



Biodiversity Development Assessment Report - Planted Native Vegetation Streamlined Assessment Module

**SSD-65595459 Hunter Indoor Sports Centre
24 Wallarah Road and 2 Monash Road, New Lambton**

EJE Architecture

412 King Street, Newcastle West, 2300

Prepared by:

SLR Consulting Australia

SLR Project No.: 630.031388.00001

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Revision: 1.1

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	9 August 2024	Jordan Peppin	Richard Floyd	Jeremy Pepper
1.1	19 August 2024	Jordan Peppin	Jeremy Pepper	Jeremy Pepper

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with EJE Architecture (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



Executive Summary

A State Significant Development Application (SSD-65595459) is being prepared by for the construction of the Hunter Indoor Sports Centre on the subject land at New Lambton, New South Wales. The subject land is defined as Lots 2377-2380 in Development Plan 755247, at 2 Monash Road and 24 Wallarah Road. The proposed development consists of an indoor sport centre and amenities including a carpark, access road and landscaping.

Secretary's Environmental Assessment Requirements for the Environmental Impact Statement have been requested and received. Concerning biodiversity, the Secretary's Environmental Assessment Requirements state, *inter alia*, that "*The Environmental Impact Statement must: Assess any biodiversity impacts associated with the development following the Biodiversity Conservation Act 2016 and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report, unless a waiver is granted, or the subject land is on biodiversity certified land*".

On 27 May 2024, SLR Consulting submitted a Biodiversity Development Assessment Report Waiver Request to the Biodiversity, Conservation and Science group of the Department of Climate Change, Energy, the Environment and Water. The waiver was refused on the basis of potential impacts to biodiversity values associated with planted native vegetation, necessitating the preparation of a streamlined Biodiversity Development Assessment Report for planted native vegetation module of the Biodiversity Assessment Method.

The current use of the subject land is as a recreational sporting field. The existing vegetation includes a mix of planted native vegetation (i.e. native to New South Wales) and planted non-native vegetation (i.e. exotic or non-native to New South Wales). Groundcover vegetation within the subject land includes large swards of exotic mown grasses over the sporting field, with no notable native species or weed infestations. A total of 26 planted native trees are established around the perimeter of the fields. The design of the proposed development will directly impact six trees, with 16 to be retained and a remaining four to be monitored post-construction.

The subject land does not contain any known populations of threatened species or threatened ecological communities. No suitable habitats for threatened plants exist on the subject land. Marginal to negligible foraging habitat for a narrow selection of mobile threatened fauna, in the form of scattered planted trees, occurs across the subject land. Potential habitats for threatened fauna, in terms of 'prescribed impact' features include (i) human-made structures, (ii) non-native vegetation and (iii) the adjacent storm water drain - Lambton Ker-rai Creek.

Mitigation measures have been presented to reduce the potential for indirect impacts on biodiversity values within vegetation (and associated habitats) to be retained on site as well as identified prescribed impacts. Key mitigation measures proposed are:

- Pre-clearing surveys and where necessary wildlife rescue and relocation;
- Clearing works to comply with Australian Standards (AS) 4970-2009 Protection of trees on development sites, including the implementation of tree protection zones during the construction phase;
- Implementation of erosion and sediment controls during the construction phase of the project;
- Implementation of speed limits during the construction and operational phases of the proposed development;
- Hygiene protocols to prevent the spread of weed or pathogens.



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Appendix B **Arboricultural Impact Assessment – Bark Trees and Landscapes 2024**

Appendix C **BDAR Waiver Request - Letter of Refusal**



Acronyms and Abbreviations

BAM	Biodiversity Assessment Method
BCS	Biodiversity, Conservation and Science group of the Department of Climate Change, Energy, the Environment and Water.
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offsets Scheme
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
IBRA	Interim Biogeographic Regionalisation for Australia
NSW	New South Wales
PCT	plant community type
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
TBDC	Threatened Biodiversity Data Collection
TEC	threatened ecological community



Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and Clause 6.15 of the ***BIODIVERSITY CONSERVATION ACT 2016***.

Signature: 

Date: _____ 19/08/2024 _____

BAM Assessor Accreditation No: _____ BAAS17104 _____.

This BDAR has been prepared to meet the requirements of BAM 2020. Appendix A provides an assessment of compliance with the minimum information requirements outlined in BAM Appendix L.

ii. Details and experience of author/s and contributors

Table DC1: Authors and Contributors

Name	BAM Assessor Accreditation No.	Position/Role	Tasks Performed	Relevant Qualifications
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iii. Conflict of interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest. This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature:



Date: _____ 19/08/2024 _____

BAM Assessor Accreditation no: ____ BAAS17104 _____



Stage 1: Biodiversity Assessment

1.0 Introduction

1.1 The Proposal

1.1.1 Development Overview

A State Significant Development Application (SSD-65595459) is being prepared for the construction of the Hunter Indoor Sports Centre at 2 Monash Road and 24 Wallarah Road, New Lambton, New South Wales (NSW). The proposed development consists of an indoor sport centre and amenities (car park, paths, landscaping and access road). The legislative pathway for the proposal consists of development that will require consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1.2 Location

The proposed development will occur across four lots: Lots 2377-2380 in DP 755247, at 2 Monash Road and 24 Wallarah Road, New Lambton, NSW. The subject land is located within the City of Newcastle Local Government Area (LGA). Site location and landscape context are shown in the Site Map (Figure 1) and Location Map (Figure 2).

1.1.3 Proposed Development and Subject Land

The proposed development will involve:

- Demolition of existing amenities block
- Removal of six planted trees
- Site remediation and installation of service infrastructure
- Construction of a complex consisting of 12 courts with amenities that include:
 - Up to 17,700m², comprising a ground floor of approximately 15,300m² and first floor mezzanine of 2,400m²
 - Administration spaces and retail tenancy, mezzanine level function rooms
 - Training areas
 - Nine (9) back courts and three (3) courts including a show court with retractable grandstand seating
 - High-performance training facilities (teaching space and gym)
 - Car park with 240 spaces
 - Site landscaping and pedestrian paths
 - New vehicular access and egress point to Turton Road and an internal roadway

The proposed development layout is depicted in Figure 3.

The subject land is 7.83ha and is shown in Figure 1. The subject land is located within the Sydney Basin IBRA region and Wyong IBRA subregion (NPWS 2003). The Mitchell landscape relevant to the subject land is Sydney – Newcastle Barriers and Beaches (DECC 2002). The site is relatively flat, sitting at a general 6-10m elevation. The subject land is



mapped as occurring on the podosols soil landscape of *The Soil Landscapes of Central and Eastern NSW* (NSW DCCEEW 2024a).

The Lambton Ker-rai Creek is a stormwater drain which abuts the southern boundary of the subject land. The subject land would drain into this watercourse, and then into Styx Creek, then Throsby Creek and eventually the Hunter River.

The subject land has been historically cleared of its original native vegetation and contains an existing playing field, Wallarah Oval. A total of 26 planted native trees are established around the perimeter of the fields. The proposed development will directly impact six trees, with 16 to be retained, four of which will be monitored post-construction.

1.2 Biodiversity Offsets Scheme Entry

The proposed development is classified as a State Significant Development (SSD) as per *State Environmental Planning Policy (Planning Systems) 2021*. Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS) have been requested and received. Concerning biodiversity, the SEARs state, *inter alia*, that "*The EIS must: Assess any biodiversity impacts associated with the development following the Biodiversity Conservation Act 2016 and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the subject land is on biodiversity certified land*".

On 27 May 2024, SLR Consulting submitted a BDAR Waiver Request to the Biodiversity, Conservation and Science (BCS) group of the Department of Climate Change, Energy, the Environment and Water (DCCEEW). On 19 June 2024, SLR Consulting received written notice of refusal of the BDAR Waiver from the Department of Planning, Housing and Infrastructure (Appendix C). This written notice stated that BCS and DCCEEW were not satisfied that the proposed development is not likely to have any significant impact on biodiversity values due to the presence of planted native vegetation. It was determined that a BDAR should be prepared in accordance with the streamlined assessment module for planted native vegetation of the Biodiversity Assessment Method (BAM) (DPIE 2020a; DPIE 2020b; DPE 2022; DPE 2023).

1.3 Information Sources

The following key sources and databases have been utilised for the preparation of this report:

- The NSW BioNet (NSW DCCEEW 2024b) and Protected Matters Search Tool (Commonwealth DCCEEW 2024a) for previous records of threatened species, populations, and ecological communities within a 10km radius centred on the centre of the subject land
- The NSW BioNet 'Threatened Biodiversity Data Collection' (NSW DCCEEW 2024b), Final Determinations (TSC 2024) and Species Profile and Threats Database (Commonwealth DCCEEW 2024b) for information on threatened species, populations and ecological communities
- The preliminary ecological assessment (TBE 2023) and BioNet Vegetation Classification (NSW DCCEEW 2024c) for information on the Plant Community Type (PCT)
- Biodiversity Values Mapping (NSW DCCEEW 2024d)
- Arboricultural Impact Assessment (Bark Trees & Landscapes 2024) (Appendix B)
- Terras Landscape Plan - Hunter Indoor Sport Centre (Terras 2024).





**HUNTER INDOOR SPORTS CENTRE
BDAR**

SITE MAP

FIGURE 1

LEGEND

- ▭ Subject Land
- ▨ Development Footprint
- ▭ Cadastre
- Watercourse
- Contour (mAHD)

Data Sources:
NSW SS
Aerial imagery: Nearmap (June 2024)

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 56

Scale: 1:2,000 at A4

Project Number: 630.031388

Date Drawn: 09-Aug-2024

Drawn by: JH



NEWCASTLE BASKETBALL BDAR WAIVER

LOCATION MAP

FIGURE 2

LEGEND

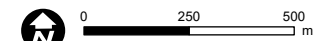
- Subject Land
- 1500m Buffer (836.01 ha)
- Native Vegetation (1.23 ha)
- IBRA Region/Subregion
- Suburb
- Local Government Area
- Major Road
- Watercourse

Mitchell Landscape

- Gcs - Gosford - Cooranbong Coastal Slopes
- Snb - Sydney - Newcastle Barriers and Beaches

Data Sources:
 NSW SS
 Aerial imagery: Nearmap (June 2024)
 Native vegetation: NSW State Vegetation Type Mapping (Version C2.0.M2.0, NSW DPE 2023)
 Mitchell Landscapes: Version 3.1, NSW DPE (2017)
 IBRA Regions: Version 7, Commonwealth DCCEEW (2012)

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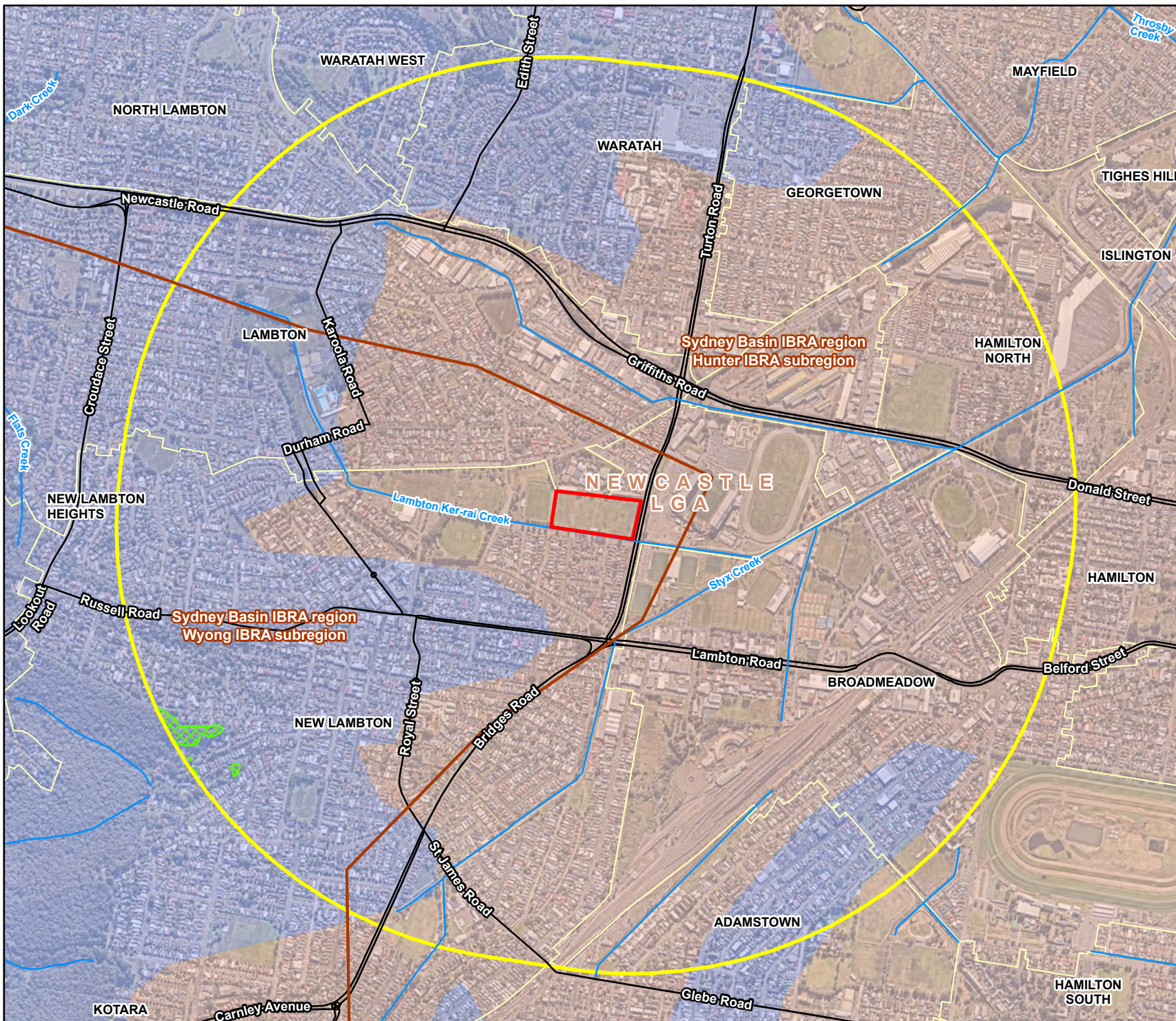
Coordinate System: GDA2020 MGA Zone 56

Scale: 1:18,000 at A4

Project Number: 630.031388

Date Drawn: 09-Aug-2024

Drawn by: JH





**HUNTER INDOOR SPORTS CENTRE
BDAR**

FINAL PROPOSAL FOOTPRINT

FIGURE 3

LEGEND

- Subject Land
- Development Footprint
- Watercourse

Tree Status

- ✕ To be removed
- To be retained
- To be retained (hollow-bearing)
- ◆ Tree to be monitored during and post construction

Data Sources:
NSW SS
Aerial imagery: Nearmap (June 2024)

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System:	GDA2020 MGA Zone 56
Scale:	1:2,000 at A4
Project Number:	630.031388
Date Drawn:	09-Aug-2024
Drawn by:	JH



2.0 Planted Native Vegetation

2.1 Decision-making Key

Assessment of whether the vegetation constitutes 'planted native vegetation' under the BAM (DPIE 2020a) is provided in Table 1.

Table 1: D1 Decision-making Key

No.	Framework	Key	Justification
1.0	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?	<input type="checkbox"/> Yes - The planted native vegetation must be allocated to the best-fit PCT, and the BAM must be applied. <input checked="" type="checkbox"/> No - Go to 2.	The planted native vegetation does not constitute a PCT. The sparse canopy trees exist with most other native strata absent and line the perimeter of the sports field. The potential for passive regeneration is considered highly unlikely.
2.0	Is the planted native vegetation: a) planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b) the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	<input type="checkbox"/> Yes - The planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM. ii. <input checked="" type="checkbox"/> No - Go to 3.	Not applicable to the proposed development and subject land.
3.0	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: a) a species recovery project b) Saving our Species project c) other types of government funded restoration project 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 e) legal obligation as part of a condition or 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) f) ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the <i>NSW Water Management Act 2000</i>)?	<input type="checkbox"/> Yes - The planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM. <input checked="" type="checkbox"/> No - Go to 4.	Not applicable to the proposed development and subject land.



No.	Framework	Key	Justification
4.0	Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	<input type="checkbox"/> 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). <input checked="" type="checkbox"/> No -Go to 5.	Not applicable to the proposed development and subject land.
5.0	Is the 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 strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms?	<input checked="" type="checkbox"/> 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). <input type="checkbox"/> No -Go to 6.	The planted native vegetation constitutes native vegetation planted for functional and aesthetic purposes. The planted trees line the perimeter of Wallarah Oval. Evidence and justification is provided below.

2.2 Evidence and Justification

A site inspection was undertaken on 18 July 2024 by a suitably qualified Ecologist. Details of the weather during the site inspection are included in Table 2. Survey effort included tree inspections and a habitat suitability assessment. Data collected includes records of tree species, threatened species habitat suitability, and presence of the following habitat features:

- Hollows
- Nest boxes
- Fissures
- Stags
- Hollow logs
- Foraging resources
- Leaf litter.

Observations regarding ecological condition of the vegetation was also recorded. Field notes and geotagged photos were collected to support the overall site characterisation and its condition.

Table 2: Weather Conditions During Site Inspection

Field Survey Dates	Temperature (°C)	Rainfall (mm)
18/07/2024	9.6 – 18.4	1.4
Weather station: Newcastle Nobbys Signal Station AWS (BoM 2024)		



3.0 Landscape Context

3.1 Assessment Area

The assessment area is the area of land within the 1,500m buffer zone surrounding the subject land and is presented in Figure 2. The assessment area covers a total of 836ha.

3.2 Landscape Features

Landscape features identified within the subject land and assessment area are shown on Figure 1 and Figure 2, respectively. A discussion of relevant landscape features is provided below.

3.2.1 General Description

A general description of subject land topographic and hydrological setting, geology and soil landscapes is provided in Section 1.1.3.

3.2.2 Existing Vegetation

The vegetation canopy within the subject land is a mix of planted native vegetation (i.e. native to NSW) and planted non-native vegetation (i.e. exotic or non-native to NSW). Groundcover vegetation (including beneath the native trees) within the subject land includes large swards of exotic mown grasses over the sporting field, with no notable native species or weed infestations.

A selection of trees occurs along and just beyond the boundary of the site. The trees within and adjacent to the subject land have been mapped and assessed as part of the accompanying Arboricultural Impact Assessment (Bark, 2024). A copy of the arborist report is provided in Appendix B.

3.2.3 IBRA Bioregions and IBRA Subregions

The subject land lies within the Sydney Basin IBRA Region and Hunter IBRA subregion on the central east coast of NSW. The Sydney Basin region occupies 4.35% of NSW and extends from just north of Batemans Bay to Nelson Bay and almost as far west as Mudgee (NPWS 2003). The region is dominated by temperate climate characterised by warm summers with no dry season.

The subject land lies wholly within the Hunter IBRA Subregion. The subregion is characterised by rolling hills and wide valleys, with a meandering river system on a wide flood plain. The geology of this subregion includes Permian shales, sandstones, conglomerates, volcanics and coal measures. Soils are a variety of harsh texture contrast soils on slopes, deep sandy loam alluvium on valley floors, deep sands on dune and organic muds in estuaries (NPWS 2003). According to NPWS (2003), the vegetation is typically composed of patches of rainforest brush in the lower valleys, mixed forest/open woodland (White Box/Forest Red Gum/Narrow-leaved Ironbark/Spotted Gum/Rough-barked Apple) in upper reaches and foothills, River Oak/River Red Gum along streams, healthy Blackbutt/Apple/Mahogany on coastal dunes and Mangrove/Saltmarsh and Freshwater Wetland in estuaries.

3.3 Native Vegetation Cover

Native vegetation cover for the assessment area has been mapped using regional vegetation mapping (NSW DCCEEW 2022) and review of aerial imagery (Nearmap 2024).



Table 2 summarises the extent of native vegetation cover within the assessment area.
Figure 2 shows native vegetation cover within the assessment area.

Table 3: Native vegetation cover in the assessment area

Assessment area (ha)	836
Total area of native vegetation cover (ha)	1.23
Percentage of native vegetation cover (%)	0.15%
Class (0-10, >10-30, >30-70 or >70%)	0-10



4.0 Threatened Species Habitat (Planted Native Vegetation)

4.1 Habitat Suitability

Incidental fauna observations were recorded and are listed in Table 3. Introduced species, the Common Starling (*Sturnus vulgaris*) was observed flying over the subject land in a group of approximately 25 individuals. Details of the site inspection and survey effort are included in Section 2.2.

The planted native vegetation within the subject land was assessed for habitat features suitable to support threatened species (Photo 1). Details regarding the presence of hollows, nests, other evidence of other habitat features and/or evidence of usage are summarised in Table 4. A hollow bearing tree (Tree 15) was observed on the southern section of the site, adjacent to Monash Road (Table 4; Photo 2). Tree 16 was observed with a forming hollow, although lacking a visible cavity (Photo 3).

The planted native vegetation within the subject land provides potential foraging and shelter habitat for native mammal species. No evidence of breeding was recorded. Local threatened species such as a Grey Headed Flying Foxes (*Pteropus poliocephalus*) and some threatened birds are known to forage on the nectar, pollen and fruits of native trees, in particular *Eucalyptus*, *Corymbia* and *Melaleuca* which are present within the subject land. The subject land also includes *Casuarina* species which are known foraging resource for the South-Eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*).

Other habitat features included the potential roosting habitat for microbat species in human-made structures including the buildings and storage containers located in the southern section of the subject land (Photo 4). No evidence of microbat utilisation was observed.

A stormwater drain (Lambton Ker-rai Creek) is located outside of the southern boundary of the subject land and constitutes potential aquatic habitat in close proximity (Photo 5). The drain infrastructure is highly modified and includes concrete bed and banks. Due to the lack of native vegetation or substrate in the channel, this habitat feature is unlikely to be utilised as breeding habitat for aquatic dependant threatened species but may constitute low quality foraging habitat for local birds, such as the Australian White Ibis (*Threskiornis moluccus*).

The overall condition of available habitat was low due to fragmentation, lack of habitat connectivity into and across the subject land, absence of native low strata cover, and frequent anthropogenic disturbance. The adjacent main road, Turton Road, exhibits frequent high intensity traffic. Fauna movement to and from the habitat within the subject land would be at high risk of vehicle strikes. The subject land contains habitat of low condition and low potential for threatened species. No evidence of threatened species was recorded.



Table 4: Incidental Fauna Observations

Common Name	Scientific Name
Australian White Ibis	<i>Threskiornis moluccus</i>
Masked Lapwing	<i>Vanellus miles</i>
Welcome Swallow	<i>Hirundo neoxena</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Magpie Lark	<i>Grallina cyanoleuca</i>
Common Starling*	<i>Sturnus vulgaris</i>

*Introduced species

Photo 1: Subject land from Monash Road (Image source: Google Streetview 2024)



Table 5: Habitat Assessment of Planted Native and Exotic Vegetation

Tree number	Tree Species	Native species in NSW (BAM 2020) (Yes/No)	Latitude	Longitude	Hollows	Nests	Other habitat features	Removal status
1	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'8.00"S	151°43'26.57"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be removed
2	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'8.57"S	151°43'26.40"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be retained
3	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'8.79"S	151°43'26.35"E	Nil	Nil	Potential shelter and foraging habitat tree	To be retained
4	<i>Lophostemon confertus</i>	Yes	32°55'9.10"S	151°43'26.32"E	Nil	Nil	Potential foraging habitat.	To be retained
5	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'9.31"S	151°43'26.20"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be retained
6	<i>Melaleuca quinquenervia</i>	Yes	32°55'9.57"S	151°43'26.16"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be retained
7	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'10.17"S	151°43'25.98"E	Nil	Nil	Potential shelter and foraging habitat tree.	Tree to be monitored during and post construction.
8	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'10.45"S	151°43'25.89"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be retained
9	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'10.84"S	151°43'25.86"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be removed
10	<i>Corymbia citriodora</i>	Yes	32°55'10.84"S	151°43'25.86"E	Nil	Nil	Scratches on base of tree indicates infrequent usage by arboreal species.	To be removed
11	<i>Ficus microcarpa var. hillii</i>	Yes	32°55'11.33"S	151°43'25.67"E	Nil	Nil	Potential shelter and foraging habitat tree.	To be removed



Tree number	Tree Species	Native species in NSW (BAM 2020) (Yes/No)	Latitude	Longitude	Hollows	Nests	Other habitat features	Removal status
12	<i>Callistemon viminalis</i>	Yes	32°55'11.28"S	151°43'25.51"E	Nil	Nil	Potential foraging habitat.	To be removed
13	<i>Casuarina cunninghamiana</i>	Yes	32°55'11.35"S	151°43'22.06"E	Nil	Nil	Potential foraging habitat.	To be retained
14	<i>Casuarina cunninghamiana</i>	Yes	32°55'11.31"S	151°43'21.79"E	Nil	Nil	Potential foraging habitat.	To be retained
15	<i>Casuarina cunninghamiana</i>	Yes	32°55'11.32"S	151°43'21.61"E	Yes	Nil	Medium sized hollow with visible cavity (Photo 1).	To be retained
16	<i>Casuarina glauca</i>	Yes	32°55'11.31"S	151°43'21.25"E	Yes	Nil	Hollow forming (Photo 2) with very shallow cavities.	Tree to be monitored during and post construction.
17	<i>Melaleuca quinquenervia</i>	Yes	32°55'11.12"S	151°43'21.25"E	Nil	Nil	Potential foraging habitat.	To be removed
18	<i>Casuarina cunninghamiana</i>	Yes	32°55'11.22"S	151°43'21.01"E	Nil	Nil	Potential foraging habitat.	To be retained
19	<i>Melaleuca quinquenervia</i>	Yes	32°55'10.94"S	151°43'18.16"E	Nil	Nil	Potential foraging habitat.	To be retained
A*	<i>Liquidambar formosana</i>	No	32°55'7.57"S	151°43'26.65"E	Nil	Nil	Potential foraging habitat.	To be retained
B*	<i>Callistemon viminalis</i>	Yes	32°55'7.40"S	151°43'24.96"E	Nil	Nil	Potential foraging habitat.	To be retained
C*	<i>Callistemon viminalis</i>	Yes	32°55'7.42"S	151°43'23.94"E	Nil	Nil	Potential foraging habitat.	To be retained
D*	<i>Populus nigra</i> 'Italica'	No	32°55'7.33"S	151°43'23.28"E	Nil	Nil	Introduced species. Potential foraging habitat.	To be retained
E*	<i>Populus nigra</i> 'Italica'	No	32°55'7.34"S	151°43'23.18"E	Nil	Nil	Introduced species. Potential foraging habitat.	To be retained
F*	<i>Melaleuca quinquenervia</i>	Yes	32°55'7.20"S	151°43'22.04"E	Nil	Nil	Potential shelter and foraging habitat tree.	Tree to be monitored during and post construction.



Tree number	Tree Species	Native species in NSW (BAM 2020) (Yes/No)	Latitude	Longitude	Hollows	Nests	Other habitat features	Removal status
G*	<i>Eucalyptus robusta</i>	Yes	32°55'6.90"S	151°43'20.20"E	Nil	Nil	Potential shelter and foraging habitat tree.	Tree to be monitored during and post construction.



Photo 2: Tree 15 with Hollow

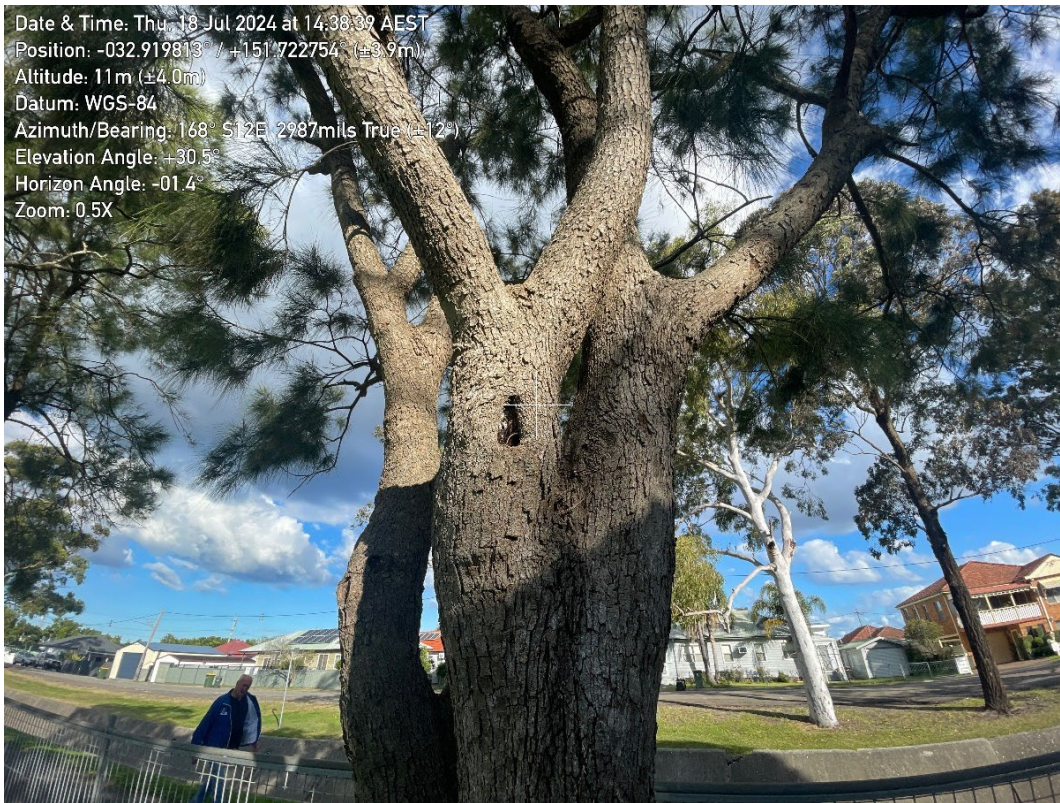


Photo 3: Tree 16 with Forming Hollow

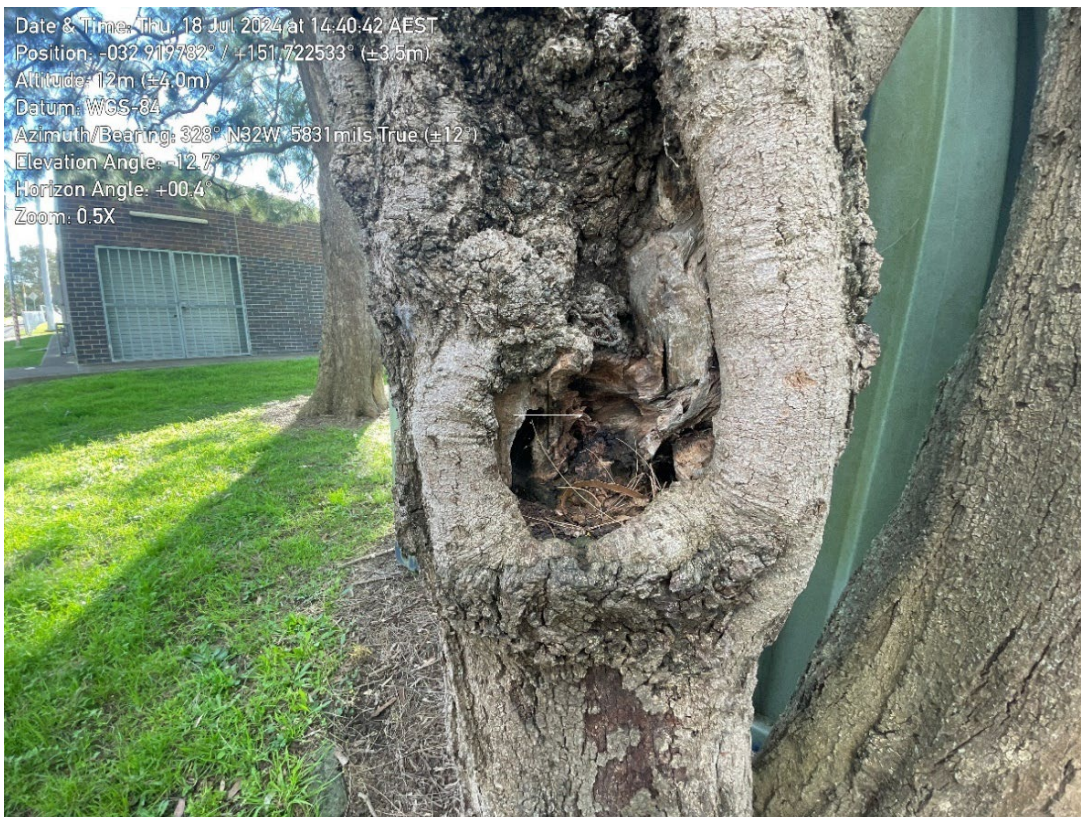


Photo 4: Human-made buildings in Subject land (Southern boundary on Monash Road) (Image source: Google Streetview 2024)



Photo 5: Lambton Ker-rai Creek (Adjacent to southern boundary of the Subject land) (Image source: Google Streetview 2024)



5.0 Identifying Prescribed Impacts

Prescribed impact features are identified in Table 5 and depicted on Figure 4.

Table 6: Prescribed Impacts Identified

Feature	Present	Description of Feature Characteristics and Location	Threatened Entities That Use, Are Likely to Use, or are Part of the Habitat Feature. Where Relevant, Threatened Species or Fauna That Are Part of A TEC Or EC, That Are at Risk of Vehicle Strike
Karst, caves, crevices, cliffs, rocks or other geological features of significance	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	Not applicable	Not applicable
Human-made structures	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Existing amenities block and storage containers	Threatened microbat species may utilise human-made structures for roosting.
Non-native vegetation	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Mown parklands (Wallarah Oval)	The area of mown parklands within the subject land does not constitute threatened species habitat.
Habitat connectivity	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	n/a	n/a
Waterbodies, water quality and hydrological processes	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Storm water drain - Lambton Ker-rai Creek adjacent to southern edge of site	Threatened bird and aquatic species may utilise this modified waterbody as foraging and/or aquatic habitat. This feature is location outside of the subject land boundary.
Wind turbine strikes (wind farm development only)	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	n/a	n/a
Vehicle strikes	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	The proposed development will increase traffic within the subject land.	The risk of vehicle strikes within the subject land may increase for mobile threatened species as a result of the proposed development.

The considered threatened entities were generated based on site survey, habitat assessment and consideration of the habitats described for each species in the Threatened Biodiversity Data Collection (TBDC). Whilst there is currently no evidence of microbats using the human-made structures on the subject land, according to the TBDC it is possible that they could utilise buildings and structures for roosting and breeding from time to time (although caves are their primary breeding habitat).

The subject land does include mown parklands which constitutes non-native vegetation but is unlikely that these features represent habitat for threatened species. There are no ponds, dams, or other non-natural water bodies within the subject land. There is, however, a stormwater drain system (i.e. Lambton Ker-rai Creek along the southern boundary) located externally to the site boundary. Based on the concrete bed and bank and lack of native vegetation or substrate in the channel, this stormwater drain would be of low ecological value to any locally occurring individuals of threatened fauna species. Hence, the proposed development will not impact on threatened species habitat associated with non-natural water bodies.

Increased vehicular traffic within the site during construction and operation could result in increased risk of vehicle strike for fauna utilising the planted native vegetation. Given the



isolated position in an urban setting and its fragmented state through nearby main roads, it is unlikely that the vegetation supports a diverse or abundant native fauna assemblage. Common mammals and birds, such as Common Ringtail Possum (*Pseudocheirus peregrinus*), Common Brushtail Possum (*Trichosurus vulpecula*), and the Australian White Ibis, would be at risk of vehicle strike, where present. Threatened fauna are not likely to be present (due to a lack of suitable habitat) and mobile bird and bat species of potential relevance to the subject land, such as Grey-headed Flying Fox and microbats, are not at risk of vehicle strike, mainly because they are nocturnal and are unlikely to dwell at ground level. Hence, vehicle strike of threatened fauna or common fauna species using the planted native vegetation is not a high risk for this site or the proposed development.





**HUNTER INDOOR SPORTS CENTRE
BDAR**

PRESCRIBED FEATURES

FIGURE 4

LEGEND

- Subject Land
 - Development Footprint
 - Watercourse
- Prescribed Feature**
- Human-made Structure
 - Non-native Vegetation
 - Waterbodies, Water Quality and Hydrological Processes

Data Sources:
NSW SS
Aerial imagery: Nearmap (June 2024)

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System:	GDA2020 MGA Zone 56
Scale:	1:2,000 at A4
Project Number:	630.031388
Date Drawn:	09-Aug-2024
Drawn by:	JH



Stage 2: Impact Assessment (Biodiversity Values and Prescribed Impacts)

6.0 Avoid and Minimise Impacts

6.1 Avoid and Minimise Direct and Indirect Impacts

6.1.1 Project Location

The proposed development includes the construction and development of the Hunter Indoor Sports Centre at 2 Monash Road and 24 Wallarah Road, New Lambton. The current use of the subject land is as an existing sports field. The subject land is devoid of native plant community types, primarily consisting of mown exotic grass (parklands) and isolated planted native trees. The placement of the proposed development avoids areas with native vegetation communities, threatened ecological communities, mapped biodiversity values, and known threatened species habitat. The proposed project location is associated with low impact to biodiversity values. No other locations are available for consideration as part of the proposed development.

6.1.2 Project Design

The proposed project design avoids clearing of native plant communities. The subject land has been historically cleared of its original native vegetation and contains an existing playing field, Wallarah Oval. A total of 26 planted native trees are established around the perimeter of the fields. The design of the proposed development will directly impact six trees, with 16 to be retained and four to be monitored post-construction to help ensure their survival.

6.2 Avoid and Minimise Prescribed Impacts

6.2.1 Project Location and Design

According to Section 7.2 of BAM 2020, all efforts to avoid prescribed impacts when choosing the proposal's location must be documented in the BDAR. When locating a proposal, the following needs to be analysed and justification should be provided for each alternative selected:

- alternative modes or technologies that would avoid or minimise prescribed impacts
- alternative routes that would avoid or minimise prescribed impacts
- alternative locations that would avoid or minimise prescribed impacts
- alternative sites within a property on which the proposal is located that would avoid or minimise prescribed impacts.

Prescribed biodiversity impacts that are potentially relevant the subject land (Figure 4) are summarised in Section 5.0 of this BDAR and as follows:

- Human made structures
- Non-native vegetation
- Waterbodies, water quality and hydrological processes
- Vehicle Strikes



Measures included in the location and design of the proposed development that contribute to the avoidance of prescribed impacts are addressed in Table 6 below.

Table 7: Avoidance Measures for Prescribed Impacts

Prescribed Impact	Threatened Entity	Avoidance Measure
Human-made structures	Threatened Microbats	A preclearance assessment for the presence of threatened microbats and/or their habitats must be conducted no more than two days prior to the demolition of the buildings on site. Demolition of buildings identified as potential microbat habitat shall be supervised by a qualified ecologist.
Non-native vegetation	Not applicable	Not applicable
Waterbodies, water quality and hydrological processes	Threatened birds and aquatic species	Erosion and sediment controls should be implemented where necessary on the southern boundary of the subject land (adjacent to Monash Road). Controls to include sediment fencing, marked stabilised site access areas, and marked stockpiling areas away from Storm water drain - Lambton Ker-rai Creek.
Vehicle Strikes	Mobile threatened fauna	The risk of vehicular collisions with fauna on site is considered low as habitat and planted vegetation to be retained on site is not likely to support a diverse or abundant fauna assemblage (due to its quality, small size and isolation). However, if ground dwelling mammals and birds are present on site, vehicle movements during construction and operation could result in increased risk of vehicle strike for fauna utilising the planted vegetation on the site. Imposing speed limits to 20 km/hr within the site during construction and operation will limit the risk of vehicle strike on native fauna.

6.3 Other Measures Considered

There are no other measures evaluated but not selected for implementation.



7.0 Impact Assessment

7.1 Direct Impacts

7.1.1 Residual Direct Impacts

The subject land does not contain any known populations of threatened species or threatened ecological communities. No suitable habitats for threatened plants exist on the subject land. Marginal to negligible foraging habitat for a narrow selection of mobile threatened fauna, in the form of scattered planted trees, occurs across the subject land. Potential habitats for threatened fauna, in terms of 'prescribed impact' features include (i) human-made structures, (ii) non-native vegetation, (iii) the adjacent storm water drain - Lambton Ker-rai Creek (iv) ground-based habitats with respect to vehicle strikes.

The potential for microbats to use the existing buildings and structures for roosting is low and there was no evidence found during the inspection of bat roosting behaviour (e.g. droppings, urine stains or live bats) therefore the impact of the demolition of the existing structures is unlikely to have any impact on threatened species.

The non-native vegetation features of the subject land are unlikely to provide any important habitat for any threatened species of fauna potentially using the subject land. The exotic grass within Wallarah Oval is subject to frequent maintenance and disturbance including mowing, and anthropogenic recreational utilisation. Due to the lack of evidence of utilisation by threatened species, and the low potential for breeding, foraging and shelter habitat, it is unlikely that the removal of this feature will impact local threatened species.

The stormwater drain (Lambton Ker-rai Creek) is located outside of the southern boundary of the subject land. As this feature is position outside of the proposed development footprint, it will not be directly impacted by the proposed development.

No threatened species of flora were detected during the ecological site inspection and the subject land does not represent a suitable habitat for threatened flora due to a lack of native vegetation and lack of suitable ground conditions. The subject land does not contain patches of native vegetation (excluding a selection of planted native trees from seven different species), threatened flora habitats or threatened ecological communities.

The proposed development will potentially increase noise, and light during the operational phase, given the proposal includes night lighting (mainly of car parking areas) and patronage during nighttime hours. However, these indirect impacts on retained vegetation and habitat (and future planted vegetation in landscaped areas) are currently active on the subject land (it is floodlit at night for soccer training sessions). In terms of potential impacts on threatened species, individuals of the Grey-headed Flying Fox could forage on the subject land during the operational phase and foraging activities could be affected by night-time use of the proposed facility. However, the subject land does represent an area of regional foraging habitat for the local population of this species. No other threatened species are likely to be adversely affected by noise and light during operation of the proposed facility.

The subject land does not contain populations of threatened species and provides only marginal foraging habitat for highly mobile birds and bats. For nomadic and migratory species, the planted trees on the subject land would represent only a minor or negligible proportion of the available foraging and shelter habitat within the locality and the wider Hunter Valley Region.

The proposed development does not involve the removal of areas of native vegetation but does involve the selective removal of six planted trees that would represent only a very marginal foraging habitat for mobile threatened species such as birds and bats.



Concerning remaining impacts:

- Due to the close vicinity of the subject land to two busy main roads (Monash Road and Turton Road), there is a potential for vehicle strikes of fauna; however, the lack of native vegetation and canopy cover across the subject land means this risk is considered to be low.
- The potential for locally occurring individuals of threatened fauna species to use the exotic grass landscaped areas (incorporating ‘non-native vegetation’) within the subject land is considered low. Therefore, the risk of threatened species being adversely affected by the removal of planted native and non-native vegetation from within the landscaped areas is likely to be negligible.

7.2 Indirect Impacts

Table 7 documents the residual indirect impacts likely to occur on native vegetation, threatened entities, and their habitats beyond the development footprint.

Table 8: Summary of Residual Indirect Impacts

Indirect Impact	Impacted Entities	Extent (ha)	Frequency	Duration (Long-Term/ Short-Term/ Medium-Term)	Project Phase/ Timing of Impact	Likelihood and Consequences
2a. <i>Inadvertent impacts on adjacent habitat or vegetation</i>	Adjacent planted native vegetation and threatened species habitat (i.e. storm water drain)	Immediately adjacent to subject land.	Daily for the duration of construction (6 months to 2 years). Sporadically during operation.	Long-term	Construction and operation	Low likelihood. Could result in reduced vegetation and habitat condition.
2b. <i>Reduced viability of adjacent habitat due to edge effects</i>	n/a	n/a	n/a	n/a	n/a	n/a
2c. <i>Reduced viability of adjacent habitat due to noise, dust or light spill</i>	n/a	n/a	n/a	n/a	n/a	n/a
2d. <i>Transportation of weeds and pathogens from the site to adjacent vegetation</i>	Native vegetation and associated general fauna habitats	Areas immediately adjacent to the subject land	Monthly	Long-term	Construction and operation	Low likelihood
2e. <i>Increased risk of starvation or exposure, and</i>	n/a	n/a	n/a	n/a	n/a	n/a



Indirect Impact	Impacted Entities	Extent (ha)	Frequency	Duration (Long-Term/ Short-Term/ Medium-Term)	Project Phase/ Timing of Impact	Likelihood and Consequences
<i>loss of shade or shelter</i>						
<i>2f. Loss of breeding habitat</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2g. Trampling of threatened flora species</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2h. Inhibition of nitrogen fixation and increased soil salinity</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2i. Fertiliser drift</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2j. Rubbish dumping</i>	Native vegetation and associated general fauna habitats	Subject land and adjacent areas	Potentially daily or weekly	Long term	Construction and operation	Low likelihood. Could result in reduced vegetation and habitat condition. Risk of rubbish dumping higher during construction.
<i>2k. Wood collection</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2l. Removal and disturbance of rocks, including bush rock</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2m. Increase in predators</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2n. Increase in pest animal populations</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2o. Changed fire regimes</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2p. Disturbance to specialist breeding and foraging habitat (e.g. beach nesting for shorebirds).</i>	n/a	n/a	n/a	n/a	n/a	n/a



7.3 Prescribed Impacts

7.3.1 Human-Made Structures

- Nature: Removal of building and storage containers within the proposed development footprint could affect threatened microbats if present.
- Extent: Human-made structures including the temporary storage containers within the development footprint.
- Duration: Short-term loss of potential bat roosting habitat. It is not expected that a long-term impact would occur unless a microbat was harmed or injured in removal. There is no evidence of active bat roosting in the structures.
- Consequences: Potential injury or harm to microbat species if found to be present.

7.3.2 Non-Native Vegetation

- Nature: Removal of a large area of exotic grass (parklands) currently utilised as a sports oval.
- Extent: Exotic grass within the development footprint.
- Duration: Permanent removal of this prescribed feature.
- Consequences: The impact of the removal of this non-native vegetation is not considered relevant to threatened species and/or their habitat.

7.3.3 Waterbodies, Water Quality and Hydrological Processes

- Nature: Impacts to nearby storm water drain (Lambton Ker-rai Creek). No waterbodies exist within the subject land.
- Extent: Lambton Ker-rai Creek adjacent to southern boundary of the development footprint.
- Duration: Short term impacts from construction phase of the proposed development.
- Consequences: Potential for erosion, sediments and pollutants to enter the waterway during the construction phase.

7.3.4 Vehicle Strikes

- Nature: Impact of Vehicle strikes to local fauna moving in and out of the subject land.
- Extent: Adjacent roads including Turton Road and Monash Road, and proposed internal roads and carpark at the proposed development site.
- Duration: Long term impacts during construction and operational phases.
- Consequences: Potential road mortality and injury to local fauna.

7.4 Mitigating Residual Impacts – Management Measures and Implementation

Recommended measures to mitigate or manage impacts on biodiversity values are listed in BAM Sections 8.4 and 8.5. Table 8 presents these measures as relevant to mitigating impacts on native vegetation, threatened species, TECs and their habitat and identifies where these are applicable to the proposed development in accordance with Section 8.4.1 of BAM 2020.



Table 9: Summary of Proposed Mitigation and Management Measures for Residual Impacts (Direct, Indirect and Prescribed)

Mitigation Measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method	Timing	Frequency	Responsibility	Likely Efficacy (including risk of failure)	MNES (when relevant)
Fauna displacement (BAM 8.4.1, 2)						
<i>2a. Timing works to avoid critical life cycle events, such as breeding or nursing</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>2b. Instigating clearing protocols, including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecologist or licensed wildlife handler during clearing events</i>	Pre-clear surveys to detect bat roosting in human made structures (i.e. buildings in southern section of the subject land) and breeding threatened species in trees to be removed.	No more than two days prior to demolition and clearing works at the site.	Pre-construction works only.	Proponent, Construction contractor.	High efficacy and low risk of failure.	N/A
<i>2c. Relocating habitat features (eg fallen timber, hollow logs) from the development or clearing site, to adjacent retained vegetation</i>	N/A	N/A	N/A	N/A	N/A	N/A
Indirect impacts on native vegetation and habitats (BAM 8.4.1, 3)						
<i>3a. Adoption of clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, a chainsaw is preferable to heavy machinery to remove native vegetation for partial clearing</i>	Clearing works to comply with Australian Standards (AS) 4970-2009 Protection of trees on development sites	Prior and during clearing works.	As required.	Proponent, Construction contractor, Arborist.	High efficacy and low risk of failure.	N/A
<i>3b. Using noise barriers, or daily/seasonal timing of construction and operational activities to reduce impacts of noise</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>3c. Using light shields, or daily/seasonal timing of construction and operational activities to reduce impacts of light spill</i>	N/A	N/A	N/A	N/A	N/A	N/A



Mitigation Measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method	Timing	Frequency	Responsibility	Likely Efficacy (including risk of failure)	MNES (when relevant)
<i>3d. Using adaptive dust management and monitoring programs to control air quality</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>3e. Scheduling the timing of construction activities to avoid impacts (e.g. timing the construction for when migratory species are not at the site, or when particular species known to, or likely to use the habitat on the site, are not breeding or nesting)</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>3f. Erecting temporary fencing to protect significant environmental features, such as riparian zones</i>	Temporary tree protection zone fencing to be implemented around retained trees and comply with AS 4970-2009.	During and post clearing and constructions works.	Initial implementation and maintenance as required.	Proponent, Construction contractor, Arborist.	High efficacy and low risk of failure.	N/A
<i>3g. Using hygiene protocols to prevent the spread of weeds or pathogens between infected and uninfected areas</i>	Works to comply with 'Arrive Clean, Leave Clean -Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems' (DCCEEW 2015).	Prior, during and post works.	As required.	Proponent, Construction contractor.	High efficacy and low risk of failure.	N/A
<i>3h. Training staff and conducting site briefings to communicate environmental features to be protected and measures to be implemented</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>3i. Preparing a vegetation management plan to regulate activity in vegetation and habitats adjacent to residential developments. The plan may include</i>	N/A	N/A	N/A	N/A	N/A	N/A



Mitigation Measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method	Timing	Frequency	Responsibility	Likely Efficacy (including risk of failure)	MNES (when relevant)
<i>controls on pet ownership, rubbish disposal, wood collection, fire management, and disturbance to nests and other niche habitats</i>						
<i>3j. Providing for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on, or adjacent to, the development or clearing site</i>	N/A	N/A	N/A	N/A	N/A	N/A
Prescribed Impacts (BAM 8.4.2, 1)						
<i>1a. Scheduling the timing of construction activities to avoid critical life cycle events (e.g. timing construction activities to avoid migratory species on site, or using the site)</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1b. Instigating clearing protocols, including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecologist or licensed wildlife handler during clearing, construction and maintenance activities for human-made structures and non-native vegetation</i>	Animal rescue (WIRES or equivalent) to be notified in the event where wildlife is injured or impacted during the removal of vegetation and/or human-made structures.	Prior and during clearing works.	One off and as required during works.	Proponent, Construction team.	High efficacy and low risk of failure.	N/A
<i>1c. Retaining habitat features (e.g. fallen timber, hollow logs, rocks) within the subject land, or relocating them to adjacent retained remnant vegetation</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1d. Installing artificial connectivity measures (e.g. glider poles, rope crossings, habitat bridges) to re-establish connections between habitat and favoured transport corridors</i>	N/A	N/A	N/A	N/A	N/A	N/A



Mitigation Measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method	Timing	Frequency	Responsibility	Likely Efficacy (including risk of failure)	MNES (when relevant)
<i>1e. Erecting temporary fencing to protect significant environmental features, such as karst, caves, rock outcrops and water bodies</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1f. Replacing habitat provided by human-made structures and non-native vegetation with alternative habitat</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1g. Using sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment</i>	Sediment barriers to be implemented on areas of Lambton Ker-rai Creek near works areas.	During and post clearing and constructions works.	Initial implementation and maintenance as required.	Proponent, Construction Contractor.	High efficacy and low risk of failure.	N/A
<i>1h. Training staff and conducting site briefings to communicate environmental features to be protected and the measures implemented to protect them</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1i. Ecological restoration, rehabilitation actions and/or maintenance of retained native vegetation on, or adjacent to, the subject land</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>1j. Development control measures that regulate the types of activities that can occur in native vegetation and habitat adjacent to residential development, including prohibiting the collection of bush rocks</i>	N/A	N/A	N/A	N/A	N/A	N/A



7.5 Adaptive Management Strategy for Uncertain Impacts

An adaptive management plan can be used to address impacts that are infrequent or difficult to measure. These include indirect or prescribed impacts, or other remaining biodiversity impacts. The proponent must develop an adaptive management plan to address any remaining impacts where mitigation measures have not been proposed. This BDAR demonstrates that all indirect, prescribed, or other residual biodiversity impacts associated with the proposed development are minor in nature and/or will be sufficiently mitigated and managed by implementing measures outlined in Section 7.0 of this BDAR. As such, an adaptive management plan is not proposed.



8.0 References

Bark Trees & Landscaping 2024, “*Arboricultural Impact Assessment for Hunter Indoor Sports Centre (HISC)*”.

DCCEEW 2015, “*Arrive Clean, Leave Clean - Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems*”, Department of Climate Change, Energy, the Environment and Water, Canberra, ACT. Retrieved from <https://www.dcceew.gov.au/environment/invasive-species/publications/arrive-clean-leave-clean>

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Appendix A BDAR Streamlined Assessment Module – Planted Native Vegetation Requirements

Streamlined Biodiversity Development Assessment Report

**SSD-65595459 Hunter Indoor Sports Centre
24 Wallarah Road and 2 Monash Road, New Lambton**

EJE Architecture

SLR Project No.: 630.031388.00001

19 August 2024

Table A-1: Minimum information requirements for the Biodiversity Development Assessment Report: Streamlined assessment module – Planted native vegetation

Report section	BAM ref.	Information	Maps & tables (in document)	Data (to be supplied)	Reference
Introduction	Chapters 2 and 3	INFORMATION Introduction to the biodiversity assessment including: <ul style="list-style-type: none"> • brief description of proposed development • identification of subject land⁴ boundary, including: • operational footprint • construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure • general description of the subject land • sources of information used in the assessment, including reports and spatial data 			1.0
		MAPS and TABLES (in document) – N/A			-
		DATA (to be supplied) – N/A			-
Planted native vegetation	Appendix D, D.1	INFORMATION Determination of which subsection of the decision-making key (D.1) applies to the native vegetation to be cleared or impacted by the proposal Justification and evidence for the above determination (e.g. photos, management plans/agreements, etc.)			2.1 Photo 1
		MAPS and TABLES (in document) Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure (if BDAR)			Figure 1
		DATA (to be supplied) – N/A			-
Landscape context	Sections 3.1 and 3.2, Appendix E	INFORMATION Identification of site context components and landscape features at the proposed site, including: <ul style="list-style-type: none"> • general description of subject land topographic and hydrological setting, geology and soils • IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.)) 			3.0 1.1.3
		MAPS AND TABLES (in document) Site Map <ul style="list-style-type: none"> • Boundary of subject land • Cadastre of subject land Location Map <ul style="list-style-type: none"> • Digital aerial photography at 1:1,000 scale or finer) • Boundary of subject land 			Figure 1 Figure 2



Report section	BAM ref.	Information	Maps & tables (in document)	Data (to be supplied)	Reference
		DATA (to be supplied) All report maps as separate jpeg files Individual digital shape files of: subject land boundary assessment area (i.e. buffer area) boundary cadastral boundary of subject land			-
Native vegetation	Chapter 4, Appendix A and Appendix H	INFORMATION Note: If D.1(2.i.) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 4 is not required. If D.1(1.i.) or D.1(4.i.) apply, Chapter 4 is required – refer to the minimum information requirements for a BDAR or BCAR in Appendix K.			-
		MAPS and TABLES (in document) – N/A			-
		DATA (to be supplied) – N/A			-
Threatened species habitat (planted native vegetation)	Appendix D, D.2 (and Chapter 5 of the BAM)	INFORMATION Note: If D.1(2.i.) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 5 is not required and the assessment of planted native vegetation for threatened species habitat must be conducted in accordance with D.2. If D.1(1.i.) or D.1(4.i.) apply, Chapter 5 is required – refer to the minimum information requirements for a BDAR or BCAR in Appendix K. Describe the review of existing information and assessment of the suitability of the planted native vegetation for use by threatened species Record any incidental sightings or evidence (e.g. scats) of threatened species credit species (flora and fauna) found to be using, inhabiting or part of, the planted native vegetation			3.2.2 4.0
		MAPS and TABLES (in document) Field data sheet including records of any incidental sightings or evidence of threatened species credit species as outlined above			Table 3 Table 4
		Table detailing the threatened species credit species found to be using, inhabiting or part of the planted native vegetation Map of threatened species credit species found to be using, inhabiting or part of the planted native vegetation			-
		DATA (to be supplied) – N/A			-
Prescribed impacts	Chapter 6	INFORMATION Any prescribed impacts from the planted native vegetation proposal must be set out in the BDAR consistent with Appendix K			5.0 Table 5
		MAPS and TABLES (in document) If relevant, map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human- made structures, etc.)			Figure 4
		DATA (to be supplied) Digital shape files of prescribed impact feature locations Prescribed impact features map in jpeg format			-



Report section	BAM ref.	Information	Maps & tables (in document)	Data (to be supplied)	Reference
Avoid and minimise impacts	Chapter 7	INFORMATION Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7 Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Subsection 7.2.2) Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))			6.0
		MAPS and TABLES (in document) Table of measures to be implemented before, during and after construction to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility Map of final proposal footprint, including construction and operation Maps demonstrating indirect impact zones where applicable			Table 8 Figure 3
		DATA (to be supplied) Digital shape files of: final proposal footprint direct and indirect impact zones Maps in jpeg format			-
Assessment of Impacts	Chapter 8, Sections 8.1 and 8.2	INFORMATION Determine the impacts on threatened species habitat, including: <ul style="list-style-type: none"> description of impacts of clearing of threatened species habitat (as described in BAM Sections 8.1) description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal (as described in BAM Section 8.2) Any prescribed impacts from the planted native vegetation proposal must be set out in the BDAR consistent with Appendix K			7.0
		MAPS and TABLES (in document) – N/A			-
		DATA (to be supplied) – N/A			-
Mitigation and Management of Impacts	Chapter 8, Sections 8.4 and 8.5	INFORMATION Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Section 8.4 including (as described in BAM Subsection 8.4.1(2.)):			7.4
		<ul style="list-style-type: none"> techniques, timing, frequency and responsibility identify measures for which there is risk of failure evaluate the risk and consequence of any residual impacts document any adaptive management strategy proposed Identification of measures for mitigating impacts related to: <ul style="list-style-type: none"> displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) indirect impacts on threatened species habitat (as described in BAM Subsection 8.4.1(3.)) 			



Report section	BAM ref.	Information	Maps & tables (in document)	Data (to be supplied)	Reference
		MAPS and TABLES (in document) Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility			Table 7 Table 8
		DATA (to be supplied) – N/A			-
Impact summary	Appendix D, D.2	INFORMATION Note: If D.1(2.i) or D.1(3.i.) of the decision-making key in Appendix D apply, Chapter 9 is not required and the assessment of planted native vegetation for threatened species must be conducted in accordance with D.2 of the BAM. If D.1(1.i.) applies, refer to the minimum information requirements for a Biodiversity Development Assessment Report in Appendix K.			7.0
		MAPS and TABLES (in document) – N/A			-
		DATA (to be supplied) Maps in jpeg format			-





Appendix B Arboricultural Impact Assessment – Bark Trees and Landscapes 2024

Streamlined Biodiversity Development Assessment Report

**SSD-65595459 Hunter Indoor Sports Centre
24 Wallarah Road and 2 Monash Road, New Lambton**

EJE Architecture

SLR Project No.: 630.031388.00001

19 August 2024

HUNTER INDOOR SPORTS CENTRE (HISC)

ARBORICULTURAL IMPACT ASSESSMENT



MAY 2024

Ficus microcarpa var. *hillii*



Arboricultural Impact Assessment

SITE & CLIENT

Site Address:	2 Monash Road and 24 Wallarah Road, New Lambton
Client:	Basketball Association of Newcastle Limited (BANL)
C/-:	EJE Architecture (Attn: Bede Campbell)
ADDRESS:	412 King Street, Newcastle, NSW,2300
EMAIL/PHONE:	+61 400 294 028
JURISDICTION:	Newcastle/Awabakal

ASSESSING ARBORIST

Company:	Bark. Trees & Landscapes
AQF5 Arborist:	Phillip Williams
Qualifications:	B.Sc.(Arch.), B.Land.Arch., Hort Cert., Dip.Hort.(Arboriculture - No. 6262394), QTRA Reg. No. 7712
Memberships	Institute of Australian Consulting Arborists (IACA), Australian Institute of Landscape Architects (AILA)
Phone:	+61 419 619 466
Email:	williams@bark.net.au

1. PROJECT OVERVIEW

Bark. Trees & Landscapes has been commissioned by Basketball Association of Newcastle Limited (BANL) to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development Application (SSD-65595459) for the proposed Hunter Indoor Sports Centre with courts, indoor stadium, amenities and associated civil and landscaping works, at 2 Monash Road and 24 Wallarah Road, New Lambton.

The aim of the report is to determine what impact the proposed development may have on the existing vegetation and to provide advice on how best to ensure the trees can be retained where appropriate.

The tree inspections were conducted from the ground applying Mattheck's and Breloer's Visual Tree Inspection (VTA) methodology recording relevant data to assist in determining the suitability of a tree's retention and to influence design outcomes for better tree retention. (Note: refer to Section 4 for a more complete description of the methodology used when assessing the trees.) The results contained within this report are based on observations made during site inspections carried out on 10th February and 16th - 17th February 2024

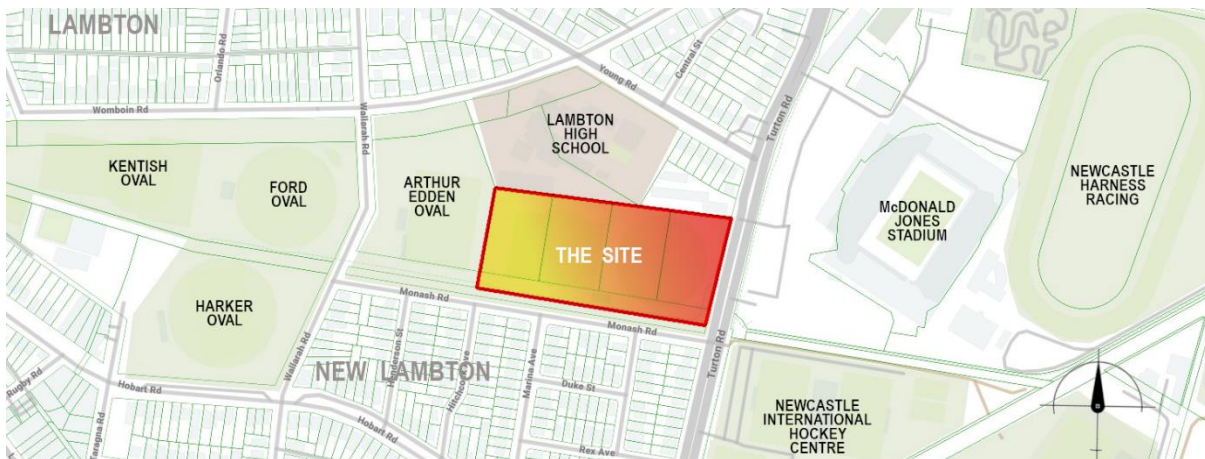


FIGURE 1: LOCATION PLAN
[Base Map Source <https://meonemosaic.au/>]



2. THE SITE

The site is comprised of 4 lots; Lot 2377 DP755247, Lot 2389 DP755247, Lot 2398 DP755247 and Lot 2380 DP755247 and having a total site area of 7.83ha.



FIGURE 2: SITE AERIAL

[Base Image Source www.merconemosaic.com]

Pre-European settlement, the area would have comprised of Freshwater Wetlands with the vegetation being mainly *Eleocharis equisetina* (Australian Giant Hairgrass) growing in organically enriched fine-grain sediments. There would have also been a sparse emergent layer of trees such as *Casuarina glauca* (Swamp She-oak) and *Melaleuca spp.* (Swamp Paperbark and smaller species)¹. At some stage the area was reclaimed eventually becoming the playing fields that currently exist. The area is commonly used for organised sports such as cricket and soccer with the adjoining Lambton High School using the Wallarah Ovals as additional playground. An amenities block is located towards the southern boundary along with three containers used to store equipment and tools.

The site is flat having a slight crossfall from west to east with a central crown shedding water to the outer edges. The current vegetation consists predominantly of maintained turf with cultural plantings occurring to the eastern and southern boundaries. Cultural plantings also occur within the northern, neighbouring properties.



FIGURE 3: VIEW LOOKING EAST TO TURTON ROAD AND THE NEWCASTLE INTERNATIONAL SPORTS CENTRE

¹ NSW Government, *Trees Near Me*, www.treesnearme.app



3. METHODOLOGY

The following is a summary of the approach taken to assess the trees leading to the preparation of this report:

- Visual Tree Inspection (VTA), (Mattheck & Breloer, 1994) was undertaken. All trees were inspected and assessed from the ground. The VTA included all visible above ground parts of the tree including; exposed roots; trunk; branches; and, foliage.
- Diameter at breast height (DBH) and diameter at base—above the basal flare (DARB) measurements were taken and used to calculate the tree protection zones (TPZ) and structural root zones (SRZ) of each tree undertaken in accordance with AS 4970 -2009 *Protection of trees on development sites*.
- Tree structure was assessed by:
 - visual evidence of structural faults and/or potential points of failure;
 - poor pruning practices;
 - physical and/or storm damage;
 - suppressed or distorted growth including trunk divergence and canopy asymmetry.
- Tree health was determined by:
 - canopy density, growth extension, foliage size (applicable to species) and colour;
 - presence of disease and/or pests;
 - termite activity;
 - the amount of deadwood and/or dieback within the crown and its location; and,
 - presence of epicormic growth.
- Life expectancy ratings were assessed using several factors such as: location; species; age; health; and, structure.

It should be noted that the following, more detailed assessment measures did not form part of the VTA inspection:

- No below ground inspections or analyses were undertaken within the root zone.
- No internal inspections or tissue analyses were undertaken on the subject trees.
- No aerial inspections were undertaken.

4. SUMMARY TREE ASSESSMENT

The trees have been assessed as two groups: those occurring on site (numeric, Trees 1-19) and those occurring off site and likely to be affected by the works (alphabetic, Trees A-G). Survey was used to locate the majority of trees (blue squares – Figure 4). Where trees had not been picked up by survey, they were located with the use of aerial imagery and by ground-truthing (pink squares-Figure 4). Access could only be arranged for Lambton High School and so estimates were made for trees growing on the unit site (303-305 Turton Road).



FIGURE 4: TREE LOCATIONS & NOTATION.
[BASE AERIAL: NEARMAP]



Trees 1-12 are located along the eastern boundary and running parallel to Turton Road. They are comprised mainly of *Ficus microcarpa* var. *hillii* (Hills Weeping Fig) growing within a formed garden bed that has come into disrepair. The timber edging used to form the garden bed on the western side has acted as a root deflector for the surface roots resulting in the early surface roots running north and south (Figure 5A). Deeper roots have spread beyond the timber edge and can be seen growing away from the trunk of the tree in a typical radial configuration. It is unlikely that the current root pattern, although not desirable, will result in pronounced instability for the figs as they develop in size. Most of the figs have included bark at branch junctions that on occasions can lead to failure end weights become excessive. This is a typical characteristic of these figs if not specifically bred to avoid this tendency. In some instances, the roots of the trees have led the lifting of the nearby footpath resulting in some sections having to be repaired (Figure 5B). Most trees in this grouping have had to have their canopies trimmed to provide clearances to the powerlines occurring alongside Turton Road (Figure 5C) resulting in asymmetric canopies. All trees in this group (Trees 1-12) except for Trees 4 and 6, are good specimens.



FIGURE 5: TREES 1-12 – COMMON PROBLEMS

Trees 13-19 occur along the southern boundary as a group of 6 and a single tree. Tree species are either *Casuarina glauca* (Swamp She-oak) or *Melaleuca quinquenervia* (Swamp Paperbark). All trees with the exception of Tree 16 are in good condition. Tree 16 is in decline and consideration should be given to its removal and replacement although not critical at this stage. Trees 13 and 19 are located close to the fenceline and are causing damage to the fence (Figure 6A). Consideration should be given to removing the affected fencing panels to prevent possible damage to the trees and allow future growth to be unimpeded.



FIGURE 6: TREES 13, F & G

Trees A – F are without significant problems that would justify their removal. All are suitable for retention.



5. PROPOSED DEVELOPMENT

The proposal is seeking to create a multi-use indoor sports facility concentrating on the provision of 15 courts with complementary facilities including: entry foyer, change rooms; bathrooms; cafe; a retail tenancy; function rooms; training spaces; offices; and, corporate spaces. One of the courts is to be a show court with retractable grandstand seating. It is proposed to construct the facility as a staged development with associated external car parking added progressively resulting in a total of 240 car spaces.

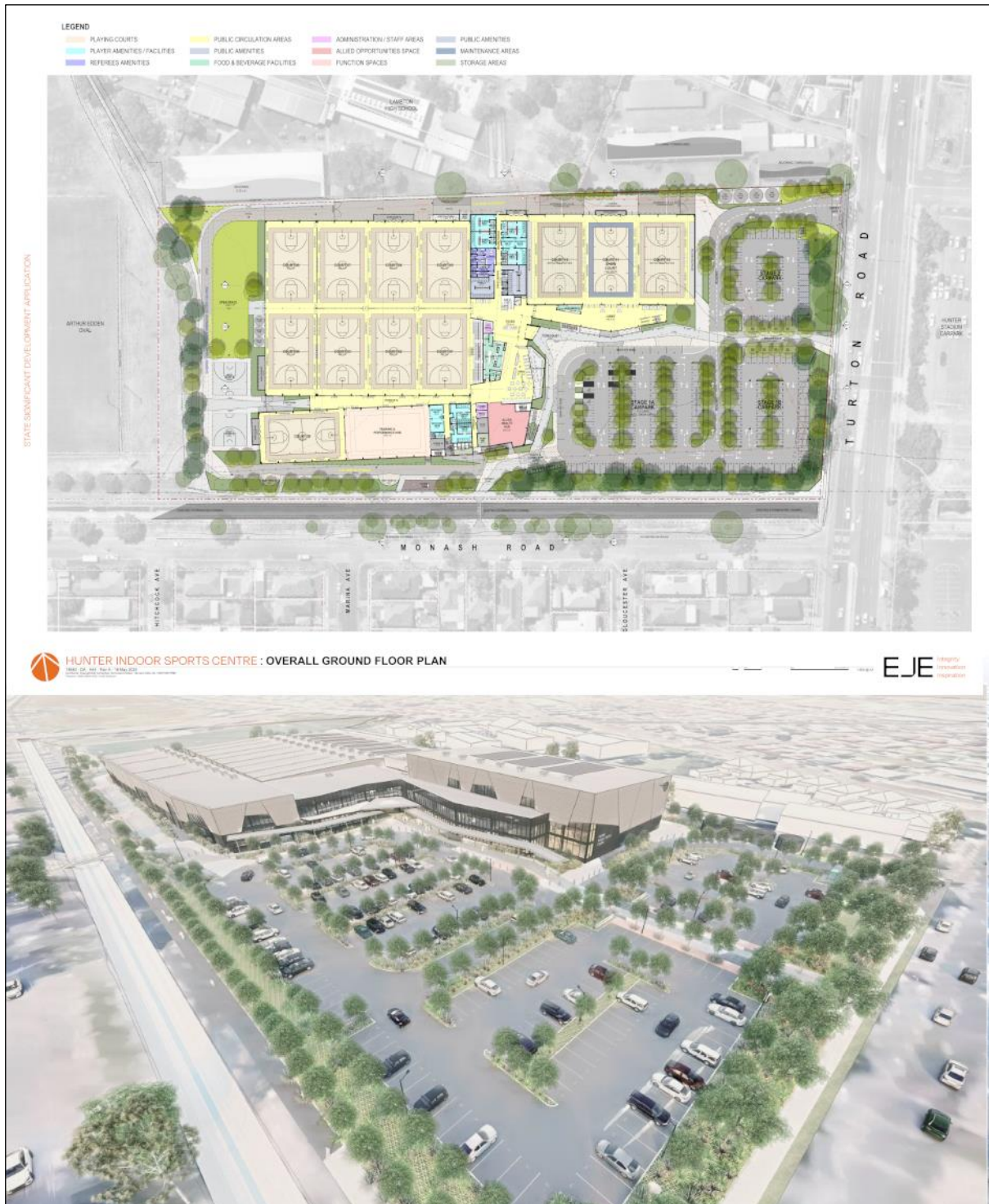


FIGURE 7: SITE PLAN & PERSPECTIVE OF THE PROPOSED DEVELOPMENT.



6. IMPACT ASSESSMENT

Figure 8 (and Appendix C2) shows that Trees 1, 9, 10, 11, 12 & 17 will need to be removed based on the proposed design.

On-site, Trees 2, 3, 4, 5, 6, 8, 13, 14, 15, 18 and 19 will not be impacted by the the proposed works as the TPZs of these trees will be subjected to minor encroachments only, if at all. Off-site Trees A, B, C, D, and E will also be retained as encroachments are within acceptable limits of encroachment having regard to their locations, type of tree and condition. It should be noted that Tree D has an encroachment of 21% which is the upper tolerance for this species having average health. Nevertheless routine monitoring will be required.

Trees 7, 16, F and G have been assessed as being "Threatened". Although the encroachments for these trees exceeds the requirements of AS 4970, it is considered that the type of encroachment and with proper management of the areas associated with the trees including implementing the the Tree Protection Plan (Appendix D), it will be possible for these trees to be retained.

The encroachment for Tree 7 is a combination of 11% reduced root plate within the TPZ and a 20% change of levels with the addition of fill. It is proposed that during the detailed design, that the amount of fill covering the root plate will be locally reduced to an extent that will not impact significantly on the tree. Levels within the TPZ of Tree F are not being modified greatly as a suspended ramp is proposed for the ramped section of road including approaches. The amount of cover is shown as a 32% encroachment, although the impact will be considerably less. At the detailed design stage, an allowance will need to be made that permits water to enter under the slab to prevent the soil from drying out in this area. Tree G has a 34% encroachment due to a reduction of levels and the installation of a decomposed granite track. Levels within the TPZ of Tree G are being reduced by no greater than 100mm which is not significant for a Swamp Mahogany

Tree 16 has also been noted as being "Threatened". This tree is in decline and even if left undisturbed, it is likely to fail. By removing the existing containers and making changes nearby, it is likely that its decline will be hastened although not directly affected by the construction works. It would be possible to minimise the decline by removing grass from around the base of the tree and covering the exposed area with an organic mulch.

It is considered reasonable to take the effort in retaining Trees 16, F and G with the understanding that should they fail, then compensatory planting will need to be undertaken.

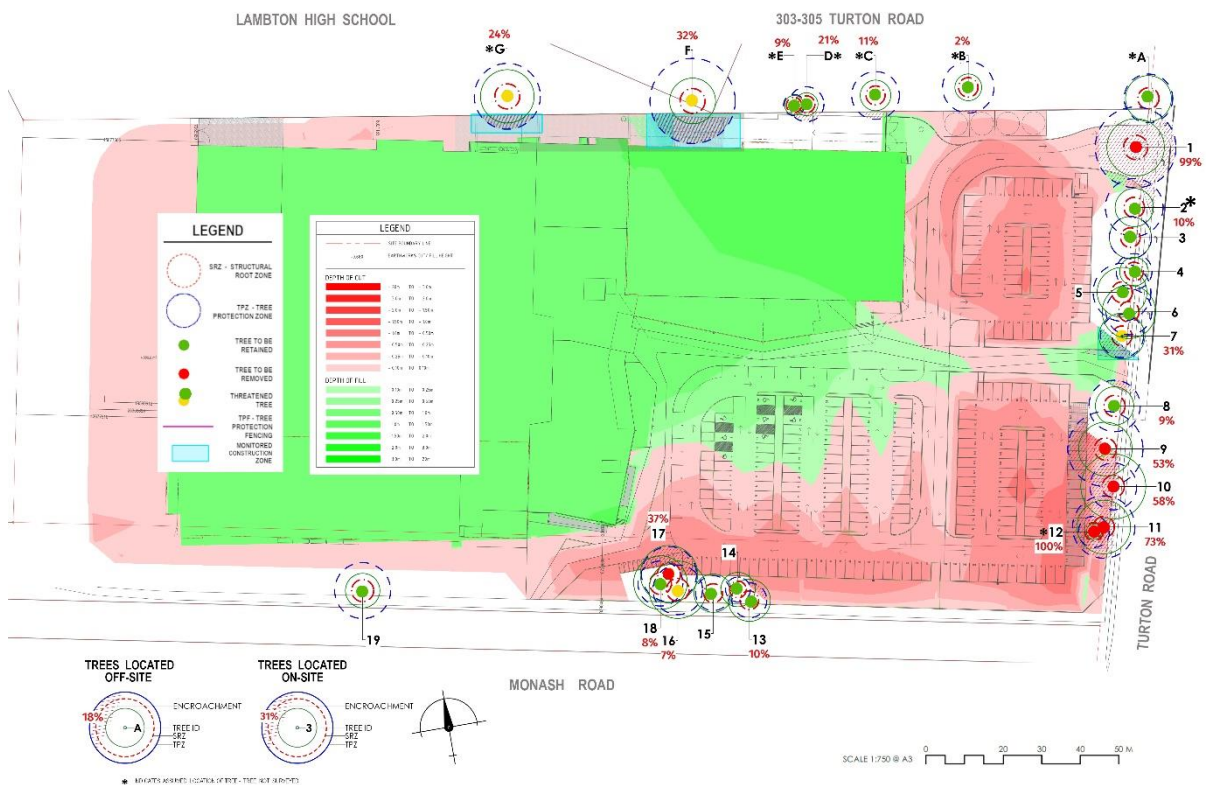


FIGURE 8: TREE IMPACT ASSESSMENT DIAGRAM.
[SOURCE: E.E ARCHITECTURE]



7. RECOMMENDATIONS

Based on the above assessment, the following is recommended:

- that Trees 1, 9, 10, 11, 12 & 17 be removed;
- that Trees 2, 3, 4, 5, 6, 8, 13, 14, 15, 18, 19, A, B, C, D, and E be retained; and,
- that Trees 7, 16, F and G be retained by following the requirements of the Tree Protection Plan (refre Appendix D) subject to careful detailing during the detailed design and documentation phases and further investigations occurring at the commencement of construction to ensure major roots are not damaged and/or further action taken.

Further, to compensate for the loss of Trees 1, 9, 10, 11, 12 and 17, it is recommended that 28 standard trees [45litre] be planted on the site. Compensatory planting has been calculated using Section 4.3 of the *Newcastle Urban Forest Technical Manual* using a rate of one standard tree/20m² of projected crown cover (i.e. 550m² of combined projected cover for the 6 trees to be removed). This can be addressed as a condition within the Notice of Determination as can the requirement that the Tree Protection Plan described in Appendix D be implemented.

8. REFERENCES

The City of Newcastle	<i>Newcastle Development Control Plan 2012</i>
The City of Newcastle	<i>Newcastle Urban Forest Technical Manual 2018</i>
Draper, D. & Richards, P.A.	<i>Dictionary for Managing Trees in Urban Environments</i> . CSIRO, Collingwood Vic, 2009
Link Tree System Ltd. (Barrell, J.)	<i>Arboricultural Journal</i> 1993, Vol. 17pp. 33-46, 01/03/98
Mattheck, C. & Breloer, H.	<i>The Body Language of Trees: A Handbook for Failure Analysis</i> . TSO, London, England, 1994
NSW Government	<i>Trees Near Me</i> , https://www.treesnearme.app/explore
NSW Government	<i>SEED</i> , https://geo.seed.nsw.gov.au
Safe Work Australia	<i>Guide to Managing Risks of Tree Trimming and Removal Work</i> , Australian Government, 2016
Standards Australia	<i>Australian Standard: AS 4970-2009 Protection of trees on development sites</i> , 2009
Standards Australia	<i>Australian Standard, AS 4373-2007 Pruning of amenity trees</i> , 2007

9. DISCLAIMER

This report has been prepared for the intended use by the client only.

All observations, recommendations and advice expressed within this report are based on the following:

- the requirements and practices contained within *AS 4970-2009 Protection of trees on development sites*;
- the training and professional experience of the consulting arborist;
- observations made at the time of inspection; and,
- information either supplied by the client, other consultants (where applicable) or supplementary research.

Trees are dynamically growing organisms that change over time. No guarantee is implied with respect to future tree condition or safety beyond the advice and recommendations made within the report. It is recommended that trees be inspected periodically, at least, annually and after major storm events.

11. APPENDICES

APPENDIX A: TREE IMAGES

The following images are intended to provide a record of the condition of the trees at the time of the inspection (2024/02/10, 2024/02/17) and to provide a frame of reference for future observations. Further details on each tree are provided in Appendix B.

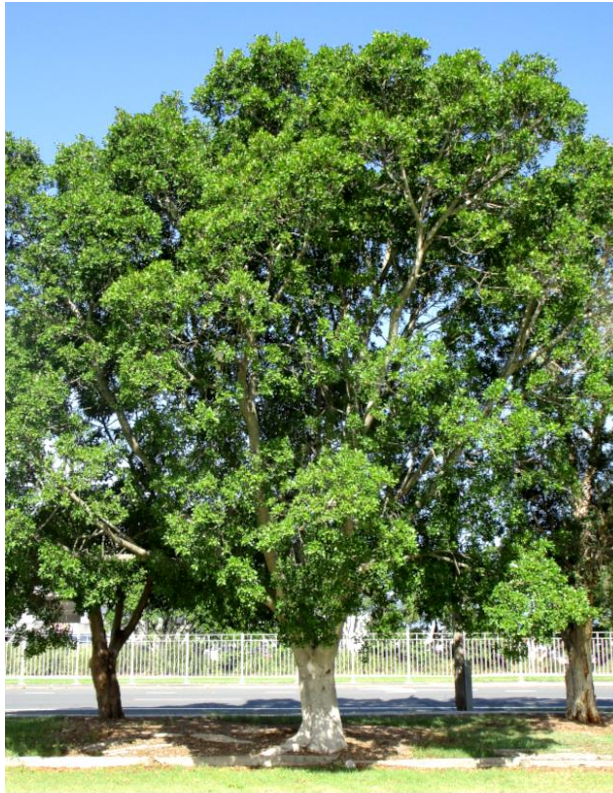
FIGURE A1: Trees 1-4





A	B
C	D

FIGURE A2: Trees 5-8



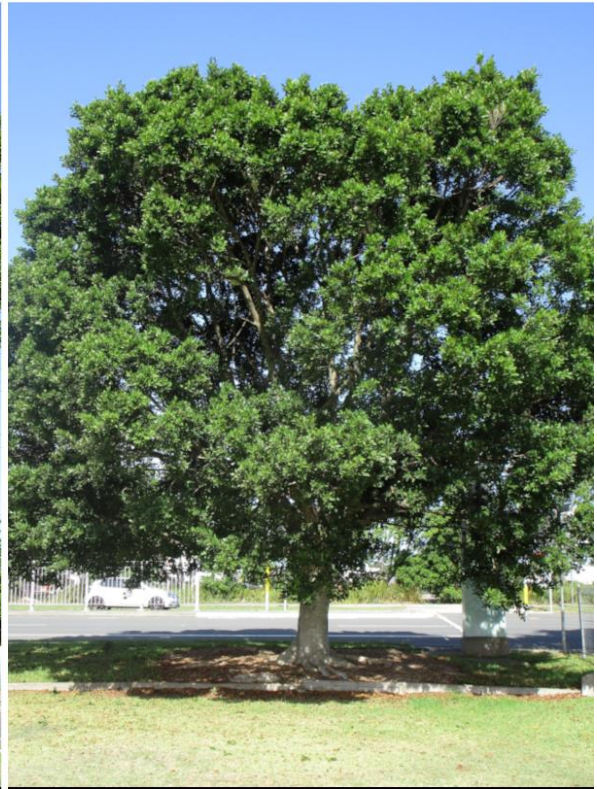
TREE 5 - *FICUS MICROCARPA* VAR. *HILLII*



TREE 6 - *MELALEUCA QUINQUENERVIA*



TREE 7 - *FICUS MICROCARPA* VAR. *HILLII*

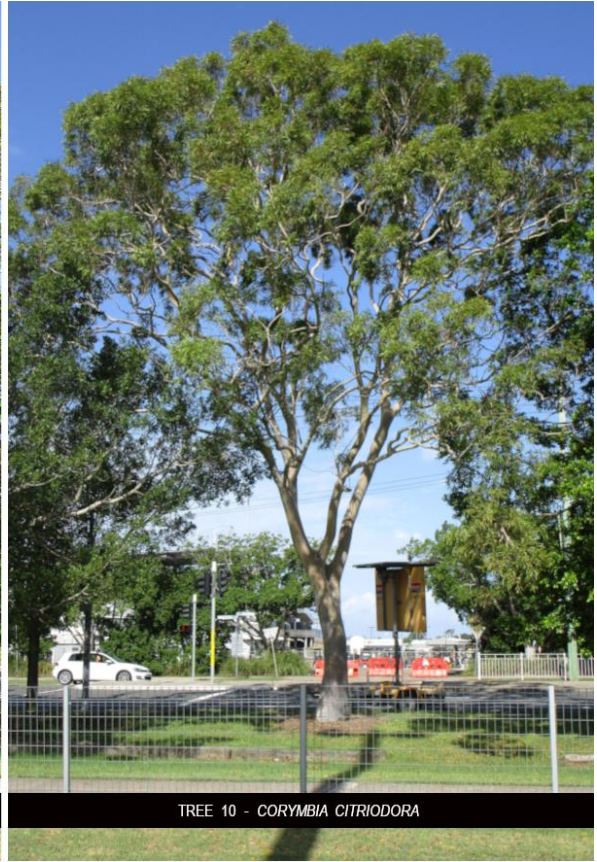


TREE 8 - *FICUS MICROCARPA* VAR. *HILLII*



A	B
C	D

FIGURE A3: Trees 9-12





A	B
C	D

FIGURE A4: Trees 13-16





A	B
C	D

FIGURE A5: Trees 17- 19, A-B





A	B
C	D

FIGURE A6: Trees C-F





APPENDIX B: TREE ASSESSMENT TABLES

SUMMARY TREE ASSESSMENT TABLE: HUNTER INDOOR SPORTS CENTRE

No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH ¹ [MM]	TPZ [M]	DARB ² [MM]	SRZ [M]	USEFUL LIFESPAN [YEARS]	STRUCTURE	HEALTH	TREE AZ	IMAGE REF (APPX A)	COMMENTS
TREES OCCURRING ON COUNCIL CONTROLLED LAND														
1	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	15	880 ¹	10.56	900	3.17	+40	AV	AV	A1	A1A	1. [CoN TREE ID 67125] [DBH: 660/580] PAST PRUNING OF LOWER LIMBS. LARGE SURFACE ROOTS MANY RUNNING PARALLEL TO ROAD DUE TO THE PRESENCE OF TIMBER EDGING TO THE WEST AND FOOTPATH TO THE EAST. TREE ROOTS NOW RUNNING BEYOND EDGING AND INTO NEARBY TURF. BETTER GROWTH NOTED THAN ADJOINING TREES ASSUMED TO BE THE RESULT OF BETTER GROWING CONDITIONS AND ACCESS TO MOISTURE FROM NEARBY SWALE. LIFTING OF NEARBY FOOTPATH. INCLUDED BARK PRESENT BETWEEN CO-DOMINANT TRUNKS. TO BE REMOVED. IMPACTED BY ENTRY ROAD
2	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	10	630	7.56	600	2.67	+40	F	AV	A1	A1B	2. [CoN TREE ID 67124] TREE WITH CROWDED STRUCTURE WITH CROSSING BRANCHES. LARGE SURFACE ROOTS MANY RUNNING PARALLEL TO ROAD DUE TO THE PRESENCE OF TIMBER EDGING TO THE WEST AND FOOTPATH TO THE EAST. TREE ROOTS NOW RUNNING BEYOND EDGING AND INTO NEARBY TURF. MINOR BARK INCLUSIONS PRESENT. LIFTING OF NEARBY FOOTPATH. TO BE RETAINED
3	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	11	460	5.52	540	2.55	+40	AV	AV	A1	A1C	3. [CoN TREE ID 67123] LARGE SURFACE ROOTS MANY RUNNING PARALLEL TO ROAD DUE TO THE PRESENCE OF TIMBER EDGING TO THE WEST AND FOOTPATH TO THE EAST. TREE ROOTS NOW RUNNING BEYOND EDGING AND INTO NEARBY TURF. PRUNING TO ROADSIDE CANOPY RESULTING IN AN ASYMMETRIC CANOPY. TO BE RETAINED
4	<i>Lophostemon confertus</i>	Brush Box	M	7.5	390 ¹	4.68	480	2.43	15-40	P	AV	A1	A1D	4. [CoN TREE ID 67122] [DBH: 300/250] TREE PLANTED CLOSER TO POWERLINES. PRUNING TO ROADSIDE CANOPY RESULTING IN AN ASYMMETRIC CANOPY. EPICORMIC GROWTH PRESENT AT PRUNING SITES. SNAPPED FIRST ORDER BRANCH WITH BRANCH TEAR (OLD). TO BE RETAINED
5	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	13	630	7.56	630	2.73	+40	AV	AV	A1	A2A	5. [CoN TREE ID 67121] TREE WITH SLIGHT LEAN TO THE WEST. TREE DISLODGING EDGING. LARGE SURFACE ROOTS MANY RUNNING PARALLEL TO ROAD DUE TO THE PRESENCE OF TIMBER EDGING TO THE WEST AND FOOTPATH TO THE EAST. TREE ROOTS NOW RUNNING BEYOND EDGING AND INTO NEARBY TURF. MINOR ENCROACHMENT. TO BE RETAINED
6	<i>Melaleuca quinquenervia</i>	Swamp Paperbark	M	14	500 ¹	6.00	600	2.67	15-40	P	AV	A1	A2B	6. [CoN TREE ID 67120] [DBH: 240/440] EXTENSIVE PRUNING INCLUDING THE REMOVAL OF A ROADSIDE CO-DOMINANT TRUNK. PAST BORER ACTIVITY NOTED. PRUNING TO ROADSIDE CANOPY RESULTING IN AN ASYMMETRIC CANOPY. MODERATE CANOPY DENSITY. TO BE RETAINED
7	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	12	470	5.64	570	2.61	+40	AV	AV	A1	A2C	7. [CoN TREE ID 67119] TREE WITH UPRIGHT FORM PARTIALLY DUE TO REDUCTION OF CANOPY. ROOT GROWTH MODIFIED BY TIMBER EDGING BUT NOT AS MARKEDLY AS OTHER LOCATIONS. THE TREE WILL NEED TO BE MONITORED DURING CONSTRUCTION AND AN EFFORT TO REDUCE FILL LEVELS WITHIN THE TPZ.
8	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	10	560	6.72	650	2.76	+40	F	AV	A1	A2D	8. [CoN TREE ID 67118] TREE CONTAINS ONE NEST. GOOD, SPREADING CANOPY WITH SOMEWHAT CROWDED FORM. MINOR ENCROACHMENT. TO BE RETAINED
9	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	14	820	9.84	720	2.88	+40	AV	AV	A1	A3A	9. [CoN TREE ID 67117] TREE CONTAINS ONE NEST AND BRUSH-TAILED POSSUM. LARGE SURFACE ROOTS MANY RUNNING PARALLEL TO ROAD DUE TO THE PRESENCE OF TIMBER EDGING TO THE WEST AND FOOTPATH TO THE EAST. TREE ROOTS NOW RUNNING BEYOND EDGING AND INTO NEARBY TURF. PREVIOUS FOOTPATH DAMAGE AND REPAIRS NOTED. THIS TREE WILL NEED TO BE REMOVED.
10	<i>Corymbia citriodora</i>	Lemon-scented Gum	M	17	510	6.12	720	2.88	+40	AV	AV	A1	A3B	10. [CoN TREE ID 67116] PAST PRUNING OF LOWER CANOPY WITH UPPER BRANCHES CLEAR OF WIRES. PRUNING TO ROADSIDE CANOPY RESULTING IN AN ASYMMETRIC CANOPY. MINOR ENCROACHMENT. TO BE RETAINED
11	<i>Ficus microcarpa var. hillii</i>	Hills Weeping Fig	M	14	680	8.16	650	2.76	+40	AV	AV	A1	A3C	11. [CoN TREE ID 67115] SEWER MANHOLE NOTED NEARBY INDICATING PRESENCE OF SEWER. MECHANICAL DAMAGE TO SURFACE ROOTS. PRUNING TO ROADSIDE CANOPY RESULTING IN AN ASYMMETRIC CANOPY. THIS TREE WILL NEED TO BE REMOVED.
12	<i>Callistemon viminalis</i>	Weeping Bottlebrush	M	4	340	4.08	460	2.39	15-40	F	AV	A1	A3D	12. [CoN TREE ID 67114] [DBH: 160/300] TREE OCCURRING CLOSE TO TREE 11 RESULTING IN SUPPRESSED GROWTH AND ASYMMETRIC CANOPY. BASE OF TREE BEING ENCIRCLED BY ROOTS FROM TREE 11. PREVIOUS PRUNING OF LOWER BRANCHES. THIS TREE WILL NEED TO BE REMOVED.
13	<i>Casuarina cunninghamiana</i>	River She-oak	M	11	380	4.56	480	2.43	+40	F	F	A1	A4A	13. [CoN TREE ID 67109] TREE LOCATED ON FENCELINE RESULTING IN DISTORTION OF FENCE. LOWER BRANCHES REMOVED ESPECIALLY THOSE THAT WOULD HAVE IMPACTED ON SHARE PATH USERS. CO-DOMINANT TRUNK OCCURRING @ 1.7M AGL SLIGHT LEAN IN THE TRUNK FROM THE MIDDLE AND UPPER CANOPY. THIS TREE WILL NEED TO BE REMOVED.
14	<i>Casuarina cunninghamiana</i>	River She-oak	M	9	270	3.24	370	2.18	15-40	F	F	A1	A4B	14. [CoN TREE ID 67108] TREE WITH STORM DAMAGE AND LOST LIMBS RESULTING IN ELONGATED BRANCH STUBS. TRUNK WITH SLIGHT LEAN TO THE NORTH SELF-CORRECTING MID-HEIGHT. TO BE RETAINED.
15	<i>Casuarina cunninghamiana</i>	River She-oak	M	10	380	4.56	500	2.47	+40	AV	AV	A1	A4C	15. [CoN TREE ID 67107] [DBH: 250/290] STAR PICKET EMBEDDED INTO THE BASE OF THE TREE. OLD CAVITIES EXIST AT OLD PRUNING SITES. CO-DOMINANT TRUNK @ 750MM AGL. TO BE RETAINED.
16	<i>Casuarina glauca</i>	Swamp She-oak	M	15	540	6.48	770	2.97	5-15	F	P	Z4	A4D	16. [CoN TREE ID 67106] [DBH: 370/400] OVER-MATURE TREE. SPARSE CANOPY. DEADWOOD IN CANOPY. LARGE CAVITY (OLD) WHERE BRANCH HAS BEEN LOST. ACAULESCENT CO-DOMINANT TRUNKS. SHIPPING CONTAINER PLACED NEAR TREE COVERING A PORTION OF ITS ROOT PLATE. BRANCHES OVERHANGING CONTAINER. REMOVED. RECOMMENDED FOR RETENTION AT THIS STAGE WITH ASSISTANCE PROVIDED TO PROLONG LIFE.

1. MULTI-TRUNKED TREES HAVE AN AVERAGE MEASUREMENT CALCULATED IN ACCORDANCE WITH AS 4970. 2. DARB = DIAMETER AT ROOT BUTTRESS USED WHEN CALCULATING SRZ. * ASSUMED AS PROPERTY NOT ACCESSED

LEGEND

AGE CLASS	Y	SM	M	OM	
	YOUNG SAPLING/HAS NOT REACHED 1 ST ADULT FORM	SEMI-MATURE DBH < 300mm/APPROACHING FULL HEIGHT	MATURE DBH BET. 300 -700/APPROACH. MAX HT & SPREAD	OVER-MATURE/SENESCENT LGE DBH, LGE BRANCH FAILURES/STRUCT FAILTS	
STRUCTURE	P	F	AV	EX	
	POOR NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE	FAIR STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE	AVERAGE SOME MINOR FAULTS/MODERATE RISK FOR MAJOR FAILURE	EXCELLENT SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES	
HEALTH	P	F	AV	EX	
	POOR SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY	FAIR SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING	AVERAGE LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD	EXCELLENT NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD	
RETENTION	TREES TO BE RETAINED		TREES TO BE REMOVED		TREE TO BE MONITORED DURING & POST CONSTRUCTION



SUMMARY TREE ASSESSMENT TABLE: HUNTER INDOOR SPORTS CENTRE

No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH ¹ [MM]	TPZ [M]	DARB ² [MM]	SRZ [M]	USEFUL LIFESPAN [YEARS]	STRUCTURE	HEALTH	TREE AZ	IMAGE REF (APPX A)	COMMENTS
17	<i>Melaleuca quinquenervia</i>	Swamp Paperbark	M	15	600	7.20	800	3.01	+40	AV	AV	A1	A5A	17. [CoN TREE ID 67105] [DBH: 440/410] SHIPPING CONTAINER PLACED NEAR TREE COVERING A PORTION OF ITS ROOT PLATE. THIS TREE WILL NEED TO BE REMOVED.
18	<i>Casuarina cunninghamiana</i>	River She-oak	M	14	490	5.88	700	2.85	+40	AV	AV	A1	A5A	18. [CoN TREE ID 67104] SOME MINOR SUCKER GROWTH FROM BASE. STAR PICKET EMBEDDED INTO THE BASE OF THE TREE. TO BE RETAINED
19	<i>Melaleuca quinquenervia</i>	Swamp Paperbark	M	9	610	7.32	720	2.88	+40	F	AV	A1	A5B	19. [CoN TREE ID 671098] MINOR LIFT OF ADJOINING AC PATH CAUSED BY TREE ROOTS. TREE PLANTED HARD AGAINST FENCELINE. FENCE AFFECTED BY TREE. TO BE RETAINED. FUTURE GRAVEL TRACK SHOULD CONSIDER USING A CELLULAR PLASTIC GRID LAID OVER A GEOTEXTILE LINER TO AVOID EXCAVATION AND COMPACTION ISSUES.
TREES OCCURRING ON ADJOINING PROPERTIES														
A*	<i>Liquidambar formosana</i>	Chinese Sweet Gum	M	12	530	6.36	650	2.76	+40	AV	AV	A1	A5C	A. TREE LOCATED CLOSE TO CORNER BOUNDARY CLOSE TO FOOTPATH. EXTENSIVE SURFACE ROOTS. SOME RECENT REMOVAL OF LARGE LIMBS. TO BE RETAINED.
B*	<i>Callistemon viminalis</i>	Weeping Bottlebrush	M	7	560	6.72	530	2.53	15-40	F	AV	A1	A5D	B. [DBH: 250/330/370] TREE WITH ASYMMETRIC CROWN DUE TO COMPETITION FROM NEARBY TREE (RECENTLY REMOVED.) INCLUDED BARK AND REACTION WOOD PRESENT. SOME MINOR DEADWOOD OCCURRING WITHIN CANOPY. TO BE RETAINED
C*	<i>Callistemon viminalis</i>	Weeping Bottlebrush	M	8	520	6.24	500	2.47	15-40	F	AV	A1	A6A	C. [DBH: 380/360] BROAD, SPREADING CANOPY. TRUNK WITH PRONOUNCED SWEEP OCCURRING @ 1200MM AGL WITH CANOPY COMPENSATING. TO BE RETAINED
D*	<i>Populus nigra Italica'</i>	Lombardy Poplar	M	11	380	4.56	380	2.20	+40	F	AV	A1	A6B	D. [DBH: 230/300] SUCKERS OCCURRING AT BASE. POSSIBLE RUST ON LEAVES. MINOR ENCROACHMENT. TO BE RETAINED
E*	<i>Populus nigra Italica'</i>	Lombardy Poplar	M	9	230	2.76	300	2.00	+40	F	AV	A1	A6B	E. SLIGHT MECHANICAL DAMAGE AT THE BASE OF THE TREE. IT APPEARS THAT THE TREE MAY HAVE BEEN LOPPED AT 3M AGL SOME TIME AGO AS SECONDARY GROWTH NOW WELL ESTABLISHED. TO BE RETAINED
F	<i>Melaleuca quinquenervia</i>	Swamp Paperbark	M	12	930	11.16	970	3.27	+40	AV	AV	A1	A7C	F. MULTI-TRUNKED TREE WITH 6 MAJOR LEADERS FORMING AT 800MM AGL. PAST PRUNING HAS BEEN DONE POORLY, RESULTING IN THE EXISTENCE OF BRANCH STUBS - SOME WITH WOOD ROT. GROUND AROUND THE BASE OF THE TREE HEAVILY COMPACTED BY STUDENTS GATHERING UNDER THE TREE. NEARBY DISH DRAIN AFFECTED BY TREE ROOT. THREATENED TREE. DETAILED DESIGN OF SUSPENDED ROADWAY AND SUPPLY OF MOISTURE TO UNDERLYING ROOTS WILL BE NEEDED. IMPLEMENTATION OF TREE PROTECTION PLAN REQUIRED.
G*	<i>Eucalyptus robusta</i>	Swamp Mahogany	M	14	720	8.64	800	3.01	+40	AV	AV	A1	A7D	G. CO-DOMINANT TRUNK @ 1.3M AGL. SPREADING CANOPY. MINOR DEADWOOD AND EPICORMIC GROWTH THROUGHOUT. SURROUNDING GROUND MILDLY COMPACTED. MEDIUM CROWN DENSITY. TREE REQUIRES DETAILED DESIGN TO ENSURE LEVELS AND INSTALLATION OF DECOMPOSED GRANITE TRACK DO NOT SIGNIFICANTLY IMPACT ON THE TREE'S ROOT PLATE. CONSIDERATION SHOULD BE GIVEN TO USING A CELLULAR PLASTIC GRID LAID OVER A GEOTEXTILE LINER TO AVOID EXCAVATION AND COMPACTION ISSUES FOR THE GRAVEL TRACK.
H														
I														
J														

1. MULTI-TRUNKED TREES HAVE AN AVERAGE MEASUREMENT CALCULATED IN ACCORDANCE WITH AS 4970. 2. DARB = DIAMETER AT ROOT BUTTRESS USED WHEN CALCULATING SRZ. * ASSUMED VALUES AS PROPERTY NOT ACCESSED

LEGEND

AGE CLASS	Y	SM	M	OM
	YOUNG SAPLING/HAS NOT REACHED 1 ST ADULT FORM	SEMI-MATURE DBH < 300mm/APPROACHING FULL HEIGHT	MATURE DBH BET. 300 -700/APPROACH. MAX HT & SPREAD	OVER-MATURE/SENESCENT LGE DBH, LGE BRANCH FAILURES/STRUCT FAILTS
STRUCTURE	P NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE	F STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE	AV SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE	EX SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES
HEALTH	P SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY	F SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING	AV LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD	EX NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD
RETENTION	TREES TO BE RETAINED		TREES TO BE REMOVED	TREE TO BE MONITORED DURING & POST CONSTRUCTION



APPENDIX C: TREE ASSESSMENT DIAGRAMS

FIGURE C1 – TPZ/SRZ DIAGRAM [BASE SURVEY SOURCE: DE WITT CONSULTING]

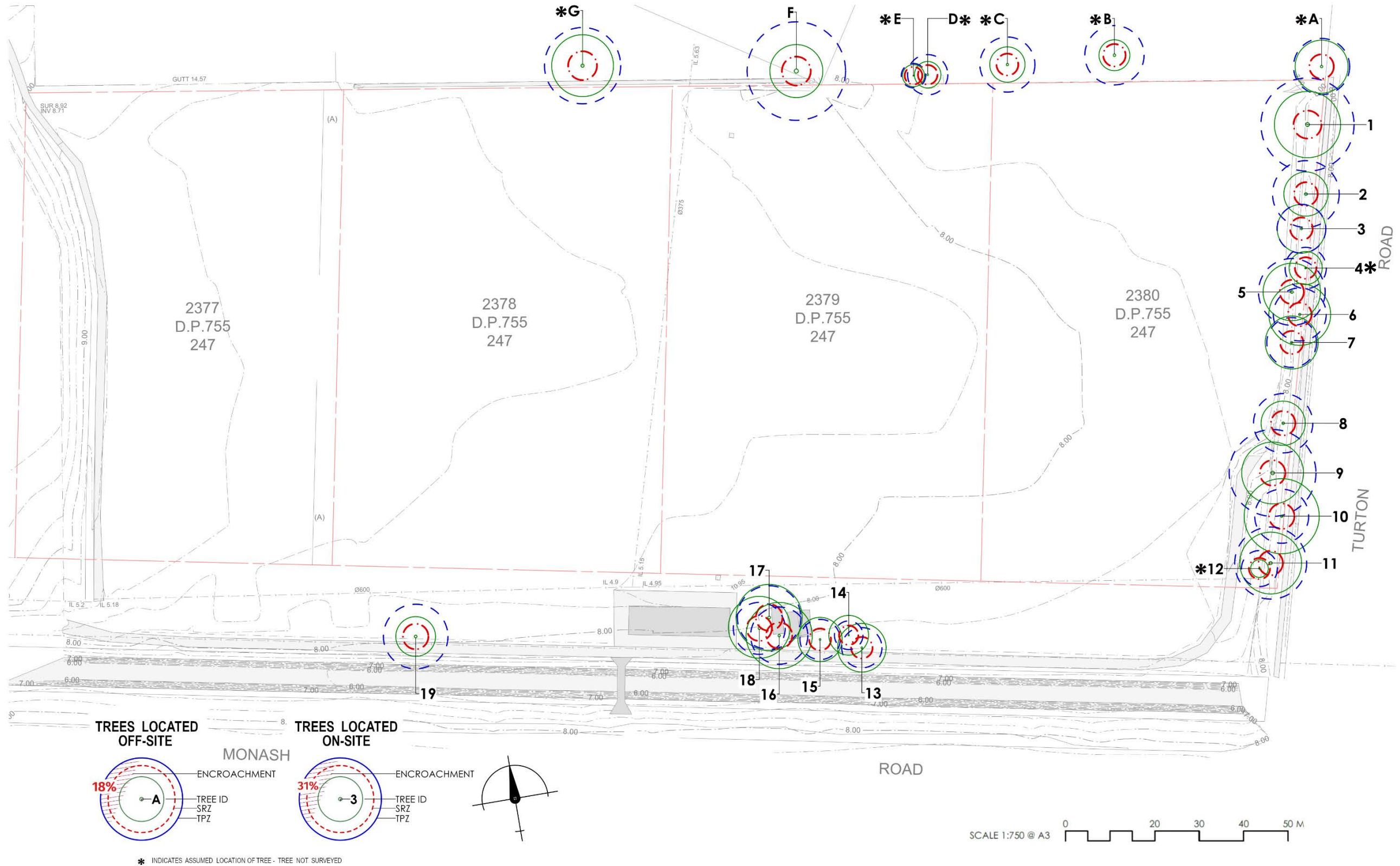
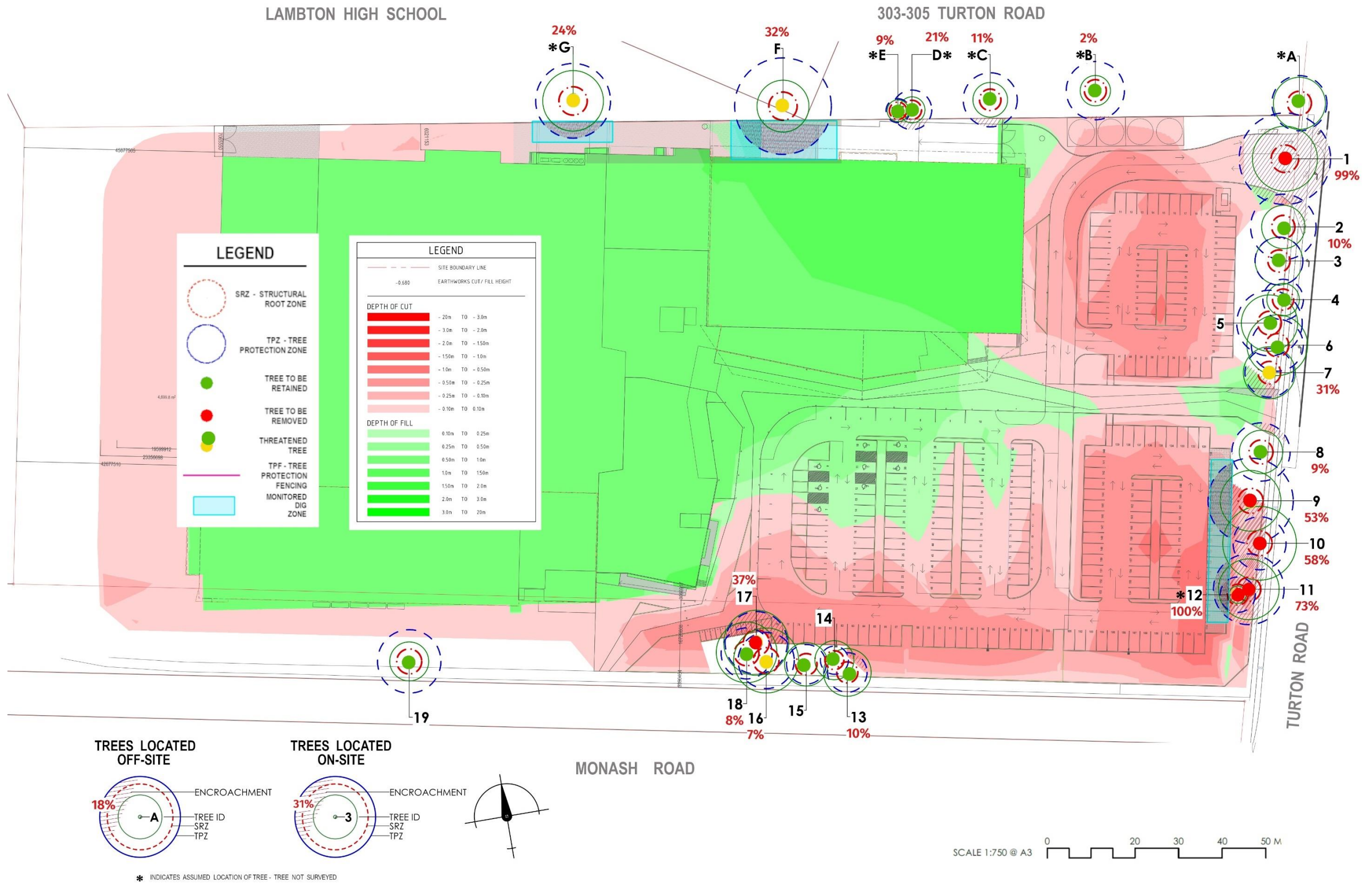




FIGURE C2 – TREE IMPACT ASSESSMENT DIAGRAM [BASE DRAWING SOURCE: EJE ARCHITECTURE & NORTHROP]



APPENDIX D: TREE PROTECTION PLAN (TPP)

The following outlines in detail the responsibilities and work required to be undertaken by the adequately protect the trees to be retained. (Refer also to Appendix C3.)

D.1 GENERAL INSTRUCTIONS

- A Project Arborist is to be engaged **by the client** for the full period of the contract including the Defects Liability Period.
- The Project Arborist must have qualifications equal to or greater than AQF Level 5 Arborist.
- Contact details, including mobile phone number, of the Project Arborist is supplied to the Construction Manager, Site Supervisor and other similar team members.
- Should any damage occur to the trees, both above and below ground components, then contact is to be made with the Project Arborist so that the damage may be inspected and remedial action taken, if required.
- All works proposed to be undertaken within the nominated TPZs of the threatened trees (refer Figure 8) shall be discussed with the Project Arborist prior to the works commencing to ensure that the appropriate methods and equipment are being employed.
- Give a minimum of 24 hours' notice when requiring the Project Arborist to attend site and advise the client when such requests are made.

D.2 DESIGN/DOCUMENTATION PHASE

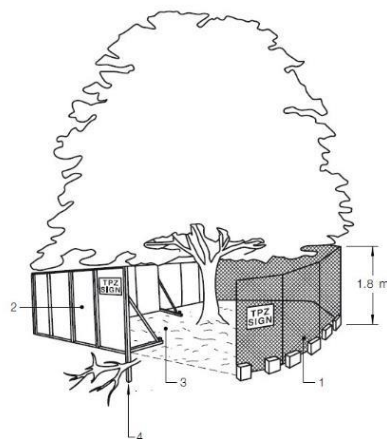
- The proposed gravel tracks within the TPZs of affected trees, should be constructed from a permeable material that requires only minimal excavation. It is recommended that this be comprised of a recycled plastic cellular grid infilled with 7mm-10mm crushed aggregate laid over a prepared subgrade and geotextile membrane. (Products to consider are GEOHEX™, DiamondGrid™, TRUEGRID®).
- The design of the northern road occurring within the TPZ of Tree F be undertaken with the involvement of the Project Arborist such that a structure is created that prevents damage to the tree's root plate. There is an element of risk associated with this work as noted above, and so an undertaken should be made with the school for the client to provide compensatory planting should the tree fail within five years after the completion of the project.

D.3 PRE-CONSTRUCTION PHASE

- A pre-construction meeting is to be held on site with the Project Arborist and relevant members of construction team, including the Construction Manager and Site Supervisor (or similar), to discuss all aspects of the TPP including: the erection of tree protection measures and management of the works within the TPZs.
- Erect tree protection measures as described in this TPP and as shown in the Tree Protection Diagram (Appendix C3). Tree Protection Fencing (TPF) shall comply with the requirements of AS 4970-2009 *Protection of trees on development sites*. (Refer Figure D2)
- Signs shall be attached to the TPF (or temporary site fencing, if appropriate) notifying people of the presence of TPZs and shall include the name and contact details of the Project Arborist. (Refer Figure D1 or similar.)
- It is further suggested with the approval of the high school, to the base of Tree F: remove picnic seating; hand cultivate the TPZ area to a depth of 100mm-150mm to breakup the surface crust; undertake an application of a plant growth regulator that assists the initiation of compensatory root growth (e.g. Seasol®); apply 25mm (approx.) of a root zone conditioner (e.g. soured lucerne, worm castings and well-composted mulch followed by 50mm (approx.) thick application of an organic mulch (e.g. Mixed Leaf and Wood Chip Mulch) for the purpose of retaining moisture and to provide a protective layer to prevent further compaction.



FIGURE D1: EXAMPLE OF TPZ SIGN
SOURCE: www.newsigns.com.au



- LEGEND:
- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
 - 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
 - 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
 - 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE D2: TREE PROTECTION FENCING (TPF)
[SOURCE: AS 4970-2009]

D.4 CONSTRUCTION PHASE

- During induction sessions and toolbox talks with the construction team, and its sub-contractors, if relevant, reference should be made to the restrictions of undertaking work within the TPZs.
- Any excavation works to be carried out within the TPZs shall be supervised by the Project Arborist. This is particularly important when undertaking work within the nominated Investigation Zone as root mapping will be required prior to any excavation works. (Refer Appendix C3).
- Any required branch removal shall only be undertaken with the written approval of the Project Arborist and undertaken in accordance with the requirements of AS 4373-2007 *Pruning of amenity trees*.
- Any exposed roots are to be temporarily protected, such as overlaying form ply sheeting and dampened hessian.
- Any root pruning, if required, shall be inspected and instructions given by the Project Arborist. The work shall then be supervised by the Project Arborist. Only clean, sharp implements are to be used.
- All care should be taken to keep woody roots intact. Any roots encountered being less than 50mm diameter may be neatly severed using clean, sharp tools ensuring not to leave ragged cuts.
- Any root pruning should be undertaken to meet the requirements of AS 4373-2007 *Pruning of amenity trees* with the work being undertaken by at least an AQF3 Arborist in accordance with *Guide to Managing Risks of Tree Trimming and Removal Work* (Safe Work Australia 2016).
- Roots once cut shall be kept moist using hessian-like material until covered over. Severed roots shall be treated with a suitable root growth hormone with the active ingredients Indole-3-Butyric Acid (IBA) and 1-Naphylacetic Acid (NAA) to assist with regeneration of the root system.

D.5 POST-CONSTRUCTION PHASE

- Remove tree protection measures at the completion of the works.
- Arrange for the Project Arborist to undertake a final inspection and provide a certificate confirming that the TPP has been complied with documenting any inconsistencies or departures. This report shall be made available to LMCC upon request
- The Project Arborist shall undertake an inspection of the trees two weeks prior to the end of the Defects Liability Period and report on their condition.



APPENDIX E: TREE AZ

The following table provides supplementary information to assist in interpreting the previous tables with respect to Tree AZ classifications.

TREE AZ CATEGORIES	
CATEGORY Z: UNIMPORTANT TREES NOT WORTHY OF BEING A MATERIAL CONSTRAINT	
Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species.	
Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection.
Z2	Too close to a building i.e. exempt from legal protection because of proximity.
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc
High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure	
Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remediation care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions.
Z6	Instability, i.e. poor anchorage and/or increased exposure.
Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people	
Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. dominance, debris and/or interference.
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. severe structural damage to surfacing and buildings.
Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population	
Z9	Severe damage and/or structural defects where high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions.
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings and/or poor architectural framework.
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference and/or suppression.
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance.
NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorisation hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.	
CATEGORY A: IMPORTANT TREES SUITABLE FOR RETENTION FOR MORE THAN 10 YEARS AND WORTHY OF BEING A MATERIAL CONSTRAINT	
A1	No significant defects and could be retained with minimal remedial care.
A2	Minor defects that could be addressed remedial care and/or work to adjacent trees.
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years.
A4	Trees that may be worthy of legal protection from ecological reasons (Advisory requiring specialist assessment)
NOTE: Category A1 trees that are already large and exceptional, or have potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A trees are sufficiently important to be material constraints, AA trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.	
CAUTION: Tree AZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The preceding category descriptions are designed to be a brief field reference and are not to be self explanatory. They must be read in conjunction with the most current explanations published at www.treeaz.com	
Tree AZ was designed by Barrell Tree Consultancy (www.barrelltreecare.co.uk) and is reproduced with their permission.	

REV	DESCRIPTION	DATE
A	DRAFT REPORT FOR CLIENT REVIEW	2024-03-25
B	REVISED REPORT FOR CLIENT REVIEW	2024-05-22





Appendix C BDAR Waiver Request - Letter of Refusal

Streamlined Biodiversity Development Assessment Report

**SSD-65595459 Hunter Indoor Sports Centre
24 Wallarah Road and 2 Monash Road, New Lambton**

EJE Architecture

SLR Project No.: 630.031388.00001

19 August 2024

Our ref: Hunter Indoor Sports Centre (SSD-65595459)

Ms Rosie Sutcliffe
Associate Director

Urbis

Angel Place, Level 8, 123 Pitt Street

Sydney NSW 2000

19 June 2024

Subject: Request to waive the need for a Biodiversity Development Assessment Report under the *Biodiversity Conservation Act 2016*

Dear Ms Sutcliffe

I refer to your correspondence dated 27 May 2024, requesting the issue of a waiver from the requirement for a Biodiversity Development Assessment Report (BDAR) to be submitted as part of the State significant development (SSD) application for the Hunter Indoor Sports Centre (SSD-65595459).

Section 7.9(2) of the Biodiversity Conservation Act 2016 (BC Act) provides the following in relation to an application for SSD:

“Any such application is to be accompanied by a biodiversity development assessment report unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have significant impact on biodiversity values.”

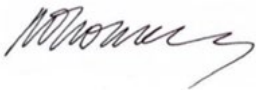
The Biodiversity, Conservation and Science (BCS) group of the Secretary of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) has considered the waiver request and is not satisfied the proposed development is not likely to have any significant impact on biodiversity values, due to the presence of planted native vegetation. Appendix D of the Biodiversity Assessment Method (BAM) provides a decision key for the assessment of planted native vegetation. Application of the key (specifically Question 5) applies to the planted native vegetation present on site. As such BCS have determined that a BDAR should be prepared in accordance with the streamlined assessment module for planted native vegetation of the BAM. Accordingly, the delegate has not granted a waiver.

As delegate of the Planning Secretary of the Department of Planning, Housing and Infrastructure, I have considered the waiver request and determination of BCS and determined that it cannot be

concluded whether the proposed development as described above, is not likely to have any significant impacts on biodiversity values, due to the presence of planted native vegetation.

Should you have any enquiries regarding the above matter, please contact Bethany Lane on 02 9585 6775 or via email at bethany.lane@dpie.nsw.gov.au.

Yours sincerely,

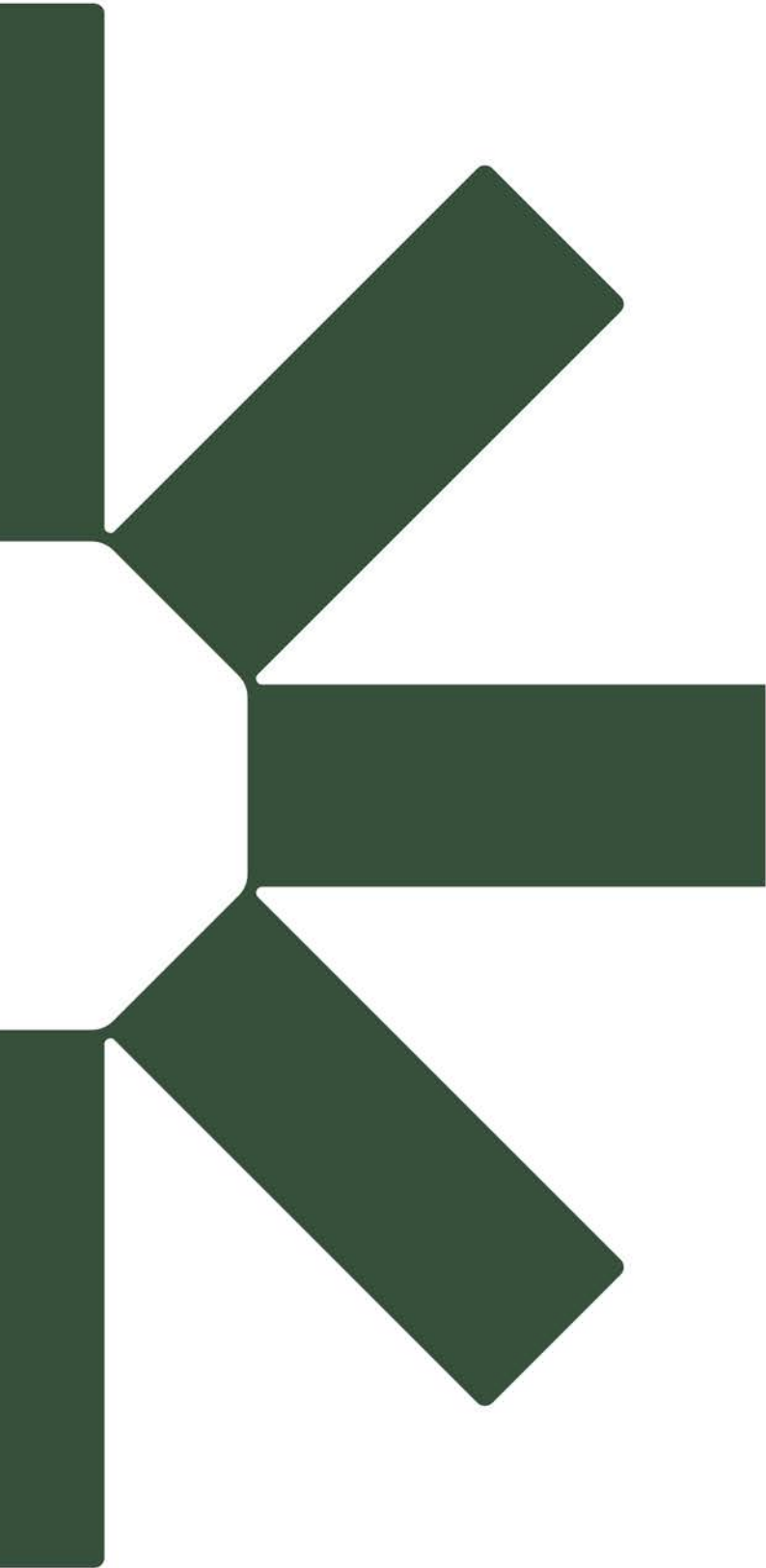
A handwritten signature in black ink, appearing to read "Madeline Thomas".

Madeline Thomas

Team Leader

Social Infrastructure Assessments

as delegate of the Planning Secretary



Making Sustainability Happen