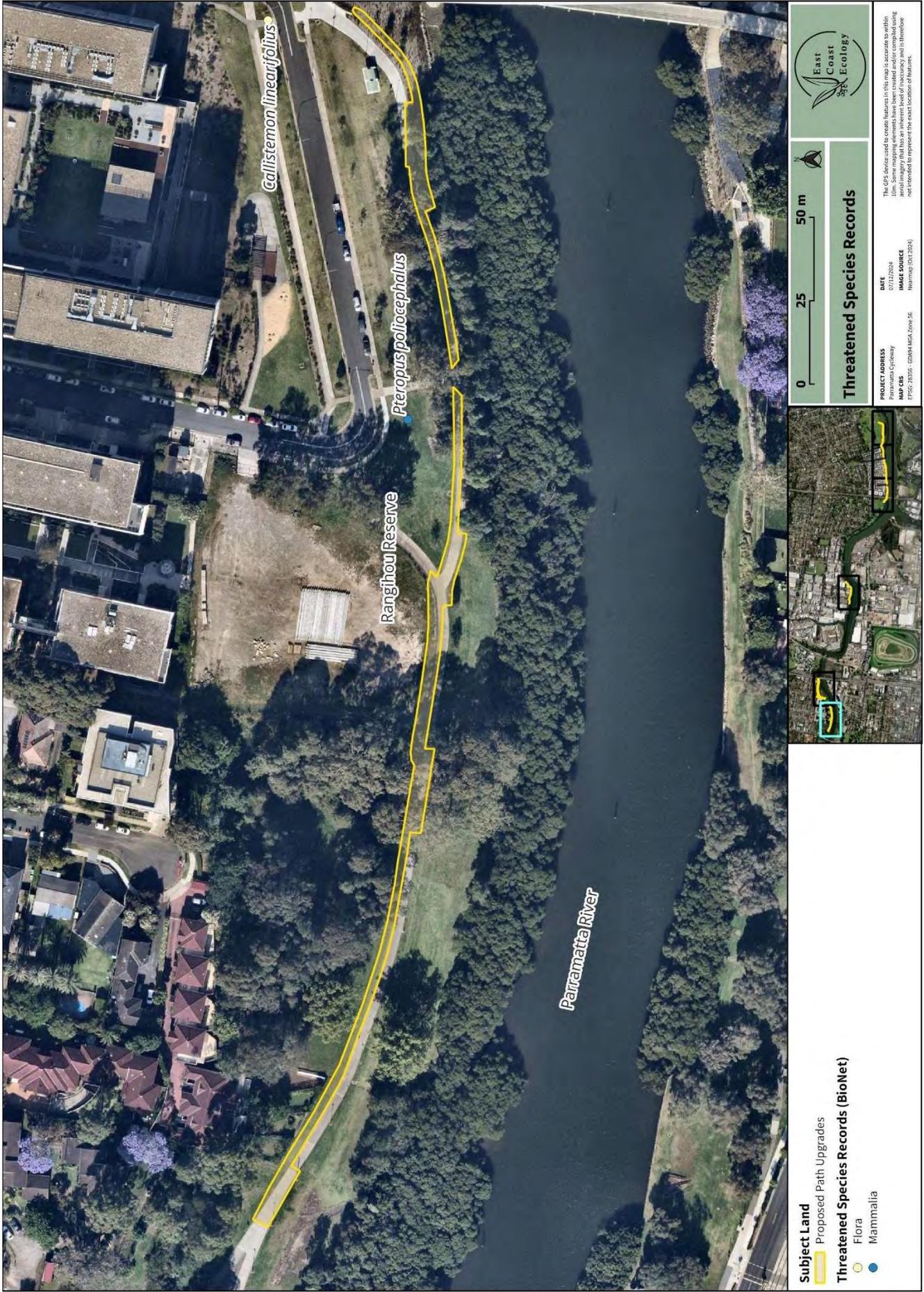
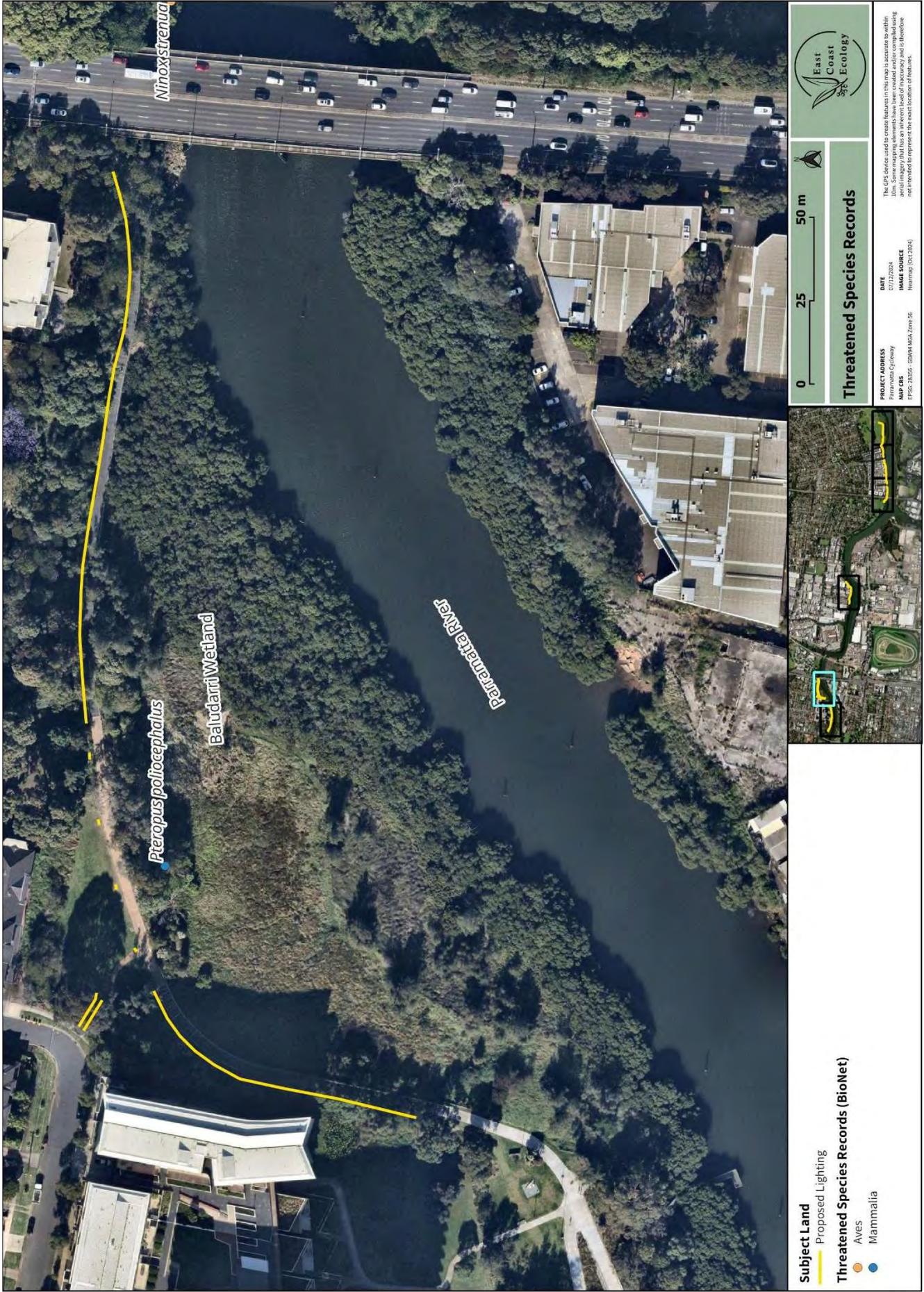


<i>Monarcha trivirgatus</i> (Spectacled Monarch)	Migratory, Bonn
<i>Motacilla flava</i> (Yellow Wagtail)	Migratory, CAMBA, JAMBA, ROKAMBA
<i>Myiagra cyanoleuca</i> (Satin Flycatcher)	Migratory, Bonn
<i>Rhipidura rufifrons</i> (Rufous Fantail)	Migratory, Bonn

CAMBA = *China-Australia Migratory Bird Agreement*, JAMBA = *Japan-Australia Migratory Bird Agreement*, ROKAMBA = *Republic of Korea-Australia Migratory Bird Agreement* and Bonn = *Convention on the Conservation of Migratory Species of Wild Animals*.



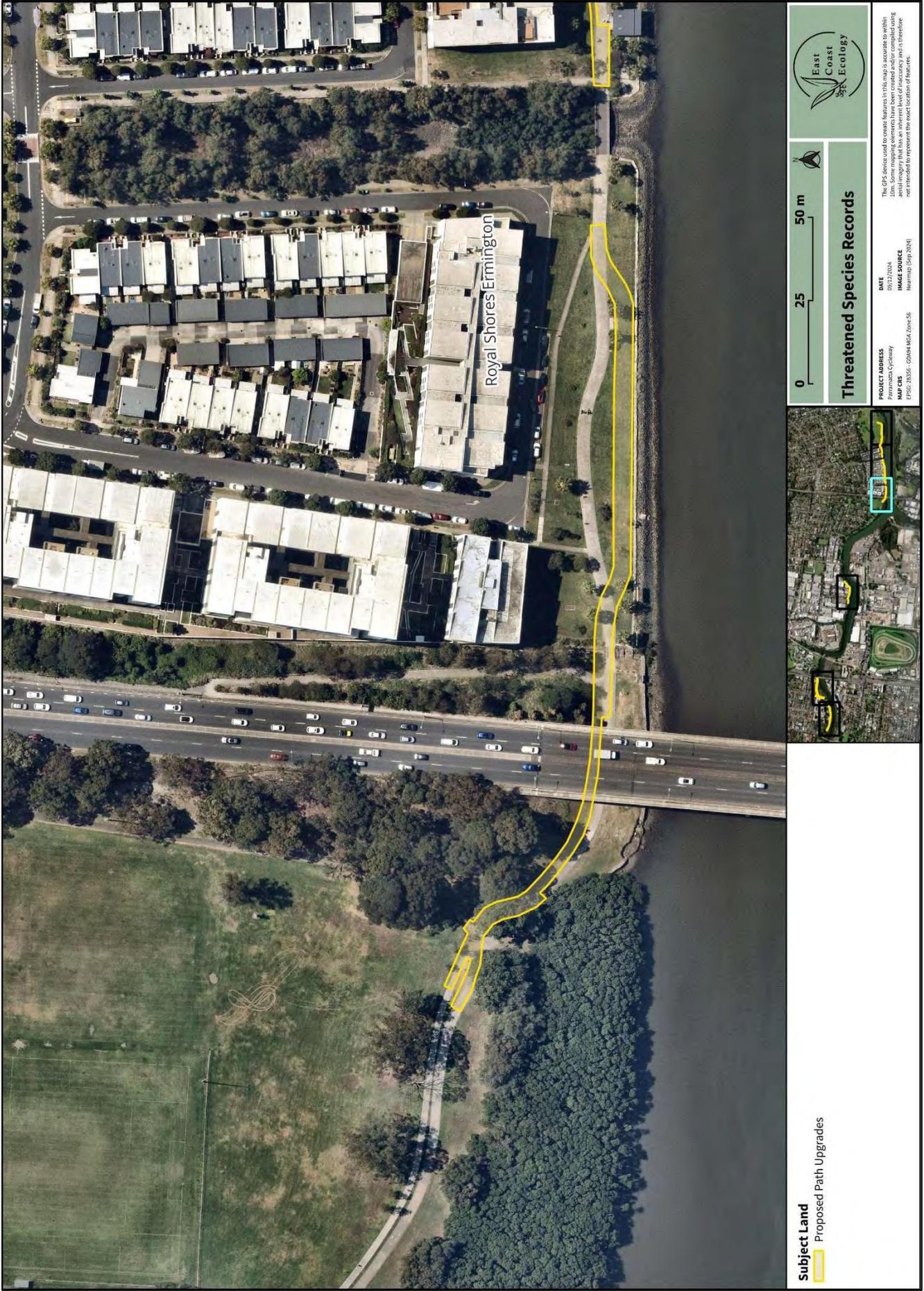
**Figure 19. Threatened species records in proximity to the Subject Land (Rangihou Reserve).**



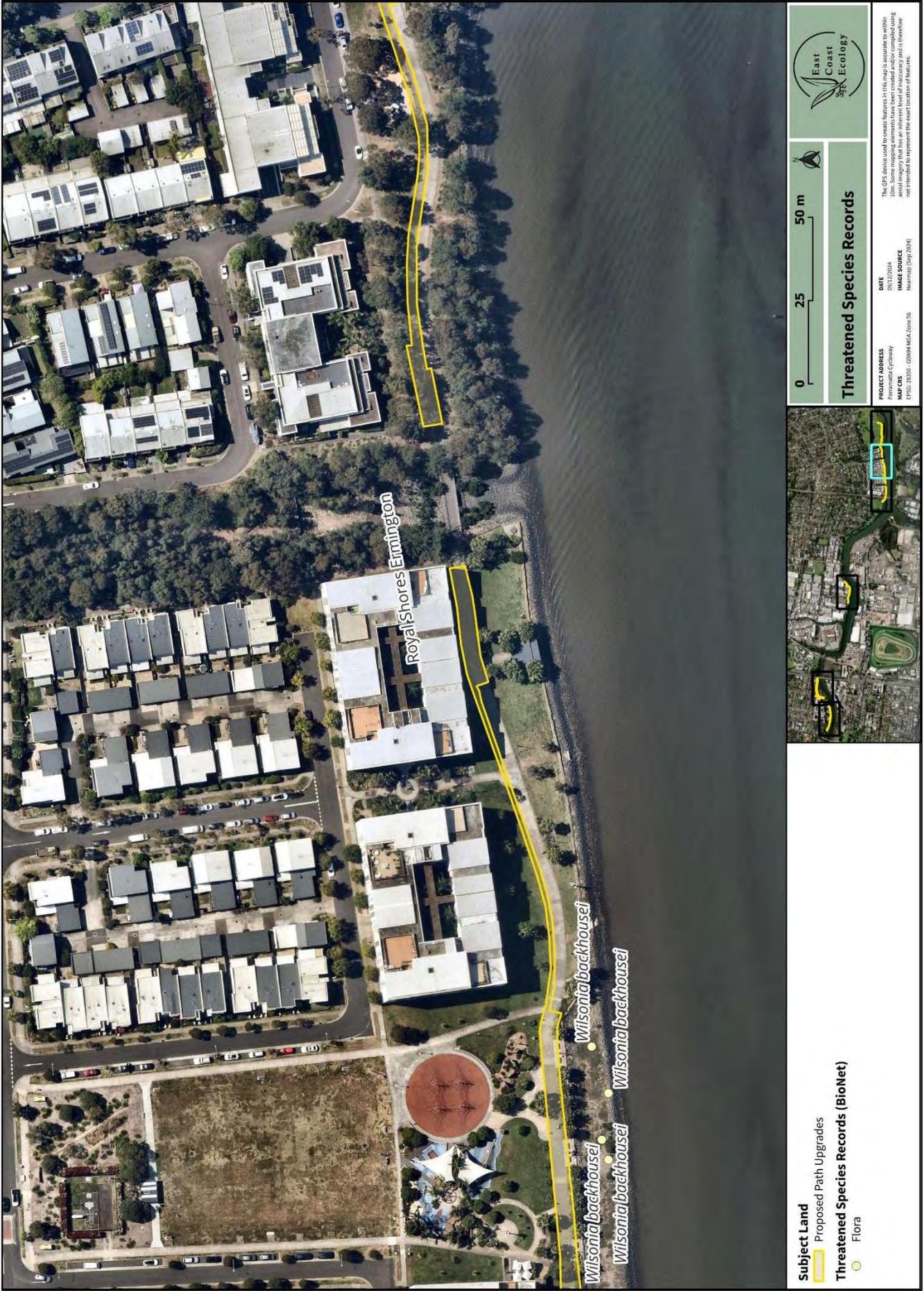
**Figure 20. Threatened species records in proximity to the Subject Land (Baludarrri Wetland).**



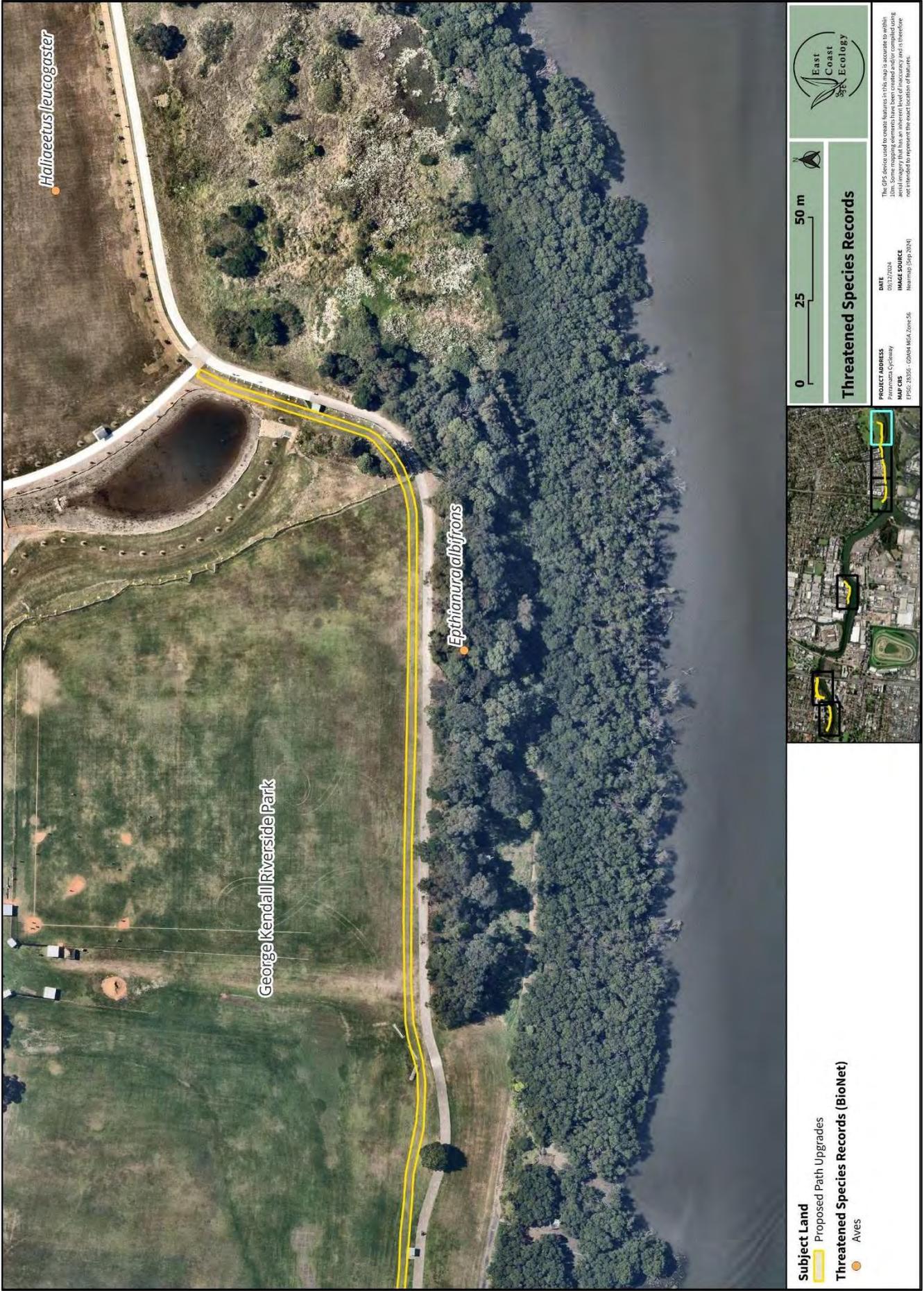
**Figure 21. Threatened species records in proximity to the Subject Land (Reid Park).**



**Figure 22. Threatened species records in proximity to the Subject Land (Royal Shores Ermington).**



**Figure 23. Threatened species records in proximity to the Subject Land (Royal Shores Ermington).**



**Figure 24. Threatened species records in proximity to the Subject Land (George Kendall Riverside Park).**

## 6. IMPACT SUMMARY

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### 6.1 Direct Impacts

#### 6.1.1 Impacts to Plant Community Types

The primary direct ecological impact of the proposed activity is clearing of 31 native trees. The following trees, characteristic of PCT 4006, are proposed for removal:

- 2 x *Corymbia citriodora* (T12, T253)
- 1 x *Allocasuarina torulosa* (T13)
- 3 x *Corymbia maculata* (T17, T24, T231)
- 4 x *Angophora costata* (T39, T110, T150 – T151)
- 9 x *Casuarina glauca* (T40, T232, T276 – T282)
- 1 x *Livistona australis* (T155)
- 5 x *Casuarina cunninghamiana* (T164, T166, T252, T256 – T257)
- 1 x *Glochidion ferdinandi* (T236)
- 2 x *Melaleuca quinquenervia* (T239, T248)
- 2 x *Melaleuca styphelioides* (T179, T273)
- 1 x *Eucalyptus spp.* (T180), and
- Occasional native shrubs and groundcovers.

Based on the location (i.e. in garden beds), all trees have likely been planted but still provide a modified form representative of PCT 4006 within the Subject Land.

Additionally, the following three exotic species also require removal from within the Subject Land to facilitate the proposal:

- 1 x *Pistacia chinensis* (T38)
- 1 x *Phoenix canariensis* (T226), and
- 1 x *Olea europaea subsp. cuspidata* (T181).

#### 6.1.2 Impacts to Protected Fauna

All vegetation proposed for removal and/or pruning provides minor foraging habitat for a suite of protected fauna species. Sensitive and/ or specialist fauna habitats (e.g. nectar/lerp-bearing trees and sap and gum sources) were present within the Subject Land. No hollow-bearing trees were present within the Subject Land at the time of the assessment.

In addition, a compliance permit has been acquired by City of Parramatta that allows for all proposed lighting and handrail construction within the Baludarri Wetlands areas of the project. It is predicted that adjacent habitat outside the Subject Land is likely to experience a negligible increase to indirect impacts created by noise, dust and light spill, during construction and operation of the future development of the Subject Land.

Site lighting will be designed to minimise glare and light spillage into adjoining properties and vegetation and be consistent with the requirements of Australian Standards and Guidelines 4282-2019 Control of the

obtrusive effects of outdoor lighting. Additional control measures are to be installed to minimise glare and light spillage into adjoining vegetation to minimise potential impacts to fauna species and lighting is to be installed in a direction oriented away from the vegetation within the Baludarri Wetlands. These indirect impacts will be managed via best practices outlined in an approved Construction Environmental Management Plan. The Subject Land already occurs within a disturbed landscape where light and noise pollution is already moderate. These impacts are not likely to substantially increase due to the proposed activity.

### **6.1.3 Impacts to Threatened Species and Communities**

The proposed activity will result in the removal of 31 native trees characteristic the following BC & EPBC Act Listed TEC;

- Swamp Sclerophyll Forest of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (endangered).

Each of these trees belong to a now highly modified landscape. The result of a Test of Significance (5-Part Test) under the BC Act was that the proposed activity will not result in a 'significant impact' on any threatened entities and therefore the Biodiversity Offset Scheme is not triggered (**Appendix C & Appendix D**).

Although all areas of native vegetation within the Subject Land may be considered minor, potential habitat for threatened fauna; based on the minor nature of the impacts, no threatened fauna species were considered likely to be significantly impacted by the proposed activity. No threatened flora were identified within the Subject Land. A likelihood of occurrence table for threatened flora and fauna species within the Subject Land is presented in **Appendix B**.

Based on a lack of suitable habitat constraints, or the minor nature of the impact (i.e. select tree removal) no significant impact is likely and no further assessment was required. As such, an SIS or a BDAR is not required. The proposed activity will not result in a 'significant impact' on any MNES and a referral to the Australian Government Minister for the Environment is not required.

# 7. AVOIDANCE, MINIMISATION & MITIGATION

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## 7.1 Avoidance and Minimisation

When assessing the biodiversity impacts of a proposed activity there are three key considerations. These three approaches are listed in a descending order of best biodiversity outcomes:

- Avoid: measures taken by a proponent such as careful site selection, or actions taken through the design, planning, construction and operational phases of the development to completely prevent impacts on biodiversity values, or certain areas of biodiversity
- Minimise: a process applied throughout the development planning and design life cycle that seeks to reduce the residual impacts of development on biodiversity values
- Compensate: measures in a proposed activity to compensate for the biodiversity values lost. This can be achieved through offsets (financial or not).

Given the nature of the proposed activity (widening of an existing pathway), opportunities to change the project design in favour of vegetation retention are fairly limited and defined by engineering requirements. The proposed activity has been designed with consideration of impact avoidance to nearby Coastal Wetlands. Furthermore, laydown and storage areas will be positioned outside of native vegetation to avoid any additional impacts to native vegetation beyond the unavoidable impacts associated with the proposed activity.

## 7.2 Impact Mitigation and Minimisation Recommendations

This section of the report details recommended efforts to avoid and minimise impacts on biodiversity values associated with the proposed activity. Measures to be implemented before, during, and post construction are detailed in **Table 9**.

**Table 9. Measures to be implemented before, during, and after construction to avoid and minimise the impacts of the proposed activity.**

Action	Outcome	Timing	Responsibility
<b>Assigning a Project Ecologist for Vegetation Clearing</b>	<p>Prior to works, the applicant should commission the services of a qualified and experienced Ecologist (minimum 3 years' experience). The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific License issued under the BC Act. The Ecologist will be commissioned to implement the following measures in accordance with best-practice, publicly available guidelines:</p> <ul style="list-style-type: none"> <li>• Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024)</li> <li>• Vegetation and Habitat removal should be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024)</li> <li>• Fauna will be managed in accordance with Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024)</li> <li>• Habitat will be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024)</li> </ul> <p>The unexpected species find procedure is to be followed under Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024) if threatened flora and fauna, not assessed in the biodiversity assessment, are identified in the Subject Land.</p>	<p>Prior to Construction</p>	<p>City of Parramatta Council Ecologist</p>

Action	Outcome	Timing	Responsibility
<b>Edge Effects on Adjacent Native Vegetation and Habitat</b>	Exclusion zones will be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TFNSW, 2024)	During Construction	City of Parramatta Council
<b>Erosion and Sedimentation</b>	Appropriate erosion and sediment control should be erected and maintained at all times during construction in order to avoid the potential of incurring indirect impacts on biodiversity values. Erosion and sediment controls would be established in accordance with an erosion and sedimentation plan to be produced for the proposed works. As a minimum, such measures should comply with the relevant industry guidelines such as 'the Blue Book' (Landcom, 2004).	During Construction	City of Parramatta Council
<b>Storage and Stockpiling (Soil and Materials)</b>	Allocate all storage, stockpile, and laydown sites away from any vegetation that is planned to be retained. Avoid importing any soil from outside the site in order to avoid the potential of incurring indirect impacts on biodiversity values as this can introduce weeds and pathogens to the site. If materials are required to be imported for landscaping works, they are to be sterilised according to industry standards prior to importation to site.	During Construction	City of Parramatta Council
<b>No Weeds imported on to the Subject Land</b>	No priority or environmental weeds, pathogens or other biosecurity issues (e.g. fireants) are to be imported on to the site prior to or during construction works.	During Construction	City of Parramatta Council
<b>Minimisation of Light Spill</b>	Control measures (e.g. the directional lighting and task lighting) are to be installed to minimise glare and light spillage into adjoining vegetation to minimise potential impacts to fauna species.	During Construction and Operation	City of Parramatta Council

## 8. CONCLUSION

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The proposed activity will result in the clearing of the following 31 native trees characteristic of PCT 4006:

- 2 x *Corymbia citriodora* (T12, T253)
- 1 x *Allocasuarina torulosa* (T13)
- 3 x *Corymbia maculata* (T17, T24, T231)
- 4 x *Angophora costata* (T39, T110, T150 – T151)
- 9 x *Casuarina glauca* (T40, T232, T276 – T282)
- 1 x *Livistona australis* (T155)
- 5 x *Casuarina cunninghamiana* (T164, T166, T252, T256 – T257)
- 1 x *Glochidion ferdinandi* (T236)
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- 2 x *Melaleuca styphelioides* (T179, T273)
- 1 x *Eucalyptus spp.* (T180), and
- Occasional native shrubs and groundcovers.

The proposed activity will result in the removal of 31 native trees characteristic the following BC Act Listed TEC;

- Swamp Sclerophyll Forest of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (endangered).

Additionally, the following three commonly planted exotic species also require removal from within the Subject Land to facilitate the proposal:

- 1 x *Pistacia chinensis* (T38)
- 1 x *Phoenix canariensis* (T226), and
- 1 x *Olea europaea subsp. Cuspidata* (T181).

Each of these trees belong to a now highly modified landscape. The result of a Test of Significance (5-Part Test) under the BC Act was that the proposed activity will not result in a ‘significant impact’ on any threatened entities and therefore the Biodiversity Offset Scheme is not triggered (**Appendix C & Appendix D**).

Although all areas of native vegetation within the Subject Land may be considered minor, potential habitat for threatened fauna; based on the minor nature of the impacts, no threatened fauna species were considered likely to be significantly impacted by the proposed activity. No threatened flora were identified within the Subject Land. A likelihood of occurrence table for threatened flora and fauna species within the Subject Land is presented in **Appendix B**.

Based on a lack of suitable habitat constraints, or the minor nature of the impact (i.e. select tree removal) no significant impact is likely and no further assessment was required. As such, an SIS or a BDAR is not required. The proposed activity will not result in a ‘significant impact’ on any MNES and a referral to the Australian Government Minister for the Environment is not required.

## 9. REFERENCES

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Transport for NSW (2024), Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW Projects

# 10. APPENDICES

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**Appendix A. Concept Design Plans (City of Parramatta Council, 2024).**

**Appendix B. Assessment of likely occurrence of threatened species within the Subject Land.**

**Appendix C. 5-Part Tests (Tests of Significance) (BC Act).**

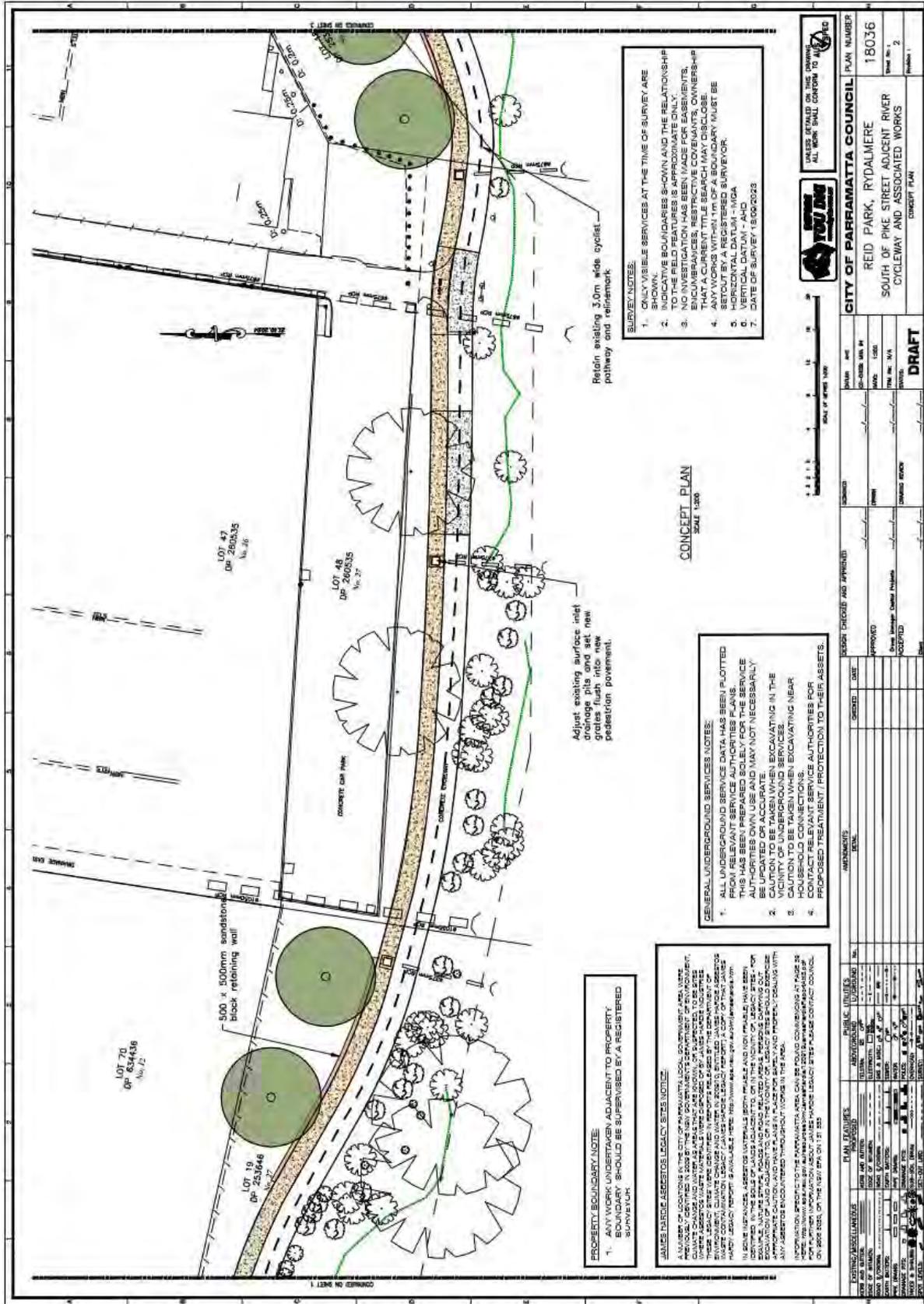
**Appendix D. Assessment of Significant Impact Criteria under the EPBC Act.**











**PROPERTY BOUNDARY NOTE:**  
 1. ANY WORK UNDERTAKEN ADJACENT TO PROPERTY BOUNDARY SHOULD BE SUPERVISED BY A REGISTERED SURVEYOR.

**GENERAL UNDERGROUND SERVICES NOTES:**  
 1. ALL UNDERGROUND SERVICE DATA HAS BEEN PLOTTED FROM RELEVANT SERVICE AUTHORITIES PLANS. THIS HAS BEEN PREPARED SOLELY FOR THE SERVICE AUTHORITIES OWN USE AND MAY NOT NECESSARILY CAUTION TO BE TAKEN WHEN EXCAVATING IN THE VICINITY OF UNDERGROUND SERVICES.  
 2. CAUTION TO BE TAKEN WHEN EXCAVATING NEAR CONTACT RELEVANT SERVICE AUTHORITIES FOR PROPOSED TREATMENT / PROTECTION TO THEIR ASSETS.

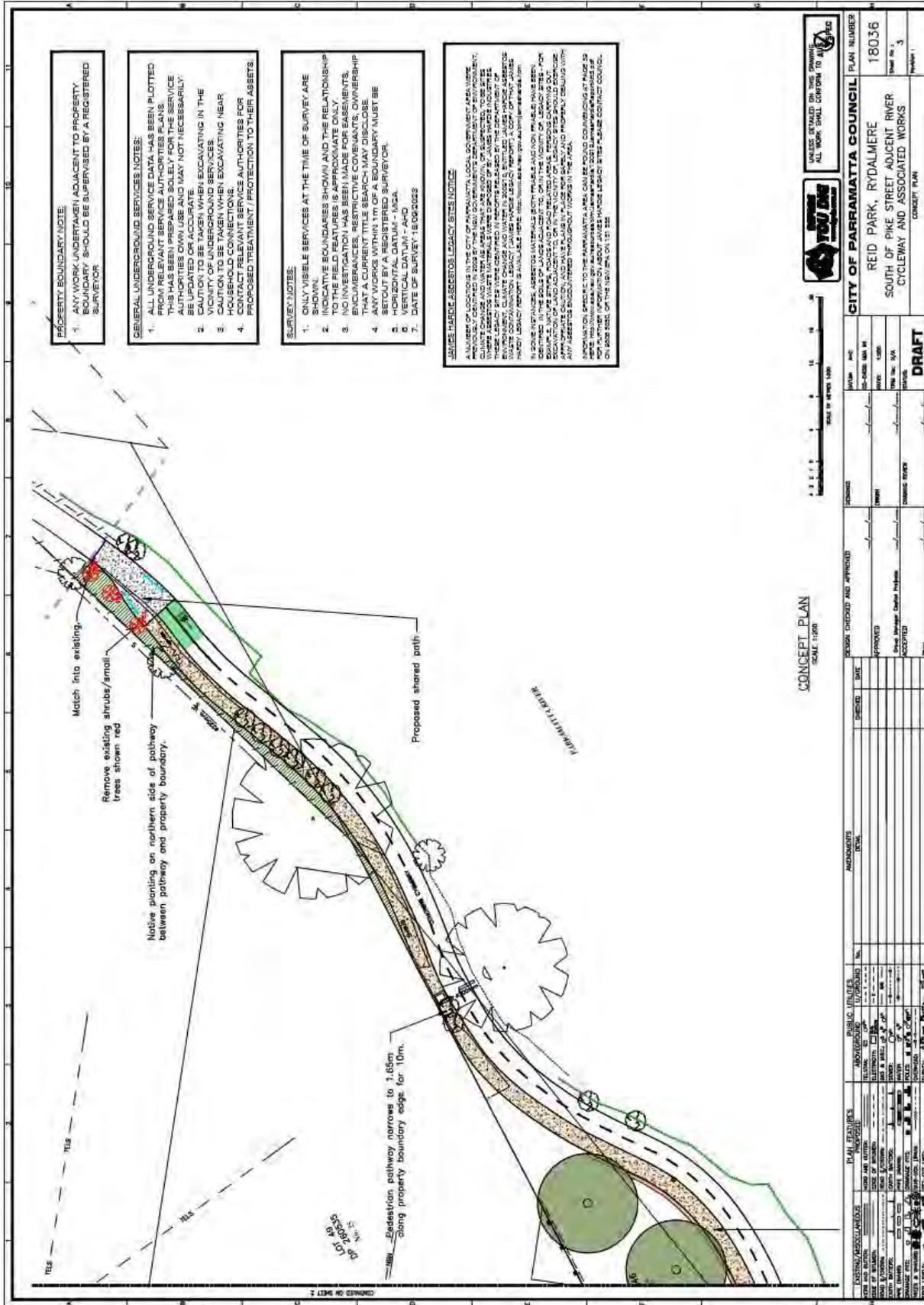
**ADJUST EXISTING SURFACE INLET DRAINAGE PITS AND SET NEW GRATES FLUSH INTO NEW PEDESTRIAN PAVEMENT.**

**RETAIN EXISTING 3.0m WIDE CYCLIST PATHWAY AND RELINE MARK.**

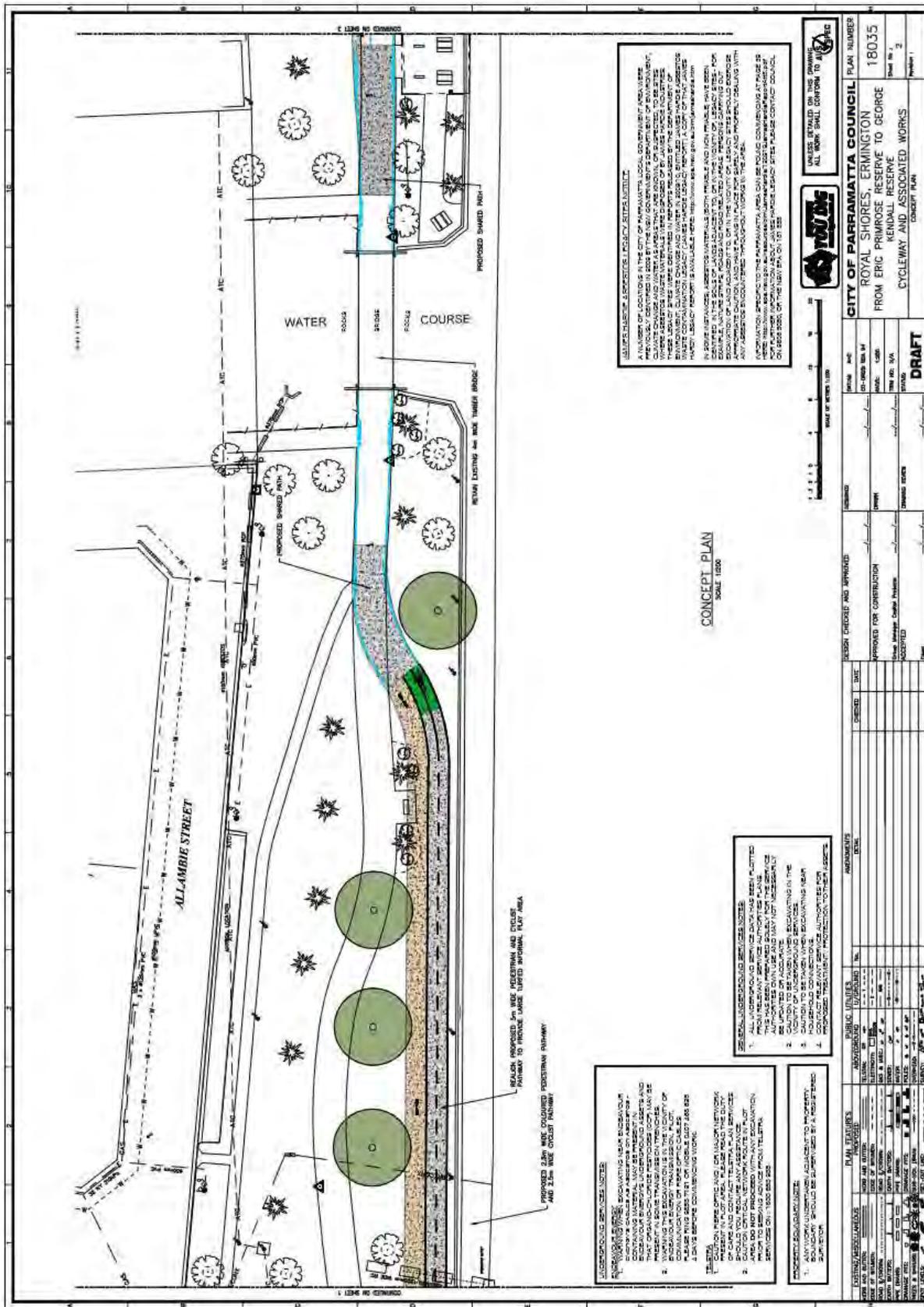
**CONCEPT PLAN SCALE 1:500**

**SURVEY NOTES:**  
 1. ONLY VISIBLE SERVICES AT THE TIME OF SURVEY ARE SHOWN.  
 2. LOCATIONS BOUNDARIES SUCH AS THE RELATIONSHIP TO THE FIELD FEATURES IS APPROXIMATE ONLY.  
 3. NO INVESTIGATION HAS BEEN MADE FOR EASEMENTS, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP THAT A CURRENT TITLE SEARCH MAY DISCLOSE.  
 4. THIS SURVEY IS A PRELIMINARY SURVEY AND MUST BE SET OUT BY A REGISTERED SURVEYOR.  
 5. HORIZONTAL DATUM - MGA  
 6. VERTICAL DATUM - AHD  
 7. DATE OF SURVEY 18/06/2023

		<b>CITY OF PARRAMATTA COUNCIL</b> PLAN NUMBER <b>REID PARK, RYDALMERE</b> 18036 <b>SOUTH OF PIKE STREET ADJACENT RIVER</b> <b>CYCLEWAY AND ASSOCIATED WORKS</b>	
DRAWN: [ ] CHECKED: [ ] APPROVED: [ ] DATE: [ ]	SCALE: 1:500 SHEET NO: 2 OF 2	PROJECT NO: [ ] CLIENT: [ ]	DRAFT
<b>UNLESS STATED ON THE DRAWING ALL WORK SHALL CONFORM TO ALL APPLICABLE STANDARDS</b>			







**UNLESS STATED ON THIS DRAWING ALL WORK SHALL CONFORM TO AS SHOWN**

**CITY OF PARRAMATTA COUNCIL**  
**ROYAL SHORES, ERMINGTON**  
**FROM ERIC PRIMROSE RESERVE TO GEORGE KENNAL RESERVE**  
**CYCLEWAY AND ASSOCIATED WORKS**  
 PROJECT NO. 18035  
 SHEET NO. 2  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]

**CONCEPT PLAN**  
 SCALE 1:1000

UNLESS STATED OTHERWISE, ALL WORK SHALL CONFORM TO THE CITY OF PARRAMATTA LOCAL GOVERNMENT'S DEPARTMENT OF ENVIRONMENT, PLANNING AND CONSTRUCTION'S STANDARD SPECIFICATIONS FOR LANDSCAPE ARCHITECTURE. THESE SPECIFICATIONS ARE AVAILABLE ON THE CITY OF PARRAMATTA WEBSITE: <http://www.parramatta.nsw.gov.au>

IN ORDER TO OBTAIN A COPY OF THESE SPECIFICATIONS, PLEASE CONTACT THE CITY OF PARRAMATTA'S LANDSCAPE ARCHITECTURE DEPARTMENT ON 02 9630 8000. A COPY OF THESE SPECIFICATIONS IS AVAILABLE AT: <http://www.parramatta.nsw.gov.au>

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**GENERAL NOTES:**

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- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PARRAMATTA LOCAL GOVERNMENT'S DEPARTMENT OF ENVIRONMENT, PLANNING AND CONSTRUCTION'S STANDARD SPECIFICATIONS FOR LANDSCAPE ARCHITECTURE.
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**BACKGROUND SERVICES NOTES:**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PARRAMATTA LOCAL GOVERNMENT'S DEPARTMENT OF ENVIRONMENT, PLANNING AND CONSTRUCTION'S STANDARD SPECIFICATIONS FOR LANDSCAPE ARCHITECTURE.
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**CONCRETE/PAVING NOTES:**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PARRAMATTA LOCAL GOVERNMENT'S DEPARTMENT OF ENVIRONMENT, PLANNING AND CONSTRUCTION'S STANDARD SPECIFICATIONS FOR LANDSCAPE ARCHITECTURE.
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DATE	DESCRIPTION	BY	CHECKED BY
	DESIGN CHECKED AND APPROVED		
	APPROVED FOR CONSTRUCTION		
	Issue Manager: [Name]		
	ACCEPTED		









## Appendix B. Assessment of likely occurrence of threatened species within the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Acacia pubescens</i>	V	V	Concentrated around the Bankstown-Fairfield-Rookwood area and the Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Occurs on alluviums, shales and at the intergrade between shales and sandstones. The soils are characteristically gravely soils, often with ironstone. Grows in open woodland and forest, in a variety of plant communities, including Cooks River-Castlereagh Ironbark forest, Shale-Gravel Transition forest and Cumberland Plain woodland.	56	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.
<i>Callistemon linearifolius</i>	V	-	Recorded from the Georges River to Hawkesbury River in the Sydney area, and north to the Nelson Bay area of NSW. Recorded in 2000 at Coalcliff in the northern Illawarra. For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River. Grows in dry sclerophyll forest on the coast and adjacent ranges.	6	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.
<i>Dillwynia tenuifolia</i>	V	-	The core distribution is the Cumberland Plain from Windsor to Penrith east to Deans Park. Other populations in western Sydney are	2	Low. A targeted survey during the site assessment did not identify this species. If present, this species would

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			recorded from Voyager Point and Kemps Creek in the Liverpool LGA, Luddenham in the Penrith LGA and South Maroota in the Baulkham Hills Shire. Disjunct localities include: the Bulga Mountains at Yengo in the north, Kurrajong Heights and Woodford in the Lower Blue Mountains. In western Sydney, may be locally abundant particularly within scrubby-dry heath areas within Castlereagh Ironbark forest and Shale Gravel Transition forest on tertiary alluvium or laterised clays. May also be common in transitional areas where these communities adjoin Castlereagh Scribbly Gum woodland. At Yengo, is reported to occur in disturbed escarpment woodland on Narrabeen sandstone.		have been easily identified during the December 2024 survey (at least to genus level).  No further assessment is required.
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	V	-	Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South. Found in a range of habitat types, most of which have a strong shale soil influence.	52	Low. A targeted survey during the site assessment did not identify this species. If present, this species would have been easily identified during the December 2024 survey (at least to genus level).  No further assessment is required.
<i>Grammitis stenophylla</i>	E	-	Moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest.	1	Unlikely. Appropriate habitat for this species was absent from within the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Isotoma fluviatilis subsp. fluviatilis</i>	-	X	Known from only two adjacent sites on a single private property at Erskine Park in the Penrith LGA. Previous sightings are all from western Sydney, at Homebush and at Agnes Banks. Grows in damp places, on the Cumberland Plain, including freshwater wetland, grassland/alluvial woodland and an alluvial woodland/shale plains woodland (Cumberland Plain Woodland) and related vegetation types/. May be an early successional species that benefits from some disturbance. Possibly out competed when overgrown by some species such as <i>Cyndon dactylon</i> .	2	Unlikely. This species is assumed extinct. A targeted survey during the site assessment did not identify this species. If present, this species would have been easily identified during the December 2024 survey (at least to genus level).  No further assessment is required.
<i>Macadamia integrifolia</i>	-	V	<i>Macadamia Nut</i> occurs from Mt Bauple, near Gympie, to Currumbin Valley in the Gold Coast hinterland, south-east Queensland. The species was known to occur in north-east New South Wales; was described from 1850-60 specimens collected from Camden Haven, and there are specimens also from Lismore. This species grows in remnant rainforest, including complex mixed notophyll forest,	2	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
and prefers partially open areas such as rainforest edges.					
<i>Persicaria elatior</i>	V	V	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	1	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.
<i>Pimelea curviflora</i> var. <i>curviflora</i>	V	V	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Former range extended south to the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shaley-lateritic soils over sandstone and shale-sandstone transition soils on ridgetops and upper slopes amongst woodlands.	9	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.
<i>Pimelea spicata</i>	E	E	Once widespread on the Cumberland Plain, the Spiked Rice-flower occurs in two disjunct areas; the Cumberland Plain (Narellan, Marayong, Prospect Reservoir areas) and the Illawarra (Landsdowne to Shellharbour to northern Kiama). In both the Cumberland Plain and Illawarra environments this species is found on well-structured clay soils. On the inland Cumberland Plain sites it is associated	2	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Pomaderris prunifolia</i> (Endangered population)	E	-	with grey box and Ironbark. In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a better developed shrub and grass understorey. Known from only three sites within the listed local government areas, at Rydalmere, within Rookwood Cemetery and at The Crest of Bankstown. At Rydalmere it occurs along a road reserve near a creek, among grass species on sandstone. At Rookwood Cemetery it occurs in a small gully of degraded Cooks River - Castlereagh Ironbark forest on shale soils.	8	Low. A targeted survey during the site assessment did not identify this species. If present, this species would have been easily identified during the December 2024 survey (at least to genus level).  No further assessment is required.
<i>Rhodamnia rubescens</i>	CE	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	4	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required.
<i>Syzygium paniculatum</i>	E	V	Found only in NSW, in a narrow, linear coastal strip from Bulahdelah to Conjola State forest. On the south coast the species occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral rainforest. On the central coast it occurs on gravels, sands, silts	6	Low. A targeted survey during the site assessment did not identify this species. If present, this species would have been easily identified during the December 2024 survey (at least to genus level).

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Tetratheca glandulosa</i>	V	-	and clays in riverside gallery rainforests and remnant littoral rainforest communities  Associated with shale-sandstone transition habitat where shale-cappings occur over sandstone, with associated soil landscapes such as Lucas Heights, Gynea, Lambert and Faulconbridge. Topographically, the plant occupies ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches. Soils are generally shallow, consisting of a yellow, clayey-sandy loam. Stony lateritic fragments are also common in the soil profile on many of these ridgetops. Vegetation structure varies from heaths and scrub to woodlands-open woodlands, and open forest.	1	No further assessment is required.  Low. A targeted survey during the site assessment did not identify this species. If present, this species would have been easily identified during the December 2024 survey (at least to genus level).  No further assessment is required.
<i>Triplarina imbricata</i>	E	E	Found only in a few locations in the ranges south-west of Glenreagh and near Tabulam in north-east NSW. Along watercourses in low open forest with water gum.	4	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required
<i>Wahlenbergia multicaulis</i>	E	-	Found in disturbed sites and grows in a variety of habitats including forest, woodland, scrub, grassland and the edges of watercourses and wetlands. Typically occurs	8	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
(Endangered population)			in damp, disturbed sites (with natural or human disturbance of various forms), typically amongst other herbs rather than in the open.		No further assessment is required
<i>Wilsonia backhousei</i>	V	-	In NSW Narrow-leaf <i>Wilsonia</i> is found on the coast between Mimoso Rocks National Park and Wamberal north of Sydney. This is a species of the margins of salt marshes and lakes.	100	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required
<i>Zannichellia palustris</i>	E	-	Grows in fresh or slightly saline stationary or slowly flowing water. NSW populations behave as annuals, dying back completely every summer.	6	Low. A targeted survey was undertaken during the recognised survey period and this species was absent from the Subject Land.  No further assessment is required
<i>Anthochaera phrygia</i>	CE	CE	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. The distribution of the species has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and	7	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Artamus cyanopterus cyanopterus</i>	V	-	<p>the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.</p> <p>The Dusky Woodswallow is widespread in eastern, southern and southwestern Australia. In New South Wales it is widespread from coast to inland, including the western slopes of the Great Dividing Range and farther west. It is sparsely scattered in, or largely absent from, much of the Upper Western region. The Dusky Woodswallow is often reported in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests; very occasionally in moist forests or rainforests. At sites where Dusky Woodswallows are recorded the understorey is typically open with sparse eucalypt saplings, acacias and other shrubs, including heath. The ground cover may consist of grasses, sedges or open</p>	35	<p>Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.</p> <p>No further assessment is required.</p>

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			ground, often with coarse woody debris (Higgins and Peter 2002). Birds are also often observed in farm land, usually at the edges of forest or woodland or in roadside remnants or wind breaks with dead timber.		
<i>Botaurus poiciloptilus</i>	E	E	The Australasian Bitterns is widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spikerushes.	13	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  This species has not been recorded within the locality in the last 10-years.  No further assessment is required.
<i>Calidris canutus</i>	E	CE	The Red Knot is common in all the main suitable habitats around the coast of Australia. Very large numbers are regularly recorded in north-west Australia, with 80 Mile Beach and Roebuck Bay being particular strongholds. The only places it is not found in significant numbers are the northern part of the Great Australian Bight in South Australia and Western Australia, and along much of the NSW coast, where wader habitat is rather scarce (excluding the Hunter Estuary). It is widespread along the coast south of	14	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			Townsville and along the coasts of NSW and Victoria.		
<i>Calidris ferruginea</i>	E	CE	The Curlew Sandpiper is distributed around most of the coastline of Australia. It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland	438	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Calidris tenuirostris</i>	V	V	In NSW, the species has been recorded at scattered sites along the coast to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith. Occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms.	2	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Calyptorhynchus lathamii</i>	V	V	Inhabits forest with low nutrients, characteristically with key <i>Allocasuarina</i> spp. Tends to prefer drier forest types with a middle stratum of <i>Allocasuarina</i> below <i>Eucalyptus</i> or <i>Angophora</i> . Often confined to remnant patches in hills and gullies. Breed in hollows stumps or limbs, either living or dead. Endangered population in the Riverina.	3	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Chalinolobus dwyeri</i>	E	E	Located in a variety of drier habitats, including the dry sclerophyll forests and woodlands to the east and west of the Great Dividing Range. Can also be found on the edges of rainforests	3	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.
<i>Circus assimilis</i>	V	-	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over	12	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
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open habitats including edges of inland wetlands.					
<i>Daphoenositta chrysoptera</i>	V	-	Inhabits wide variety of dry eucalypt forests and woodlands, usually with either shrubby under storey or grassy ground cover or both, in all climatic zones of Australia. Usually in areas with rough-barked trees, such as stringybarks or ironbarks, but also in paperbarks or mature Eucalypts with hollows.	4	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Dasyurus maculatus</i>	V	E	Spotted-tailed Quoll are found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Queensland. Only in Tasmania is it still considered common. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	3	Low. Suitable breeding habitat is absent from the Subject Land. This species may occasionally forage within the Subject Land, however, are unlikely to rely upon these areas given the more appropriate foraging habitat available within the broader locality.  No further assessment is required.
<i>Epthianura albifrons</i> (Endangered population)	E	-	Low vegetation in salty coastal and inland areas and crops. Runs along ground and is found in local flocks in Winter.	437	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Epthianura albifrons</i>	V	-	Low vegetation in salty coastal and inland areas and crops. Runs along ground and is found in local flocks in Winter.	437	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Falco subniger</i>	V	-	The Black Falcon is found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas. It roosts in trees at night and often on power poles by day.	1	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  This species has not been recorded within the locality in the last 10-years.  No further assessment is required.
<i>Falstirellus tasmaniensis</i>	V	-	Inhabit sclerophyll forests, preferring wet habitats where trees are more than 20 m high. Two observations have been made of roosts in stem holes of living eucalypts. There is debate about whether or not this species moves to lower altitudes during winter, or	11	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle

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	BC Act	EPBC Act			
			whether they remain sedentary but enter torpor. This species also appears to be highly mobile and records showing movements of up to 12 km between roosting and foraging sites.		periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Gallinago hardwickii</i>	V	V	Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration.	1965	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Glossopsitta pusilla</i>	V	-	Distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range in NSW, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. Mostly occur in dry, open eucalypt forests and woodlands. They feed primarily on nectar and pollen in the tree canopy. Nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked	21	Moderate. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
eucalypts. Most breeding records come from the western slopes.					
<i>Haematopus longirostris</i>	E	-	The Pied Oystercatcher inhabits marine littoral habitats, including islands. It occupies muddy, sandy, stony or rocky estuaries, inlets and beaches, particularly intertidal mudflats and sandbanks in large marine bays.	1	Unlikely. Suitable habitat for the species is absent from the Subject Land.  No further assessment is required.
<i>Haliaeetus leucogaster</i>	V	-	Inhabits coastal and near coastal areas, building large stick nests, and feeding mostly on marine and estuarine fish and aquatic fauna.	743	Moderate. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Hieraetus morphnoides</i>	V	-	Most abundant in lightly timbered areas with open areas nearby. Often recorded foraging in grasslands, crops, treeless dune fields, and recently logged areas. May nest in farmland, woodland and forest in tall trees.	18	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Hirundapus caudacutus</i>	V	-	An aerial species found in feeding concentrations over cities, hilltops and timbered ranges.	51	Moderate. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Ixobrychus flavicollis</i>	V	-	Usually found on coastal plains below 200 m. Often found along timbered watercourses, in wetlands with fringing trees and shrub vegetation. The sites where they occur are characterized by dense waterside vegetation.	6	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Lathamus discolor</i>	E	CE	The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects . The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW . This species is migratory, breeding in Tasmania and also nomadic,	7	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
moving about in response to changing food availability.					
<i>Limicola falcinellus</i>	V	-	Broad-billed Sandpipers favour sheltered parts of the coast such as estuarine sandflats and mudflats, harbours, embayments, lagoons, saltmarshes and reefs as feeding and roosting habitat. Occasionally, individuals may be recorded in sewage farms or within shallow freshwater lagoons. Broad-billed Sandpipers roost on banks on sheltered sand, shell or shingle beaches.	2	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Limosa limosa</i>	V	E	Primarily a coastal species. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps.	17	Unlikely. Suitable habitat for the species is absent from the Subject Land.  No further assessment is required.
<i>Litoria aurea</i>	E	V	Inhabits a very wide range of water bodies including marshes, dams and streams, particularly those containing emergent vegetation such as bullrushes or spikerushes. It also inhabits numerous types of man-made water bodies including quarries and sand extraction sites. Optimum habitat includes water-bodies that are un-shaded, free of	17069	Unlikely. Suitable habitat for the species is absent from the Subject Land. Extensive aquatic habitat more appropriate for this species will continue to be available within the Parramatta River.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			predatory fish such as Plague Minnow, have a grassy area nearby and diurnal sheltering sites available.		
<i>Meridolum corneovirens</i>	E	-	Primarily inhabits Cumberland Plain woodland (an EEC). This community is a grassy, open woodland with occasional dense patches of shrubs. Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Occasionally shelters under rubbish.	3	Low. Suitable habitat for this species is available within the Subject Land however extensive more appropriate leaf litter will continue to be available in the broader locality.  No further assessment is required.
<i>Micronomus norfolkensis</i>	V	-	Most records are from dry eucalypt forests and woodlands to the east of the Great Dividing Range. Appears to roost in trees, but little is known of this species' habits.	11	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.
<i>Miniopterus australis</i>	V	-	Coastal north-eastern NSW and eastern Queensland. Little Bent-wing Bat is an insectivorous bat that roost in caves, in old mines, in tunnels, under bridges, or in similar structures. They breed in large aggregations in a small number of known caves and may travel 100s km from feeding home ranges to breeding sites. Little Bent-wing Bat has a preference for moist eucalypt forest,	11	Low. This highly mobile species may be an occasional visitor. Suitable aerial foraging habitat for this species is found both within and immediately adjacent to the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Miniopterus orianae oceanensis</i>	V	-	rainforest or dense coastal banksia scrub where it forages below the canopy for insects.  Eastern Bent-wing Bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.	96	Low. This highly mobile species may be an occasional visitor. Suitable aerial foraging habitat for this species is found both within and immediately adjacent to the Subject Land.  No further assessment is required.
<i>Myotis macropus</i>	V	-	The Large-footed Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. Generally roost in groups of 10 – 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	53	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.
<i>Neophema pulchella</i>	V	-	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Nests in tree hollows, logs	2	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding) on habitats in the Subject Land. No hollows suitable for breeding were identified within the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.		No further assessment is required.
<i>Ninox connivens</i>	V	-	Generally found in open forests, woodlands, swamp woodlands and dense scrub. Can also be found in the foothills and timber along watercourses in otherwise open country.	6	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding) on habitats in the Subject Land. No hollows suitable for breeding were identified within the Subject Land.
					No further assessment is required.
<i>Ninox strenua</i>	V	-	Occupies wet and dry eucalypt forests and rainforests. Can occupy both un-logged and lightly logged forests as well as undisturbed forests where it usually roosts on the limbs of dense trees in gully areas. It is most commonly recorded within red turpentine in tall open forests and black she-oak within open forests. Large mature trees with hollows at least 0.5 m deep are required for nesting. Tree hollows are particularly important for the Powerful Owl because a large proportion of the diet is made up of hollow-dependent arboreal marsupials. Nest trees for this	306	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding) on habitats in the Subject Land. No hollows suitable for breeding were identified within the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			species are usually emergent with a diameter at breast height of at least 100 cm.		
<i>Numenius madagascariensis</i>	E	CE	The Eastern curlew spends its breeding season in northeastern Asia, including Siberia to Kamchatka, and Mongolia. Its breeding habitat is composed of marshy and swampy wetlands and lakeshores. Most individuals winter in coastal Australia, with a few heading to South Korea, Thailand, Philippines and New Zealand, where they stay at estuaries, beaches, and salt marshes. It uses its long, decurved bill to probe for invertebrates in the mud. It may feed in solitary but it generally congregates in large flocks to migrate or roost. Its call is a sharp, clear whistle, cuuue-reee, often repeated.	40	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Oxyura australis</i>	V	-	Widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	2	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  This species has not been recorded within the locality in the last 10-years.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Pandion cristatus</i>	V	-	Ospreys are found right around the Australian coast line, except for Victoria and Tasmania. They are common around the northern coast, especially on rocky shorelines, islands and reefs. The species is uncommon to rare or absent from closely settled parts of south-eastern Australia. Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water.	13	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Petauroides volans</i>	E	E	The Greater Glider occurs in eucalypt forests and woodlands. Utilise tree hollows	1	Unlikely. Suitable habitat for the species is absent from the Subject Land.  This species has not been recorded within the locality in the last 10-years.  No further assessment is required.
<i>Petroica boodang</i>	V	-	The Scarlet Robin is found from SE Queensland to SE South Australia and also in Tasmania and SW Western Australia. In NSW, it occurs from the coast to the inland slopes. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs.	5	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Petroica phoenicea</i>	V	-	Flame Robins are found in a broad coastal band from southern Queensland to just west of the South Australian border. The species is also found in Tasmania. The preferred habitat in summer includes eucalyptus forests and woodland, whilst in winter prefers open woodlands and farmlands. It is considered migratory. The Flame Robin breeds from about August to January.	2	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Phascolarctos cinereus</i>	E	E	Inhabits eucalypt forests and woodlands. The suitability of these forests for habitation depends on the size and species of trees present, soil nutrients, climate and rainfall.	1	Unlikely. Suitable habitat for the species is absent from the Subject Land due to the urban nature of the area and relatively fragmented nature of the habitat.  No further assessment is required.
<i>Pommerhelix duraiensis</i>	E	E	Endemic to NSW and confined to northwest fringes of the Cumberland Plain. Distribution extends as far north as St. Albans; southwest to Mulgoa, and southeast to Parramatta. Occurs in low densities in Hawkesbury Sandstone Vegetation and Shale/Sandstone Transition Forest. Found under rocks, logs, bark and in leaf litter. Has a strong preference for shale-influenced transitional landscapes	39	Low. Suitable habitat for this species is available within the Subject Land however extensive more appropriate leaf litter will continue to be available in the broader locality.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Pseudophryne australis</i>	V	-	Occurs on wetter ridge tops and upper slopes of sandstone formations on which the predominant vegetation is dry open forests and heaths. This species typically breeds within small ephemeral creeks that feed into larger semi-perennial streams. After rain these creeks are characterised by a series of shallow pools lined by dense grasses, ferns and low shrubs and usually contain leaf litter for shelter. Eggs are terrestrial and laid under litter, vegetation or rocks where the tadpoles inside will reach a relatively late stage of development before waiting for flooding waters before hatching will occur.	2	Unlikely. Suitable habitat for the species is absent from the Subject Land. Extensive aquatic habitat more appropriate for this species will continue to be available within the Parramatta River.  No further assessment is required.
<i>Pteropus poliocephalus</i>	V	V	This species is a canopy-feeding frugivore and nectarivore of rainforests, open forests, woodlands, melaleuca swamps and banksia woodlands. Bats commute daily to foraging areas, usually within 15 km of the day roost although some individuals may travel up to 70 km.	902	High. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.

and has not been confirmed outside such habitats.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Rostratula australis</i>	E	E	In NSW, this species has been recorded at the Paroo wetlands, Lake Cowell, Macquarie Marshes and Hexham Swamp. Most common in the Murray-Darling Basin. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds.	10	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  No further assessment is required.
<i>Saccolaimus flaviventris</i>	V	-	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.	14	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.
<i>Scoteanax rueppellii</i>	V	-	Prefer moist gullies in mature coastal forests and rainforests, between the Great Dividing Range and the coast. They are only found at low altitudes below 500 m. In dense environments they utilise natural and human-made opening in the forest for flight paths. Creeks and small rivers are favoured foraging	7	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
<i>Sternula albifrons</i>	E	-	<p>habitat. This species roosts in hollow tree trunks and branches.</p> <p>Almost exclusively coastal, preferring sheltered environments; however may occur several hundred kilometres from the sea in harbours, inlets and rivers.</p>	7	<p>Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.</p> <p>No further assessment is required.</p>
<i>Stictonetta naevosa</i>	V	-	<p>The freckled duck breeds in permanent fresh swamps that are heavily vegetated. Found in fresh or salty permanent open lakes, especially during drought. Often seen in groups on fallen trees and sand spits.</p>	3	<p>Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.</p> <p>No further assessment is required.</p>
<i>Tringa nebularia</i>	E	E	<p>Habitat is diverse, both inland and coastal. Found inland on both permanent and temporary wetland- billabongs, swamps, lakes, floodplains, sewage, farms and saltwater ponds. On the coast, it uses sheltered estuaries and bays with extensive mudflats, mangrove swamps, muddy</p>	334	<p>Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.</p>

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			shallows of harbours and lagoons and occasionally rocky tidal edges.		This species has not been recorded within the locality in the last 10-years.  No further assessment is required.
<i>Tyto longimembris</i>	V	-	Found in areas of tall grass, including grass tussocks, in swampy areas, grassy plains, swampy heath, and in cane grass or sedges on flood plains.	2	Low. This highly mobile species may be an occasional visitor, but habitat constraints required for this species are absent within the Subject Land.  No further assessment is required.
<i>Tyto novaehollandiae</i>	V	-	Inhabits a diverse range of wooded habitat that provide tall or dense mature trees with hollows suitable for nesting and roosting. Mostly recorded in open forest and woodlands adjacent to cleared lands. Nest in hollows, in trunks and in near vertical spouts or large trees, usually living but sometimes dead. Nest hollows are usually located within dense forests or woodlands. Masked owls prey upon hollow-dependent arboreal marsupials, but terrestrial mammals make up the largest proportion of the diet.	3	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding) on habitats in the Subject Land. No hollows suitable for breeding were identified within the Subject Land.  No further assessment is required.
<i>Tyto tenebriosa</i>	V	-	Often found in tall old-growth forests, including temperate and subtropical rainforests. In NSW mostly found on escarpments with a mean altitude less than	1	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding) on habitats in the

Scientific name	Status		Distribution and habitat	Number of records (BioNet)	Likelihood of occurrence
	BC Act	EPBC Act			
			500 metres. Nests and roosts in hollows of tall emergent trees, mainly eucalypts often located in gullies. Nests have been located in trees 125 to 161 centimetres in diameter.		Subject Land. No hollows suitable for breeding were identified within the Subject Land.  This species has not been recorded within the locality in the last 10-years.  No further assessment is required.
<i>Xenus cinereus</i>	V	V	The Terek Sandpiper mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayment's, harbours or lagoons.	1	Low. This highly mobile species may be an occasional visitor, but habitat similar to the Subject Land is widely distributed in the locality, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitats in the Subject Land.  This species has not been recorded within the locality in the last 10-years.  No further assessment is required.

**Appendix C. 5-Part Tests (Tests of Significance) (BC Act).**

*Biodiversity Conservation Act 2016 – Test of Significance (5-part Test)  
for Threatened Ecological Communities*

**Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (Endangered)**

<p><b>Species Ecology</b> (Scientific Committee, 2011)</p>	<p>Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner bioregions is the name given to the ecological community associated with humic clay loams and sandy loams, on waterlogged or periodically inundated alluvial flats and drainage lines associated with coastal floodplains. Swamp Sclerophyll Forest on Coastal Floodplains generally occurs below 20 m (though sometimes up to 50 m) elevation, often on small floodplains or where the larger floodplains adjoin lithic substrates or coastal sand plains in the NSW North Coast, Sydney Basin and Southeast Corner bioregions. The structure of the community is typically open forest, although partial clearing may have reduced the canopy to scattered trees. In some areas the tree stratum is low and dense, so that the community takes on the structure of scrub. The community also includes some areas of fern land and tall reed land or sedgeland, where trees are very sparse or absent. Typically, these forests, scrubs, fenlands, Redlands and sedgelands form mosaics with other floodplain forest communities and treeless wetlands, and often they fringe treeless floodplain lagoons or wetlands with semi-permanent standing water.</p>
<p><b>(a) in the case of a threatened species, whether the proposed development 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,</b></p>	<p>Not applicable.</p>

**Biodiversity Conservation Act 2016 – Test of Significance (5-part Test)  
for Threatened Ecological Communities**

**Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (Endangered)**

<p><b>(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:</b></p>	<p><b>(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</b></p>	<p>No. The proposed activity is unlikely 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. Only 31 trees, representative of the EEC, will be impacted to facilitate the proposal.</p> <p>This TEC is represented within the vegetation to be retained surrounding the Subject Land will continue to adjoin to areas of high-quality habitat within the broader locality based on information provided within the current State Vegetation Type Map (NSW DCCEEW, 2024d).</p>
	<p><b>(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,</b></p>	<p>The proposed activity is not 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.</p> <p>The proposed activity will impact 31 trees which constitute a part of the EEC. Of these, all species are well represented elsewhere within the Subject Land and in other adjoining parks and properties, which are not impacted. It is not expected that the proposed activity will cause the permanent loss of any complexity or unique floristic</p>

**Biodiversity Conservation Act 2016 – Test of Significance (5-part Test)  
for Threatened Ecological Communities**

**Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (Endangered)**

		components of the ecological community, such that it is likely to be placed at risk of extinction.
<b>(c) in relation to the habitat of a threatened species or ecological community:</b>	<b>(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and</b>	The proposed activity will require the removal of 31 trees serving as habitat. This ‘habitat’ constitutes a negligible portion of the TEC within the local occurrence.
	<b>(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and</b>	Minor increased fragmentation will occur as a result of the proposed activity, however within the existing landscape context, the select removal of planted trees that reflect this TEC is not likely to constitute a significant impact to the TEC.
	<b>(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,</b>	All areas which support viable patches are important. Given the patches of habitat available in the vicinity, it is not expected that the development will impact the long-term survival of the EEC.
<b>(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),</b>	The activity proposed is not likely to have an adverse effect on any declared area of critical habitat, directly or indirectly.	
<b>(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.</b>	The following Key Threatening Processes (KTPs) are documented to impact upon the survival of the ecological community: <ul style="list-style-type: none"> <li>▪ Clearing of native vegetation</li> </ul>	

*Biodiversity Conservation Act 2016 – Test of Significance (5-part Test)  
for Threatened Ecological Communities*

**Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney  
Basin and Southeast Corner Bioregions (Endangered)**

**Conclusion**

There will be no significant impact on these species therefore the proposed action should not warrant the preparation of a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR).

**Appendix D. Assessment of Significant Impact Criteria under the EPBC Act.**

<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> – Assessment of Significant Impact Criteria for Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland	
EPBC Act Status: Endangered	
<b>Significant Impact Criteria</b>	
<b>An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:</b>	
<ul style="list-style-type: none"> <li>▪ <b>Reduce the extent of an ecological community;</b></li> </ul>	<p>The proposed activity will not result in very low impacts to the Coastal Swamp Sclerophyll Forest mapped within the Subject Land. Vegetation to be impacted characteristic of the EEC is planted and of low value within the area. Subject to mitigation measures, no other areas of vegetation will be impacted by the proposal. It is therefore not considered likely that the extent of the ecological community will be reduced.</p>
<ul style="list-style-type: none"> <li>▪ <b>Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines;</b></li> </ul>	<p>Coastal Swamp Sclerophyll Forest within the area is already fragmented due to the urban nature of the landscape. No increased fragmentation will occur, and connectivity is expected to remain the same extent within the Subject Land.</p>
<ul style="list-style-type: none"> <li>▪ <b>Adversely affect habitat critical to the survival of an ecological community;</b></li> </ul>	<p>Minimal Coastal Swamp Sclerophyll Forest requires removal to facilitate the works (31 trees 0.09ha). Subject to mitigation measures, it is considered unlikely that the proposed activity would adversely affect habitat critical to the survival of this community.</p>
<ul style="list-style-type: none"> <li>▪ <b>Modify or destroy abiotic (non-living) factors (such as water, nutrients or soil) necessary for an ecological community’s survival including reduction of groundwater levels or substantial alteration of surface water drainage patterns;</b></li> </ul>	<p>It is not expected that the proposed activity will modify or destroy abiotic factors (such as water, nutrients, or soil) that is necessary for the survival of this ecological community. No reduction in groundwater levels, or substantial alterations of surface water drainage patterns are anticipated as a result of the proposed activity.</p>

**Commonwealth Environment Protection and Biodiversity Conservation Act 1999 – Assessment of Significant Impact Criteria**

**for**

**Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland**

**EPBC Act Status: Endangered**

- **Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting;**

The proposed activity will require clearing of 0.09ha of Coastal Swamp Sclerophyll Forest. The 0.09ha of vegetation to be removed are all exceedingly common native canopy species; (*Angophora costata*, *Melaleuca quinquenervia*, *Eucalyptus spp.*, *Melaleuca styphelioides*, *Casuarina glauca*, *Corrymbia maculata*). These species do not contribute to unique species compositions of this EEC. It is considered unlikely that the proposal will cause a substantial change in the species composition of the occurrence of the ecological community.

- **Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:**
  - i. **assisting invasive species, that are harmful to the listed ecological community, to become established**
  - ii. **causing regular mobilisation of fertilisers, herbicides, or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community;**

The proposed activity will not cause a substantial reduction in the quality or integrity of the occurrence of this EEC.

- i. The proposed activity will not assist invasive species to become established as the Coastal Swamp Sclerophyll Forest, subject to appropriate management. No harmful, invasive species were identified within the Subject Land; and
- ii. The proposed activity is not expected to cause the regular mobilisation of fertilisers, herbicides, or other chemicals or pollutants.

- **Interfere with the recovery of an ecological community.**

It is not anticipated that the proposed activity will interfere with the recovery of the EEC. The anticipated impacts are both minimal and highly insignificant in the context of the surrounding landscape. Appropriate habitat for the EEC will remain available in the broader locality. As such, it is not expected that the proposed activity will interfere with the recovery of this ecological community.

*Commonwealth Environment Protection and Biodiversity Conservation Act 1999* – Assessment of  
Significant Impact Criteria  
for

Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland

EPBC Act Status: Endangered

**Conclusion**

There will be no significant impact on the ecological community therefore the proposed action should not warrant the producing of a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR).



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# Flora and Fauna Assessment

Eastern Parramatta River & CBD Precinct Cycleway

**Prepared for:** City of Parramatta Council

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# GLOSSARY

Abbreviation	Definition
amsl	Above mean sea level
BAM	Biodiversity Assessment Method 2020
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BOM	Bureau of Meteorology
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, the Environment and Water
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment
ECE	East Coast Ecology
EP&A Act	<i>Environmental Planning &amp; Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFA	Flora and Fauna Assessment
FM Act	<i>Fisheries Management Act 1994</i>
ha	Hectares
km	Kilometres
LGA	Local Government Area
Locality	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
NSW	New South Wales
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
Subject Land	The land depicted in <b>Figure 1 - Figure 6.</b>
TEC	Threatened Ecological Community
TfNSW	Transport for NSW

# 1. INTRODUCTION

---

## 1.1 The Proposed Activity

The City of Parramatta Council proposes to upgrade the existing Eastern Parramatta River and CBD Precinct Cycleway. The current cycleway stretches over 15km alongside the Parramatta River and is an important asset and public facility of the Parramatta CBD. The proposal is concentrated within the following five separate site locations along the existing cycleway:

- Rangihou Reserve, Parramatta
- Baludarri Wetlands, Parramatta
- Ried Park, Rydalmere
- Royal Shores, Ermington, and
- George Kendall Riverside Park, Ermington.

These areas been identified as high priority for upgrade due to an increase in cyclist and pedestrian usage.

Key features of the proposed activity would include the following scope of works:

- Resurfacing and widening of the existing pathway
- Installation of new public seating
- Replacement of existing fencing with sandstone retaining walls, and
- Installation of new light poles and LED handrail lights.

To facilitate the proposed activity, removal of native vegetation will be required. East Coast Ecology Pty Ltd (ECE) was commissioned by City of Parramatta Council to prepare a Flora and Fauna Assessment (FFA) to assess the works associated with the proposed activity.

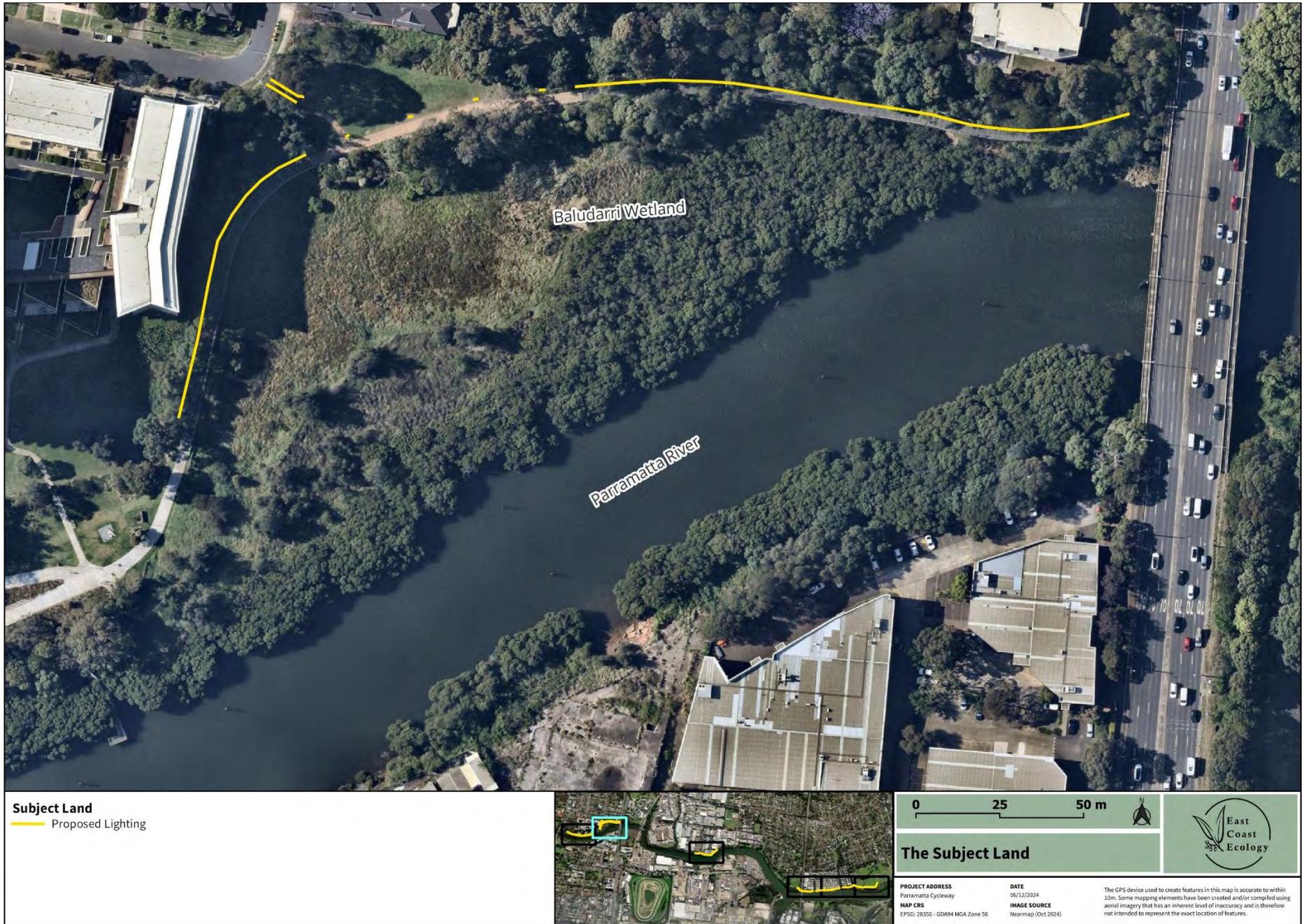
## 1.2 The Subject Land

The area assessed within this report is referred to as the ‘Subject Land’ and has been defined by the extent of construction including proposed path extensions and lighting upgrades as depicted in the Concept Design Plans (City of Parramatta Council, 2024) (**Appendix A**).

The location of the proposed activity is depicted in **Figure 1- Figure 6**.



**Figure 1. The Subject Land (Rangihou Reserve).**



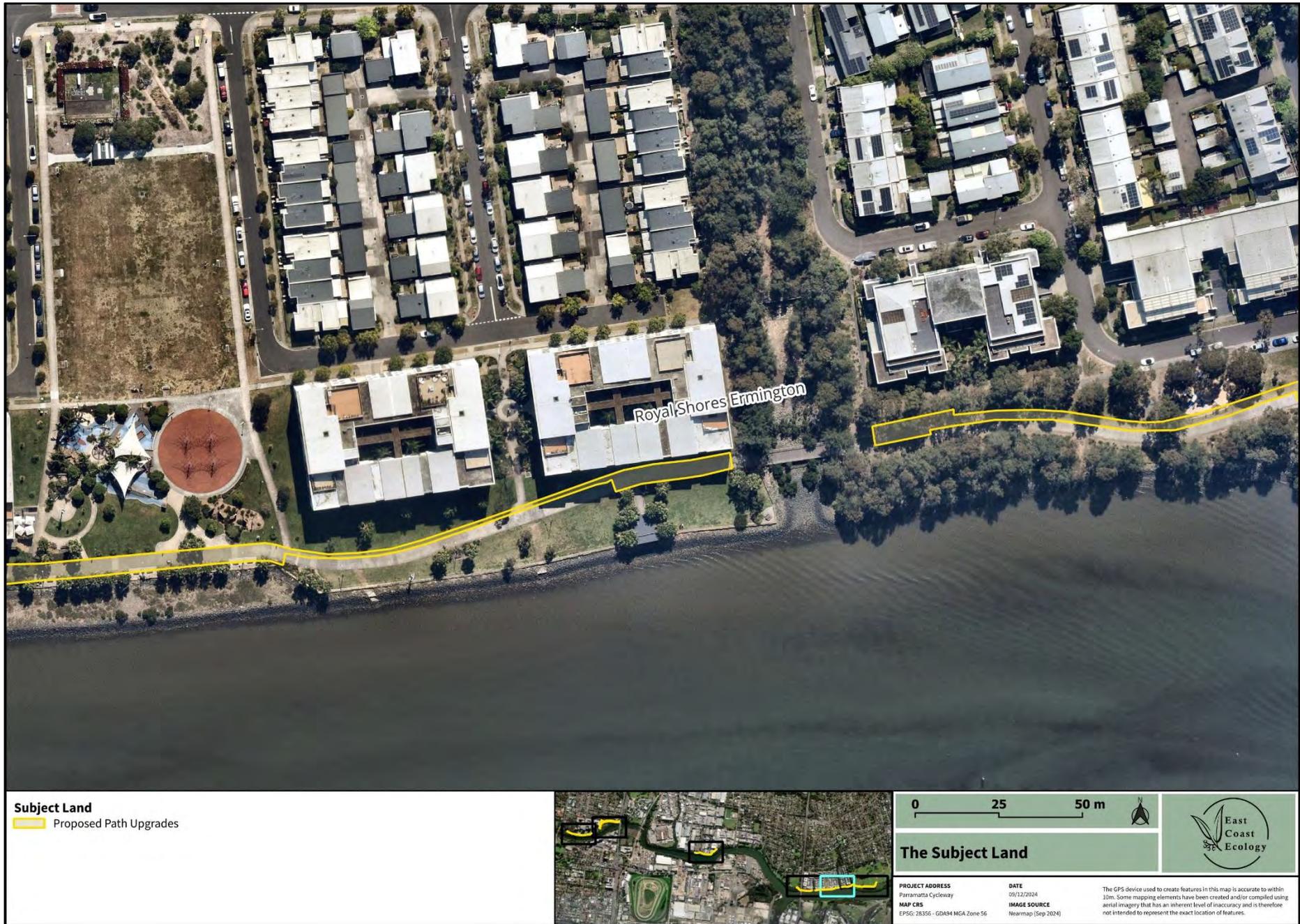
**Figure 2. The Subject Land (Baludarri Wetland).**



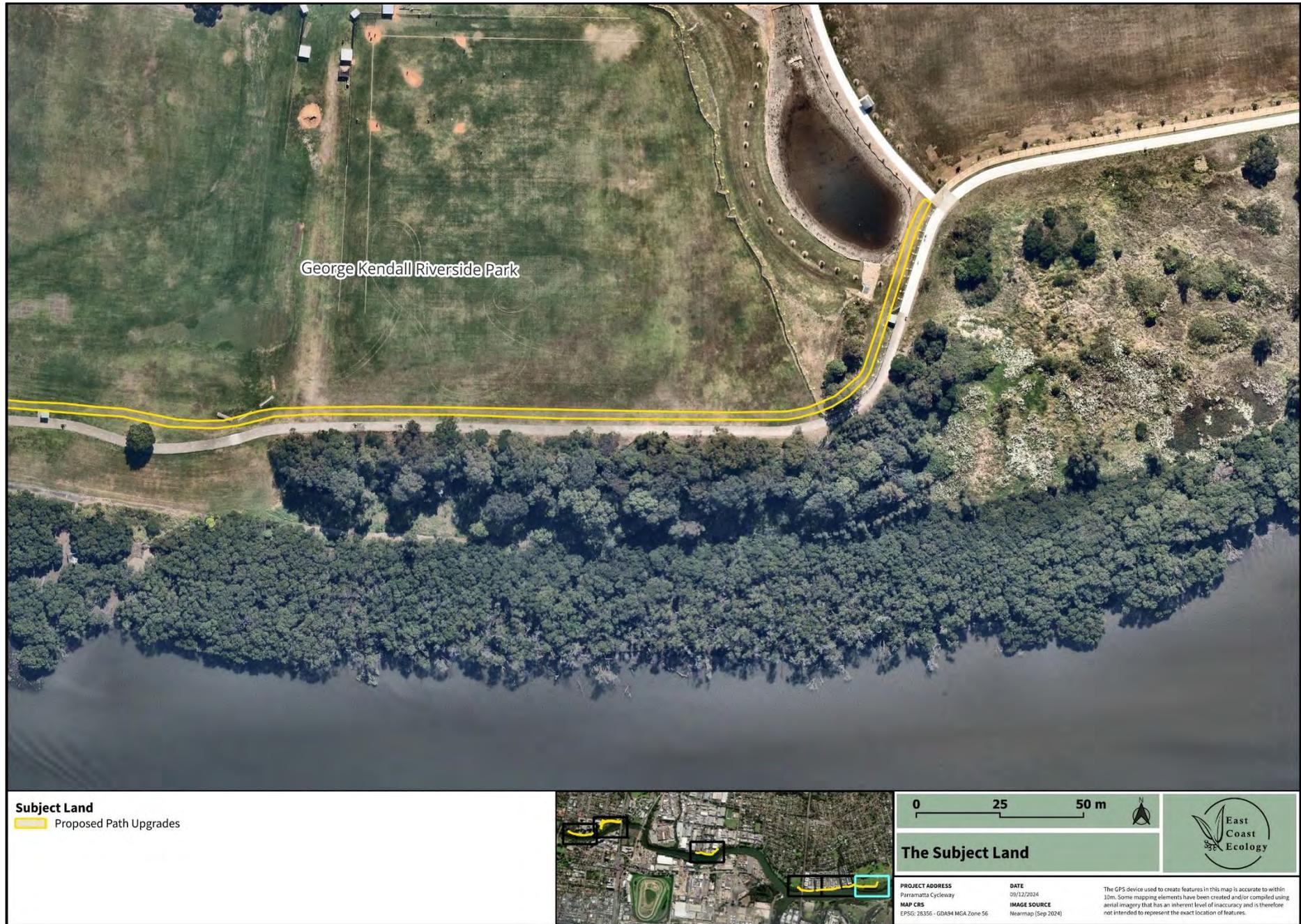
**Figure 3. The Subject Land (Reid Park).**



**Figure 4. The Subject Land (Royal Shores Ermington).**



**Figure 5. The Subject Land (Royal Shores Ermington).**



**Figure 6. The Subject Land (George Kendall Riverside Park).**

## 1.3 Legislative Context

### 1.3.1 *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*

The Commonwealth EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are considered Matters of National Environmental Significance (MNES). Under the EPBC Act, approval is required for actions that have, will have, or are likely to have a significant impact on MNES.

Several EPBC listed threatened species have potential to utilise the Subject Land. The proposed activity will not result in a 'significant impact' on any MNES and a referral to the Australian Government Minister for the Environment is not required.

### 1.3.2 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) establishes the system of environmental planning and assessment in NSW. The proposed activity is being assessed under Division 5.1 of the EP&A Act via a Review of Environment Factors (REF). This report provides input into the REF and environmental impact assessment process by providing assessment specific to matters of biodiversity.

### 1.3.3 *Biodiversity Conservation Act 2016*

The BC Act (NSW) seeks to conserve biological diversity and promote ecologically sustainable development, to prevent extinction and promote recovery of threatened species, populations and ecological communities and to protect areas of outstanding biodiversity value.

Several BC Act listed threatened species have the potential to occur within, or utilise, the Subject Land. The BC Act requires that the significance of the impact on threatened species, populations and threatened ecological communities is assessed using the test listed in Section 7.3 of the BC Act. Where a significant impact is likely to occur, a Species Impact Statement (SIS) must be prepared in accordance with the Environment Agency Head's requirements, or a Biodiversity Development Assessment Report (BDAR) must be prepared by an accredited assessor in accordance with the Biodiversity Assessment Method (BAM) (DPE, 2020a). The proposed activity will not result in a 'significant impact' on any threatened entities and therefore the Biodiversity Offset Scheme is not triggered (**Appendix C**). As such, an SIS or a BDAR is not required. The Subject Land is not located within any Areas of Outstanding Biodiversity Value.

### 1.3.4 *Biosecurity Act 2015*

The *Biosecurity Act 2015* (NSW) provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by an activity as a matter of biosecurity. As defined in Part 3, section 23 of this Act, any non-conformance by an individual is defined as guilty of an offence.

No priority weeds for the Greater Sydney Region were identified within the Subject Land.

Suitable mitigation measures (**Section 7.2**) have been provided to manage weeds within the impact areas in accordance with the *Biosecurity Act 2015*, should they be identified in future.

### **1.3.5 Water Management Act 2000**

The main objective of the *Water Management Act 2000* (NSW) (WM Act) is to manage NSW water in a sustainable and integrated manner that will benefit today's generations without compromising future generations' ability to meet their needs. Section 91E of the Act establishes an approval regime for controlled activities within waterfront land. However, clause 41 of the Water Management (General) Regulation 2018 provides an exemption for public authorities in relation to all controlled activities on waterfront land. Therefore, approval under the WM Act is not required.

### **1.3.6 Fisheries Management Act 1994**

The *Fisheries Management Act 1994* (NSW) (FM Act) aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations including conserving fish stocks and key fish habitats and promoting ecologically sustainable development. No Key Fish Habitat (KFH) was identified within the Subject Land. The closest KFH is mapped within the Parramatta River, immediately adjoining the Subject Land, however, no impact to KFH is expected.

### **1.3.7 State Environmental Planning Policy (Biodiversity and Conservation) 2021**

On 1 March 2022, the State Environmental Planning Policy (Biodiversity Conservation) 2021 (Biodiversity Conservation SEPP) came into effect, consolidating and repealing several former State Environmental Planning Policies (SEPPs) and Regional Environmental Plans (REPs) relating to biodiversity in NSW. Specifically, Chapters 3 and 4 of the Biodiversity Conservation SEPP incorporate the Koala SEPP 2020 and Koala SEPP 2021, respectively. Neither Chapter 3, nor Chapter 4 of the Biodiversity Conservation SEPP apply to the Hills Shire LGA.

Chapter 2 aims to protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation. Chapter 2 does apply to City of Parramatta, however, as the proposal does not require development consent in accordance with the State Environmental Planning Policy (Transport and Infrastructure) 2021, the Biodiversity Conservation SEPP does not apply to the proposal. Regardless, this document has been considered when assessing potential impacts on trees and vegetation.

### **1.3.8 State Environmental Planning Policy (Resilience and Hazards) 2021**

The State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) commenced on the 1st of March 2022 and replaces the following former SEPPs:

- State Environmental Planning Policy (Coastal Management) 2018
- State Environmental Planning Policy 33 – Hazardous and Offensive Development, and
- State Environmental Planning Policy 55 – Remediation of Land.

The Subject Land is situated within land mapped under the following areas:

- 'Coastal Use Area'
- 'Coastal Environment Area' and,
- 'Proximity to coastal wetlands or littoral rainforest'.

Compliance with the controls listed under Division 4 – Coastal Use Area are discussed in the REF. The following subsections details the criteria (biodiversity specific) of this SEPP that applies.

#### **1.3.8.1 Development on land within the coastal environment area**

- (1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:
  - (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment
  - (b) coastal environmental values and natural coastal processes
  - (c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,
  - (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
  - (e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
  - (f) Aboriginal cultural heritage, practices and places,
  - (g) the use of the surf zone
- (2) 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 an adverse impact referred to in subclause (1), 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 activity is an extension of an existing pathway within a highly modified landscape. Any further degradation of the coastal environmental values and natural coastal processes is unlikely given the existing state of the Subject Land. Subject to mitigation measures, no further impacts to the coastal environment area are anticipated as a result of the proposal.

#### **1.3.8.2 Development on land in proximity to coastal wetlands or littoral rainforest**

Development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on

- (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or
- (b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

The proposed activity has been specifically designed to avoid impacts to Coastal Wetlands. Given the proposed activity is an extension of an existing pathway within a highly modified landscape, no changes to the quantity and quality of surface and groundwater flows that feed adjoining coastal wetlands are expected. The biophysical, hydrological and ecological integrity of the Coastal Wetlands will not be adversely affected by the proposed activity.

## 2. METHODOLOGY

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### 2.1 Background Research

A thorough literature review of local information relevant to the Subject Land was undertaken. Searches using NSW Wildlife Atlas (BioNet) (NSW DCCEEW, 2024a) and the Commonwealth Protected Matters Search Tool (PMST) (DCCEEW, 2024) were conducted to identify all current threatened flora and fauna, as well as migratory fauna records, within a 5km radius of the Subject Land. These data were used to assist in establishing the presence or likelihood of any ecological values as occurring on or adjacent to the Subject Land and helped inform our ecologists on what to look for during the site assessment.

Soil landscape and geological mapping, as well as existing vegetation mapping, were examined to assist in determining whether any threatened flora or ecological communities could be present. The following technical resources were comprised in the preparation of this report:

- State and Commonwealth datasets:
  - EPBC Protected Matters Search Tool (DCCEEW, 2024)
  - NSW BioNet. The website of the Atlas of NSW Wildlife (NSW DCCEEW, 2024a)
  - NSW BioNet. Threatened Biodiversity Data Collection (NSW DCCEEW, 2024b)
  - NSW BioNet. Vegetation Classification System (NSW DCCEEW, 2024c)
  - NSW Government Spatial Services: Search and Discovery - Historical, Aerial and Satellite Imagery (Spatial Services, 2024a)
  - NSW Government Spatial Services: Six Maps Clip & Ship (Spatial Services, 2024b)
  - Key Fish Habitat Maps – Sydney Metro (DPI, 2024b)
- Vegetation and soil mapping:
  - The NSW State Vegetation Type Map (NSW DCCEEW, 2024d)
  - eSPADE v2.2.0 (NSW DCCEEW, 2024f)
- NSW State guidelines:
  - Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPE, 2020a)
  - Threatened Species Survey and Assessment: Guidelines for developments and activities. Working Draft (DEC, 2004)

Species from both the BioNet and PMST online searches were combined to produce a list of threatened species, populations and communities that are likely to occur within the Subject Land (**Appendix B**).

### 2.2 Scope of Assessment

The overarching objective of this assessment was to evaluate the ecological values that occur within the Subject Land and identify how the proposed activity satisfies the relevant planning framework. This report discerns the likelihood of occurrence of any threatened entities (i.e. ecological communities and species) listed under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The full scope of the assessment included:

- Background research to determine the likelihood for NSW and/ or Commonwealth threatened biota to occur within the Subject Land during any point of their lifecycle
- Assess any potential impacts to species and/ or communities listed under the BC Act and EPBC Act, including the Long-nosed bandicoot, North Head - endangered population,
- Establishing the likelihood of occurrence of migratory species and threatened ecological communities (TEC) as listed under the BC Act and/ or the EPBC Act
- Identifying and mapping the distribution of vegetation communities within the Subject Land
- Recording presence and the extent of any known or potential fauna habitat features such as nests, dreys, caves, crevices, culverts, pools, soaks, flowering trees, fruiting trees or hollow-bearing trees and provide recommendations for on-going management of these habitat features and any fauna present
- Determining potential ecological impacts or risks that may result due to the proposed works, and
- Recommendation of any controls or additional actions to be taken to protect or improve environmental outcomes of the activity.

## **2.3 Limitations**

Not all flora and fauna species could be directly surveyed for during the site assessment. These species include nocturnal fauna and cryptic flora with flowering times outside of the survey period. The presence of nocturnal and cryptic species was assessed based on habitat constraints and historical records

## **2.4 Native Vegetation, Threatened Ecological Communities and Vegetation Integrity Methods**

### **2.4.1 Existing Information**

A review of the State Vegetation Type Map (NSW DCCEEW, 2024d) was used to assist in the identification of Plant Community Types (PCTs) within and surrounding the Subject Land. The PCT of 'best-fit' was determined based on the floristic descriptions within the Vegetation Classification System database (NSW DCCEEW, 2024c).

### **2.4.2 Mapping Native Vegetation Extent**

The extent of native vegetation within the Subject Land was determined through a field assessment with the aid of a GPS-enabled tablet.

## **2.5 Threatened Flora Survey Methods**

### **2.5.1 Review of Existing Information**

Threatened flora with potential to occur within the Subject Land and immediate surrounds were identified following review of BioNet and the PMST. Soil mapping (NSW DCCEEW, 2024e) and topography (Google Earth) were also used to provide further context on habitat constraints for threatened flora.

## 2.5.2 Field Surveys

To determine whether any threatened flora or their habitats were present, a survey was undertaken using parallel field traverses in accordance with the ‘Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method’ (DPE, 2020a).

## 2.6 Threatened Fauna Survey Methods

### 2.6.1 Review of Existing Information

Threatened fauna with potential to occur within the Subject Land and immediate surrounds were identified following review of BioNet and the PMST. Soil mapping (NSW DCCEEW, 2024e) and topography (Google Earth) were also used to provide further context on habitat constraints for threatened fauna.

### 2.6.2 Habitat Constraints

A field survey was undertaken to identify any habitat constraints (e.g. waterbodies, rocky areas, tree hollows), including microhabitat, present within the Subject Land and immediate surrounds. Potential habitat constraints within the broader area (500m buffer) were assessed using Google Earth, historical aerial imagery (Spatial Services, 2024a), soil landscape mapping (NSW DCCEEW, 2024e) and recent vegetation mapping (NSW DCCEEW, 2024b).

### 2.6.3 Field Surveys

No targeted surveys for fauna were undertaken. To determine whether any threatened fauna species were present, targeted habitat surveys were undertaken using parallel field traverses.

## 2.7 Weather Conditions

Surveys were undertaken on 3<sup>rd</sup> December 2024 within and immediately surrounding the Subject Land. Weather conditions taken from the nearest weather station (Parramatta (station 066124) in the lead up and during the field survey are outlined in **Table 1**.

**Table 1. Weather conditions taken from the nearest weather stations (Station number 066124) in the lead up and during the field survey (BOM, 2024).**

Timing/activities	Date	Day	Temperature (°C)		Rainfall (mm)
			Min	Max	
Lead up to the survey	26/12/2024	Tuesday	19	37.5	0
	27/12/2024	Wednesday	19.8	37	0
	28/12/2024	Thursday	21.8	29.2	2
	29/12/2024	Friday	21	22.8	3.8
	30/12/2024	Saturday	20.5	26	14.6
	01/12/2024	Sunday	20.2	31.5	1.4
	02/12/2024	Monday	18.8	36	5.2
Site Assessment	03/12/2024	Tuesday	20.5	32.5	0

## 2.8 Permits and Licences

The biodiversity assessment was conducted under the terms of ECE's Scientific Licence issued by the NSW Department of Planning and Environment (SL102667). Fauna survey was conducted under approval RVF22/2367 from the NSW Animal Care and Ethics Committee.

## 3. SITE CONTEXT

---

### 3.1 Landscape Features

#### 3.1.1 IBRA Bioregion and subregion

The Subject Land is situated within the Parramatta Local Government Area (LGA) and lies partly within the Cumberland and the Pittwater Interim Biogeographic Regionalisation for Australia (IBRA) Subregions, within the Sydney Basin IBRA Bioregion.

#### 3.1.2 Rivers, streams, estuaries and wetlands

The Subject Land does not intersect with any mapped or unmapped watercourses.

Parramatta River, a fourth-order stream, adjoins to the south of the Subject Land. The Subject Land is therefore located within its associated 40m riparian buffer zone.

#### 3.1.3 Topography, Geology and Soils

The Subject Land occurs on a consistent gradient across all areas of 7m above sea level (asl). The Subject Land is mapped as occurring on the 'Lucas Heights' soil landscape, characterised by gently undulating crests and ridges of interbedded shale on plateau surfaces of the Mittagong formation.

#### 3.1.4 Karst, Caves, Crevices, Cliffs, Rocks or Other of Geological Features of Significance

The Subject Land did not contain areas of geological significance (karsts, caves, cliffs and crevices). The Subject Land, and surrounding area (500m buffer), is mapped as occurring on acid sulfate soils and/or having a risk/ probability of exhibiting occurrence of acid sulfate soils.

#### 3.1.5 Areas of Outstanding Biodiversity Value

No Areas of Outstanding Biodiversity Value (AOBV) occur within the Subject Land.

#### 3.1.6 NSW (Mitchell) Landscapes

Mitchell Landscapes (Mitchell, 2002) groups ecosystems into meso-ecosystems representing larger natural entities based on topography and geology. The naming of ecosystems and meso-ecosystems was standardised so that each name provided location information and a meaningful descriptive landscape term. The Subject Land occurs within the 'Port Jackson Basin' and 'Ashfield Plains' Mitchell Landscape Ecosystem.

##### 3.1.6.1 Port Jackson Basin

Deep elongated harbour with steep cliffed margins on horizontal Triassic quartz sandstone. Small pocket beaches and more extensive Quaternary estuary fill of muddy sand at the head of most tributary streams. General elevation 0 to 80m, local relief 10 to 50m. Sandstone slopes and cliffs have patches of uniform or gradational sandy soil on narrow benches and within joint crevices that support forest and woodland of Sydney Peppermint (*Eucalyptus piperita*), Smooth-barked Apple (*Angophora costata*), Red Bloodwood (*Corymbia gummifera*) and Blackbutt (*Eucalyptus pilularis*). Sheltered gullies contain some Turpentine

(*Syncarpia glomulifera*), Coachwood (*Ceratopetalum apetalum*) and Water Gum (*Tristaniopsis laurina*). Estuarine sands were originally dominated by saltmarsh but have been taken over by Grey Mangrove (*Avicennia marina*) in the past century.

### **3.1.6.2 Ashfield Plains**

Undulating hills and valleys on horizontal Triassic shale and siltstone, occasional quartz sandstones especially near the margin of the Port Jackson landscape. Coastal extension of the Cumberland Plain landscape. Red and brown texture-contrast soils on crests grading to yellow harsh texture-contrast soils in valleys. Open forest of Broad-leaved Ironbark (*Eucalyptus fibrosa ssp. fibrosa*), Grey Box (*Eucalyptus moluccana*), with Tea-tree (*Leptospermum sp.*) along creeks and forests of Turpentine (*Syncarpia glomulifera*), Red Mahogany (*Eucalyptus resinifera*), Grey gum (*Eucalyptus punctata*), Sydney Blue Gum (*Eucalyptus saligna*) and Blackbutt (*Eucalyptus pilularis*) with a grassy understorey of Kangaroo Grass (*Themeda triandra*) on moister sites.

## 4. RESULTS: NATIVE VEGETATION

---

### 4.1 Plant Community Types

#### 4.1.1 Historically Mapped Vegetation

The State Vegetation Type Map (NSW DCCEEW, 2024d) indicated the presence of four Plant Community Types (PCT) in proximity to the Subject Land:

- PCT 3595: Sydney Coastal Sandstone Gully Forest
- PCT 4028: Estuarine Swamp Oak Twig-rush Forest
- PCT 4091: Grey mangrove-River Mangrove Forest, and
- PCT 4097: Samphire Saltmarsh

The following PCTs are associated with the below threatened ecological communities (TEC):

- PCT 4028:
  - Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (BC Act Listed; Endangered)
  - Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and Southeast Queensland ecological community (EPBC Act Listed; Endangered)
- PCT 4097:
  - Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (BC Act Listed; Endangered), and
  - Subtropical and Temperate Coastal Saltmarsh (EPBC Act Listed; Vulnerable)

The State Vegetation Type Map is presented in **Figure 7 - Figure 12**.

#### 4.1.2 Field-validated Vegetation

Site assessment determined the presence of one PCT within the Subject Land:

- PCT 4006: Northern Paperbark-Swamp Mahogany Saw-sedge Forest

Native vegetation within the Subject Land has been assessed as aligning with the BioNet Vegetation Classification PCT identified within **Table 2**. A detailed description of the PCT is provided in the following subsections. One novel vegetation type was allocated to exotic and/or planted vegetation that could not be assigned to a PCT:

- Exotic/Ornamental Grasses

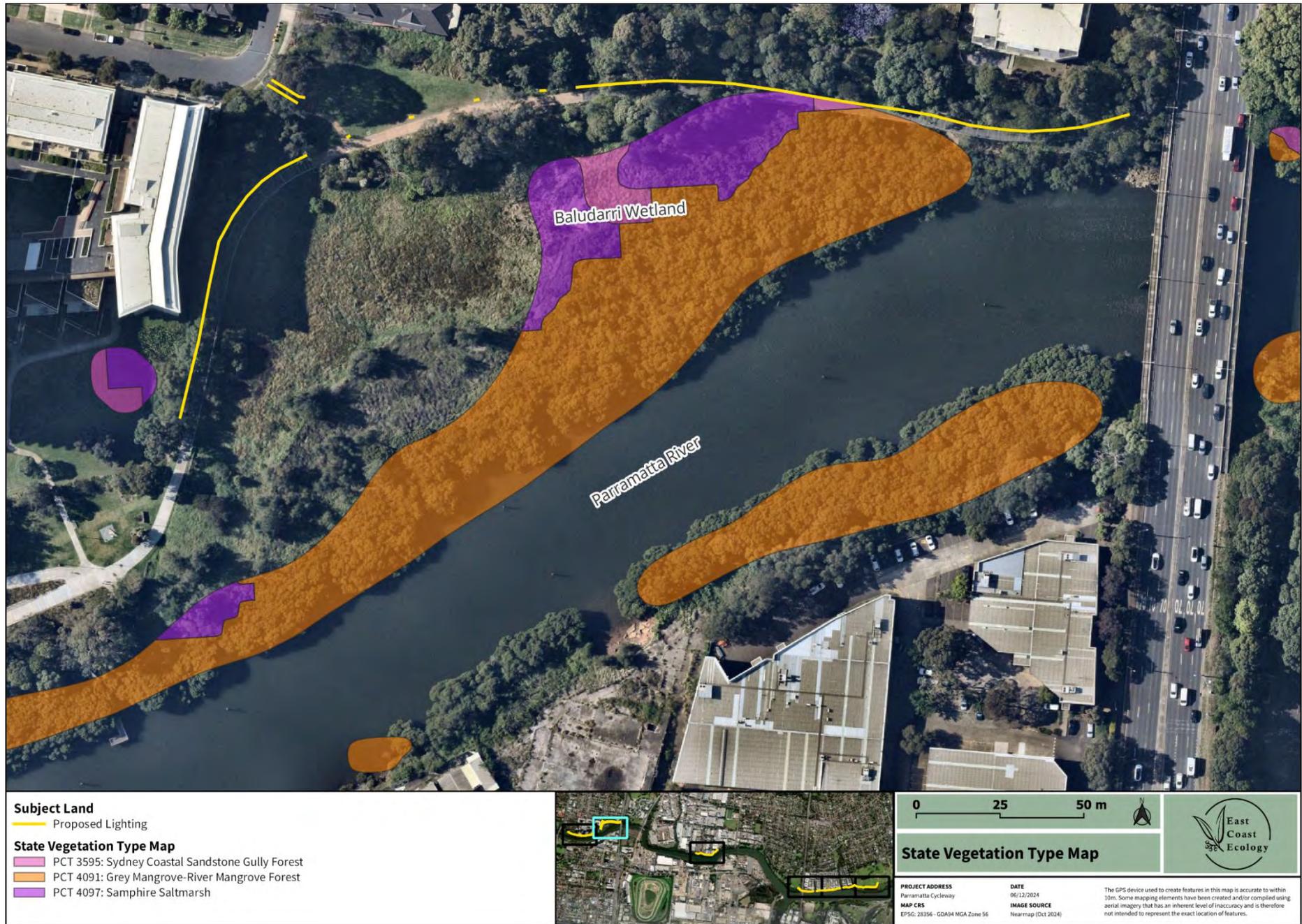
The vegetation within the Subject Land is detailed in **Table 3** and presented in **Figure 13- Figure 18**.

**Table 2. PCT identified within the Subject Land.**

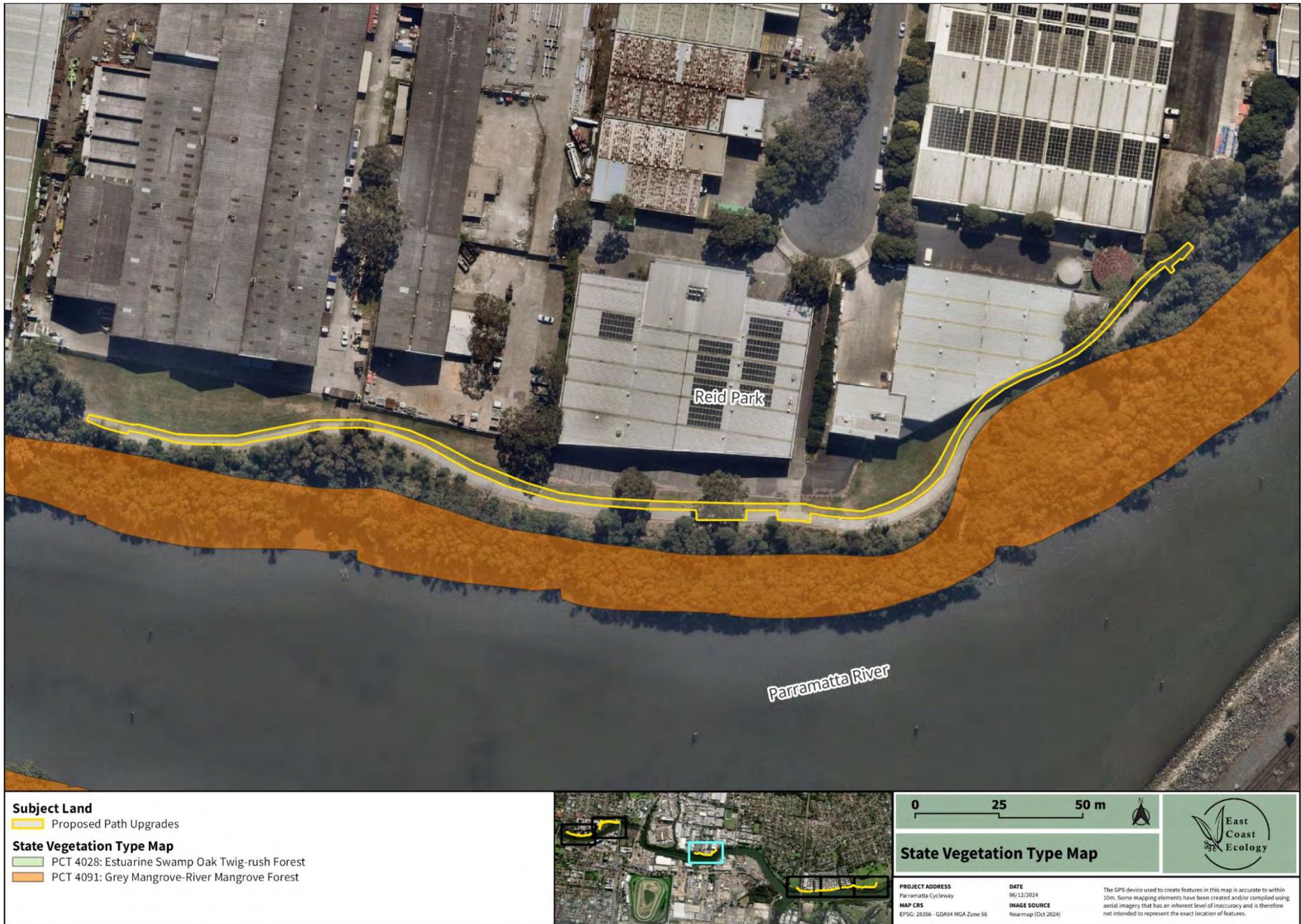
PCT ID	PCT Scientific Name	Area within the Subject Land
4006	Northern Paperbark Swamp Mahogany Saw-sedge Forest	31 trees (0.09ha)



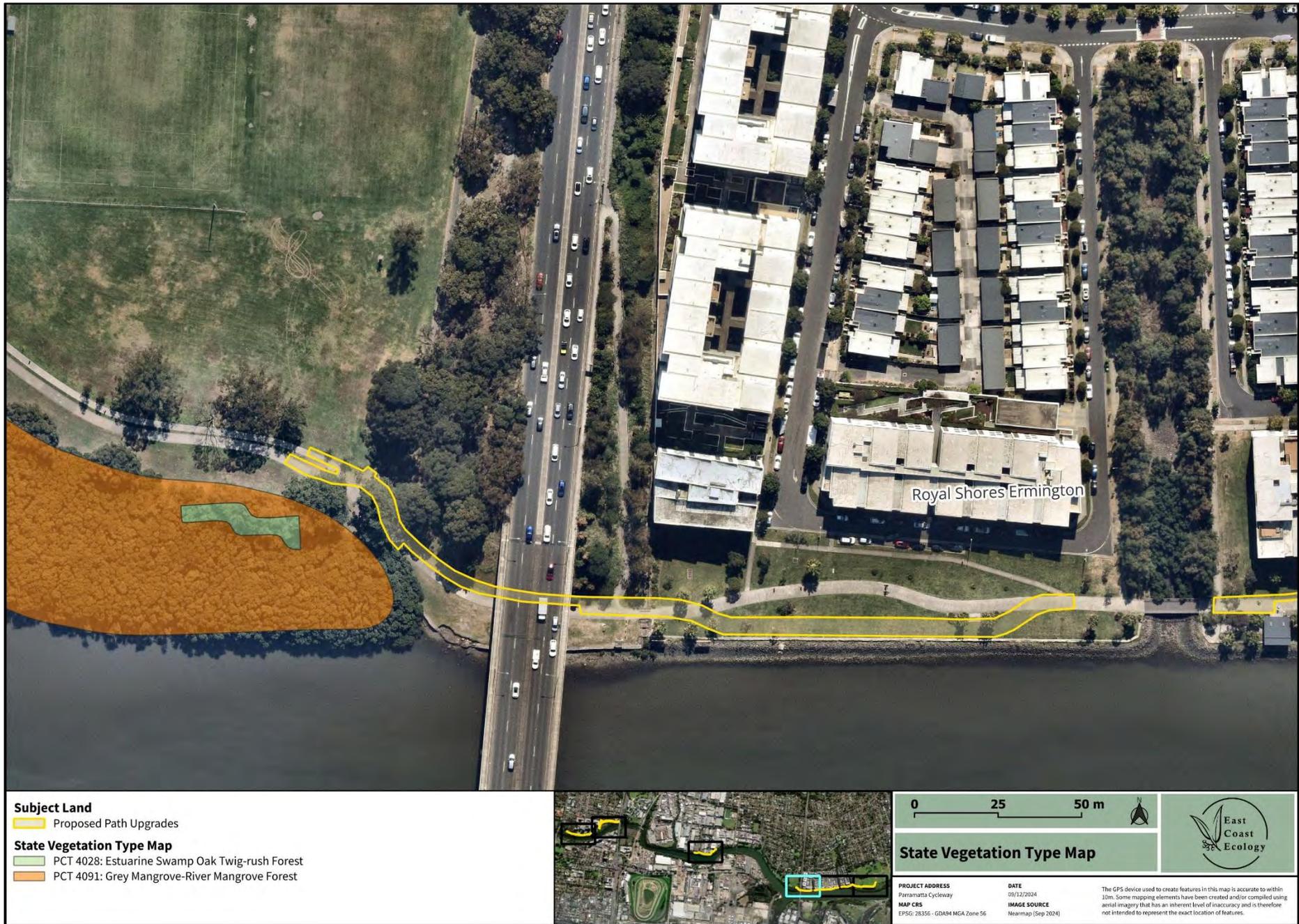
**Figure 7. Vegetation Communities within and surrounding the Subject Land (Rangihou Reserve).**



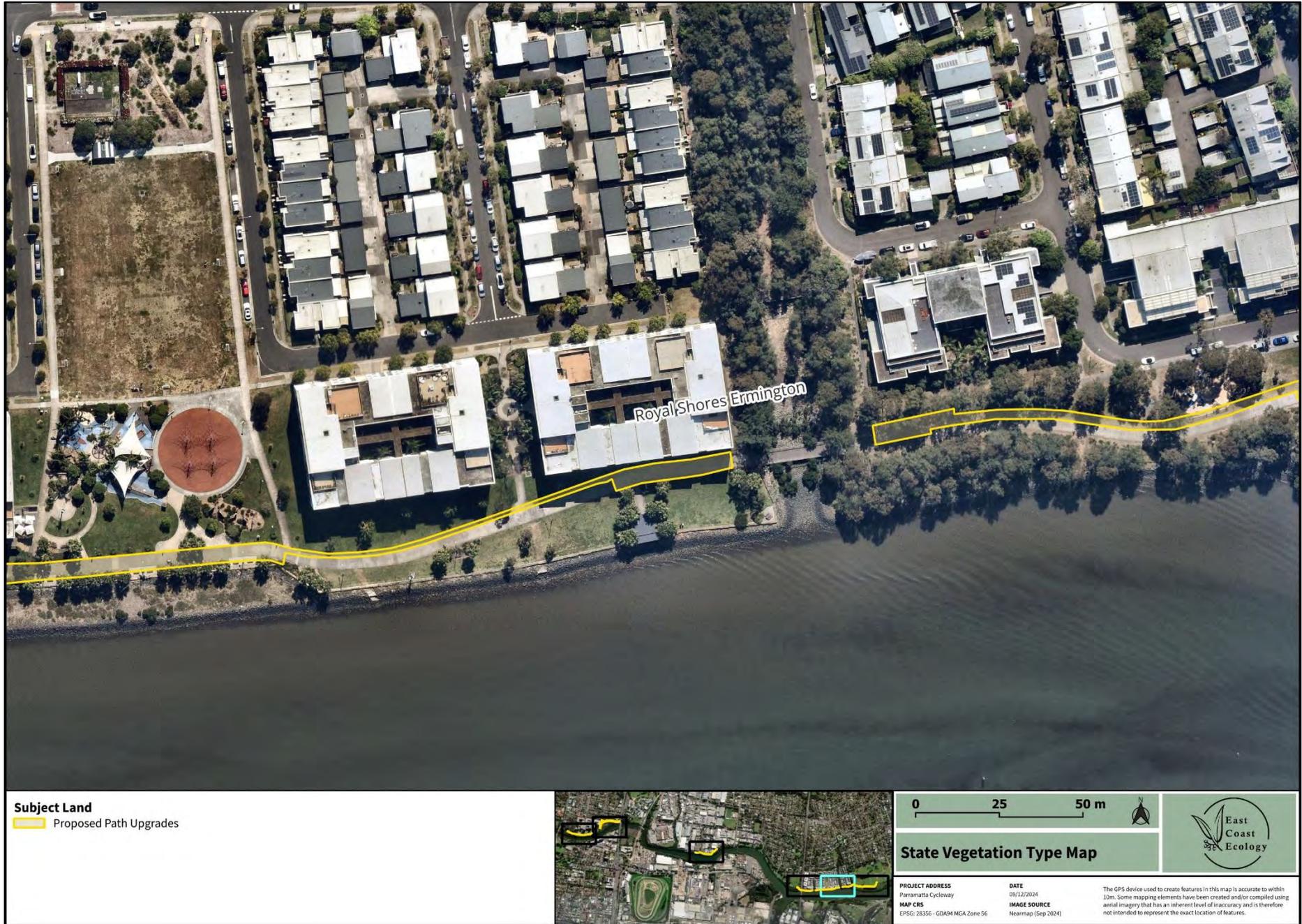
**Figure 8. Vegetation Communities within and surrounding the Subject Land (Baludarri Wetland).**



**Figure 9. Vegetation Communities within and surrounding the Subject Land (Reid Park).**



**Figure 10. Vegetation Communities within and surrounding the Subject Land (Royal Shores Ermington).**



**Figure 11. Vegetation Communities within and surrounding the Subject Land (Royal Shores Ermington).**



**Figure 12. Vegetation Communities within and surrounding the Subject Land (George Kendall Riverside Park).**

**Table 3. Description of vegetation within the Subject Land, that will be impacted by the activity.**

PCT 4006: Northern Paperbark-Swamp Mahogany Saw-sedge Forest	
	
<b>Vegetation Formation</b>	Forested Wetlands
<b>Extent within Subject Land (approximate)</b>	31 trees (0.09ha)
<b>Description of the Vegetation within the Subject Land</b>	
<p>Within the Subject Land, this PCT was highly modified, characterised by trees, on a mostly absent native ground and midstorey. The following trees, characteristic of PCT 4006, are proposed for removal:</p> <ul style="list-style-type: none"> <li>▪ 2 x <i>Corymbia citriodora</i> (T12, T253)</li> <li>▪ 1 x <i>Allocasuarina torulosa</i> (T13)</li> <li>▪ 3 x <i>Corymbia maculata</i> (T17, T24, T231)</li> <li>▪ 4 x <i>Angophora costata</i> (T39, T110, T150 – T151)</li> <li>▪ 9 x <i>Casuarina glauca</i> (T40, T232, T276 – T282)</li> <li>▪ 1 x <i>Livistona australis</i> (T155)</li> <li>▪ 5 x <i>Casuarina cunninghamiana</i> (T164, T166, T252, T256 – T257)</li> <li>▪ 1 x <i>Glochidion ferdinandi</i> (T236)</li> <li>▪ 2 x <i>Melaleuca quinquenervia</i> (T239, T248)</li> <li>▪ 2 x <i>Melaleuca styphelioides</i> (T179, T273)</li> <li>▪ 1 x <i>Eucalyptus spp.</i> (T180), and</li> <li>▪ Occasional native shrubs and groundcovers.</li> </ul>	

## PCT 4006: Northern Paperbark-Swamp Mahogany Saw-sedge Forest

The locations of these trees are depicted in **Figure 13 - Figure 18**.

Nearby to the Subject Land, good condition patches of this PCT were represented with the same upper canopy species, with a sparse mid stratum layer dominated by *Leptospermum laevigatum*, *Kunzea ambigua*, *Acacia parramattensis* and *Homalanthus populifolius*. The ground layer was dominated by common coastal grass and grasslike species including, *Juncus usitatus*, *Lomandra longifolia*, *Dianella caerulea*, *Themeda triandra*, *Imperata cylindrica* and *Bromus spp.*.

### Description of PCT 4006 in BioNet

A mid-high to very tall mixed eucalypt and Melaleuca open to closed forest with a sparse mid-stratum of mesophyll small trees and palms and a dense ground layer of sedges and ferns. This PCT occurs on low-lying coastal alluvial swamps and depressions and back barrier sand flats between Sydney and Yamba, Central Coast and north coast. The tree canopy very frequently includes both *Melaleuca quinquenervia* and *Eucalyptus robusta*, rarely with other eucalypts. The vine *Parsonsia straminea* is very frequently recorded in the canopy or mid-stratum. The mid-stratum is otherwise sparse, however often layered with small trees that very frequently includes *Glochidion ferdinandi*, occasionally *Livistona australis* and *Casuarina glauca*, and rarely *Melaleuca linariifolia*. A patchy cover of smaller sclerophyll shrubs occasionally includes *Acacia longifolia* and *Breynia oblongifolia*. The ground layer is very often dense and almost always includes a high cover of the tall sedge *Gahnia clarkei* together with the ferns *Telmatoblechnum indicum*, *Pteridium esculentum*, *Hypolepis muelleri* and *Calochlaena dubia*. Other species include grasses such as *Entolasia marginata*, which is common and occasionally sedges *Machaerina rubiginosa*, *Machaerina articulata* or *Carex appressa*. This PCT occurs on very low-lying alluvium, estuarine deposits, back barrier flats, back swamps and rarely sand swales, at elevations almost always below 20 metres asl. It is mainly constrained to within a few kilometres of the coastline, although spatial outliers occur on coastal floodplains that extend some way inland. This community partially overlaps with a range of coastal swamp forests of the central and north coasts, each varying in the frequency and duration of inundation, and substrate characteristics.

<b>Groundwater Dependent Ecosystems (GDE)</b>	Assessment of the potential for the Subject Land to support groundwater dependent ecosystems was carried out using the Commonwealth’s Bureau of Meteorology Groundwater Dependent Ecosystems Atlas (BOM, 2024a). This PCT is associated with a Groundwater Dependent Ecosystems.
<b>BC Act 2016 Status</b>	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions (Endangered) ( <b>Section 4.2.1</b> ).
<b>EPBC Act 1999 Status</b>	Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland (Endangered) Does not meet eligibility criteria ( <b>Section 4.2.2</b> ).

## 4.2 Threatened Ecological Communities

### 4.2.1 Listing under the Biodiversity Conservation Act 2016 - Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions – endangered ecological community listing

The NSW Scientific Committee (2011) has determined that the EEC, Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner bioregions, is associated with:

- The Sydney Basin Bioregion, including the Parramatta LGA
- Humic clay loams and sandy loams, on waterlogged or periodically inundated alluvial flats and drainage lines associated with coastal floodplains, and
- An upper storey that is usually dominated by a tree layer of Eucalypts and Paperbarks; *Eucalyptus robusta*, *Melaleuca quinquenervia*, *Melaleuca styphelioides* and, south from Sydney, *Eucalyptus botryoides* and *Eucalyptus longifolia* with other scattered trees species present including *Callistemon salignus* and *Casuarina glauca*.

The vegetation within the Subject Land is dominated by *E. robusta*, with occasional *Melaleuca spp.* and occurs in the Sydney Basin Bioregion along a drainage line associated with a coastal floodplain. Although the vegetation proposed for removal is severely degraded, it has been determined to loosely conform to the Final Determination (Scientific Committee, 2011) and has therefore been determined to form a part of the endangered ecological community.

### 4.2.2 Listing under the *Environmental Protection and Biodiversity Conservation Act 1999* – Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland ecological community

The vegetation within the Subject Land was determined to loosely conform to the EPBC Act listed Endangered Ecological Community, Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland ecological community on the basis of the following criteria:

- The vegetation is isolated and part of a patch is at least 0.5ha, and
- Contains a mostly native ground cover.

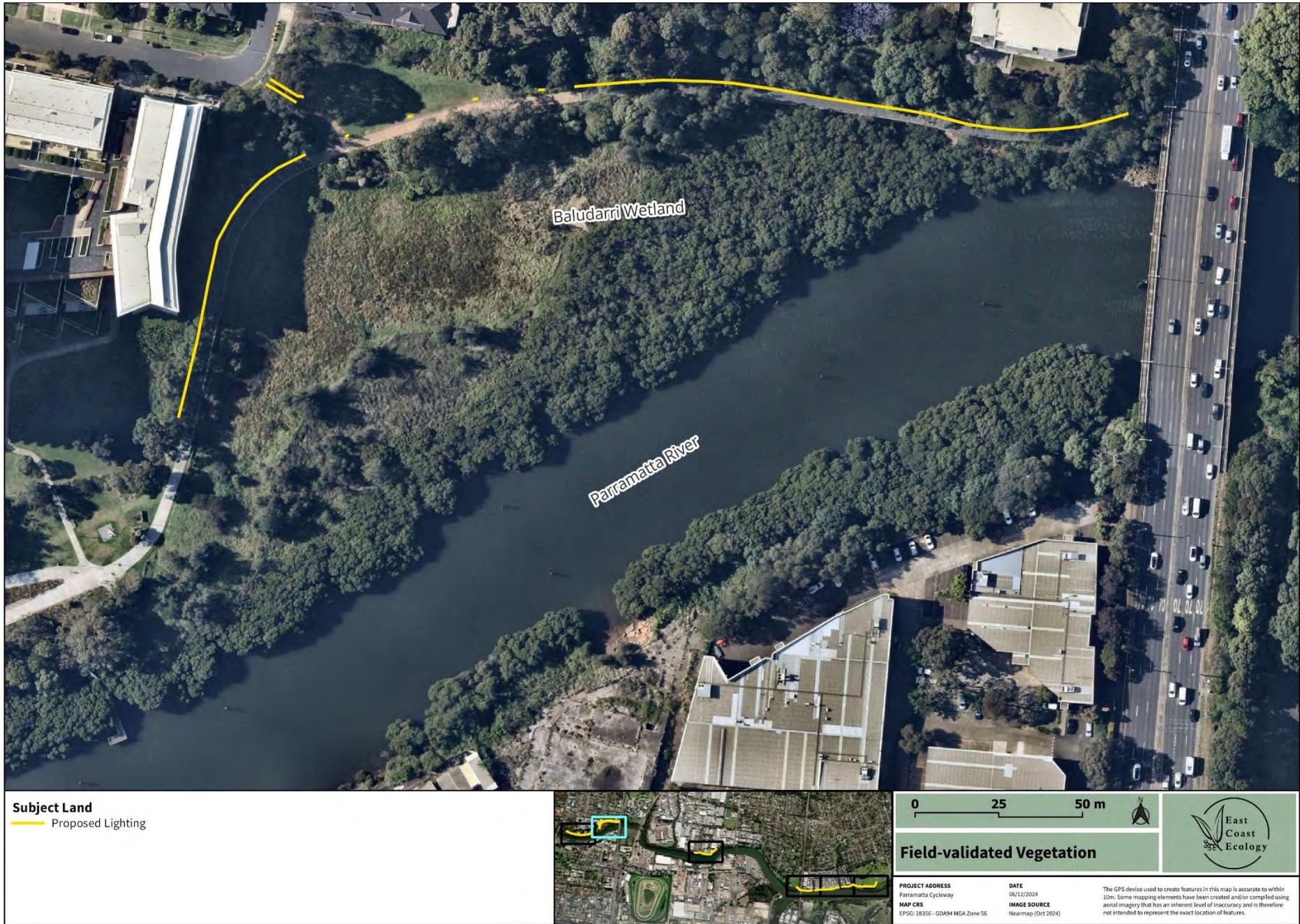
Although the ground layer assessed within the Subject Land was mostly planted and highly limited in variety, the vegetation within the areas to be impacted meet the minimum conditions for the EEC listing. The impacts to the EEC are anticipated to be of low significance and very minimal if any. The results from the assessment of significance are provided in **Appendix D**.

**Table 4. Description of vegetation within the Subject Land, that will be impacted by the activity.**

Exotic/Ornamental Grasses	
	
<b>Extent within Subject Land (approximate)</b>	0.38ha
<b>Description of the Vegetation within the Subject Land</b>	
<p>This novel vegetation type dominated by exotic, ornamental lawn species such as <i>Axonopus fissifolius</i> amidst occasional environmental weeds, including <i>Trifolium repens</i>. This vegetation type occurred the length of the proposed activity, occasionally beneath the canopy of PCT 4006.</p>	
<b>BC Act 2016 Status</b>	Not listed.
<b>EPBC Act 1999 Status</b>	Not listed.



**Figure 13. Field-validated Vegetation Mapping within the Subject Land (Rangihou Reserve)**



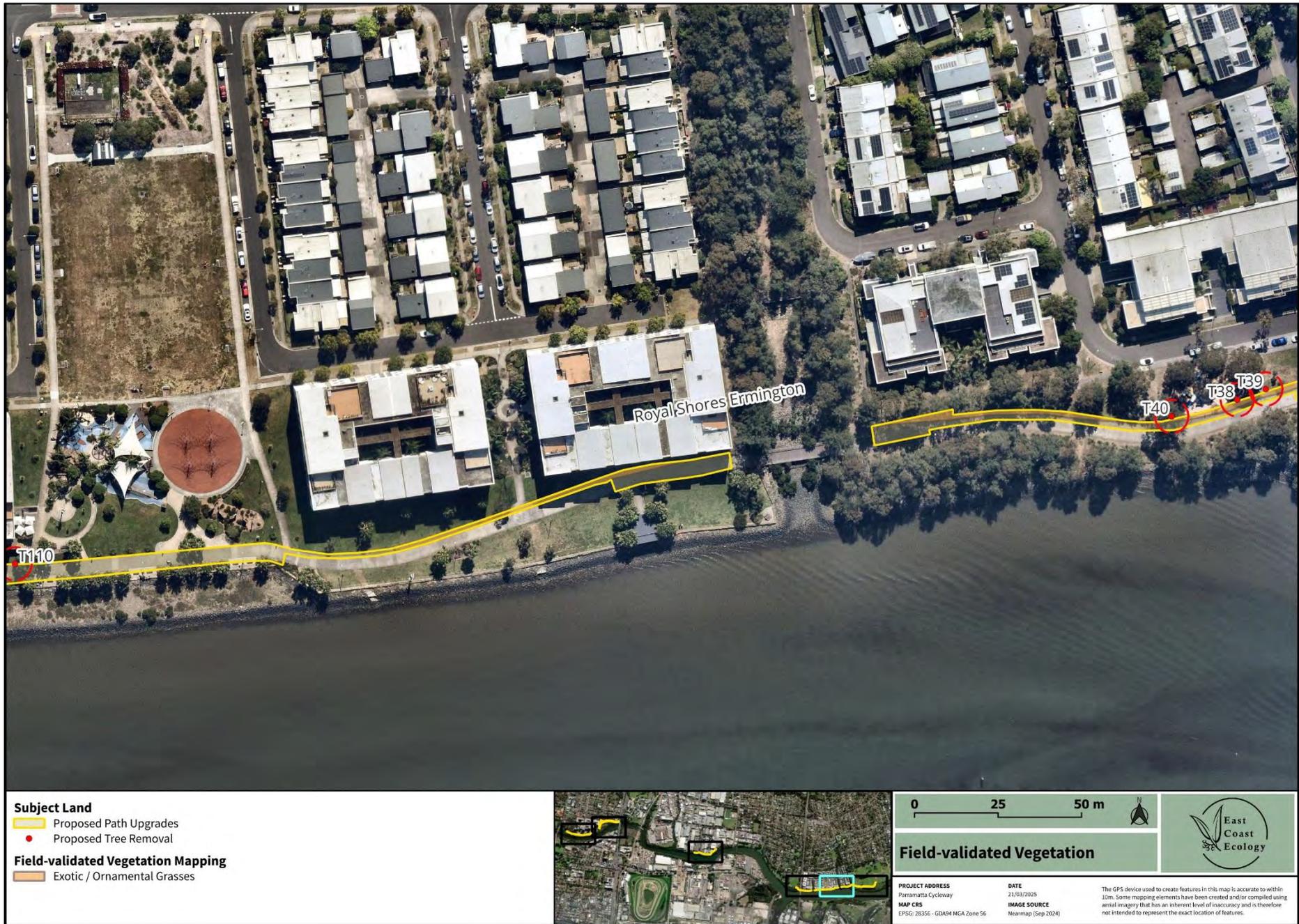
**Figure 14. Field-validated Vegetation Mapping within the Subject Land (Baludarri Wetland)**



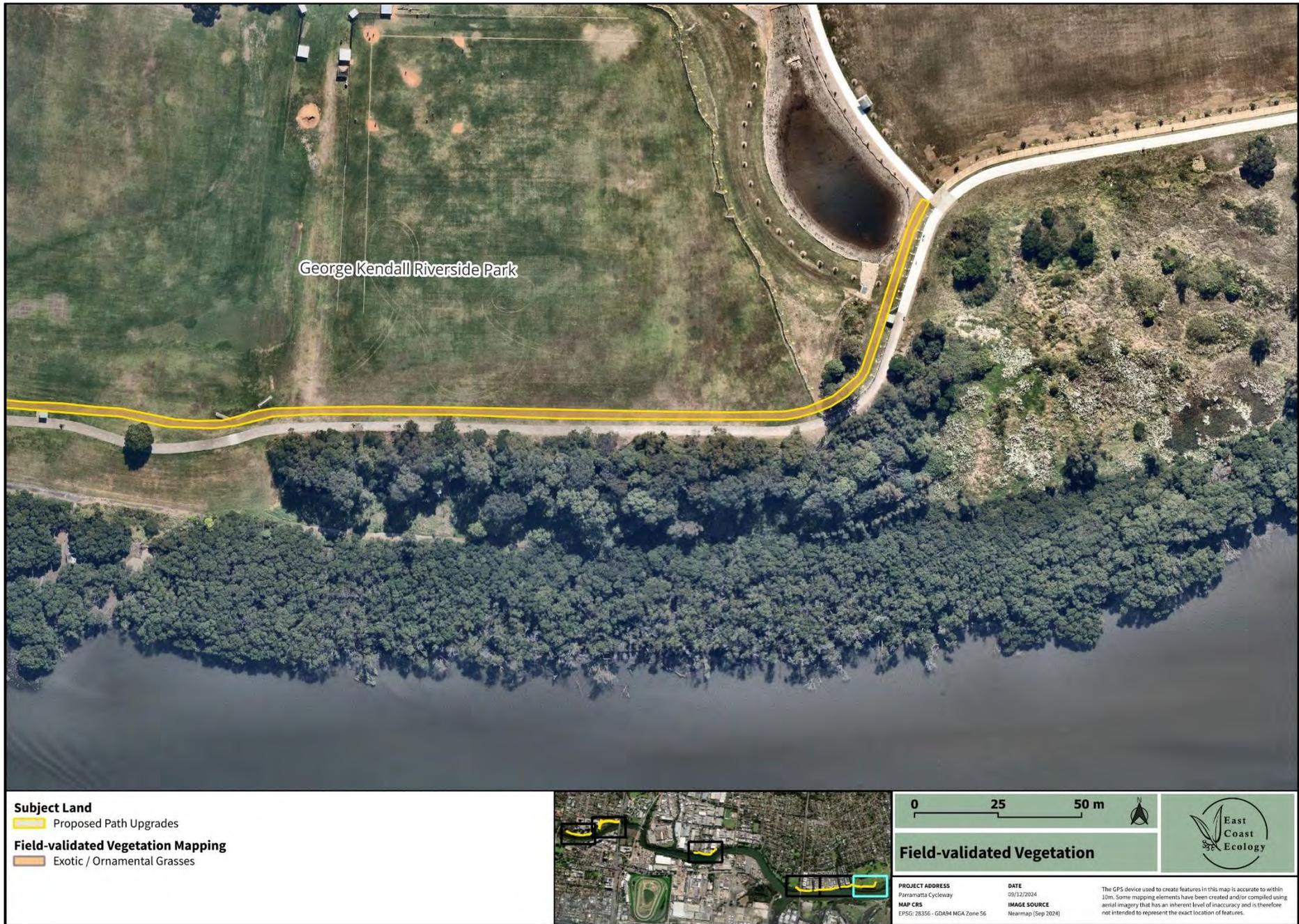
**Figure 15. Field-validated Vegetation Mapping within the Subject Land (Reid Park)**



**Figure 16. Field-validated Vegetation Mapping within the Subject Land (Royal Shores Ermington)**



**Figure 17. Field-validated Vegetation Mapping within the Subject Land (Royal Shores Ermington)**



**Figure 18. Field-validated Vegetation Mapping within the Subject Land (George Kendall Riverside Park).**

## 5. RESULTS: THREATENED SPECIES

### 5.1 Threatened Flora

Database searches revealed 18 threatened flora have potential to occur within a ~5km radius of the Subject Land (**Table 5**).

**Table 5. Threatened flora with potential to occur within the Subject Land.**

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
<i>Acacia pubescens</i>	Downy Wattle	V	V	56
<i>Callistemon linearifolius</i>	Netted Bottle Brush	V	-	6
<i>Dillwynia tenuifolia</i>	-	V	-	2
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	-	V	-	52
<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E	-	1
<i>Isotoma fluviatilis</i> subsp. <i>fluviatilis</i>	-	-	X	2
<i>Macadamia integrifolia</i>	Macadamia Nut	-	V	2
<i>Persicaria elatior</i>	Tall Knotweed	V	V	1
<i>Pimelea curviflora</i> var. <i>curviflora</i>	-	V	V	9
<i>Pimelea spicata</i>	Spiked Rice-flower	E	E	2
<i>Pomaderris prunifolia</i>	P. prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	E	-	8
<i>Rhodamnia rubescens</i>	Scrub Turpentine	E	CE	4
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	E	E	6
<i>Tetratheca glandulosa</i>	-	V	-	1
<i>Triplarina imbricata</i>	Creek Triplarina	E	E	4
<i>Wahlenbergia multicaulis</i>	Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham	E	-	8

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
	Hills, Canterbury, Hornsby, Parramatta and Strathfield			
<i>Wilsonia backhousei</i>	Narrow-leafed <i>Wilsonia</i>	V	-	100
<i>Zannichellia palustris</i>	-	E	-	6

V – Vulnerable; E – Endangered; EP – Endangered Population; CE – Critically Endangered; X – Extinct

No threatened flora species were identified within the Subject Land. Based on habitat constraints and targeted surveys, no threatened flora species were considered likely to occur within the Subject Land. It is not expected that the proposed activity would pose a significant impact to a nearby viable local population, on the basis that all mitigation measures proposed in this report are adhered to (**Section 7.2**). Further assessment is provided in **Appendix B** of this report.

## 5.2 Threatened Fauna

Database searches revealed 54 threatened fauna occur, or have potential to occur, within a ~5km radius of the Subject Land (**Table 6**).

**Table 6. Threatened fauna with potential to occur within the Subject Land.**

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
<i>Anthochaera phrygia</i>	Regent Honeyeater	E	CE	7
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V	-	35
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	13
<i>Calidris canutus</i>	Red Knot	-	E	14
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE	438
<i>Calidris tenuirostris</i>	Great Knot	V	V	2
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V	V	3
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	E	E	3
<i>Circus assimilis</i>	Spotted Harrier	V	-	12
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	4
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	3

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
<i>Epthianura albifrons</i>	White-fronted Chat population in the Sydney Metropolitan Catchment Management Area	E	-	437
<i>Epthianura albifrons</i>	White-fronted Chat	V	-	437
<i>Falco subniger</i>	Black Falcon	V	-	1
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	11
<i>Gallinago hardwickii</i>	Latham's Snipe	V	V	1965
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	21
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	-	1
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V	-	743
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	18
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	V	51
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-	6
<i>Lathamus discolor</i>	Swift Parrot	E	CE	7
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	V	V	2
<i>Limosa limosa</i>	Black-tailed Godwit	V	E	17
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	17069
<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	E	-	3
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-	11
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-	11
<i>Miniopterus oriana oceanensis</i>	Large Bent-winged Bat	V	-	96
<i>Myotis macropus</i>	Southern Myotis	V	-	53
<i>Neophema pulchella</i>	Turquoise Parrot	V	-	2

Scientific Name	Common Name	BC Act	EPBC Act	Records within 5km
<i>Ninox connivens</i>	Barking Owl	V	-	6
<i>Ninox strenua</i>	Powerful Owl	V	-	306
<i>Numenius madagascariensis</i>	Eastern Curlew	E	CE	40
<i>Oxyura australis</i>	Blue-billed Duck	V	-	2
<i>Pandion cristatus</i>	Eastern Osprey	V	-	13
<i>Petauroides volans</i>	Southern Greater Glider	E	E	1
<i>Petroica boodang</i>	Scarlet Robin	V	-	5
<i>Petroica phoenicea</i>	Flame Robin	V	-	2
<i>Phascolarctos cinereus</i>	Koala	E	E	1
<i>Pommerhelix duralensis</i>	Dural Land Snail	E	E	39
<i>Pseudophryne australis</i>	Red-crowned Toadlet	V	-	2
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	902
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	10
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-	14
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	7
<i>Sternula albifrons</i>	Little Tern	E	C	7
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	3
<i>Tringa nebularia</i>	Common Greenshank	E	E	334
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-	2
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	3
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	1
<i>Xenus cinereus</i>	Terek Sandpiper	V	V	1

V – Vulnerable; E – Endangered; EP – Endangered Population; CE – Critically Endangered.

No threatened fauna species were identified within the Subject Land however, this does not rule out the potential for threatened species to still exist within the Subject Land, particularly given no targeted surveys were undertaken.

Based on habitat constraints and the urban nature of the Subject Land (**Appendix B**), no threatened fauna were considered likely to occur and no further assessment was required. Details of the threatened fauna habitat recorded within the Subject Land are included in **Table 7**.

**Table 7. Fauna habitat values identified within the Subject Land.**

Habitat component	Subject Land
Coarse woody debris	Absent.
Rock outcrops and bush rock	Absent.
Caves, crevices and overhangs	Absent.
Culverts, bridges, mine shafts, or abandoned structures	Absent.
Nectar/lerp-bearing Trees	Present throughout – <i>Melaleuca</i> spp.
Nectar-bearing shrubs	Present nearby – <i>Acacia</i> spp.
Large stick nests	Absent.
Sap and gum sources	Present – <i>Eucalyptus</i> spp.
She-oak fruit	Present throughout – <i>Casuarina</i> spp.
Seed-bearing trees and shrubs	Present throughout – <i>Casuarina</i> spp.
Soft-fruit-bearing trees/shrubs	Absent.
Dense shrubbery and leaf litter	Present throughout.
Tree hollows	Absent- Nestboxes located outside the Subject Land.
Decortivating bark	Absent.
Wetlands, soaks, and streams	Present nearby – Baludarri Wetland.
Open water bodies	Present nearby – Parramatta River..
Estuarine, beach, mudflats, and rocky foreshores	Absent.

### 5.3 Migratory Species

Database searches revealed seven migratory terrestrial species, or their habitat, are known to occur within the Subject Land (**Table 8**). These species do not breed in Australia.

**Table 8. Migratory terrestrial species with potential to occur in the Subject Land.**

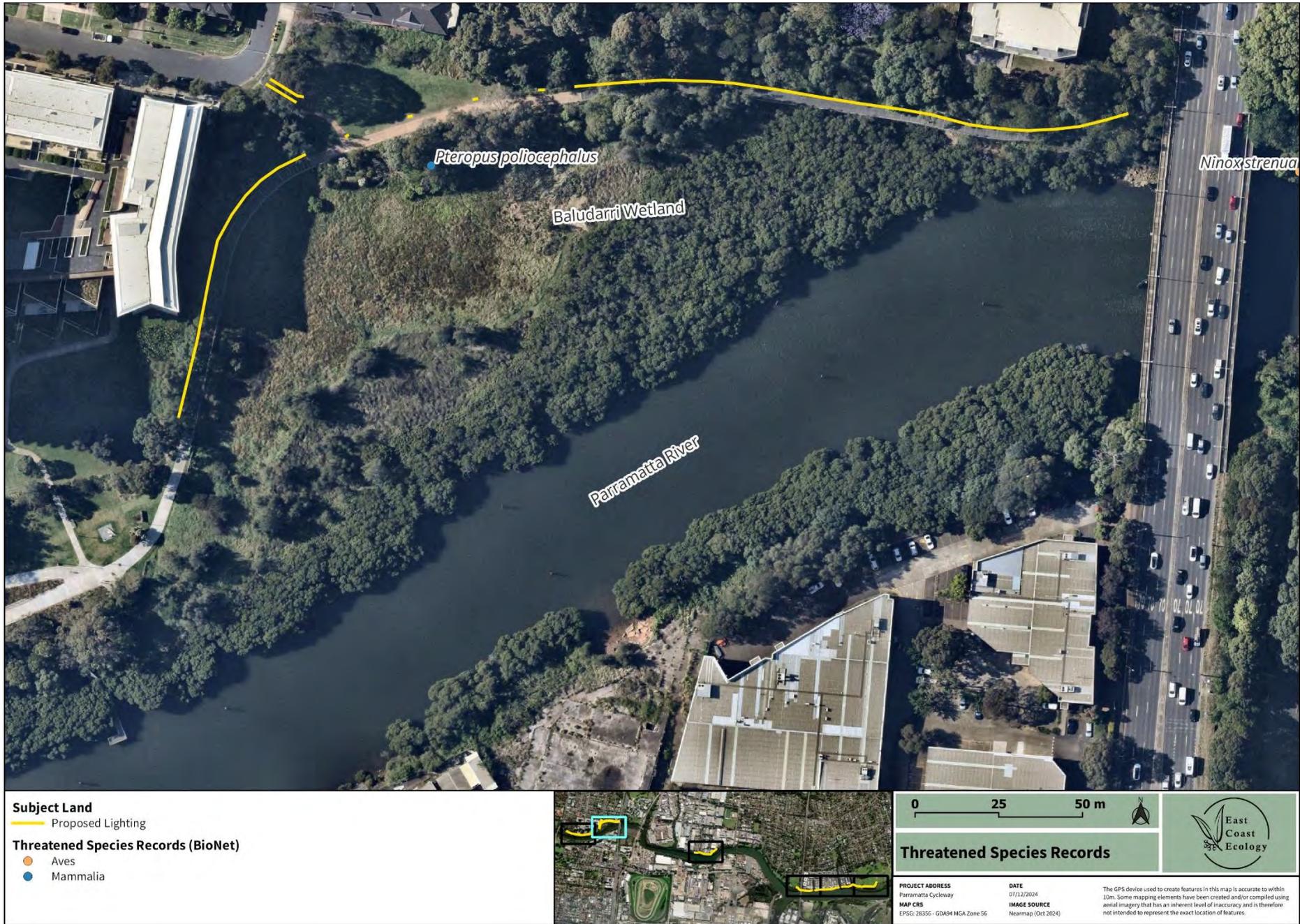
Species	EPBC Act Status
<i>Cuculus optatus</i> (Oriental Cuckoo)	Migratory, CAMBA, JAMBA, ROKAMBA
<i>Hirundapus caudacutus</i> (White-throated Needle-tail)	Vulnerable, Migratory, CAMBA, JAMBA, ROKAMBA
<i>Monarcha melanopsis</i> (Black-faced Monarch)	Migratory, Bonn

<i>Monarcha trivirgatus</i> (Spectacled Monarch)	Migratory, Bonn
<i>Motacilla flava</i> (Yellow Wagtail)	Migratory, CAMBA, JAMBA, ROKAMBA
<i>Myiagra cyanoleuca</i> (Satin Flycatcher)	Migratory, Bonn
<i>Rhipidura rufifrons</i> (Rufous Fantail)	Migratory, Bonn

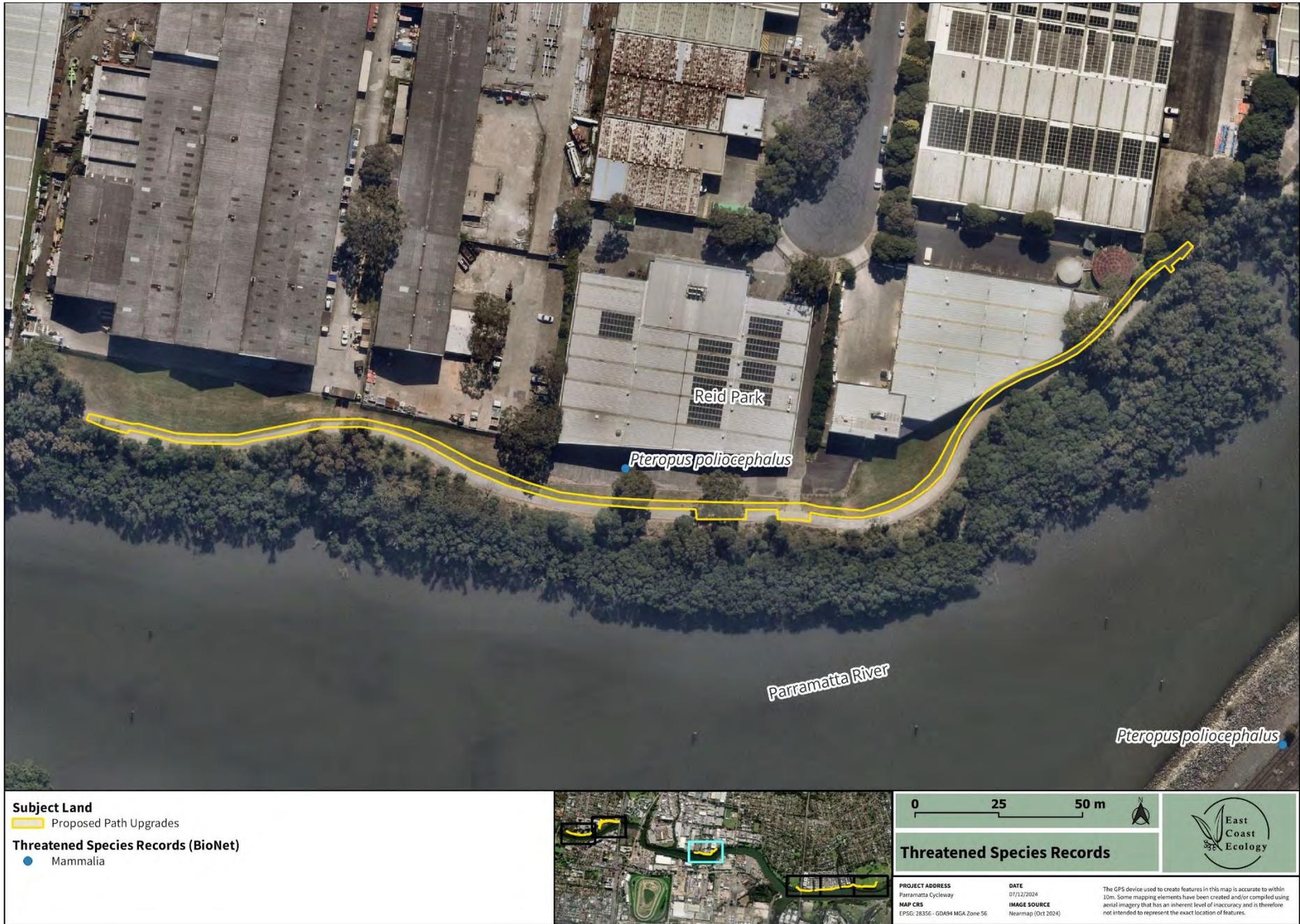
CAMBA = *China-Australia Migratory Bird Agreement*, JAMBA = *Japan-Australia Migratory Bird Agreement*, ROKAMBA = *Republic of Korea-Australia Migratory Bird Agreement* and Bonn = *Convention on the Conservation of Migratory Species of Wild Animals*.



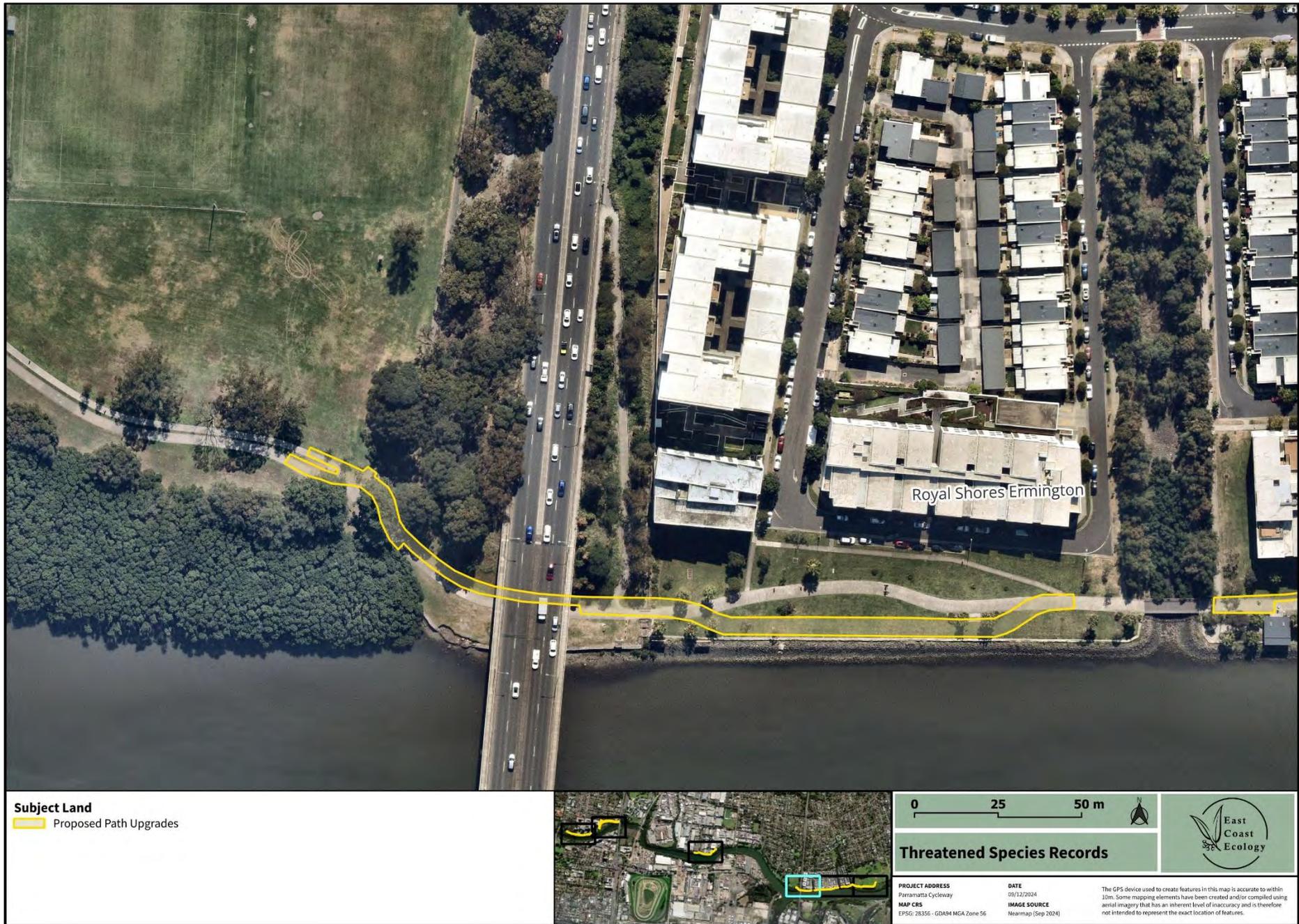
**Figure 19. Threatened species records in proximity to the Subject Land (Rangihou Reserve).**



**Figure 20. Threatened species records in proximity to the Subject Land (Baludarri Wetland).**



**Figure 21. Threatened species records in proximity to the Subject Land (Reid Park).**



**Figure 22. Threatened species records in proximity to the Subject Land (Royal Shores Ermington).**