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**BDAR Waiver for re-development of industrial land adjoining Alexandra Canal**

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Prepared for;  
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Photograph on front cover – Looking north-west across Alexandra Canal showing stonewall with industrial drain to the canal and narrow bank of predominantly exotic species adjoining the canal.

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1. Clements A, Rodd T and Dever P (2022) *Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal*. Prepared for LOGOS Development Management Pty Ltd. Dated 16 September 2022.
2. Lothian A and Hoyer G (2022) *Bat inspection – 28-30 Burrows Road, St Peters*. Prepared for Anne Clements. Dated 6 September 2022.
3. Photograph of EPA signage.

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## 1.0 Introduction

This Biodiversity Development Assessment Report (BDAR) Waiver has been prepared at the request of LOGOS Development Management Pty Ltd for the proposed development of a flight training centre at 28-30 Burrows Road St Peters.

## 2.0 Requirements for a BDAR waiver

On the Office of Environment website for Biodiversity Development Assessment Report waiver (<https://www.environment.nsw.gov.au>, accessed 29 June 2022) it points out that the requirements for proponents of State Significant Development seeking a waiver for a biodiversity development assessment report (BDAR) are set out under section 7.9 of the *Biodiversity Conservation Act 2016 (BC Act)*, namely:

Section 7.9 *Biodiversity assessment for State significant development or infrastructure* of the BC Act states that [emphasis added]:

(1) *This section applies to—*

(a) *an application for development consent under Part 4 of the Environmental Planning and Assessment Act 1979 for State significant development, and*

(b) *an application for approval under Division 5.2 of the Environmental Planning and Assessment Act 1979 to carry out State significant infrastructure.*

(2) *Any such application is to be accompanied by a biodiversity development assessment report **unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values** [emphasis added].*

(3) *The environmental impact statement that accompanies any such application is to include the biodiversity assessment required by the environmental assessment requirements of the Planning Agency Head under the Environmental Planning and Assessment Act 1979.*

The information required for a BDAR waiver is presented in Table 1 and Table 2 (from the Factsheet: *How to apply for a biodiversity development assessment report waiver for a Major Project Application*, accessed 30 August 2022)

In addition: as the proposal involves the demolition of existing buildings onsite the risk to microbats was assessed.

## 3.0 Findings

There is almost a complete absence of native vegetation and native fauna habitat on and adjoining the proposed industrial re-development site (Clements et al. 2022, Lothian and Hoye 2022, EPA water quality and marine habitat signage, in attached Appendices 1 to 3), with:

- vegetation onsite restricted to adjoining Alexandra Canal;
- in the BAM plot, there was a 60% total cover by exotic species including High Threat Weeds and 0.25% cover by a single 2 m tall plant of the native tree *Casuarina glauca* growing in the sandstone wall of Alexandra Canal and 60% cover by non porous

surfaces in the 10 m x 40 m floristic quadrat. All of the vegetation recorded was exotic species, except for a single 2 m tall plant of the native tree *Casuarina glauca* growing in the sandstone wall of Alexandra Canal wall just outside the southwestern corner, no trees with hollows;

- the risk to microbats from the demolition of existing buildings is assessed as low; and
- the adjoining Alexandra Canal is heavily contaminated with chemicals and metals.

**Table 1. Biodiversity Development Assessment Report waiver request information requirements**

<b>Administration</b>	<b>Details</b>
Proponent name and contact details:	LOGOS Development Management Pty Ltd 29/88 Phillip St, Sydney NSW 2000 Phone: (02) 8197 3900
Project ID (Information to identify which SSD or SSI project the request relates to and where the project is up to in the assessment process):	State Significant Development Application (SSD-47601708) for the proposed Sydney Flight Training Centre
Name and ecological qualifications of person completing Table 2:	Dr AnneMarie Clements MSc, PhD  BAM Assessor Accreditation no: BAAS17088  Ecology Specialists Certified Environmental Practitioner under the EIANZ: CEnvP Registration Number E200001.
<b>Site details</b>	
Street address:	28-30 Burrows Road, St Peters
Lot and DP:	Lot 2 of DP 212652 and Lot 15 of DP 32332
Local government area:	Inner West Council City of Sydney Local Government Area
Description of existing development site, i.e. the area of land that is subject to the proposed development application:	Currently occupied by industrial / warehouse buildings with a large hardstand area for vehicle parking and deliveries.  There are two metal sheds (one large and one small) on 28 Burrows Road, and one large shed on 30 Burrows Road. 7,961 sqm and rectangular in shape.

	Approximately 123 m in length fronting Burrows Road and Alexandra Canal; Approximately 63.5m in width between Burrows Road and Alexandra Canal.
If any part of the land is considered 'Category 1– exempt land' information must be provided to demonstrate how the land meets the criteria that applies to Category 1 – Exempt Land.	Category 1 – exempt land applies to Rural Land. The land is not Rural. The land is mapped on the Transitional native vegetation regulatory map viewer as <i>Land excluded from the LLS Act</i> . The Land management Code does not apply to the land.
Location map showing the development site in the context of surrounding areas and landscape features. Satellite image of site in context of adjoining sites.	Figures: 1a-1. Site boundary overlaid on Nearmap aerial photograph dated 10 April 2021 1a-2. Site boundary overlaid on Nearmap aerial photograph dated 10 April 2021- close up 1a-3. Observation points on Nearmap aerial photograph dated 04 April 2021 1b-1. Site boundary overlaid on the SIX maps topographic WMS layer 1c. Site boundary overlaid on the Sydney 1 metre DEM LiDAR dates May 2020 (Spatial Services, ELVIS)
Site Map (to scale, ideally as a spatial shapefile).	Site Map is presented as Site boundary overlaid on Nearmap aerial photograph dated 10 April 2021- close up (Figure 1a-2).
<b>Proposed development</b>	
Project Description providing enough information to enable an understanding of the nature and scale of the proposed development and any associated activities (including construction etc.).	The proposed flight training facility will enable pilots and flight crews from Qantas and other airlines to undertake periodic training and testing to meet regulatory requirements by simulating both aircraft and emergency procedural environments. The flight training centre will be situated within a three-storey industrial warehouse and will include: <ul style="list-style-type: none"> <li>• Flight simulator hall:</li> <li>• 8 x simulator bays – State of the art full motion flight simulators with visual</li> </ul>

	<p>fidelity, motion and sound. This allows crew to be trained in all aspects of normal and non-normal operations, including instrument approaches and landings in all weather conditions.</p>
Proposed Site Plan.	Being designed.
<b>Impacts on biodiversity values</b>	
<p>Complete Table 2 below on Biodiversity Values.</p> <p>For each biodiversity value, the proponent must either:</p> <ul style="list-style-type: none"> <li>- explain why the value is not relevant to the proposed development</li> <li>- where a biodiversity value may be relevant, provide an explanation of how impacts have been avoided and identify the likelihood and extent of any remaining impacts of the proposed development, including impacts prescribed under clause 6.1 of the BC Regulation.</li> </ul> <p>A biodiversity value is not relevant to a proposed development if the value is not present on the development site and there is no potential for direct or indirect impacts on the biodiversity value if it occurs off-site.</p> <p>Where one or more biodiversity values may be relevant to the proposed development, Table 2 is to be completed by a suitably qualified person with tertiary qualifications in natural sciences including subjects that relate to the observation and description of terrestrial biodiversity and landforms, and at least three years of work experience in environmental assessment including field identification of plant and animal species and habitats. The person does not need to be an accredited person under the BC Act.</p>	<p>Table 2 completed.</p> <p>There is almost a complete absence of native vegetation and native fauna habitat on and adjoining the proposed industrial re-development site (see attached Appendices 1 to 3), with:</p> <ul style="list-style-type: none"> <li>• vegetation onsite restricted to adjoining Alexandra Canal;</li> <li>• in the BAM plot, there was a 60% total cover by exotic species including High Threat Weeds and 0.25% cover by a single 2 m tall plant of the native tree <i>Casuarina glauca</i> growing in the sandstone wall of Alexandra Canal and 60% cover by non-porous surfaces. All of the vegetation recorded was exotic species, except for a single 2 m tall plant of the native tree <i>Casuarina glauca</i>, growing in the sandstone wall of Alexandra Canal wall just outside the southwestern corner, no trees with hollows;</li> <li>• the risk to microbats from the demolition of existing buildings is assessed as low; and</li> <li>• the adjoining Alexandra Canal is heavily contaminated with chemicals and metals.</li> </ul> <p>Appendices:</p> <ol style="list-style-type: none"> <li>1 Clements A, Rodd T and Dever P (2022) <i>Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal</i>. Prepared for LOGOS Development Management Pty Ltd. Dated 16 September 2022.</li> <li>2 Lothian A and Hoyer G (2022) <i>Bat inspection – 28-30 Burrows Road, St Peters</i>. Prepared for Anne Clements. Dated 6 September 2022.</li> </ol>



	3 Photograph of EPA signage.
Attach any additional information required where biodiversity values are relevant to the site.	<p>Zoning under the Inner West Local Environmental Plan 2022 (Figure 2a):</p> <ul style="list-style-type: none"> <li>the site, Alexandra Canal and surrounding land are zoned IN1 General Industrial with the objectives of zoning related to industrial and warehouse land uses, employment and the Eastern Economic Corridor of the Greater Cities Commission, <u>not to biodiversity values</u>).</li> <li>Approximately 200 m to the north is Sydney Park, zoned RE1, with objectives including “<i>To conserve, maintain and enhance biodiversity and the natural environment, including terrestrial, aquatic and riparian habitats and natural land forms.</i>”</li> </ul> <p>Alexandra Canal and approximately 100 m from the canal are identified on the <i>State Environmental Planning Policy (Coastal Management) 2018</i> mapping as <i>Coastal Environmental Area</i> (Figure 2b). It is stated that [<u>emphasis added</u>]:</p> <p><b>Division 3 Coastal environment area</b></p> <p><b>13 Development on land within the coastal environment area</b></p> <p><i>(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:</i></p> <ul style="list-style-type: none"> <li><i>(a) <u>the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,</u></i></li> <li><i>(b) coastal environmental values and natural coastal processes,</i></li> <li><i>(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,</i></li> <li><i>(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,</i></li> <li><i>(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,</i></li> <li><i>(f) Aboriginal cultural heritage, practices and places,</i></li> </ul>

	<p>(g) the use of the surf zone.</p> <p>(2) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:</p> <p>(a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subclause (1), or</p> <p>(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or</p> <p>(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.</p> <p>(3) This clause does not apply to land within the Foreshores and Waterways Area within the meaning of Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.</p> <p>From the geological mapping, the site is on Quaternary Holocene age <i>Estuarine interbarrier creek deposits</i> (map unit QH_ei) and Alexandra Canal is on <i>Anthropogenic stored water, pondage, reservoirs, canals</i> (map unit Q_hw) (Figure 3a).</p> <p>From the soil landscape mapping, the site and surrounding land are mapped as <i>Disturbed Terrain</i> (map unit xx) (Figure 3b).</p> <p>Given the proximity to the adjoining cut canal, it is expected that there is tidal groundwater movement.</p> <p>Figures:</p> <p>2a. Site boundary overlaid on the Inner West Local Environmental Plan 2022 - Land Zoning Map</p> <p>2b. State Environmental Planning Policy (Coastal Management) 2018 mapping layer overlaid on the Nearmap aerial photograph dated 02 October 2020</p> <p>3a. Site boundary overlaid on NSW Seamless Geology version 2</p> <p>3b. Site boundary overlaid on Soil Landscapes of Central and Eastern NSW v2.1</p>
Vegetation Map (indicating plant community types)	The site has no mapped PCT on the site. The nearest mapped area is <i>PCT 0 Urban</i>

	<p><i>Exotic/Native</i> (Figure 4a and 4b).</p> <p>Based on onsite survey, the vegetation on and adjoining the site are mapped as (Figure 4c, details in Clements <i>et al.</i> 2022 in Appendix 1):</p> <ul style="list-style-type: none"> <li>• narrow band of exotic vegetation adjoining the canal;</li> <li>• a small area of native vegetation (a single individual of <i>Casuarina glauca</i> 2 m tall growing in the canal wall); and</li> <li>• planted trees on the road reserve on the adjoining land to the south-west.</li> </ul> <p>Figures:</p> <p>4a. The Native Vegetation of the Sydney Metropolitan Area - Version 3.1 (OEH 2016) VIS_ID 4489</p> <p>4b. The Native Vegetation of the Sydney Metropolitan Area - Version 3.1 (OEH 2016) VIS_ID 4489 – close up</p> <p>4c. BAM Plot and vegetation zones overlaid on the Nearmap aerial photograph dated 04 April 2021</p>
Ecology Reports	<p>Clements A, Rodd T and Dever P (2022) <i>Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal</i>. Prepared for LOGOS Development Management Pty Ltd. Dated 16 September 2022.</p> <p>Lothian A and Hoyer G (2022) <i>Bat inspection – 28-30 Burrows Road, St Peters</i>. Prepared for Anne Clements. Dated 6 September 2022.</p>
Water Quality data	<p>Warning signage by the NSW Environmental Protection Authority for Alexandra Canal (Appendix 3), stating:</p> <p style="text-align: center;"><b>WARNING</b>  <b>ALEXANDRA CANAL IS HEAVILY CONTAMINATED WITH</b>  <b>CHEMICALS AND METALS.</b>  <b>FISHING BY ALL METHODS OR DISTURBANCE OF THE BED SEDIMENTS</b>  <b>IS PROHIBITED IN THE CANAL.</b></p>

	<p style="text-align: center;"><b>HEAVY PENALTIES APPLY.</b></p> <p>It is stated in Chapter 16 Surface Water of the EIS / Preliminary Draft Major Development Project - Sydney Gateway Road Project (dated November 2019, page 16.6) that:</p> <p><i>A review of this data indicated that both the Alexandra Canal and Mill Stream sub-catchments are in poor condition. The analysis indicates that:</i></p> <ul style="list-style-type: none"> <li>○ <i>Samples obtained from the Cooks River and Alexandra Canal frequently exceeded ANZECC guidelines default trigger values for total nitrogen, total phosphorus, aluminium, iron, manganese, mercury, zinc and ammonia, total suspended solids, turbidity.</i></li> <li>○ <i>PFAS compounds, including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), were detected in almost all samples obtained from the Cooks River, Alexandra Canal and Mill Stream.</i></li> </ul>
BioNet Atlas	<p>BioNet Atlas records:</p> <p><b>Flora</b> - The BioNet flora search found 14 threatened species within 10 km radius of the site. The closest record being <i>Syzygium paniculatum</i> approximately 1.5 km north of the site.</p> <p><b>Mammals</b> - The BioNet search of mammals found 8 threatened mammal species within 10 km radius of the site. The closest record being Grey-headed Flying-fox approximately 300 m north east of the site.</p> <p><b>Aves</b> - The BioNet search of aves found 33 threatened bird species within 10 km radius of the site. The closest record being the Powerful Owl approximately 800 m north west of the site.</p> <p><b>Amphibian and Reptiles</b> - The BioNet search found 2 threatened amphibian species and 2 reptile species within 10 km radius of the site. The closest record being the Green and Golden Bell Frog approximately 500 m south of the site.</p> <p>Figures:</p> <p>5a. Site boundary and BioNet records of threatened Flora species on the Google Street Map imagery</p>

	<p>5b. Site boundary and BioNet records of threatened mammal species on the Google Street Map imagery</p> <p>5c. Site boundary and BioNet records of threatened bird species on the Google Street Map imagery</p> <p>5d. Site boundary and BioNet records of threatened reptile and amphibian species on the Google Street Map imagery</p>
Directory of Important Wetlands (DIWA)	DIWA search in spatial query tool found one Ramsar site, Towra Point Nature Reserve 10 km south of site.
Migratory bird flyway information.	<p><i>Australia is geographically and ecologically an important location for migratory shorebirds within the East Asian–Australasian flyway. The flyway stretches from Siberia and Alaska, southwards through east and south-east Asia, to Australia and New Zealand (EPBC Act Policy Statement 3.21, 2017).</i></p> <p>Of the 37 migratory shorebird species, 32 have been recorded in the BioNet Atlas search for CAMBA, JAMBA and ROKAMBA listed Entities within 10 km radius of the site. The closest being the Sharp-tailed Sandpiper observed in Sydney Park approximately 500 m north of the site (Figure 5e).</p> <p>Figure</p> <p>5e. Site boundary &amp; BioNet records of migratory bird species overlaid on the Google Street Map imagery.</p>

**Table 2. Impacts of the proposed development on biodiversity values**

Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
<p><b>Vegetation abundance</b> – 1.4(b) BC Regulation</p> <p><b>Meaning:</b> Occurrence and abundance of vegetation at a particular site</p>	<p>Where vegetation is present on the development site, provide a map on digital aerial photography or the best available imagery of the development site showing:</p> <ul style="list-style-type: none"> <li>• native vegetation (including grasslands and other non-woody vegetation types) and non-native vegetation</li> <li>• the area of land that is directly impacted by the proposed development, including related infrastructure such as roads, pipelines, access tracks, temporary material stockpiles, asset protection zones and powerlines, if applicable.</li> <li>• the area of land that is directly impacted by the proposed development, including related infrastructure such as roads, pipelines, access tracks, temporary material stockpiles, asset protection zones and powerlines, if applicable.</li> </ul>	<p>On and adjoining 28-30 Burrows Road, St Peters the vegetation consists of (see vegetation map on Figure 4c):</p> <ul style="list-style-type: none"> <li>- planted street trees in the nature strip of Burrows Road: pre-existing mature <i>Melaleuca quinquenervia</i> appear to have been removed from this interval and replaced by alternating young trees of <i>Cupaniopsis anacardioides</i> and <i>Tristaniopsis laurina</i> 'Luscious';</li> <li>- planted well-spaced trees of <i>Eucalyptus haemastoma</i> and a mown Buffalo Grass lawn at rear of the adjoining property to the south-west, with <i>Casuarina glauca</i> colonising the sandstone wall of Alexandra Canal;</li> <li>- one 2 m tall single plant of <i>Casuarina glauca</i> growing in the sandstone wall of Alexandra Canal; and</li> <li>- a strip of weedy exotic vegetation along the Canal.</li> </ul> <p><b>Alexandra Canal</b> was a highly degraded industrial canal with stormwater and industrial waste water draining to the canal (see EPA Warning Signage in attached photograph).</p> <p>The vegetation and presence of drains on both sides of the approximately 450 m length of the Alexandra Canal (between the Gardeners Road ramps to WestConnex and the Campbell Road Bridge) in the vicinity of 28-30 Burrows Road, were assessed at intervals of approximately 20 m on 7 June 2022 by Tony Rodd and Pauline Dever (see locations on Figure 1a-3, Observations Table, photographs in Appendix 1 of Clements <i>et al.</i> 2022).</p>

Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
	Describe how the proposed development avoids impacts on native vegetation and identify the likelihood and extent of any remaining impacts including removal of isolated or cultivated native plants	<b>On the site</b> , there is little or no native vegetation and associated fauna habitat.
<p><b>Vegetation integrity</b> 1.5(2)(a) BC Act</p> <p><b>Meaning:</b> Degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near-natural state.</p>	<p>Describe the vegetation integrity and any impacts on vegetation integrity of identified plant communities.</p> <p>For example, information on impacts from proposed development to vegetation cover, structure, condition and function. This can include details on the presence of weeds, disturbance, planted native vegetation and species and growth form diversity.</p>	<p>All of the site, except a narrow strip adjoining Alexandra Canal, was non-porous hard stand or metal sheds.</p> <p>The “surrogate” BAM Plot was used to quantify the vegetation in this 1-2 m wide strip. This was not an orderly landscape strip, but colonisation by exotic weeds including <i>Araujia sericifera</i>, <i>Bidens pilosa</i>, <i>Celtis sinensis</i>, <i>Cortaderia selloana</i>, <i>Ehrharta erecta</i>, <i>Lagunaria patersonia</i>, <i>Lantana camara</i>, <i>Parietaria judaica</i>, and <i>Ricinus communis</i>.</p> <p>Composition: Number of native species = 1 (TREE) Number of exotic species = 10</p> <p>Structure (% cover in floristic quadrat): Native species (TREES) = 0.25% cover Exotic species = 60%</p> <p>Function: Bare ground (non-porous industrial surfaces) = 60% Hollow bearing trees = 0</p> <p>The vegetation at the rear of 28 - 30 Burrows Road is typical of the vegetation at rear of most of original industrial buildings adjoining Alexandra Canal, except for the re-development site at 24, 26 Burrows Road (details in Clements <i>et al.</i> 2022 in Appendix 1).</p>

Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
<p><b>Habitat suitability</b> 1.5(2)(b) BC Act</p> <p><b>Meaning:</b> Degree to which the habitat needs of threatened species are present at a particular site</p>	<p>Identify any threatened species or ecological communities or their habitat on the development site.</p> <p>Describe how the proposed development avoids impacts on habitat suitability and identify the likelihood and extent of any remaining impacts including the impacts of development on the following habitat of threatened species or ecological communities:</p> <ol style="list-style-type: none"> <li>1. karst, caves, crevices, cliffs and other geological features of significance</li> <li>2. rocks</li> <li>3. human-made structures</li> <li>4. non-native vegetation (prescribed under clause 6.1(1)(a) of the BC Regulation).</li> </ol> <p>Impacts may include the removal or modification (e.g. noise, light, etc.) of the habitat of threatened species or ecological communities</p>	<p>No threatened fauna species nor associated habitat are likely with the existing building and the existing heavily polluted canal water. Neither the building onsite nor the adjoining canal currently provide potential native fauna habitat (see Lothian and Hoye 2022 in Appendix 2).</p> <p><b>1, 2.</b> There are NO natural features including karst, caves, crevices, cliffs and other geological features of significance onsite, nor rocks.</p> <p><b>3.</b> There are three metal sheds with little or no habitat potential for microbats.</p> <p><b>4.</b> It is currently an existing industrial site with noise and light, close to major roads and bridges.</p>
<p><b>Threatened species abundance</b> 1.4(a) BC Regulation</p> <p><b>Meaning:</b> Occurrence and abundance of threatened species or threatened ecological communities, or their</p>	<p>Describe how the proposed development avoids impacts on threatened species abundance and identify the likelihood and extent of any remaining impacts including;</p> <ul style="list-style-type: none"> <li>• Impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community (prescribed under clause 6.1(1)(f) of the Regulation).</li> <li>• Impacts on threatened species, for example,</li> </ul>	<p>No likely threatened species nor threatened ecological communities onsite nor nearby.</p> <p>The risk of impacts on microbats from the demolition of existing metal sheds onsite is assessed as low (Lothian and Hoye 2022 in Appendix 2).</p> <p>There is no standing water on site and presence of threatened frogs such as the green and golden bell frog in drains is low (Figure 5d). The drains flow to the estuarine water of Alexandra</p>



Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
habitat, at a particular site	<p>microbats, associated with the demolition of human-made structures (prescribed by 6.1 (1) a (iii) of the Regulation).</p> <ul style="list-style-type: none"> <li>• Impacts on threatened species habitat associated with non-native vegetation (prescribed by 6.1 (1) a (iv) of the Regulation).</li> <li>• Impacts on threatened species habitat associated with non-natural water bodies (prescribed by 6.1 (1) a (iii) of the Regulation). For example, threatened frogs such as the green and golden bell frog in landfill areas, drains and brick pits.</li> </ul>	Canal.
<p><b>Habitat connectivity</b> 1.4(c) BC Regulation</p> <p><b>Meaning:</b> Degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range</p>	<p>Identify whether the development site contributes to habitat connectivity.</p> <p>Describe how the proposed development avoids impacts on habitat connectivity and identify the likelihood and extent of any remaining impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range (prescribed under clause 6.1(1)(b) of the BC Regulation).</p>	<p>In terms of connectivity, the 1-2 m wide strip at the rear of almost all of the existing industrial buildings along Alexandra Canal are colonised by exotic weeds.</p> <p>The exotic tree <i>Celtis sinensis</i> (Chinese Celtis) - growing frequently in the rubble fill behind the stone banks, though occasional seedlings are seen in upper parts of the stonework.</p> <p>Other tree species:</p> <ul style="list-style-type: none"> <li>- <i>Casuarina glauca</i> (Swamp Oak) – frequent to abundant, from dense copses or rows of slender saplings (possibly including suckers from a common rootstock) to groups of trees up to about 15 m tall with trunks up to 200 mm diameter. Some of the trees were rooted in the stonework of the banks though generally at mid-tide level or above, but most were growing from the fill behind the wall.</li> <li>- <i>Lagunaria patersonia</i> (Norfolk Island Hibiscus) – possibly planted on some part of this bank but now rapidly colonising the</li> </ul>

Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
		<p>bank stonework, with young plants appearing even lower down in the tidal range than even Swamp Oak, suggesting it is even more tolerant of salinity than that coastal and estuarine species.</p> <p>These trees species, except <i>Casuarina glauca</i> are exotic. All are likely to adversely impact the sandstone wall of the canal.</p> <p>These existing trees are likely to pose a risk to the canal wall.</p>
<p><b>Threatened species movement</b> 1.4(d) BC Regulation</p> <p><b>Meaning:</b> Degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle</p>	<p>Describe how the proposed development avoids impacts on threatened species movement and identify the likelihood and extent of any remaining impacts of development on movement of threatened species that maintains their lifecycle (prescribed under clause 6.1(1)(c) BC Regulation)</p>	<p>The site at 28 - 30 Burrow Road with its 1-2 m weedy strip of exotic weeds is not likely to contribute to the movement of threatened species.</p> <p>There is a low risk of impact from the demolition of the existing industrial buildings and structures on microbats (Lothian and Hoye 2022 in Appendix 2).</p>
<p><b>Flight path integrity</b> 1.4(e) BC Regulation</p> <p><b>Meaning:</b> Degree to which the flight paths of protected animals over a particular site are free from interference</p>	<p>Identify whether flight paths of protected animals occur over the development site. Protected animals are animals of a species listed or referred to in Schedule 5 of the BC Act. They include any species of birds, mammals, amphibians or reptiles that are native to Australia or that periodically or occasionally migrate to Australia.</p> <p>Describe how the proposed development avoids impacts on flight path integrity and identify the likelihood and extent of any remaining impacts.</p> <p>Note: The impacts of wind turbine strikes on protected animals are prescribed under clause</p>	<p>To the west of the site is Sydney Park with reconstructed ponds on the former tip site (garbage emplacement) in the brick making clay pits. The parkland has been designed to provide aquatic native fauna habitats. There is potential flight paths to Alexandra Canal.</p> <p>The proposed industrial re-development is unlikely to affect the future flight paths between the parkland and heavy polluted Alexandra Canal.</p>

Biodiversity value	Explain and document potential impacts including additional impacts prescribed under the BC Regulation	Findings
	6.1(1)(e) of the BC Regulation. It is, therefore, unlikely that a BDAR waiver would be issued for a proposed wind farm.	
<p><b>Water sustainability</b> 1.4(f) BC Regulation</p> <p><b>Meaning:</b> Degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site</p>	Describe how the proposed development avoids impacts on water sustainability and identify the likelihood and extent of any remaining impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development) (prescribed under clause 6.1(1)(d) of the BC Regulation)	<p>The existing site is industrially contaminated and the adjoining Alexandra Canal is known to be heavily polluted.</p> <p>The site has historically been used as a mechanics workshop, including spray booths and a truck wash. It has redundant infrastructure associated with historical site operations, including underground petroleum storage systems (UPSS), an oil/water separator system and a sewer pump .</p> <p>Implementation of a Remediation Action Plan being prepared by JBS&amp;G forms part of the proposal resulting in improvement on water quality and sustainability.</p>

**Appendices referred to:**

- 1 Clements A, Rodd T and Dever P (2022) *Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal*. Prepared for LOGOS Development Management Pty Ltd. Dated 16 September 2022.
- 2 Lothian A and Hoyer G (2022) *Bat inspection – 28-30 Burrows Road, St Peters*. Prepared for Anne Clements. Dated 6 September 2022.
- 3 Photograph of EPA signage.

## **Appendices**

**Appendix 1.**

**Clements A, Rodd T and Dever P (2022) *Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal.* Prepared for LOGOS Development Management Pty Ltd. Dated 16 September 2022**



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16 September 2022



**Biodiversity Assessment of Industrial land at 28-30 Burrows Road St Peters, adjoining Alexandra Canal, accompanying the BDAR Waiver**

Prepared by:

Dr AnneMarie Clements  
Tony Rodd  
Pauline Dever

Prepared for:

LOGOS Development Management Pty Ltd

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Photograph on front cover – Looking across Alexandra Canal from the existing industrial site.

## Figures (referred to in this report)

### Site location and landform

- 1a-1. Site boundary overlaid on Nearmap aerial photograph dated 10 April 2021
- 1a-2. Site boundary overlaid on Nearmap aerial photograph dated 10 April 2021- close up
- 1a-3. Observation points on the Nearmap aerial photograph dated 10 April 2021
- 1b. Site boundary overlaid on the SIX maps topographic WMS layer
- 1c. Site boundary overlaid on the Sydney 1 metre DEM LiDAR dates May 2020 (Spatial Services, ELVIS)

### Legislation mapping

- 2a. Site boundary overlaid on the Inner West Local Environmental Plan 2022 - Land Zoning Map
- 2b. State Environmental Planning Policy (Coastal Management) 2018 mapping layer overlaid on the Nearmap aerial photograph dated 02 October 2020

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- 4c. BAM Plot and vegetation zones overlaid on the Nearmap aerial photograph dated 10 April 2021

## Table

- A1. Observations of drains in the canal wall and of *Casuarina glauca* from Observation Points OP1 to OP24

## Appendix

- A1. Photographs from Observation Points OP1 to OP24

## 1.0 Existing and proposed land uses

Industrial land at 28-30 Burrows Road St Peters is part of the existing industrial activities which back onto and drain to the Alexandra Canal (location shown on Figures 1a-1 to 1b, landform on Figure 1c, zoning on Figure 2a, *Coastal Environmental Area* on the *State Environmental Planning Policy (Coastal Management) 2018* on Figure 2b, see extents of existing drains to canal in Table A1, photographs of the drains in Appendix A1).

The proposal is directed to front Alexandra Canal. The world-wide trend of placing environmentally sensitive river and canal environments as front-of-house as well illustrated by Marina Bay in Singapore, Canary Wharf redevelopment of the the former West India Docks in London, South Bank in Brisbane, Darling Harbour in Sydney, Yokohama Bay in Japan and Lambton Harbour in New Zealand.

### 1.1 Historical and landscape significance of the adjoining Alexandra Canal

Alexandra Canal is listed in the *New South Wales State Heritage Register* at <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=1210001>. It followed the course of the pre-existing Sheas Creek.

*Sheas Creek is a tributary of the Cooks River which begins in the once sandy hills of the present Surry Hills east of Redfern. Dredging commenced in 1887 to adapt Sheas Creek to a canal, with the intention of creating manufacturing and industrial opportunities in the area by offering shipping as a means of transporting cargo. The canal was intended to be the 'Birmingham of Australia' and was constructed under a unemployed work relief scheme.*

*The canal was originally lined with a fascine dyke as were sections of the Cooks River. The original canal started to the south-west of the existing Sydenham to Botany railway bridge and extended to the Canal Road Bridge. In 1894 the canal was to be extended to Buckland Street, Redfern, however only part of this section was ever constructed, the limit of the canal was to the south of Huntley Street, Alexandria.*

The canal was completed in 1900 and named for Princess Alexandra, married to Prince Albert the Prince of Wales, who succeeded to the throne in 1901 as Edward VII.

## 2.0 The site at 28-30 Burrows Road St Peters and Alexandra Canal

The site lies between the northwest bank of Alexandra Canal and Burrows Road. The canal is approximately 60 m wide and both of its banks are constructed of sandstone blocks, apparently dry walled judging from the scattered collapses of some blocks into voids where soil has washed out (see Figure 1a-3, photographs in Appendix A1).

### 2.1 Inspection of Alexandra Canal

#### Survey

Both sides of Alexandra Canal in the vicinity of 28-30 Burrows Road were inspected on 7 June 2022 by Tony Rodd and Pauline Dever.

**Tide height** - At the time of inspection on 7 June 2022 at about 11.00 am, the tide had risen to 0.9 m from a low of 0.6 m at 8 am, with the next high tide of 1.3 m due at 2.30 pm (then 1.6 m late that night – as charted at the nearby Princes Highway bridge over the Cooks River – see <https://tides.willyweather.com.au/nsw/sydney/cooks-river—princes-hwy-bridge.html>).



**Stone wall** - From observations, the stone walls appeared to be angled at approximately 45 degrees and emerged from the water to a height of around 1.2 m, their bases apparently a little below the presumed low-water mark. The angled walls are capped by horizontally laid stone blocks, backed by fill of soil and rubble.

The Alexandra Canal Sub-plan document (WestConnex 2017) notes that:

*The sandstone embankment walls are laid in Broken Range Bond Ashlar. This interrupted style of bond would have been extremely durable for the conditions placed on the embankment and made economical use of the material. . . . The embankment wall has been capped with a sandstone block and all stone has a quarry face and dressed sides to form the bond. Drawings indicate that a footing of the embankment wall was installed during construction consisting of rubble at the quantities of 1 cubic yard to the lineal foot. . . .*

[*Broken range bond* is a term in masonry meaning that the rows of stone blocks vary in thickness from level to level and the rows are interrupted at intervals by blocks of greater depth, spanning two or more rows – giving the whole wall a stronger structure than simpler bond patterns.]

### **Survey methods**

Both banks of the canal were photographed between the two new road bridges, namely the Gardeners Road ramps to WestConnex downstream to the south west and the Campbell Road Bridge 450 m upstream to the northeast. The subject property is closer to the latter.

The southeastern bank was accessible along a path about 0.5 m above the stone embankment, so this was walked and the opposite bank was photographed, at high resolution, at intervals of approximately 20 m along this path.

On the southeast side of the canal, the surface of the fill slopes upwards to the kerb of a broad path about 0.6 m above the capping. In the area surveyed, the path backs onto the blank wall of a 400 metre-long building at 63 Campbell Road, Alexandria.

### **Observations**

At intervals along both banks there are drain openings discharging to the canal, most of them positioned at mid-point or lower in the stone walls, and mostly 30–40 cm in diameter. Some were enclosed in a concrete-walled recess extending a metre or so into the bank; and some were equipped with a steel tidal flap valve.

One drain on each bank was seen to be discharging a strong flow of water, in both cases crystal-clear water, which falling onto the stonework had scoured it perfectly clean like freshly cut sandstone, in contrast to the dingy greenish algal scum either side – suggesting the possibility of an acidic discharge.

Vegetation seen along the two banks contrasted quite markedly in this section of the canal, being apparently influenced by land use and aspect.

**The southeastern bank** is warmed by the afternoon sun and is backed by larger and more continuous industrial buildings. Between the broad, surfaced pathway and the top of the stone wall there is evidence of plantings to stabilise the narrow rubble slope, the principal species being *Lomandra longifolia*. This species was represented by a mixture of ecotypes, from tall thin-leaved stream bank forms to seashore forms with much shorter and wider

leaves. All of these forms of *Lomandra longifolia* were likely to be plantings – not local remnants.

There were also frequent plants of *Acacia longifolia*, probably both planted and re-seeded from earlier plantings. More prominent though were trees, of which 3 species were conspicuous, namely:

- *Casuarina glauca* (Swamp Oak) – frequent to abundant, from dense copses or rows of slender saplings (possibly including suckers from a common rootstock) to groups of trees up to about 15 m tall with trunks up to 200 mm diameter. Some of the trees were rooted in the stonework of the banks though generally at mid-tide level or above, but most were growing from the fill behind the wall. Swamp Oak trees can produce huge quantities of very light, chaffy seeds that are dispersed by strong winds and it is likely that this species has colonised the canal banks after its construction. It would have been a common native tree on the foreshores of Sheas Creek and Cooks River. Remnant stands persist in the vicinity of the Princes Highway bridge.
- *Lagunaria patersonia* (Norfolk Island Hibiscus) – possibly planted on some part of this bank but now rapidly colonising the bank stonework, with young plants appearing even lower down in the tidal range than even Swamp Oak, suggesting it is even more tolerant of salinity than that coastal and estuarine species. There were quite a number of mature trees also, with broad, dense canopies and likewise mainly rooted in the stonework, which they would appear to be damaging by their expanding roots. This species is a growing problem weed of seashore and estuarine habitats in NSW. Although its seeds are fairly large they are retained in the fallen capsules that can be carried by floodwaters and possibly on flood tides. They are also known to be eaten by Pied Currawongs, which can disperse a wide variety of seeds by regurgitation.
- *Celtis sinensis* (Chinese Celtis) – growing frequently in the rubble fill behind the stone banks, though occasional seedlings are seen in upper parts of the stonework. A few large specimens were seen and many more smaller seedlings and saplings. A deciduous species formerly planted as a street tree in inner Sydney suburbs, its small drupes are eaten by birds such as pigeons and currawongs and the hard seeds expelled, resulting in its becoming a serious weed problem, especially in neglected corners of parklands, and road and rail cuttings and embankments. In southeast Queensland and adjacent parts of NSW it is a major invader of native rainforest.

**The northwestern bank** of the canal contrasted strongly with the southeast, as to current land-use and vegetation. There is no canal-bank pathway and some of the adjoining industrial properties have neglected and weedy 'backyard' strips between the buildings and the canal bank.

An exception is the property at 24-26 Burrows Road, separated from the bank by an 8 m-wide strip of mown grass with well spaced planted trees. Because of its southeasterly aspect this bank is much more shaded from the afternoon sun, allowing soil and rock to retain moisture. But on the subject property at 28-30 Burrows Road and the neighbouring property to the northeast, both top and sides of the stone wall were weed-infested, the most prominent weeds being *Cortaderia selloana* (Pampas Grass) and *Lantana camara* (Lantana). At one point there was a luxuriant clump of *Ricinus communis* (Castor-oil Plant). Swamp Oak trees were absent from this section but were present in relative abundance beside the aforementioned property at 24-26, rooted in the stonework. All were relatively young, though up to around 10 m tall. Weeds were relatively few along this part of the canal bank, although

some small plants of *Lagunaria* had established. Southwest of the downstream boundary of 24-26 weeds were again evident, most notably Pampas Grass.

## 2.2 Onsite vegetation survey at 28-30 Burrows Road

The vegetation onsite was surveyed on 26 May 2022 by Dr AnneMarie Clements and Pauline Dever.

The area with any plants growing was limited to:

- an approximately 1 m width of flat land adjoining a concrete path along the rear of the existing industrial building adjoining the canal; and
- an approximately 1 to 2 m upper section of the canal wall colonised by plants.

No native species were present, except for one *Casuarina glauca* sapling in the west that had colonised the canal wall.

### Sampling method

The only vegetation on this industrial site was in a 2 to 5 m wide strip adjoining the canal. Despite the narrowness of the strip, plant species present were recorded using the BAM methods in DPIE (2020) (Figure 4c, see photograph from OP24 in Appendix A1). The 0.04 ha floristic quadrat in the BAM plot consisted of four 10 m x 10 m subquadrats which included sealed surfaces adjoining the building and the bare sandstone blocks on the canal wall. Covers were recorded for all species observed in the narrow strip of vegetation and then averaged to obtain covers for the 0.04 ha floristic quadrat.

Exotic	Species recorded	Cover in 10 m x 10 m subquadrats				
		0-10 m	10-20 m	20-30 m	30-40 m	Average for 0.4 ha
*	<i>Ageratina adenophora</i>	0.5			0.6	0.3 $(=(0.5+0.6)/4)$
*	<i>Araujia sericifera</i>	6	8			7 $(=(6+8)/4)$
*	<i>Bidens pilosa</i>	0.5	1.6		0.6	0.7 $(=(0.5+1.6+0.6)/4)$
	<i>Casuarina glauca</i>	1				0.25 $(=1/4)$
*	<i>Celtis sinensis</i>		72	10		20 $(=(72+10)/4)$
*	<i>Cortaderia selloana</i>	1			3	1 $(=(1+3)/4)$
*	<i>Ehrharta erecta</i>	14	16	6	3	13 $(=(14+16+6+3)/4)$
*	<i>Lagunaria patersonia</i>	2				0.5 $(=2/4)$
*	<i>Lantana camara</i>	8			6	3.5 $(=(8+6)/4)$
*	<i>Parietaria judaica</i>	2	8	12	12	8.5 $(=(2+8+12+12)/4)$
*	<i>Ricinus communis</i>			6		1.5 $(=6/4)$
	<b>Total cover by exotic species</b>					<b>60%</b>
	<b>Total cover by native species</b>					<b>0.25%</b>
	Cover by non-porous surfaces (not covered or overhung by vegetation)	80	20	80	70	<b>60%</b>

All of the vegetation species recorded were exotic, except for the native tree *Casuarina glauca* which was recorded as a single sapling growing in the sandstone canal wall in the southwestern corner of the subject property.

As far as could be detected, no other native species were present between this point and the Campbell Street Bridge, either on the canal bank or within the property boundaries.

### **In conclusion**

There is a lack of existing native vegetation and fauna habitat on the proposed industrial re-development site.

### **2.3 Street plantings**

There have been recent street planting of “advance size trees” of:

- 3 x *Tristaniopsis laurina* cultivar Luscious. The cultivars grows to an approximate height of 7-12m and are being used widely for street tree plantings; alternately planted with;
- 3 x *Cupaniopsis anacardioides* (Tuckeroo). This is also a widely planted street tree and grows to a height of approximately 10 m.

### **3.0 Recommendations**

Given the extensive native plantings in Sydney Park (reconstructed park on the former clay extraction pits and waste placement site) located approximately 200 m to the north of Burrows Road and the site adjoining Alexandra Canal, there is an opportunity to create fauna habitat by re-establishing local native vegetation in a 10 m setback from the canal.

On the 10 m setback recommended species include:

- local native trees/shrubs such as *Banksia integrifolia*, *Eucalyptus robusta*, *Glochidion ferdinandi*, *Melaleuca ericifolia*, *M. linariifolia*, *Myoporum acuminatum*; and
- local native understorey plants such as *Carex appressa*, *Lomandra longifolia*, *Hypolepis muelleri*, *Ficinia nodosa*, *Stephania japonica*, *Tetragonia tetragonioides*, *Viola banksii*.

The landscape species list is to be reviewed by the ecologist prior to lodgement of the development application. The nearest remnant vegetation and potential sources of local provenance seed is along the lower stretches of Wolli Creek.

**Table A1. Observations of drains in the canal wall and of *Casuarina glauca* from Observation Points OP1 to OP24.**

(locations on Figure 1a-3, photographs in Appendix A1)

Observation Points	Drains in the canal wall		<i>Casuarina glauca</i> observed	
	Eastern bank	Western bank	Eatern bank	Western bank
1	Concrete outlet pipe through sandstone wall	One in sandstone wall, One plastic pipe from bridge	Present	Present
2	Not present	Not present	Not present	Not present
3	Not present	Not present	Not present	Not present
4	Large concrete outlet	Not present	Present	Not present
5	Not present	Not present	Present	Not present
6	Not present	Not present	Not present	Present
7	Not present	Not present	Not present	Present
8	Not present	Not present	Present	Present
9	Not present	Not present	Present	Present
10	Not present	Not present	Present	Present
11	Not present	Pipe outlet through sandstone wall	Not present	Present
12	Not present	Not present	Not present	Present
13	Not present	Not present	Not present	Not present
14	Not present	Small pipe coming out through sandstone wall	Not present	Not present
15	Not present	Small pipe coming out through sandstone wall with drainage water killing algae	Not present	Not present
16	Large concrete outlet	Not present	Not present	Not present
17	Not present	Not present	Present	Not present
18	Not present	Not present	Present	Not present
19	Not present	Not present	Not present	Not present
20	Small concrete pipe in sandstone wall	Not present	Present	Not present
21	Not present	Not present	Not present	Not present
22	Large concrete outlet with drainage water killing algae	Not present	Present	Not present
23	Not applicable	Not applicable	Not applicable	Not applicable
24	Not present	Not present	Not present	Present

**Appendix A1.**  
**Photographs from Observation Points OP1 to OP24**

**Appendix A1. Photographs from Observation Points OP1 to OP24  
(locations shown on Figure 1a-3, descriptions in Table A1)**



OP1 – 10 m south west of bridge (WestConnex ramps)



Drain in sandstone wall



OP2 – 5 m north east of bridge



OP3 – 20 m north east of bridge





OP4 – 40 m north east of bridge



Large concrete drain



OP5 – 60 m north east of bridge: looking to 22 Burrows Road



OP6 – 80 m north east of bridge: looking to south west end of 24-26 Burrows Road



OP7 – 100 m north east of bridge: looking to central part of 24-26 Burrows Road (closer view)



OP8 – 120 m north east of bridge: looking to central part of 24-26 Burrows Road



OP9 – 140 m north east of bridge: looking to central part of 24-26 Burrows Road



OP10 – 160 m north east of bridge: looking to central part of 24-26 Burrows Road



OP11 – 180 m north east of bridge: looking to central part of 24-26 Burrows Road



Drain in western sandstone wall with algal growth below high tide mark (closer view)



OP12 – 200 m north east of bridge: looking to boundary between 24-26 and 28-30 Burrows Road



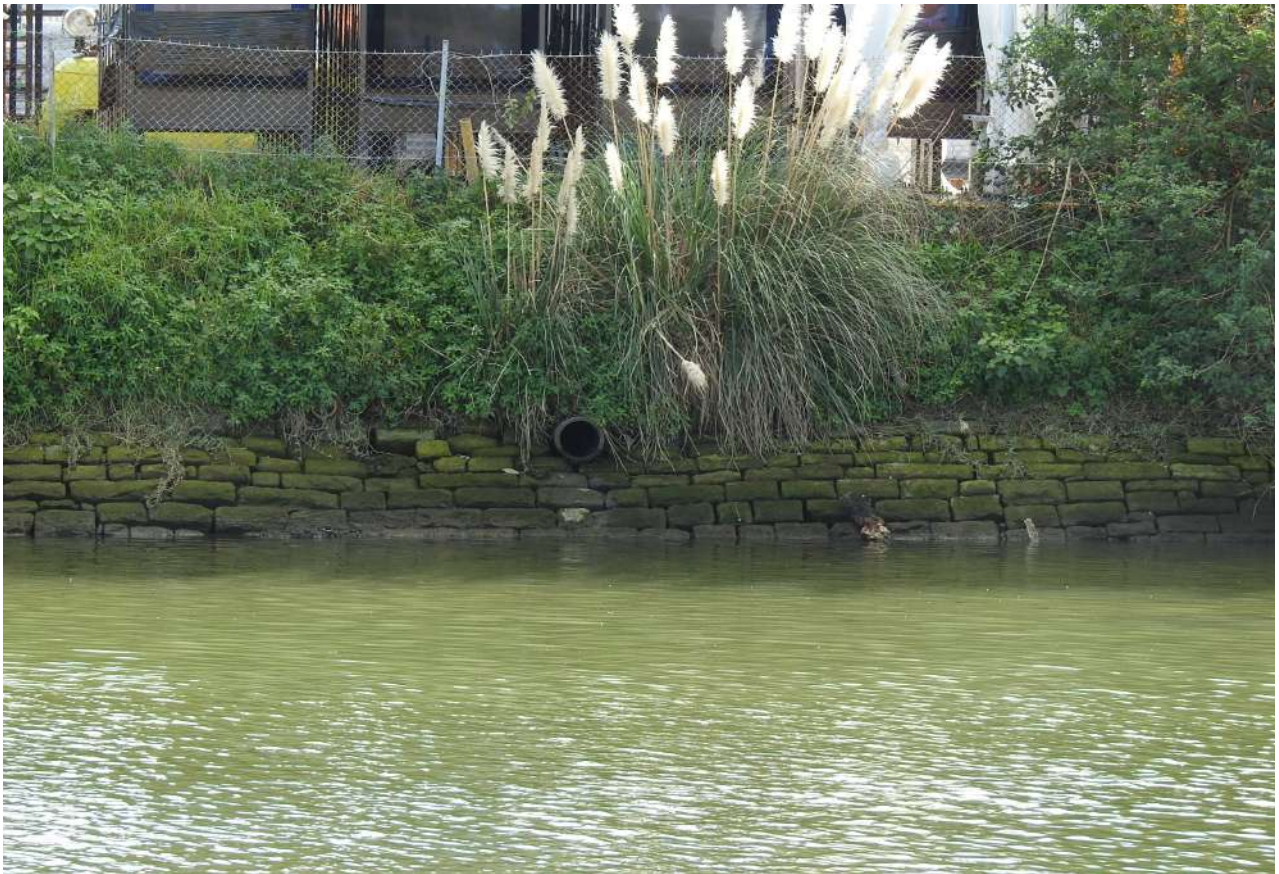
Eastern sandstone wall showing algal growth.



OP13 – 220 m north east of bridge: looking to subject property at 28-30 Burrows Road



OP14 – 240 m north east of bridge: looking to north east end of subject property at 28-30 Burrows Road and adjoining property at 32 Burrows Road.



Closer view, with small drain pipe in sandstone wall with algal growth



OP15 – 260 m north east of bridge: looking to 32 Burrows Road





Pipe in western sandstone wall beside 32 Burrows Road, showing the absence of algae possibly from acidic drainage water.



OP16 – 280 m north east of bridge



Large concrete outlet in eastern sandstone wall.



OP17 – 300 m north east of bridge; looking to 28-30 Burrows Road



OP18 – 320 m north east of bridge; looking to north east end of 28-30 Burrows Road



OP19 – 340 m north east of bridge; looking to 32 Burrows Road



Small concrete pipe in eastern sandstone wall



OP20 – 360 m north east of bridge; looking to 32 Burrows Road



OP21 – 380 m north east of bridge; looking to 32 Burrows Road



OP22 – photograph taken on Campbell Road Bridge looking north west at 32-34 Burrows Road



Large concrete outlet in eastern sandstone wall, rocks below outflow free of algal growth, possibly from acidic drainage water



OP23 – taken from Campbell Road Bridge looking south west



OP23 – taken from Campbell Road Bridge looking west



OP24 – looking onto canal bank from corner of 24-26 Burrows Road



OP24 – looking north east along site from boundary with 24-26 Burrows Road



**Appendix 2.**

**Lothian A and Hoyer G (2022) *Bat inspection – 28-30 Burrows Road, St Peters*. Prepared for Anne Clements. Dated 6 September 2022**



## Bat Inspection – 28-30 Burrows Road, St Peters

Prepared for: Anne Clements  
 Prepared by: Biodiversity Monitoring Services  
 Date: 6 September 2022

### Document History

Report	Version	Prepared by	Checked by	Submission Method	Date
Bat inspection	Issue 1	Andrew Lothian	Glenn Hoye	email	24/08/22
Bat inspection	Issue 2	Andrew Lothian	Glenn Hoye	email	06/09/22

## 1.0 Introduction

Anne Clements & Associates are preparing a BDAR waiver application for the industrial land at 28-30 Burrows Rd, St Peters (Lot 2 DP 212652 and Lot 15 DP 32332; Fig. I-1). A bat report is needed to address the following under the BDAR waiver for a major project (DPIE dated Oct 2019):

***Impacts to threatened species habitat for non-native vegetation and human-made structures***

*If the proposed development includes demolition of buildings and/or impacts to other human-made structures, such as water bodies or other derived habitat features, there may be impacts to threatened species. Where relevant, the BDAR waiver request should include the details of potential habitat in non-native vegetation and human-made structures and demonstrate how surveys have been conducted for the presence of threatened species.*

*For example, to survey for threatened microbats in buildings proposed to be demolished, daytime roost searches should be carried out. A search is to be undertaken by looking for bats or signs of bats in suitable roost habitat during the daytime. All roost searches should use a torch to shine in holes, cracks and crevices, and carry a handheld bat detector to locate bats that may call. If bats are detected, observers must confirm the identity of the species and determine if the roost is a maternity roost. A description of the searches undertaken should be provided in the report.*

Demolition of three existing shed structures is proposed (Fig. I-1). These sheds are positioned adjacent the 60m wide Alexandra Canal. As such, there is potential for prescribed impacts on threatened microbats such as *Myotis macropus* and *Miniopterus* spp.

This short report follows on from the preliminary investigation of microbat use conducted by Andrew Lothian of Biodiversity Monitoring Services (BMS) in August 2022.

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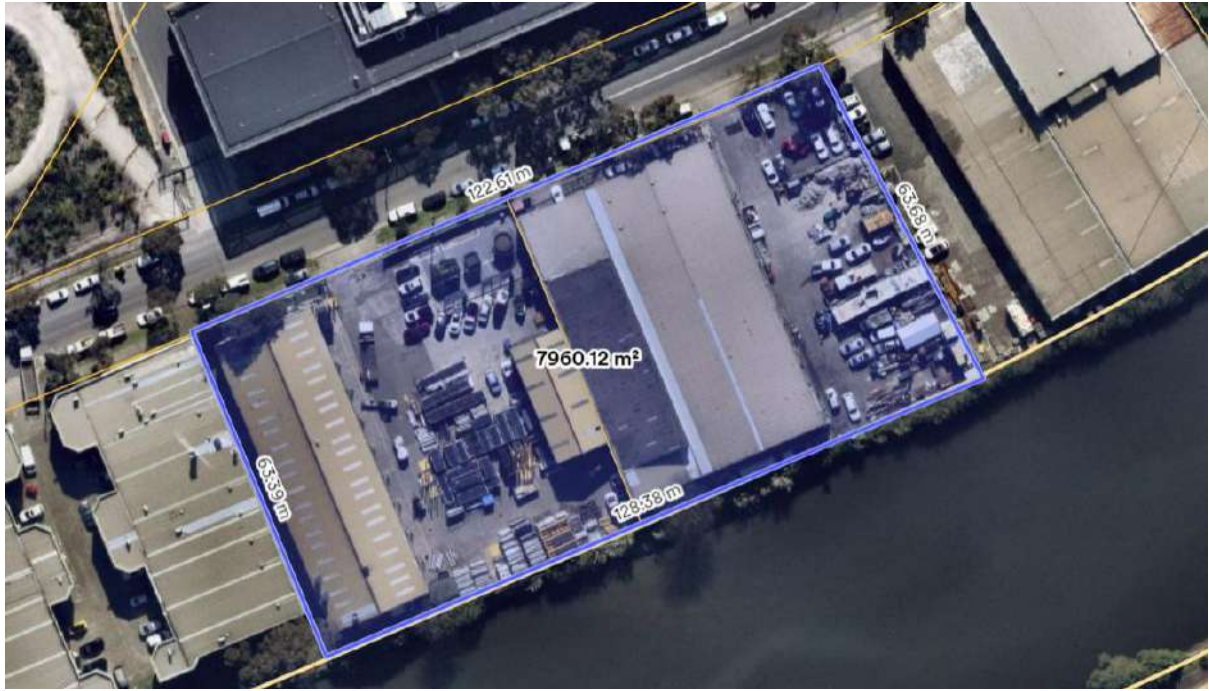


Figure I-1: 28-30 Burrows Road, St Peters, showing adjacent Alexandra Canal.



**Figure I-2: Habitat investigation in large shed at 28 Burrows Rd. Insulation in shed roof.**



**Figure I-3: Detector located in exotic tree between canal and large shed at 28 Burrows Rd.**



**Figure I-4: Habitat investigation in large shed at 30 Burrows Rd. No insulation in shed roof.**

## 2.0 Survey Methodologies

A physical inspection of all three sheds was undertaken between 2:00-4:00pm by Andrew Lothian on 11 August 2022, using a hand held torch to shine into cracks and crevices around the walls/roof. Scat searches were conducted around the floor of the shed, paying particular attention to bases of walls and places bats could hang from roof.

Bats do not make echolocation calls during the day, and the characteristic calls for identification are only emitted when the bats are flying. Combine this with interference noise from the surrounding industrial estate, and the decision was made not to scan with a hand held detector during the day. Instead, a single Anabat Express unit was deployed 4m up an exotic tree between the canal and the large shed on 28 Burrows Rd (Fig. 1-3) for two nights (11-13 August 2022). This was the only structure to allow elevated deployment of a device, and provided an ideal location to sample potential bat traffic between the canal and the sheds. The detector was collected on 13 August 2022, with the calls analysed by Glenn Hoyer of BMS (formerly of Fly By Night Bat Surveys).

Overnight temperature was cold (11.5°C minimum), and cloud cover was 100% on both nights 11, 12 August 2022 with 0.2mm of rain experienced on the first night, and 1.0mm on the second.

## 3.0 Results

The large shed on 28 Burrows Rd has three walls of corrugated iron, and one of cement blocks (Fig. 1-2). The roof of this shed is lined with foil-backed insulation, and the shed contains internally constructed offices. The roof of the shed could not be inspected closely due to its height and a lack of safety devices to facilitate inspection (i.e. scissor lift). The roof of the offices could not be inspected for the same reason.

The small shed on 28 Burrows Rd is open at both ends, and has walls and roof made of uninsulated corrugated iron.

The large shed on 30 Burrows Rd is brick on three sides, and metal on the front where the garage doors are. The roof is made of broad-gullied metal sheeting, and no insulation is present against the roof.

As far as vegetation is concerned, Figure 1-2 shows the only trees in the development footprint. One of the three species are exotic, and none contain hollows for microbats. Native trees exist on the property to the west (along the canal), and across the street to the north (Fig. 1-1). None contain hollows, and all appear to have been planted at some point.

A total of 75 files were recorded on night one, and only 7 on night two. Many files were noise files, and the only species to be identified was *Miniopterus orianae oceanensis* (Large Bent-winged Bat). There were no calls recorded for *Myotis macropus* (Southern Myotis) or other local bat species. This is not surprising, as Large Bent-winged Bats are one of the only species likely to be active at this time of year, with other species hibernating over winter.

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## 4.0 Discussion

The sheds with metal walls are unlikely to facilitate bat entry, as the bats cannot land on the wall and crawl into a hole (if holes were to exist). Those sheds with brick or concrete walls are more likely to facilitate entry by microbats. Sheds with no insulation in the roof are also unlikely to form habitat for bats, as there is no dark insulated space for bats to roost in. For this reason, the large shed on 30 Burrows Rd, and the small shed on 28 Burrows Rd are not likely to contain any microbat roost habitat. The large shed with insulated roof was inspected around all accessible walls (everywhere except where the offices had been built against the back wall). No scats were found anywhere, despite there being tears in the roof insulation. The only potential bat entry point to this shed would be the concrete block wall, which is located on the road end (opposite canal end). There were no spaces observed to facilitate bat entry, except perhaps under the metal flashing between roof and wall. This area of the shed was able to be inspected thoroughly, but no scats were found. There were signs of pigeons roosting on the inside of this wall. The overall impression is that though this shed contains some potential microbat roost habitat, it has a low chance of containing bats. Care should be taken to inspect the roofs of offices before demolition to ensure bats are not roosting inside any potential insulation bats that could be placed on top of office ceilings.

## 5.0 Conclusions

The Alexandra Canal may form foraging habitat for Southern Myotis, and may form a flyway for Large Bent-winged Bats (and other species). However, the sheds on site are unlikely to form roost habitat for these species. Instead, Myotis and Bent-winged Bat species are likely to be roosting in culverts or bridges in the local area, but not on site. As such, there is a low likelihood of impact to these species from the proposed demolition of three industrial sheds on 28-30 Burrows Rd.

The risk of impact to threatened bats if the existing sheds were to be demolished is assessed to be low.

Andrew Lothian      BComm/BSc (Hons), BAM Accredited Assessor (BAAS18110), NSW AUSRIVAS Accredited, ECANSW Certified Practising Ecological Consultant, 1<sup>st</sup> VP ECANSW, MRZNSW, MAMS, MABS, MNSWBA



6 September 2022

Appendix 3.  
Photograph of EPA signage



## Figures




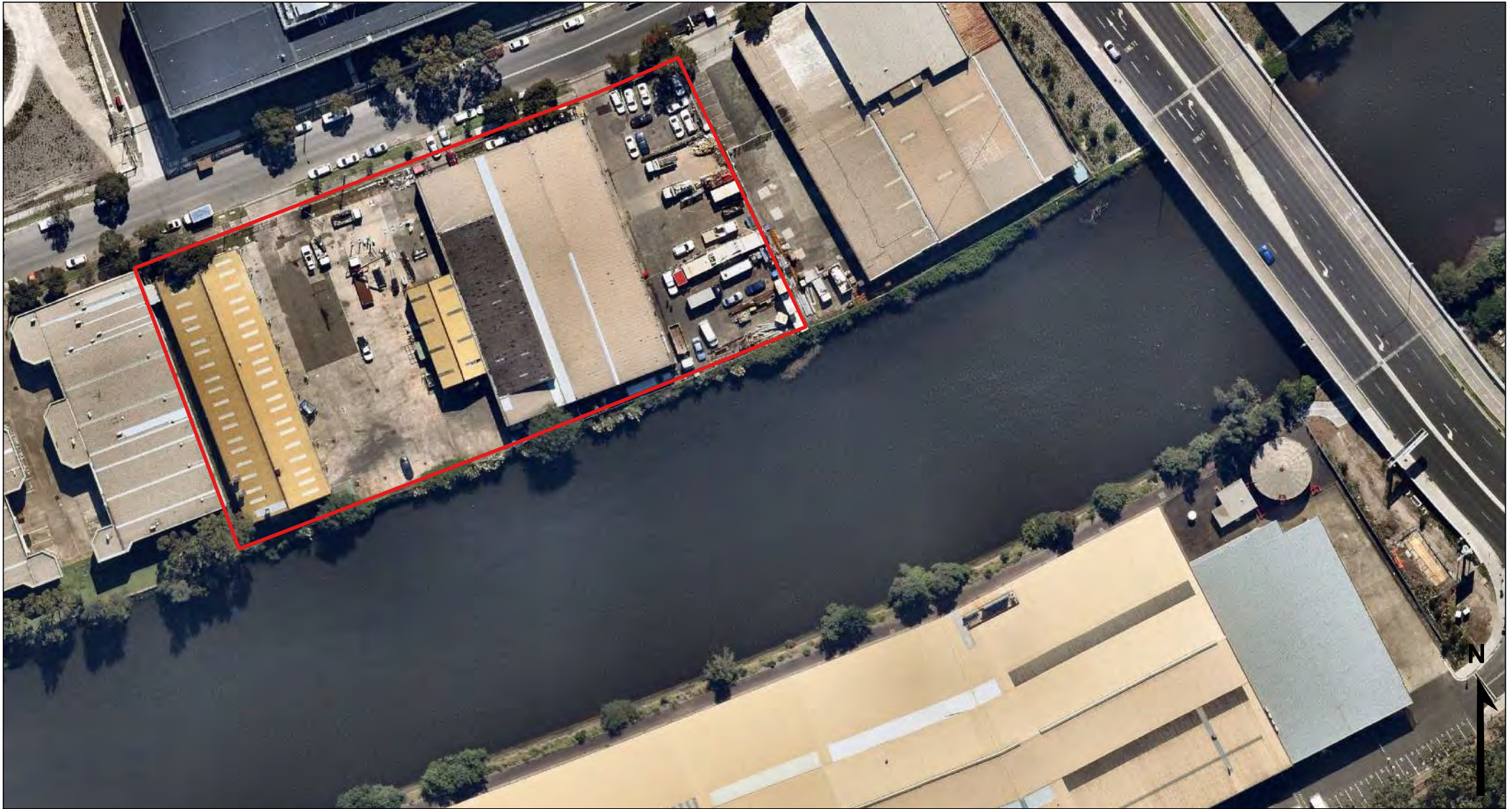
 Site boundary



Figure 1a-1.  
Site boundary overlaid on the Nearmap aerial photograph dated 10 April 2021



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Environmental and Botanical Consultants

Date created: 06-06-2022


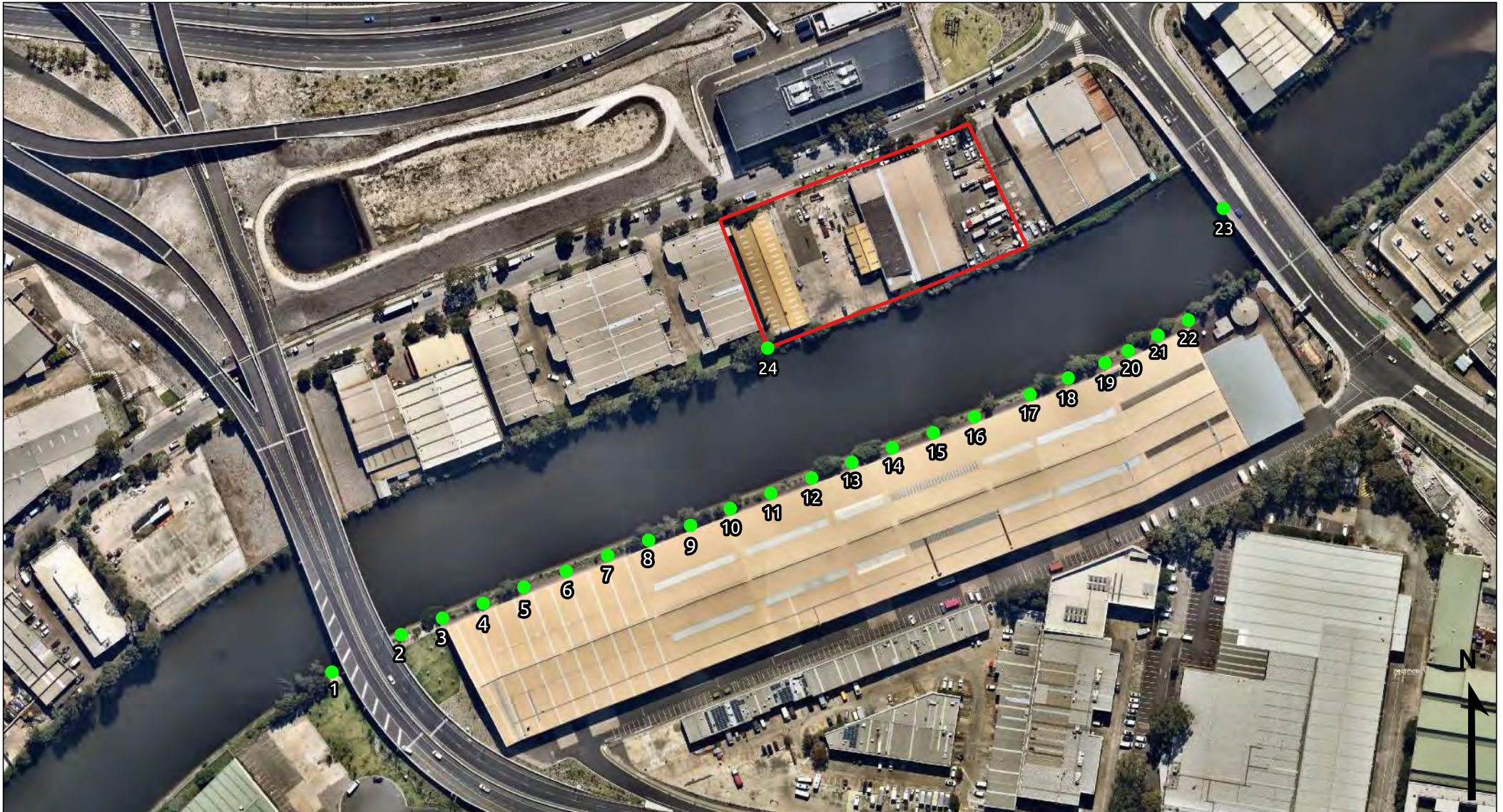
 Site boundary



Figure 1a-2.  
Site boundary overlaid on the Nearmap aerial photograph dated 10 April 2021



Date created: 17-06-2022

- Site boundary
- Observation points

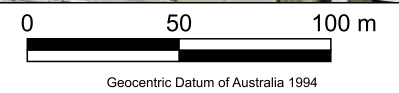
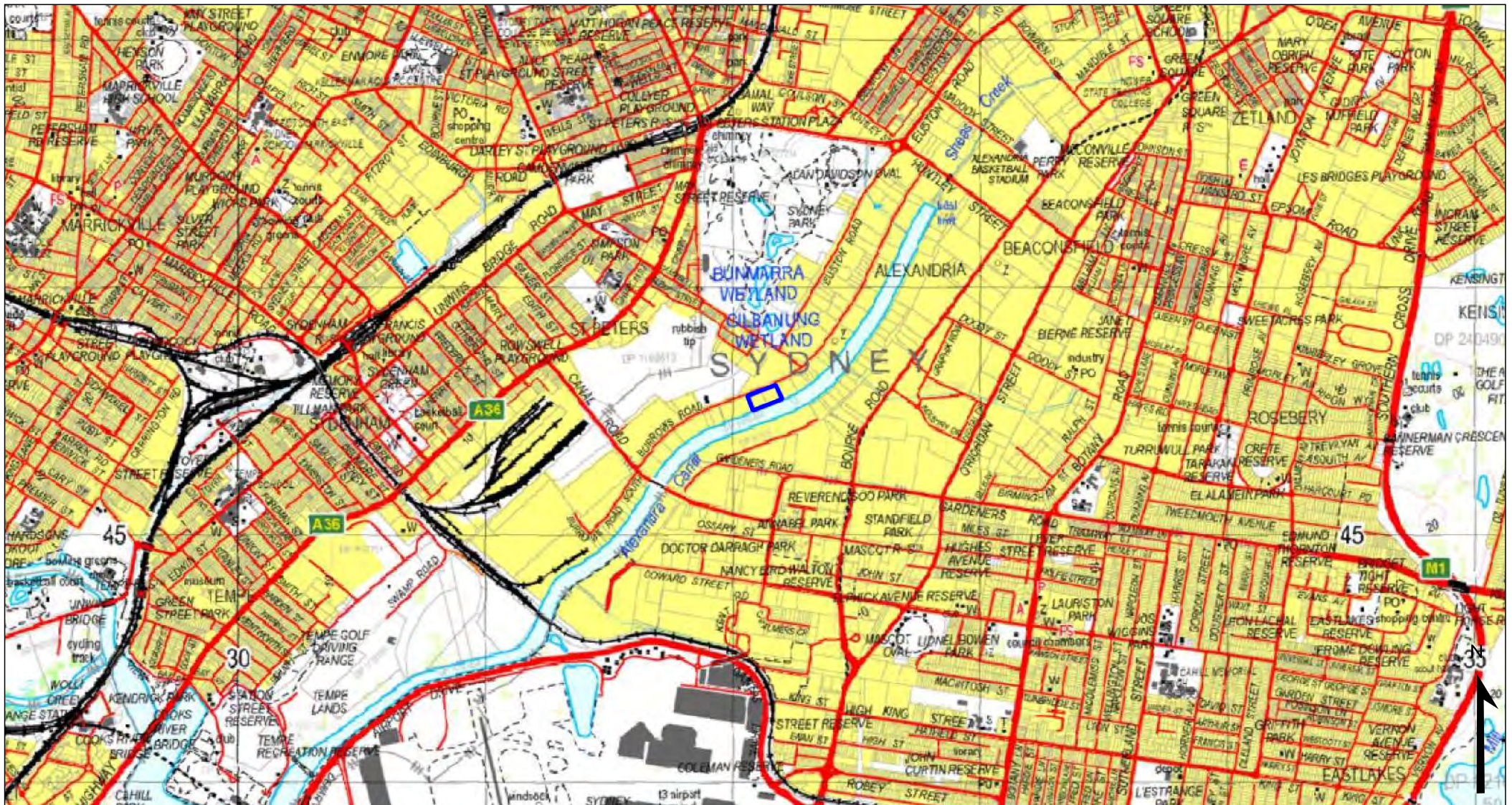

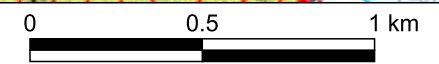


Figure 1a-3.  
Observation points overlaid on the Nearmap  
aerial photograph dated 10 April 2021




  
 ANNE CLEMENTS & ASSOCIATES PTY. LIMITED  
 Environmental and Botanical Consultants  
 Date created: 06-09-2022

 Site boundary



Geocentric Datum of Australia 1994

Figure 1b.  
Site boundary overlaid on the Six maps topographic WMS layer



Date created: 20-06-2022

- Site boundary
- Major contours 10m
- Minor contours 2m
- 12 m AHD
- 1 m
- 10 m
- 21 m
- 32 m

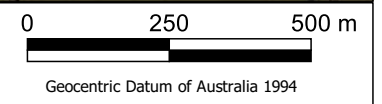
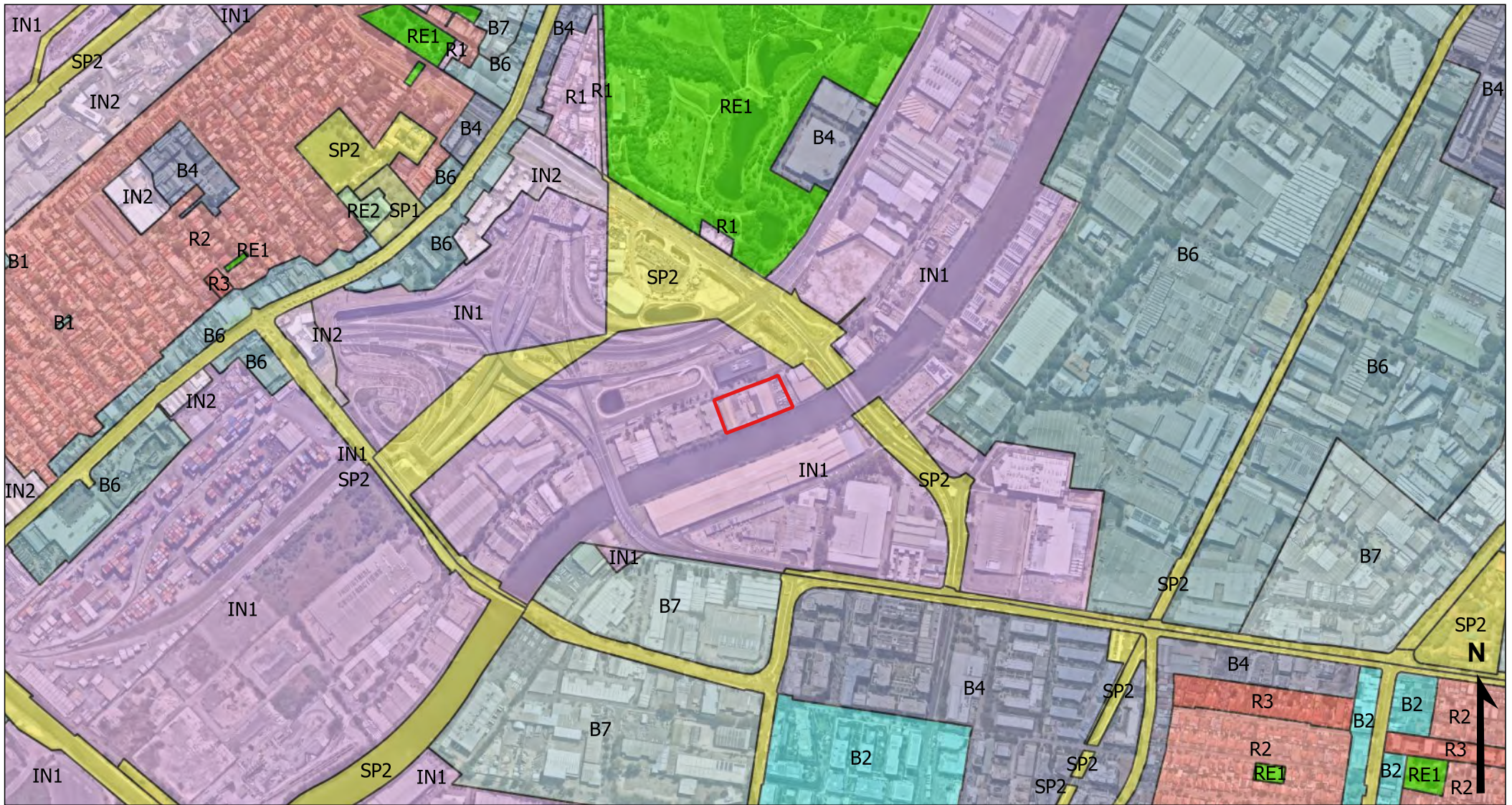


Figure 1d.  
Site boundary overlaid on the Sydney 1 Metre DEM  
LiDAR dated May 2020 (Spatial Services, ELVIS)





Date created: 10-06-2022

- |   |  |   |
|---|--|---|
| <span style="border: 2px solid red; display: inline-block; width: 15px; height: 10px;"></span> Site boundary  | <span style="background-color: #e67e22; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> R2 Low Density Residential | <span style="background-color: #95a5a6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> B4 Mixed Use            |
| <span style="background-color: #f1c40f; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> SP2 Infrastructure            | <span style="background-color: #27ae60; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> R1 General Residential     | <span style="background-color: #2980b9; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> B2 Local Centre         |
| <span style="background-color: #27ae60; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> SP1 Special Activities        | <span style="background-color: #9b59b6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> IN2 Light Industrial       | <span style="background-color: #34495e; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> B1 Neighbourhood Centre |
| <span style="background-color: #27ae60; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> RE2 Private Recreation        | <span style="background-color: #9b59b6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> IN1 General Industrial     |   |
| <span style="background-color: #27ae60; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> RE1 Public Recreation         | <span style="background-color: #34495e; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> B7 Business Park           |   |
| <span style="background-color: #e67e22; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> R3 Medium Density Residential | <span style="background-color: #34495e; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> B6 Enterprise Corridor     |   |

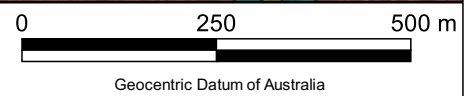




Figure 2a.  
Site boundary overlaid on the Inner West Local Environmental Plan 2022 - Land Zoning Map



-  Site boundary
-  Coastal Environmental Area

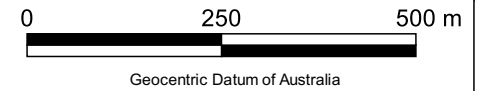
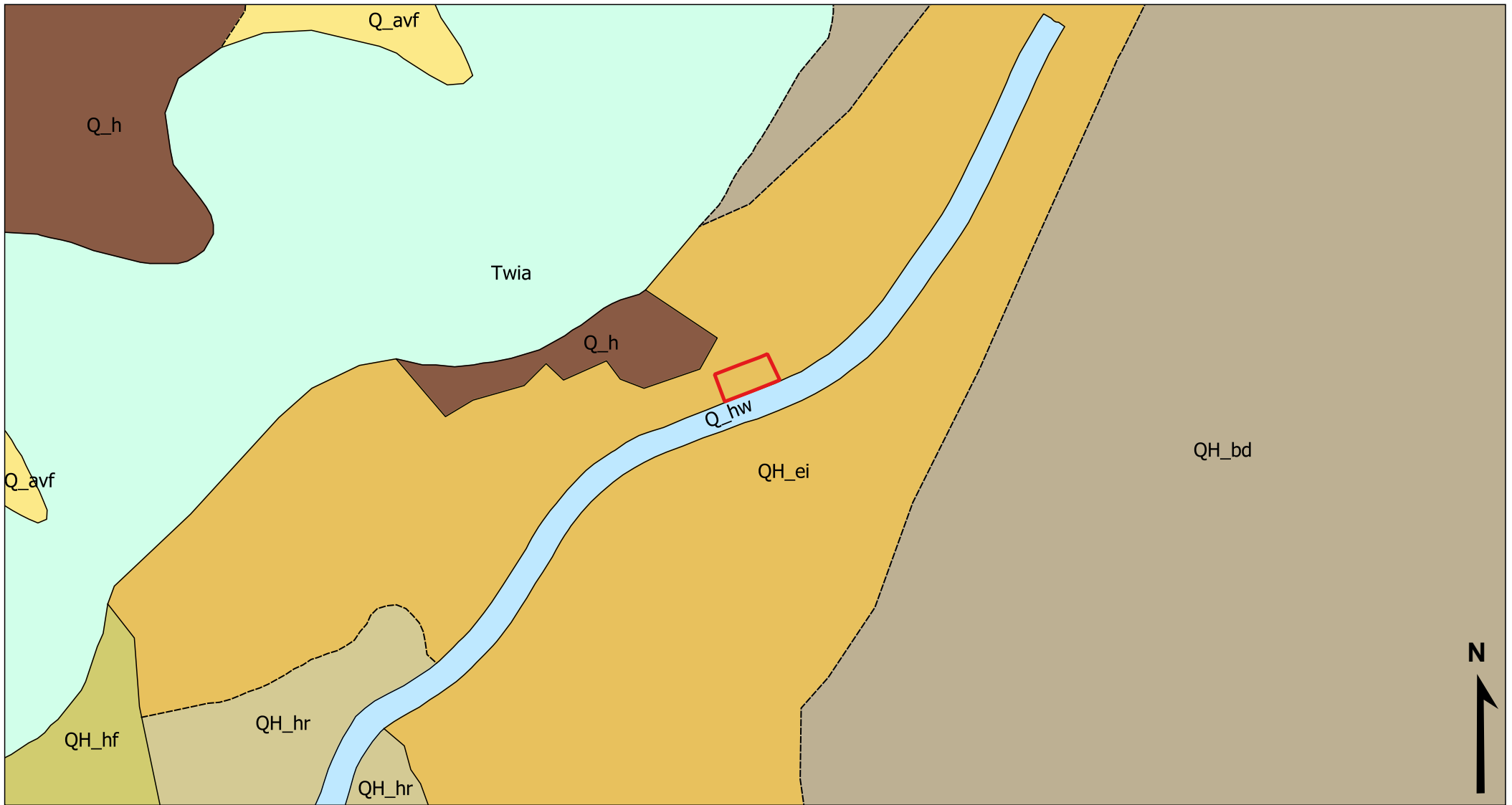


Figure 2b.  
State Environmental Planning Policy (Coastal Management) 2018 mapping  
layer overlaid on the Nearmap aerial photograph dated 02 October 2020



Date created: 10-06-2022

- Site boundary
- Geological boundary position accurate
- Geological boundary position approximate

**Cenozoic sedimentary province**

- Q\_avf Alluvial fan deposits
- Q\_h Anthropogenic deposits
- Q\_hw Anthropogenic stored water, pondage, reservoirs, canals
- QH\_bd Coastal deposits - dune facies
- QH\_ei Estuarine interbarrier creek deposits
- QH\_hf Anthropogenic deposits - fill on Quaternary deposits
- QH\_hr Anthropogenic deposits - reclaimed estuarine areas

**Permian-Triassic basins**

- Twia Ashfield Shale

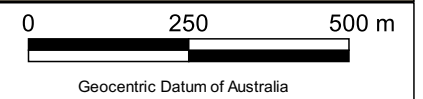


Figure 3a.  
Site boundary overlaid on NSW  
Seamless Geology version 2



Date created: 10-06-2022

- Site boundary
- bg Birrong
- bt Blacktown
- xx Disturbed Terrain
- of Oxford Falls
- tg Tuggerah

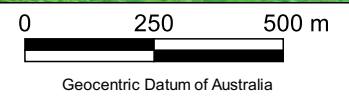

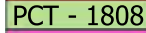





Figure 3b.  
Site boundary overlaid on Soil Landscapes of Central and Eastern NSW v2.1



	Site boundary
	PCT - 1808 S_FrW06: Estuarine Reedland
	PCT - 920 S_SW01: Estuarine Mangrove Forest
	PCT - 0 Urban_E/N: Urban Exotic/Native
	PCT - 0 Weed_Ex: Weeds and Exotics

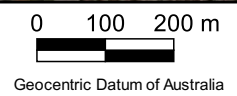


Figure 4a.  
 The Native Vegetation of the Sydney  
 Metropolitan Area - Version 3.1  
 (OEHS 2016) VIS\_ID 4489



Date created: 07-07-2022

- Site boundary
- PCT - 920 S\_SW01: Estuarine Mangrove Forest
- PCT - 0 Urban\_E/N: Urban Exotic/Native



Figure 4b.  
The Native Vegetation of the Sydney Metropolitan Area - Version 3.1 (OEH 2016) VIS\_ID 4489



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Environmental and Botanical Consultants

Date created: 30-08-2022

- Site boundary
- BAM Plot
- Native vegetation
- Planted trees
- Exotic

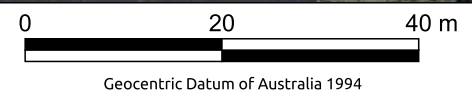


Figure 4c.  
BAM Plot and Vegetation Zones overlaid on the Nearmap aerial photograph dated 04 April 2021

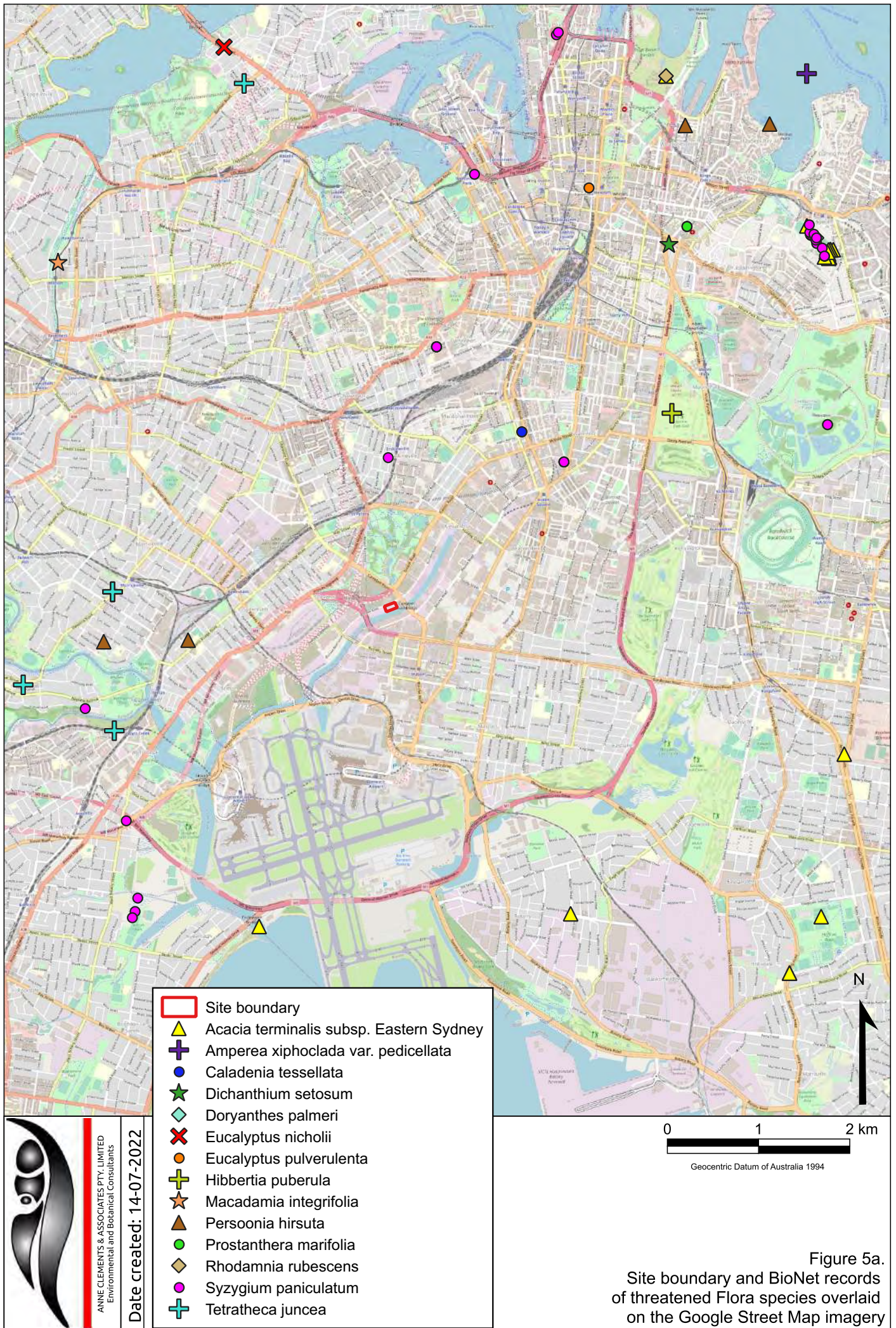
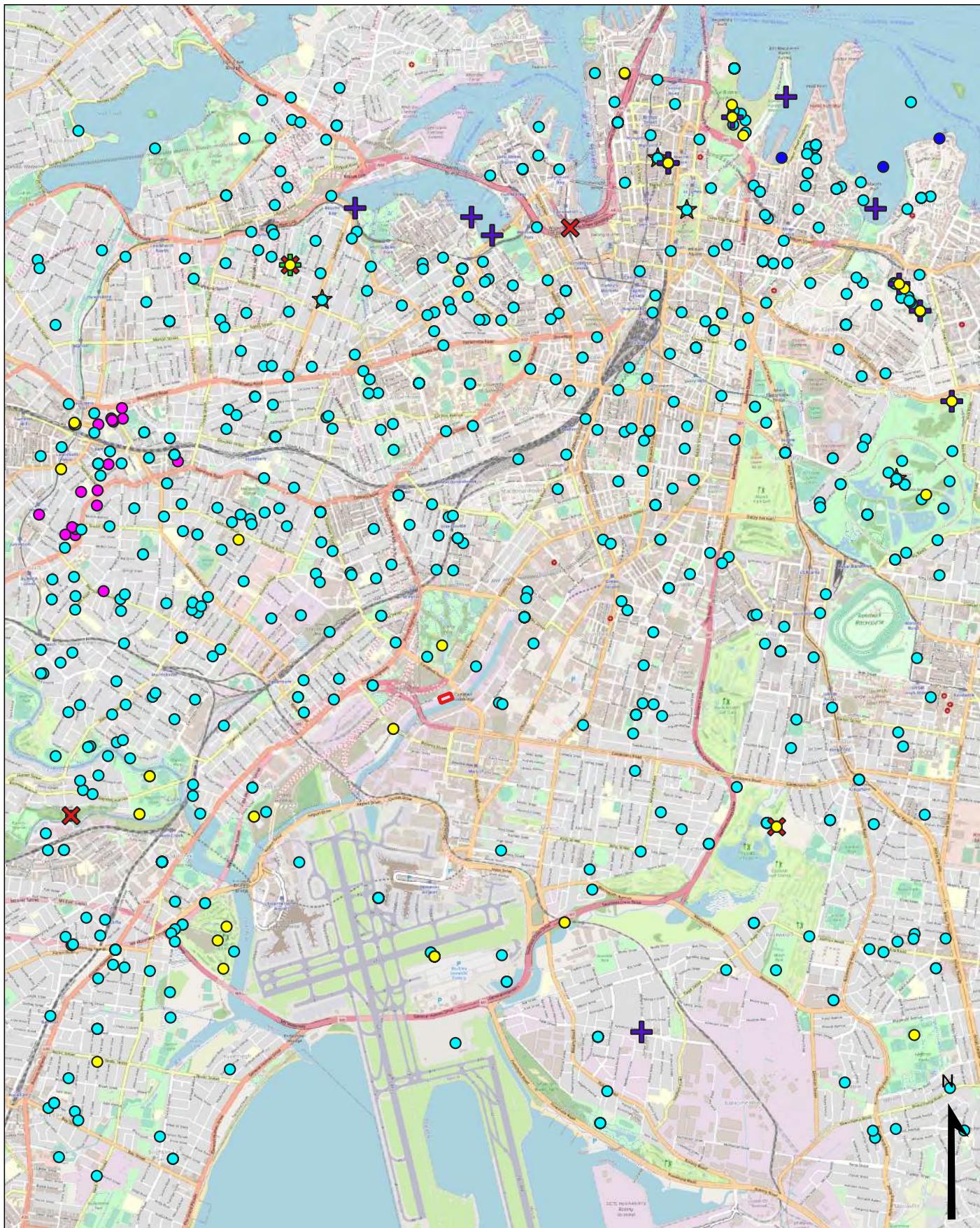


Figure 5a.  
Site boundary and BioNet records  
of threatened Flora species overlaid  
on the Google Street Map imagery





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Environmental and Botanical Consultants

Date created: 14-07-2022

- Site boundary
- Long-nosed Bandicoot population in inner western Sydney
- Grey-headed Flying-fox
- ★ Koala
- Large Bent-winged Bat
- + Large-eared Pied Bat
- Australian Fur-seal
- + Southern Myotis
- ✕ Yellow-bellied Sheathtail-bat

0 1 2 km  
Geocentric Datum of Australia 1994

Figure 5b.  
Site boundary and BioNet records of threatened mammal species overlaid on the Google Street Map imagery

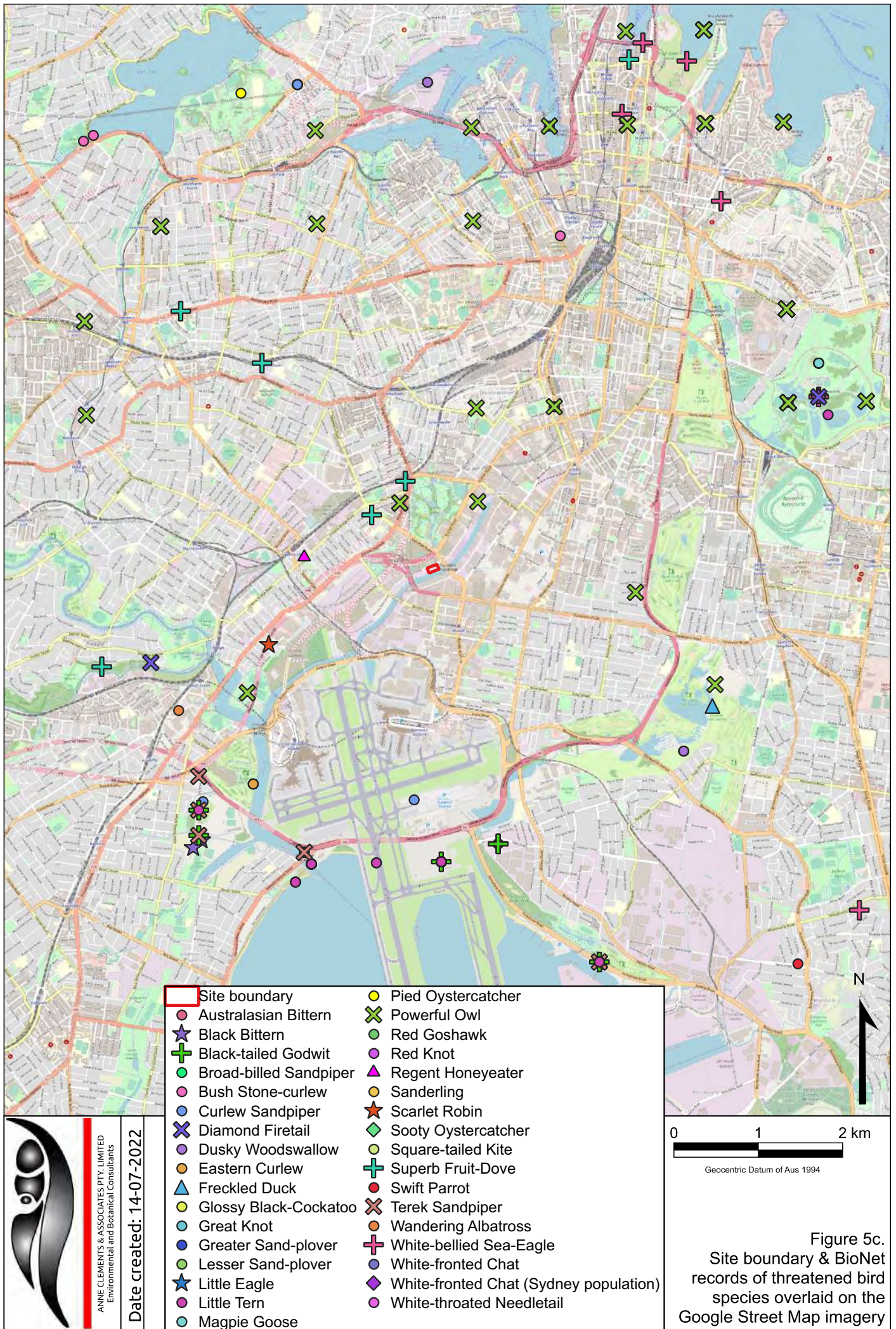
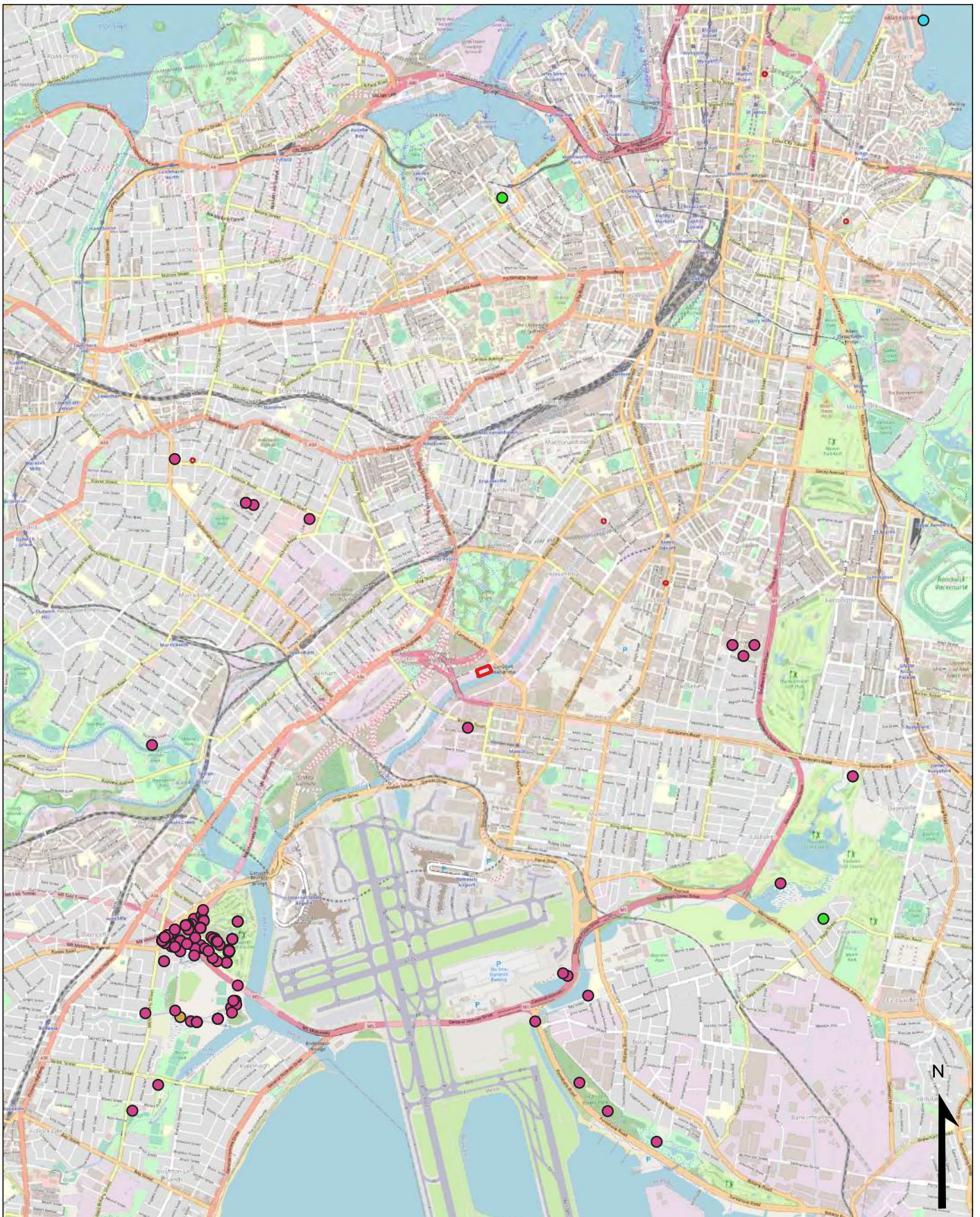


Figure 5c.  
Site boundary & BioNet records of threatened bird species overlaid on the Google Street Map imagery



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Environmental and Botanical Consultants

Date created: 14-07-2022

- Site boundary
- Green and Golden Bell Frog
- Leatherback Turtle
- Loggerhead Turtle
- Wallum Froglet



Figure 5d.  
Site boundary and BioNet records of threatened reptile and amphibian species overlaid on the Google Street Map imagery

