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Subject: Webform submission from: Mamre Road Precinct in the Western Sydney Employment Area

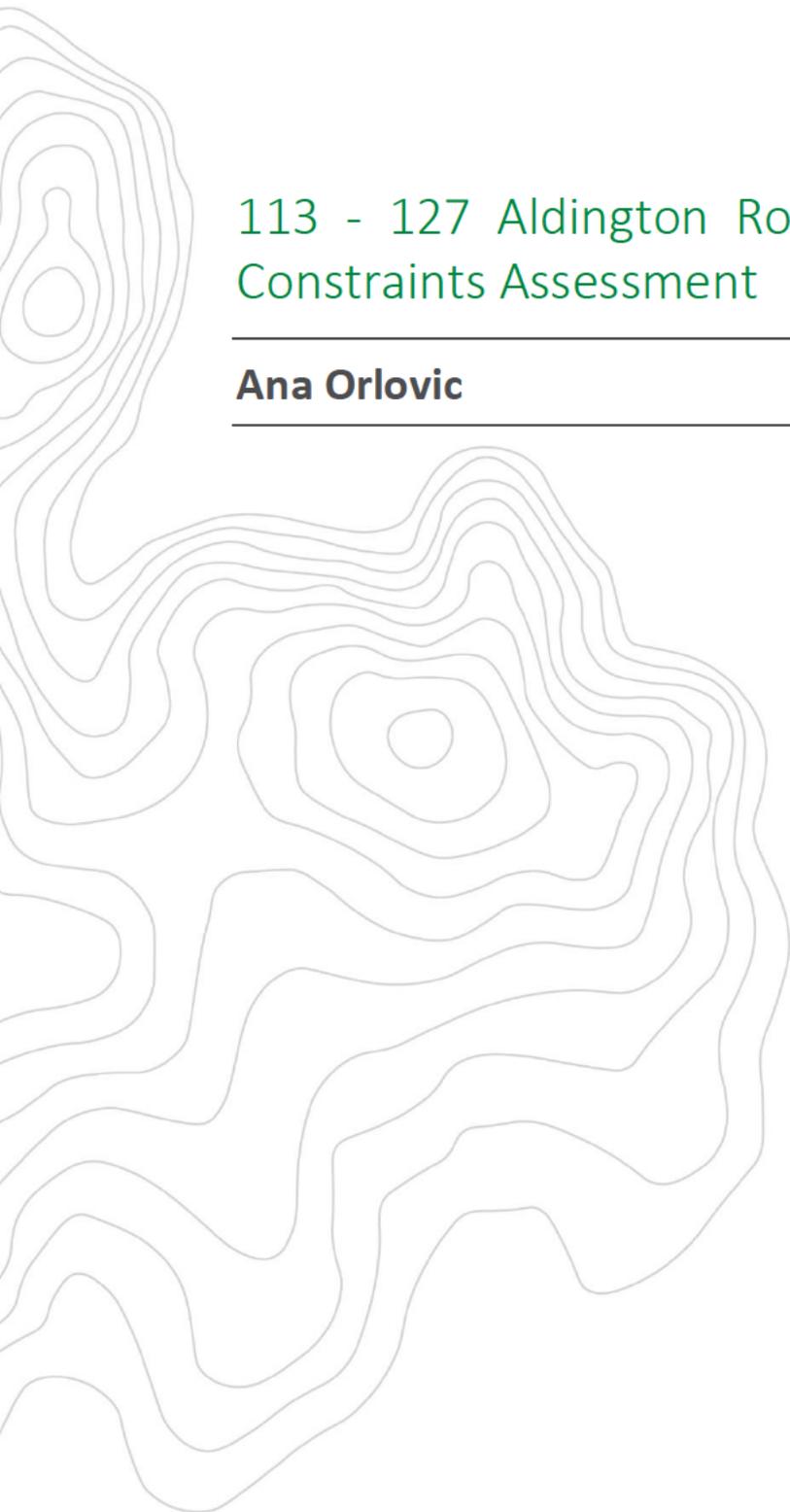
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[14968_113-127-aldington-road,-kemps-creek-riparian-constraints-assessment_v1.pdf](#)

Submission: To Whom it May Concern, In reference to the indicative riparian buffers on the draft structural plan, we have engaged with Eco Logical Australia to provide an assessment of the riparian land and waterways of our property at 113-127 Aldington Rd, Kemps Creek, 2178. In conclusion, it is ELA's opinion that the watercourse within the study area does not meet the definition of a 'river' under the WM Act 2000, as there was no defined bed and banks in the areas where the mapped watercourse was located on your draft plan. Therefore we lodge this submission in opposition to the location of the riparian buffer on our property. Please see attached report in support of the submission for further information.

URL: <https://pp.planningportal.nsw.gov.au/draftplans/exhibition/mamre-road>



113 - 127 Aldington Road, Kemps Creek - Riparian
Constraints Assessment

Ana Orlovic

DOCUMENT TRACKING

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Template 2.8.1

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Abbreviations

Abbreviation	Description
CAA	Controlled Activity Approval
DCP	Development Control Plan
DPI	Department of Primary Industries
ELA	Eco Logical Australia Pty Ltd
FM Act	<i>Fisheries Management Act 1994</i>
KFH	Key Fish Habitat
LEP	Local Environmental Plan
LGA	Local Government Area
NRAR	Natural Resources Access Regulator
VRZ	Vegetated Riparian Zone
WM Act	<i>Water Management Act 2000</i>

1. Introduction

Eco Logical Australia (ELA) was engaged by Ana Orlovic to provide an assessment of the riparian land and waterway values at 113-127 Aldington Road, Kemps Creek (Lot 36 DP258949) (the study area) (Figure 1). The purpose of this assessment is to compare these values to the riparian land values and proposed zoning in the Western Sydney Employment Area Mamre Road Precinct Rezoning Exhibition Discussion Paper.

The purpose of the Discussion Paper is to provide an overview of the proposed amendments to the *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (WSEA SEPP). Among other things, the proposed amendments seek to:

- Secure 93 ha of land (including the riparian corridor within the above site) of environmental conservation value and introduce development controls that support the protection of this land; and
- Amend the WSEA SEPP maps to apply General Industrial, Environmental Conservation, Recreation and Special Use zones to the precinct.

The Discussion Paper outlines the existing conditions within the Mamre Road Precinct, including existing areas of riparian land and high biodiversity value (Figure 2). This figure, as well as the Structure Plan (Figure 3), both map the study area as a potential riparian corridor. This assessment was therefore undertaken to determine if the mapped watercourse within the study area met the definition of a 'river' in accordance with the *Water Management Act 2000* (WM Act).

The study area falls within the Penrith Local Government Area (LGA). Table 1 outlines the applicable *Penrith Local Environmental Plan 2010* (Penrith LEP 2010) planning layers for the study area.

Table 1 Applicable planning layers under the Penrith LEP 2010

Planning Layer	Lot 36 (DP 258949)
Land Zoning	RU2 (Rural Landscape)
Minimum Lot Size	Class AB: 40 ha
Bushfire Prone Land	Vegetation Category 2
Scenic Protection Land	Yes

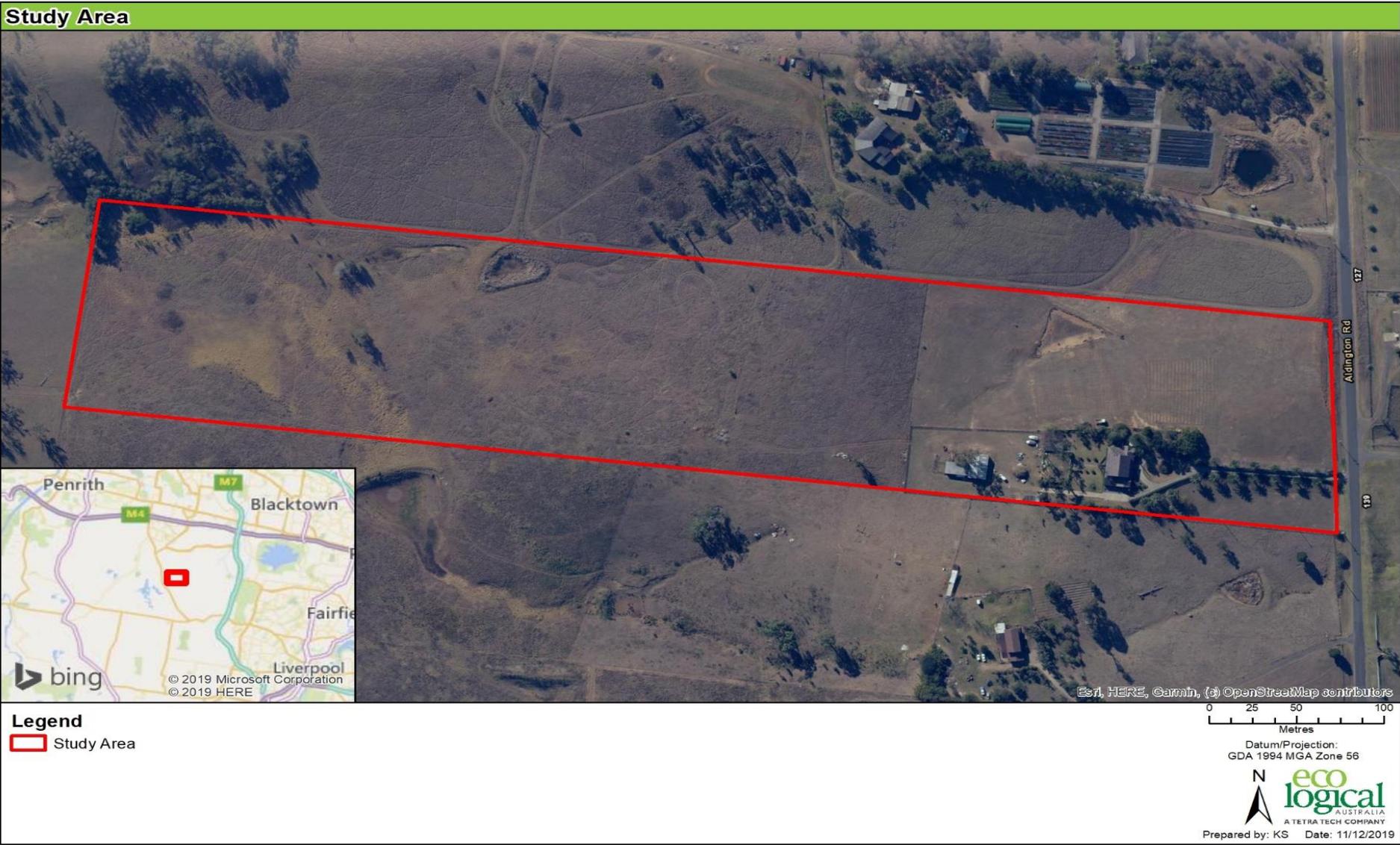


Figure 1 Location of study area

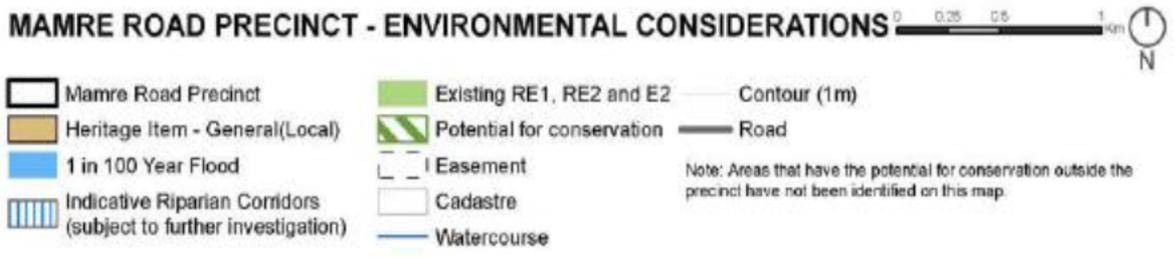
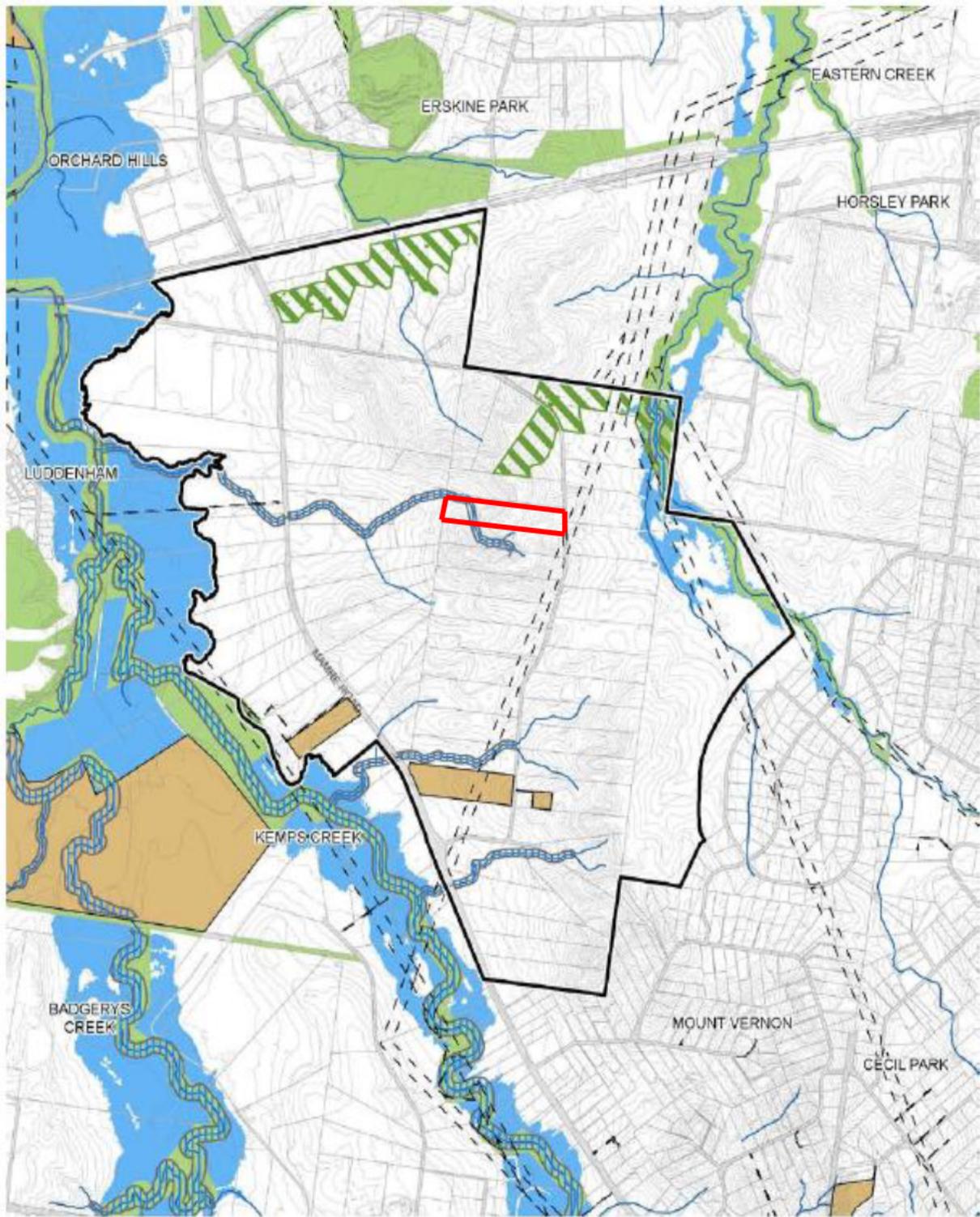
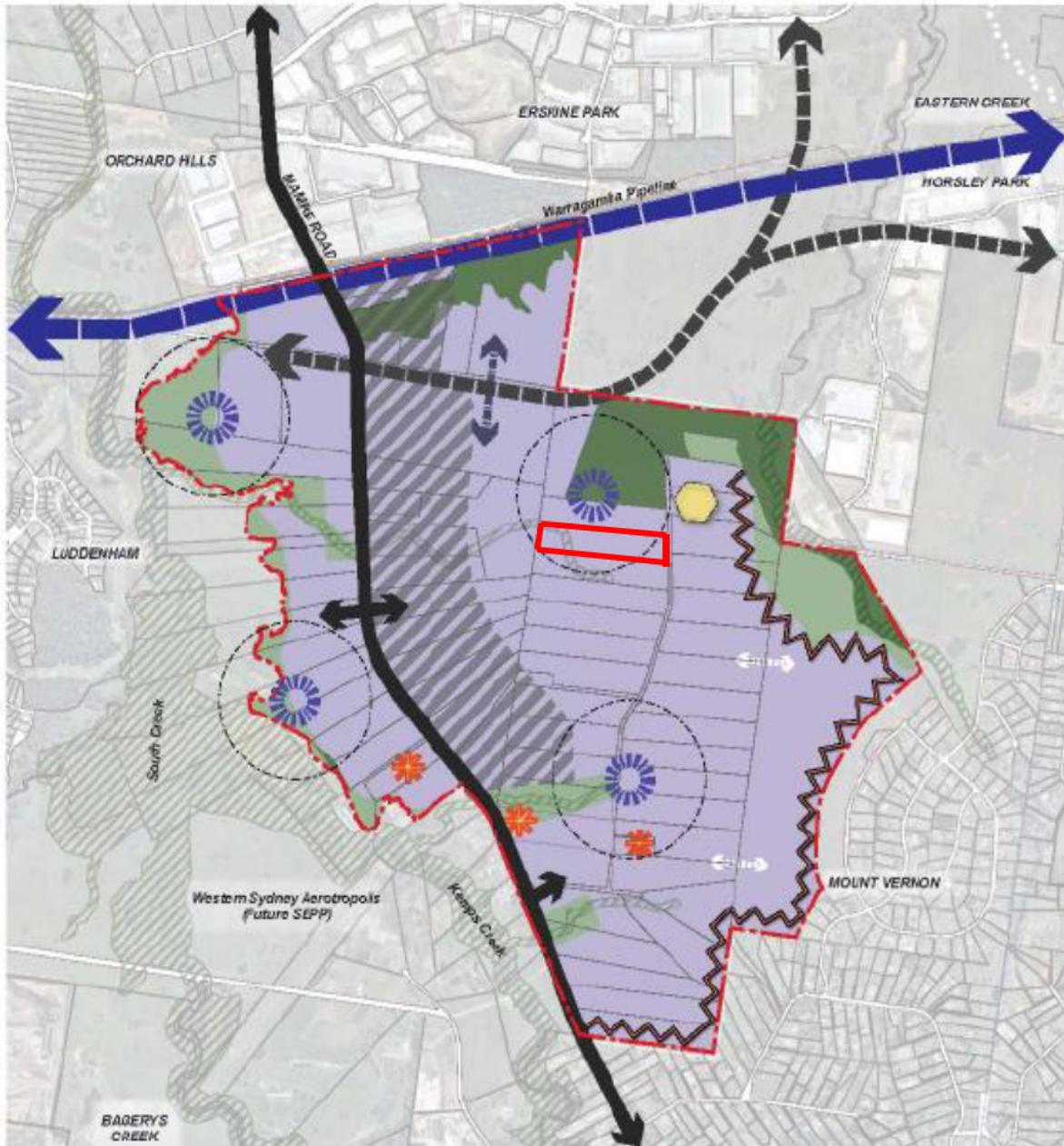


Figure 2: Mamre Road Precinct environmental considerations map (DPIE, 2019). Red indicates study area



Draft Structure Plan

- Precinct boundary
- Cadastral boundaries
- Industrial
- Environmental conservation
- Drainage / open space
- Potential intermodal terminal location (subject to a potential NSW Government Business Case)
- Proposed Western Sydney Freight Line
- ➔ Mamre Road and proposed upgrade
- ➔ Potential Southern Link Road
- ➔ Potential road access
- Indicative road access (subject to further investigation)
- Indicative riparian buffers (subject to further investigation)
- Transition area
- ✿ Local heritage items
- Indicative employment service hub (with 400m catchment)
- Potential reservoir

Note: Refer to Discussion Paper for further information



Figure 3: Mamre Road Precinct structure plan (DPIE, 2019). Red indicates study area.

2. Legislative Context

The table below provides an overview of legislation that is typically relevant at a Development Application stage. Whilst the exhibited Mamre Road Discussion Paper is a higher level document, this information is provided as context for future stages. Further information is also provided in the Appendix.

Table 2: Legislative context

Name	Relevance to the project
<p><i>Fisheries Management Act 1994</i></p>	<p>The <i>Fisheries Management Act 1994</i> (FM Act) governs the management of fish and their habitat in NSW. The objects of the FM Act are to conserve fish stocks and key fish habitats (KFH), conserve threatened species, populations and ecological communities of fish and marine vegetation and to promote ecologically sustainable development. The FM Act also regulates activities involving dredging and/or reclamation of aquatic habitats, obstruction of fish passage, harming marine vegetation and use of explosives within a waterway.</p> <p>DPI Fisheries have not mapped the watercourse within the subject lot as KFH, therefore no permits under Part 7 of the FM Act would be required for any works within the creekline.</p>
<p><i>Water Management Act 2000</i></p>	<p>The WM Act aims to provide for the sustainable and integrated management of the state's water for the benefit for both present and future generations. If a local development is proposed on 'waterfront land' (within 40 m of the top of bank), it is considered a Controlled Activity and requires a Controlled Activity Approval (CAA) under section 91 of the WM Act. The development should be undertaken in accordance with the '<i>Guidelines for riparian corridors on waterfront land</i>' (NRAR, 2018).</p> <p>The WM Act defines a river as:</p> <ol style="list-style-type: none"> 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.
<p>Penrith Development Control Plan 2014 (Penrith DCP)</p>	<p>This section describes the DCP requirements from Penrith DCP. <u>If the site is included in a future land release under the WSEA SEPP, it is likely that a new DCP would apply to the site. The information below is therefore only relevant to a Development Application under the current (not future) planning framework.</u></p> <p>Clause C3 of the Penrith DCP outlines development controls for Water Management within the LGA. Section 3.3 relates to watercourses, wetlands and riparian corridors. The DCP outlines the following controls:</p> <p>1) Controlled Activity Approval under the <i>Water Management Act 2000</i></p> <p>If any activities/land uses are proposed near a watercourse, the <i>Water Management Act 2000</i> may apply, and you may be required to seek a Controlled Activity Approval from the Office of Water (ELA note: now known as Natural Resources Access Regulator, NRAR). Please consult with this Office regarding your proposal. Except for certain exemptions, you are likely to need a controlled activity approval for:</p> <ol style="list-style-type: none"> a. <i>The erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979) on the bank or shore of any river, estuary or lake or within 40 m from the top of its bank or shore;</i> b. <i>Excavation in a river, estuary or lake, or within 40 m from the top of its bank or shore;</i> c. <i>Removal of material (including vegetation) from the bank or shore of any river, estuary or lake or from within 40 m from the top of the bank or shore;</i>

Name	Relevance to the project
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- d. *Deposition of material, whether by way of landfill operations or otherwise on or within the bank or shore of any river, estuary or lake or within 40 m from the top of the bank or shore;*
- e. *Anything which affects the quantity or flow of water in a water source or is likely to do so.*

Even if there is an exemption from the requirement for an approval from this Office, you may still require the approval of Council. You may also require approval from Fisheries (NSW).

2) Preserving Alignment of Watercourses

- a. *Where possible, the natural (or historic) alignment of an existing wetland or watercourse should be retained along with its natural dimensions and flow regimes.*
- b. *Watercourses should not be straightened to reduce the natural meander or flow path or to improve flood conveyance.*
- c. *The alignment of major overland flow paths should be recognised in site planning and development design.*

3) Avoiding Modifications to Natural Waterbodies

- a. *There should be no modifications to a natural (or historic) waterbody in its dimensions, depth or bank height unless it seeks to enhance the ecological outcomes of the waterbody.*
- b. *Watercourses should not be modified to maximise flood conveyance unless there are no other means to avoid damage to existing dwellings or infrastructure that cannot be relocated.*
- c. *Natural hydrological processes are to be maintained where possible, including natural vegetation and the flow regimes to maintain creek line stability and the health of terrestrial and aquatic plant communities.*

4) Protection and Enhancement of Riparian Corridors

- a. *All riparian corridors should comprise a vegetated riparian zone along each side of the waterway*
- b. *The vegetated riparian zone should retain or be vegetated with, fully structured native vegetation (trees, shrubs and groundwater species).*
- c. *In relation to activities within the vegetated riparian zone, such as cycleways and paths, detention basins, stormwater management devices and essential services, compliance is required with the 'riparian corridor matrix' in the NSW Office of Water's Guidelines for riparian corridors on waterfront land (July 2012).*
- d. *A managed buffer zone outside the vegetated riparian zone should be provided (where possible), to provide an additional buffer between development and the vegetated riparian zone. Land uses within the managed buffer zone could include roads, paths, playgrounds and stormwater management devices.*
- e. *Asset protection zones should be located outside the vegetated riparian zones*
- f. *Appropriate widths for vegetated riparian zones will depend on the specific ecosystems being managed. Council's approach to determining the Order of Stream is based on the Strahler methodology, which is consistent with NRAR's guidelines. Council reserves the right to assess each riparian corridor and each development on its merits. In general, however, the width will depend on the order of the stream/watercourse (see Figure C3.2) which provides an indication. The width should be measured from the top of the highest bank on both sides of the stream/watercourse, excluding any managed buffer zone, and shall comply with the requirements.*

Where, a watercourse has had a gabion wall or channellisation constructed, this should be removed to restore a natural meander for ecological purposes, except where:

- i) *The length of the watercourse through the development site is less than 50 m; or*
- ii) *The watercourse through the development site is a middle section of the overall watercourse, and it is technically unfeasible to reverse the channellisation; or*

Name	Relevance to the project
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iii) *Restoring the natural meander will create a hazard.*

Enhancement of riparian corridors should, where possible:

- i) *Mimic natural hydrological regimes for watercourse treatments;*
- ii) *Replicate the natural watercourse through creation of a meandering channel, rather than straight channels;*
- iii) *Simulate natural roughness having regard to riparian requirements and flow velocities to sustain vegetation groupings;*

Roughness: A watercourse's shape, smoothness of its channel and amount of vegetation in the channel all affect the 'roughness' of that watercourse and the speed of water conveyed in the channel.

- iv) *Minimise ongoing maintenance requirements through channel design;*
- v) *Establish a functional riparian zone and natural channel section;*
- vi) *Maintain or create a full assemblage of vegetation with likely natural obstructions;*
- vii) *Create variations in channel cross-section and provide an opportunity for meandering of the channel within the flood plain;*
- viii) *Minimise likely damage to channel banks and vegetation from storm flow through channel design; and*
- ix) *Ensure that the channel has the capacity for appropriate flood flows having regard to the steepness of the catchment; channel modifications and future liability for land owners, Council and government agencies.*

There may be a need for a sensitivity analysis for a range of flood hydrology and design flows having regard to supporting flood studies for development.

D. Lifting the Bar

The following represent some ways in which applicants can demonstrate additional commitment to the protection of watercourses, wetlands and riparian corridors expressed in this Plan. Demonstration of this commitment may lead to Council considering variation of development controls. Applications that vary the development controls listed in this section will need to demonstrate that the proposed development complies with the objectives relevant to the development controls it seeks to vary.

a) No development or site disturbance occurs:

- i) *Within 40 m on either side, measured from the top of the bank, of a 2nd Order stream/watercourse; or*
- ii) *Within 20 m on either side, measured from the top of the bank, of a 1st Order stream/watercourse or significant natural drainage line; and*
- iii) *Where riparian corridors are also acting as a significant wildlife corridor (subject to Council's review), the minimum area to be protected or revegetated is 40 m on either side of the watercourse. This may be increased to up to 60 m if the wildlife corridor is significant, or if it forms a major link to an extensive area of natural bushland (e.g. nature reserve or national park).*

3. Methodology

The field survey for this constraints assessment was conducted on 11 December 2019 by aquatic ecologist Claire Wheeler. The site inspection was conducted to:

- determine if the watercourse marked on the 1:25,000 topographical map met the definition of a 'river' under the WM Act; and
- identify areas of potential aquatic habitat in watercourses identified in the study area.

A GPS-enabled tablet containing the Strahler stream order extracted from Department of Primary Industries' (DPI's) GIS dataset was used during the survey to locate the mapped watercourse on site.

4. Results

DPI mapping showed one unnamed watercourse within the study area (Figure 4), a 2nd order watercourse in the west of the site. This watercourse is a tributary of South Creek / Wianamatta, within the Hawkesbury Nepean catchment.

A map of the validated watercourse within the study area is located in Figure 7. This map also shows the location of photo points along the location of the mapped watercourse. As described below, there is no watercourse channel within the property, although there are likely to be channels both upstream and downstream.

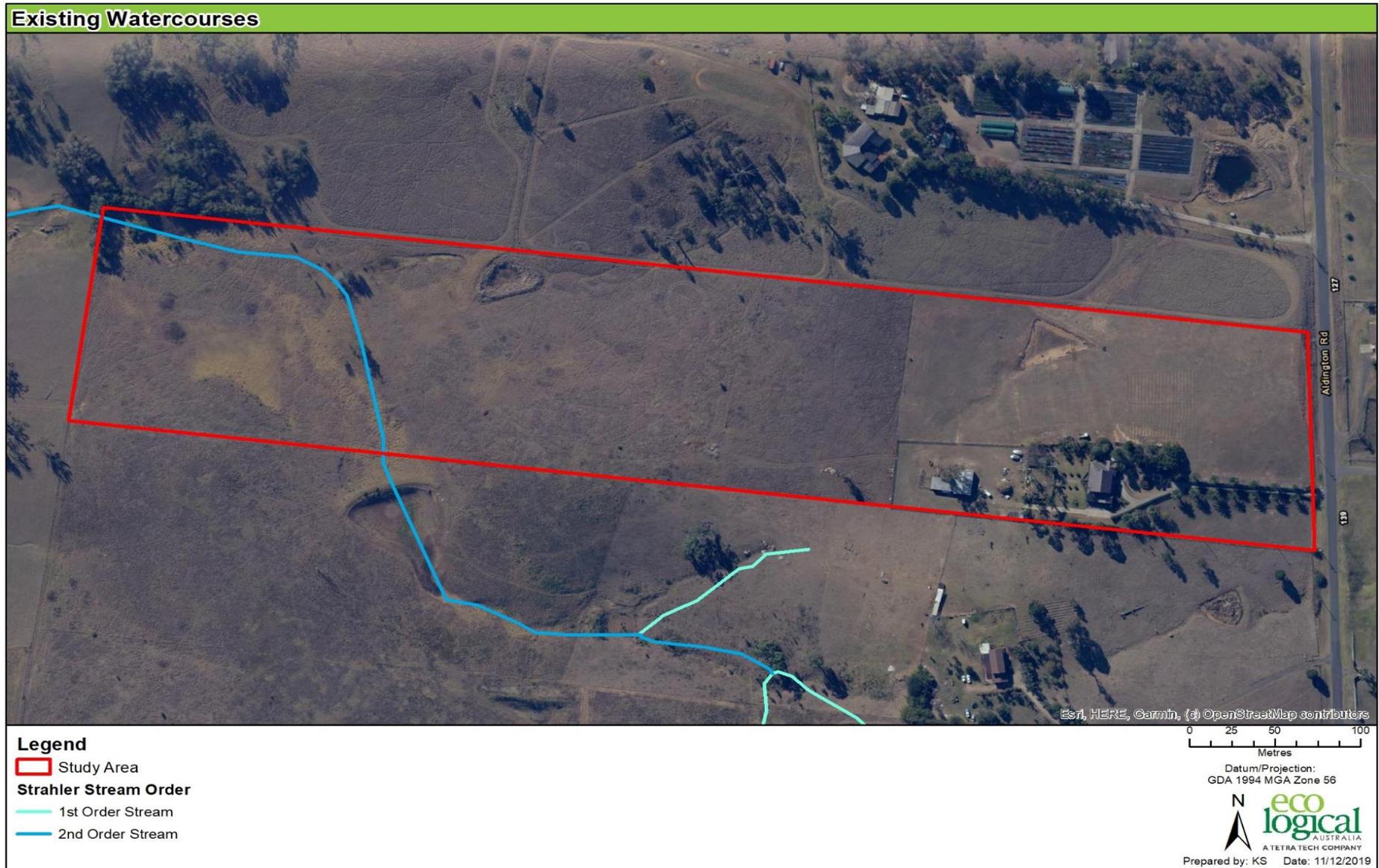


Figure 4: DPI mapped Strahler line within study area

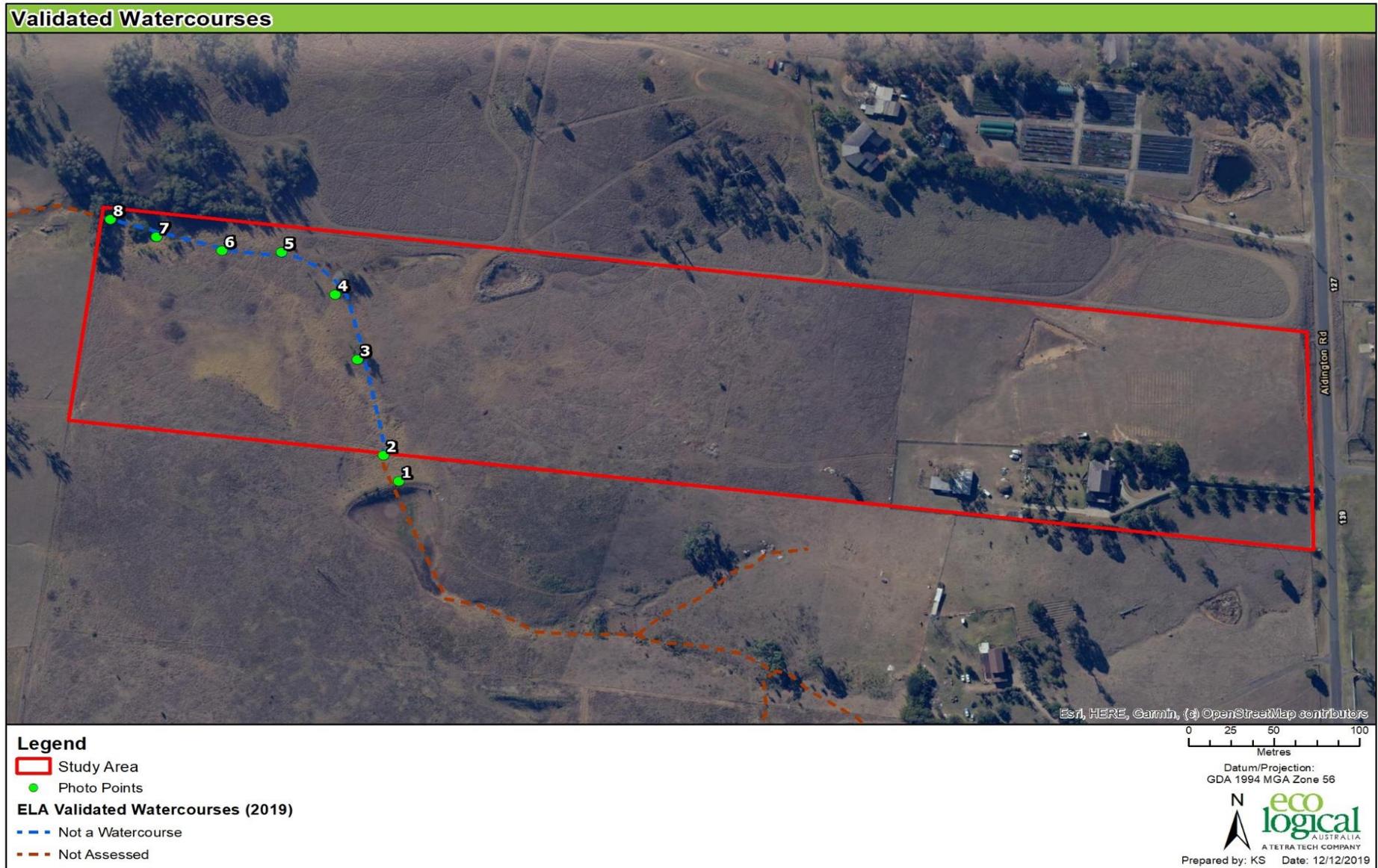


Figure 5: ELA validated watercourses and location of photo points

Two farm dams were located within the study area. The dam within the eastern portion of the property (Figure 6) was located within a grass paddock in a shallow gully. Small pockets of fringing vegetation surrounded the dam, including *Juncus* sp. Eroded, bare banks were observed on the northern side of the dam and a few ducks were seen inhabiting the vegetation near the dam. It is considered that aquatic habitat within this dam is good due to the presence of emergent macrophytes such as *Juncus* sp. This dam was not located on any mapped watercourse.

The dam within the north eastern area of the site (Figure 7) was densely surrounded by *Typha orientalis* (Broadleaf Cumbungi) situated amongst predominantly exotic pasture grasses. Similar to the dam in the eastern area of the site, this dam was not located on a mapped watercourse.



Figure 6: Dam in eastern section of study area, looking north.



Figure 7: Dam in north western section of study area, looking north west.

Upstream of where the mapped watercourse was located within the study area, a dry dam was observed near the northern boundary of Lot 35 DP258949 (Figure 8). The outline of the dam could be seen but it appeared that it had not held water for some time. Figure 9 shows the view looking in a downstream direction at Photo Point 1, where there is no defined channel.

Photo point 2 is located on the southern boundary of the study area, where the mapped second order watercourse enters the property. As shown in Figure 10 and Figure 11, there was no defined channel at this location. Although there was no defined spill way on the downstream side of the dam, it is possible that water flows over this preferential flow path during periods of heavy rain. Vegetation within this area was predominantly exotic, with species including *Lactuca serriola* (Prickly Lettuce) and *Cirsium vulgare* (Spear Thistle) growing in this location, as well as a few sparse native *Juncus usitatus* (Common Rush) plants.



Figure 8: Photo point 1, looking upstream.



Figure 9: Photo point 1, looking downstream.



Figure 10: Photo point 2, looking upstream.



Figure 11: Photo point 2, looking downstream.

No defined channel was observed at Photo point 3 (Figure 12 and Figure 13), where the area was covered in dense exotic pasture grasses and a few *Casuarina* sp. saplings. To the north of this area, at Photo point 4, where the mapped watercourse was located, was an area covered in dense *Stenotaphrum secundatum* (Buffalo Grass) and no defined channel was observed at this location (Figure 14 and Figure 15).



Figure 12: Photo point 3, looking upstream.



Figure 13: Photo point 3, looking downstream.



Figure 14: Photo point 4, looking upstream.



Figure 15: Photo point 4, looking downstream.

Towards the northern boundary of the study area, Photo point 5 was located on the mapped watercourse. As seen in Figure 16 and Figure 17, no defined channel was observed within this area. There was no shrub layer and very limited, scattered canopy trees. Where the mapped watercourse was located at Photo point 6, the condition of the land was very similar to Photo point 5, with dense *Stenotaphrum secundatum* dominating the ground layer and no bed or banks visible (Figure 18 and Figure 19).



Figure 16: Photo point 5, looking upstream.



Figure 17: Photo point 5, looking downstream.



Figure 18: Photo point 6, looking upstream.



Figure 19: Photo point 6, looking downstream.

A large dense patch of *Rubus fruticosus* agg. (Blackberry) was located near Photo point 7 and extended into the neighbouring property to the north. No defined bed or banks were observed within the location of the mapped watercourse in this area (Figure 20 and Figure 21) and there was a small stand of *Ligustrum lucidum* (Broad leaf Privet) adjacent to the *Rubus fruticosus* patch.

At the location of the mapped watercourse in the north eastern end of the property, there was no defined channel (Photo point 8; Figure 22 and Figure 23). A stand of *Casuarina* sp. was located adjacent to the fenceline on the western and northern boundaries of the property. Dense exotic pasture grasses dominated the ground layer. In the neighbouring property to the north, Lot 37 DP258949, there was a channel that could be seen leading into the dam on Lot 59, DP259135. This channel was approximately 15 m wide and the highest bank was located approximately 5 m from the boundary of the study area.



Figure 20: Photo point 7, looking upstream.



Figure 21: Photo point 7, looking downstream.



Figure 22: Photo point 8, looking upstream.



Figure 23: Photo point 8, looking downstream.

5. Conclusion

It is ELA's opinion that the watercourse within the study area does not meet the definition of a 'river' under the WM Act 2000, as there were no defined bed and banks observed in the areas where the mapped watercourse was located. However, no assessment was undertaken of the mapped watercourse upstream of the study area. If the watercourse upstream of the property meets the definition of a 'river' under the WM Act 2000, then the reach of the watercourse that passes through Lot 36 DP258949 would be considered a 'river', and the guidelines for recommended widths of riparian zones and permissible activities within this zone would be relevant.

Given the lack of channel on 113-127 Aldington Road, there are several options:

1. re-creation of a channel and riparian zone as indicated in the Discussion Paper
2. removal of the riparian zone from this stretch of mapped watercourse entirely (i.e upstream as well) if further field survey determines upstream environments have negligible aquatic habitat values
3. maintain a channel for stormwater flow through the property, but allow significant flexibility in channel alignment (i.e location) given there is currently no channel on site. This would for riparian outcome to be achieved whilst facilitating a development outcome.

6. References

NRAR (2018). *Guidelines for controlled activities on waterfront land: Riparian corridors*. Available from https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/156865/NRAR-Guidelines-for-controlled-activities-on-waterfront-land-Riparian-corridors.pdf

Appendix A Planning and Legislative Requirements

Water Management Act 2000

Development on waterfront land (i.e. land within 40 m of a watercourse or waterbody) requires a CAA under the WM Act 2000. To guide land use planning and decisions on watercourses and their riparian zones, NRAR published *Guidelines for Controlled Activities on Waterfront Land* (2018). These guidelines are generally used in conjunction with a ground-truthing riparian assessment. The guidelines essentially set out the preferred outcome that NRAR seeks. They are however only a guideline, and development that is inconsistent with the guideline can be approved, however it would require much greater justification and have a strong merits argument.

Whilst the mapped watercourse within the study area did not meet the definition of a 'river' under the WM Act 2000, the remainder of this watercourse located to the south of the property was not assessed as part of these works. If there is a part of this watercourse located upstream of this property that meets the definition of a 'river' under the WM Act 2000, then the watercourse within the study area is then considered to be a 'river'. This would require further assessment to determine the status of this watercourse. If the upstream section of the mapped watercourse was determined to meet the definition of a 'river', the NRAR guidelines relating to riparian zone widths and permissible development within these areas would require consideration.

The guidelines outline the need for a Vegetated Riparian Zone (VRZ) adjacent to the channel to provide a transition zone between the terrestrial environment and watercourse. This vegetated zone helps maintain and improve the ecological functions of a watercourse whilst providing habitat for terrestrial flora and fauna. The VRZ plus the channel (bed and banks of the watercourse to the highest bank) constitute the 'riparian corridor' (Figure 24). NRAR recommends a VRZ width based on watercourse order as classified under the Strahler System of ordering watercourses and using Hydroline Spatial Data which is published on the department's website (Table 3).

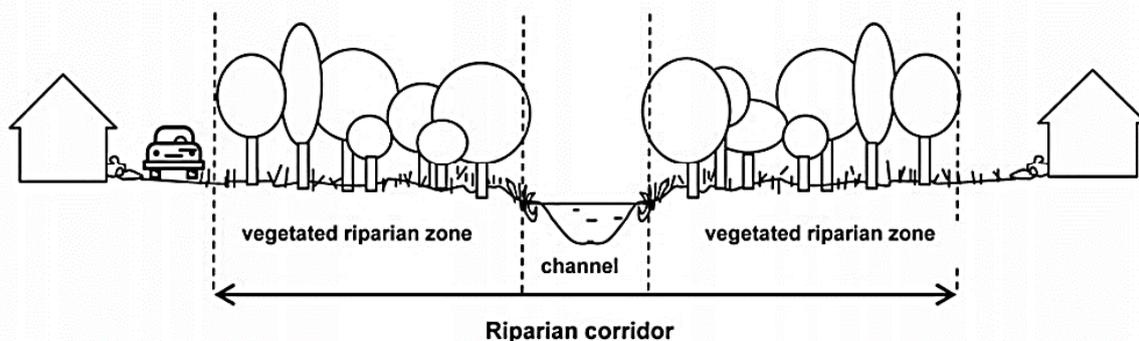


Figure 24: Vegetated Riparian Zone and watercourse channel comprising the riparian corridor (NRAR, 2018).

Table 3: Recommended riparian corridor widths relative to Strahler Order (NRAR, 2018).

Watercourse type	VRZ width (each side of watercourse)	Total riparian corridor width
1 st order	10 m	20 m + channel width
2 nd order	20 m	40 m + channel width
3 rd order	30 m	60 m + channel width
4 th order and greater	40 m	80 m + channel width

Non-riparian uses can be authorised by NRAR within the outer 50% of the VRZ (Table 4), as long compensation (1:1 offset) is achieved within the site. The outer VRZ that is impacted must be offset elsewhere on site using the ‘averaging rule’ (Figure 25).

Table 4: Riparian corridor (RC) matrix of permissible use (NRAR 2018).

Stream order	Vegetated Riparian Zone (VRZ)	RC off-setting for non RC uses	Cycleways and paths	Detention basins		Stormwater outlet structures and essential services	Stream realignment	Road crossings		
				Only within 50% outer VRZ	Online			Any	Culvert	Bridge
1 st	10m	•	•	•	•	•	•			
2 nd	20m	•	•	•	•	•	•			
3 rd	30m	•	•	•		•		•	•	
4 th +	40m	•	•	•		•		•	•	•

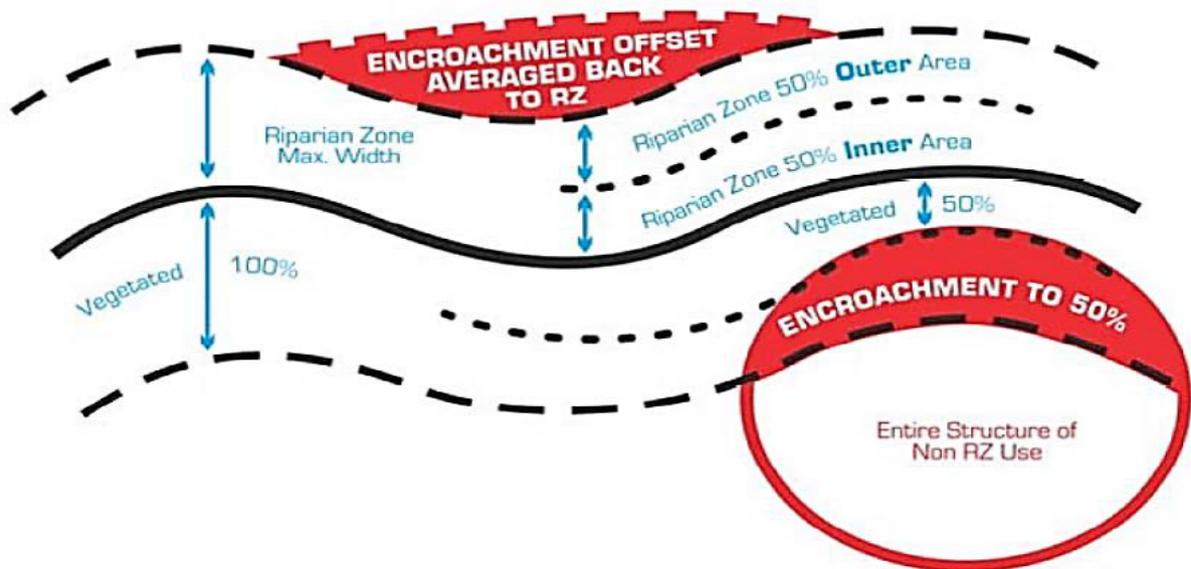


Figure 25: Riparian ‘averaging rule’ for offsetting encroachment into the outer 50% of the VRZ (NRAR 2018).

Table 3 indicates that for a 2nd order watercourse, NRAR requires a VRZ of 20 m from the top of bank. Note however that Penrith Council DCP has a section called 'lifting the bar' where they recommend a 40 m buffer from the top of bank (see Table 2 in this report).

The removal of the dams within the study area may be subject to conditions of consent from Penrith Council, such as the preparation of a dam de-watering plan, to ensure impacts to downstream environments are minimised. Consultation with Penrith Council would be recommended in order to determine what conditions would need to be satisfied prior to the decommissioning or modification of this dam.

Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) provides for the protection, conservation, and recovery of threatened species defined under the Act. It also makes provision for the management of threats to threatened species, populations, and ecological communities defined under the Act, as well as the protection of fish and fish habitat in general. In particular, the FM Act has mechanisms for the protection of marine vegetation (mangroves, saltmarsh, seagrass and seaweeds) on public water, land and foreshores, as well as the dredging, reclamation or obstruction of fish passage on or adjacent to Key Fish Habitat. This includes direct and indirect impacts, whether temporary or permanent.

No Key Fish Habitat was mapped on the site and no threatened or protected species listed under FM Act are known to occur within the vicinity of the site.

Therefore, a permit under the FM Act would not be required.

