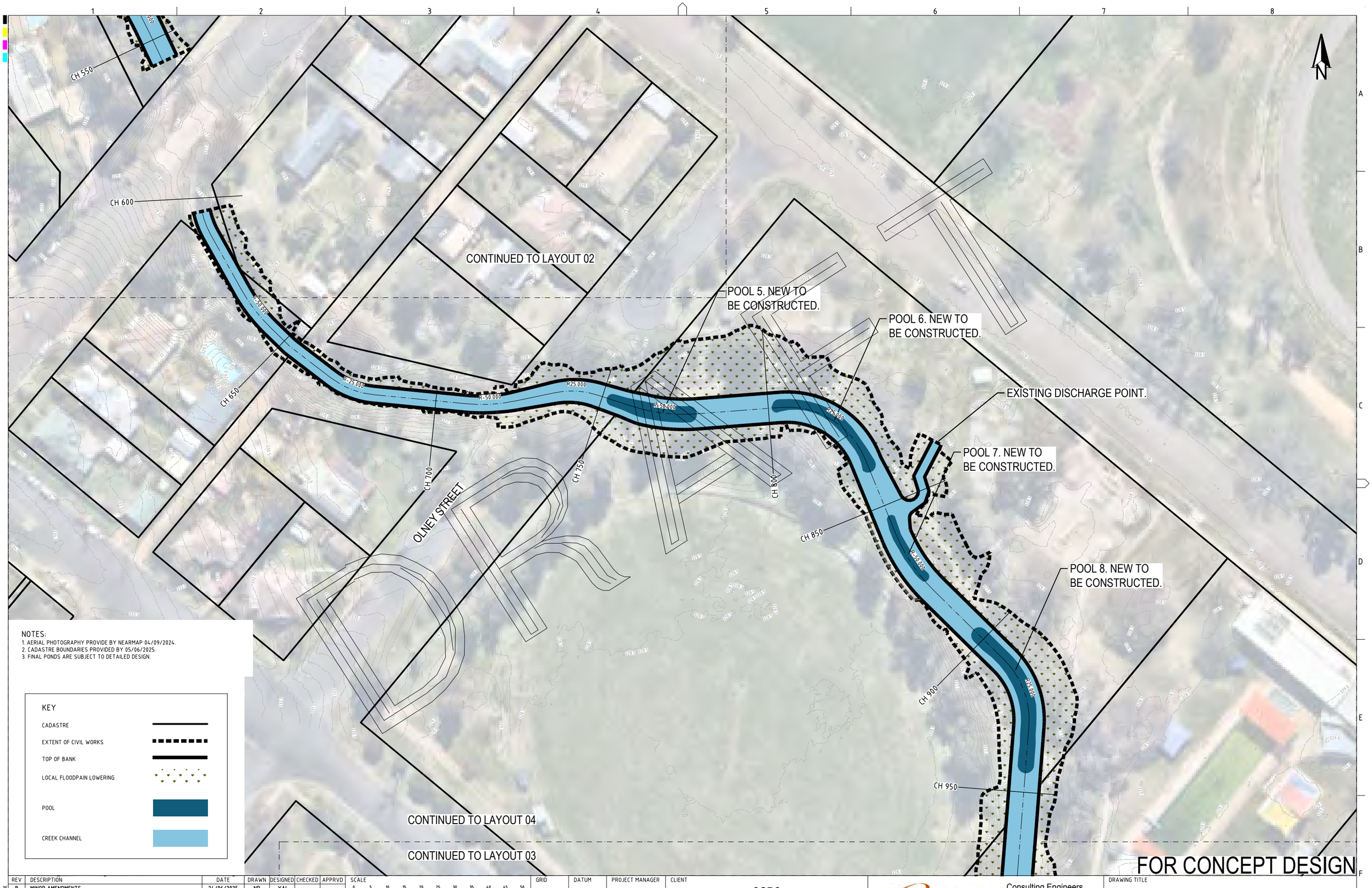
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DRAWING TITLE
PROPOSAL
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A310	B

DRAWING ID: P2510821-PS01-R02-A310

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KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

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GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: PROPOSAL LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A320	B

DRAWING ID: P2510821-PS01-R02-A320

PRINTED: ---- USER: NKPHAGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 03

WALLENDOON STREET

MURRAY STREET

CH 1000

CH 1050

CH 1100

CH 1150

CH 1200

R200.000

R150.000

R50.000

R75.000

POOL 9. NEW TO BE CONSTRUCTED.

N

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
2. CADASTRE BOUNDARIES PROVIDED BY 05/06/2025.
3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
PROPOSAL
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A330	B

DRAWING ID: P2510821-PS01-R02-A330

PRINTED: --- USER: NKPHAGE

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04

POOL 10. NEW TO BE CONSTRUCTED.

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

CH 1250

CH 1300

CH 1350

CH 1400

CH 1450

CH 1500

R=50.000

R=25.000

R=50.000

R100.000

R25.000

R=50.000

R=200.000

MACKAY STREET

PARKER STREET

POOL 11. NEW TO BE CONSTRUCTED.

N

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
2. CADASTRE BOUNDARIES PROVIDED BY 05/06/2025.
3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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NSW 2590 AUSTRALIA

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DRAWING TITLE
PROPOSAL
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A340	B

PRINTED ---- USER WORKPAGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P2510821-PS01-R02-A340

CONTINUED TO LAYOUT 05

CH 1550

POOL 11. NEW TO BE CONSTRUCTED.

EXISTING DISCHARGE POINT.

CH 1600

POOL 12. NEW TO BE CONSTRUCTED.

R-100.000

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

HURLEY STREET

CH 1650

R-25.000

POOL 13. NEW TO BE CONSTRUCTED.

R-25.000

POOL 14. NEW TO BE CONSTRUCTED.

CH 1700

THOMPSON STREET

CONTINUED TO LAYOUT 07

CH 1750

CONTINUED TO LAYOUT 06

FOR CONCEPT DESIGN

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
2. CADASTRE BOUNDARIES PROVIDED BY 05/06/2025.
3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
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REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
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DRAWING TITLE
PROPOSAL
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A350	B

DRAWING ID: P2510821-PS01-R02-A350

PRINTED: --- - USER: MDPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)

CONTINUED TO LAYOUT 06

CH 1750

CH 1800

CH 1850

CH 1900

CH 1950

CH 2000

CH 2050

R=225.000

R=225.000

R=300.000

R=200.000

POOL16. NEW TO BE CONSTRUCTED.

POOL 15. NEW TO BE CONSTRUCTED.

POOL 17. EXISTING IN-STREAM POND TO BE WIDENED.

POOL18. NEW TO BE CONSTRUCTED.

SUTTON STREET

HOVELL STREET

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

NOTES:
1. AERIAL PHOTOGRAPHY PROVIDE BY NEARMAP 04/09/2024.
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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

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- EXTENT OF CIVIL WORKS
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FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
PROPOSAL
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-A360	B

DRAWING ID: P2510821-PS01-R02-A360

PRINTED --- USER: NKPHAGE

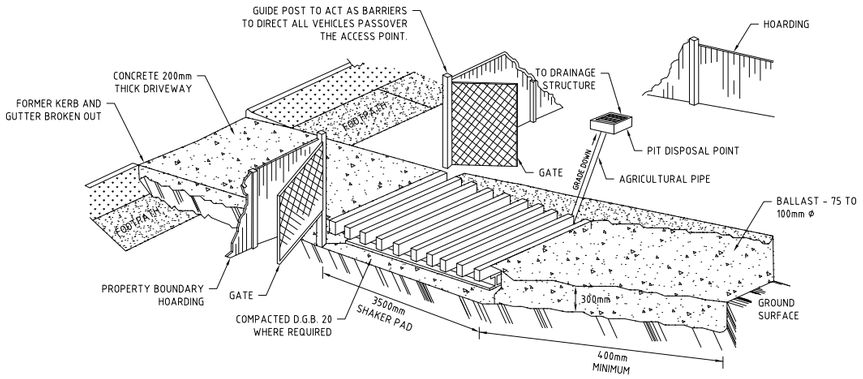
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

STABILISED ACCESS POINT

TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

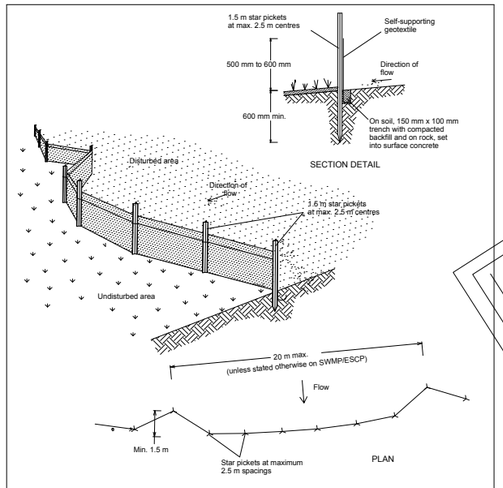
STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:

- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST) . IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJCENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

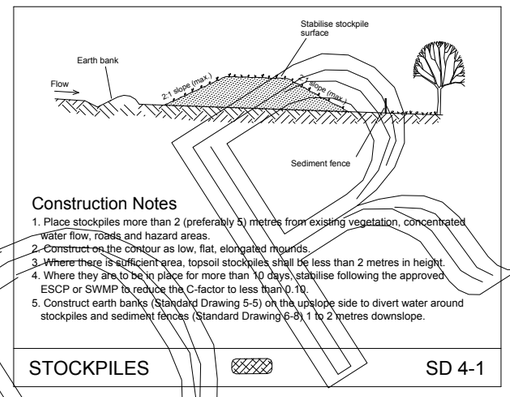
IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

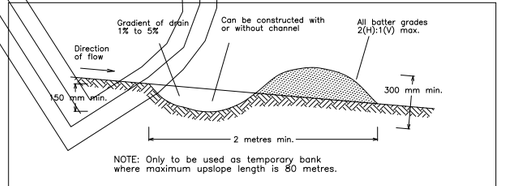
SEDIMENT FENCE SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES SD 4-1

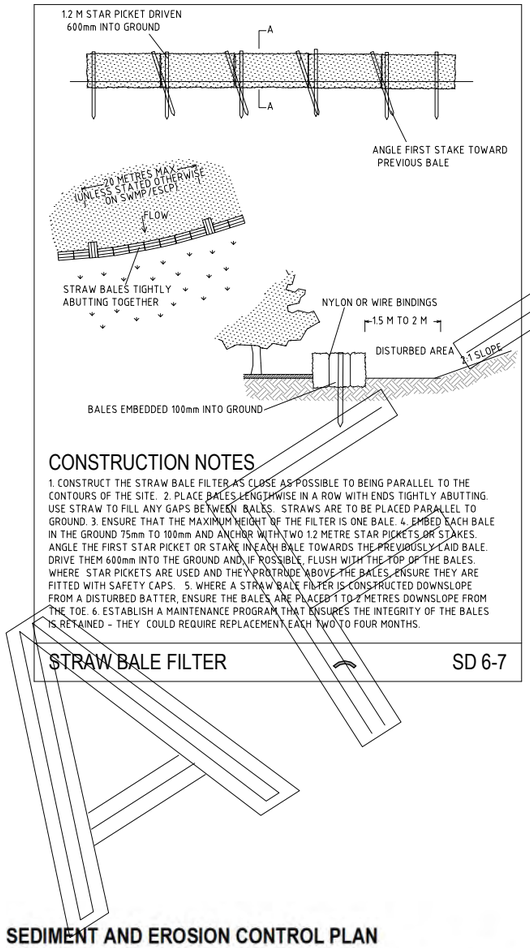


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

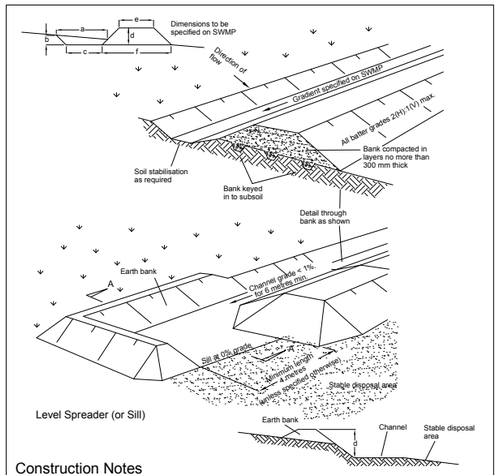
EARTH BANK (LOW FLOW) SD 5-5



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE. 2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND. 3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE. 4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS. 5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE. 6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) SD 5-6

SEDIMENT AND EROSION CONTROL PLAN

1 TEMPORARY SEDIMENTATION AND EROSION CONTROLS (SEC) ARE TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORK TO ELIMINATE THE DISCHARGE OF SEDIMENT FROM THE SITE. THE CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION", VOLUME 1, 4TH EDITION, MARCH 2004, (THE BLUE BOOK).

2 THE CONTRACTOR IS TO INFORM ALL SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN RELATION TO SEC.

3 THE CONTRACTOR SHALL REGULARLY MAINTAIN SEC DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES BEFORE NO MORE THAN 60% OF THEIR SEDIMENT STORAGE CAPACITY IS LOST. ALL THE SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.

4 NO SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL ASPHALTING WORKS ARE COMPLETED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR ENGINEER.

5 ALL WORKS MUST BE PERFORMED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.

6 THE FOLLOWING SEDIMENT CONTROL MEASURES ARE REQUIRED TO BE PROVIDED IN CONJUNCTION WITH THE ATTACHED SEDIMENT AND EROSION CONTROL PLAN.

- A ALL RUNOFF AND EROSION CONTROLS ARE TO BE INSTALLED BEFORE ANY WORKS ARE CARRIED OUT AT THE SITE.
- B ALL CONTAMINATED SURFACE WATERS AND DEBRIS FROM THE SITE MUST BE SCREENED, COLLECTED AND POLLUTANTS CAPTURED WITHIN THE SITE.
- C CONTAMINATION OF SURFACE WATERS ON DOWNSLOPE LANDS MUST BE MITIGATED BY INSTALLING SEDIMENT CONTROL FENCES DOWNSLOPE OF THE DISTURBED AREAS TO CAPTURE SEDIMENT AND DEBRIS ESCAPING FROM THE SITE.
- D SEDIMENT FENCING MUST BE SECURED BY POST (WHERE METAL STAR PICKETS ARE USED, PLASTIC SAFETY CAPS SHALL BE USED) AT TWO-METRE INTERVALS WITH THE GEOTEXTILE FABRIC EMBEDDED 200MM INTO SOIL. ONE METRE RETURNS MUST BE INSTALLED AT TWENTY-METRE INTERVALS ALONG THE SEDIMENT FENCING.
- E SEDIMENT TRAPS ARE TO BE INSTALLED DOWNSLOPE OF THE SITE TO FACILITATE THE CAPTURE OF SEDIMENT.
- F THE CONTRACTOR SHALL MAINTAIN DUST CONTROL UNTIL FINAL COMPLETION OF WORKS.
- G DURING WINDY WEATHER, LARGE, DISTURBED, UNPROTECTED AREAS SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- H EROSION AND SEDIMENT CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER, AND BE REPAIRED OR REPLACED THROUGHOUT THE COURSE OF WORKS ON SITE.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID | DATUM | PROJECT MANAGER: JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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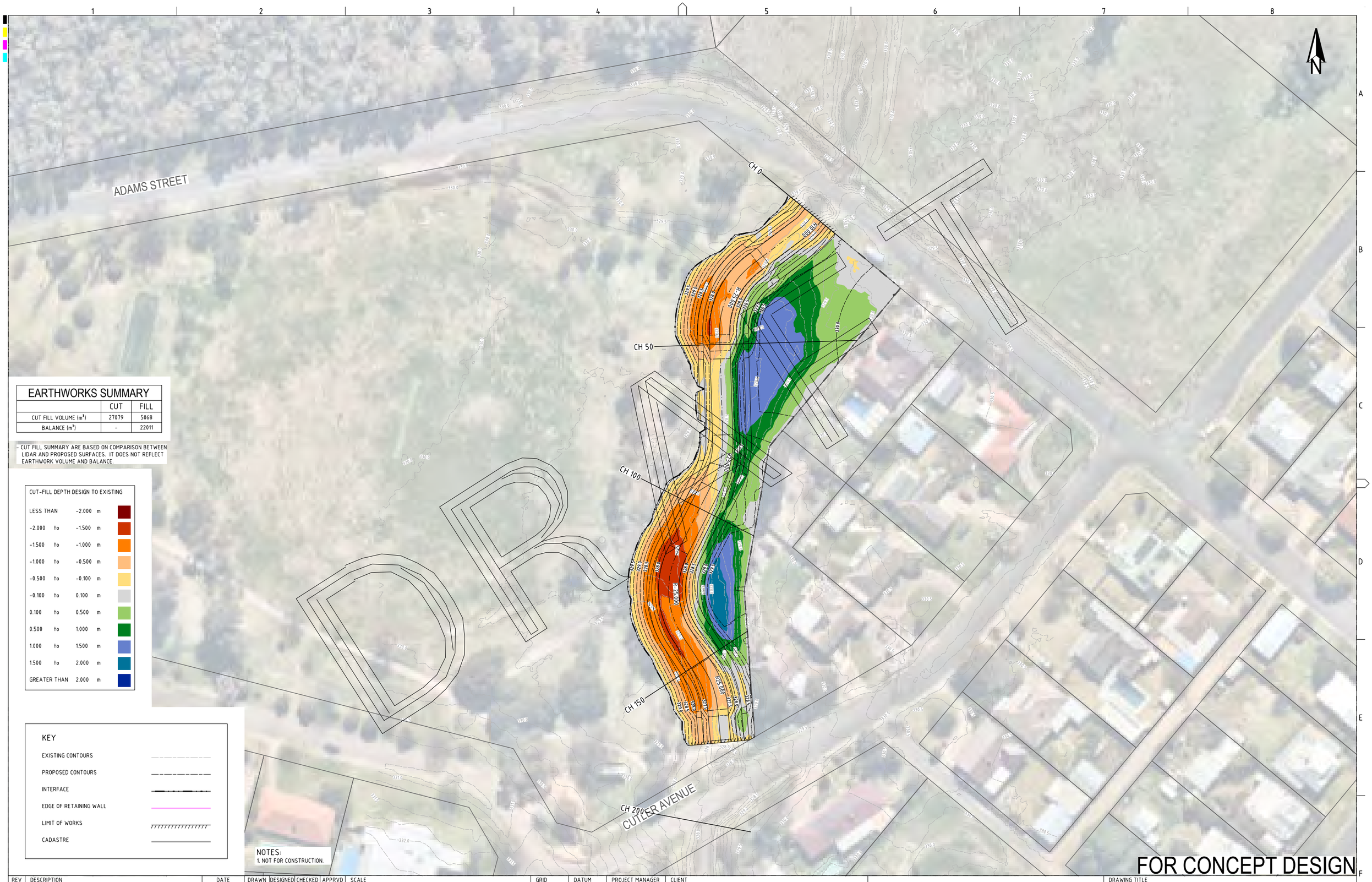
DRAWING TITLE
SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-B310	A

DRAWING ID: P2510821-PS01-R02-B310

PRINTED: ---- - USER: MDOHAGE

A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C100	B

DRAWING ID: P2510821-PS01-R02-C100

PRINTED: ---- - USER: MBPHAGGE

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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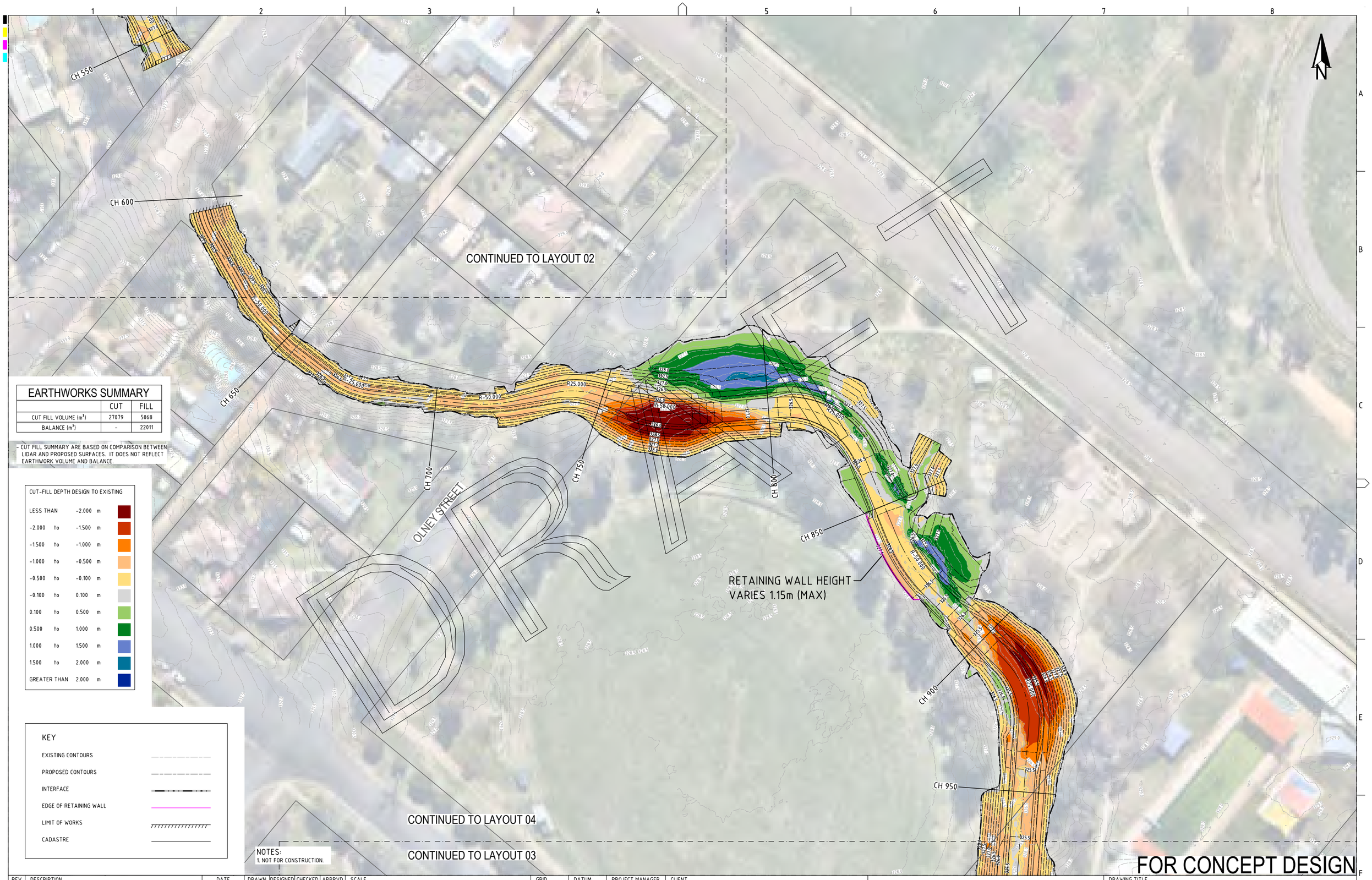
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C110	B

DRAWING ID: P2510821-PS01-R02-C110

PRINTED: ---- - USER: MDPHAGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000		m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN	2.000		m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C120	B

DRAWING ID: P2510821-PS01-R02-C120

PRINTED ---- - USER: MDPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN		-2.000	m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN		2.000	m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C130	B

DRAWING ID: P2510821-PS01-R02-C130

PRINTED ---- - USER: NKOPIASSE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C140	B

DRAWING ID: P2510821-PS01-R02-C140

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 05

CH 1550

CH 1600

CH 1650

CH 1700

CH 1750

HURLEY STREET

THOMPSON STREET

CONTINUED TO LAYOUT 07

CONTINUED TO LAYOUT 06

EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**24/06/2025**	**NP**	**YAI**		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C150	B

DRAWING ID: P2510821-PS01-R02-C150

PRINTED ---- USER: NKOPVAGGE
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m		
-2.000	to -1.500	m		
-1.500	to -1.000	m		
-1.000	to -0.500	m		
-0.500	to -0.100	m		
-0.100	to 0.100	m		
0.100	to 0.500	m		
0.500	to 1.000	m		
1.000	to 1.500	m		
1.500	to 2.000	m		
GREATER THAN	2.000	m		

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

PRINTED ---- : USER MDPAGGE

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

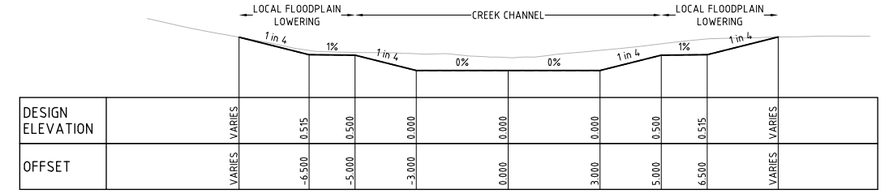
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C160	B

DRAWING ID: P2510821-PS01-R02-C160

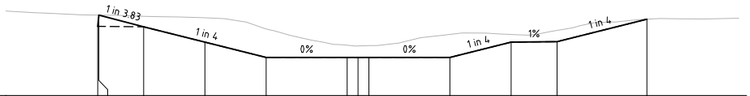
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



DESIGN ELEVATION	VARIES	0.515	0.500	0.000	0.000	0.000	0.500	0.515	VARIES	
OFFSET	VARIES	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	VARIES	

TYPICAL SECTION

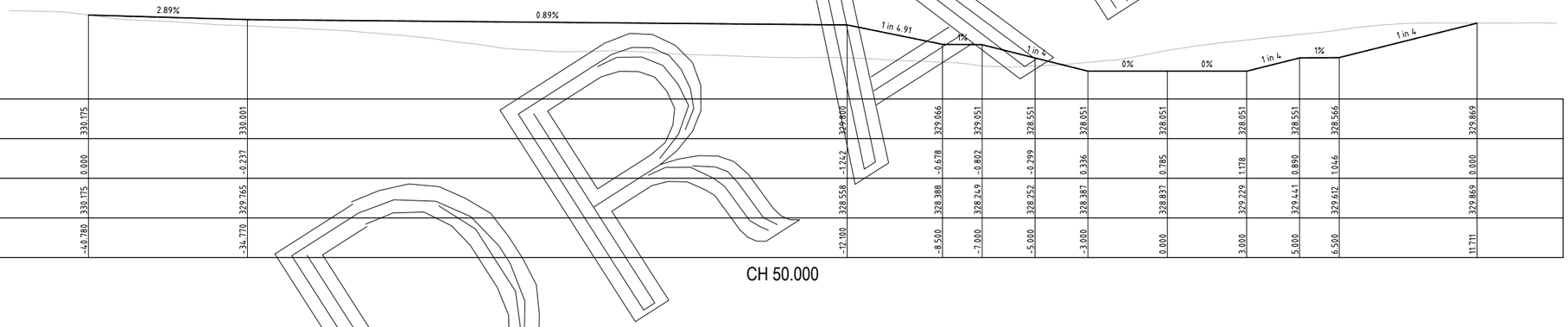
SCALE: HORIZONTAL - 1:100
VERTICAL - 1:100



RL327.0

DESIGN LEVELS	329.964	329.632	329.249	328.749	328.249	328.249	328.249	328.249	328.764	329.498
CUT / FILL DEPTH	0.368	0.000	0.342	0.795	0.931	0.399	0.376	0.286	0.752	0.250	0.367	0.000
EXISTING LEVELS	329.632	329.632	329.591	329.544	329.181	328.649	328.625	328.536	329.001	328.999	329.132	329.498
OFFSET	-8.500	-8.466	-7.000	-5.000	-3.000	-0.355	0.000	0.355	3.000	5.000	6.500	9.433

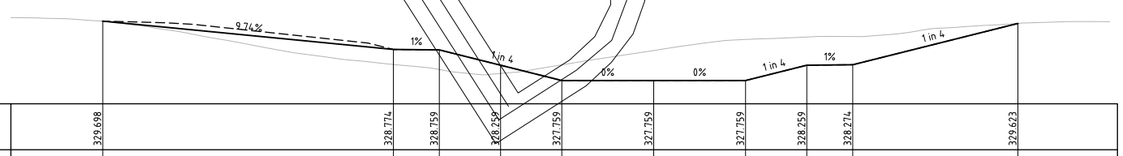
CH 0.000



RL327.0

DESIGN LEVELS	330.175	330.001	329.765	329.600	329.066	329.051	328.551	328.051	328.051	328.051	328.551	328.566	329.869
CUT / FILL DEPTH	0.000	-0.237	-1.242	-0.678	-0.802	-0.299	0.336	0.785	1.178	0.890	1.046	0.000
EXISTING LEVELS	330.175	329.765	328.558	328.388	328.249	328.252	328.387	328.837	329.229	329.441	329.612	329.869
OFFSET	-40.780	-34.770	-12.100	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.711

CH 50.000



RL327.0

DESIGN LEVELS	329.698	328.774	328.759	328.259	327.759	327.759	327.759	328.259	328.274	329.623
CUT / FILL DEPTH	0.000	-0.492	-0.640	-0.267	0.511	0.979	1.340	0.920	0.921	0.000
EXISTING LEVELS	329.698	328.282	328.119	327.992	328.271	328.738	329.099	329.180	329.196	329.623
OFFSET	-17.992	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.895

CH 100.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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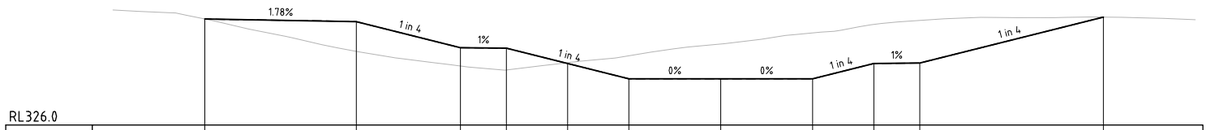
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C600	B

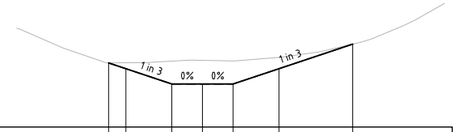
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PRINTED: ---- - USER: MORPHAGE
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



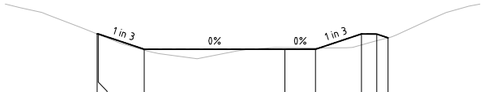
RL326.0										
DESIGN LEVELS	329.461	329.373	328.523	328.508	328.008	327.508	327.508	327.508	328.008	328.023	329.522
CUT / FILL DEPTH	0.000	-0.970	-0.597	-0.712	0.026	0.752	1.136	1.498	1.276	1.391	0.000
EXISTING LEVELS	329.461	328.403	327.926	327.796	328.035	328.260	328.644	329.006	329.284	329.414	329.522
OFFSET	-16.848	-11.900	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	12.496

CH 150.000



RL325.0							
DESIGN LEVELS	327.091	326.904	326.404	326.404	326.404	326.904	327.706
CUT / FILL DEPTH	0.000	0.193	0.746	0.772	0.752	0.370	0.000
EXISTING LEVELS	327.091	327.097	327.150	327.176	327.157	327.274	327.706
OFFSET	-3.043	-2.502	-1.000	0.000	1.000	2.502	4.907

CH 650.000



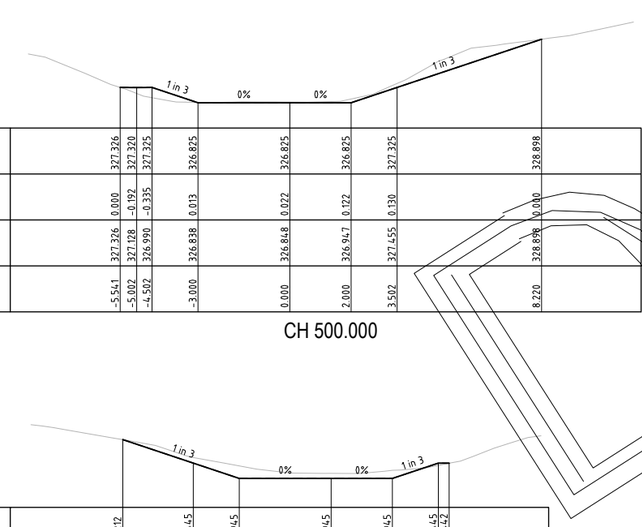
RL326.0								
DESIGN LEVELS	328.070	328.070	327.570	327.570	327.570	328.070	328.065	327.943
CUT / FILL DEPTH	0.000	0.015	-0.029	0.053	0.040	-0.359	-0.477	0.000
EXISTING LEVELS	328.070	328.055	327.541	327.623	327.610	327.711	327.843	327.943
OFFSET	-6.130	-5.095	-4.593	0.000	1.000	2.502	3.002	3.969

CH 450.000



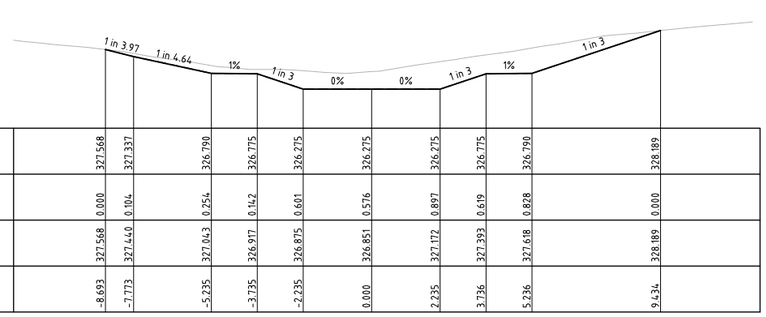
RL325.0							
DESIGN LEVELS	327.334	326.864	326.364	326.364	326.364	326.864	327.167
CUT / FILL DEPTH	0.000	0.255	0.522	0.455	0.495	0.147	0.000
EXISTING LEVELS	327.334	327.120	326.886	326.819	326.859	327.012	327.167
OFFSET	-3.912	-2.502	-1.000	0.000	1.000	2.502	3.410

CH 700.000



RL326.0							
DESIGN LEVELS	327.326	327.320	327.325	326.825	326.825	326.825	327.325	328.898
CUT / FILL DEPTH	0.000	-0.192	-0.335	0.013	0.022	0.122	0.130	0.000
EXISTING LEVELS	327.326	327.128	326.990	326.838	326.848	326.947	327.455	328.898
OFFSET	-5.541	-5.002	-4.502	-3.000	0.000	2.000	3.502	8.220

CH 500.000

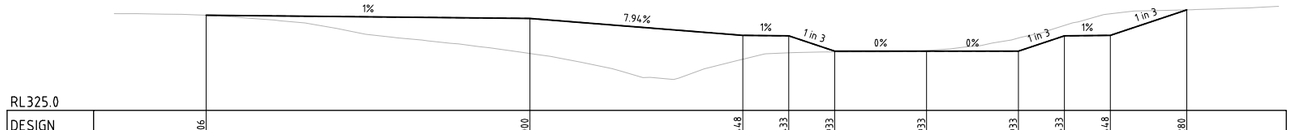


RL325.0									
DESIGN LEVELS	327.568	327.337	326.790	326.775	326.275	326.275	326.275	326.775	326.790	328.189
CUT / FILL DEPTH	0.000	0.104	0.254	0.142	0.601	0.576	0.897	0.619	0.828	0.000
EXISTING LEVELS	327.568	327.440	327.043	326.917	326.875	326.851	327.172	327.393	327.618	328.189
OFFSET	-8.693	-7.773	-5.235	-3.735	-2.235	0.000	2.235	3.736	5.236	9.434

CH 750.000

RL326.0								
DESIGN LEVELS	328.212	327.445	326.945	326.945	326.945	327.445	327.442	
CUT / FILL DEPTH	0.000	0.182	0.409	0.165	0.266	0.073	0.000	
EXISTING LEVELS	328.212	327.626	327.353	327.110	327.210	327.371	327.442	
OFFSET	-6.803	-4.502	-3.000	0.000	2.000	3.502	3.854	

CH 550.000



RL325.0										
DESIGN LEVELS	328.106	328.000	327.448	327.433	326.933	326.933	326.933	327.433	327.448	328.280
CUT / FILL DEPTH	0.001	-1.144	-0.779	-0.554	-0.027	0.020	0.429	0.339	0.705	0.000
EXISTING LEVELS	328.106	326.856	326.669	326.879	326.906	326.953	327.362	327.772	328.153	328.280
OFFSET	-23.526	-12.951	-6.000	-4.500	-3.000	0.000	3.000	4.502	6.002	8.498

CH 800.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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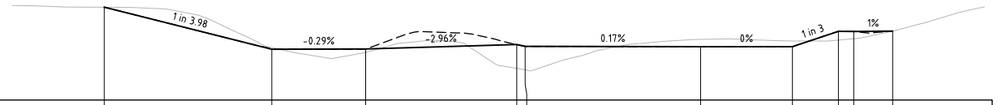
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C610	B

DRAWING ID: P2510821-PS01-R02-C610

PRINTED: --- - USER: MDPHAGE

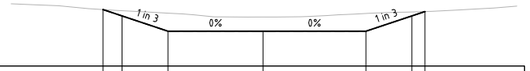
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL325.0

DESIGN LEVELS	328.031	326.657	326.666	326.812	326.751	326.742	326.742	327.242	327.249
CUT / FILL DEPTH	-0.002	0.056	-0.108	-0.780	-0.766	0.238	0.185	-0.286	0.000
EXISTING LEVELS	328.028	326.713	326.557	326.032	325.986	326.980	326.927	326.956	327.249
OFFSET	-19.473	-14.001	-10.937	-6.001	-5.727	0.000	3.000	4.502	5.002	6.273

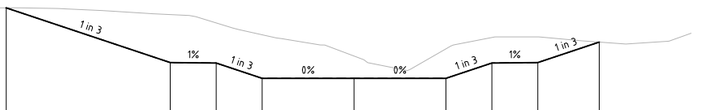
CH 850.000



RL324.0

DESIGN LEVELS	325.842	325.636	325.136	325.136	325.136	325.636	325.778
CUT / FILL DEPTH	0.000	0.170	0.589	0.464	0.580	0.128	0.000
EXISTING LEVELS	325.842	325.805	325.725	325.600	325.715	325.764	325.778
OFFSET	-5.224	-4.685	-3.103	0.000	3.361	4.862	5.288

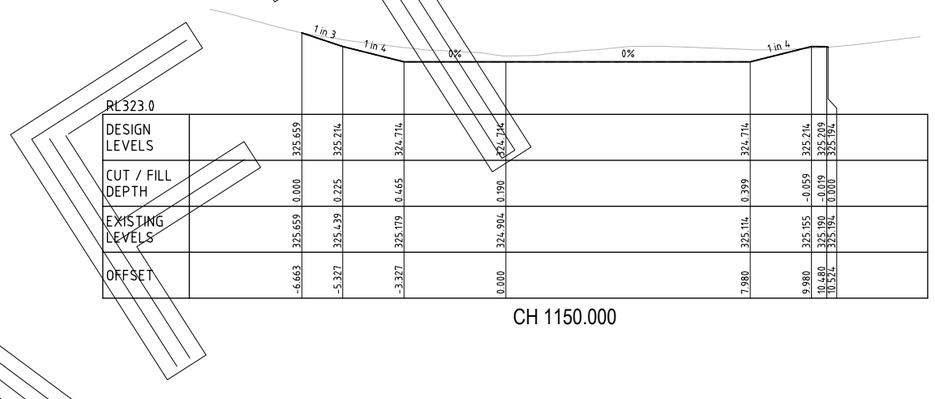
CH 1050.000



RL324.0

DESIGN LEVELS	327.689	325.903	325.888	325.388	325.388	325.388	325.888	325.903	326.571
CUT / FILL DEPTH	0.000	1.566	1.309	1.422	0.728	0.962	0.833	0.838	0.000
EXISTING LEVELS	327.689	327.469	327.197	326.810	326.116	326.350	326.721	326.741	326.571
OFFSET	-11.360	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	8.007

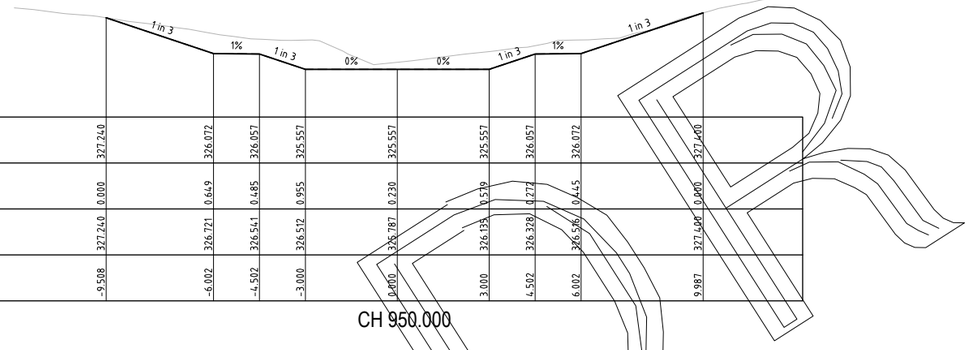
CH 900.000



RL323.0

DESIGN LEVELS	325.659	325.214	324.714	324.724	324.714	325.214	325.209	325.194
CUT / FILL DEPTH	0.000	0.225	0.465	0.190	0.399	-0.059	-0.019	0.000
EXISTING LEVELS	325.659	325.439	325.179	324.904	325.114	325.155	325.190	325.194
OFFSET	-6.663	-5.327	-3.327	0.000	7.980	9.980	10.480	10.924

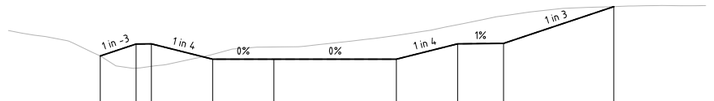
CH 1150.000



RL324.0

DESIGN LEVELS	327.240	326.072	326.057	325.557	325.557	325.557	326.057	326.072	327.400
CUT / FILL DEPTH	0.000	0.649	0.485	0.955	0.230	0.539	0.272	0.445	0.000
EXISTING LEVELS	327.240	326.721	326.541	326.512	326.787	326.135	326.378	326.586	327.400
OFFSET	-9.508	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	9.987

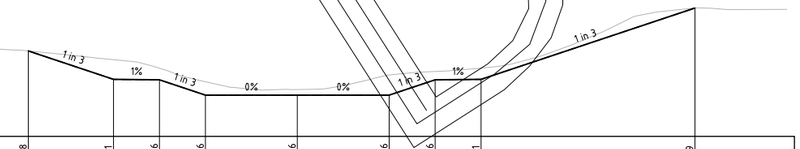
CH 950.000



RL323.0

DESIGN LEVELS	324.607	324.997	325.002	324.502	324.502	324.502	325.002	325.017	326.217
CUT / FILL DEPTH	0.000	-0.789	-0.733	0.155	0.398	0.775	0.625	0.901	0.000
EXISTING LEVELS	324.607	324.208	324.270	324.657	324.901	325.277	325.627	325.918	326.217
OFFSET	-5.669	-4.500	-4.000	-2.000	0.000	4.000	6.000	7.500	11.100

CH 1200.000



RL324.0

DESIGN LEVELS	326.788	325.861	325.846	325.346	325.346	325.846	325.861	328.189
CUT / FILL DEPTH	0.000	0.643	0.378	0.437	0.181	0.657	0.272	0.366	0.000
EXISTING LEVELS	326.788	326.504	326.225	325.783	325.527	326.003	326.118	326.227	328.189
OFFSET	-8.783	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	12.984

CH 1000.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:100 (1:200)
0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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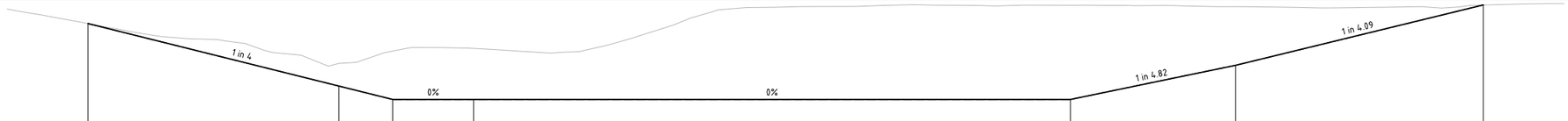
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C611	A

DRAWING ID: P2510821-PS01-R02-C611

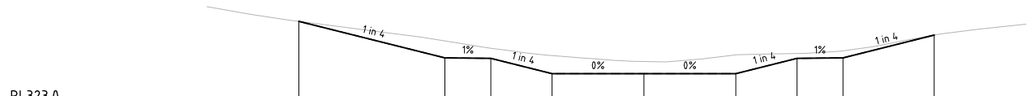
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL322.0

DESIGN LEVELS	325.725	323.400	322.900	322.900	322.900	324.172	326.419
CUT / FILL DEPTH	0.000	0.842	1.801	1.900	3.507	2.184	-0.005
EXISTING LEVELS	325.725	324.242	324.701	324.800	326.407	326.356	326.414
OFFSET	-14.301	-5.000	-3.000	0.000	22.140	28.266	37.450

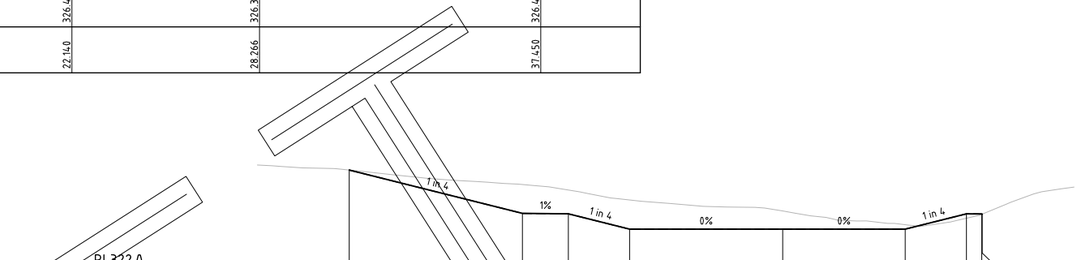
CH 1250.000



RL323.0

DESIGN LEVELS	325.709	324.517	324.502	324.002	324.002	324.002	324.502	324.517	325.261
CUT / FILL DEPTH	0.000	0.554	0.329	0.590	0.397	0.615	0.158	0.230	0.000
EXISTING LEVELS	325.709	325.071	324.831	324.592	324.399	324.617	324.660	324.746	325.261
OFFSET	-11.269	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.478

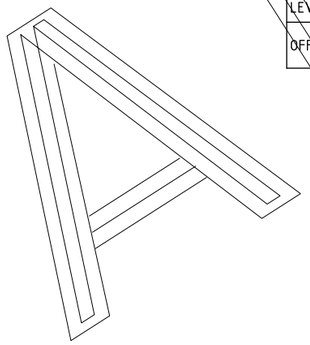
CH 1300.000

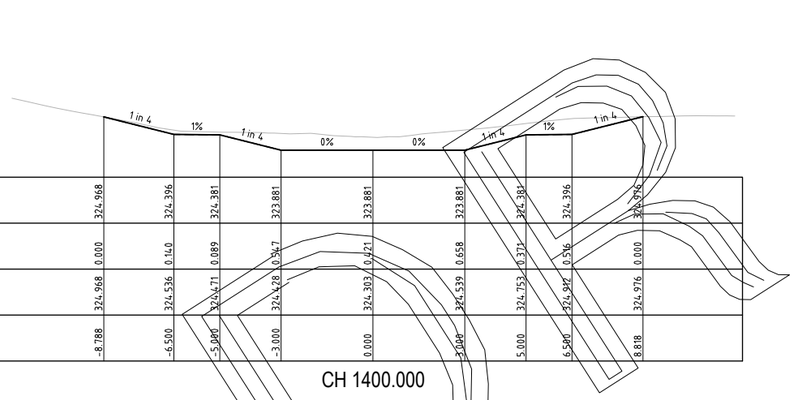


RL322.0

DESIGN LEVELS	325.209	323.795	323.780	323.280	323.280	323.280	323.780	323.775	323.770
CUT / FILL DEPTH	0.000	0.942	0.777	0.952	0.594	0.145	-0.144	-0.011	0.000
EXISTING LEVELS	325.209	324.737	324.557	324.232	323.874	323.425	323.636	323.766	323.770
OFFSET	-14.156	-8.500	-7.000	-5.000	0.000	4.000	6.000	6.500	6.574

CH 1550.000

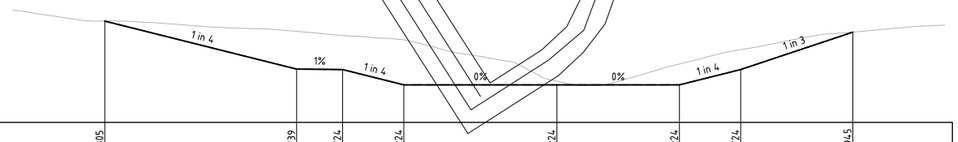




RL323.0

DESIGN LEVELS	324.968	324.396	324.381	323.881	323.881	323.881	324.381	324.396	324.976
CUT / FILL DEPTH	0.000	0.140	0.089	0.347	0.421	0.658	0.371	0.536	0.000
EXISTING LEVELS	324.968	324.536	324.471	324.428	324.303	324.539	324.753	324.932	324.976
OFFSET	-8.788	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	8.818

CH 1400.000



RL322.0

DESIGN LEVELS	325.305	323.739	323.724	323.224	323.224	323.224	323.724	324.945
CUT / FILL DEPTH	0.000	1.232	1.113	1.470	0.119	0.682	0.649	0.000
EXISTING LEVELS	325.305	324.971	324.837	324.694	323.343	323.906	324.373	324.945
OFFSET	-14.765	-8.500	-7.000	-5.000	0.000	4.000	6.000	9.663

CH 1500.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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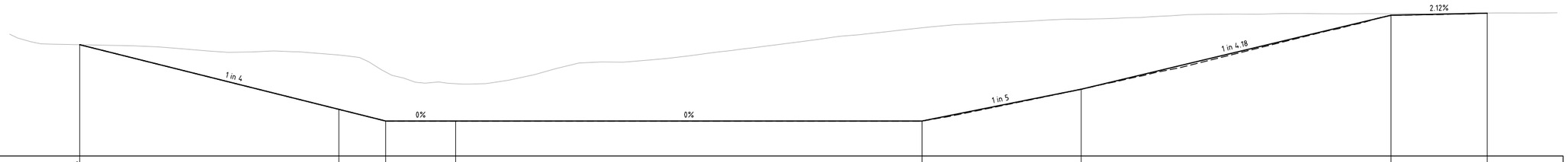
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C612	A

DRAWING ID: P2510821-PS01-R02-C612

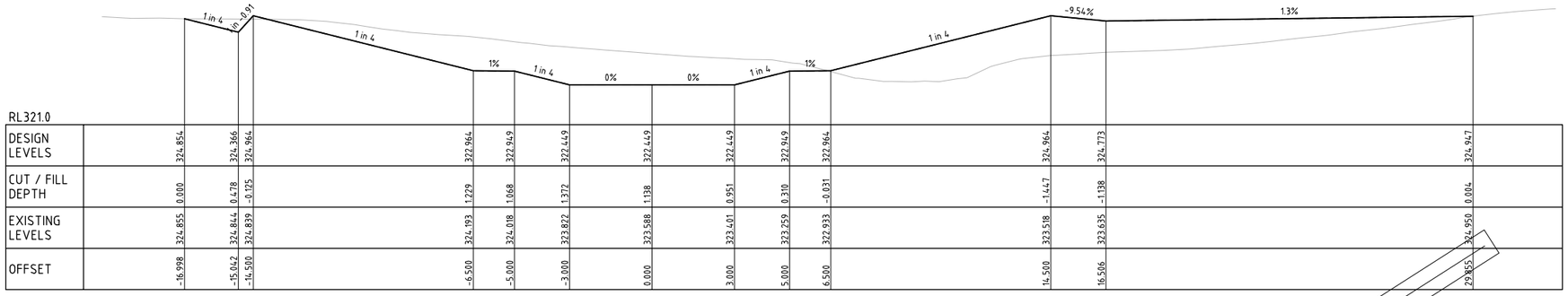
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



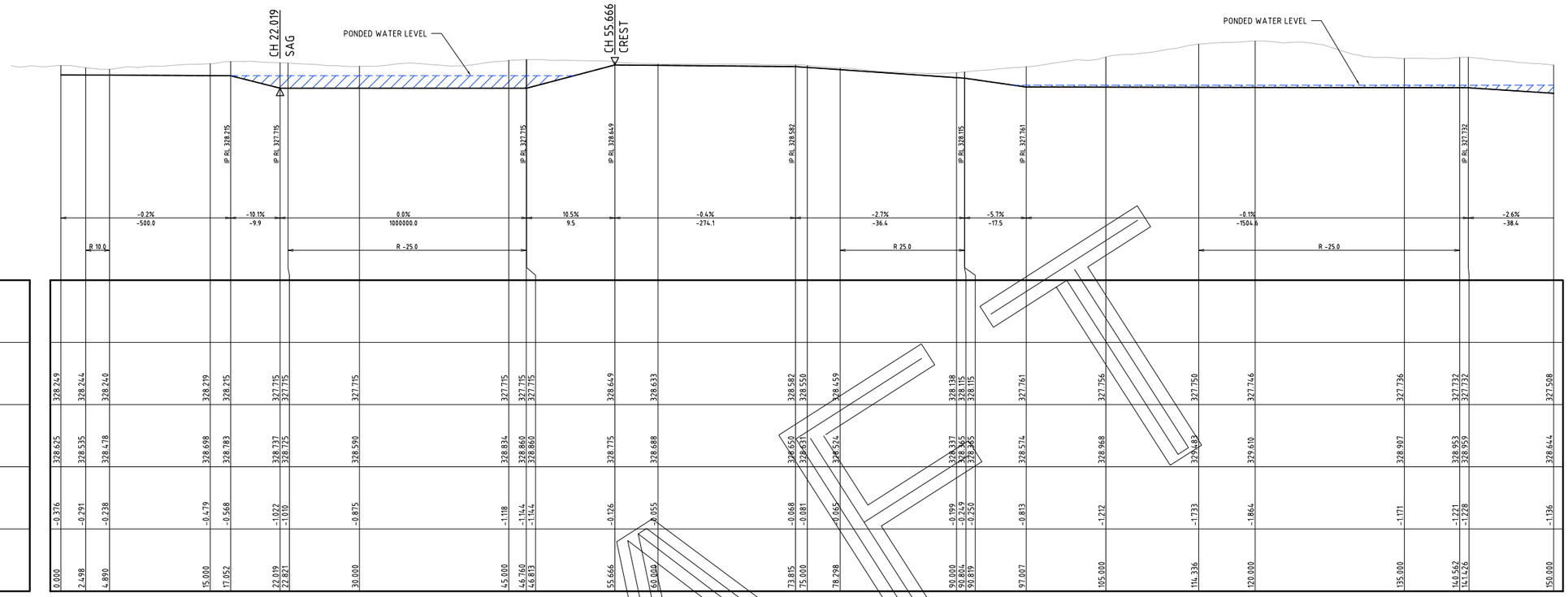
RL320.0

| | | |



RL321.0

| | | |



FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

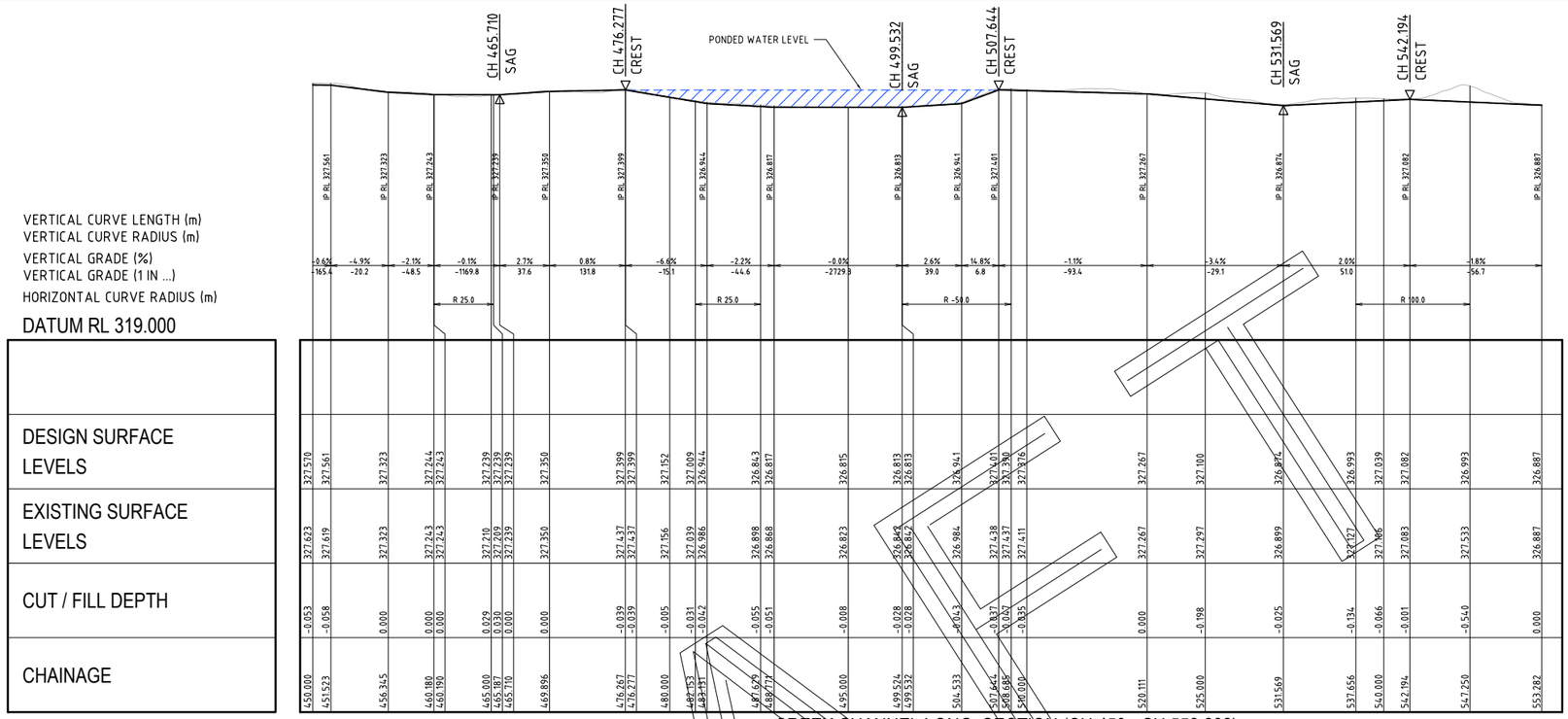
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R02	PS01-C660	A

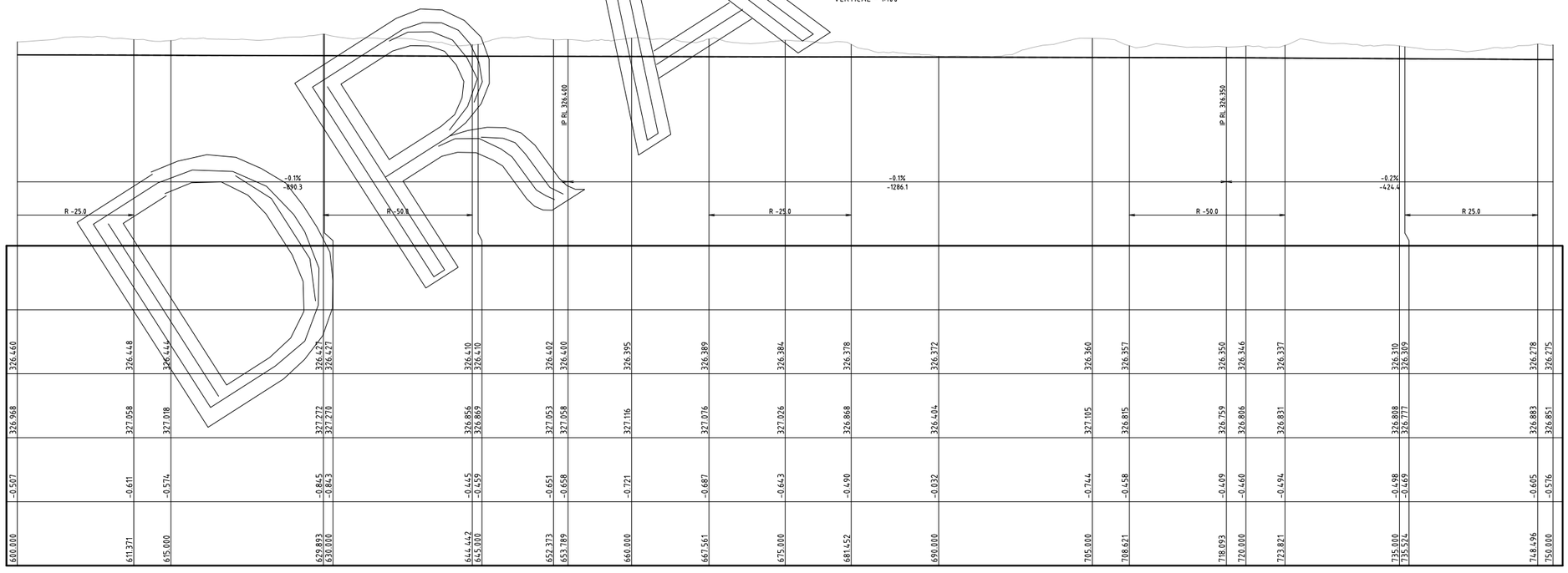
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A1 / A3 LANDSCAPE (ATLC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 450 - CH 553.282)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 600 - CH 750)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

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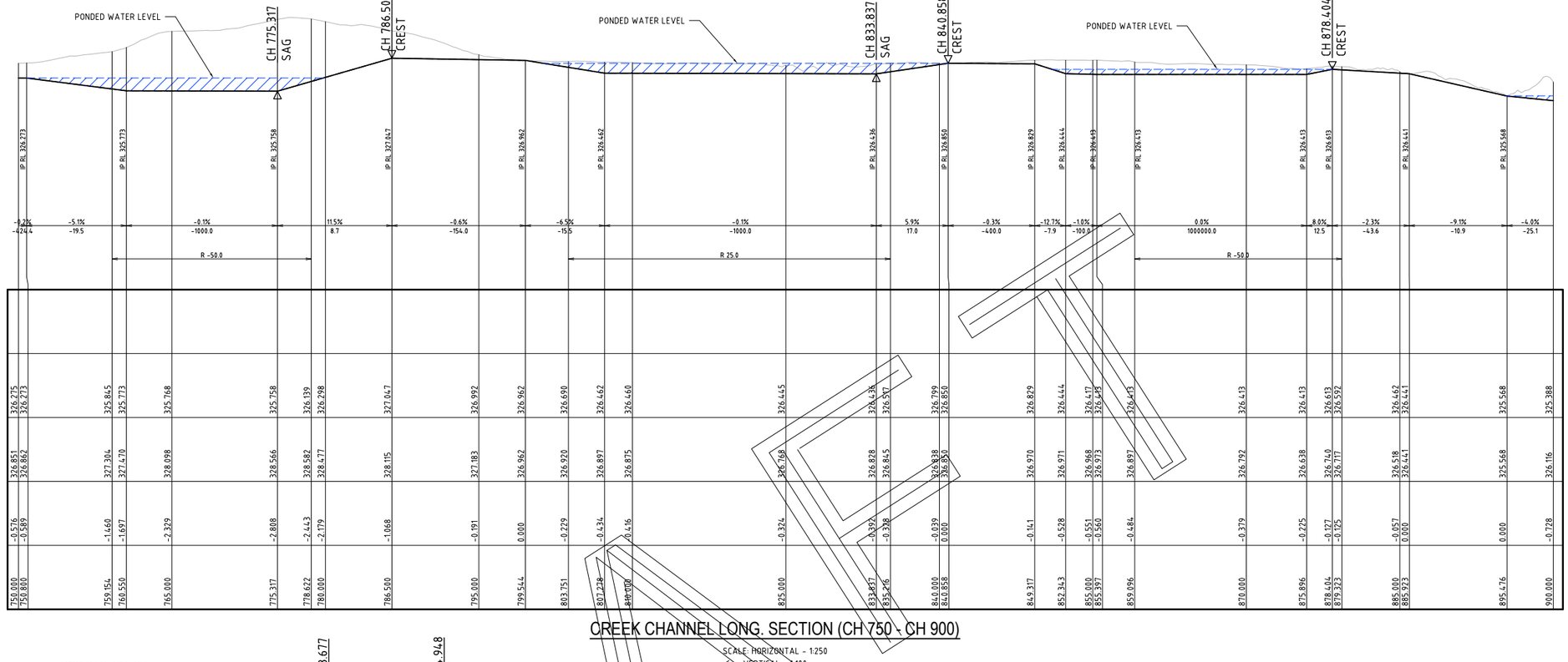
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MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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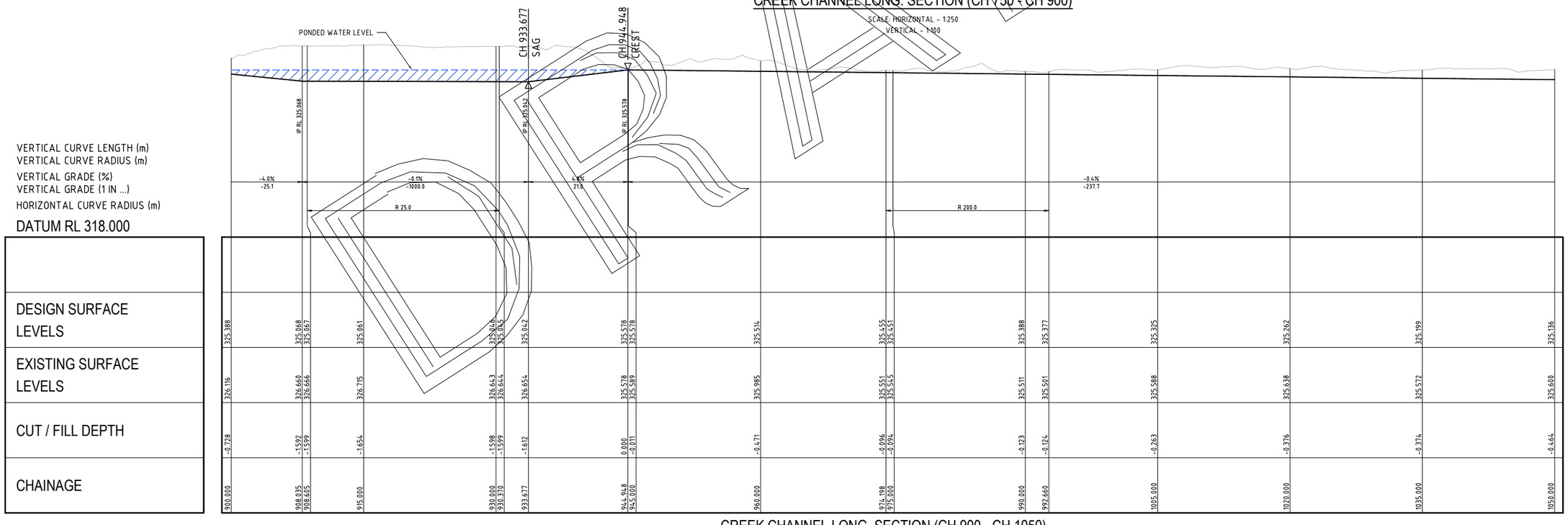
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VERTICAL - 1:100

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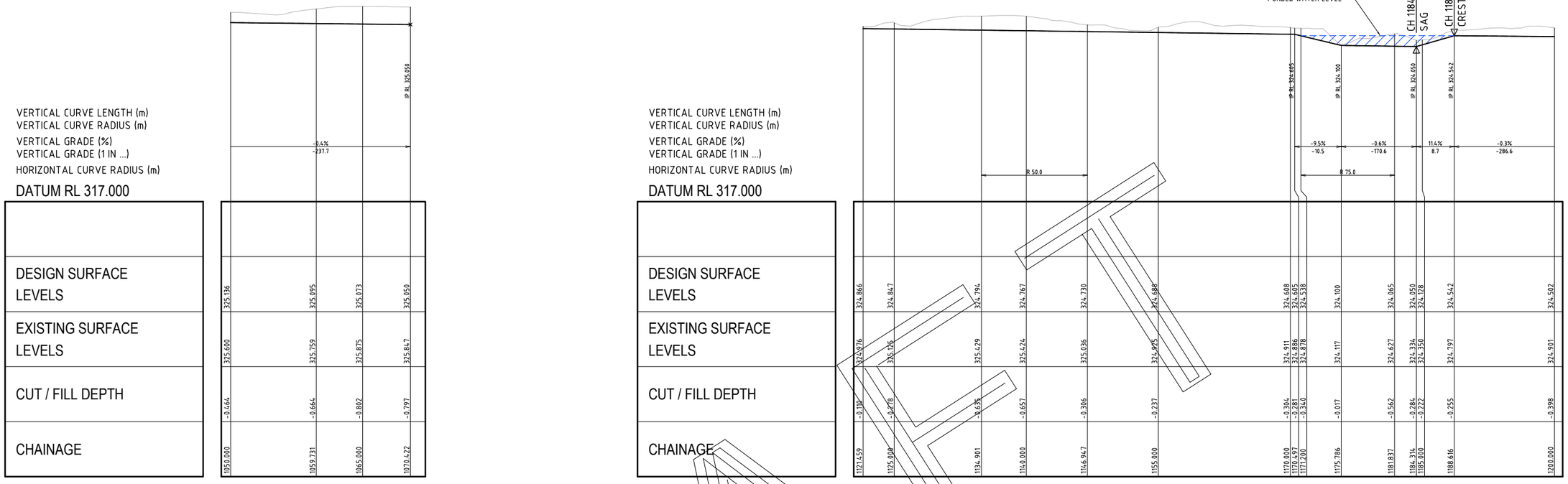
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A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
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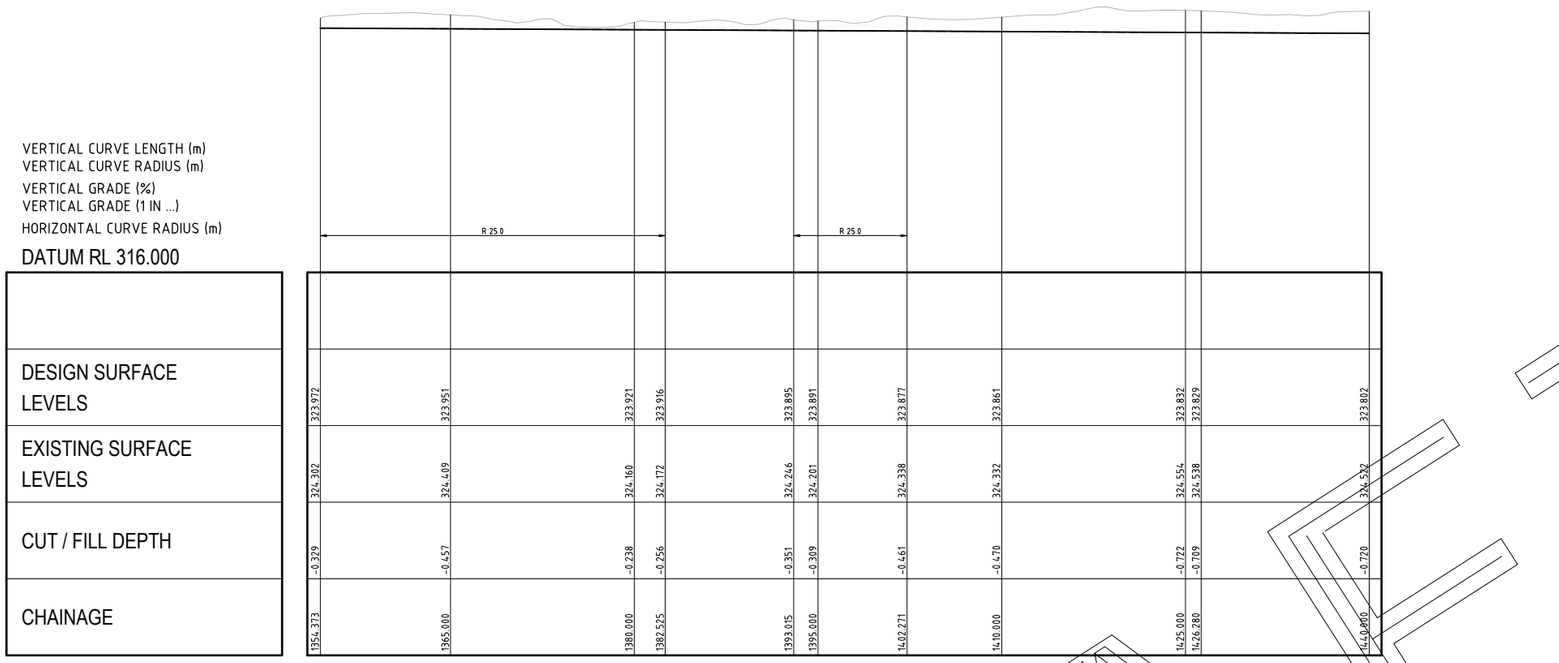
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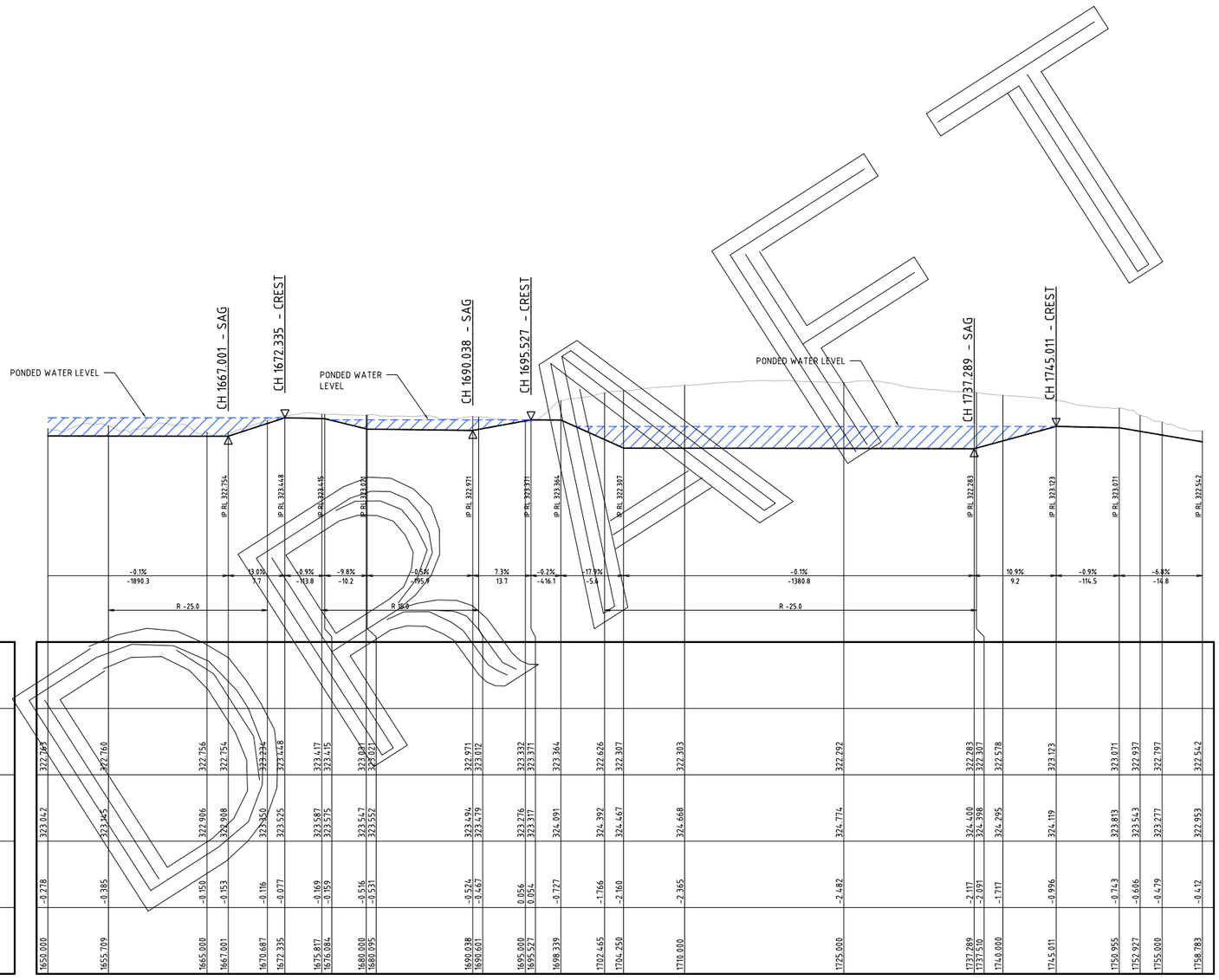
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VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 316.000

| | | |



CREEK CHANNEL LONG. SECTION (CH 1650 - CH 1758.783)

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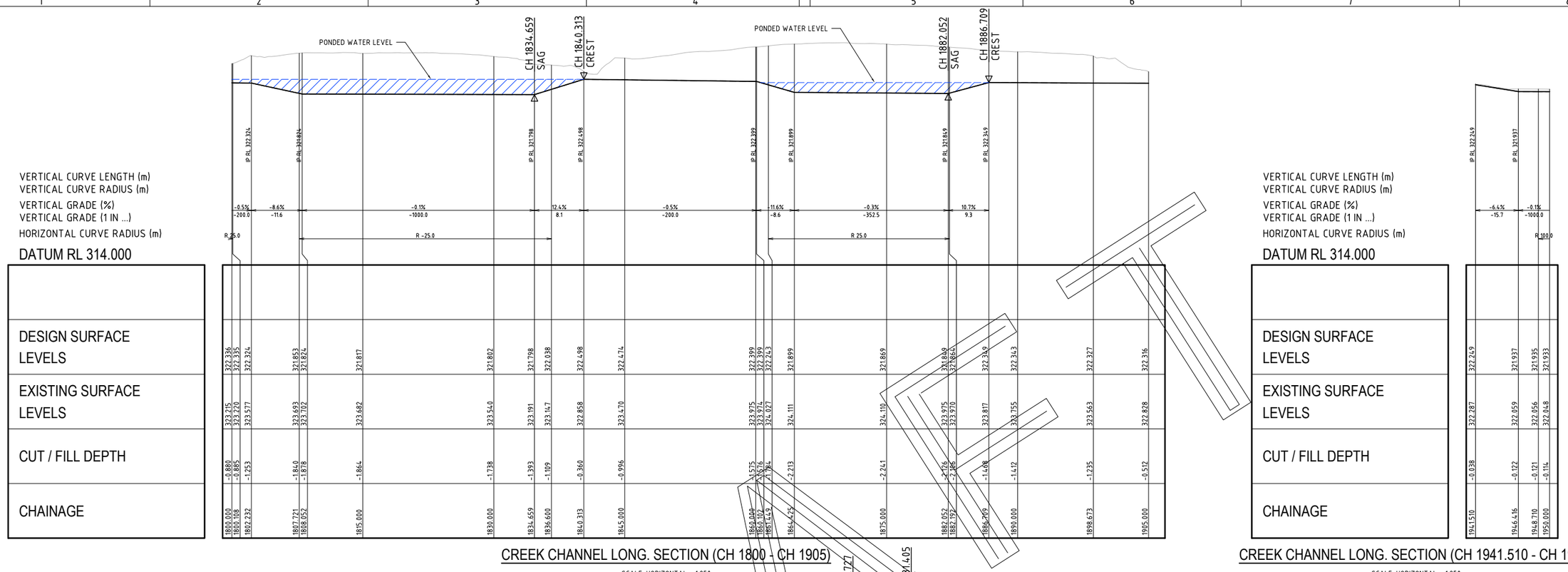
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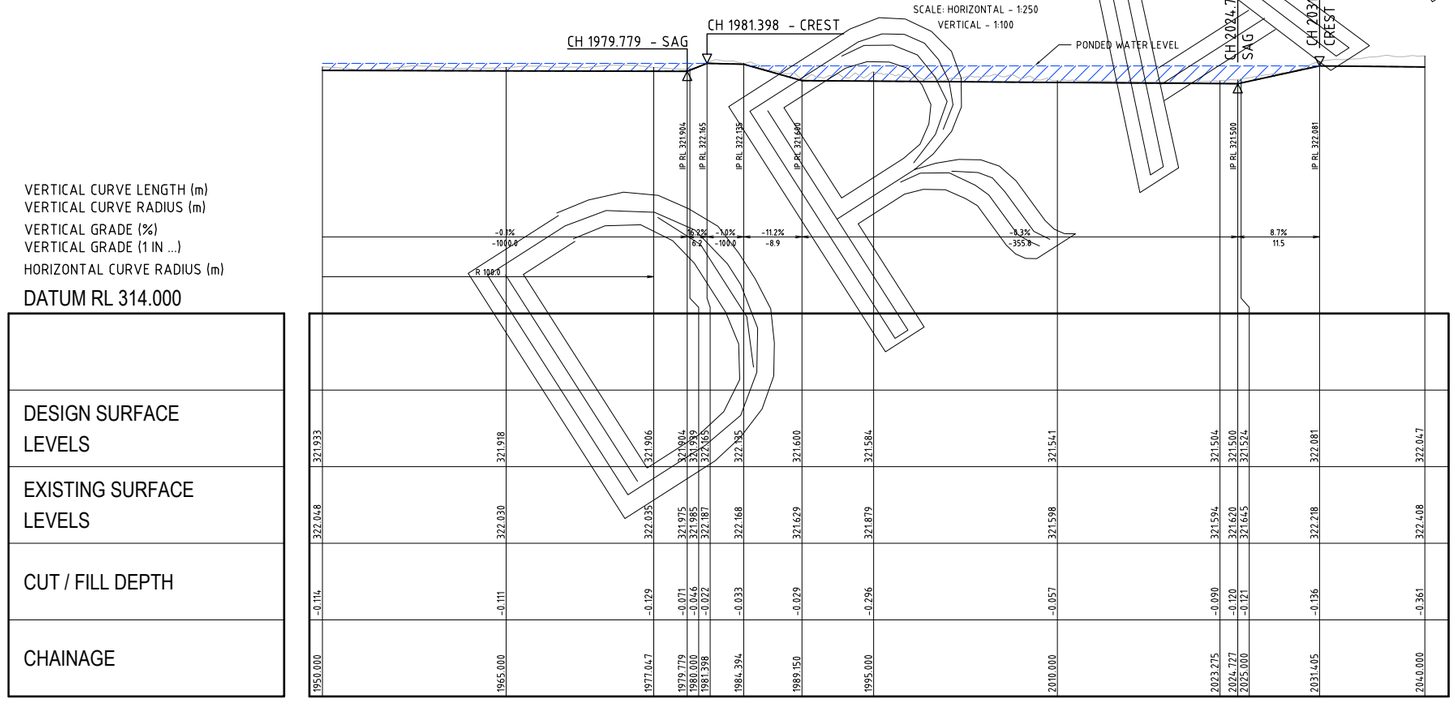
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CREEK CHANNEL LONG. SECTION (CH 1941.510 - CH 1950)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1950 - CH 2040)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

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Appendix G

NSW Crown Lands Consultation Response

Department of Planning, Housing and Infrastructure

Our Reference: DOC25.08095

Marten & Associates Pty Ltd
C/O Jason Watkins
Suite 201, 20 George St
Hornsby NSW 2077

Via Email – mail@martens.com.au

3 September 2025

Dear Mr Watkins.

As Crown Land's Natural Resource Management Project Officer, I have reviewed the Draft Muttama Creek Master Plan Report.

The Crown Land Management Act 2016, requires that environmental, social, cultural heritage and economic considerations to be considered in decision-making regarding parcels of land in the ownership of Crown land.

It is noted that several of the Crown land parcels within the area of the Master Plan are currently the subject of undetermined Aboriginal Land Claims, which may limit how the land can be used. Further information regarding Aboriginal Land Claims can be found at the following links:

https://www.crownland.nsw.gov.au/protection-and-management/aboriginal-land-rights-and-native-title/aboriginal-land-claims

https://www.crownland.nsw.gov.au/sites/default/files/2022-07/information-for-crown-land-tenants.pdf

Should you require any further information in this regard please contact myself, Tony Phelps during business hours on (02) 69372725 or email tony.phelps@crownland.nsw.gov.au.

Yours sincerely

Tony Phelps
Natural Resource Management Project Officer

Attachment: Crown Land within the Muttama Creek Master Plan Area.


Muttama Creek Master Plan Area
Legend
Crown Account Details
1/811149
1/573104
1/325688
1/355856
2/60/758287
1/60/758287
9/20105
1C/412
1A/412
1B/412
7009/1021379
7010/1021380
7011/1021380
659/823320
1/1120670
4/1153464
4/1153481
Unidentified
1/1006863
231/223540
Parish: COOTAMUNDRA
County: HARDEN
LGA: COOTAMUNDRA-GUNDAGAI
Suburb: COOTAMUNDRA
Author: DPI\phelpt01
Map Created: 3/09/2025 11:55:29 AM
NSW GOVERNMENT
N
0 92 183 275 367 m
Scale 1: 9028
Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere
Disclaimer: Scale is not accurate. Crown Lands must not be liable for any loss or damage (including loss of profits, business, revenue or data) whether in contract, tort (including negligence) or otherwise arising from or in connection with any defect, error or inaccuracy of information or any part thereof or any products or services.
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Appendix H

DPI Fisheries Consultation Response

Department of Primary Industries
and Regional Development

FE25/899 C25/630

25 August 2025

Jason Watkins
Senior Town Planner
Martens and Associates Pty Ltd
Suite 201, 20 George Street
Hornsby NSW 2077

Attention: Jason Watkins
< jwatkins@martens.com.au>

Re: Muttama Creek Cootamundra – proposed flood mitigation works – Cootamundra-Gundagai Regional Council – request for REF requirements

Dear Jason,

Thank you for referring the above proposal to DPIRD Fisheries for comment. It is understood that an REF is being prepared in preparation to undertake flood mitigation works in Muttama Creek, Cootamundra.

DPIRD Fisheries is responsible for ensuring that fish populations including threatened species are conserved and that there is "no net loss" of key fish habitats upon which they depend. To achieve this, the Department ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (namely the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act respectively) and the associated *Policy and Guidelines for fish habitat conservation and management (2013)*. In addition, the Department is responsible for ensuring the sustainable management of commercial and recreational fishing and aquaculture within NSW.

Muttama Creek at this location is considered key fish habitat and is also habitat for the Lower Murray River Endangered Ecological Community. The Lower Murray River Endangered Ecological Community is

listed under threatened species provisions of the *Fisheries Management Act 1994* and includes all native fish and invertebrates that occur in the Creek.

It is understood that the proposed works involve

- flood mitigation works consisting of earthworks to widen and deepen Muttama Creek, and
- associated works including crossings and pathways.

The REF should specifically address impacts on the aquatic ecology of waterways or any *Key Fish Habitats* including Muttama Creek.

AQUATIC ECOLOGICAL ASSESSMENT

The aquatic ecological environmental assessment should be as per Section 3.3. General requirements for developments in the *Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)* and include the following information:

- Waterways that may be affected either directly or indirectly by the development or activity should be clearly identified.
- Description of aquatic and riparian vegetation should be presented and mapped.
- The extent of aquatic habitat removal or modification which may result from the proposed development.
- Details of the location of all waterway crossings, including any access tracks, timetable for construction of the proposal with details of various phases of construction.
- Details of the methodology (for example directional drilling, trenching, boring) for any works within or adjacent to waterways.
- Proposed precautions and mitigations to protect aquatic habitats before, during, and after the works including measures to protect water quality.
- Aspects of the management of the proposal, both during construction and after completion, that relate to impact minimisation e.g. Environment Management Plans.
- A description of how the site will be rehabilitated post-construction including site stabilisation, native vegetation planting including riparian and aquatic vegetation and any proposed post works habitat enhancement including large woody debris and rock/boulder placement.

KEY ISSUES

Dredging and Reclamation activities

As the proposal includes excavation works to widen and deepen the Creek, Council must obtain a permit issued under Part 7 of the *Fisheries Management Act 1994* prior to commencement of works. Permit

application forms are available from the DPIRD Fisheries website at: http://www.dpi.nsw.gov.au/fisheries/habitat/help/permit.

Waterway crossings – designed to facilitate fish passage

Construction of waterway crossings should be in accordance with section 4.2 – 4.5 of the DPI Fisheries Policy & Guideline document: *Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013).*

Threatened Species, Populations and Ecological Communities– Fisheries Management Act 1994

The proposal should include a threatened aquatic species assessment (as per part 7A *Fisheries Management Act* 1994) to address whether there are likely to be any significant impacts on the Lower Murray River Aquatic Ecological Community. Further information on threatened fish species can be found here, including maps of threatened species distributions.

Habitat rehabilitation and environmental compensation

NSW DPIRD Fisheries enforces a 'no net loss' habitat policy. This may require proponents to conduct habitat rehabilitation and/or provide environmental compensation. As per s.3.3.3 of DPIRD Policy, impacts to Key Fish Habitat that cannot be avoided or mitigated are required to be identified and offset at a minimum ratio of 2:1.

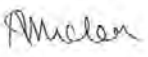
Deepening and widening Muttama Creek will not necessarily lead to improvements in water quality, bank stability, or aquatic habitat. Healthy creeks are dynamic systems that rely on a variety of habitat features to support aquatic biodiversity and maintain ecological function. These features include pool and riffle sequences that create diverse flow conditions, native riparian vegetation that stabilises banks and filters runoff, aquatic plants that provide oxygen and shelter, and a mix of substrates such as gravel, sand, and clay that support different life stages of aquatic organisms. Structural elements like large woody debris and rocks offer critical refuge and breeding sites for fish and aquatic macroinvertebrates.

Removing or altering these features through channel deepening or widening can simplify the creek's morphology, reducing habitat complexity and connectivity. This can lead to increased flow velocity, erosion, and sediment transport downstream, which in turn affects water clarity and nutrient cycling. The loss of riparian vegetation also reduces shading, leading to higher water temperatures and lower dissolved oxygen levels — conditions that are detrimental to many native aquatic species. Deepening and widening of the Creek should be managed carefully and the introduction of structural habitat elements should be considered as part of the works.

The matters raised by DPI Fisheries relate to the Department's responsibilities for ensuring fish stocks are conserved and that there is "no net loss" of key fish habitats upon which they depend.

I can be contacted via email at alison.mclean@dpi.nsw.gov.au should you require any further information.

Sincerely,



Alison McLean
Fisheries Manager - Murray Darling
Aquatic Assessment, Regulation and Engagement

Appendix I

Early Community Consultation Letter

COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL
1300 459 689
PO BOX 490
COOTAMUNDRA NSW 2590

Masterplan for Muttama Creek, Cootamundra

Early Request for Public Comments

Overview

Cootamundra-Gundagai Regional Council is working with Martens & Associates to prepare a masterplan for Muttama Creek (the Creek) within the township of Cootamundra. The masterplan will provide a framework for revitalising an approximate 2km length of the Creek's corridor. It will integrate flood mitigation, ecological and public recreation functions with the open space network and local history and culture. The revitalisation works to be proposed under the masterplan to the Creek will also be the subject of a future Review of Environmental Factors (REF) to be prepared by Martens & Associates on behalf of Council.

The approximate 2 km extent of the Creek to be considered under the masterplan is from Adams Street in the north to Lloyd Conkey Avenue in the south.

Refer to the Figure 1 right:





Figure 1: Muttama Creek masterplan extent.

Aims of the Masterplan

The masterplan has two key aims:

An aspirational document that will detail how Council will increase the Creek's aesthetic qualities and available range of passive recreational activities whilst also indicating how the revitalised Creek can integrate into surrounding open spaces and public areas.

A practical strategic document to address concerns raised by the community due to the impacts of flooding over the last two years. The masterplan will detail future civil engineering works (specifically, flood mitigation works) to be undertaken by Council. These will focus on improving the Creek's capability to convey flood water.



Masterplan works

Flood mitigation

A core component of the masterplan will be preparation of a concept flood mitigation scheme to improve the Creek's capability to convey flood water. The aim will be to reduce existing flood affectation within residential land surrounding the Creek whilst ensuring no unacceptable offsite flood impacts arise elsewhere. Martens and Associates will use Council's adopted flood study to identify areas of interest (such as particular areas of large flooding) and, using TUFLOW flooding software, 'simulate' the effects of reprofiling the Creek in specific locations during a flood. Adjustments to existing Creek crossing structures may also be considered. Options for flood mitigation will be determined in consultation with Council and the design team. The engineering solution will be shown on the masterplan and further detailed in a set of civil engineering plans and report for inclusion in the REF.



Ecology of the creek

The Creek's ecological features and functions will be identified early in the masterplanning process so they are protected. An ecologist will undertake surveys of the Creek corridor to identify the flora and fauna communities present (or likely to be present). Any areas of ecological significance shall be identified and integrated into the final masterplan along with any recommendations made by the ecologist to preserve the Creek's ecological values. The ecologist will also prepare an assessment report of the proposed works which shall form part of the REF.

Public open space and green corridor integration

The masterplan will identify how the revitalised creek will integrate into existing public open spaces, and how new openspace areas adjacent to the creek may be created to facilitate a unique and enjoyable visiting experience. Enhancement of green links to open space and an increase in tree canopy will also address impacts of climate change. The final masterplan will be formulated to also include wayfinding, landscape and planting design, lighting, staging and an implementation strategy.



Request for Public Comments

The masterplan process is still in its early stages. Once finalised, the masterplan and REF will be placed on public exhibition and an opportunity to provide comments will be provided.

However, we would like to hear from you on what should be considered as part of the masterplan preparation. Please feel free to contact Mr. Jason Watkins of Martens & Associates Pty Ltd (Senior Town Planner, Project Manager) on the details below with any comments for input into the masterplan process.

A summary of how your comments have been addressed will be provided as part of the REF. Please provide your comments by **close of business 21 May 2025.**

We look forward to hearing from you.

Email: jwatkins@martens.com.au

Martens reference: P2510821JC02V01, 28 April 2025

COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL

martens consulting engineers since 1989

Appendix J

Flood Report

Flood Assessment Report

Proposed flood mitigation works: Muttama Creek, Cootamundra NSW



Final Report

P2510821JR02V01.docx

December 2025

Prepared for Cootamundra-Gundagai Regional Council

Project Details

Report Title	Flood Assessment Report: Proposed flood mitigation works: Muttama Creek, Cootamundra NSW
Client	Cootamundra-Gundagai Regional Council
Document	P2510821JR02V01.docx
Director	Daniel Martens
Manager	Jason Watkins
Principal Author	Paul Dinh

Document History

Issue	Issue Date	Status	Description / Comment	Author	Reviewer	Approved
1.	9/12/2025	Final	For Client Review	PD	JCF	JW

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1 Introduction

1.1 Overview

Martens & Associates Pty Ltd (MA) have prepared this flood assessment report on behalf of Cootamundra-Gundagai Regional Council (the Council) to accompany a Review of Environmental Factors (REF) prepared under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) proposing flood mitigation works to an approximate 2 km long segment of Muttama Creek, Cootamundra, NSW (the study area). The flood mitigation works are shown in the preliminary civil engineering plans provided at Attachment A.

1.2 Report Scope and Objectives

Report scope and objectives are:

1. Obtain catchment hydraulic model (TUFLOW) from Council and determine the study area flood characteristics for the 10% annual exceedance probability (AEP) flood, 5% AEP flood, 1% AEP flood (with and without climate change), and probable maximum flood (PMF) events.
2. Comment on flood characteristics and model outcomes in existing and proposed conditions.
3. Prepare relevant flood maps including flood extents, depths, levels, velocities, hazards and impacts.

1.3 Relevant Guidelines

This report has been prepared in accordance with the following guidelines and policies:

1. Commonwealth of Australia (2019), *Australian Rainfall and Runoff – A Guide to Flood Estimation.*
2. Department of Planning and Environment (2023), *Flood Risk Management Manual*.
3. Cootamundra-Gundagai Council (2013), *Cootamundra Local Environmental Plan (LEP).*

2 Study Area Description

2.1 Location

The study area is located within Cootamundra – Gundagai Regional Council (**CGRC**), comprising an approximately 2 km long segment of the Creek, generally located between Adam Street (north) and Hovell Street (south) within the township of Cootamundra.

2.2 Land Ownership

Affected lots, zoning and ownership are provided in Table 1.

Table 1: Site detail and ownership.

Lot/DP	Land Zoning	Ownership
Lot 1 DP238550	RE1	Council
Lot 9 DP 20405	R1	Private land
Lot 1 DP 725571	R1	Private land
Lot 20 DP 1189748	R1	Private land
Lot 7009 DP 1021379	RE1	Crown
Lot 7010 DP 1021379	RE1	Crown
Lot 702 DP 1021380	RE1	Crown
Lot 7306 DP 1140506	RE1	Crown
Lot 5 DP 867363	RE1	Crown
Lot 4 DP 838858	RE1	Crown
Lot 9 DP 758287	RE1	Crown
Lot 8 DP 758287	RE1	Crown
Lot 7008 DP 1123211	RE1	Crown
Lot 11 DP 758287	RE1	Crown
Lot 8 DP 758287	RE1	Crown
Lot 7007 DP 1123211	RE1	Crown

2.3 Site Inspection

A site inspection was conducted on 22 May, 2025 and included:

- General walkover to identify local landforms and study area characteristics to understand local drainage behaviour.
- Identification and observation of existing stormwater infrastructure and natural drainage lines.

2.4 Catchment Description

We note the following regarding the catchment upstream of the study area:

- The study area is located on the western slopes of the Great Dividing Range, within the Muttama Creek catchment.
- The catchment is generally rural in nature with considerable cleared lower slopes and flat land immediately upstream of the town.
- The total catchment area is 116 km^2.

2.5 Flood and Overland Flow Mechanisms

The study area is likely affected by the following flood mechanisms:

- Overland flows from local upstream catchments (refer Section 2.4).
- Flood overbank flows from Muttama Creek.
- High tailwater conditions in Muttama Creek causing upstream flows to back up within the study area.
- Constriction of the Muttama Creek floodplain due to the multiple bridge and culvert crossings (including bridges on Sutton Street, Mackay Street, Parker Street and Wallendoon Street, plus numerous causeways), causing flood waters to back up onto private lots.

2.6 Previous Flood Studies

A review of previous flood investigations was undertaken to assess likely local flood behaviour and characteristics for the study area and the Muttama Creek catchment. Review identified the pertinent flood study which would be relevant to this assessment.

WMAWater conducted a flood assessment for this catchment on behalf of CGRC, and summarised the assessment in the report *Cootamundra Flood Study* (2021), hereafter referred to as the WMAWater flood study. As part of their study, WMAWater used WBNM for hydrologic modelling and TUFLOW for hydraulic modelling.

Council has provided the WMAWater TUFLOW model to MA. MA have used this model as the basis for undertaking detailed hydraulic modelling for the study area.

2.7 Proposed Development

The proposed flood mitigation works are shown in the preliminary civil engineering plans (Attachment A) and consist of:

1. Earthworks (primarily cut) to improve flood conveyance by:
    a. Widening and deepening the creek, generally of 10 m width and between 0.5 m – 1.2 m depth.
    b. Formalising the creek channel invert to increase flood conveyance through the catchment.
    c. Creating a 'bench' between the top of channel bank and reprofiling the Creek's channel between Poole Street and Hovell Street.
2. Creation of two new instream pools and retention/widening of an existing instream pool to increase local flood storage and attenuate concentrated flood flows.

3 Hydraulic Modelling

3.1 Overview

The WMAWater TUFLOW model described at Section 2.6 has been used as the basis for undertaking detailed hydraulic modelling at within the study area.

3.2 Scenarios

The hydraulic model was setup to represent the following flood condition scenarios:

1. Existing condition: the catchment and study area in their current state as described in Sections 2.4 and 2.5.
2. Proposed condition: the catchment in its current state and the study area in its proposed state as described in Section 2.7.

The hydraulic model was used to assess flooding for the following events:

1. 10% Annual Exceedance Probability (AEP) 9 hour (critical duration) event (equivalent to a 1-in-10 year event).
2. 5% AEP 6 hour (critical duration) event (equivalent to a 1-in-20 year event).
3. 1% AEP 6 hour (critical duration) event (equivalent to a 1-in-100 year event).
4. 0.2% AEP (in lieu of the 1% AEP event + climate change) 6 hour (critical duration) event (equivalent to a 1-in-500 year event).

In summary, a total of 8 scenarios were modelled as part of this assessment (2 flood condition scenarios and 4 flood events each).

3.3 Terrain Data

The model uses a 1m DEM surface which matches that of the current LPI data (2014), and was used to create a 3D surface for the existing conditions study area and the local floodplain environment used in the TUFLOW model.

The proposed conditions surface also included study area design grading as shown in Attachment B - MA planset P2510821PS01, drawings C100 to C160.

3.4 Model Setup

3.4.1 Existing Conditions

The WMAwater flood model was used as the basis for the existing conditions model. A refined output zone centred on the study area was chosen, with all other model inputs and assumptions remaining unchanged from the CGRC adopted WMAWater model.

3.4.2 Detailed Proposed Conditions

The detailed existing conditions model was modified as follows to simulate proposed conditions:

1. Inclusion of study area design grading as shown in Attachment A - MA planset P2510821PS01, C100-C160. The survey data was merged with the detailed existing conditions surface to represent proposed conditions.

2. Development of a 2.0 m topographic grid based on the available WMAWater LIDAR, survey data and proposed design grading.

All other model construction elements remained consistent with the existing conditions model.

3.5 Results

Flood mapping results (flood levels, depths, velocities, hazard categories and water level afflux) for the critical duration 10% AEP flood event, 5% AEP flood event, 1% AEP flood event and 0.2% AEP flood event in existing and proposed conditions are provided in Attachment C, with map references summarised in Table 2.

Table 2: Flood map references in Attachment C (MA MapSet P2510821MS03).

Flood Condition Scenario	Critical Duration Flood Event	Water Level & Depth	Water Velocity	ARR Flood Hazard Categories [1]	Water Level Impact
Existing Conditions	10% AEP	Map 01	Map 02	Map 03	
	5% AEP	Map 04	Map 05	Map 06	
	1% AEP	Map 07	Map 08	Map 09	
	0.2% AEP	Map 10	Map 11	Map 12	
Proposed Conditions	10% AEP	Map 13	Map 14	Map 15	Map 16
	5% AEP	Map 17	Map 18	Map 19	Map 20
	1% AEP	Map 21	Map 22	Map 23	Map 24
	0.2% AEP	Map 25	Map 26	Map 27	Map 28

[1] ARR flood hazard categories are based on ARR flood hazard curve (2019) definitions and are shown in Figure 1.

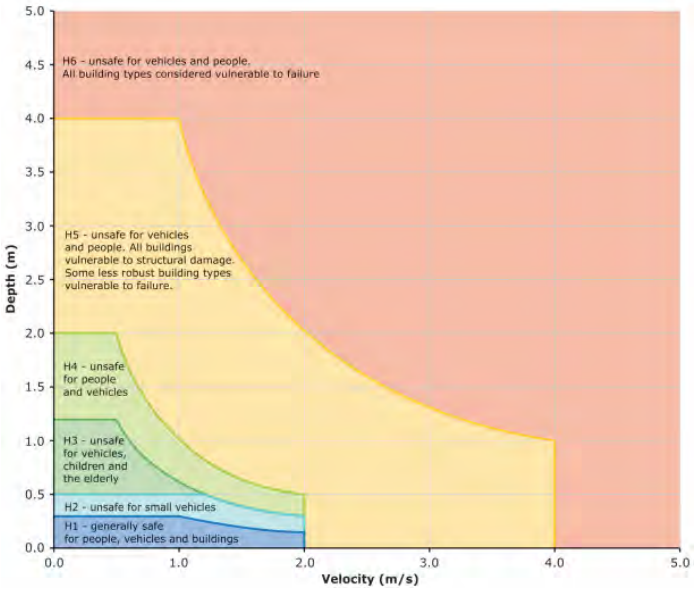


Figure 1: Flood Hazard Curves (Geoscience Australia, 2019).

3.6 Discussion

We note the following regarding modelled flood behaviour:

3.6.1 Existing Conditions

1. The primary source of flooding in the area is overbank flows from Muttama Creek. Overland flows from the unnamed drainage lines east and west of the study area also contribute to flood affectation in the study area.

2. Flood levels in Southee Circle are generally uniform, being a trapped low point within the catchment.

3. Flood waters primarily flow across the catchment from north to south in the flow direction of Muttama Creek.

4. In the 10% AEP flood event:

    a. Flood levels are approximately 330.9 mAHD at Adam Street, down to 324.4 mAHD at Lloyd Conkey Avenue approximately 2 km downstream. Flood depths within Muttama Creek reach up to 3.4 m.

    b. Flood velocities within the area of interest are generally low (< 1.0 m/s) outside of the road and defined drainage lines, where velocities reach up to 3.6 m/s.

    c. Hydraulic hazard over lots in the area of interest is generally H1, with some lots adjoining Thompson Street experiencing H2 hazard, lots near Cutler Avenue and Adams Street experiencing up to H3 hazard, and up to H4 for lots near Jade Street and Bourke Street.

5. In the 5% AEP flood event:

    a. Flood levels are approximately 331.1 mAHD at Adam Street, down to 324.6 mAHD at Lloyd Conkey Avenue approximately 2 km downstream. Flood depths within Muttama Creek reach up to 3.6 m.

    b. Flood velocities within the area of interest are generally low (< 1.0 m/s) outside of the road and defined drainage lines, where velocities reach up to 3.6 m/s.

    c. Hydraulic hazard over lots in the area of interest is generally H1, with some lots adjoining Thompson Street experiencing H3 hazard, lots near Cutler Avenue and Adams Street experiencing up to H5 hazard, and up to H5 for lots near Jade Street and Bourke Street.

6. In the 1% AEP flood event:

    a. Flood levels are approximately 331.7 mAHD at Adam Street, down to 325.2 mAHD at Lloyd Conkey Avenue approximately 2 km downstream. Flood depths within Muttama Creek reach up to 4.5 m.

    b. Flood velocities within the area of interest are generally low (< 1.0 m/s) outside of the road and defined drainage lines, where velocities reach up to 4.2 m/s.

    c. Hydraulic hazard over lots in the area of interest is ranges from H1 – H3, with some lots adjoining Sutton Street experiencing H5 hazard, lots near Cutler Avenue and Adams Street experiencing up to H5 hazard, and up to H5 for lots near Jade Street and Bourke Street.

7. In the 0.2% AEP flood event:

    a. Flood levels are approximately 332.0 mAHD at Adam Street, down to 324.4 mAHD at Lloyd Conkey Avenue approximately 2 km downstream. Flood depths within Muttama Creek reach up to 5.0 m.

    b. Flood velocities within the area of interest are generally low (< 1.0 m/s) outside of the road and defined drainage lines, where velocities reach up to 4.6 m/s.

    c. Hydraulic hazard over lots in the area of interest is generally H1-H5, with the increased flood depths over the study area contributing to the increase in hazards over the catchment.

3.6.2 Proposed Conditions

1. Proposed flooding conditions are largely an improvement from existing conditions, with reductions in flood levels and extents. Flood depths and velocities are redistributed within the drainage channels and public reserve, and provide more favourable flooding outcomes compared to existing conditions.

2. Flooding conditions improve most in the smaller events, where the improved channel capacity assist in the reduction of flood extents. Larger events have a smaller improvement, due to the large volumes of water overpowering the drainage network and Muttama Creek's capacity.

3. In the 10% AEP flood event:

    a. Flood extents and levels decrease in the vicinity of Parker Street and Centenary Avenue along the western side of Muttama Creek.

    b. Hazards generally reduce over the catchment over the area of interest, with material reductions in hazard extents in the vicinity of Jade Street and Bourke Street.

4. In the 5% AEP flood event:

    a. Flood extents and levels decrease in the vicinity of Elizabeth Street and French Street, near Southee Circle.

    b. There is a notable decrease in H3 hazard over Clarke Oval and Jubilee Park, owing to the changes in flood depths as a result of the increase channel capacity adjoining these areas.

5. In the 1% AEP flood event:

    a. Flood levels decrease in and around Southee Circle by up to 0.1m. The outer areas near Southee Circle experience decreases to H2 hazard extents.

6. In the 0.2% AEP flood event:

    a. Flood levels decrease in and around Southee Circle by up to 0.1m. Lots near Olney Avenue experience decreases to H2 and H3 hazard extents.

3.6.3 Offsite Flood Impacts

1. The proposed works generally have an improvement on the floodplain, with flood level decreases of up to 300 mm in some areas of the catchment.

2. There are some increases in flood level as a result of the works. This includes increases in some residential lots of up to 60 mm near Sutton Street in events ranging from the 10% AEP to the 0.2% AEP. Cootamundra Municipal Olympic Swimming Pool also experiences up to 100 mm of flood level increases although it is generally contained within Muttama Creek.

3. In the 10% AEP flood event, approximately 159 lots experience decreases of flood levels of approximately 30 mm, generally within the vicinity of Muttama Creek.

4. In the 5% AEP flood event, approximately 281 lots experience decreases of flood levels of up to 70 mm. This covers the areas of improvement in the 10% AEP, as well as lots within the vicinity of Southee Circle.

5. In the 1% AEP flood event, approximately 564 lots experience decreases of flood levels of up to 70 mm. This covers the areas of improvement in the 5% AEP, as well as lots further from Southee Circle and near Parker Lane.

6. In the 1% AEP flood event, approximately 561 lots experience decreases of flood levels of up to 75 mm. This generally aligns with the areas of improvement marked in the 1% AEP flood event, excluding some fringe areas where flood affluxes decrease to <20 mm, as well as long the northeast where additional areas experience flood level reductions.

7. The minor localised increase to water levels near Sutton Street is acceptable considering it is confined to the crown land near Muttama Creek as well as the benefit to adjacent properties.

4 Change in Flood Affectation

4.1 Background

The Cootamundra area experiences historical flooding from overbank flows from Muttama Creek, as well as trapped flows in the low-lying areas of Southee Circle.

The proposed works seek to improve the conveyance of flows within the creek, and accordingly reduce flood impacts on private property.

4.2 Flood Affectation Assessment Results

Review of the flood hazard affectation of private property under existing and proposed conditions suggests that the works successfully reduces the flood affectation of the land. Flood hazards are reduced or downgraded, resulting in reduced flood extents as well as safer land use.

While there are some small increases of H6, this is generally confined to areas where the channel widening and refinement is undertaken and is considered acceptable. Furthermore, while there are some increased areas of H1-H3 in the 1% AEP and 0.2% AEP flood events, this is a direct result of the higher category flood areas being reduced to these levels, which is considered a favourable result.

Table 3: Existing Public land flood hazard affectation (m^2).

Flood Event	H1	H2	H3	H4	H5	H6
10% AEP	684,574	140,591	226,850	43,962	39,031	8,012
5% AEP	706,709	141,075	280,666	61,297	48,658	10,499
1% AEP	693,191	261,541	468,907	256,465	102,792	23,373
0.2% AEP	668,298	214,287	530,399	373,564	202,501	32,377

Table 4: Proposed Public land flood hazard affectation (m^2).

Flood Event	H1	H2	H3	H4	H5	H6
10% AEP	671,494	140,087	224,755	43,836	38,056	8,132
5% AEP	694,140	137,833	278,411	61,095	47,437	10,537
1% AEP	701,711	260,041	457,772	252,810	102,572	23,376
0.2% AEP	673,463	217,712	544,007	348,704	200,269	32,900

Table 5: Change in Public land flood hazard affectation (m^2).

Flood Event	H1	H2	H3	H4	H5	H6
10% AEP	-13,080	-504	-2,095	-126	- 975	119
5% AEP	-12,569	- 3,242	-2,255	-202	-1,222	38
1% AEP	8,521	-1,500	-11,135	-3,656	- 219	3
0.2% AEP	5,165	3,425	13,608	-24,860	- 2,232	522

5 Flooding Compliance Assessment

5.1 LEP Flooding Compliance Assessment

An assessment against the provisions of clauses 5.21(2) - (3) of the Cootamundra LEP 2013 is provided in Table 6, demonstrating that applicable flood planning provisions are achieved.

Table 6: Compliance with Cootamundra LEP (2013) flooding controls (clauses 5.21(2)-(3)).

Cootamundra LEP Requirement	Compliance Assessment
(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—	
(a) is compatible with the flood function and behaviour on the land, and	(1) The proposed channel works are specifically designed to improve flood function and behaviour by increasing the conveyance capacity of flows. The hydraulic modelling results demonstrate that the channel improvements will reduce flood levels in the surrounding area, enhancing the natural flood function of the waterway and improving compatibility with flood behaviour.
(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and	(2) The modelling results show that the proposed channel works will beneficially affect flood behaviour by reducing flood levels in the area surrounding the works. Furthermore, the channel refinement and floodplain lowering serve to provide additional flood storage in the catchment. The improved conveyance and flood storage will result in decreased flood affectation of surrounding development and properties, with areas of flood level increase confined to public and crown land. The works represent a net benefit impact for the floodplain environment.
(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and	(3) The proposed channel works will improve flood conditions by reducing flood levels and durations, thereby enhancing the safe occupation of surrounding properties and improving evacuation conditions. The reduced flood levels will result in evacuation routes being cut for shorter durations and at higher rainfall intensities, improving overall community flood safety and evacuation capacity.
(d) incorporates appropriate measures to manage risk to life in the event of a flood, and	(4) The channel works themselves incorporate appropriate design measures including stable channel geometry, erosion protection, and maintenance access. The primary risk management benefit is the reduction in flood levels across the catchment, which directly

Cootamundra LEP Requirement	Compliance Assessment
	reduces risk to life for existing and future development in the area.
(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.	(5) The channel works are designed with appropriate erosion protection measures and stable channel geometry to prevent bank erosion and maintain channel stability. Riparian vegetation will be preserved where possible and replanted as part of the works. The improved flow conveyance will reduce the risk of bank erosion by reducing flood velocities and durations, resulting in a net environmental benefit.
(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—	
(a) the impact of the development on projected changes to flood behaviour as a result of climate change,	(6) The proposed channel works will provide increased resilience to climate change impacts by improving the conveyance capacity of the waterway. As rainfall intensities increase due to climate change, the enhanced channel capacity will continue to provide flood level reductions compared to existing conditions, maintaining the flood mitigation benefits under future climate scenarios.
(b) the intended design and scale of buildings resulting from the development,	(7) No new buildings proposed.
(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,	(8) As discussed at (3) and in Section 4.
(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.	(9) No new or relocated buildings proposed.

6 Summary and Recommendations

A detailed hydraulic model has been developed for the study area using Council's accepted WMAWater TUFLOW model and proposed design elements to assess local flood characteristics. The hydraulic model accurately replicates Council adopted flows and flood characteristics.

The model was used to determine the existing and proposed flood conditions in the 10% AEP flood event, 5% AEP flood event, 1% AEP flood event and 0.2% AEP flood events. This assessment concludes that:

1. Proposed flood characteristics have improved in the catchment from existing conditions due to the proposed channel works.
2. The proposed design reduces the flood hazard category over private lots, with a prominent reduction in flood hazard category particularly prominent in more frequent events.
3. Compliance with Council flood planning requirements is achieved.

We recommend that piers of any proposed structures over Muttama Creek are to be designed by a suitably qualified engineer to withstand the forces of floodwater, debris and buoyancy.

7 References

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2019), *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Commonwealth of Australia.

Cootamundra Gundagai Council (2013), *Cootamundra Local Environmental Plan (LEP).*

NSW Department of Planning and Environment (2023), *Flood Risk Management Manual, The policy and manual for the management of flood liable land*.

WMAWater (2021), *Cootamundra Flood Study*.

Appendices

Appendix A

Muttama Creek Master Plan


Privately Owned Portion of Muttama Creek
McGowan Street
Queen Street
O'Donnell Street
Bradman Oval
Bradman's Birthplace
Cutler Avenue
Privately Owned Portion of Muttama Creek
Poole Street
Congou Street
Hay Street
Scott Avenue
Nicholson Park
Fisher Park
Gordon Vesperman Park
Murray Street
Parker Lane
Clarke Oval
Poole Street
Cooper Street
Bassingthwaighte Park
Jubilee Park
Parker Street
Cooper Lane
Albert Park
Bowling Greens
Olney Street
Margaret Street
Thompson Street
Ursula Street
Walledon Street
Hurley Street
Mackay Street
Howell Street
Southee Park
Sutton Street
Mitchell Park
LEGEND
Existing Trees
Proposed Trees
Overall Master Plan
0
100
200
300m
N
1:5,000 @ A3

Appendix B

Proposed Works

PROJECT: MASTER PLAN FOR MUTTAMA CREEK

PLANSET: PRELIMINARY CIVIL ENGINEERING PLANS

CLIENT: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL



LOCALITY PLAN
NOT TO SCALE

LGA: COOTAMUNDRA - GUNDAGAI REGIONAL COUNCIL

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS01-A000	C	COVER SHEET
PS01-A010	A	LAYOUT REFERENCE PLAN
PS01-A300	C	PROPOSAL (LAYOUT-1)
PS01-A310	C	PROPOSAL (LAYOUT-2)
PS01-A320	C	PROPOSAL (LAYOUT-3)
PS01-A330	C	PROPOSAL (LAYOUT-4)
PS01-A340	C	PROPOSAL (LAYOUT-5)
PS01-A350	C	PROPOSAL (LAYOUT-6)
PS01-A360	C	PROPOSAL (LAYOUT-7)
CONSTRUCTION MANAGEMENT WORKS		
PS01-B310	A	EROSION & SEDIMENT CONTROL DETAILS
GRADING		
PS01-C100	C	GRADING AND EARTHWORKS (LAYOUT-1)
PS01-C110	C	GRADING AND EARTHWORKS (LAYOUT-2)
PS01-C120	C	GRADING AND EARTHWORKS (LAYOUT-3)
PS01-C130	C	GRADING AND EARTHWORKS (LAYOUT-4)
PS01-C140	C	GRADING AND EARTHWORKS (LAYOUT-5)
PS01-C150	C	GRADING AND EARTHWORKS (LAYOUT-6)
PS01-C160	C	GRADING AND EARTHWORKS (LAYOUT-7)
PS01-C600	C	EARTHWORK SITE SECTION (SHEET-1)
PS01-C610	C	EARTHWORK SITE SECTION (SHEET-2)
PS01-C611	B	EARTHWORK SITE SECTION (SHEET-3)
PS01-C612	B	EARTHWORK SITE SECTION (SHEET-4)
PS01-C613	B	EARTHWORK SITE SECTION (SHEET-5)
PS01-C614	B	EARTHWORK SITE SECTION (SHEET-6)
PS01-C660	B	EARTHWORK SITE SECTION (SHEET-7)
PS01-C661	B	EARTHWORK SITE SECTION (SHEET-8)
PS01-C662	B	EARTHWORK SITE SECTION (SHEET-9)
PS01-C663	B	EARTHWORK SITE SECTION (SHEET-10)
PS01-C664	B	EARTHWORK SITE SECTION (SHEET-11)
PS01-C665	B	EARTHWORK SITE SECTION (SHEET-12)
PS01-C666	B	EARTHWORK SITE SECTION (SHEET-13)

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID	DATUM	PROJECT MANAGER
---	---	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A000	C

DRAWING ID: P2510821-PS01-R03-A000

PRINTED: --- - USER: NNASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 40 80 120 160 200 240 280 320 360 400 METRES
A1 (A3) 1:4,000 (1:8,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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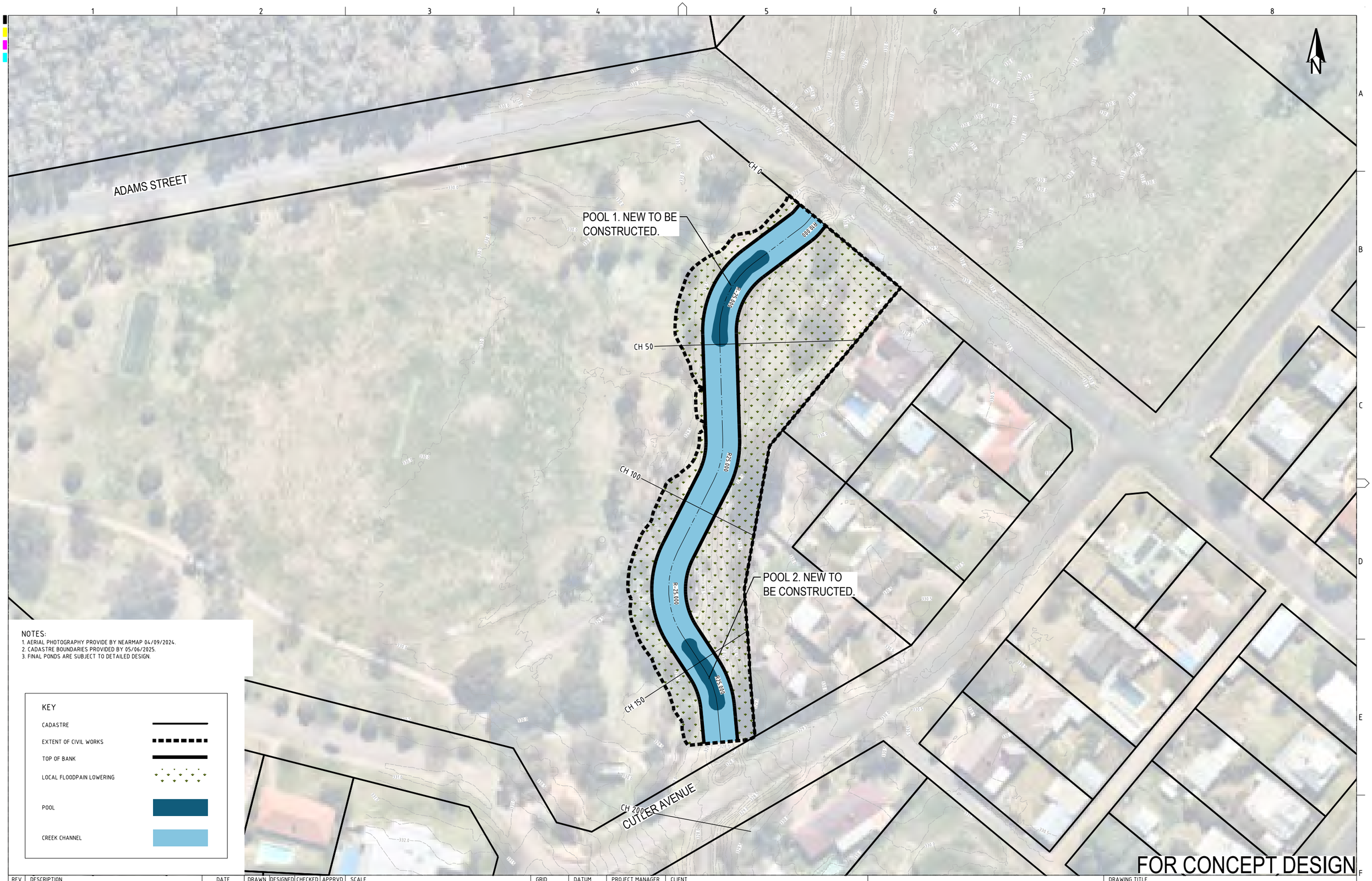
DRAWING TITLE
LAYOUT REFERENCE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A010	A

DRAWING ID: P2510821-PS01-R03-A010

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3. FINAL PONDS ARE SUBJECT TO DETAILED DESIGN.

KEY

- CADASTRE
- EXTENT OF CIVIL WORKS
- TOP OF BANK
- LOCAL FLOODPAIN LOWERING
- POOL
- CREEK CHANNEL

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

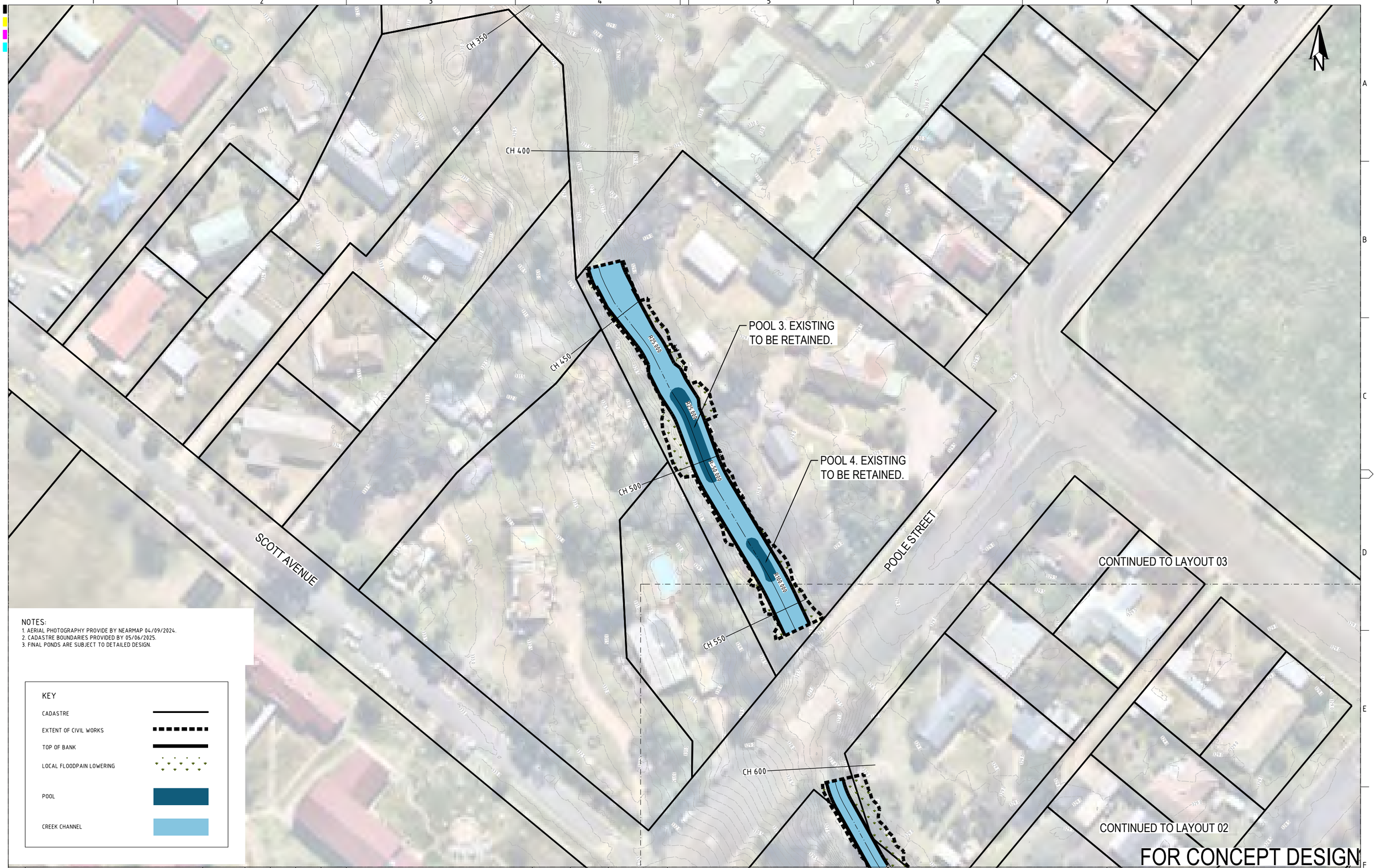
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DRAWING TITLE
PROPOSAL
LAYOUT - 1

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SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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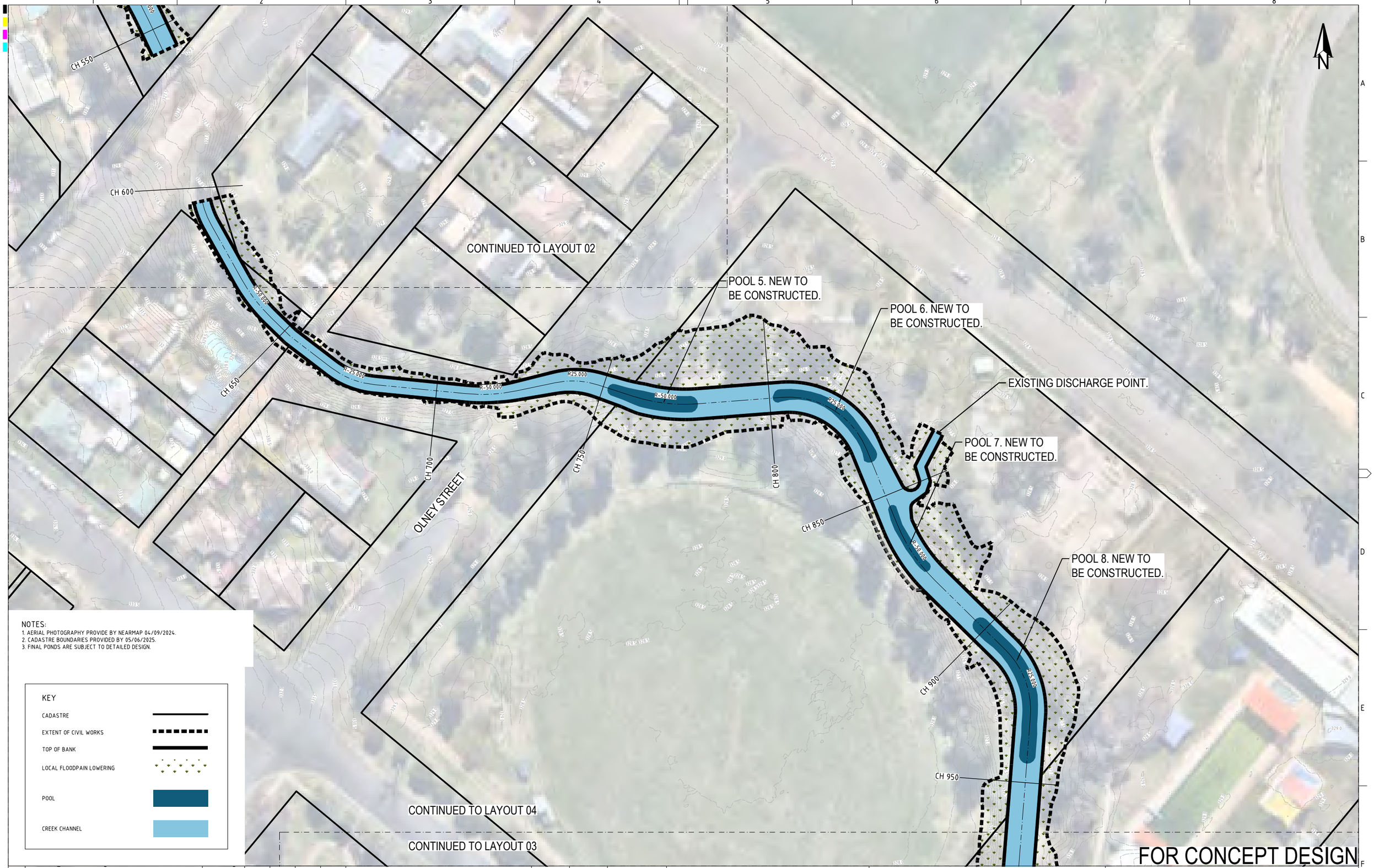
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DRAWING TITLE
PROPOSAL
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A310	C

DRAWING ID: P2510821-PS01-R03-A310

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CONTINUED TO LAYOUT 04

CONTINUED TO LAYOUT 03

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
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SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
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DRAWING TITLE
PROPOSAL
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A320	C

DRAWING ID: P2510821-PS01-R03-A320

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CONTINUED TO LAYOUT 03

WALLENDOON STREET

MURRAY STREET

CH 1000

CH 1050

CH 1100

CH 1150

CH 1200

R200.000

R-50.000

R50.000

R75.000

POOL 9. NEW TO BE CONSTRUCTED.

N

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B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

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SCALE
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A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A330	C

DRAWING ID: P2510821-PS01-R03-A330

CONTINUED TO LAYOUT 04

POOL 10. NEW TO BE CONSTRUCTED.

EXISTING SEWER LINE TO BE RELOCATED/ADJUSTED AS REQUIRED.

POOL 11. NEW TO BE CONSTRUCTED.

MACKAY STREET

PARKER STREET

CH 1250

CH 1300

CH 1350

CH 1400

CH 1450

CH 1500

R=50.000

R=25.000

R=50.000

R100.000

R25.000

R=50.000

R25.000

R=200.000

N

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SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 5

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P2510821	PS01	R03	PS01-A340	C

DRAWING ID: P2510821-PS01-R03-A340

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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: 0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

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GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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DRAWING TITLE
PROPOSAL
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A350	C

DRAWING ID: P2510821-PS01-R03-A350



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FOR CONCEPT DESIGN

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A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

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SCALE
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GRID	DATUM	PROJECT MANAGER
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DRAWING TITLE
PROPOSAL
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-A360	C

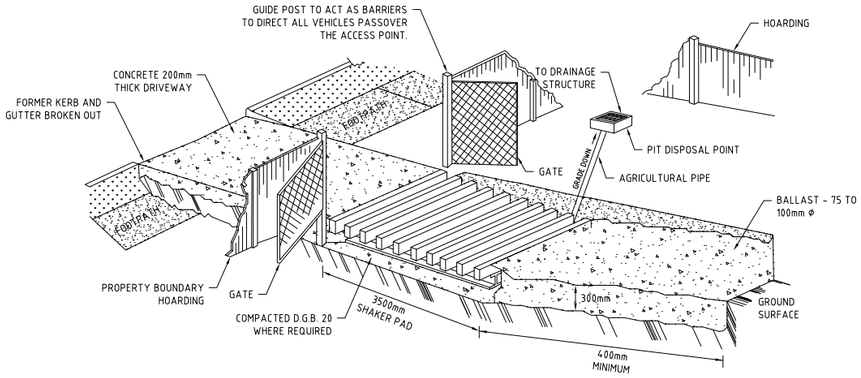
DRAWING ID: P2510821-PS01-R03-A360

STABILISED ACCESS POINT

TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

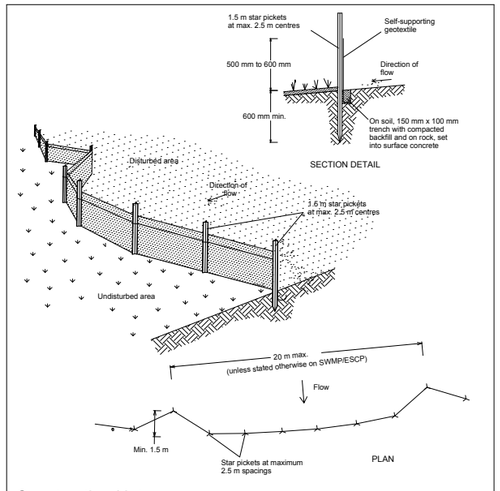
STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:

- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST) . IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJCENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

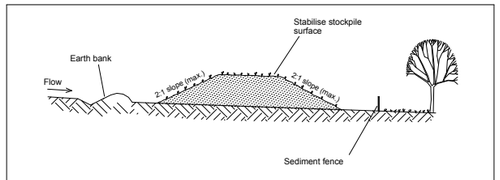
IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

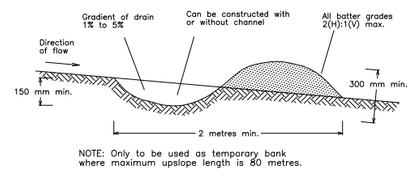
SEDIMENT FENCE — SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES — SD 4-1

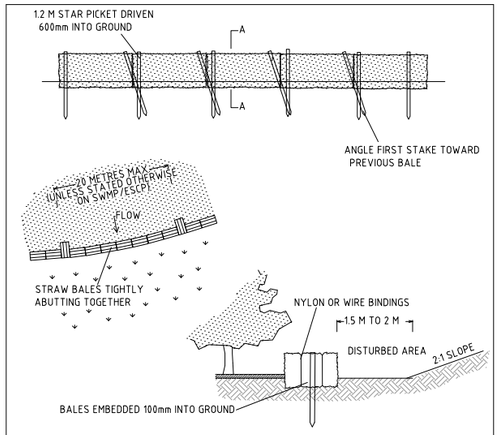


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

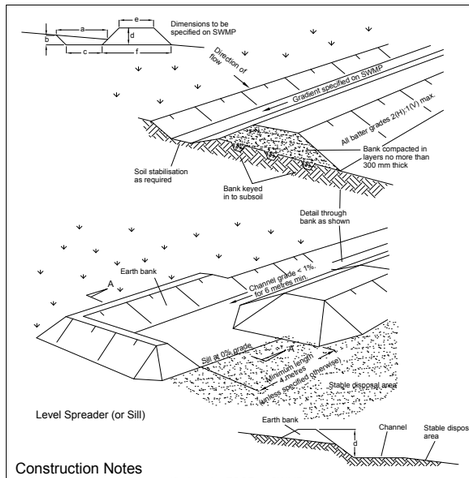
EARTH BANK (LOW FLOW) — SD 5-5



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE. 2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND. 3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE. 4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS. 5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE. 6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER — SD 6-7



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) — SD 5-6

SEDIMENT AND EROSION CONTROL PLAN

1 TEMPORARY SEDIMENTATION AND EROSION CONTROLS (SEC) ARE TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORK TO ELIMINATE THE DISCHARGE OF SEDIMENT FROM THE SITE. THE CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION", VOLUME 1, 4TH EDITION, MARCH 2004, (THE BLUE BOOK).

2 THE CONTRACTOR IS TO INFORM ALL SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN RELATION TO SEC.

3 THE CONTRACTOR SHALL REGULARLY MAINTAIN SEC DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES BEFORE NO MORE THAN 60% OF THEIR SEDIMENT STORAGE CAPACITY IS LOST. ALL THE SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.

4 NO SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL ASPHALTING WORKS ARE COMPLETED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR ENGINEER.

5 ALL WORKS MUST BE PERFORMED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.

6 THE FOLLOWING SEDIMENT CONTROL MEASURES ARE REQUIRED TO BE PROVIDED IN CONJUNCTION WITH THE ATTACHED SEDIMENT AND EROSION CONTROL PLAN.

- A ALL RUNOFF AND EROSION CONTROLS ARE TO BE INSTALLED BEFORE ANY WORKS ARE CARRIED OUT AT THE SITE.
- B ALL CONTAMINATED SURFACE WATERS AND DEBRIS FROM THE SITE MUST BE SCREENED, COLLECTED AND POLLUTANTS CAPTURED WITHIN THE SITE.
- C CONTAMINATION OF SURFACE WATERS ON DOWNSLOPE LANDS MUST BE MITIGATED BY INSTALLING SEDIMENT CONTROL FENCES DOWNSLOPE OF THE DISTURBED AREAS TO CAPTURE SEDIMENT AND DEBRIS ESCAPING FROM THE SITE.
- D SEDIMENT FENCING MUST BE SECURED BY POST (WHERE METAL STAR PICKETS ARE USED, PLASTIC SAFETY CAPS SHALL BE USED) AT TWO-METRE INTERVALS WITH THE GEOTEXTILE FABRIC EMBEDDED 200MM INTO SOIL. ONE METRE RETURNS MUST BE INSTALLED AT TWENTY-METRE INTERVALS ALONG THE SEDIMENT FENCING.
- E SEDIMENT TRAPS ARE TO BE INSTALLED DOWNSLOPE OF THE SITE TO FACILITATE THE CAPTURE OF SEDIMENT.
- F THE CONTRACTOR SHALL MAINTAIN DUST CONTROL UNTIL FINAL COMPLETION OF WORKS.
- G DURING WINDY WEATHER, LARGE, DISTURBED, UNPROTECTED AREAS SHALL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- H EROSION AND SEDIMENT CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER, AND BE REPAIRED OR REPLACED THROUGHOUT THE COURSE OF WORKS ON SITE.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE

GRID | DATUM | PROJECT MANAGER: JW

CLIENT: CGRC

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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Civil
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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-B310	A

DRAWING ID: P2510821-PS01-R03-B310

PRINTED ----- USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE: MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE: GRADING AND EARTHWORKS LAYOUT - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C100	C

DRAWING ID: P2510821-PS01-R03-C100

PRINTED ---- - USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C110	C

DRAWING ID: P2510821-PS01-R03-C110

PRINTED ---- USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000		m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN	2.000		m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C120	C

DRAWING ID: P2510821-PS01-R03-C120

PRINTED: ---- - USER: WASSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



EARTHWORKS SUMMARY		
	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 4

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C130	C

DRAWING ID: P2510821-PS01-R03-C130

PRINTED: ---- - USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 04



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN		-2.000	m
-2.000	to	-1.500	m
-1.500	to	-1.000	m
-1.000	to	-0.500	m
-0.500	to	-0.100	m
-0.100	to	0.100	m
0.100	to	0.500	m
0.500	to	1.000	m
1.000	to	1.500	m
1.500	to	2.000	m
GREATER THAN		2.000	m

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 5

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C140	C

DRAWING ID: P2510821-PS01-R03-C140

PRINTED: ---- - USER: NASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

CONTINUED TO LAYOUT 05

CH 1550

CH 1600

CH 1650

CH 1700

CH 1750

HURLEY STREET

THOMPSON STREET

CONTINUED TO LAYOUT 07

CONTINUED TO LAYOUT 06

EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

PRINTED ---- USER: NHASSAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

martens & Associates Pty Ltd
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C150	C

DRAWING ID: P2510821-PS01-R03-C150



EARTHWORKS SUMMARY

	CUT	FILL
CUT FILL VOLUME (m^3)	27079	5068
BALANCE (m^3)	-	22011

- CUT FILL SUMMARY ARE BASED ON COMPARISON BETWEEN LIDAR AND PROPOSED SURFACES. IT DOES NOT REFLECT EARTHWORK VOLUME AND BALANCE.

CUT-FILL DEPTH DESIGN TO EXISTING

LESS THAN	-2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
GREATER THAN	2.000	m	

KEY

- EXISTING CONTOURS
- PROPOSED CONTOURS
- INTERFACE
- EDGE OF RETAINING WALL
- LIMIT OF WORKS
- CADASTRE

NOTES:
1. NOT FOR CONSTRUCTION.

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

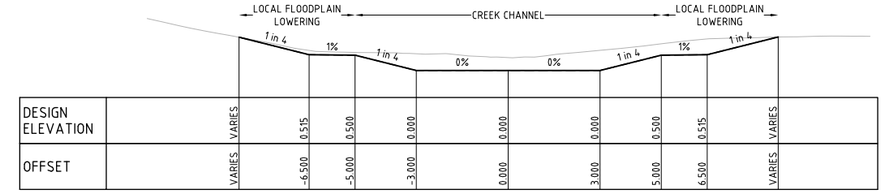
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DRAWING TITLE
GRADING AND EARTHWORKS
LAYOUT - 7

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C160	C

DRAWING ID: P2510821-PS01-R03-C160

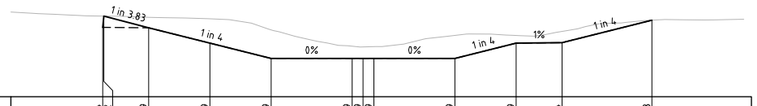
PRINTED: ---- - USER: MAKSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



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OFFSET	VARIES	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	VARIES	

TYPICAL SECTION

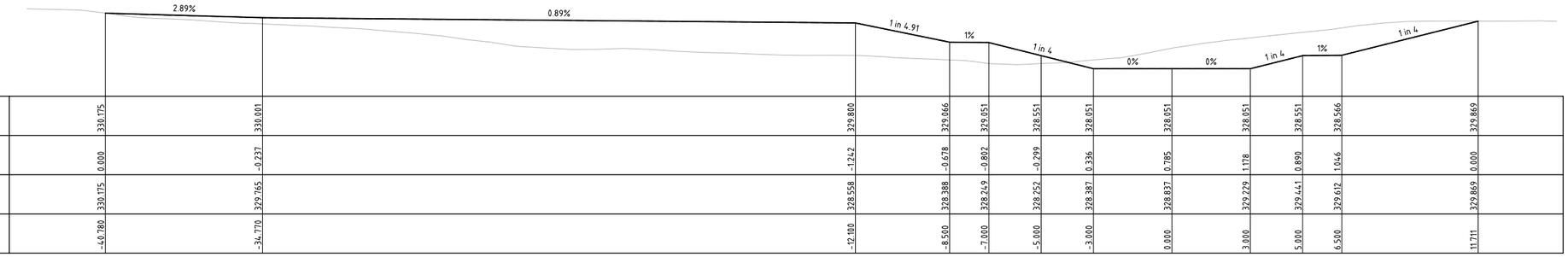
SCALE: HORIZONTAL - 1:100
VERTICAL - 1:100



RL327.0

DESIGN LEVELS	329.964	329.632	329.249	328.749	328.249	328.249	328.249	328.249	328.764	329.498
CUT / FILL DEPTH	0.368	0.000	0.342	0.795	0.931	0.399	0.376	0.286	0.752	0.250	0.367	0.000
EXISTING LEVELS	329.632	329.632	329.591	329.544	329.181	328.649	328.625	328.696	329.001	328.999	329.132	329.498
OFFSET	-8.500	-8.464	-7.000	-5.000	-3.000	-0.355	0.000	0.355	3.000	5.000	6.500	9.433

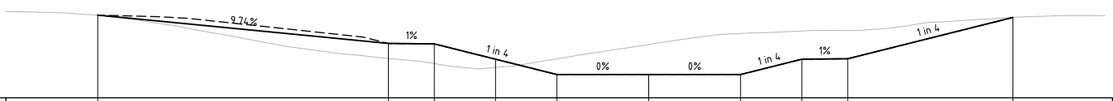
CH 0.000



RL327.0

DESIGN LEVELS	330.175	330.001	329.800	329.066	329.051	328.551	328.051	328.051	328.051	328.551	328.566	329.869
CUT / FILL DEPTH	0.000	-0.237	-1.242	-0.678	-0.802	-0.299	0.336	0.785	1.178	0.890	1.046	0.000
EXISTING LEVELS	330.175	329.765	328.558	328.388	328.249	328.252	328.387	328.837	329.229	329.441	329.612	329.869
OFFSET	-40.780	-34.770	-12.100	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.711

CH 50.000



RL327.0

DESIGN LEVELS	329.698	328.774	328.759	328.259	327.759	327.759	327.759	328.259	328.274	329.623
CUT / FILL DEPTH	0.000	0.492	0.640	0.267	0.511	0.979	1.340	0.920	0.921	0.000
EXISTING LEVELS	329.698	328.282	328.119	327.992	328.271	328.738	329.099	329.180	329.196	329.623
OFFSET	-17.992	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	11.895

CH 100.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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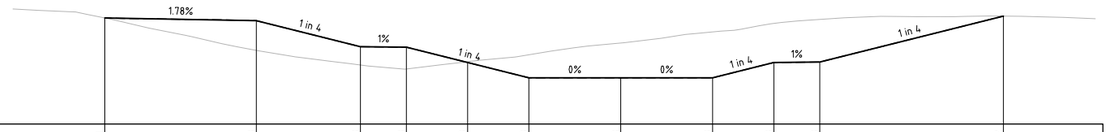
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 1

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C600	C

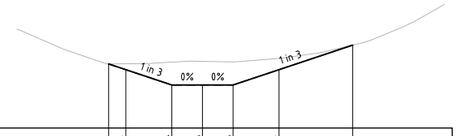
DRAWING ID: P2510821-PS01-R03-C600

PRINTED: ---- - USER: MASSAN
A1 / A3 LANDSCAPE (ATLC_v02.0.01)



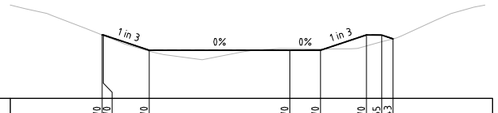
RL326.0										
DESIGN LEVELS	329.461	329.373	328.523	328.508	328.008	327.508	327.508	327.508	328.008	328.023	329.522
CUT / FILL DEPTH	0.000	-0.970	-0.597	-0.712	0.026	0.752	1.136	1.498	1.276	1.391	0.000
EXISTING LEVELS	329.461	328.403	327.926	327.796	328.035	328.260	328.644	329.006	329.284	329.414	329.522
OFFSET	-16.848	-11.900	-8.500	-7.000	-5.000	-3.000	0.000	3.000	5.000	6.500	12.496

CH 150.000



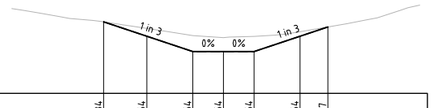
RL325.0							
DESIGN LEVELS	327.091	326.904	326.404	326.404	326.404	326.904	327.706
CUT / FILL DEPTH	0.000	0.193	0.746	0.772	0.752	0.370	0.000
EXISTING LEVELS	327.091	327.097	327.150	327.176	327.157	327.274	327.706
OFFSET	-3.063	-2.502	-1.000	0.000	1.000	2.502	4.907

CH 650.000



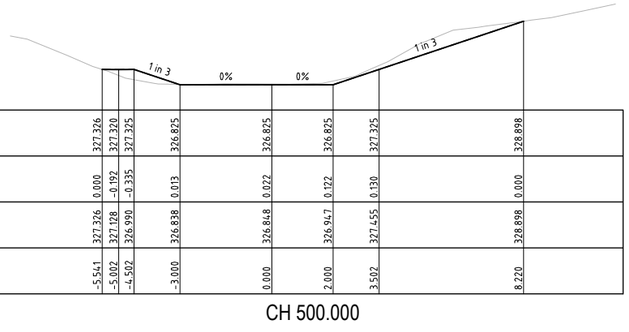
RL326.0									
DESIGN LEVELS	328.070	328.070	327.570	327.570	327.570	328.070	328.065	327.943	
CUT / FILL DEPTH	0.000	0.015	-0.029	0.053	0.040	-0.359	-0.477	0.000	
EXISTING LEVELS	328.070	328.055	327.541	327.623	327.610	327.711	327.843	327.943	
OFFSET	-6.130	-4.593		0.000	1.000	2.502	3.002	3.969	

CH 450.000



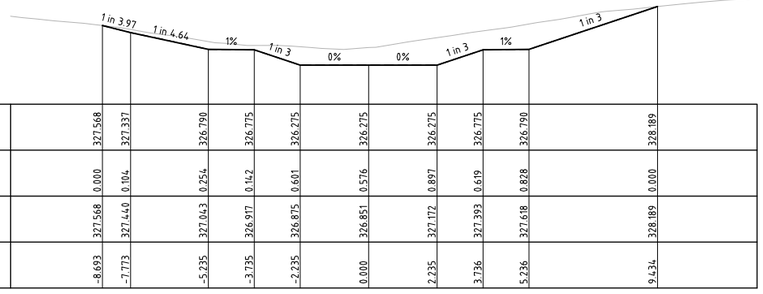
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DESIGN LEVELS	327.334	326.864	326.364	326.364	326.364	326.864	327.167
CUT / FILL DEPTH	0.000	0.255	0.522	0.455	0.495	0.147	0.000
EXISTING LEVELS	327.334	327.120	326.886	326.819	326.859	327.012	327.167
OFFSET	-3.912	-2.502	-1.000	0.000	1.000	2.502	3.410

CH 700.000



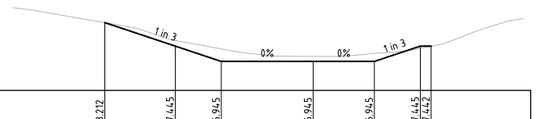
RL326.0									
DESIGN LEVELS	327.326	327.320	327.325	326.825	326.825	326.825	327.325	328.898	
CUT / FILL DEPTH	0.000	-0.192	-0.335	0.013	0.022	0.122	0.130	0.000	
EXISTING LEVELS	327.326	327.128	326.990	326.838	326.848	326.947	327.455	328.898	
OFFSET	-5.541	-5.002	-4.502	-3.000	0.000	2.000	3.502	8.220	

CH 500.000



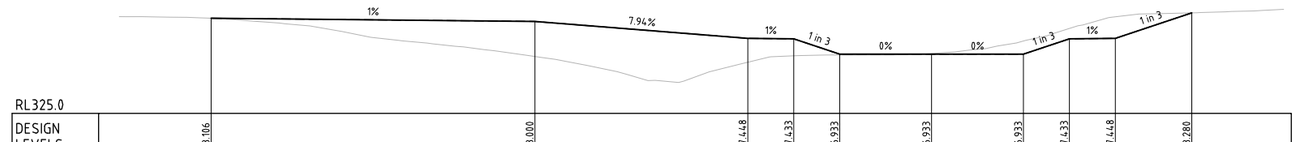
RL325.0										
DESIGN LEVELS	327.568	327.337	326.790	326.775	326.275	326.275	326.275	326.775	326.790	328.189
CUT / FILL DEPTH	0.000	0.104	0.254	0.142	0.601	0.576	0.897	0.619	0.828	0.000
EXISTING LEVELS	327.568	327.440	327.043	326.917	326.875	326.851	327.172	327.393	327.618	328.189
OFFSET	-8.693	-7.773	-5.235	-3.735	-2.235	0.000	2.235	3.736	5.236	9.434

CH 750.000



RL326.0							
DESIGN LEVELS	328.212	327.445	326.945	326.945	326.945	327.445	327.442
CUT / FILL DEPTH	0.000	0.182	0.409	0.165	0.266	-0.073	0.000
EXISTING LEVELS	328.212	327.626	327.353	327.110	327.210	327.371	327.442
OFFSET	-6.803	-4.502	-3.000	0.000	2.000	3.502	3.854

CH 550.000



RL325.0									
DESIGN LEVELS	328.106	328.000	327.448	327.433	326.933	326.933	326.933	327.433	327.448	328.280
CUT / FILL DEPTH	0.001	-1.144	-0.779	-0.554	-0.027	0.020	0.429	0.339	0.705	0.000
EXISTING LEVELS	328.106	326.856	326.669	326.879	326.906	326.953	327.362	327.772	328.153	328.280
OFFSET	-23.526	-12.951	-6.000	-4.500	-3.000	0.000	3.000	4.502	6.002	8.498

CH 800.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
B	MINOR AMENDMENTS	24/06/2025	NP	YAI		
A	INITIAL RELEASE	20/06/2025	NH	YAI	DM	JW

SCALE
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT
CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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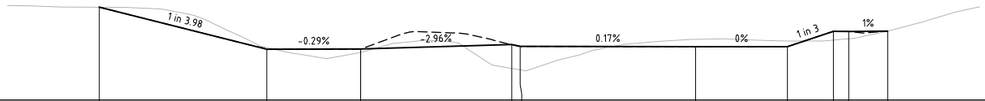
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 2

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C610	C

DRAWING ID: P2510821-PS01-R03-C610

PRINTED: --- - USER: MAKSSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



RL325.0

DESIGN LEVELS	328.031	326.657	326.666	326.812	326.751	326.742	326.742	327.242	327.249
CUT / FILL DEPTH	-0.002	0.056	-0.108	-0.780	-0.766	0.238	0.185	-0.286	0.000
EXISTING LEVELS	328.028	326.713	326.557	326.032	325.986	326.980	326.927	326.956	327.249
OFFSET	-19.473	-14.001	-10.937	-6.001	-5.727	0.000	3.000	4.502	5.002	6.273

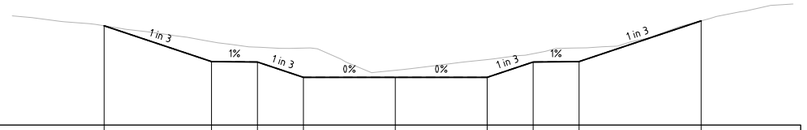
CH 850.000



RL324.0

DESIGN LEVELS	327.689	325.903	325.888	325.388	325.388	325.388	325.888	325.903	326.571
CUT / FILL DEPTH	0.000	1.566	1.309	1.422	0.728	0.962	0.833	0.838	0.000
EXISTING LEVELS	327.689	327.469	327.197	326.810	326.116	326.350	326.721	326.741	326.571
OFFSET	-11.360	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	8.007

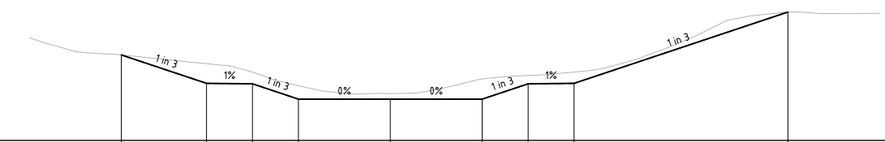
CH 900.000



RL324.0

DESIGN LEVELS	327.240	326.072	326.057	325.557	325.557	325.557	326.057	326.072	327.400
CUT / FILL DEPTH	0.000	0.649	0.485	0.955	0.230	0.579	0.272	0.445	0.000
EXISTING LEVELS	327.240	326.721	326.541	326.512	325.787	326.135	326.328	326.516	327.400
OFFSET	-9.508	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	9.987

CH 950.000



RL324.0

DESIGN LEVELS	326.788	325.861	325.846	325.346	325.346	325.346	325.846	325.861	328.189
CUT / FILL DEPTH	0.000	0.643	0.378	0.437	0.181	0.657	0.272	0.366	0.000
EXISTING LEVELS	326.788	326.504	326.225	325.783	325.527	326.003	326.118	326.227	328.189
OFFSET	-8.783	-6.002	-4.502	-3.000	0.000	3.000	4.502	6.002	12.984

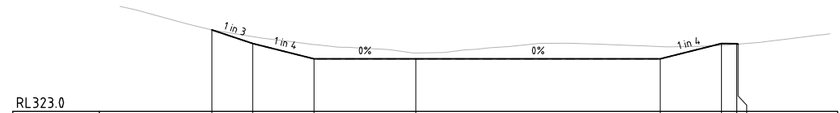
CH 1000.000



RL324.0

DESIGN LEVELS	325.842	325.636	325.136	325.136	325.136	325.636	325.778
CUT / FILL DEPTH	0.000	0.170	0.589	0.464	0.580	0.128	0.000
EXISTING LEVELS	325.842	325.805	325.725	325.600	325.715	325.764	325.778
OFFSET	-5.224	-4.605	-3.103	0.000	3.361	4.862	5.288

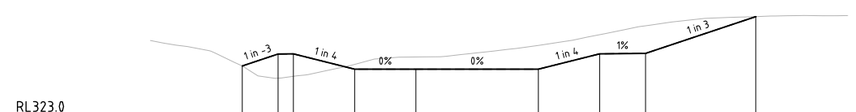
CH 1050.000



RL323.0

DESIGN LEVELS	325.659	325.214	324.714	324.714	324.714	325.214	325.209	325.194
CUT / FILL DEPTH	0.000	0.225	0.465	0.190	0.399	-0.059	-0.019	0.000
EXISTING LEVELS	325.659	325.439	325.179	324.904	325.114	325.155	325.190	325.194
OFFSET	-6.663	-5.327	-3.327	0.000	7.980	9.980	10.480	10.524

CH 1150.000



RL323.0

DESIGN LEVELS	324.607	324.997	325.002	324.502	324.502	324.502	325.002	325.017	326.217
CUT / FILL DEPTH	0.000	-0.789	-0.733	0.155	0.398	0.775	0.625	0.901	0.000
EXISTING LEVELS	324.607	324.208	324.270	324.657	324.901	325.277	325.627	325.918	326.217
OFFSET	-5.669	-4.500	-4.000	-2.000	0.000	4.000	6.000	7.500	11.100

CH 1200.000

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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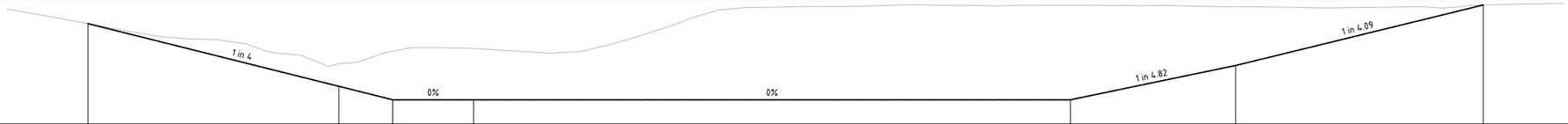
DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 3

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C611	B

DRAWING ID: P2510821-PS01-R03-C611

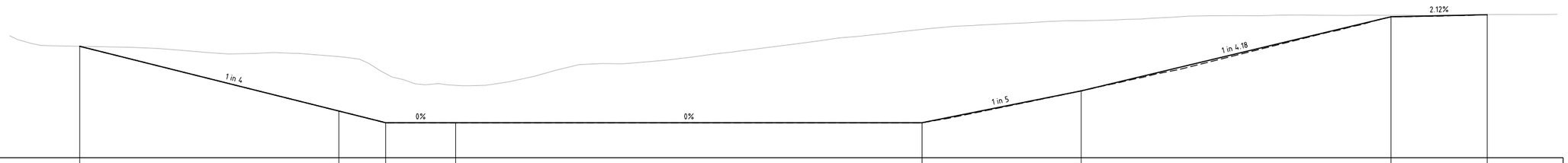
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A1 / A3 LANDSCAPE (A1LC_v02.0.01)



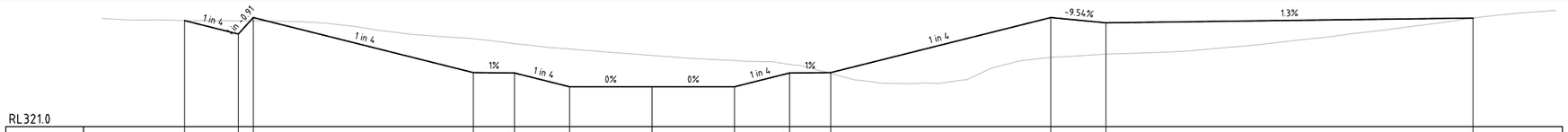
RL322.0

| | | |



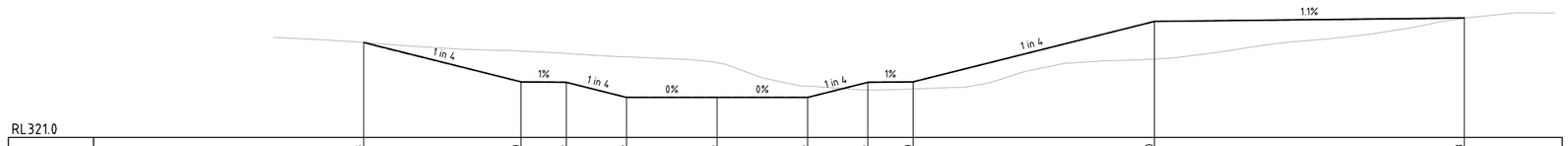
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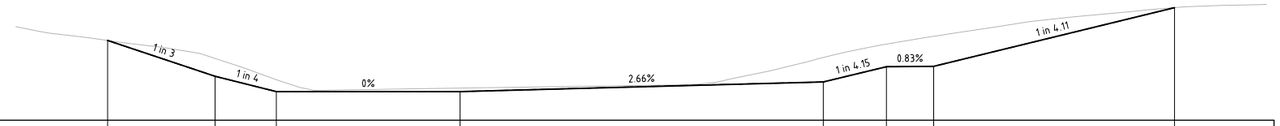
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DESIGN LEVELS	324.854	324.366	324.964	322.964	322.949	322.449	322.449	322.449	322.949	322.964	324.964	324.773	324.947	
CUT / FILL DEPTH	0.000	0.478	-0.125	1.229	1.068	1.372	1.138	0.951	0.310	-0.031	-1.447	-1.138	0.004	
EXISTING LEVELS	324.855	324.844	324.839	324.193	324.018	323.822	323.588	323.401	323.259	322.933	323.518	323.635	324.950	
OFFSET	-16.998	-15.042	-14.500	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	14.500	16.506	29.855	

CH 1850.000



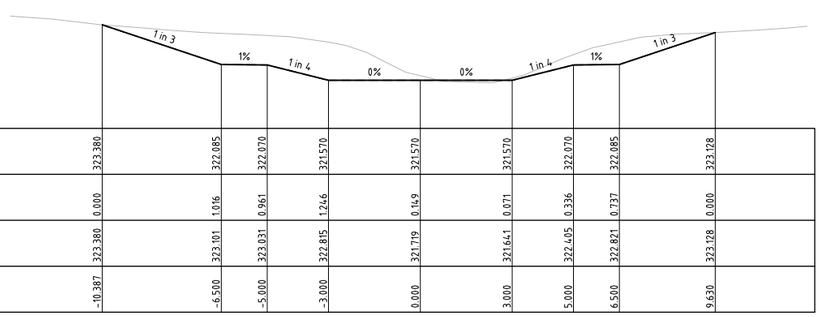
RL321.0										
DESIGN LEVELS	324.143	322.840	322.825	322.325	322.325	322.325	322.825	322.840	324.840	324.953
CUT / FILL DEPTH	0.000	1.018	0.956	1.341	1.148	0.371	-0.257	-0.237	-1.245	-0.009
EXISTING LEVELS	324.143	323.858	323.781	323.666	323.472	322.696	322.567	322.603	323.594	324.945
OFFSET	-11.713	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	14.500	24.773

CH 1900.000



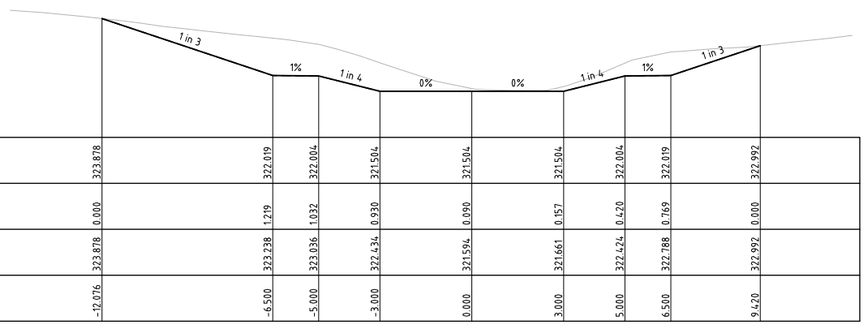
RL321.0										
DESIGN LEVELS	323.693	322.433	321.933	321.933	322.248	322.745	322.758	324.673		
CUT / FILL DEPTH	0.000	0.581	0.387	0.114	0.799	0.739	0.980	0.001		
EXISTING LEVELS	323.693	323.015	322.320	322.048	323.047	323.484	323.738	324.674		
OFFSET	-11.569	-8.000	-6.000	0.000	11.861	13.923	15.466	23.331		

CH 1950.000



RL320.0									
DESIGN LEVELS	323.380	322.085	322.070	321.570	321.570	321.570	322.070	322.085	323.128
CUT / FILL DEPTH	0.000	1.016	0.961	1.246	0.149	0.071	0.336	0.737	0.000
EXISTING LEVELS	323.380	323.101	323.031	322.815	321.719	321.641	322.405	322.821	323.128
OFFSET	-10.387	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.630

CH 2000.000



RL320.0									
DESIGN LEVELS	323.878	322.019	322.004	321.504	321.504	321.504	322.004	322.019	322.992
CUT / FILL DEPTH	0.000	1.219	1.032	0.930	0.090	0.157	0.420	0.769	0.000
EXISTING LEVELS	323.878	323.238	323.036	322.434	321.594	321.661	322.424	322.788	322.992
OFFSET	-12.076	-6.500	-5.000	-3.000	0.000	3.000	5.000	6.500	9.420

CH 2023.275

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE: A1 (A3) 1:100 (1:200) METRES

GRID: ---
DATUM: mAHD
PROJECT MANAGER: JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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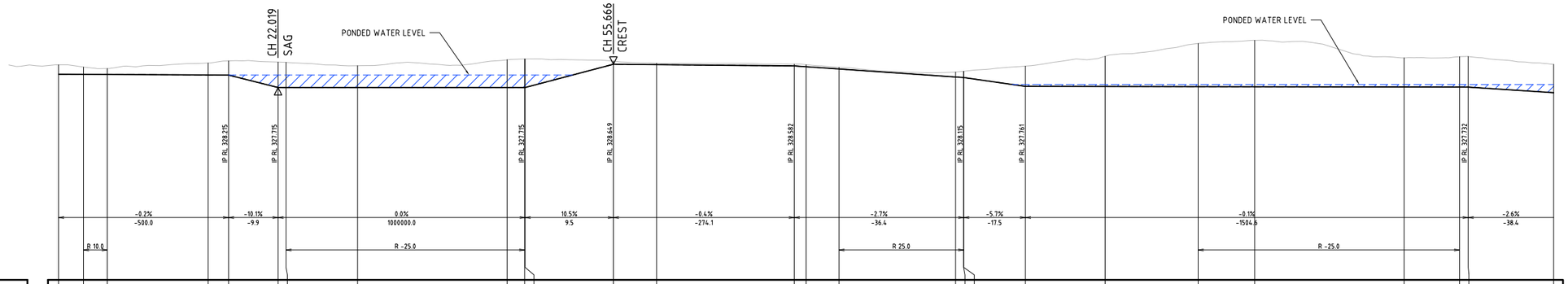
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 6

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C614	B

DRAWING ID: P2510821-PS01-R03-C614

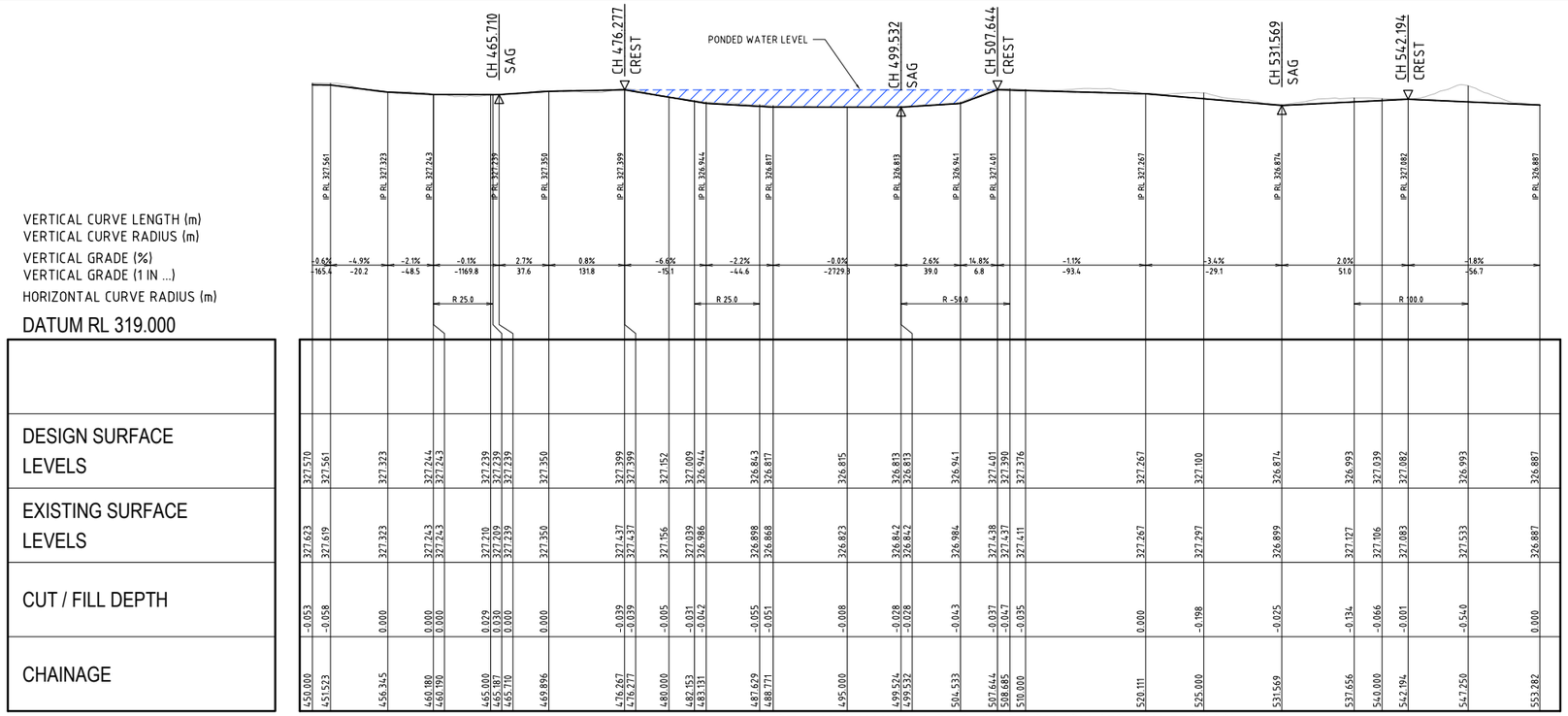
PRINTED: --- - USER: MMASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

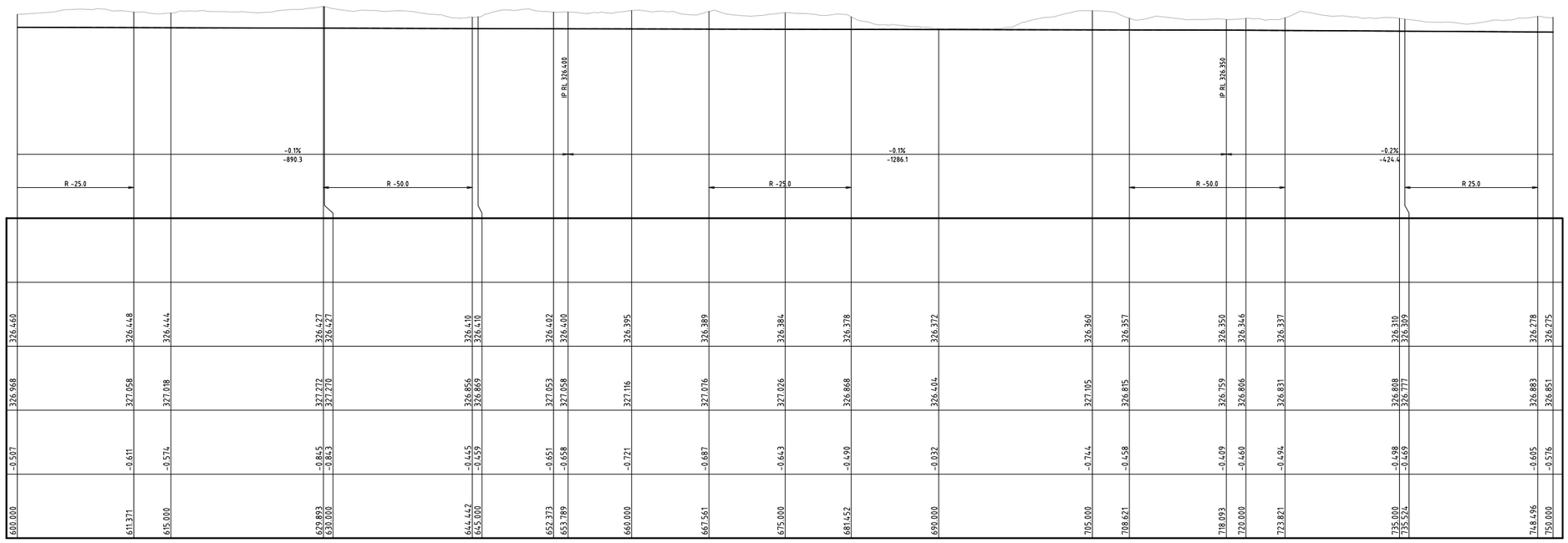
DATUM RL 320.000

| | | |



CREEK CHANNEL LONG. SECTION (CH 450 - CH 553.282)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 600 - CH 750)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) 0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID: ---
DATUM: mAHD
PROJECT MANAGER: JW

CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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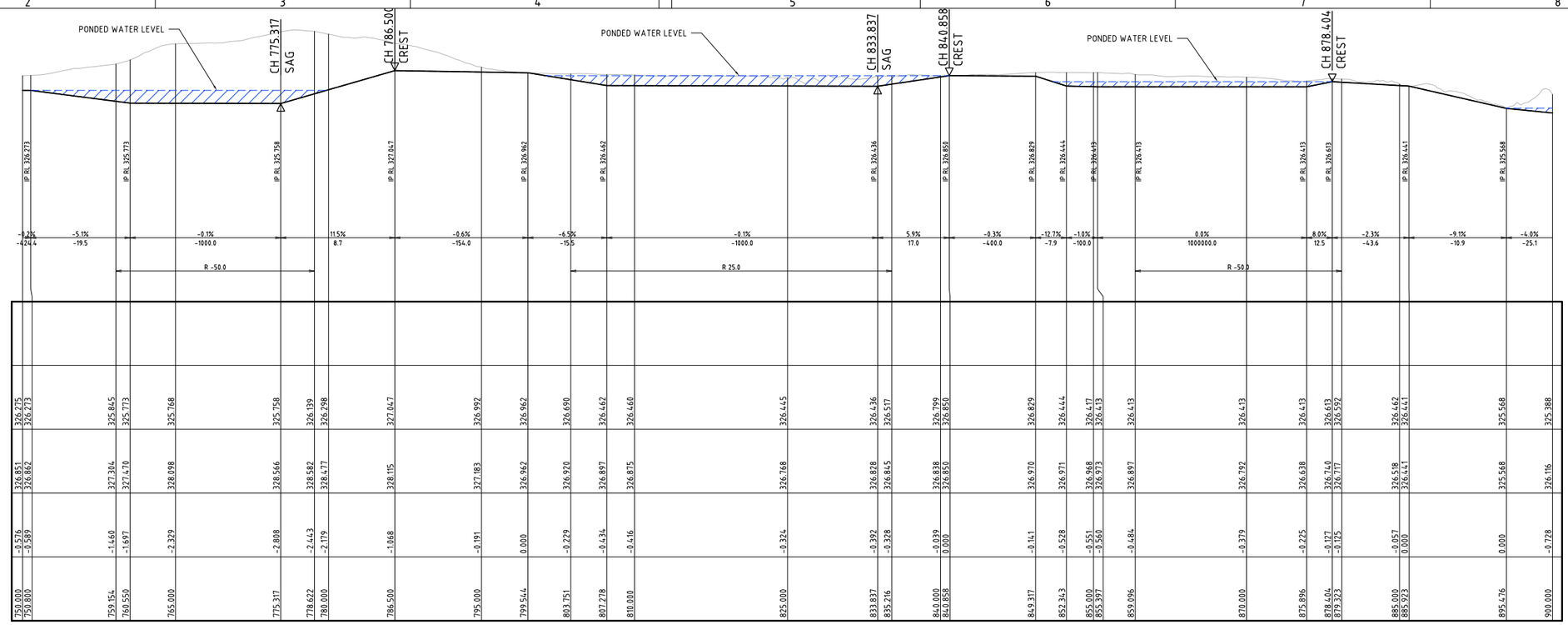
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 8

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C661	B

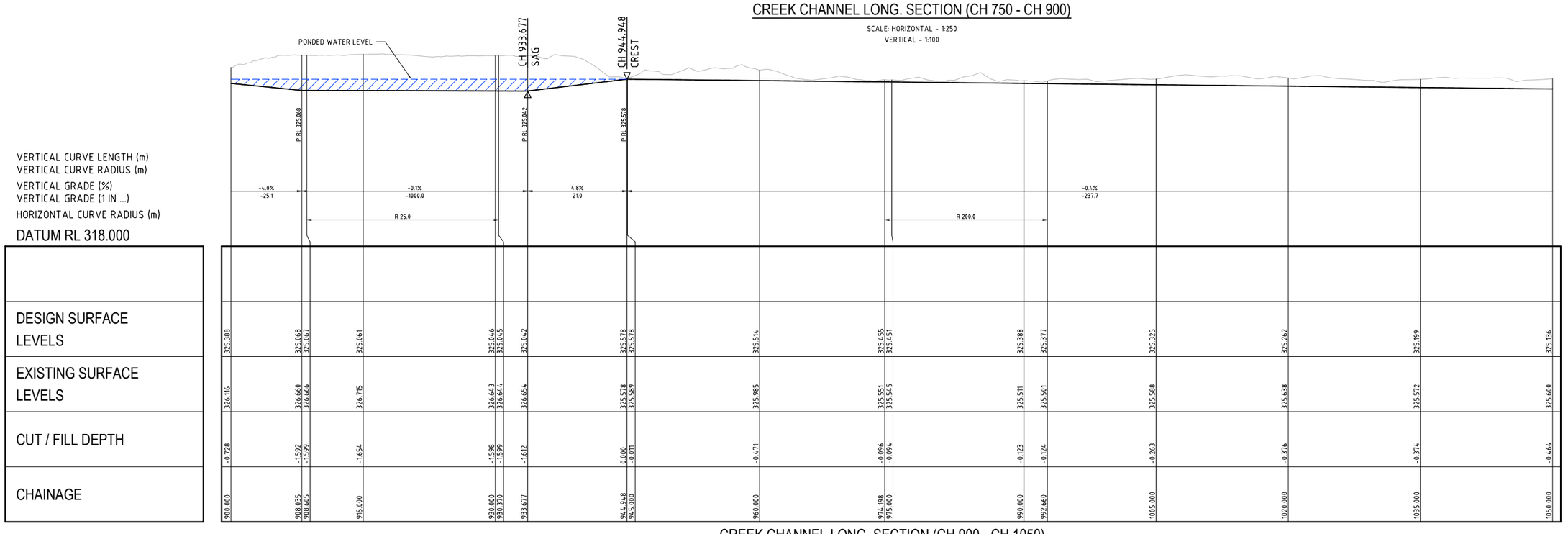
DRAWING ID: P2510821-PS01-R03-C661

PRINTED: ---- - USER: MHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 750 - CH 900)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 900 - CH 1050)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) 0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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CLIENT: CGRC

PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

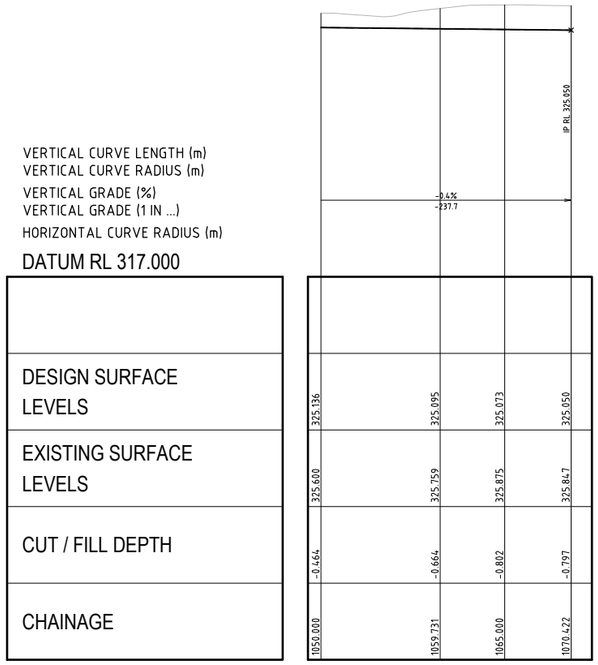
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 9

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C662	B

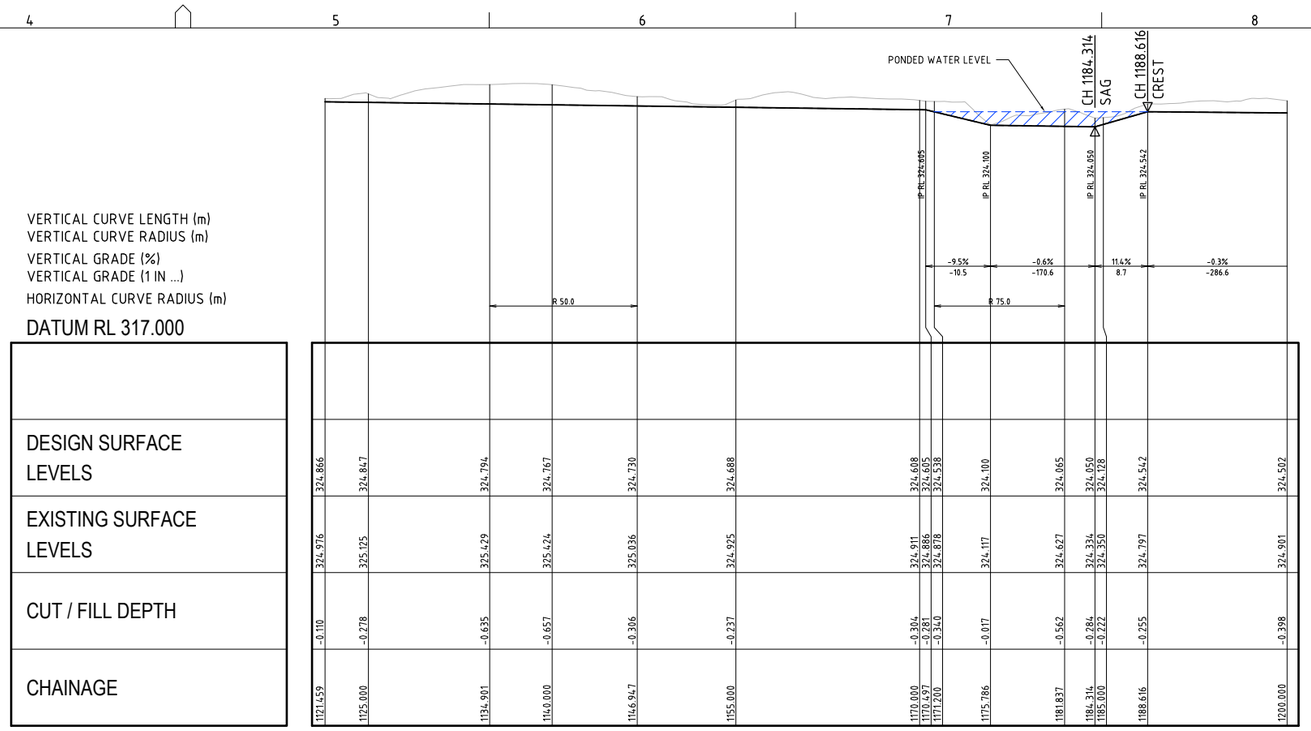
DRAWING ID: P2510821-PS01-R03-C662

PRINTED: ---- - USER: MWASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



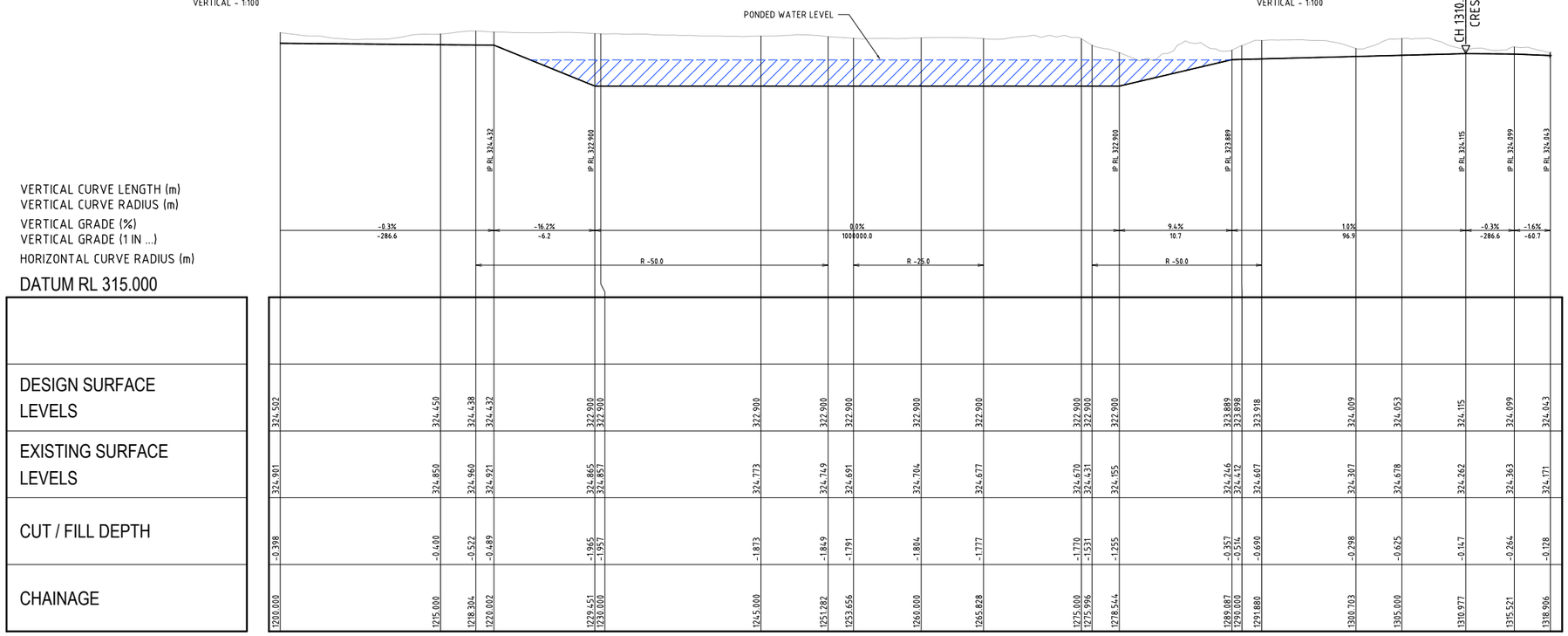
CREEK CHANNEL LONG. SECTION (CH 1050 - CH 1070.422)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1121.459 - CH 1200)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1200 - CH 1318.906)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

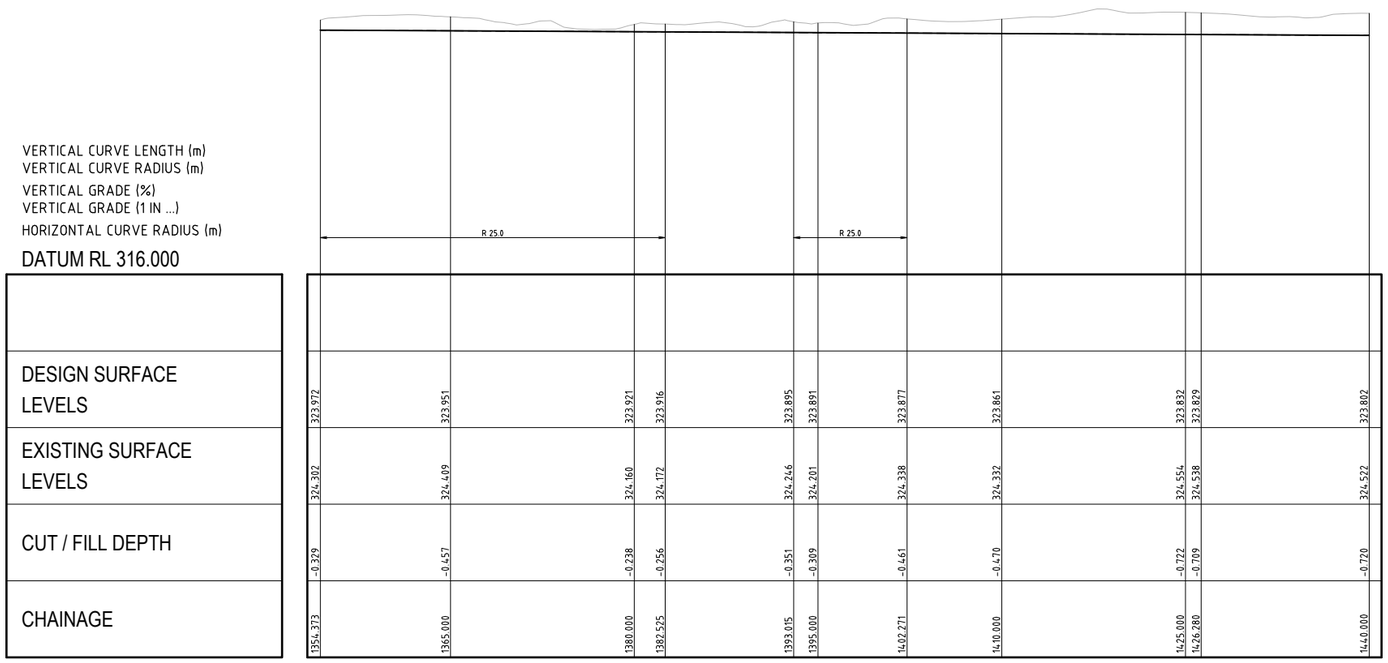
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 10

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C663	B

DRAWING ID: P2510821-PS01-R03-C663

PRINTED: --- - USER: MHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



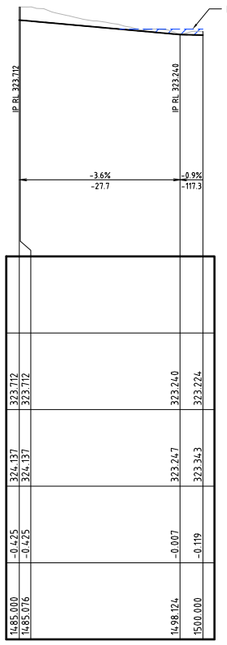
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 316.000

DESIGN SURFACE LEVELS	323.972	323.951	323.921	323.916	323.895	323.891	323.877	323.861	323.832	323.829	323.802
EXISTING SURFACE LEVELS	324.302	324.409	324.160	324.172	324.246	324.201	324.338	324.332	324.554	324.538	324.522
CUT / FILL DEPTH	-0.329	-0.457	-0.238	-0.256	-0.351	-0.309	-0.461	-0.470	-0.722	-0.709	-0.720
CHAINAGE	1354.373	1365.000	1380.000	1382.525	1393.015	1395.000	1402.271	1410.000	1425.000	1426.280	1440.000

CREEK CHANNEL LONG. SECTION (CH 1354.373 - CH 1440)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



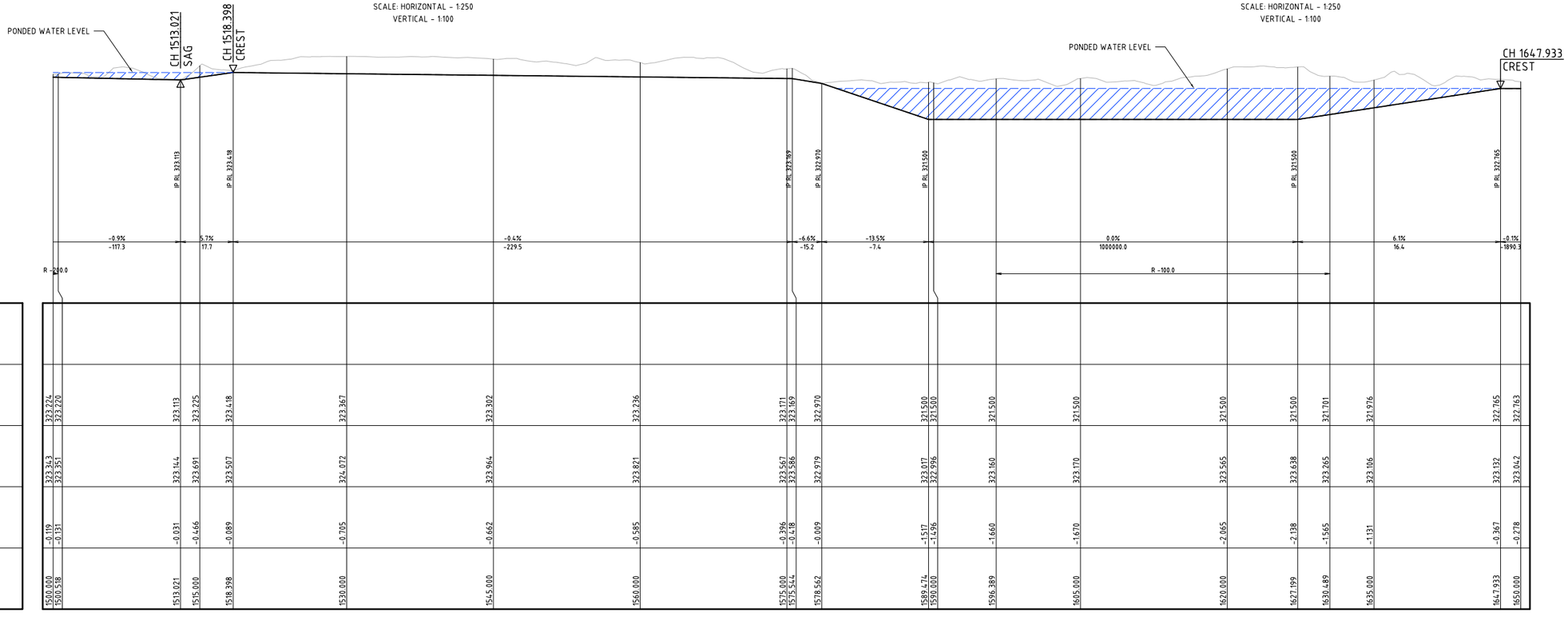
VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 316.000

DESIGN SURFACE LEVELS	323.212	323.212	323.240	323.224
EXISTING SURFACE LEVELS	324.137	324.137	323.247	323.343
CUT / FILL DEPTH	-0.425	-0.425	-0.007	-0.119
CHAINAGE	1485.000	1485.076	1498.174	1500.000

CREEK CHANNEL LONG. SECTION (CH 1485 - CH 1500)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



VERTICAL CURVE LENGTH (m)
VERTICAL CURVE RADIUS (m)
VERTICAL GRADE (%)
VERTICAL GRADE (1 IN ...)
HORIZONTAL CURVE RADIUS (m)

DATUM RL 314.000

DESIGN SURFACE LEVELS	323.224	323.220	323.113	323.225	323.418	323.367	323.302	323.236	323.171	323.169	322.970	321.500	321.500	321.500	321.500	321.500	321.500	321.500	321.701	321.976	322.765	322.763
EXISTING SURFACE LEVELS	323.343	323.351	323.144	323.691	323.507	324.072	323.964	323.821	323.567	323.586	322.979	323.017	322.996	323.160	323.170	323.565	323.638	323.265	323.106	323.132	323.042
CUT / FILL DEPTH	-0.119	-0.131	-0.031	-0.466	-0.089	-0.705	-0.662	-0.585	-0.396	-0.418	-0.009	-1.517	-1.496	-1.660	-1.670	-2.065	-2.138	-1.565	-1.131	-0.367	-0.278
CHAINAGE	1500.000	1500.518	1513.021	1515.000	1518.398	1530.000	1545.000	1560.000	1575.000	1575.544	1578.562	1589.474	1590.000	1596.389	1605.000	1620.000	1627.199	1630.489	1635.000	1647.933	1650.000

CREEK CHANNEL LONG. SECTION (CH 1500 - CH 1650)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

CLIENT: CGRC

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PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

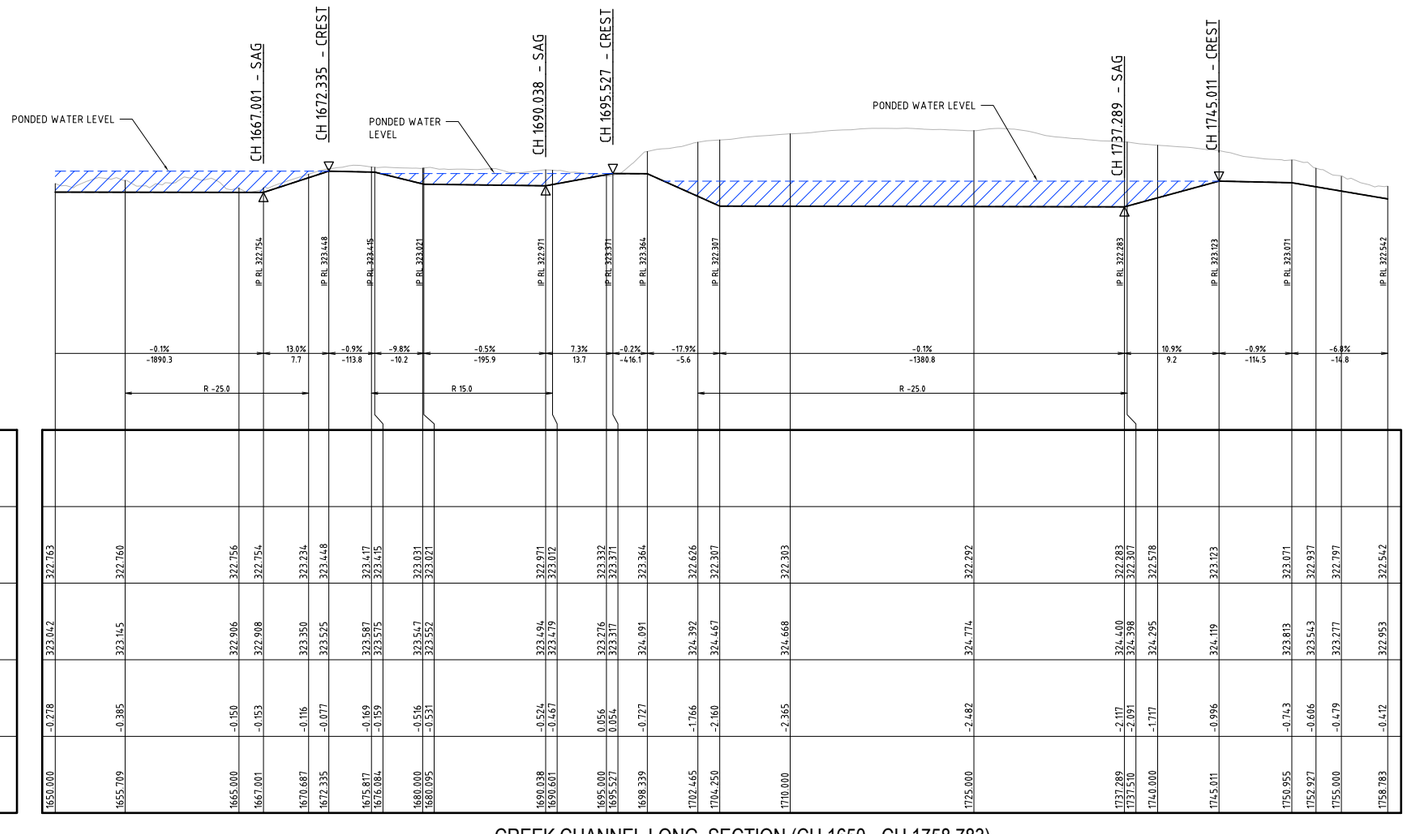
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 11

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C664	B

DRAWING ID: P2510821-PS01-R03-C664

PRINTED: ---- - USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



CREEK CHANNEL LONG. SECTION (CH 1650 - CH 1758.783)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**MINOR AMENDMENTS**	**09/12/2025**	**NP**	**YAI**	**DM**	**JW**
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

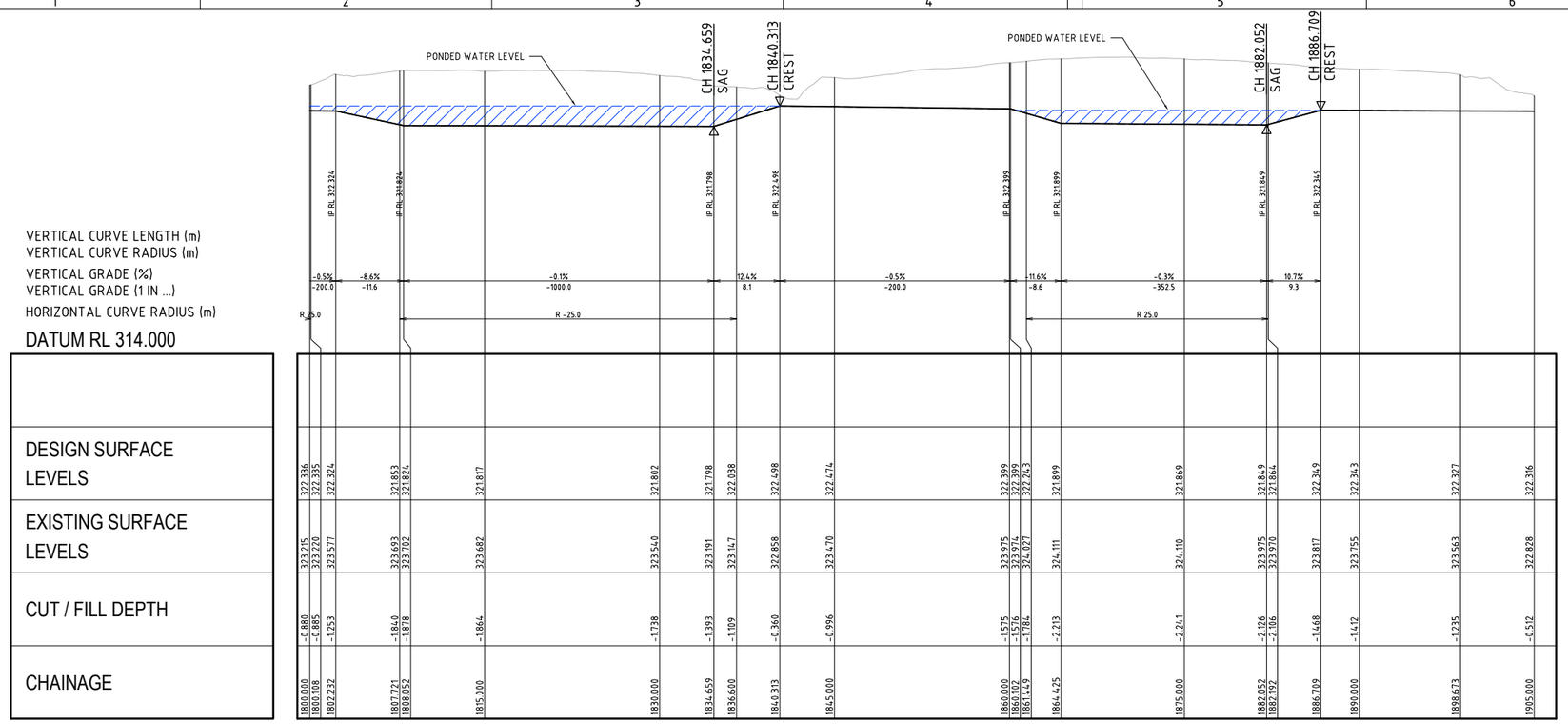
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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 12

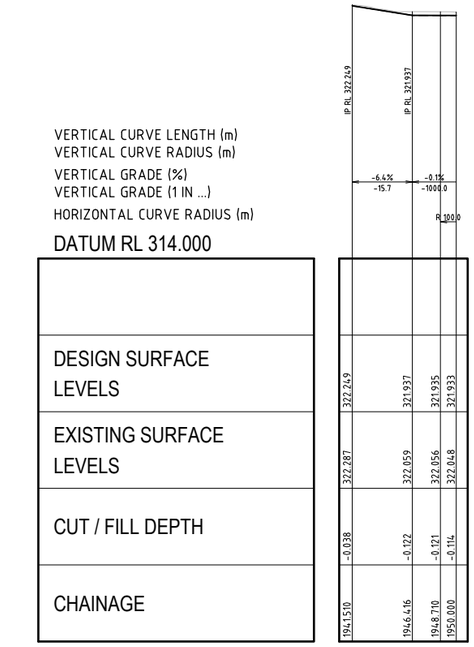
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C665	B

DRAWING ID: P2510821-PS01-R03-C665

PRINTED ---- USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



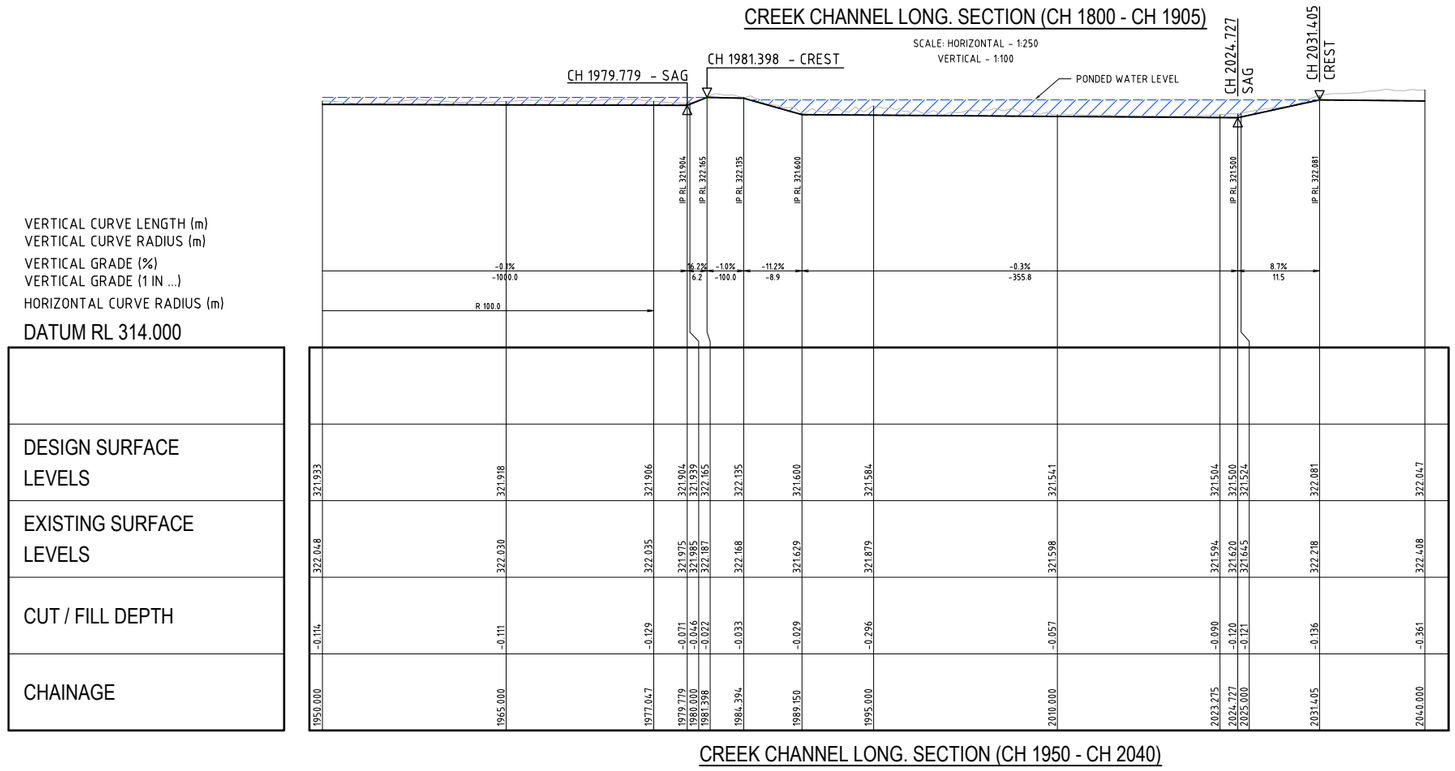
CREEK CHANNEL LONG. SECTION (CH 1800 - CH 1905)



CREEK CHANNEL LONG. SECTION (CH 1941.510 - CH 1950)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100



CREEK CHANNEL LONG. SECTION (CH 1950 - CH 2040)

SCALE: HORIZONTAL - 1:250
VERTICAL - 1:100

FOR CONCEPT DESIGN

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	09/12/2025	NP	YAI	DM	JW
A	MINOR AMENDMENTS	24/06/2025	NP	YAI		

SCALE
A1 (A3) 1:250 (1:500) METRES
A1 (A3) 1:100 (1:200) METRES

GRID	DATUM	PROJECT MANAGER
---	mAHD	JW

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PROJECT NAME/PLANSET TITLE
MASTER PLAN FOR MUTTAMA CREEK
PRELIMINARY CIVIL ENGINEERING PLANS
MUTTAMA CREEK, COOTAMUNDRA
NSW 2590 AUSTRALIA

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DRAWING TITLE
EARTHWORKS SITE SECTIONS
SHEET - 13

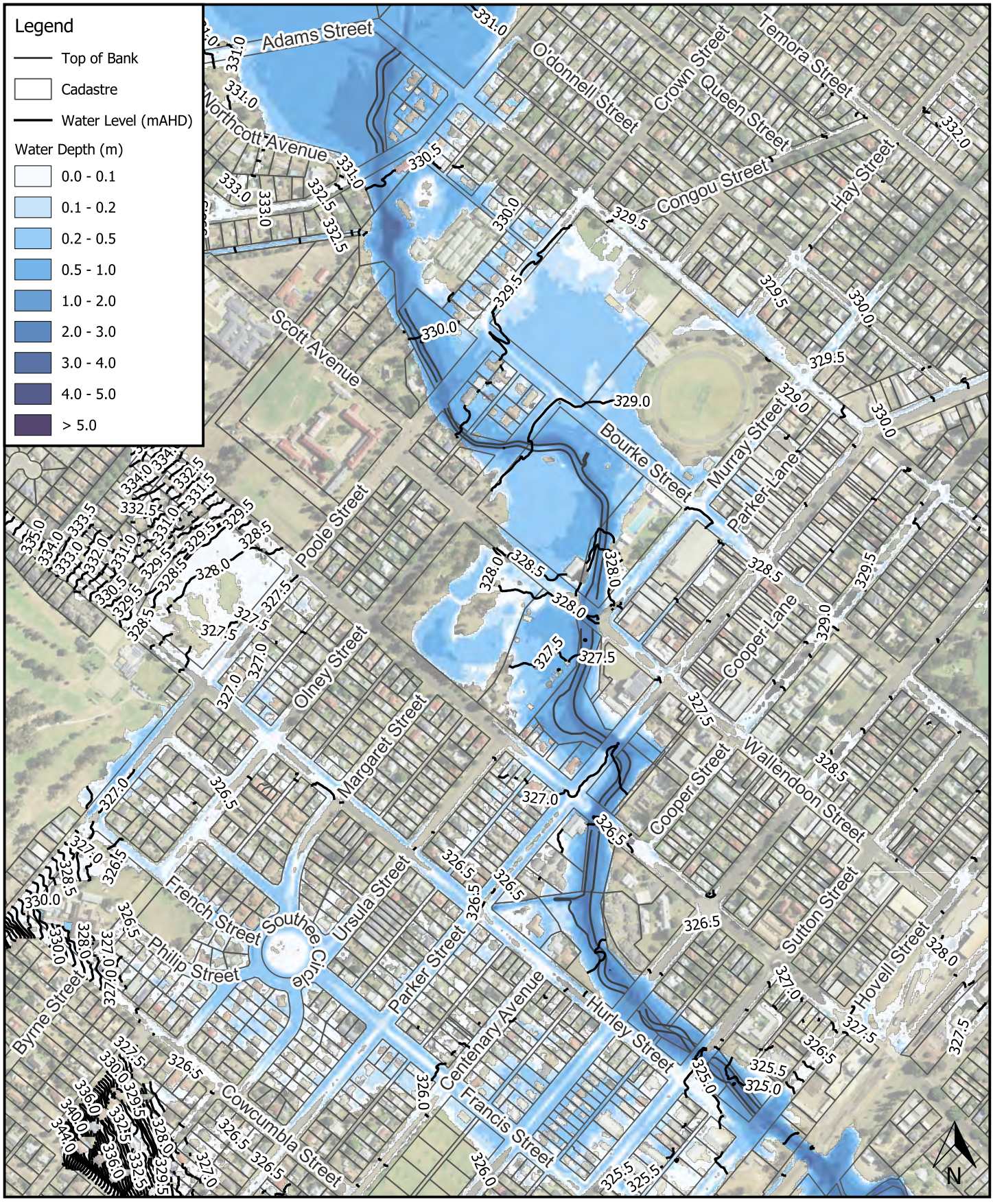
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2510821	PS01	R03	PS01-C666	B

DRAWING ID: P2510821-PS01-R03-C666

PRINTED: ---- - USER: NHASSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

Appendix C

Flood Maps



0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

10% AEP Existing Conditions Water Level and Water Depth

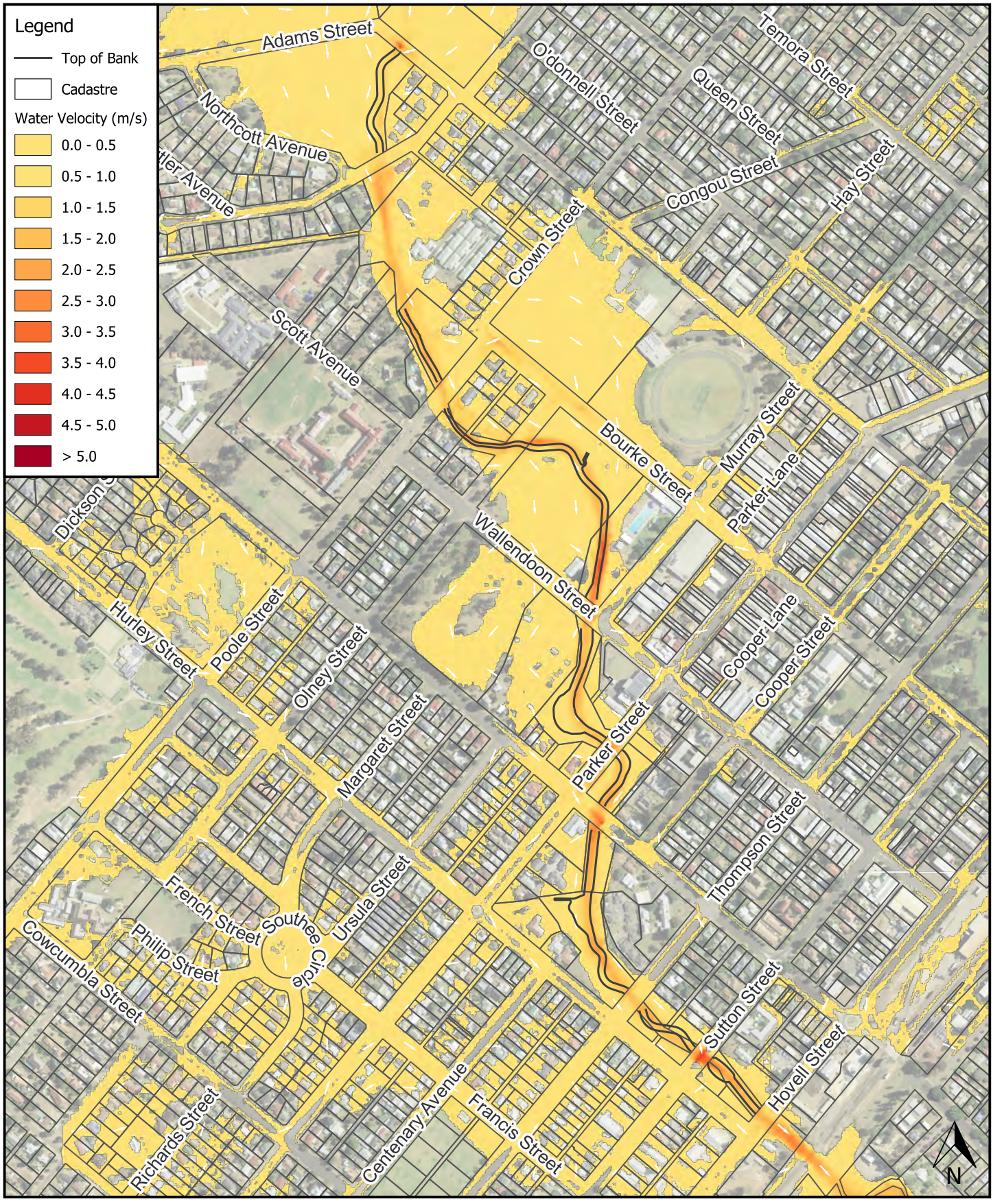
Map 001

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

10% AEP Existing Conditions Water Velocity

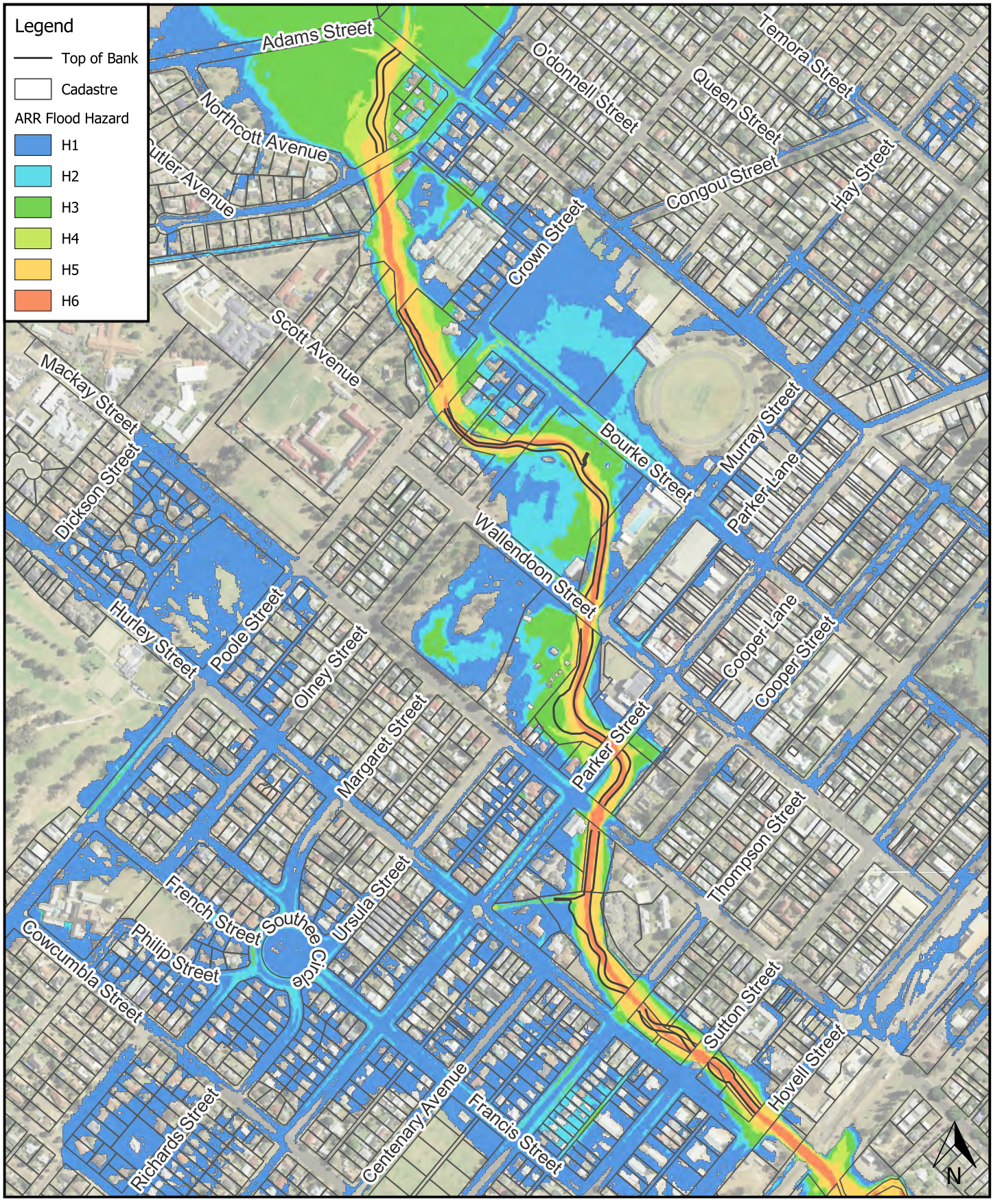
Map 002

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

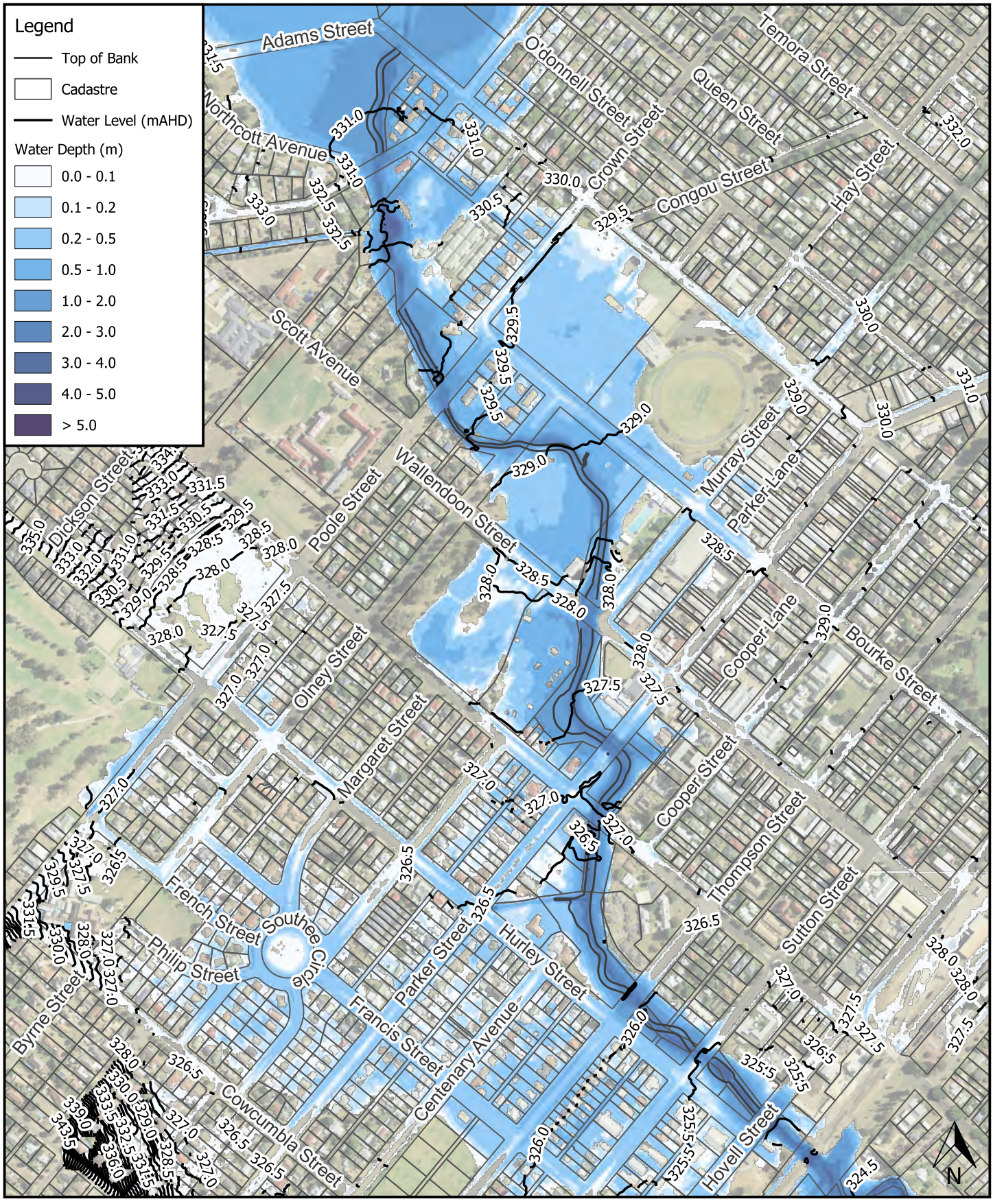
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

Map Title / Figure:

10% AEP Existing Conditions ARR Flood Hazard Categories

Map 003	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

5% AEP Existing Conditions Water Level and Water Depth

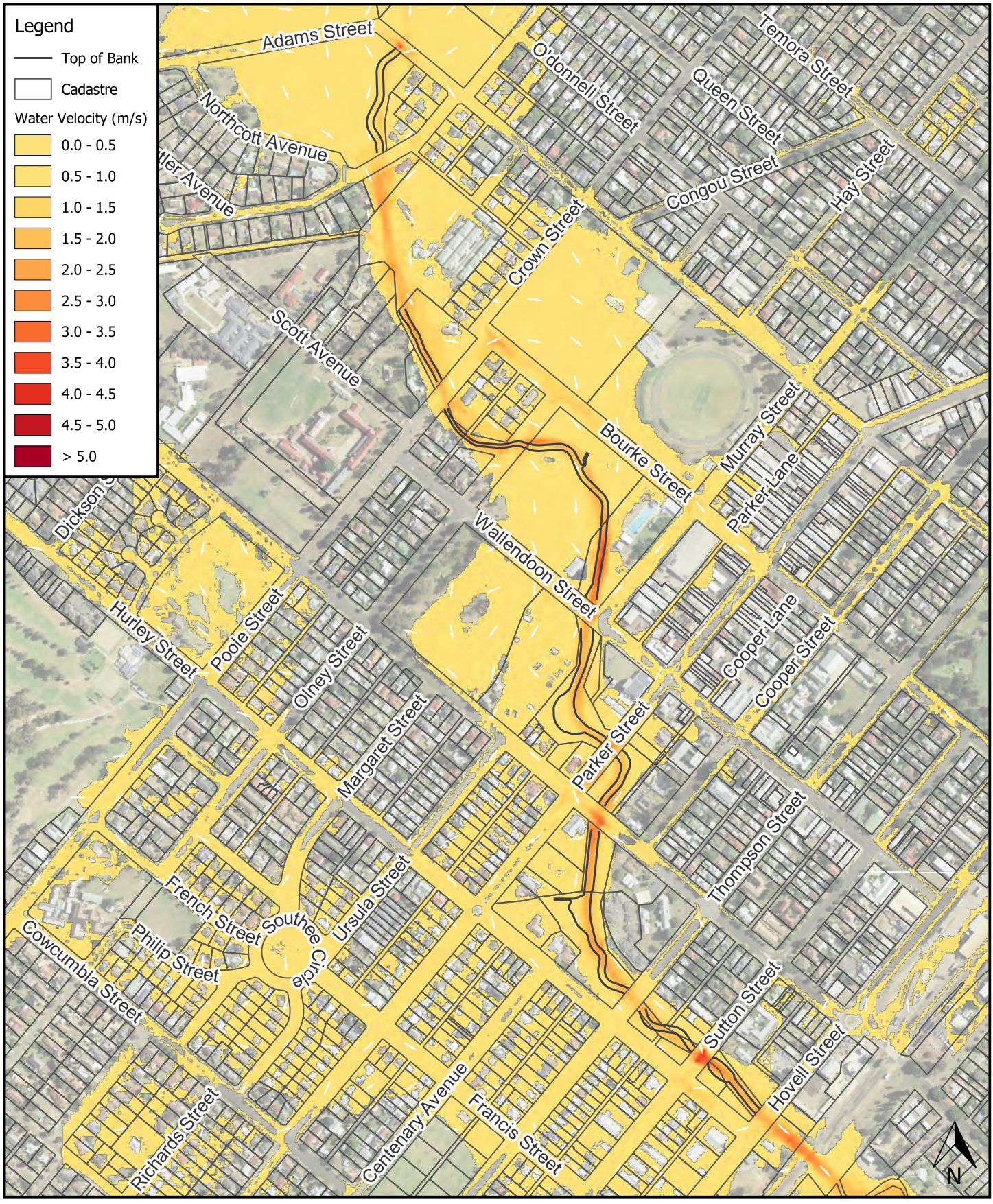
Map 004

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

5% AEP Existing Conditions Water Velocity

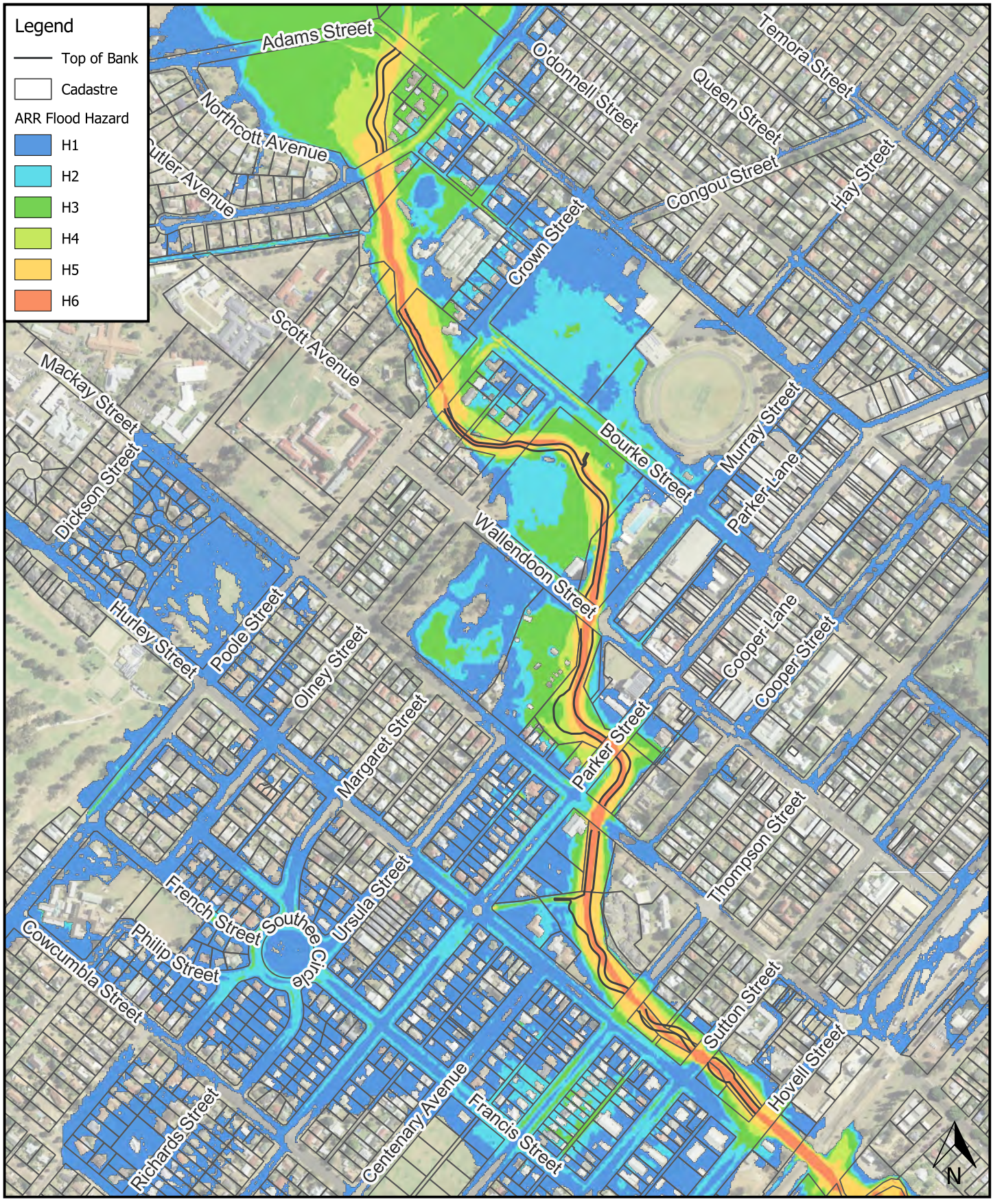
Map 005

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355

0 90 180 270 360 450 m

1:8000 @ A4

Viewport

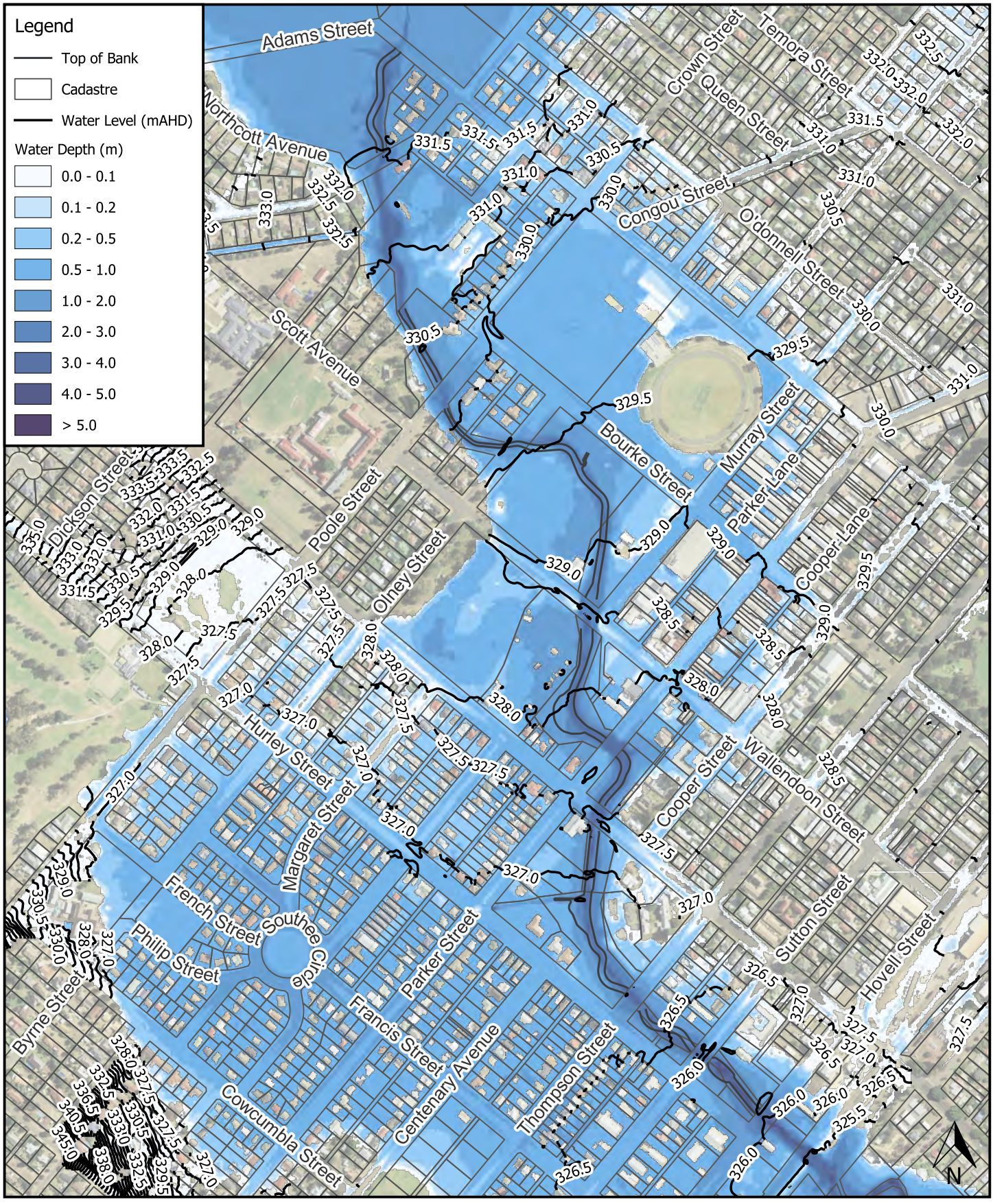
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

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Map Title / Figure:

5% AEP Existing Conditions ARR Flood Hazard Categories

Map 006	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date



Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

1% AEP Existing Conditions Water Level and Water Depth

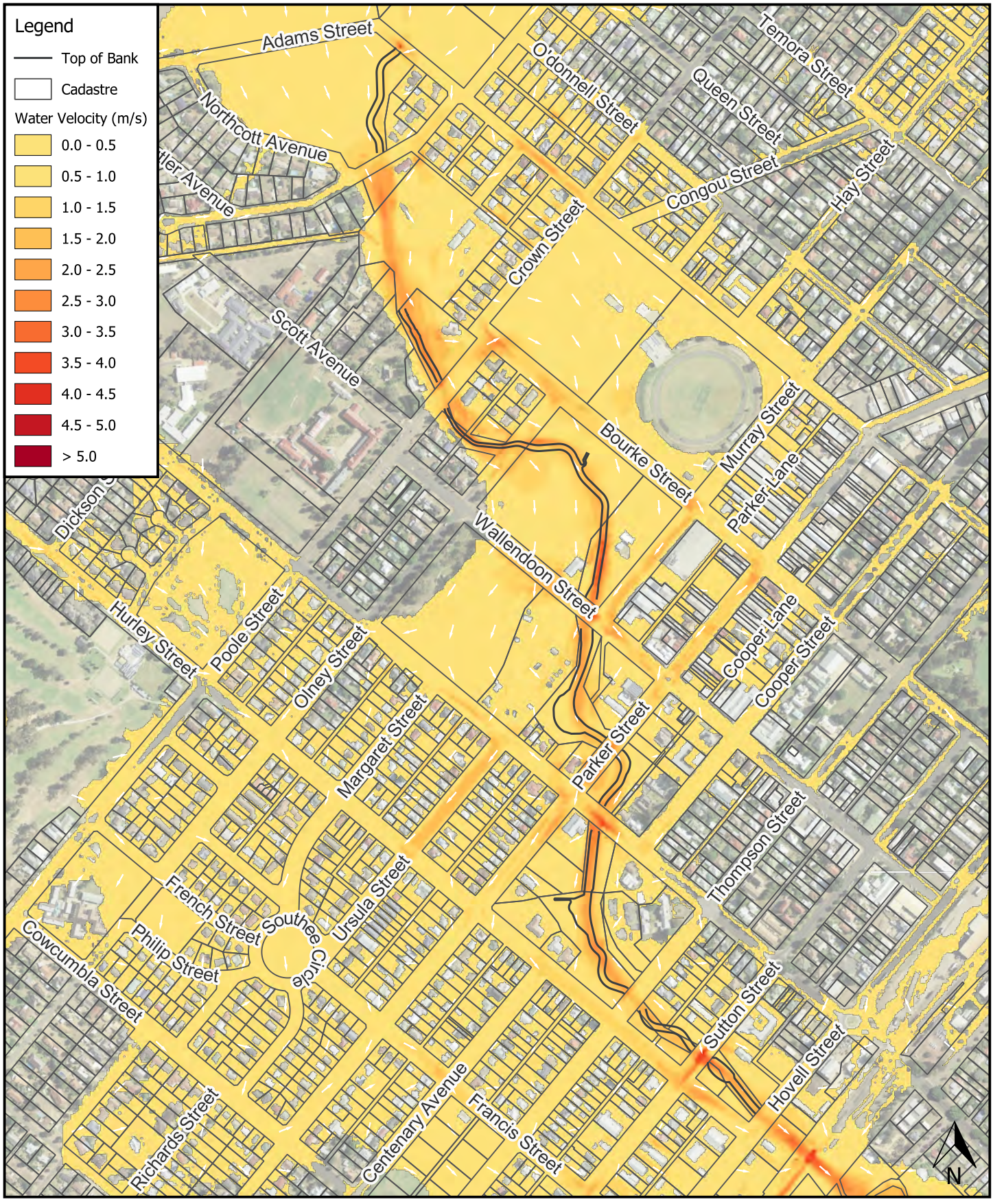
Map 007

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

1% AEP Existing Conditions Water Velocity

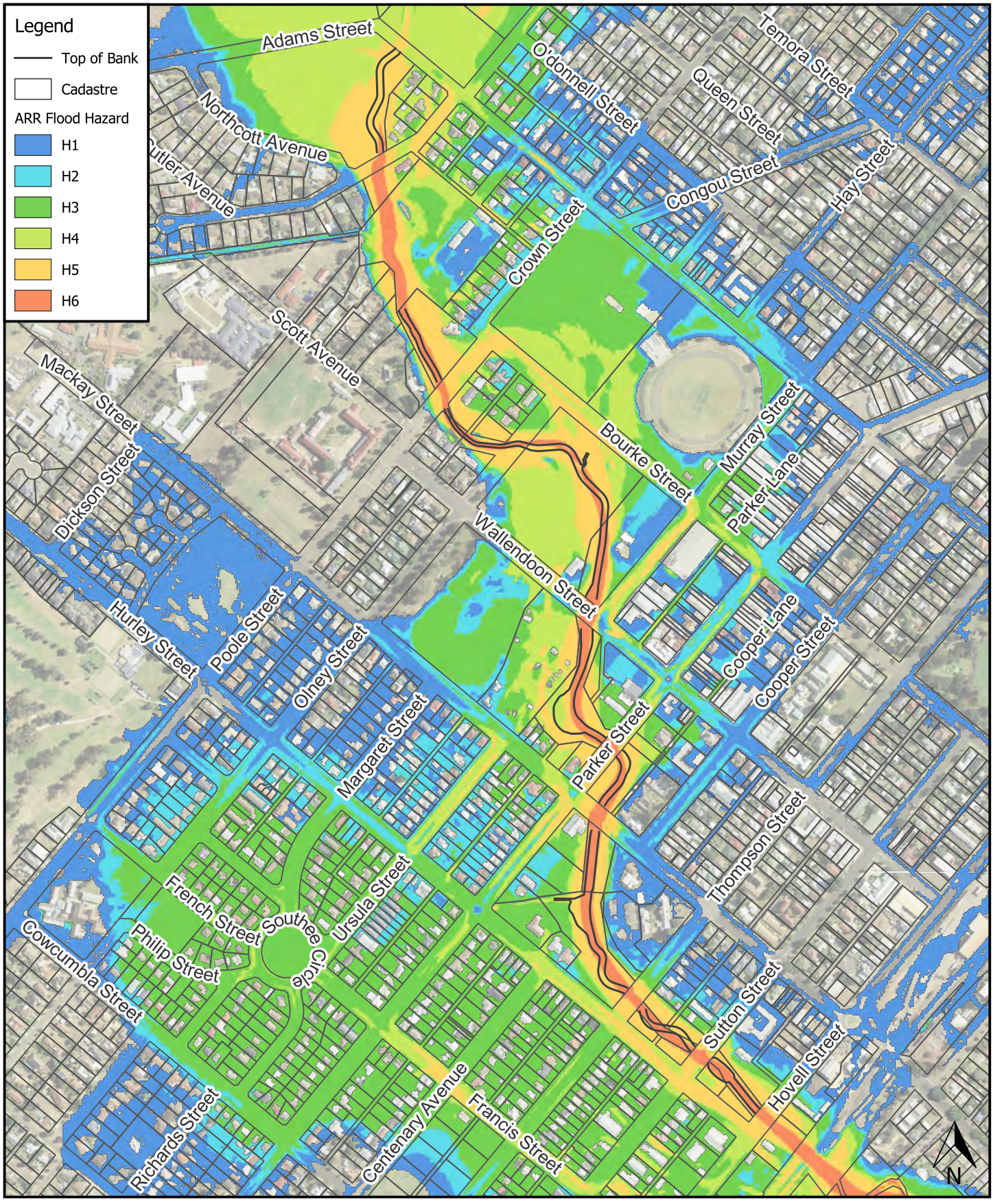
Map 008

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

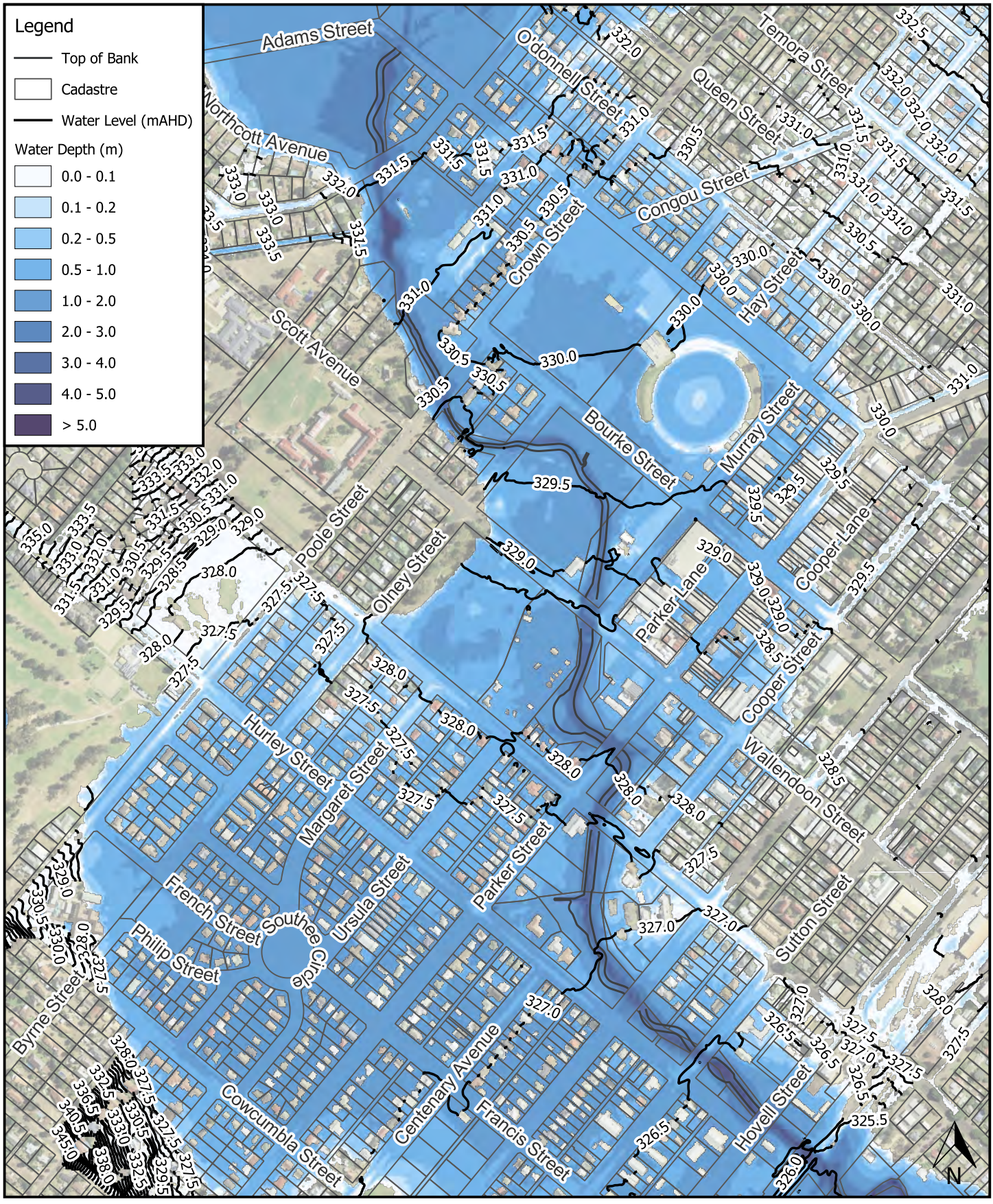
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

Map Title / Figure:

1% AEP Existing Conditions ARR Flood Hazard Categories

Map 009	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

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Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

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Map Title / Figure:

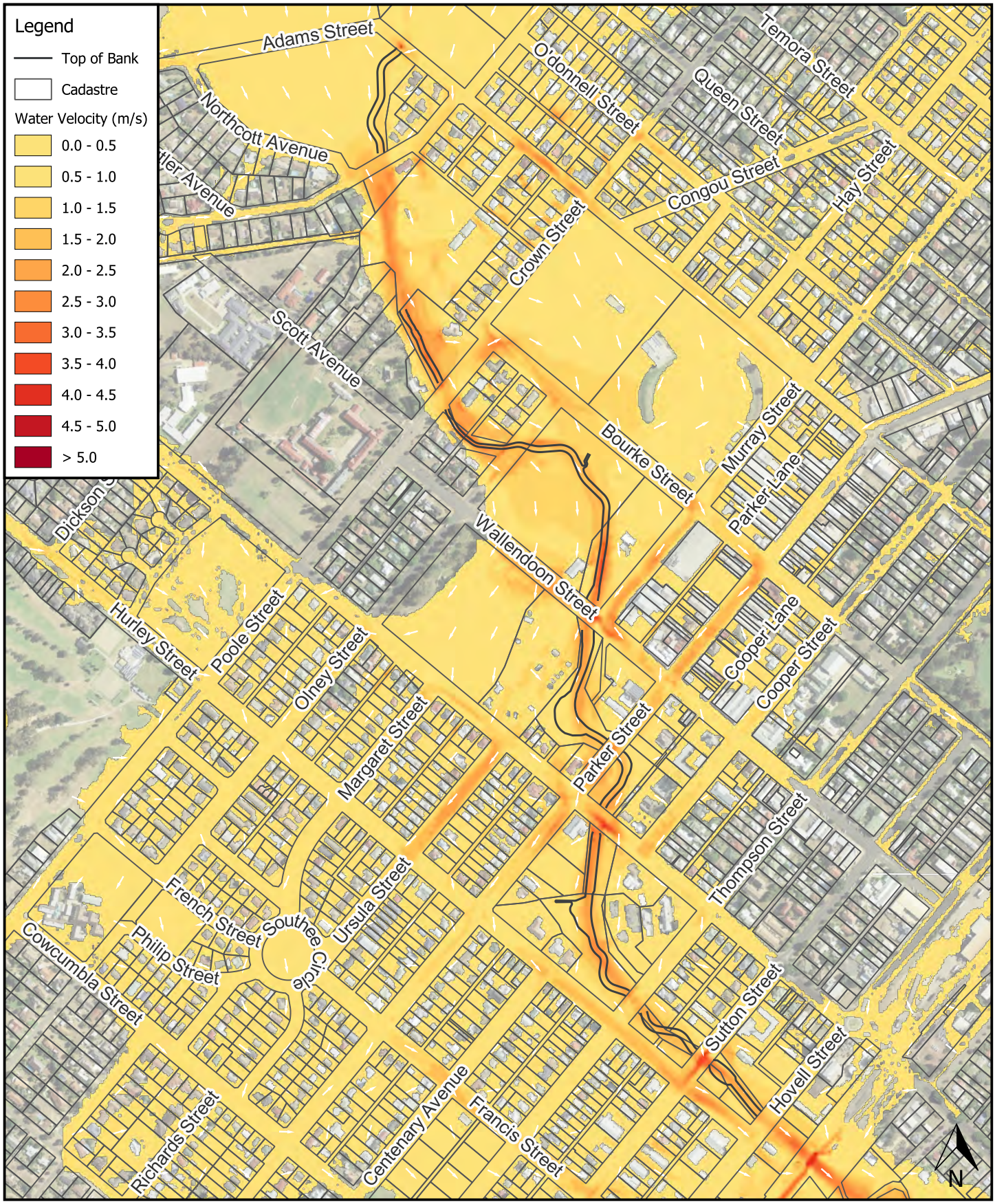
0.2% AEP Existing Conditions Water Level and Water Depth

Map 010

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Viewport

Notes:
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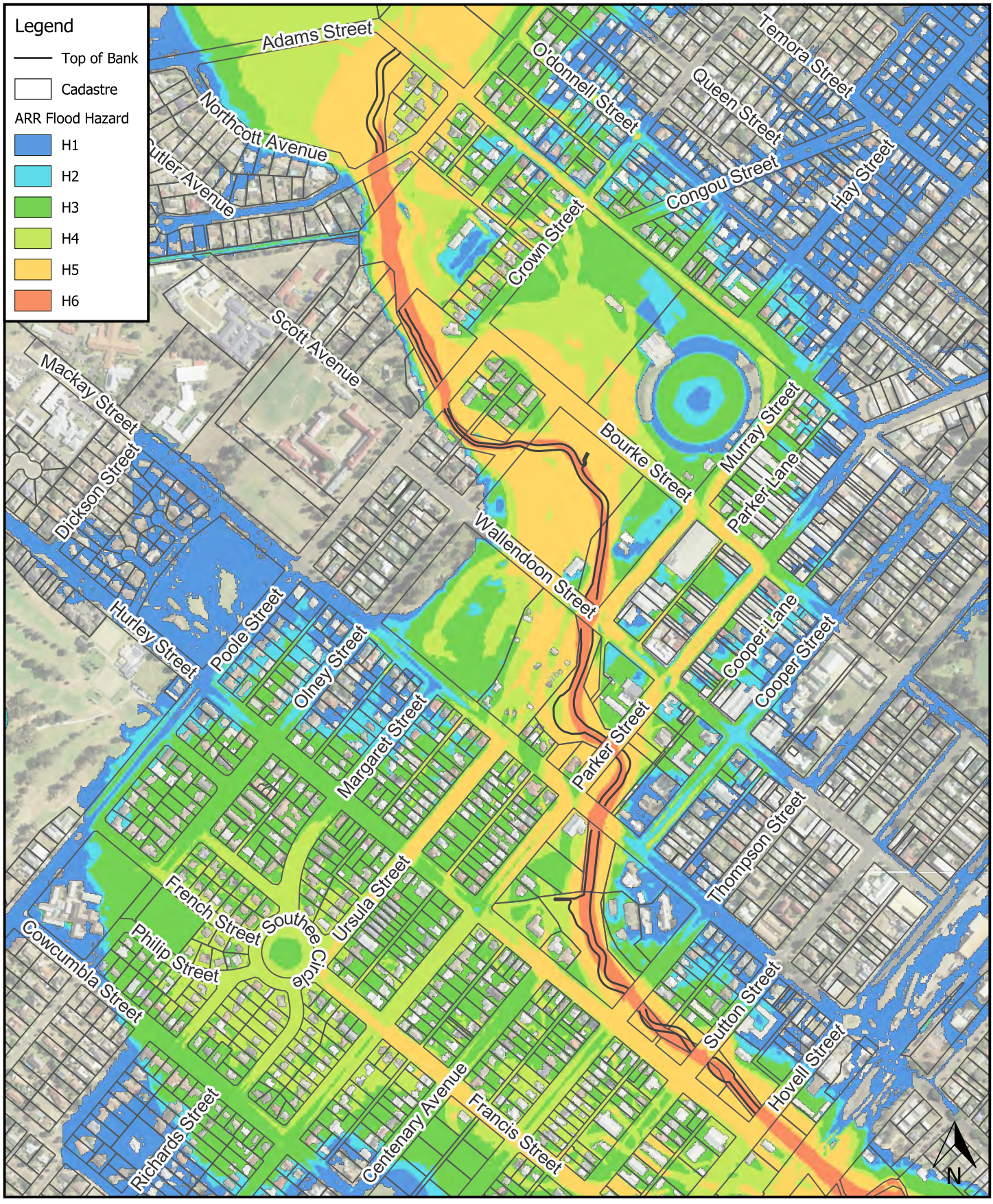
Map Title / Figure:

0.2% AEP Existing Conditions Water Velocity

Map 011

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

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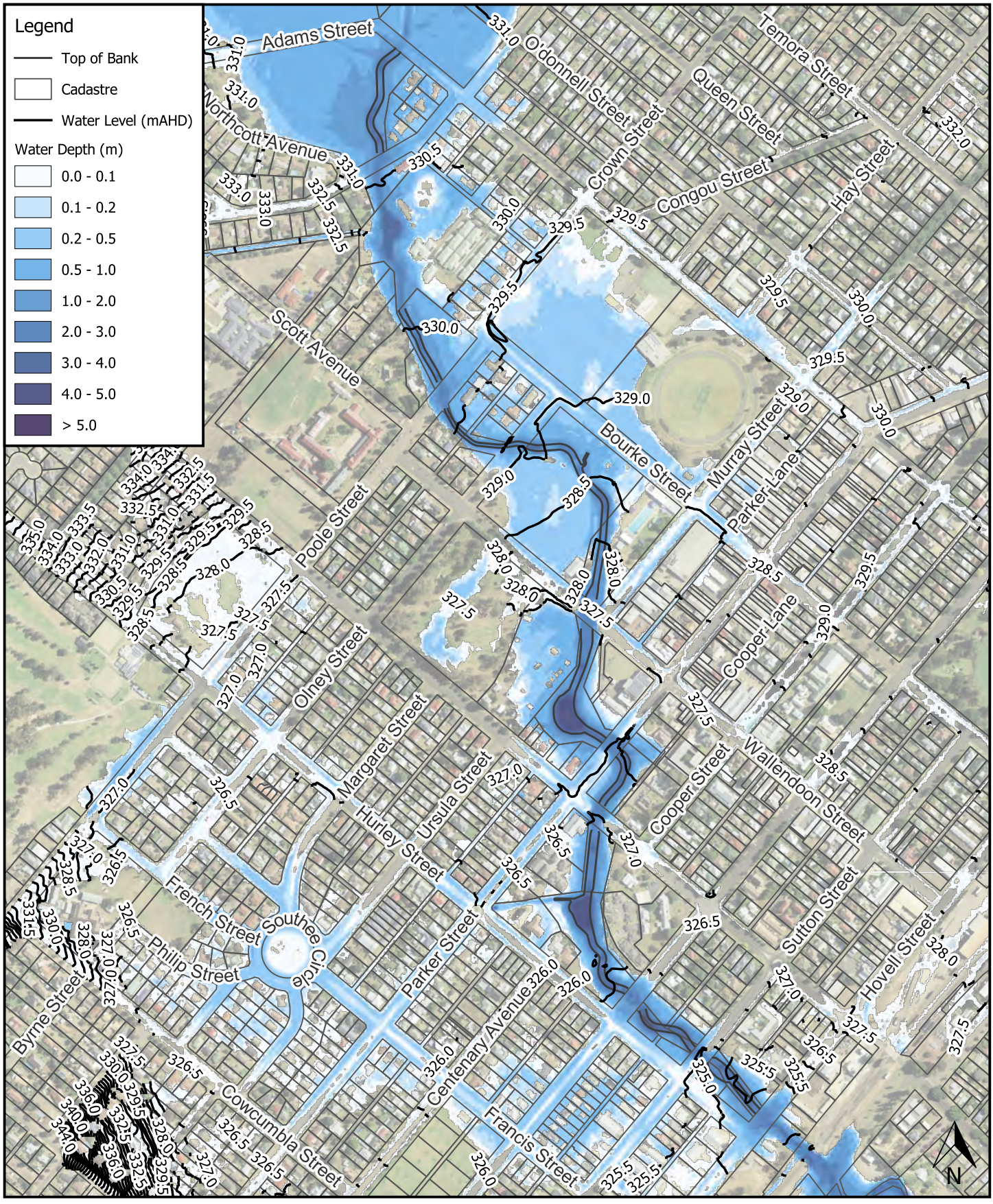
Map Title / Figure:

0.2% AEP Existing Conditions ARR Flood Hazard Categories

Map 012	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

10% AEP Proposed Conditions Water Level and Water Depth

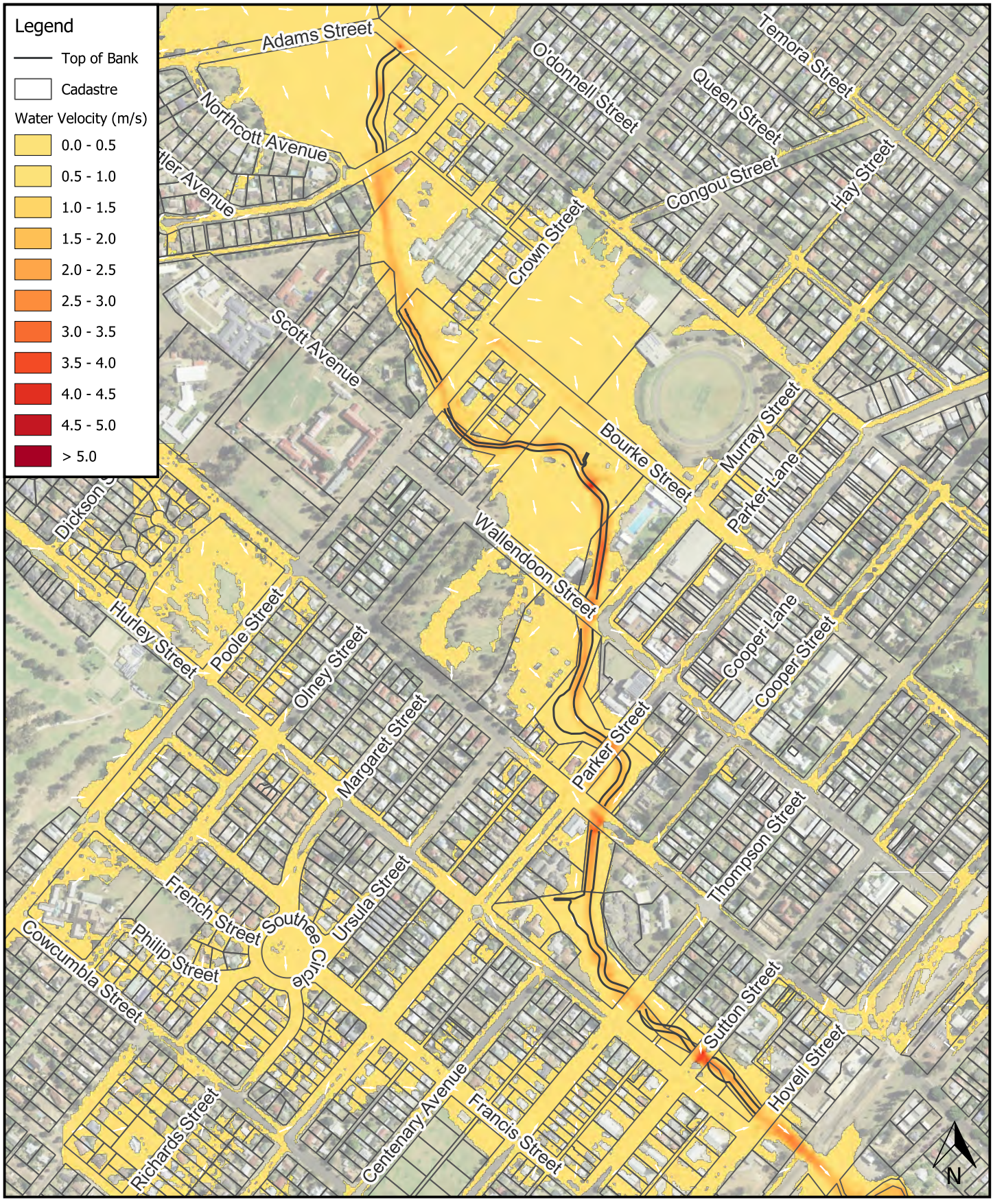
Map 013

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

10% AEP Proposed Conditions Water Velocity

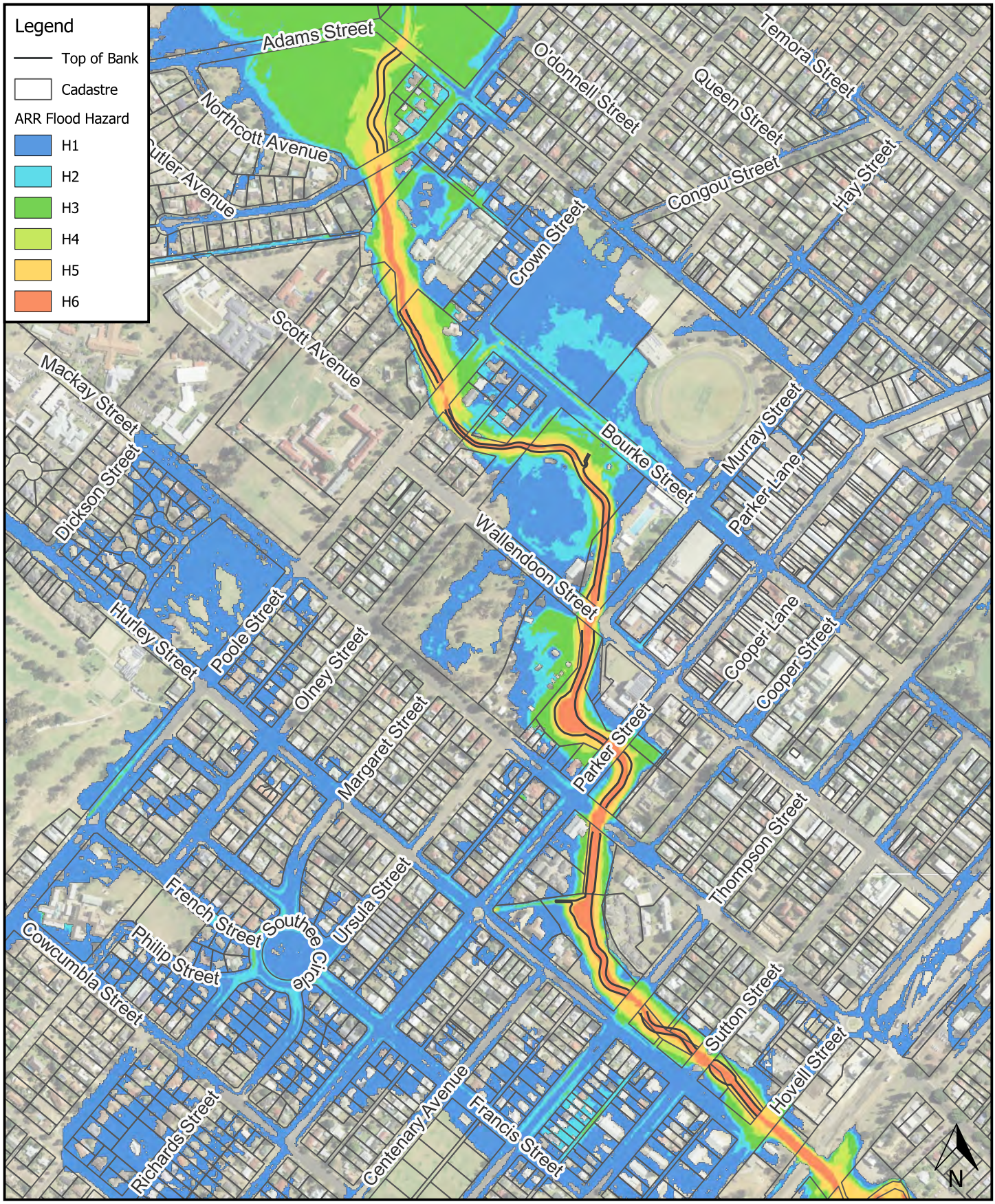
Map 014

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355

0 90 180 270 360 450 m

1:8000 @ A4

Viewport

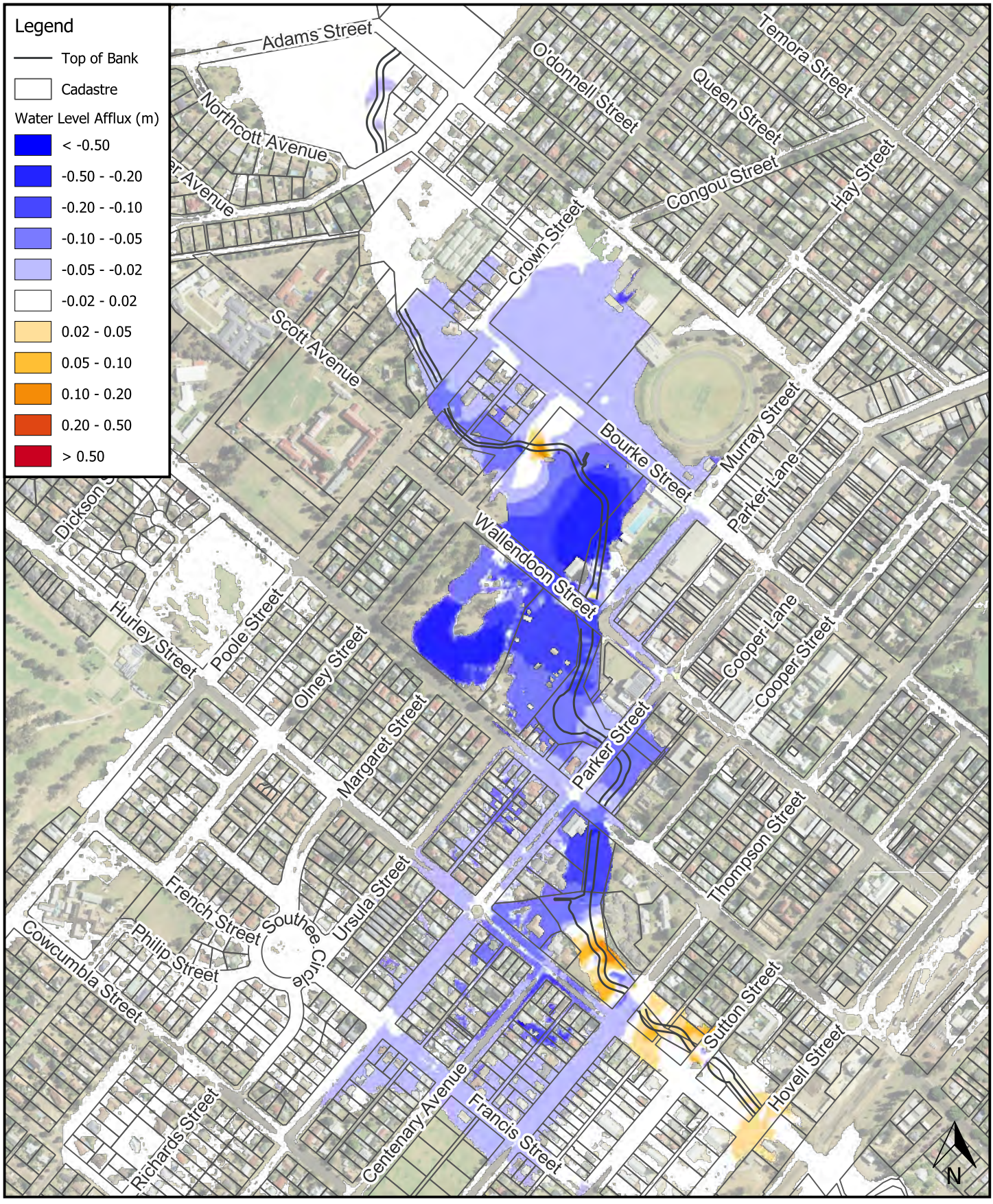
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

Map Title / Figure:

10% AEP Proposed Conditions ARR Flood Hazard Categories

Map 015	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

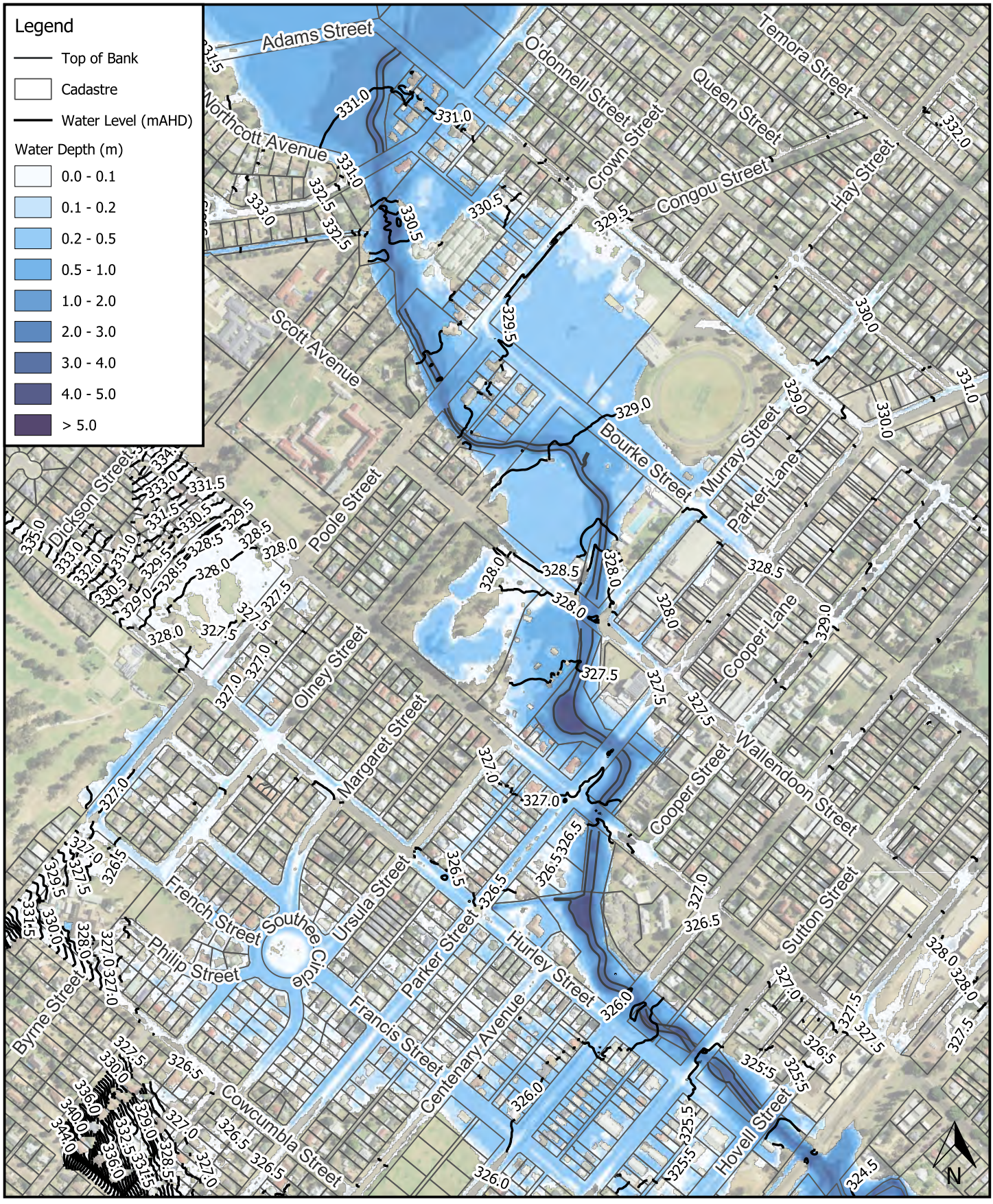
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Areas coloured blue represent water level decrease. Areas coloured white represent negligible change. Areas coloured yellow / red represent water level increase.

Map Title / Figure:

10% AEP Proposed Conditions Water Level Afflux

Map 016	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

5% AEP Proposed Conditions Water Level and Water Depth

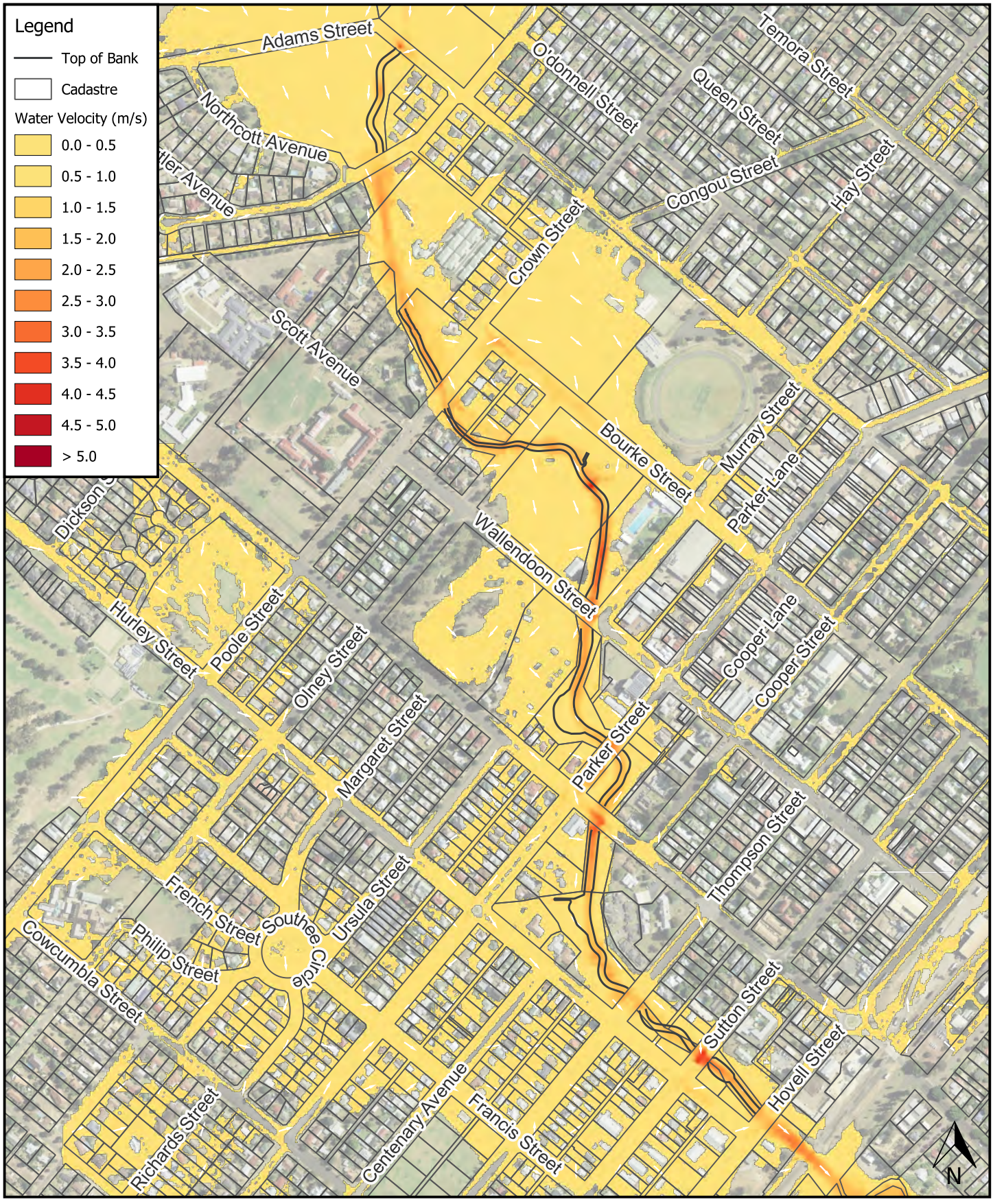
Map 017

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

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Map Title / Figure:

5% AEP Proposed Conditions Water Velocity

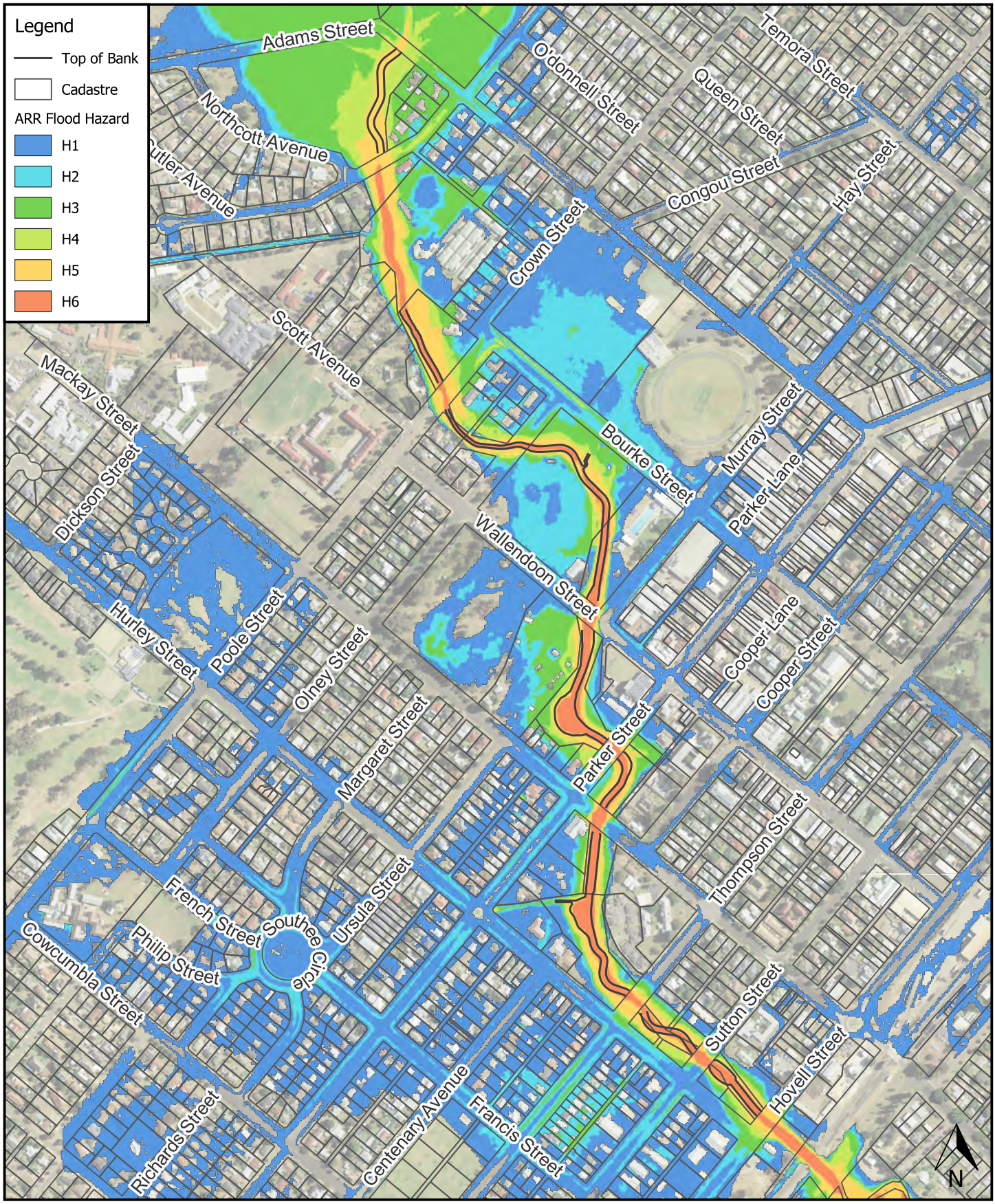
Map 018

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

Map

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355

0 90 180 270 360 450 m

1:8000 @ A4

Viewport

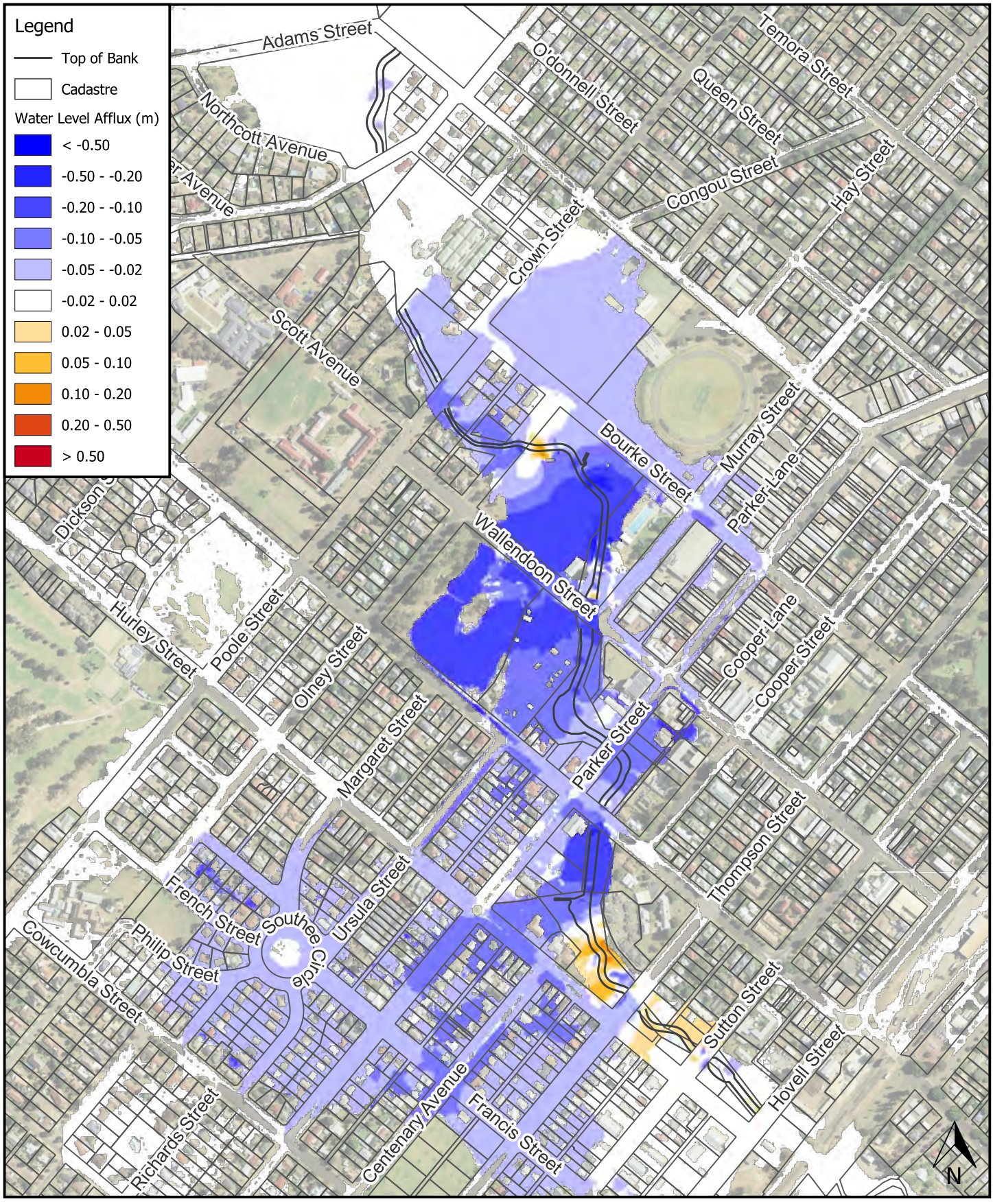
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

Map Title / Figure:

5% AEP Proposed Conditions ARR Flood Hazard Categories

Map 019	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355

0 90 180 270 360 450 m

1:8000 @ A4

Viewport

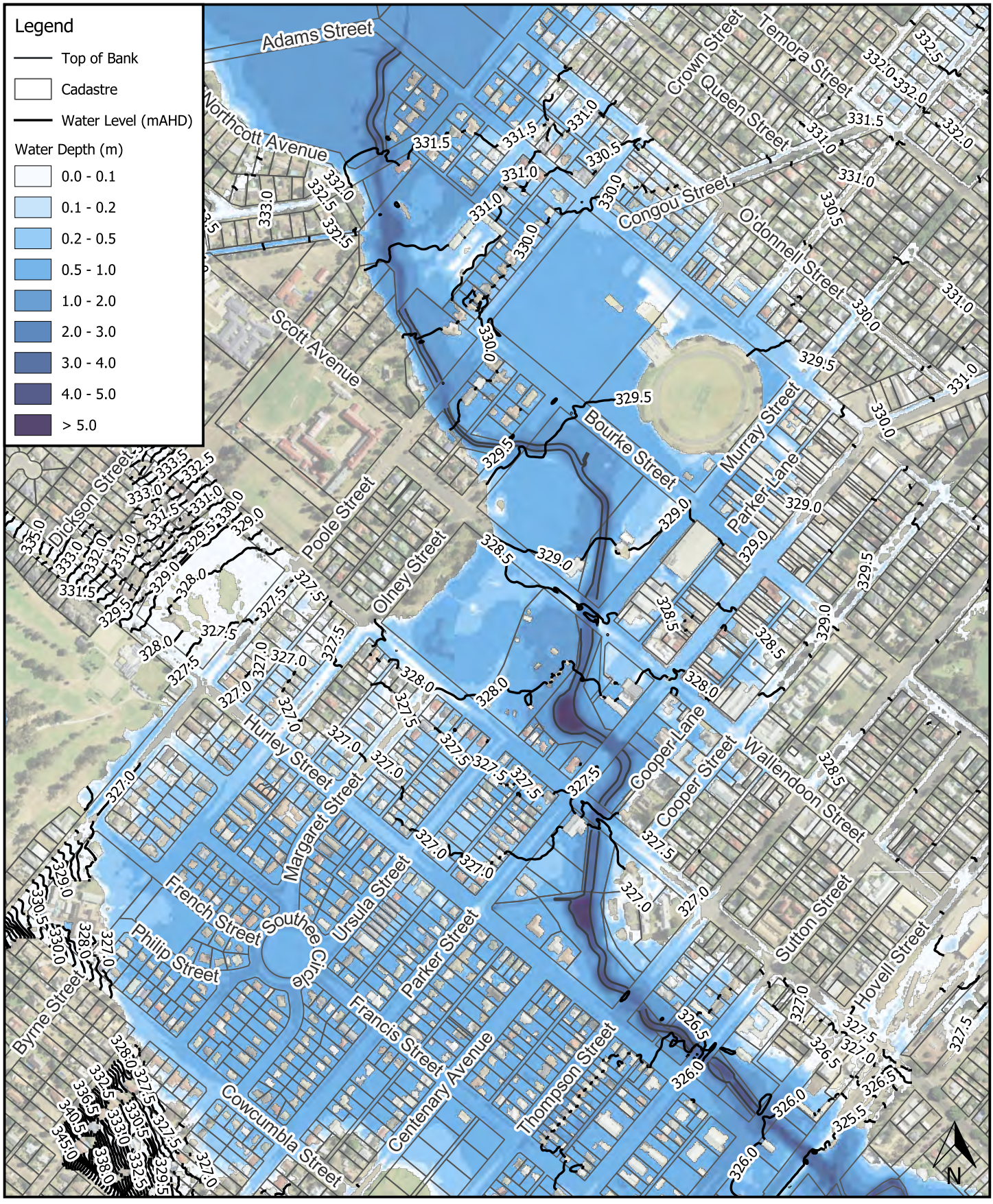
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Areas coloured blue represent water level decrease. Areas coloured white represent negligible change. Areas coloured yellow / red represent water level increase.

Map Title / Figure:

5% AEP Proposed Conditions Water Level Afflux

Map 020	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

1% AEP Proposed Conditions Water Level and Water Depth

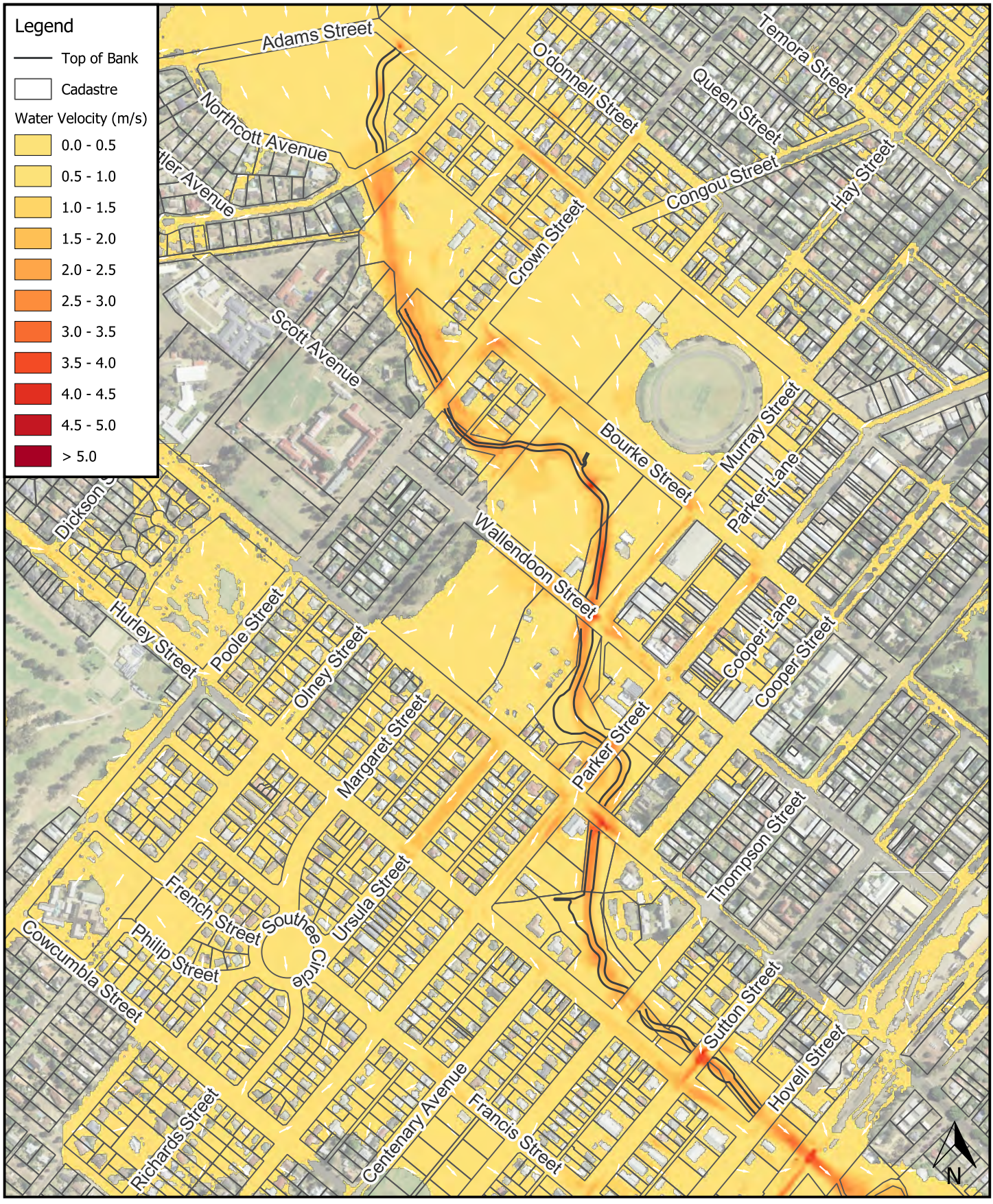
Map 021

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

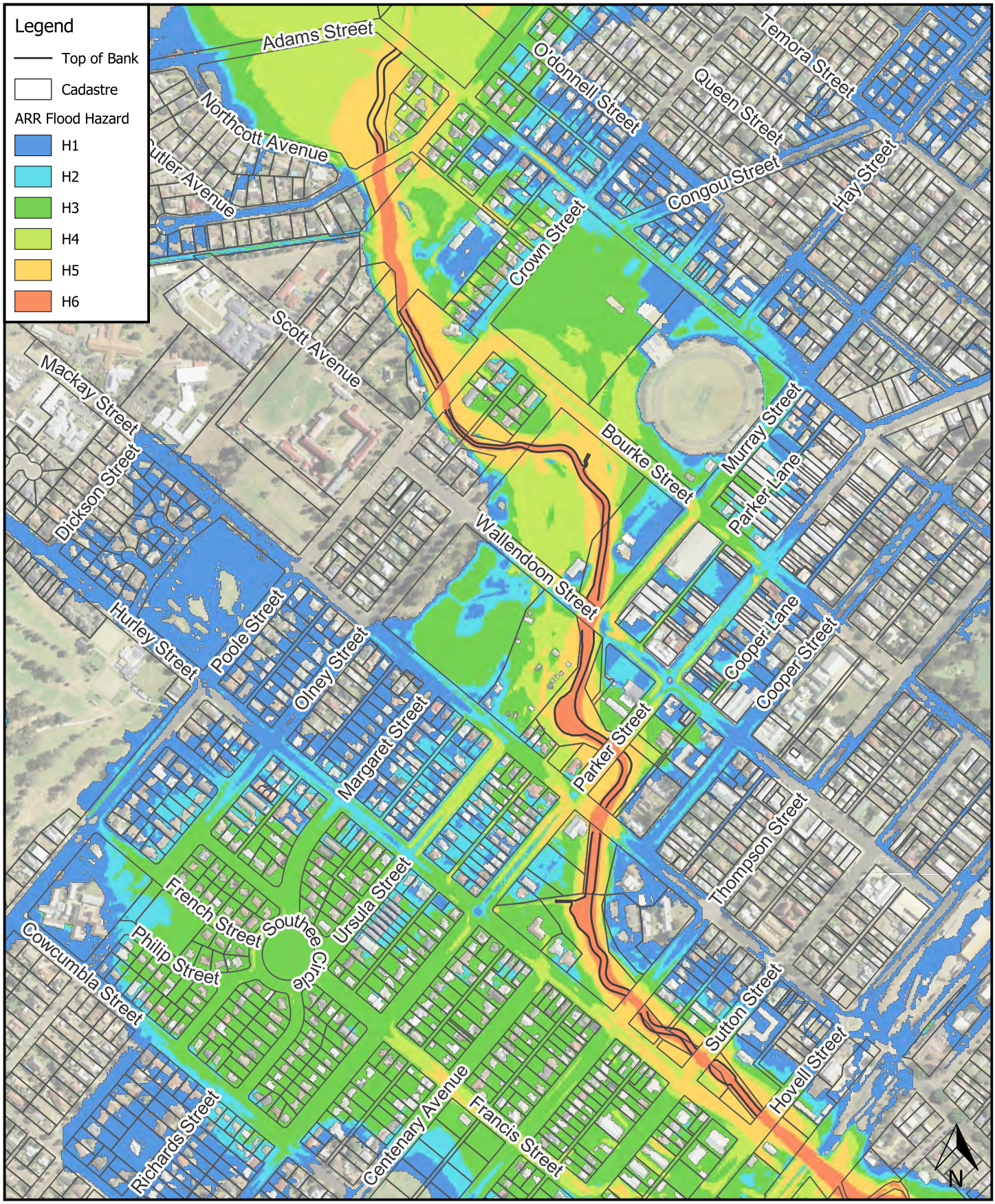
Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

1% AEP Proposed Conditions Water Velocity

Map 022	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

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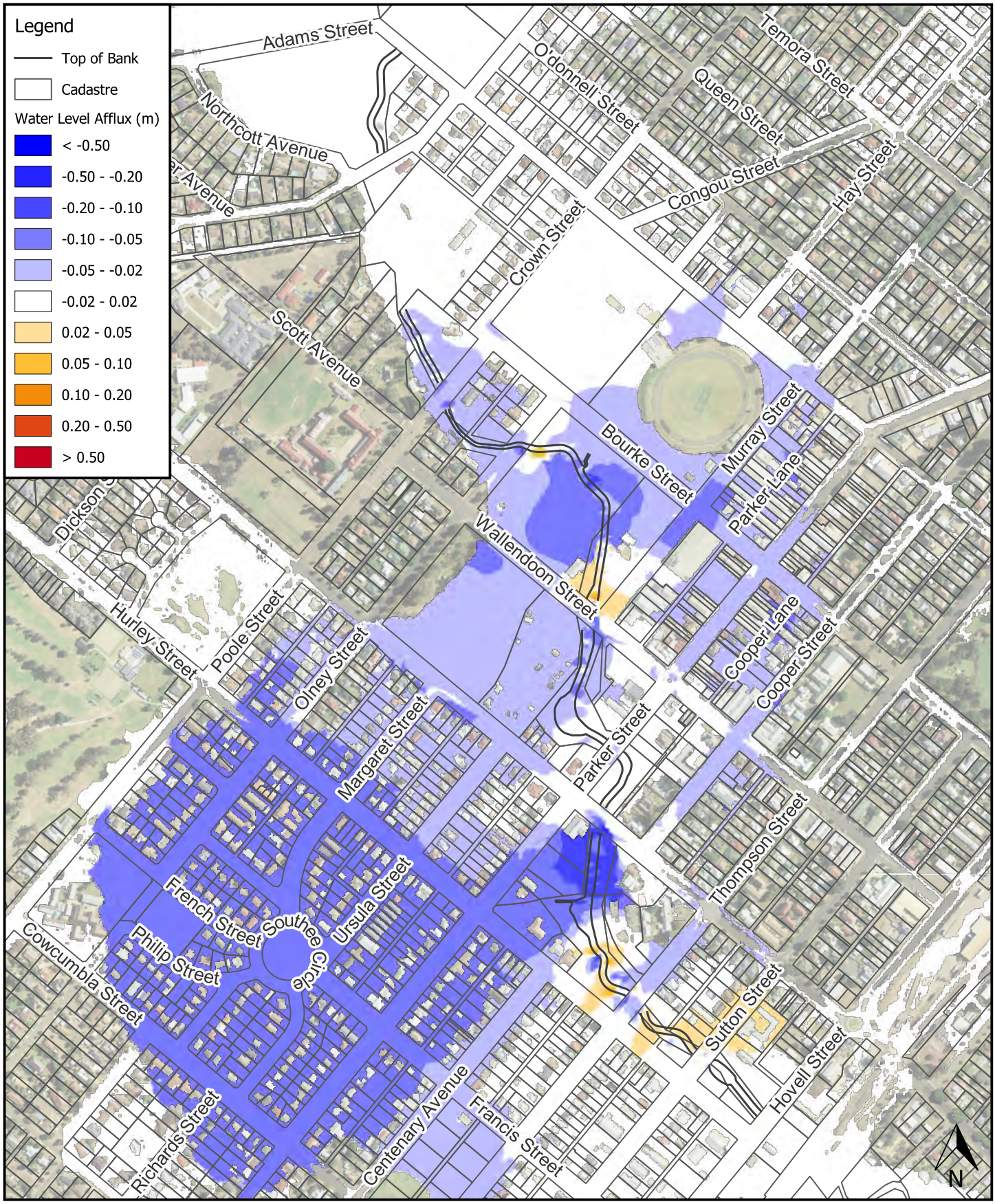
Map Title / Figure:

1% AEP Proposed Conditions ARR Flood Hazard Categories

Map 023	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355



0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Areas coloured blue represent water level decrease. Areas coloured white represent negligible change. Areas coloured yellow / red represent water level increase.

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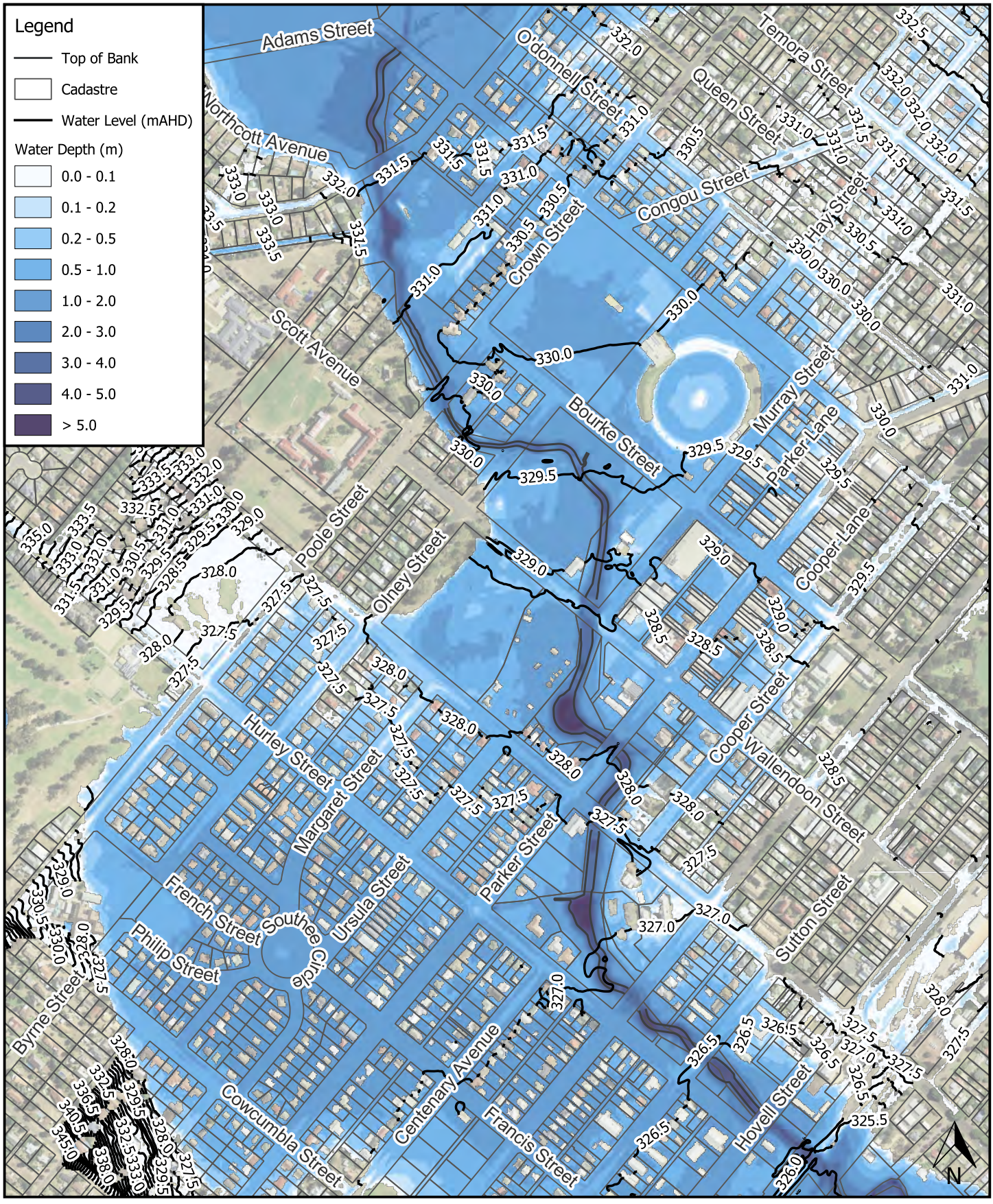
Map Title / Figure:

1% AEP Proposed Conditions Water Level Afflux

Map 024	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355



0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

0.2% AEP Proposed Conditions Water Level and Water Depth

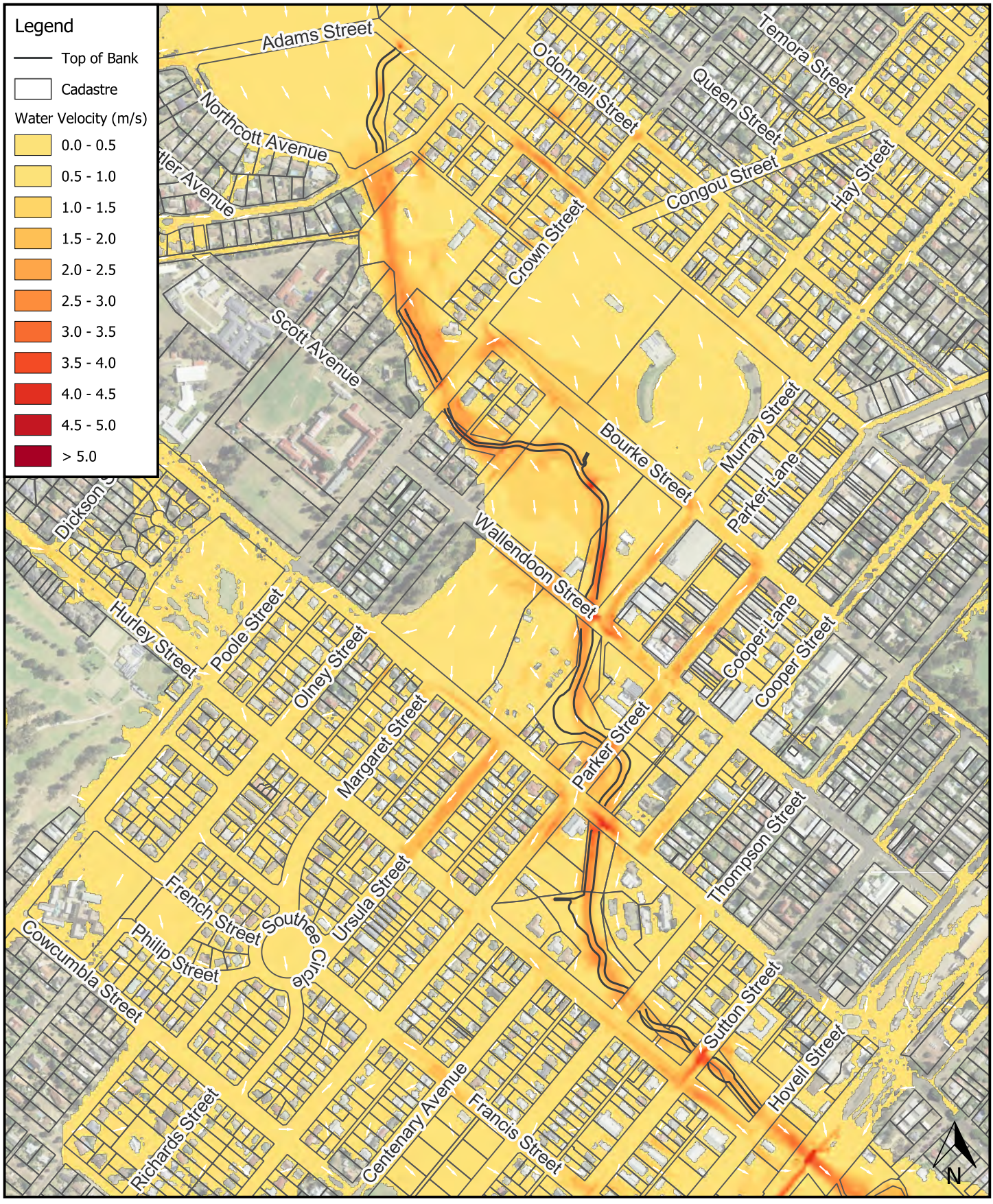
Map 025

Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355



0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.

Map Title / Figure:

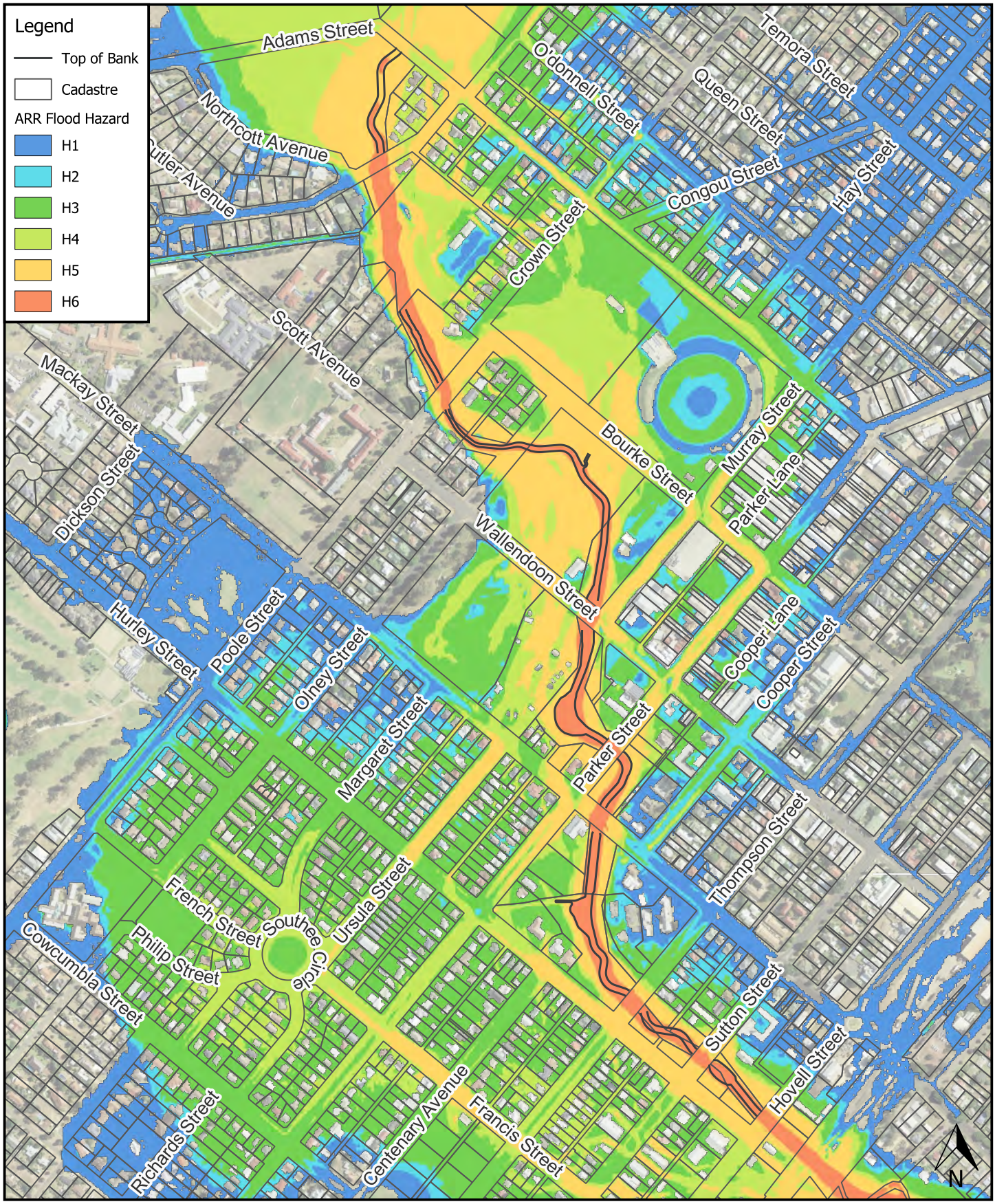
0.2% AEP Proposed Conditions Water Velocity

Map 026	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355



0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Flood hazard based on Australian Rainfall and Runoff (ARR 2019) 'A Guide to Flood Estimation' combined flood hazard curves.

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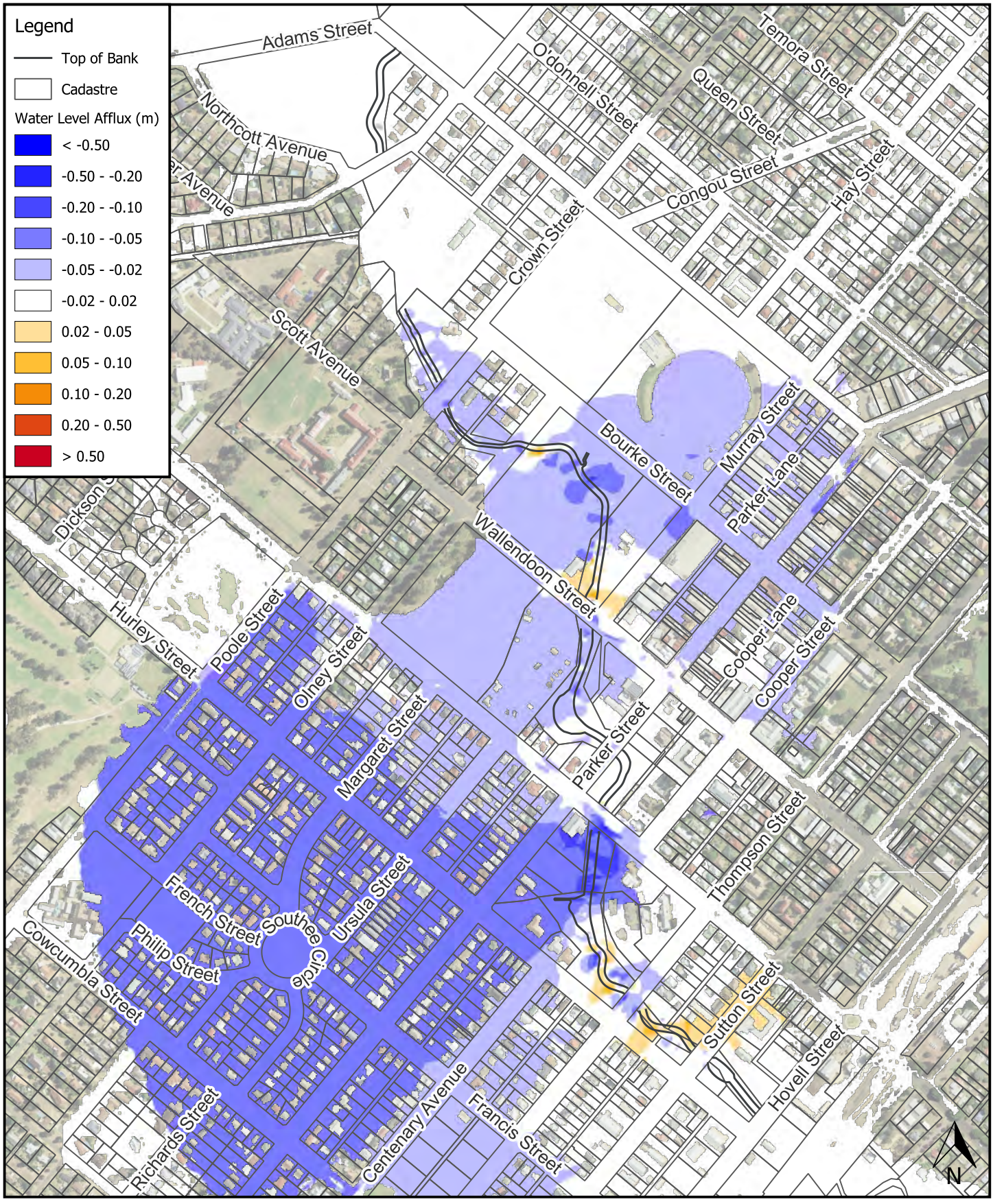
Map Title / Figure:

0.2% AEP Proposed Conditions ARR Flood Hazard Categories

Map 027	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date

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Project No: P2510821 Map Set: MS03-R02 EPSG: 28355

0 90 180 270 360 450 m

1:8000 @ A4

Viewport

Notes:
- Aerial from Nearmap (2025)
- Cadastre from NSW Spatial Services (2025) 'Clip & Ship' SIX Maps website.
- Areas coloured blue represent water level decrease. Areas coloured white represent negligible change. Areas coloured yellow / red represent water level increase.

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Map Title / Figure:

0.2% AEP Proposed Conditions Water Level Afflux

Map 028	Map
Muttama Creek, Cootamundra	Site
Masterplan for Muttama Creek	Project
Flood Impact Assessment	Sub-Project
Cootamundra-Gundagai Regional Council	Client
15/08/2025	Date