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# Sydney Children's Hospital Stage 1 / Children's Comprehensive Cancer Centre Biodiversity Development Assessment Report

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## **Health Infrastructure**

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Template 2.8.1

## Executive Summary

Eco Logical Australia Pty Ltd was engaged by Pricewaterhouse Coopers (PwC) (on behalf of Health Infrastructure) to prepare a Biodiversity Development Assessment Report (BDAR) for the proposed development at the corner of Hospital Road and High Street, Randwick. The proposed development will be assessed as a State Significant Development (SSD) (10831778), in accordance with the NSW *Environment Planning and Assessment Act 1979* (EP&A Act) and to satisfy the requirement of the Secretary's Environmental Assessment Requirements (SEARs).

Health Infrastructure propose to seek approval for the development of the Sydney Children's Hospital Stage 1 / Children's Comprehensive Cancer Centre (CCCC). The development site has previously been cleared of vegetation and buildings as part of the Randwick Campus Redevelopment which was assessed as a Part 4 development application under the EP&A Act.

One single planted native shrub (*Tristaniopsis laurina* – Water Gum) was recorded along the eastern boundary, however, this was not located within the development footprint. This shrub has been assessed for removal as part of a separate concurrent project under a different legislative pathway. Therefore, the SSD does not seek the removal of native vegetation. However, for the purpose of this assessment, this native tree has been included as part of the development site. This report has been prepared to meet the requirements of the Biodiversity Assessment Method 2020 (BAM) established under Section 6.7 of the NSW *Biodiversity Conservation Act 2016* (BC Act). The Streamlined assessment module for Planted Native Vegetation (Appendix D in BAM 2020) was utilised for this development and is discussed in more detail in the following sections. The Streamlined assessment determined that no ecosystem credits are required for the proposed development. The planted native vegetation was assessed during desktop and field surveys and determined that the native tree did not provide habitat for threatened species credit species, therefore the development did not require the offset of species credit species.

Prescribed impacts were assessed as part of the development and it was determined based on an absence of vegetation and buildings that there were no prescribed impacts for the development. Additionally, the development does not impact upon Serious and Irreversible Impact (SII) candidate entities.

There are no Matters of National Environmental Significance (MNES) within the development site affected by the proposed works. An assessment of the Commonwealth Significant Impact Criteria was not required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report describes the biodiversity values within the development site, describes the impacts and outlines the measures to be taken to avoid, minimise and mitigate impacts to native vegetation and threatened species habitat present within the development site.

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## Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Credit Calculator
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BC Regulation	NSW <i>Biodiversity Conservation Regulation 2017</i>
BDAR	Biodiversity Development Assessment Report
CCCC	Children's Comprehensive Cancer Centre
DAWE	Commonwealth Department of Agriculture, Water and Environment
DCP	Development Control Plan
DPIE	NSW Department of Planning, Industry and Environment (formally OEH)
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	NSW <i>Fisheries Management Act 1994</i>
GIS	Geographic Information System
GPS	Global Positioning System
HI	Health Infrastructure
IASB	Integrated Acute Services Building
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
LLS	Local Land Service
MNES	Matters of National Environmental Significance
NSW	New South Wales
NOW	NSW Office of Water
OEH	NSW Office of Environment and Heritage (now DPIE)
PwC	Pricewaterhouse Coopers
PCT	Plant Community Type
RHEP	Randwick Health and Education Precinct
SCH	Sydney Children's Hospital
SEARs	Planning Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significance Development
SSDA	State Significance Development Application
TEC	Threatened Ecological Community

Abbreviation	Description
UNSW HTH	The University of New South Wales Health Translation Hub
VIS	Vegetation Information System
WM Act	NSW <i>Water Management Act 2000</i>

# 1. Stage 1: Biodiversity assessment

## 1.1 Introduction

The purpose of this report is to support the State Significant Development Application (SSDA) for the Sydney Children's Hospital Stage 1 (SCH-1) / Children's Comprehensive Cancer Centre (CCCC) at Randwick Hospital Campus. This Biodiversity Development Assessment Report (BDAR) has been prepared to meet the requirements of the BAM 2020 established under Section 6.7 of the NSW *Biodiversity Conservation Act 2016* (BC Act). This report responds to item 8. *Biodiversity* of the Planning Secretary's Environmental Assessment Requirements (SEARs) issued 2 December 2020 for State Significant Development Application (SSDA) 10831778.

This report was prepared by Belinda Failes (BAAS18159), who is an Accredited Person under the BC Act, and has been peer reviewed by Diane Campbell (BAAS17069) who is also accredited under the BC Act.

A list of key terms and their definitions are provided in Appendix A.

### 1.1.1 General description of the development site

The proposed development is located on the corner of High Street and Hospital Road within the Randwick City Council local government area (LGA) (Figure 1 and Figure 2).

The development site consists of 94 lots and includes the following lots:

Lots 18, 19, 35, 52 DP 7745,	Lots A-B DP 303478,	Lots 1-2 DP 590480,
Lots 1 - 3 DP 11351,	Lots A-D DP 304806,	Lot 32 DP 667518,
Lots 1 – 14 DP 12909,	Lot 1 DP 307266,	Lot 1 DP 741639,
Lots 1 – 12 DP 13995,	Lots 23A - 23B DP 434935,	Lots 11-12 DP 806091,
Lots 1-7 DP 13997,	Lots A-B DP 439101,	Lot 1 DP 870720,
Lots A – F DP 33161,	Lots A-B DP 439756,	Lot 7 DP 975640
Lot 1 DP 74860,	Lots A-D DP 440501,	Lot 2 DP 1134643,
Lots A – B DP 102029,	Lots A-B DP 441943,	Lots 1-2 DP 1182570,
Lots A-D DP 167106,	Lots X-Y DP 445567,	Lot 100 DP 1249692,
Lot 1 DP 300666,	Lots 1-2 DP 501682,	Lots 3-5 DP 513339.
Lot 3 DP 302329,	Lots 1-2 DP 522596,	

The development site has been cleared of buildings and vegetation as part of the Randwick Campus Redevelopment. The development footprint for the proposed works is located within the north-eastern portion of the development site (Figure 3).



The development site contains temporary demountable buildings and is currently subject to bulk earthworks. More information regarding previous development approvals is provided in Section 1.1.3 below.

This report includes two base maps, the Site Map (Figure 1) and the Location Map (Figure 2).

### 1.1.2 Project description and development footprint

The Randwick Health and Education Precinct (RHEP) is one of the most comprehensive health innovation districts in Australia. While health care at RHEP has been evolving for over 160 years, the last five years has seen a strengthening of collaboration amongst a wide range of organisations in the precinct, including with government, universities and community.

The project seeks to strengthen the precinct as a world-class centre for health, research and education, driving cutting edge, compassionate and holistic healthcare and wellness programs for the local community and other residents of NSW. The project will deliver brand new, state-of-the-art paediatric health, medical research and education facilities and will assist to transform paediatric services and a key step in realising the vision for the RHEP.

Development approval is being sought for the construction and operation of a new nine level, plus two basement levels development (i.e. the development footprint) to provide the following:

- A new Emergency Department
- A new Intensive Care Unit
- Short Stay Unit
- Day and inpatient Children's Comprehensive Cancer Centre (CCCC) oncology units
- Children's Comprehensive Cancer Centre
- Ambulance access, parking, back of house and loading dock services accessed via the lowered Hospital Road
- Integration with the Prince of Wales Acute Services Building (ASB) and Integrated ASB (IASB), both currently under construction and University of New South Wales Health Translation Hub (UNSW HTH) that is also subject to a SSD application
- Public domain and associated landscaping
- Utilities services and amplification works; and
- Site preparation and civil works.

The development footprint for the proposed works is presented in Figure 3 and Figure 4. The development footprint includes Lot 100 DP 1249692, Lots 1-4 DP 13995, Lots A-D DP 304806, Lots A-B DP 303478 and Lots A-B DP 102029.

### 1.1.3 Previous approvals

The Randwick Campus Redevelopment site (i.e. the 'development site') has been assessed as a multi-stage development utilising different approval pathways. A description some of the relevant approval pathways is provided below.

A development application was submitted to Randwick City Council in 2018 for the demolition of the existing buildings and removal of vegetation from within the current development site. The impacts to

biodiversity values was assessed as part of a Flora and Fauna Assessment report prepared by ELA (2018a). The DA was granted approval by Randwick City Council to remove approximately 0.44 ha of urban exotics and native plantings. The entire development site has been cleared of vegetation and buildings.

A SSDA (9913) was submitted in 2018 for the Integrated Acute Services Building (IASB) located within the Randwick Campus Redevelopment site, however, located directly south of the current development footprint (Figure 4). ELA prepared a BDAR for the SSDA (ELA 2018b). The development has been approved and works are currently underway for the construction of the new IASB.

A separate development application is in the process of submission for the lowering of Hospital Road which lies directly east of the current development site (Figure 1). A Flora and Fauna Assessment was prepared by ELA (2020) to address the removal of four trees which was submitted as part of a Review of Environmental Factors (REF) for Hospital Road. The Flora and Fauna Assessment include the removal of one *Tristaniopsis laurina* which is currently located along the eastern boundary of the development site and consideration of this shrub has been included in this current BDAR assessment.

#### 1.1.4 Sources of information used

The following data sources were reviewed as part of this report:

- BioNet Vegetation Classification System (January 2021)
- BioNet / Atlas of NSW Wildlife 5 km database search (Department of Planning, Industry and Environment DPIE 2020a) (accessed August 2020)
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool 5 km database search (Department of Agriculture, Water and Environment DAWE 2020a) (accessed August 2020)
- National Flying-Fox Monitoring data (DAWE 2020b) (accessed 14 January 2021)
- Threatened species profiles and recovery plans (DAWE 2020c and DPIE 2020b)
- Biodiversity Assessment Method 2020
- Threatened Biodiversity Data Collection (January 2021)
- NSW Government Biodiversity Values Map (DPIE 2020c) (accessed on 14 January 2021)
- Previous vegetation mapping datasets
  - The Native Vegetation of the Sydney Metropolitan Area (Office of Environment and Heritage (OEH) 2016)
- Request for SEARS (Health Infrastructure 2020)
- Previous ecological reports:
  - Eco Logical Australia (ELA) 2018a. *Randwick Campus Demolition and Site Clearance: Flora and Fauna Assessment*.
  - Eco Logical Australia (ELA) 2018b. *Randwick Campus Redevelopment Stage 1 – Biodiversity Development Assessment Report*. Prepared for Health Infrastructure c/o PwC Australia.
  - Eco Logical Australia (ELA) 2020. *Hospital Road REF Works*. Prepared for Health Infrastructure.





Figure 1: Site map





Figure 2: Location Map



**Development Footprint** **Sydney Children's Hospital Stage 1 BDAR**

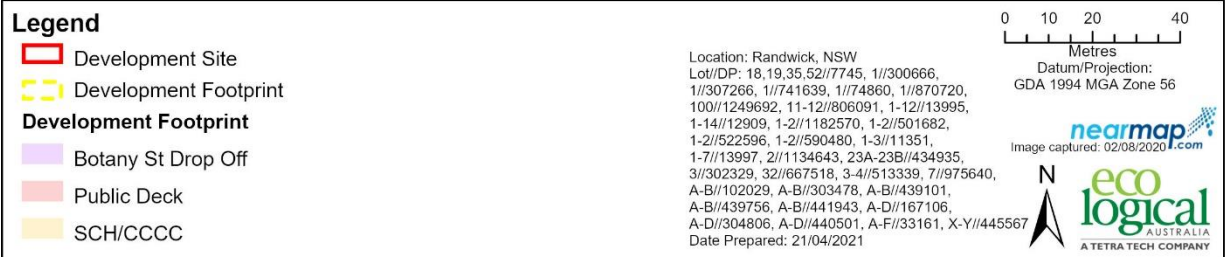


Figure 3: Construction and operational footprint map

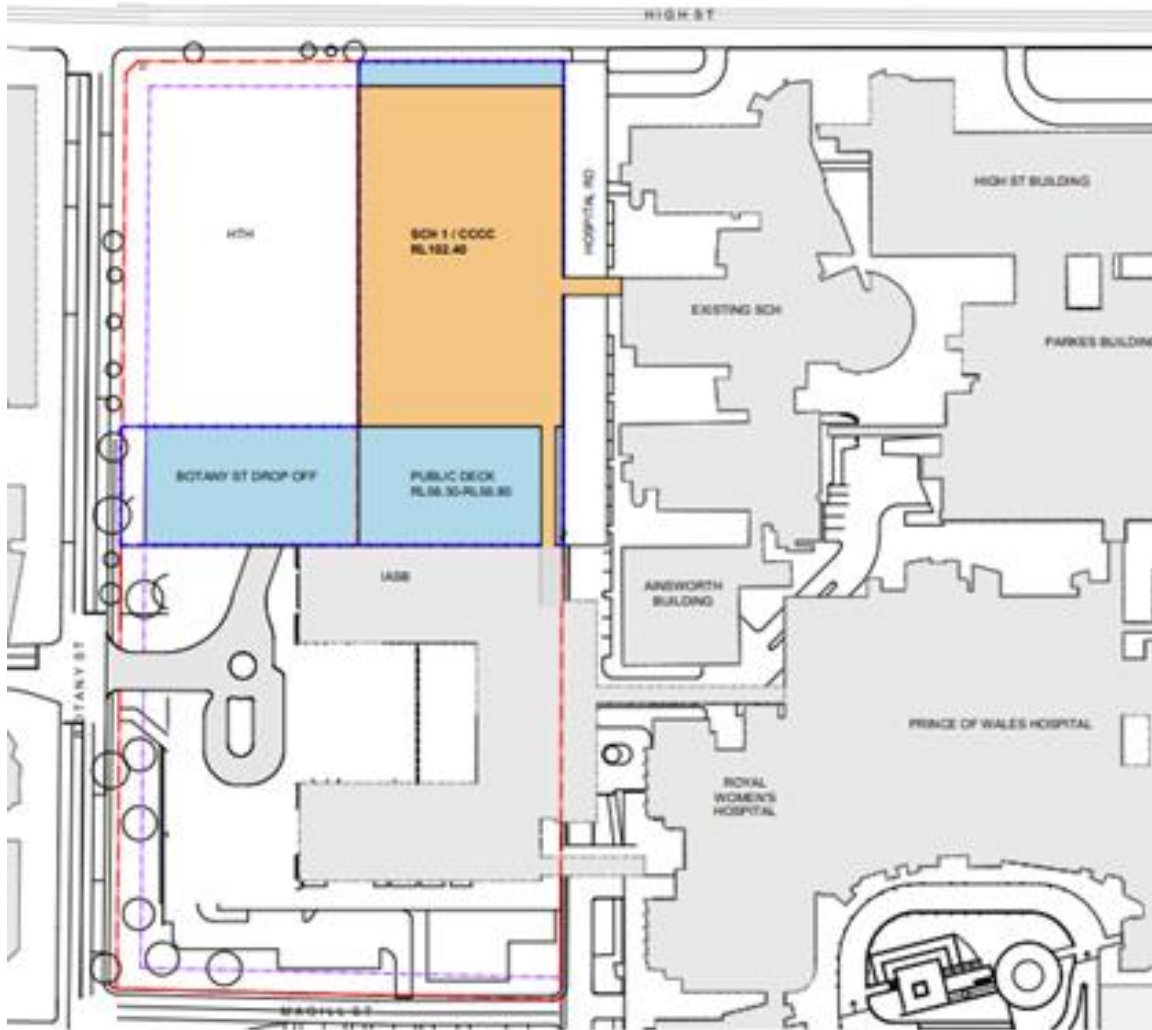


Figure 4: Randwick Campus Redevelopment site (in red) and current development footprint (shown in colour)



## 1.2 Legislative context

**Table 1: Legislative context**

Name	Relevance to the project
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Matters of National Environmental Significance (MNES) were reviewed for the current development. No MNES have been identified on or near the development site. This development is not likely to have a significant impact on MNES.
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	<p>The proposed development exceeds the Capital Investment Value so the works will be assessed as a State Significant Development (SSD) under Part 4.1 of the EP&amp;A Act. The SEARs have been issued and the relevant SEARs are as follows:</p> <ul style="list-style-type: none"> <li>• Provide a Biodiversity Development Assessment Report (BDAR) that assesses the biodiversity impacts of the proposed development in accordance with the requirements of the BC Act, <i>Biodiversity Conservation Regulation 2017</i> and Biodiversity Assessment Method, except where a BDAR waiver has been issued in relation to the development or the development is located on biodiversity certified land.</li> <li>• Where a BDAR is not required because a BDAR waiver has been issued in relation to the development, provide: <ul style="list-style-type: none"> <li>○ A copy of the BDAR waiver and demonstrate that the proposed development is consistent with that covered in BDAR waiver</li> <li>○ An assessment of flora and fauna impacts where significant or flora and fauna values would be affected by the proposed development.</li> </ul> </li> </ul> <p>The preparation of a Biodiversity Development Assessment Report (BDAR) is required.</p>
<i>Biodiversity Conservation Act 2016</i> (BC Act)	The proposed development requires submission of a BDAR (i.e. this report) under the BC Act.
<i>Fisheries Management Act 1994</i> (FM Act)	The development does <u>not</u> involve impacts to Key Fish Habitat, does not involve harm to marine vegetation, dredging, reclamation or obstruction of fish passage. A permit or consultation under the FM Act is <u>not</u> required.
<i>Local Land Services Amendment Act 2016</i> (LLS Act)	The LLS Act does not apply to areas of the state to which the <i>State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017</i> (Vegetation SEPP) applies. The Vegetation SEPP applies to Randwick government area.
<i>Water Management Act 2000</i> (WM Act)	The project does <u>not</u> involve works on waterfront land and therefore a Controlled Activity Approval under s91 of the WM Act is <u>not</u> required.
<b>Planning instruments</b>	
State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP)	This SEPP applies to development that does not require consent. As this project requires consent under the EP&A Act, the Vegetation SEPP is not relevant.
State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP)	The proposed development is not located on land subject to the Coastal Management SEPP.
State Environmental Planning Policy (Koala Habitat Protection) 2020	The proposed development is not located within a local government area to which the SEPP (Koala Habitat Protection) 2020 applies.

Name		Relevance to the project
Randwick Environment Plan 2012	Local (LEP)	<p>The development site is zoned R2 – Low Density Residential and R3 – Medium Density Residential under the Randwick LEP. Division 10 of the State Environmental Planning Policy (Infrastructure) 2007 provides that R2 and R3 zones are a “Prescribed Zone” within which development for the purposes of Health Care Facilities are permissible with consent.</p> <p>The LEP 2012 contains a clause (6.5) pertaining to protecting terrestrial biodiversity. The proposed works do not affect any mapped areas of biodiversity within the development site under this LEP.</p>
Randwick Control Plan 2013	Development (DCP)	The DCP 2013 has been reviewed for additional biodiversity provisions that may relate to the development site. No additional provisions were identified.

## 1.3 Landscape context

### 1.3.1 Interim Biogeographic Regionalisation for Australia (IBRA) regions and subregions

The development site is 3.27 ha in size and falls wholly within the Sydney Basin IBRA region and Pittwater IBRA subregion (Figure 3). The assessment area, defined as the area within the 1,500 m buffer around the development site, also falls within the Sydney Basin IBRA and Pittwater IBRA subregion (Figure 3).

### 1.3.2 Mitchell Landscapes

The majority of the development site falls within the Sydney Newcastle Barrier and Beaches Mitchell Landscape (DECC 2002) as outlined in Table 2.

**Table 2: Mitchell Landscapes (DECC 2002)**

Mitchell landscape	Description	% Cleared
Sydney – Newcastle Barriers and Beaches	<p>Quaternary coastal sediments on long recurved quartz sand beaches between rocky headlands backed by sand dunes and intermittently closed and open lagoons. Includes areas of more extensive high dunes often located on top of the headlands. General elevation 0 to 30m, local relief 10m. Cliff top dunes may be found as high as 90m above sea level. Distinct zonation of vegetation and increasing soil development from the beach to the inland dunes. At the beach; <i>Spinifex hirsutus</i> (Spinifex), <i>Lomandra longifolia</i> (Spiky Mat-rush), <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coast Wattle) and <i>Leptospermum laevigatum</i> (Coast Tea-tree) colonise the frontal dune in which there is little soil development. <i>Banksia integrifolia</i> (Coast banksia) and <i>Banksia serrata</i> (Old man Banksia) are found on the second dunes and these merge with more complex forest containing <i>Eucalyptus pilularis</i> (Blackbutt), <i>Corymbia gummifera</i> (Red Bloodwood), <i>Xanthorrhoea</i> sp. (Grass Trees) and numerous understorey shrubs on deep sands that have an organic rich A horizon, a bleached A2 horizon and the initial development of weak iron or organic pans in the sandy subsoil. Well-developed, deep podsol profiles are present in cliff top dunes with swampy swales indicating that these forms are probably older than the coastal dunes.</p>	88

### 1.3.3 Native vegetation extent

The extent of native vegetation within the development site and the assessment area is outlined in Table 3. This area was calculated using the existing OEH (2016) vegetation datasets. Native vegetation for the



purpose of this step has included native/exotic urban vegetation but did not include weeds or urban exotic/native vegetation.

The current percent native vegetation cover in the landscape was assessed in a Geographic Information System (GIS) using aerial imagery sourced from NSW Public Imagery using increments of 5%. The percent native vegetation cover within the assessment area is 0.84% rounded up to 1% (Table 3). There are no differences between the mapped vegetation extent and the aerial imagery based on OEH 2016 vegetation mapping.

**Table 3: Native vegetation extent**

Location	Area (ha)	Extent of Native Vegetation (ha)
Assessment area	777.81	6.52
Development site	3.27	0

#### 1.3.4 Rivers and streams

The development site does not contain any rivers or streams.

#### 1.3.5 Wetlands

The development site does not contain any wetlands.

#### 1.3.6 Connectivity features

The development site has been cleared of native vegetation and therefore does not contain conservation or connectivity value. Connectivity of planted vegetation within the larger assessment area is disrupted by major roads, residential dwellings and commercial areas.

#### 1.3.7 Areas of geological significance and soil hazard features

The development site does not contain areas of geological significance or soil hazard features.

#### 1.3.8 Site context

##### 1.3.8.1 Method applied

The site based method has been applied to this development.

##### 1.3.8.2 Patch size

Patch size was calculated using mapping specifically developed for this project that enabled vegetation to be mapped for all patches of intact native vegetation on and adjoining the development site. The patch size falls within the class of <5 ha.

## 1.4 Planted native vegetation

### 1.4.1 Methodology

Consistent with Appendix D of BAM 2020 the assessor may apply the Streamlined assessment module to vegetation which is considered planted native vegetation. The BAM provides a framework for the assessment which is summarised in Table 6. The framework assists assessors to determine if the planted native vegetation requires further assessment. If the outcome of the framework determines that the vegetation does not require this, then the planted native vegetation needs only to consider if habitat for threatened species and apply relevant mitigation measures.

One BAM vegetation integrity plot was undertaken to determine the vegetation assemblage. In accordance with the BAM 2020, if the framework outlined in Table 6 determines that the vegetation does not require additional consideration under the BAM, then Chapters 4 *Assessing native vegetation, threatened ecological communities and integrity score* and Chapter 5 *Assessing the habitat suitability for threatened species* of BAM 2020 do not apply to the planted native vegetation, provided the vegetation does not provide habitat for threatened species.

This BDAR used the Streamlined assessment outlined in Appendix D1 Planted Native Vegetation and Appendix D2 Threatened Species Habitat. The results of field surveys and application of the Streamlined assessment are provided below.

### 1.4.2 Survey effort

An ecological assessment of the entire development site was conducted by ELA ecologist Mike Lawrie on 14 August 2020 to validate the presence of any Plant Community Types (PCT), their condition and conduct vegetation integrity plots consistent with BAM 2020 (Figure 5). One full-floristic and vegetation integrity plot was conducted to confirm vegetation type and condition within the development site (Table 4).

Due to the linear nature of the vegetation zone, Plot 1 within *planted native vegetation* was undertaken using a modified version of the BAM plot. The structure and function plot was modified to a 10 m x 100 m plot and the composition plot modified to a 40 m x 10 m plot, rather than the standard 50 m x 20 m and 20 m x 20 m plot.

Additionally, the BAM plot was located along the eastern side of Hospital Road outside of the development site (Figure 5). The vegetation within the development site (i.e. one single planted native shrub) was not adequate for the BAM integrity plot. Therefore, the plot was strategically located within vegetation which best represented the planted native vegetation. As such the plot was in vegetation which will be affected as part of the REF, which has been submitted separately, directly east of the development footprint.

All field data collected in the full-floristic and vegetation integrity plot is included in Appendix B.

**Table 4: Full-floristic and vegetation integrity plots**

Veg Zone	PCT ID	PCT Name	Condition	Development site (ha)	Development footprint (ha)	Plots required	Plots surveyed
0	-	<i>Planted native vegetation</i>	Planted	0.0002	0	0	1

### 1.4.3 Native vegetation

#### 1.4.3.1 Site description

The majority of the development site consists of cleared lands (Figure 3) (Table 5). As previously discussed, the development site has been previously cleared of vegetation (Photo 1). One planted native tree, *Tristanopsis laurina* (Water Gum) (Photo 2) was recorded on the western side of Hospital Road and was located on the boundary of the development site (Figure 5). The native vegetation was in a highly disturbed environment between an existing urban road and construction site. Previous ecological surveys conducted by ELA in 2017 identified that the development site previously contained several planted *Tristanopsis laurina* specimens along Hospital Road which have been removed due to recent development.

*Tristanopsis laurina* is not listed as a threatened species under the BC Act or EPBC Act. This species is not considered a locally indigenous species to the development site. Furthermore, *Tristanopsis laurina* is often utilised in horticultural plantings including street tree plantings.

A desktop review based on OEH vegetation mapping (2016) identified that there is no remnant vegetation present in the development site or in lands surrounding the development site. A literature review based on the Mitchell Landscape identified that the pre-European vegetation may have been present as Plant Community Type (PCT) 1793 *Coastal Sand Bangalay Forest*. *Tristanopsis laurina* is not listed as a component of this PCT.

Given the highly disturbed environment of the development site, the immature nature of the specimen and the fact this planted native tree is not associated with locally indigenous PCT, it is considered that *Tristanopsis laurina* has been planted as part of road side vegetation and is not remnant vegetation.

This tree was included within the development site; however, it was not located within the development footprint and will not be affected by this project. This tree will be removed under a separate approval.

The development site does not contain any additional native vegetation.

**Table 5: Summary of development site and footprint**

Vegetation	Development site (ha)	Development footprint (ha)
Planted native vegetation	0.0002	0
Exotic vegetation	0.016	0.007
Cleared areas	3.25	1.05
<b>TOTAL</b>	<b>3.27</b>	<b>1.06</b>

#### 1.4.3.2 Planted native vegetation assessment

An assessment using the decision making tool for planted native vegetation was conducted in accordance with Appendix D1 of BAM 2020 to determine if the vegetation within the development site satisfies the criteria for planted native vegetation (Table 6). The vegetation within the development site (i.e. one *Tristanopsis laurina*) was determined, as outlined in Table 6, that it is not remnant native vegetation, it was not established for the recovery of a threatened species and it is not a conservation

obligation. The native vegetation recorded within the development site was established as a roadside planting (as per D.1(5.1)). Therefore, the planted native vegetation does not require further consideration consistent with Chapters 4 or 5 of BAM 2020 provided that the vegetation does not provide habitat for threatened fauna species. An assessment as to whether the planted vegetation provides habitat for species credit species according to the methodology outlined in Appendix D2 of the BAM 2020 is provided below in Section 1.5.

**Table 6: Decision making tool for Planted Native Vegetation in accordance with Appendix D of the BAM 2020**

Decision making key	Response
<p><b>1) Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?</b></p> <p>i Yes – the planted native vegetation must be allocated to the best-fit PCT and the BAM must be applied.</p> <p>ii No – Go to 2.</p>	No, the planted vegetation does not occur in a mosaic of planted and remnant vegetation.
<p><b>2. Is the planted native vegetation:</b></p> <p><b>a. Planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and</b></p> <p><b>b. The primary objective was to replace or regenerate a plant community type of a threatened plant species or its habitat?</b></p> <p>i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM</p> <p>ii No – Go to 3.</p>	<p>a) No, the vegetation has not been established for rehabilitation or restoration works.</p> <p>b) No, the primary objective was not to replace or regenerate a PCT as the vegetation consists of one street tree (<i>Tristaniopsis laurina</i>) within a road verge. This species is a non-indigenous species to the area.</p>
<p><b>3. Is the planted / translocated native vegetation individuals of a threatened species or other native species planted/ translocated for the purpose of providing threatened species habitat under one of the following:</b></p> <p>a. A species recovery project</p> <p>b. <i>Saving our Species</i> project</p> <p>c. Other types of government funded restoration project</p> <p>d. Condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat</p> <p>e. Legal obligation as part of a condition of ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act)</p> <p>f. Ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or</p> <p>g. Approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW <i>Water Management Act 2000</i>)?</p> <p>i Yes – the planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM</p> <p>• No – Go to 4.</p>	No, the planted vegetation does not include translocated native vegetation of threatened species.

Decision making key	Response
<p><b>4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration within a legal obligation to secure or provide for management of the native vegetation?</b></p> <ul style="list-style-type: none"> <li>i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</li> <li>• No – Go to 5.</li> </ul>	<p>No, the planted native vegetation was not undertaken as part of any conservation or rehabilitation projects or to satisfy a legal obligation.</p>
<p><b>5. Is the planted native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as; windbreaks in agricultural landscapes, roadside plantings (including street trees, median stripes, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?</b></p> <ul style="list-style-type: none"> <li>i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</li> <li>ii No – Go to 6.</li> </ul>	<p>Yes, the planted native vegetation was established for roadside plantings. Therefore, the native vegetation was assessed in accordance with Appendix D2 and it was determined that the vegetation did not provide habitat for threatened species credit species. Therefore, no additional consideration of Chapters 4 or 5 under the BAM is required.</p>
<p><b>6. Is the planted native vegetation a species listed as a widely cultivated native species on a list approved by the Secretary of the Department (or an officer authorised by the Secretary)?</b></p> <ul style="list-style-type: none"> <li>i Yes – Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied)</li> <li>ii No – There may be other types of occurrences of planted native vegetation that do not easily fit into the decision-making key above.</li> </ul>	<p>N/A</p>



# Plant Community Types Sydney Children's Hospital Stage 1 BDAR



Figure 5: Vegetation recorded within the development site





Photo 1: Current condition of development site which lacks native or exotic vegetation and does not contain built structures



Photo 2: Planted native vegetation located on the development boundary and will be removed under the REF

## 1.5 Threatened species habitat (planted native vegetation)

### 1.5.1 Methodology

#### 1.5.1.1 Threatened species habitat assessment

A habitat assessment was conducted during field survey on 14 August 2020 in accordance with *Appendix D2 Assessment of planted native vegetation for threatened species habitat*. The habitat assessment was undertaken to assess the suitability of the planted native vegetation for use by threatened species and record any incidental sightings or evidence of threatened species credit species inhabiting or utilising the planted native vegetation within the development site on occasion or a permanent basis.

The habitat assessment involved a search for important habitat features for threatened fauna species, such as hollow bearing trees, ephemeral pools, rocky outcrops or deep leaf litter. The assessment also included a search for evidence of fauna foraging or roosting such as chewed cones, sap trees, white wash/pellets and inspections of suitable roosting or breeding habitat for threatened raptor birds (i.e. nest trees) or hollow-bearing trees for microchiropteran bats (microbats). Binoculars were used when required to inspect within high branches in the tree canopy.

#### 1.5.1.2 Targeted surveys

Targeted surveys for species credit species are not required consistent with Appendix D2 of BAM 2020. Additionally, due to the high level of modification of vegetation within the development site and lack of potential habitat, targeted surveys were not considered suitable for the development site.

### 1.5.2 Results

#### 1.5.2.1 Habitat assessment results

One single planted native tree (*Tristaniopsis laurina*) was recorded along the eastern boundary of the development site outside the development footprint. The field assessment did not record suitable habitat features such as tree hollows, intact vegetation, foraging resources (nectar producing species), logs or leaf litter around the planted native vegetation or within the development site. Furthermore, the planted native vegetation is not connected to other areas of intact native vegetation. Therefore, the planted native vegetation does not provide suitable foraging or roosting habitat for threatened species.

The field surveys did not record any incidental sightings or evidence of threatened species credit species within the development site. No additional habitat features were recorded within the development site.

#### 1.5.2.2 Threatened species records

There are no recent or historical BioNet records for threatened species recorded within the development site. There are 1,138 BioNet records for one highly mobile threatened species, *Pteropus poliocephalus* (Grey-headed Flying-fox), located within a 5 km radius of the development site. The Grey-headed Flying-fox is listed as vulnerable under the BC Act and EPBC Act. A nationally registered Grey-headed Flying-fox camp is located approximately 1 km to the north in Centennial Park. This camp will not be directly or indirectly affected by the proposed works.



*Tristaniopsis laurina* is not listed as a known feed tree species for Grey-headed Flying-fox (Eby and Law, 2008, Department of Environment & Climate Change NSW, 2008) and is therefore unlikely to be used by Grey-headed Flying-foxes as a food source.

There are no other threatened fauna species considered likely to utilise the planted native vegetation within the development site.

## 2. Stage 2: Impact assessment

### 2.1 Prescribed biodiversity impacts

The list of potential prescribed impacts as per the BAM 2020 is provided below:

- Occurrence of karst, caves, crevices and cliffs – none occur within the development site
- Occurrence of rock – no rock outcrops or scattered rocks occur within the development site
- Occurrence of human made structures and non-native vegetation – **Yes, non-native vegetation, see section below**
- Hydrological processes that sustain and interact with the rivers, streams and wetlands – none occur within the development site
- Proposed development for a wind farm and use by species as a flyway or mitigation route – the project does not involve any wind farm development.

One exotic species (*Viburnum* sp.) was present in a narrow garden along the eastern boundary of the development site. This species is a widely cultivated species used in horticultural gardens. This species is a low lying hedge variety which does not produce abundant flowers suitable for foraging by native fauna species.

The development site has been cleared of human made structures such as culverts, bridges or buildings. Several temporary demountable buildings are located within the development site for the current construction works, however, these structures do not provide habitat for fauna species for the following reasons:

- The demountable buildings contain flat roofs which do not provide cavities for threatened fauna species such as microbats.
- The demountable buildings consist of corrugated iron which does not provide suitable habitat for fauna species due to radiant heat.
- The demountable buildings are located within a construction site within a highly urbanised environment which does not contain suitable habitat for threatened fauna species.

The demountable buildings and exotic vegetation were not considered a prescribed impact. Justification is provided in Table 7.

**Table 7: Prescribed biodiversity impacts**

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities effected
Impacts of development on the habitat of threatened species or ecological communities associated with:	The development site contains non-native vegetation in the form of one horticultural species.	The exotic vegetation does not produce suitable fruiting or flowering resources for threatened species. Due to the low-lying nature of the vegetation the vegetation does not provide foraging resources for Grey-headed Flying-fox.
<ul style="list-style-type: none"> <li>• karst, caves, crevices, cliffs and other geological features of significance, or</li> <li>• rocks, or</li> <li>• human made structures, or</li> <li>• non-native vegetation</li> </ul>	The development site contains demountable buildings.	The demountable buildings do not provide roosting habitat for threatened microbat species.

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities effected
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	The proposed development does not support connectivity corridors to different areas of habitat. The exotic vegetation does not facilitate the movement of threatened species across their ranges.	N/A
Impacts of development on movement of threatened species that maintains their lifecycle	The proposed development will not impact upon the movement of threatened species as threatened species are not considered likely to utilise the development site.	N/A
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)	The development site does not contain water bodies that sustain threatened species or threatened ecological communities.	N/A
Impacts of vehicle strikes on threatened species or on animals that are part of a TEC	Although the development may result in an increase in motor vehicles within the site, the development site does not contain threatened species or animals which are part of a TEC.	N/A

#### 2.1.1.1 Locating and designing a project to avoid and minimise prescribed biodiversity impacts

The development has been located in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 8.

**Table 8: Locating and designing a project to avoid and minimise prescribed biodiversity impacts**

Approach	How addressed	Justification
Locating the envelope of surface works to avoid direct impacts on the habitat features	The development does not contain habitat features such as tree hollows, nesting or foraging resources for threatened fauna species.	The development site has been cleared of vegetation and does not contain habitat features.
Locating the envelope of sub-surface works, both in the horizontal and vertical plane, to avoid and minimise operations beneath the habitat features, e.g. locating long wall panels away from geological features of significance or water dependent plant communities and their supporting aquifers	The development will not involve impacts to geological features of significance or water dependent plant communities and supporting aquifers.	There are no geographic features of significance or water dependent plant communities recorded within, under or adjacent to the development site.
Locating the project to avoid severing or interfering with corridors connecting different areas of habitat, migratory flight paths to important habitat or preferred local movement pathways	The development site does not contain connectivity corridors to different areas of habitat.	The development site is in a highly urbanised environment which lacks habitat features including connectivity to other habitats.

Approach	How addressed	Justification
Optimising project layout to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbine layout to allow buffers around features that attract and support aerial species, such as forest edges, riparian corridors and wetlands, ridgetops and gullies	The development does not involve interactions with threatened species and ecological communities. Some peri-urban species which are also listed as protected species may occasionally utilise the development site, post construction following landscaping works. However, the project design will not impact upon these species.	The project will not affect threatened or protected species or ecological communities.
Locating the project to avoid direct impacts on water bodies	The development is not located near water bodies.	N/A
Engineering solutions, e.g. proven techniques to minimise fracturing of bedrock underlying features of geological significance, water dependent communities and their supporting aquifers; proven engineering solutions to restore connectivity and favoured movement pathways	The development does not involve bedrock of geological significance, water dependent communities and their aquifers.	N/A
Design of the project to maintain environmental processes critical to the formation and persistence of habitat features not associated with native vegetation	The development site does not maintain environmental processes critical to the formation of habitat features.	N/A
Design of the project to maintain hydrological processes that sustain threatened species and TECs	The development does not sustain hydrological processes or threatened species and TECs which rely upon hydrological processes.	N/A
Design of the project to avoid and minimise downstream impacts on rivers, wetlands and estuaries by control of the quality of water released from the site.	The development site does not involve water systems such as the interaction with rivers, wetlands or estuaries.	N/A

## 2.2 Avoiding and minimise impacts

### 2.2.1 Locating and designing a project to avoid and minimise impacts on vegetation and habitat

The development site has been cleared of vegetation and habitat as part of previous approvals.

The project does not affect vegetation and habitats within the development site as outlined in Table 9.

**Table 9: Locating and designing a project to avoid and minimise impacts on vegetation and habitat**

Approach	How addressed	Justification
Locating the project in areas where there are no biodiversity values	The project has been previously cleared of vegetation and habitat for threatened species. The project is located in areas with no biodiversity values.	The development site comprises of cleared areas and temporary demountable buildings which does not contain biodiversity values.  The development site does not contain remnant native vegetation or habitat features for threatened species.
Locating the project in areas where the native vegetation or threatened species habitat is in the poorest condition	The project is located in areas where no remnant native vegetation is present and habitat for threatened species is negligible including habitat for highly mobile species.	The project has utilised previously cleared areas which does not contain vegetation or habitat. No vegetation integrity plots were undertaken within the development site due to an absence of vegetation.
Locating the project in areas that avoid habitat for species and vegetation in high threat categories (e.g. an EEC or CEEC), indicated by the biodiversity risk weighting for a species	The project is located in areas that avoid affecting vegetation and threatened species in high threat categories.	No vegetation communities in high threat categories (EEC or CEEC) will be affected. Habitat for species in high threat categories was absent from the development site.
Locating the project such that connectivity enabling movement of species and genetic material between areas of adjacent or nearby habitat is maintained	The project does not affect connectivity values surrounding the development site. The development site is within a highly fragmented landscape. No connectivity for mobile species was recorded between the development site and adjacent habitat.	The development site is located within a fragmented, urbanised landscape. No large areas of habitat are present adjacent to the site. No vegetation within the development site was recorded as habitat for highly mobile threatened species such as Grey-headed Flying-fox. The development would not prevent highly mobile species from moving across the landscape. The development is unlikely to disturb any connecting habitat that would prevent highly mobile species moving genetic material between large areas of habitat.
Reducing the clearing footprint of the project	The development will occupy the entirety of the development footprint.	The development site has previously been cleared of vegetation and habitat features. Therefore, the project design is not required to considered ways to avoid or minimise impacts to vegetation or habitat features.

Approach	How addressed	Justification
Locating ancillary facilities in areas where there are no biodiversity values	Ancillary facilities will be located within cleared areas with no biodiversity value.	No additional biodiversity values will be affected for ancillary features.
Locating ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower vegetation integrity score)	Ancillary features will be located within cleared areas with no vegetation integrity score.	The development site does not contain vegetation. Therefore, a vegetation integrity plot was not located within the development site. One plot was undertaken directly east of the development site. This plot represents a larger patch of planted native vegetation and had a low vegetation integrity score. No vegetation will be removed because of ancillary features.
Locating ancillary facilities in areas that avoid habitat for species and vegetation in high threat status categories (e.g. an EEC or CEEC)	Ancillary features are not located in areas containing species habitat or vegetation in high threat status categories.	Ancillary features will be located within the operational footprint and will not impact on native vegetation or threatened species habitat in high threat status categories.
Providing structures to enable species and genetic material to move across barriers or hostile gaps	Not deemed necessary as connectivity is negligible within the development site.	The development site is located within a fragmented and urbanised landscape. No connectivity exists between the development site and areas of habitat in the locality.
Making provision for the demarcation, ecological restoration, rehabilitation and/or ongoing maintenance of Retained native vegetation habitat on the development site.	Proponent to protect all remaining vegetation outside of the development site footprint.	The proponent will demarcate all areas outside the development site boundary as no go areas to avoid impacts occurring to adjacent street trees to be retained.

## 2.3 Assessment of Impacts

In accordance with Table 28 of Appendix L for *Streamlined assessment module – planted native vegetation* an assessment of impacts on threatened species habitat must be considered including a description of threatened species habitats (Section 8.1) and description of the nature and extent of indirect impacts (as per Section 8.2 of BAM 2020). The following sections have addressed these requirements for the streamline assessment D1 and D2.

### 2.3.1 Direct impacts

The development footprint will affect 0.007 ha of exotic vegetation. The remaining area within the development site is cleared lands which do not contain native vegetation, threatened species habitat or prescribed impacts affecting threatened species.

### 2.3.2 Indirect impacts

The indirect impacts of the development are considered to be marginal and are outlined in Table 10. Indirect impacts on native vegetation and species habitat are described in the BAM Operational Manual Stage 2 (DPIE 2020), and include possible increases in noise, dust, light spill, weeds / pathogens and edge effects that can be reasonably attributed to the development.

The development footprint is located within a broader development site which is subject to current or future development. The development site does not contain adjoining remnant vegetation communities or habitat for threatened species. Some impacts relating to noise and dust may occur during the construction phase, however, these impacts are likely unlikely to disturb or impact threatened species and their habitats. Although the indirect impacts are minimal, mitigation measures provided in Section 2.4 below are standard environmental practice.

**Table 10: Indirect impacts**

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
Sedimentation and contaminated and/or nutrient rich run-off	Construction	Runoff during construction works. Changes in surface water flow including water quality and flow rates due to hard surfaces of new development.	Confined to development site with sediment fencing	During heavy rainfall or storm events	During rainfall events	Short-and long term impacts
Noise, dust or light spill	Construction	Noise and dust created from machinery (no night works proposed therefore no light spill).	Noise and dust likely to carry beyond development site boundary.	Daily, during construction works	Sporadic throughout construction period	Short-and long-term impacts
Inadvertent impacts on adjacent habitat or vegetation	Construction / operation	Damage to adjacent street trees.	Limited to retained street trees	Daily, during construction works	Throughout construction period On-going	Short-and-term impacts

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
Transport of weeds and pathogens from the site to adjacent vegetation	Construction	Spread of weed seed or pathogens	Limited to highly urbanised areas along road verge	Daily, during construction works	Sporadic throughout construction period	Potentially long-term impacts
Vehicle strike	Construction / operation	Limited potential for native fauna to be struck by working machinery and moving vehicles	Within development site	Daily, during both construction and operational phases.	Throughout life of project	Short-term impacts
Rubbish dumping	Construction / operation	Potential for rubbish to spread outside of development site if appropriate waste management practices are not implemented.	Within the development site and spread to adjacent properties.	Daily, during both construction and operational phases.	Throughout life of project	Short-term impacts
Disturbance to specialist breeding and foraging habitat	Construction / operation	No fauna habitat recorded within the development site.	Outside of development site.	Daily, during construction and operation phases.	Throughout life of project	Short term and long-term impacts.
Displacement of native fauna species	Construction	No fauna habitat recorded within the development site.	N/A	Construction and operational phase	Throughout project	Long- and short-term impacts



## 2.4 Mitigating and managing impacts

Measures proposed to mitigate and manage impacts at the development site before, during and after construction are outlined in Table 11.

**Table 11: Measures proposed to mitigate and manage impacts**

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	Moderate	Minor	Appropriate controls are to be utilised to manage exposed soil surfaces and stockpiles to prevent sediment discharge into waterways.  Soil and erosion measures such as sediment fencing, clean water diversion must be in place prior the commencement of the construction work.	Erosion and sedimentation risks controlled	For the duration of the construction works	Project Manager
Prevent impacts of noise, dust and light spill on fauna species	Moderate	Minor	Construction lights or development lights should be positioned to prevent shine into proposed new landscaped vegetation.  Noise should be limited to construction hours only.  Dust should be managed through appropriate dust control management plan.	Avoid impacts from artificial lighting on nocturnal or diurnal species.  Reduction of noise outside of operation hours.  Management of dust.	For the duration of the construction works and long-term	Project Manager
Prevent the dumping of rubbish found on site	Minor	Negligible	Waste bins to be present on site. Covers to be used to prevent blown litter and the entry of pest animals or rain. Removal and appropriate disposal of general.	Dumping of rubbish during construction prevented	For the duration of the construction works	Project Manager
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Moderate	Minor	Vehicles, machinery and building refuse should remain only within the development site.  Washdown protocols for vehicles should be observed to prevent the entry of soil borne pathogens such as Phytophthora.	Spread of weeds prevented  Spread of pathogens and disease	Prior to and during clearing works	Project Manager

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
			<p>Weed management to be undertaken where required.</p> <p>Weeds should be removed and handled in accordance with relevant Biosecurity Act protocols if high threat weeds are present.</p>			
Staff training and site briefing to communicate environmental measures to be implemented	Minor	Negligible	<p>Construction staff to be briefed prior to work commencing to be made aware of any sensitive biodiversity values present and environmental procedures such as:</p> <ul style="list-style-type: none"> <li>• Site environmental procedures (sediment and erosion control, exclusion fencing and weeds)</li> <li>• What to do in case of environmental emergency (chemical spills, fire, injured fauna)</li> <li>• Key contacts in case of environmental emergency.</li> </ul>	All staff entering the development site are fully aware of environmental aspects relating to the development and know what to do in case of any environmental emergencies.	To occur for all staff entering/working at the development site. Site briefings should be updated based on phase of the work and when environmental issues become apparent.	Project Manager
Making provision for the ecological restoration	Minor	Negligible	It is recommended that landscaping in the development site considers the use locally derived native species and those found within PCT 1793.	Areas within the development site will be landscaped using appropriate species	Throughout construction and following completion of construction activities.	Project Manager

## 2.5 Impact summary

In accordance with Table 28 of Appendix L of the BAM 2020, *Chapter 9 assessing and offsetting impacts of the development* applies to planted native vegetation if D1(1.i) applies. However, the assessment of the planted native vegetation (as described in Table 6) determined that the vegetation did not require the retirement of ecosystem credits. An assessment of D2 *Threatened species habitats* has determined that the development site does not provide habitat for threatened species. The retirement of species credit species is not required.

### 2.5.1 Areas not requiring assessment

Areas not requiring assessment within the development site include those mapped as exotic vegetation (0.007 ha) and 1.05 ha of cleared lands. Exotic areas consist of a small hedge along the eastern boundary. Areas not requiring assessment area shown on Figure 6.

### 2.5.2 Serious and Irreversible Impacts (SAII)

The development site does not contain candidate entities subject to Serious and Irreversible Impacts (SAII).

### 2.5.3 Biodiversity credits for prescribed impacts

In accordance with Section 8.6 of the BAM 2020 the retirement of biodiversity credits may be used in conjunction with other conservation measures to mitigate prescribed impacts or indirect impacts of a proposal on areas of native vegetation, TECs and/or threatened species or their habitat adjacent to the development site. Additionally, where actions are described in an adaptive management plan for a prescribed impact which are considered high risk, measures to secure offsets in the event of failure can be proposed in the BDAR. These measures may include the retirement of credits or conservation measures that may benefit the threatened entity.

The project does not contain prescribed impacts and as such the application of biodiversity credits for prescribed impacts will not be undertaken for this project.

**Area Not Requiring Assessment** **Sydney Children's Hospital Stage 1 BDAR**



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="border: 2px solid red; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Development Site</li> <li><span style="border: 2px dashed yellow; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Development Footprint</li> <li><span style="background-color: lightcoral; display: inline-block; width: 20px; height: 10px; margin-right: 5px;"></span> Area Not Requiring Assessment</li> </ul>	<p>Location: Randwick, NSW              Lot/DP: 18,19,35,52/7745, 1/300666,              1/307266, 1/741639, 1/74860, 1/870720,              100/1249692, 11-12/806091, 1-12/13995,              1-14/12909, 1-2/1182570, 1-2/501682,              1-2/522596, 1-2/590480, 1-3/11351,              1-7/13997, 2/1134643, 23A-23B/434935,              3/302329, 32/667518, 3-4/513339, 7/975640,              A-B/102029, A-B/303478, A-B/439101,              A-B/439756, A-B/441943, A-D/167106,              A-D/304806, A-D/440501, A-F/33161, X-Y/445567              Date Prepared: 21/04/2021</p>	<p>0 10 20 40 Metres</p> <p>Datum/Projection: GDA 1994 MGA Zone 56</p> <p>Image captured: 02/08/2020</p> <p><b>nearmap</b> i.com</p> <p><b>eco logical</b> AUSTRALIA A TETRA TECH COMPANY</p>
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**Figure 6: Areas not requiring assessment**



## 2.6 Consistency with legislation and policy

Additional matters relating to impacts on flora and fauna which are not covered by the BC Act must also be addressed for the proposed development. Potential Matters of National Environmental Significance (MNES) in accordance with the EPBC Act have been addressed in Section 2.6.1 below.

### 2.6.1 *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. Under the Act, any action which 'has, will have, or is likely to have a significant impact on a matter of MNES' is defined as a controlled action, and requires approval from the Commonwealth DAWE, which is responsible for administering the EPBC Act.

The process includes undertaking an impact assessment for listed MNES that will be affected as a result of the proposed action. Significant impact guidelines that outline several criteria have been developed by the Commonwealth.

The development site lacks suitable habitat for threatened species listed under the EPBC Act. Therefore, no Assessment of Significance was required. A habitat assessment and Likelihood of Occurrence concluded that a referral under the EPBC Act is not required (Appendix D).

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ELA 2018a. Randwick Campus Demolition and Site Clearance – Flora and Fauna Assessment.

ELA 2018b. Randwick Campus Redevelopment Stage 1 – Biodiversity Development Assessment Report

ELA 2020. Hospital Road REF Works. Prepared for Health Infrastructure.

## Appendix A Definitions

Terminology	Definition
<b>Biodiversity credit report</b>	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site.
<b>BioNet Atlas</b>	The BioNet Atlas (formerly known as the NSW Wildlife Atlas) is the OEH database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails) and some fish
<b>Broad condition state:</b>	Areas of the same PCT that are in relatively homogenous condition. Broad condition is used for stratifying areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score.
<b>Connectivity</b>	The measure of the degree to which an area(s) of native vegetation is linked with other areas of vegetation.
<b>Credit Calculator</b>	The computer program that provides decision support to assessors and proponents by applying the BAM, and which calculates the number and class of biodiversity credits required to offset the impacts of a development or created at a biodiversity stewardship site.
<b>Development</b>	Has the same meaning as development at section 4 of the EP&A Act, or an activity in Part 5 of the EP&A Act. It also includes development as defined in section 115T of the EP&A Act.
<b>Development footprint</b>	The area of land that is directly impacted on by a proposed development, including access roads, and areas used to store construction materials.
<b>Development site</b>	An area of land that is subject to a proposed development that is under the EP&A Act.
<b>Ecosystem credits</b>	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development site and the gain in biodiversity values at a biodiversity stewardship site.
<b>High threat exotic plant cover</b>	Plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species.
<b>Hollow bearing tree</b>	A living or dead tree that has at least one hollow. A tree is considered to contain a hollow if: (a) the entrance can be seen; (b) the minimum entrance width is at least 5 cm; (c) the hollow appears to have depth (i.e. you cannot see solid wood beyond the entrance); (d) the hollow is at least 1 m above the ground. Trees must be examined from all angles.
<b>Important wetland</b>	A wetland that is listed in the Directory of Important Wetlands of Australia (DIWA) and SEPP 14 Coastal Wetlands
<b>Linear shaped development</b>	Development that is generally narrow in width and extends across the landscape for a distance greater than 3.5 kilometres in length
<b>Local population</b>	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately.
<b>Local wetland</b>	Any wetland that is not identified as an important wetland (refer to definition of Important wetland).
<b>Mitchell landscape</b>	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000.



Terminology	Definition
<b>Multiple fragmentation impact development</b>	Developments such as wind farms and coal seam gas extraction that require multiple extraction points (wells) or turbines and a network of associated development including roads, tracks, gathering systems/flow lines, transmission lines
<b>Operational Manual</b>	The Operational Manual published from time to time by OEH, which is a guide to assist assessors when using the BAM
<b>Patch size</b>	An area of intact native vegetation that: a) occurs on the development site or biodiversity stewardship site, and b) includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or $\leq 30$ m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or stewardship site.
<b>Proponent</b>	A person who intends to apply for consent to carry out development or for approval for an activity.
<b>Reference sites</b>	The relatively unmodified sites that are assessed to obtain local benchmark information when benchmarks in the Vegetation Benchmarks Database are too broad or otherwise incorrect for the PCT and/or local situation. Benchmarks can also be obtained from published sources.
<b>Regeneration</b>	The proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height $< 5$ cm within a vegetation zone.
<b>Remaining impact</b>	An impact on biodiversity values after all reasonable measures have been taken to avoid and minimise the impacts of development. Under the BAM, an offset requirement is calculated for the remaining impacts on biodiversity values.
<b>Retirement of credits</b>	The purchase and retirement of biodiversity credits from an already-established biobank site or a biodiversity stewardship site secured by a biodiversity stewardship agreement.
<b>Riparian buffer</b>	Riparian buffers applied to water bodies in accordance with the BAM
<b>Sensitive biodiversity values land map</b>	Development within an area identified on the map requires assessment using the BAM.
<b>Site attributes</b>	The matters assessed to determine vegetation integrity. They include: native plant species richness, native over-storey cover, native mid-storey cover, native ground cover (grasses), native ground cover (shrubs), native ground cover (other), exotic plant cover (as a percentage of total ground and mid-storey cover), number of trees with hollows, proportion of over-storey species occurring as regeneration, and total length of fallen logs.
<b>Site-based development</b>	a development other than a linear shaped development, or a multiple fragmentation impact development
<b>Species credits</b>	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.
<b>Subject land</b>	Is land to which the BAM is applied in Stage 1 to assess the biodiversity values of the land. It includes land that may be a development site, clearing site, proposed for biodiversity certification or land that is proposed for a biodiversity stewardship agreement.
<b>Threatened Biodiversity Data Collection</b>	Part of the BioNet database, published by OEH and accessible from the BioNet website.
<b>Threatened species</b>	Critically Endangered, Endangered or Vulnerable threatened species as defined by Schedule 1 of the BC Act, or any additional threatened species listed under Part 13 of the EPBC Act as Critically Endangered, Endangered or Vulnerable.

Terminology	Definition
<b>Vegetation Benchmarks Database</b>	A database of benchmarks for vegetation classes and some PCTs. The Vegetation Benchmarks Database is published by OEH and is part of the BioNet Vegetation Classification.
<b>Vegetation zone</b>	A relatively homogenous area of native vegetation on a development site, land to be biodiversity certified or a biodiversity stewardship site that is the same PCT and broad condition state.
<b>Wetland</b>	An area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and depend on, moist conditions for at least part of their life cycle. Wetlands may exhibit wet and dry phases and may be wet permanently, cyclically or intermittently with fresh, brackish or saline water
<b>Woody native vegetation</b>	Native vegetation that contains an over-storey and/or mid-storey that predominantly consists of trees and/or shrubs

## Appendix B Vegetation plot data

**Table 12: Species matrix (species recorded by plot)**

Stratum	Form Group	Species name	Exotic (*)	High Threat Weed (*)	Plot 1 Cover %	Plot 1 Cover A
U	TG	<i>Agapanthus</i> spp.	*		0.3	10
		<i>Angophora costata</i>			15	2
		<i>Asparagus aethiopicus</i>	*	*	0.1	1
		<i>Callisia fragrans</i>	*		0.1	5
		<i>Celtis sinensis</i>	*		0.1	2
G	FG	<i>Cinnamomum camphora</i>	*	*	0.1	2
		<i>Cotula australis</i>			0.1	1
		<i>Dietes</i> spp.			0.1	3
U	TG	<i>Ehrharta erecta</i>	*		0.2	20
		<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>			0.1	1
		<i>Hedychium gardnerianum</i>	*		0.5	5
		<i>Hibbertia scandens</i>			0.1	2
		<i>Jasminum polyanthum</i>	*		0.5	5
G	OG	<i>Liriope</i> spp.	*		0.1	1
		<i>Lomandra</i> spp.			0.2	1
		<i>Morus alba</i>	*		0.1	1
		<i>Ochna serrulata</i>	*	*	0.1	1
	GG	<i>Olea europaea</i> subsp. <i>cuspidata</i>	*	*	0.1	5
		<i>Schefflera</i> spp.	*		0.5	1
		<i>Solanum nigrum</i>	*		0.1	1

Stratum	Form Group	Species name	Exotic (*)	High Threat Weed (*)	Plot 1 Cover %	Plot 1 Cover A
M	SG	<i>Sonchus oleraceus</i>	*		0.2	10
		<i>Syagrus</i> spp.	*		0.1	5
		<i>Syzygium</i> spp.			5	1
		<i>Ulmus</i> spp.	*		5	2
		<i>Viburnum</i> spp.	*		3	20

KEY: U = UPPER, M= MIDDLE, G = GROUND. EG = FERN, FG = FORB, GG = GRASS & GRASSLIKE, OG = OTHER, SG = SHRUB, TG = TREE

**Table 13: Vegetation integrity data (composition, structure and function)**

Plot location data							
Plot no.	PCT	Vegetation Zone	Condition	Zone	Easting	Northing	Bearing (°)
1	-	-	Planted	56	33.91716	151.23800	185

#### Composition (number of species)

Plot no.	Tree	Forb	Shrub	Grass	Other	Fern
1	2	2	1	1	1	0

#### Structure (Total cover %)

Plot no.	Tree	Forb	Shrub	Grass	Other	Fern
1	15.1	0.2	5	0.2	0.1	0

#### Function

Plot no.	Large Trees (dbh > 80 cm)	Hollow trees	Litter Cover (%)	Length Fallen Logs (m)	Tree Stem 5-9 cm	Tree Stem 10-19 cm	Tree Stem 20-29 cm	Tree Stem 30-49 cm	Tree Stem 50-79 cm	Tree Stem 80+ cm	Tree Regen	High Threat Weed Cover (%)
1	0	0	44	0	0	0	0	1	0	0	1	0.5

FOR STEM SIZE CLASSES: 0 = ABSENCE, 1 = PRESENCE.



## Appendix C Plot photos



**Photo 3: Left start and Right end of Plot 1 outside of development site in planted native vegetation**

## Appendix D EPBC Act Likelihood of Occurrence

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the Protected Matters Search Tool. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- ‘known’ = the species was or has been observed on the site
- ‘likely’ = a medium to high probability that a species uses the site
- ‘potential’ = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- ‘unlikely’ = a very low to low probability that a species uses the site
- ‘no’ = habitat within the study area and in the vicinity is unsuitable for the species.

A test of significance was conducted for threatened species or ecological communities that were recorded within the study area or had a higher likelihood of occurring and were not recorded during the site visit. It is noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the study area intermittently for foraging. For these fauna species, the habitat present and likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, a test of significance in reference to Commonwealth legislation was not considered necessary.

Information provided in the habitat associations’ column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Data Collection.

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
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## FAUNA

<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions. Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of <i>Casuarina cunninghamiana</i> (River Oak).	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	Found over most of NSW except for the far north-west. Permanent freshwater wetlands with tall, dense vegetation, particularly <i>Typha</i> spp. (bullrushes) and <i>Eleocharis</i> spp. (spikerushes).	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes. Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Dasyurus maculatus</i> (SE mainland population)	Spotted-tail Quoll	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Unlikely - suitable habitat not identified within the site.	N/A	No.

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Falco hypoleucos</i>	Grey Falcon	V	Occurs in arid environments including acacia shrublands and near timbered lowland plains and watercourses.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Grantiella picta</i>	Painted Honeyeater	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas. Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	South eastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Hirundapus caudacutus</i>	White-throated Needletail	M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	V	Largely confined to Triassic and Permian sandstones within the coast and ranges in an area within approximately 250 km of Sydney. Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Heath or open forest with a heathy understorey on sandy or friable soils.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Lathamus discolor</i>	Swift Parrot	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes. Box-ironbark forests and woodlands.	Unlikely - suitable habitat not identified within the site.	N/A	No – impacts are negligible for this mobile species.

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Litoria aurea</i>	Green and Golden Frog	V	Since 1990, recorded from ~50 scattered sites within its former range in NSW, from the north coast near Brunswick Heads, south along the coast to Victoria. Records exist west to Bathurst, Tumut and the ACT region. Marshes, dams and stream-sides, particularly those containing <i>Typha</i> spp. (bullrushes) or <i>Eleocharis</i> spp. (spikerushes). Some populations occur in highly disturbed areas.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Macquaria australasica</i>	Macquarie Perch	E	Habitat for this species is bottom or mid-water in slow-flowing rivers with deep holes, typically in the upper reaches of forested catchments with intact riparian vegetation. Macquarie Perch also do well in some upper catchment lakes. In some parts of its range, the species is reduced to taking refuge in small pools which persist in midland–upland areas through the drier summer periods.	Unlikely - suitable habitat not identified within the site.	N/A	No.
<i>Neophema chrysogaster</i>	Orange-bellied Parrot	CE	Winter habitat is mostly within 3 km of the coast in sheltered bays, lagoons, estuaries, coastal dunes and saltmarshes. Also small islands and peninsulas, saltworks, golf courses, low samphire herbland and taller coastal shrubland.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Numenius madagascariensis</i>	Eastern Curlew	CE	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Petauroides volans</i>	Greater Glider	V	This population on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway and cleared land exceeding 700 m in width to the west. Eucalypt forests and woodlands.	Unlikely - suitable habitat not identified within the site.	N/A	No



Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and ACT)	Koala (combined populations of Qld, NSW and ACT)	V	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. There are sparse and possibly disjunct populations in the Bega District, and at several sites on the southern tablelands. Eucalypt woodlands and forests.	Unlikely - suitable habitat not identified within the site.	Unlikely	No
<i>Prototroctes maraena</i>	Australian Grayling	V	Historically, this species inhabited coastal streams from the Grose River southwards through NSW, VIC and TAS. On the mainland, this species has been recorded from rivers flowing east and south of the main dividing range. This species spends only part of its lifecycle in freshwater, mainly inhabiting clear, gravel-bottomed streams with alternating pools and riffles, and granite outcrops. Grayling migrate between freshwater streams and the ocean and as such it is generally accepted to be a diadromous species (migratory between fresh and saltwaters).	Unlikely - suitable habitat not identified within the site.	No	No
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	Fragmented distribution across eastern NSW. Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria. Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Unlikely – no breeding or sheltering habitat on site. seasonal foraging habitat available within the study area. No camps identified within study area.	N/A	No
<i>Rostratula australis</i>	Australian Painted Snipe	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Swamps, dams and nearby marshy areas.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Synemon plana</i>	Golden Moth	Sun CE	It is found in native open temperate grasslands and open grassy woodlands dominated by <i>Austrodanthonia</i> spp.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thinornis rubricollis rubricollis</i>	Hooded Plover (eastern)	V	This species utilises sandy beaches along south-eastern Australia.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Xenus cinereus</i>	Terek Sandpiper	M	A rare migrant to the eastern and southern Australian coasts. The two main sites in NSW are the Richmond River estuary and the Hunter River estuary. Mudbanks and sandbanks near mangroves, rocky pools and reefs, and occasionally up to 10 km inland around brackish pools.	Unlikely - suitable habitat not identified within the site.	N/A	No

## FLORA

<i>Acacia terminalis subsp. terminalis</i>	Sunshine Wattle	E1	Limited mainly to near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay. It grows in coastal scrub and dry sclerophyll woodland on sandy soils.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Allocasuarina glareicola</i>	-	E	Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool. Castlereagh woodland on lateritic soil. Found in open woodland with <i>Eucalyptus parramattensis</i> , <i>Eucalyptus fibrosa</i> , <i>Angophora bakeri</i> , <i>Eucalyptus sclerophylla</i> and <i>Melaleuca decora</i> .	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Asterolasia elegans</i>	-	E	Occurs north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Likely to occur in the western part of Gosford local government area. Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	V	Currently known from two disjunct areas; one population near Braidwood on the Southern Tablelands and three populations in the Wyong area on the Central Coast. Grassy sclerophyll woodland on clay loam or sandy soils, or low woodland with stony soil.	Unlikely - suitable habitat not identified within the study area.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	V	in NSW, recorded mainly on coastal and near coastal ranges north from Victoria to near Forster, with two isolated occurrences inland north-west of Grafton. Coastal heathlands, margins of coastal swamps and sedgeland, coastal forest, dry woodland, and lowland forest.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Dichanthium setosum</i>	Bluegrass	V	In NSW, found on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes.  Grows in cleared woodland, grassy roadside remnants and highly disturbed pasture, on heavy basaltic black soils and red-brown loams with clay subsoil.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	V	Narrow band from the Raymond Terrace area south to Waterfall. Coastal heath on shallow sandy soils overlying Hawkesbury sandstone, mostly on exposed sandy ridges.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	V	In NSW it is known from Walcha-Niangala region (east of Tamworth) to just north of Glen Innes in NSW. This species is sparsely distributed but most commonly occurs in the central portions of its range.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Eucalyptus scoparia</i>	Wallangarra White Gum	V	Open eucalypt forest, woodland and heaths on well-drained granite/rhyolite hilltops, slopes and rocky outcrops, typically at high altitudes.	Unlikely - suitable habitat not identified within the study area.	N/A	No
<i>Genoplesium baueri</i>	Bauer's Midge Orchid	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens. Dry sclerophyll forest and moss gardens over sandstone.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	Only found in NSW, populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north. Damp places, often near streams or low-lying areas on alluvial soils.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Melaleuca deanei</i>	Deane's Paperbark	V	Ku-ring-gai/Berowra area, Holsworthy/Wedderburn area, Springwood (in the Blue Mountains), Wollemi National Park, Yalwal (west of Nowra) and Central Coast (Hawkesbury River) areas. Heath on sandstone.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Persicaria elatior</i>	Tall Knotweed	V	In south-eastern NSW recorded from Mt Dromedary, Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, and Picton Lakes. In northern NSW known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). Beside streams and lakes, swamp forest or disturbed areas.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Persoonia hirsuta</i>	Hairy Geebung	E	Scattered distribution around Sydney, from Singleton in the north, along the east coast to Bargo in the south and the Blue Mountains to the west. Sandy soils in dry sclerophyll open forest, woodland and heath on sandstone.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pimelea curviflora</i> var. <i>curviflora</i>	-	V	Confined to the coastal area of the Sydney and Illawarra regions between northern Sydney and Maroota in the north-west and Croom Reserve near Albion Park in the south. Woodland, mostly on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Pimelea spicata</i>	Spiked flower	Rice-E	Two disjunct areas; the Cumberland Plain (Marayong and Prospect Reservoir south to Narellan and Douglas Park) and the Illawarra (Landsdowne to Shellharbour to northern Kiama). Well-structured clay soils. <i>Eucalyptus moluccana</i> (Grey Box) communities and in areas of ironbark on the Cumberland Plain. Coast Banksia open woodland or coastal grassland in the Illawarra.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Prostanthera marifolia</i>	Seaforth Mintbush	CE	Only known from the northern Sydney suburb of Seaforth. In or in close proximity to the endangered Duffys Forest ecological community, on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses.	Unlikely - suitable habitat not identified within the site.	N/A	No

Scientific Name	Common Name	EPBC Act Status	Distribution and Habitat	Likelihood of occurrence on site	Habitat on site directly or indirectly impacted	Impact Assessment Required
<i>Rhizanthella slateri</i>	Eastern Underground Orchid	E	Occurs from south-east Queensland to south-east NSW. In NSW, currently known from fewer than 10 locations, including near Bulahdelah, the Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra (DPIE 2020b). Known to occur in sclerophyll forests.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	V	Only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest. Subtropical and littoral rainforest on gravels, sands, silts and clays.	Unlikely - suitable habitat not identified within the site.	N/A	No
<i>Thesium australe</i>	Austral Toadflax	V	In eastern NSW it is found in very small populations scattered along the coast, and from the Northern to Southern Tablelands. Grassland on coastal headlands or grassland and grassy woodland away from the coast.	Unlikely - suitable habitat not identified within the site.	N/A	No

EPBC ACT STATUS: CE = CRITICALLY ENDANGERED, E = ENDANGERED, V = VULNERABLE, M = MIGRATORY



