



# 1030-1048 and 1050-1064 Mamre Road Riparian Assessment Report

DRAFT REPORT

Prepared for ESR Australia

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## Biosis offices

### NEW SOUTH WALES

#### Albury

Phone: (02) 6069 9200  
Email: [albury@biosis.com.au](mailto:albury@biosis.com.au)

#### Newcastle

Phone: (02) 4911 4040  
Email: [newcastle@biosis.com.au](mailto:newcastle@biosis.com.au)

#### Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Western Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Wollongong

Phone: (02) 4201 1090  
Email: [wollongong@biosis.com.au](mailto:wollongong@biosis.com.au)

### VICTORIA

#### Ballarat

Phone: (03) 5304 4250  
Email: [ballarat@biosis.com.au](mailto:ballarat@biosis.com.au)

#### Melbourne

Phone: (03) 8686 4800  
Email: [melbourne@biosis.com.au](mailto:melbourne@biosis.com.au)

#### Wangaratta

Phone: (03) 5718 6900  
Email: [wangaratta@biosis.com.au](mailto:wangaratta@biosis.com.au)

## Document information

**Report to:** ESR Australia

**Prepared by:** Zoe Goold  
Jake Schwebel

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- NSW Department of Primary Industries Fisheries for access to the predicted distribution maps for threatened species and fish communities.

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- Jenny Beckius (mapping)

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# 1 Introduction

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Biosis Pty Ltd was commissioned by ESR Australia to prepare a riparian assessment to support a State Significant Development (SSD) application (SSD-46983731) to be submitted to the Department of Planning and Environment (DPE) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1979).

ESR Australia is seeking to secure approval for the construction of a warehousing and distribution facility (the project) across two adjoining properties at 1030-1048 and 1050-1064 Mamre Road (Lot 3 and 4 DP250002) Kemps Creek, New South Wales (NSW) (the study area).

While the study area is mapped as certified urban capable under the *Cumberland Plain Conservation Plan 2022* (CPCP), consideration of the *Fisheries Management Act 1994* (FM Act) and the *Water Management Act 2000* (WM Act) is still required. In addition, requirements outlined in the *Mamre Road Development Control Plan (DCP) 2021* and the *Western Sydney Aerotropolis DCP 2020* apply to this project.

This riparian assessment will support an Environmental Impact Statement (EIS) under Part 4 of the EP&A Act, as part of the Development Application. The objective of this assessment is to identify and assess impact to aquatic habitat, threatened aquatic fauna, riparian corridors, groundwater dependent ecosystems (GDE) and/or high ecological value and water dependent ecosystems (HEVWDE) which may occur within the study area.

This riparian assessment has been prepared to support the response to the Industry Specific Secretary's Environmental Assessment Requirements (SEARs) issued by DPE on 10 August 2022.

## 1.1 Project background

### 1.1.1 Site description

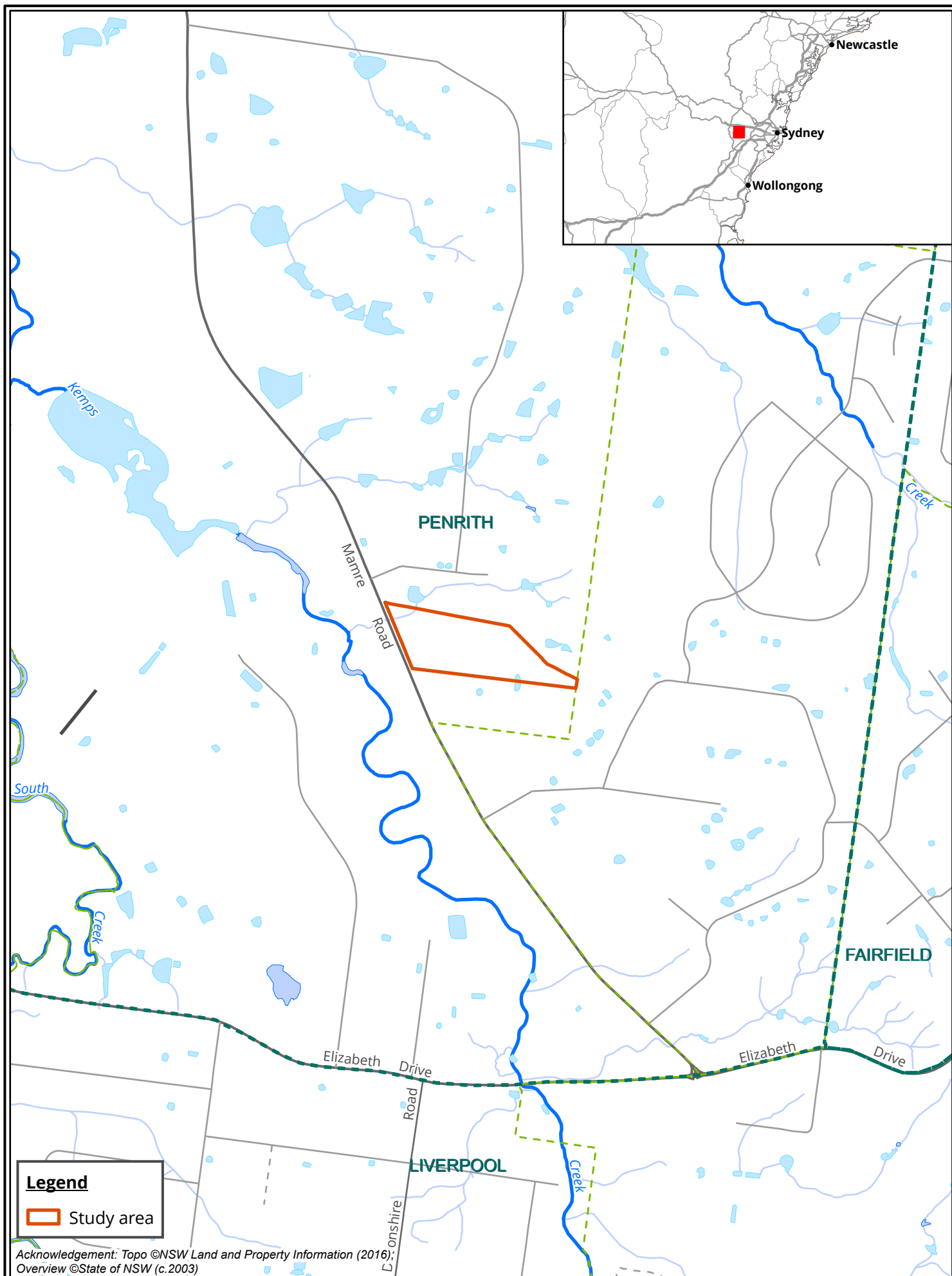
The study area spans across two adjoining properties including 1030-1048 and 1050-1064 Mamre Road in Kemps Creek (Lot 3/DP250002 and Lot 4/DP250002). The study area is bordered by Mamre Road to the west and rural, grassed properties to the north, east and south. The study area is within Penrith Local Government Area (LGA) and is zoned IN1 General Industrial under the provisions of *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (SEPP WSEA). As such, the *Penrith Local Environmental Plan 2010* (LEP) is therefore not applicable to the land as the provisions of SEPP WSEA apply. The surrounding land use is primarily rural, used for small scale agriculture and low-density residential dwellings. Vegetation connectivity within and surrounding the site is very poor, with the adjoining land mostly cleared of native vegetation, with few mature trees in the landscape. No remnant vegetation is present within the study area. The study area is not located within the Biodiversity Values Map (BV Map) (DPE 2022a).

### 1.1.2 Overview of proposed development

The SSD application seeks approval for the construction and use of a new warehousing and distribution facility. The particulars of the project are as follows:

- Site preparatory works, including:
  - Demolition and clearing of all existing built form structures and exotic vegetation.
  - Bulk earthworks including 'cut and fill' to create flat development platforms for the proposed buildings, and topsoiling, grassing and site stabilisation works.
- Subdivision of the site.

- Construction of a new industrial estate at the site comprising two industrial allotments and a total gross floor area of approximately 85,500 m<sup>2</sup>, including, two new industrial warehousing buildings with ancillary offices across two allotments.
- Construction of internal road layout, loading spaces and car parking areas.
- Associated site landscaping.
- Signage.



## 2 Methods

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### 2.1 Database and literature review

Prior to completing the field investigation, a habitat-based assessment was completed to determine the presence of suitable habitat for threatened species (aquatic and semi-aquatic) previously recorded (DPE 2022b) or predicted to occur (DCCEEW 2022) within five kilometres. The database and literature review included information provided by ERS Australia as well as other key information such as:

- Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool for matters protected by the EPBC Act.
- NSW DPE BioNet Atlas of NSW Wildlife, for items listed under the BC Act.
- The NSW Department of Primary Industries (DPI) Spatial Data Portal for FM Act listed threatened species, populations and communities.
- Freshwater threatened species distribution maps (NSW DPI 2016).
- Atlas of Groundwater Dependent Ecosystems (Australian Bureau of Meteorology 2022).
- High Ecological Value and Water Dependent Ecosystems of South Creek (DPE 2022b).
- DPE ePlanning Spatial Viewer to review relevant State and Local Government legislative requirements and planning provisions.

The implications for the project were assessed in relation to key biodiversity legislation and policy including:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *Biodiversity Conservation Act 2016* (BC Act).
- *Water Management Act 2000* (WM Act).
- *Biosecurity Act 2015* (Biosecurity Act).
- *Fisheries Management Act 1994* (FM Act).
- SEPP (Vegetation in Non-Rural Areas) 2017.
- *Cumberland Plain Conservation Plan 2022*.
- *Penrith Local Environmental Plan (LEP) 2010*.
- *Mamre Road Precinct Development Control Plan 2021* (DCP).
- *Western Sydney Aerotropolis DCP 2021*.

### 2.2 Field investigation

A field investigation of the study area was undertaken on 19 of August by Zoe Goold (Project Zoologist/Aquatic Ecologist) and Jake Schwebel (Project Botanist). Prior to the field investigation a desktop assessment was undertaken of all mapped water bodies within the study area, as mapped in the Mamre Road DCP 2021 and the NSW Department of Primary Industries (DPI) Spatial Data Portal.

An aquatic assessment was undertaken at all mapped waterways within the study area. The aquatic assessment included an assessment of; the condition of the riparian corridor, availability of aquatic habitat, bank stability, composition of stream substrate, connectivity, weed ingress and whether each waterway conformed with the definition of a 'river' under the FM Act,

In addition a habitat-based assessment was completed to determine the presence of suitable habitat for threatened species previously recorded (DPE 2022) or predicted to occur (DCCEEW of Australia 2022) within five kilometres of the study area.

### **2.2.1 Permits and licences**

The riparian assessment was conducted under the terms of Biosis' Scientific Licence issued by DPE under the *National Parks and Wildlife Act 1974* (SL100758, expiry date 30 June 2023). Fauna survey was conducted under approval CSB 17/892 from the NSW Animal Care and Ethics Committee (expiry date 31 January 2023).



## 3 Results

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Land use surrounding the study area is primarily rural, small-scale farming. Vegetation within the study area consist solely of urban native/exotic grasslands, as all remanent vegetation has been historically cleared for agricultural purposes.

Soil landscape mapping indicates that the study area occurs across two soil landscapes. Soils to the southwest of the study area occur on the Blacktown soil landscape of the Penrith region and soils to the northeast of the study area occur on the Luddenham landscape of the Penrith region (Bannerman & Hazelton 1990). The Blacktown soil landscape is characterised by gently undulating rises on Wianamatta Group shales. Common canopy species for the area included; Forest Red Gum *Eucalyptus tereticornis*, Narrow-leaved Ironbark *E. crebra* and Grey Box *E. moluccana*, however the region has been extensively cleared. The Luddenham landscape of the Penrith region is characterised by undulating rolling low hills on Wianamatta Group shales, often associated with Minchinbury Sandstone. Soil of this landscape is highly susceptible to erosion, and much of the landscape has been extensively cleared.

### 3.1 Aquatic habitats

The study area contains one mapped (DPI 2022) un-named second order (strahler) stream (in the northwest corner), two man-made dams and one drainage line; mapped as 'Trunk Drainage' under the Mamre Road DCP (DPIE 2021a) (Figure 3). A second trunk drainage is mapped as occurring directly to the south of the study area in the adjoining property to the south, however no impact to this trunk drainage is expected to occur as a result of the works. Further, this second trunk drainage line falls outside of the study area, hence is not shown on Figure 2, nor discussed further in this report.

#### 3.1.1 Unnamed second order stream

The flow of the mapped second order stream to the northwest of the study area was observed to be disconnected due to the presence of a man-made dam in the adjacent property. Subsequently, there was no indication of surface or sub-surface flow, aquatic vegetation, or a defined bed or bank (Photo 1, Photo 2, Photo 3 and Photo 4). As such, this waterway would not be considered to meet the definition of a 'river' under the WM act. Surrounding vegetation comprised solely of urban native/exotic grasslands with no remnant vegetation. While there is some suggestion that the surrounding soils may occasionally become waterlogged during periods of wet weather there is no indication that the mapped waterway would provide any sort of flow path for waterlogged soils within the area.



**Photo 1 Mapped second order stream  
(photo point 1)**



**Photo 2 Mapped second order stream  
(photo point 2)**



**Photo 3 Mapped second order stream  
(photo point 3)**



**Photo 4 Mapped second order stream  
(vegetation and soil composition)**

### 3.1.2 Man-made dams

The two man-made dams within the study area provide poor habitat for aquatic and semi-aquatic fauna, due to the limited amount of riparian vegetation surrounding each dam, which is mostly dominated by urban native/exotic grasses. Dam 1 (Photo 5) is located to the southeast of the study area and occurs half in the study area and half in the adjoining property to the south (Figure 3). Dam 2 (Photo 6) is located in the northwest portion of the study area (Figure 3). Both dams observed within the study area are man-made.



Although the two dams provide limited habitat for aquatic fauna, the overall condition of the two man-made dams within the study was relatively good, with each exhibiting reasonably clear water and a variety of macrophytes including; Broad-leaved Cumbungi *Typha orientalis*, *Juncus usitatus*, Water Primrose *Ludwigia peploides*, Water Couch *Paspalum distichum* and Eelweed *Vallisneria australis*. Macrophytes and fringing vegetation have the potential to provide dispersal, sheltering and foraging habitat for common aquatic fauna such as; Longfin Eel *Anguilla reinhardtii*, Eastern Long-necked Turtle *Chelodina longicollis* and Common Eastern Froglet *Crinia signifera*. Both dams are artificial and are therefore not representative of natural waterways in the locality.



**Photo 6 Dam 1**



**Photo 5 Dam 2**

### 3.1.3 Trunk drainage (Mamre Road DCP)

A drainage line, as mapped within the Mamre Road DCP (Figure 3),, transverses the centre of the study area from east to west. Field investigations of this drainage line indicated that the current flow pathways have likely been historically altered. This alteration was likely undertaken to assist the effective drainage of the study area and prevent soils throughout the area becoming waterlogged. While altered, it is likely that this drainage line occurs within close proximity to the natural flow path of the original drainage line, based on an assessment of local topography (Photo 7).

Soils along the bed and bank of the drainage line were observed to be highly unstable, comprising of predominantly clay based loams (Photo 8). The lack of bank stabilising vegetation and the presence of highly unstable clay soils make this drainage line highly susceptible to erosion in the event of flooding.



**Photo 8 Trunk drainage**



**Photo 7 Trunk drainage erosion**

### 3.2 Riparian Vegetation

Field investigations of the unmapped waterway to the northwest of the study area, determined that the mapped waterway is not consistent with the definition of a 'river' under the WM Act. As such, no riparian corridor was determined to be present within the study area. Overall vegetation throughout the study area was dominated by urban native/exotic grasslands. Due to the extent of historical clearing which has occurred within the study area, no remnant vegetation occurs within the study area.

### 3.3 Groundwater Dependent Ecosystems and High Ecological Value and Water Dependent Ecosystems

A field investigation and review of mapping of GDE indicated that no aquatic or terrestrial GDEs, occur within the study area or are expected to be impacted by the proposed works.

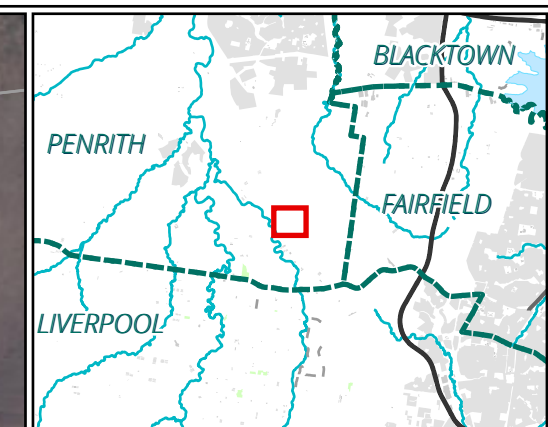
Similarly, the study area did not contain any wetlands or other water sources which would be considered important in supporting native flora and fauna. As such no HVWDE occur within the study area or are expected to be impacted as a result of the proposed works.

### 3.4 Threatened species

Background searches indicated that the Giant Burrowing Frog *Heleioporus australiacus* (Vulnerable EPBC and BC act), Green and Golden Bell Frog *Litoria aurea* (Vulnerable EPBC and Endangered BC act), Macquarie Perch *Macquaria australasica* (Endangered EPBC and BC act) and Australian Grayling *Prototroctes maraena* (Vulnerable EPBC and Endangered BC act) have been recorded (DPE 2022b) within 5 kilometres of the study area. While the study area is certified under the CPCP, as Commonwealth acceptance of the CPCP has not been finalised consideration of EPBC listed species is still required.

No suitable habitat for the above listed MSW or Commonwealth threatened species was recorded within the study area. The study area contains neither the suitable waterbodies nor the connective corridors to allow for the movement of threatened species throughout the study area. Vegetation cover within the study area is limited to Urban Native/Exotic grasslands which has been historically grazed by livestock. No threatened fauna was encountered during the site visit. As such, it is considered highly unlikely that the above listed threatened species would occur within the study area and no further assessment has been undertaken.





### Legend

- Study area
- Lot
- Dam (Biosis 2022)
- Not a Watercourse - consult with NRAR
- Trunk Drainage (Mamre Precinct DCP)

### Strahler Order

- 2

### Photo points

- PP1
- PP2
- PP3

**Figure 2 Riparian assessment**

0 25 50 75 100 125  
Metres

Scale: 1:3,200 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 38020, Date: 06 September 2022,  
Drawn by: JB, Checked by: JS, Last edited by: jbeckius  
Layout: 38020\_F2\_RipAssess  
Project: P:\38000s\38020\Mapping\  
38020\_MamreRd\_RLAR.aprx



## 4 Assessment against key legislation

### 4.1.1 Water Management Act 2000

The WM Act provides for the sustainable and integrated management of the state's water for the benefit of both present and future generations based on the concept of ecologically sustainable development. Under the WM Act an approval is required to undertake controlled activities on waterfront land.

The relevant definitions under the WM Act are provided in Table 1.

**Table 1 Relevant definitions under the Water Management Act 2000**

Item	Relevant definition
<b>River</b>	(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and (b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and (c) anything declared by the regulations to be a river
<b>Waterfront land</b>	(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or (a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake <i>(where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.)</i>
<b>Controlled activity</b>	(a) the erection of a building or the carrying out of a work (within the meaning of the EP&A Act), or (b) the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or (c) the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or (d) the carrying out of any other activity that affects the quantity or flow of water in a water source.

The WM Act is supported by a series of interpretation guidelines which provide design considerations and overarching management measures for works on waterfront land. These considerations and management measures should be considered when planning and undertaking the proposed works. The following guidelines are relevant:

- *Controlled activities on waterfront land - guidelines for riparian corridors on waterfront land* (NRAR 2018).
- *Guidelines for watercourse crossings on waterfront land* (NSW Office of Water 2012a).
- *Guidelines for outlet structures on waterfront land* (NSW Office of Water 2012b).
- *Guidelines for laying pipes and cables in watercourses on waterfront land* (NSW Office of Water 2012c).
- *Guidelines for instream works on waterfront land* (NSW Office of Water 2012d).

DPI Water recommends riparian widths based on watercourse order under the Strahler method in order to protect waterways from damage such as erosion (Strahler 1964). *Controlled activities on waterfront land - guidelines for riparian corridors on waterfront land* (NRAR 2018) defines a riparian management envelope referred to as the vegetated riparian zone (VRZ). The width of the VRZ within a riparian corridor has been pre-determined and standardised for first, second, third and fourth order and greater watercourses according to the Strahler System of ordering watercourses and is measured from the top of the highest bank on both sides of the watercourse. This guideline also presents the riparian corridor matrix that assists applicants for controlled activity approvals to identify certain works and activities that can occur on waterfront land and in riparian corridors. The guideline also includes overarching management measures for works on waterfront land.

As specified in section 3.1.1 above, the watercourse mapped within Lot 3 DP250002 is classified as Strahler two order stream, which requires a riparian corridor width of 20 metres from the 'top of bank' on either side (NRAR 2018).

However, Section 4.41 (*Approvals etc legislation that does not apply*) of the EP&A Act states that a controlled activity approval (CAA) (as per section 91 of the WM Act) is not required for an SSD. Therefore, the current project is considered exempt from the requirement to obtain a CAA and works proposed within the mapped riparian corridors will be assessed as part of the EIS.

#### **4.1.2 Fisheries Management Act 1994**

The FM Act provides for the protection and conservation of aquatic species and their habitat throughout NSW. Impacts to threatened species, populations and communities, and critical habitats listed under the FM Act must be assessed through a Test of Significance process under Section 1.7 of the EP&A Act

No predicted habitat for threatened aquatic species is mapped on the DPI spatial data portal within the study area and further assessment under the FM Act is not required.

#### **4.1.3 Western Sydney Aerotropolis DCP**

The development site is situated within the 3-8 kilometre buffer area from the Western Sydney airport (DPIE 2021b). Development within the study area therefore must comply with the Western Sydney Aerotropolis DCP. At the time of field investigations, vegetation within the study area consisted entirely of exotic vegetation. As current exotic vegetation is unlikely to attract wildlife any rehabilitation of waterways or riparian corridors within the study area must comply with the *Western Sydney Aerotropolis DCP* which states that vegetation present must not '*Attract wildlife that could create a safety hazard to the operations of the Airport*'.

#### **4.1.4 Mamre Road Precinct Development Control Plan (DCP)**

Review of the Mamre Road Precinct DCP displays the section most relevant to this assessment is *Section 2.4 - Integrated Water Cycle Management*. This section displays a trunk drainage line in the form of trunk drainage infrastructure are mapped both within and adjacent to the study area (Figure 1). The development site must therefore comply with the objectives and development controls listed within the Mamre Road Precinct DCP surrounding trunk drainage. Naturalised trunk drainage paths (Figure 1) are required when the contributing catchment exceeds 15ha or 1% AEP overland flows cannot be safely conveyed overland (DPIE 2021a). The design and rehabilitation of a naturalised trunk drainage path would be required to meet NRAR requirements, which would include the construction of a 10 metre riparian corridor (from the top of bank). However, all rehabilitation efforts, are not to conflict with the aims of the *Western Sydney Aerotropolis DCP*, such that it would increase collision risk.

Realignment of naturalised trunk drainage path may be undertaken if it meets the following requirements:

- Comply with the performance requirements for flow conveyance (1% AED) and freeboard (0.5 metres).
- Are designed to integrate with the formed landscape and permit safe and effective access for maintenance.
- Do not have adverse flood impacts on neighbouring properties.
- Enter and leave the development site at the existing points of flow entry and exit.

#### **4.1.5 Cumberland Plain Conservation Plan (CPCP)**

The study area falls within land mapped under the Cumberland Plain Conservation Plan (DPE 2022c). Currently, the entirety of the study area occurs within land classified as certified-urban capable (Certified) under the CPCP. The NSW Government have approved the CPCP which provides biodiversity certification under Part 8 of the BC Act. DPE is currently pursuing Commonwealth approval for the CPCP under Part 10 of the EPBC Act. Development that will have a significant impact on matters of national environmental significance (MNES) on certified - urban capable land cannot commence until the Commonwealth approval is in place. As the current project will not impact upon any MNES, it may proceed, as long as it adheres to the objectives of the FM Act, WM Act, Mamre Road DCP and the Western Sydney Aerotropolis DCP.

## 5 Conclusion and recommendations

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The following recommendations have been made regarding the proposal to minimise impacts to aquatic habitat within the study area:

- Consultation with Sydney Water and NRAR should be undertaken to assess the capability of the development to incorporate a realignment of the trunk drainage within the study area.
- The increased coverage of impervious surfaces post construction will likely increase flow speed post conduction. As such, if a realignment of the trunk drainage does occur, consideration should be given to utilising substrates designed to lower flow spreads and minimise erosion.
- A Vegetation Management Plan should be implemented either side of naturalised trunk drainage in order to adhere to NRAR requirements and the Aerotropolis DCP.
- In the unlikely event that unexpected threatened species are identified during the project, works should cease, and an ecologist should be contacted for advice.
- Appropriate erosion and sediment control measures should be installed to avoid impacts to nearby waterways via stormwater collection systems.
- As dams within the study area will be decommissioned and backfilled as part of the project. Biosis recommends that a dam dewatering plan be implemented.
- Dam dewatering is to be undertaken under supervision of a suitably qualified ecologist to ensure that dewatering activities are undertaken appropriately and any fauna within the dams is salvaged and relocated (an ecologist would only be required on site when dam water levels are below 1/3 capacity).

Impacts to aquatic habitat and riparian corridors as a result of the proposed works are expected to be negligible, due to the highly impacted nature of the study area, the lack of surface or sub-surface flow in the mapped second order waterway and the relatively poor-quality habitat provided by the two man-made dams. While impacts to aquatic habitat would be considered negligible, further consultation with the regulators will be required to confirm the potential realignment of the trunk drainage infrastructure.

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