REPORT

Arboricultural Impact Assessment

PREPARED FOR

NSW Department of
Education

Stage 2

Kogarah Public School
24B Gladstone Street
Kogarah NSW 2217

5th of February 2025

PREPARED BY

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Version tracking

Version 1	29/10/2024	Hephzibah Ryan	Initial document version for Stage 2
Version 2	30/10/2024	Jim McArdle	Review & edit
Version 3	23/01/2025	Hephzibah Ryan	Amendment based on civil works
Version 4	23/01/2025	Jim McArdle	Review & edit
Version 5	28/01/2025	Hephzibah Ryan	Amendment based on provided commentary
Version 6	05/02/2025	Hephzibah Ryan	Discussion of construction site layout diagram (page 21)
Version 7	05/02/2025	Jim McArdle	Review & edit

1. EXECUTIVE SUMMARY

1.1 The client commissioned an Arboricultural Impact Assessment to determine the potential impacts of a proposal development on trees. The assessment provides recommendations to minimise the impacts on trees, if viable.

1.2 The proposed development at Kogarah Public School involves the demolition of existing structures and upgrades as outlined in 2.2.2 on following page.

1.3 The assessment was conducted on the 18th of March 2024, by Jim McArdle B.Ed. Sci (ACU), Dip. Arb AQF L5 (Ryde), Tree Risk Assessment Qualified (TRA), Quantified Tree Risk Assessment (QTRA) & Tree Contractors Association of Australia (TCAA) President.

1.4 Forty-three (43) trees were assessed on site and the adjacent surroundings and are summarised as follows.

Table 1: Retention Values

Retention Values				
High (8 trees)	Moderate (9 trees)	Moderate-Low (11 trees)	Low (11 trees)	Very Low (4 trees)
Trees 55, 56, 63, 64, 65, 72, 81 and 82.	Trees 30, 38, 39, 41, 57, 60, 68, 74 and 78.	Trees 22, 32, 33, 34, 37, 42, 67, 75, 76, 77 and 79.	Trees 31a, 13b, 35, 40, 62, 66, 69, 70, 71, 73 and 80.	Trees 36, 58, 59 and 61.

Table 2: Proposed Tree Management Plan.

Tree Management Plan	
Remove (18 trees)	Retain (25 trees)
58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.	22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81

Table 3: Proposed Tree Protection Plan

Tree Protection Measures	No of trees	Tree No.
Tree Protection Fencing	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Mulch Ground Cover Protection	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Tree trunk protection	3 trees	39, 40 and 41.
Sensitive design considerations	5 trees	41, 42, 72, 74 and 81.
Root pot hole investigation	5 trees	41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction	6 trees	39, 40, 41, 72, 74 and 81.
Pruning specification	5 trees	72, 73, 74, 75 and 76.
Ground protection (gravel and metal sheets)	1 tree	81.

1.5 Sensitive Construction Measures

Trees 41, 42, 72, 74 and 81 requires a sensitive excavation method within the TPZ incursions to protect and minimise damage to the roots. Excavation using non-destructive digging NDD e.g., hand shovels or high-pressure water vacuums, will reduce impact on the trees stability and must be completed under the supervision of a Project Arborist.

For trees 39, 40, 41, 72, 74 and 81, Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.

1.6 New Planting of eighteen (18) trees of 45L volume pots.

2. INTRODUCTION

2.1 Aims

2.1.1 To evaluate the condition of trees, their value for retention and identify any potential effects of the proposed development. To provide feasible alternatives to mitigate detrimental effects on trees and provide suggestions for the management and protection of the trees throughout the development process.

2.1.2 To designate and preserve Tree Protection Zones (TPZ) for trees proposed for retention, in order to maintain their vitality and ensure that the tree protection measures are compliant throughout the duration of works.

2.2 Scope

2.2.1 NSW Department of Education commissioned an Arboricultural Impact Assessment for Kogarah Public School.

2.2.2 The proposed Kogarah Public School upgrade works include the following:

- Demolition of existing playground facilities and Covered Outdoor Learning Area (COLA) in addition to footings and services associated with former demountable buildings;
- Tree removal;
- Construction of a new three storey Classroom building and attached amenities facilities;
- Construction of a single storey Hall with attached Covered Outdoor Learning Area;
- New pedestrian pathway connections providing access throughout the site;
- Service upgrades; and
- Site landscaping works.

Any works relating to the existing demountables will be undertaken via a separate planning pathway.

2.2.3 Forty-three (43) trees were assessed on site and on the adjacent surroundings.

2.2.4 The assessment was conducted on the 18th of March 2024, by Jim McArdle, B Ed Sc (ACU), Dip Arb, AQF L5 (Ryde), Tree Risk Assessment Qualified (TRA), Quantified Tree Risk Assessment (QTRA) & Tree Contractors Association of Australia (TCAA) President.

2.2.5 The technical writer ascribed with compiling the report is Ryan, H. B.AgriSc (SYD).

2.2.6 Tree management measures are regulated by Georges River Council DPC 2021 and LEP 2021.

2.2.7 The Visual Tree Assessment VTA does not include below ground root excavation, and no expert laboratory analyses - including internal diagnostics, inaccessible trunk and aerial inspections – were conducted. No pathology tests or soil analyses were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

2.2.8 There is no additional tree -related documentation provided by the client. Our observations are the only analysed details besides post-site research and comparisons of similar sites.

2.3. Methodology

2.3.1 The inspection was primarily conducted using ground-based collection of data to identify visible signs of tree health, structure and potential hazards. Collection data methods may include a mallet for sound test, trowel, screwdriver for compaction and probing cavities to identify pathogens pests and disease. The assessments do not involve laboratory analysis and include the following methods.

2.3.2 **Visual Tree Assessment (VTA**) (Mattheck and Breloer 1994), a method assessing for biological and lower-level mechanical functions and signs of decay, damage, or defects (Appendix A).

2.3.3 **Tree AZ Categories** (Barrell 2010) classifies importance of trees on development sites, (Appendix B).
Category A: suitable for retention and **Category Z:** not worthy of constraint.

2.3.4 **Tree Useful Life Expectancy (TULE)** (Barrell 1993, adapted with permission for TCAA 2014) determines the time a tree can be expected to be usefully retained in normal circumstance. **Long TULE** is >40 years; Medium TULE is 15-40years; **Short TULE** is 5-15years; No retention potential is 0yrs- 5yrs; **Remove-** next 5yrs; **Move or Replace** and **small, young, regularly clipped** (Appendix C).

2.3.5 **Landscape Significance Rating** (Morton 1996) rates trees as **Significant** – based on heritage or ecological value. **Very high** – based on adjacent area surrounding the site. **High** - neighbourhood status but may have some conditions or health issues. **Moderate -** Good and Worthy of Preservation, may have minor health issues. **Low** - Worthy of Preservation, may have major conditions or health issues. **Very low** - Retain and protect. and **Insignificant** - Exempt from retention (Appendix D).

2.3.6 **Retention Value Rating** (Morton 2011) determined by considering both TULE and the Landscape Significance. **High** Retention are a priority for retention. **Moderate** Retention are retained where possible. **Low** Retention are generally not a constraint to development and **Very Low** Retention may have potential hazards (Appendix E).

2.3.7 **Planting Specifications from NATSPEC** (Clark 2003) and Australian Standard ® AS 2303-2018 Tree Stock for Landscape Use. (Appendix H).

2.3.8 Tree management and protection during development is in accordance with **Australian Standard ® AS 4970 2009 Protection of Trees on Development Sites**.

2.3.9 Photos with GPS waypoints were captured using the SOLOCATOR app. An iPhone 13 is used for taking the photos and these were not digitally altered.

3. RESULTS

3.1 Site Analysis

3.1.1 The site is Kogarah Public School at 24B Gladstone St, Kogarah NSW 2217.

3.1.2 The site's topography is flat, and the soil[1] composition in this region mostly consists of clay loam.

Figure 1: *Aerial site map of Kogarah Public School (Nearmap 2024). The scope of the construction is outlined in yellow.*

[1] *Espade.environment.nsw.gov.au*

3.2 Legislation And Significance In The Environment

3.2.1 Commonwealth Legislation regulates the **Biosecurity Act 2015**, (diseases and pests) and **Environmental Protection & Biodiversity Conservation Act 1999 (EPBC Act)** protects endangered ecological communities (EEC) and heritage items.

3.2.2 The **NSW Biodiversity Conservation Act 2016 (BC Act**) mandates a *Species Impact Statement* on land that includes critical habitat or endangered species. Additionally, the *Biodiversity Banking Offset Scheme* determined by Biodiversity Assessment Method (BAM), may potentially be needed to counteract the impact on biodiversity. The BC Act repealed (but still has some transitional arrangements) the NSW Threatened Species Conservation Act, 1995.

3.2.3 **NSW Environmental Planning and Assessment Act 1979 (EP&A Act),** regulates Environmental Planning Instruments EPIs at both state and local levels. Under section 76 of the Act, exempt development may be carried out without the need for development consent under Part 4 of the Act or for assessment under Part 5 of the Act.

3.2.4 **State Environmental Planning Policy (SEPP'S), (Vegetation in Non-Rural Areas) 2017** focuses on issues of regional or state significance and has precedence over Council's Local Environment Plan LEP and Development Control Plan DCP.

3.2.5 **NSW Rural Fire Act 1997**[2] regulates a *10/50 Vegetation Clearing Code* which permits the removal of trees within 10 metres and underlying shrubs within 50 metres of a house to reduce risk from bushfires.

3.2.6 An analysis of legislation concludes the following:

- Tree management measures are regulated by Georges River Council DPC 2021 and LEP 2021.
- **Land Zoning:** SP2: Infrastructure
- **Local Aboriginal Land Council:** METROPOLITAN**.**

3.3 Local Planning Control Maps[3]

Figure 2: *Land Zoning.*
SP2: Infrastructure

[2] *https://www.rfs.nsw.gov.au/*
[3] *https://www.planningportal.nsw.gov.au/*

3.4 Tree Schedule

Table 4: Tree Schedule - Health and Structural Condition of Trees.

(* DBH- Diameter Breast Height, DRC- Diameter Root Collar. * TPZ- Tree Protection Zone. SRZ- Structural Root Zone. * TULE-Tree Useful Life Expectancy)

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
22	Planter	*Callistemon viminalis* Bottlebrush	N4, S4, E4, W6	7	15/15/15	3.12 1.88	Semi mature, previously pruned, unbalanced canopy to the West, triple leaders, decking adjacent.	2a	Low to Moderate	Retain and protect.
30	Adjacent fence	*Leptospermum species* Tea Tree	N6, S2, E3, W3	9	29 30	3.48 2	Semi mature, good condition but poor development, minor damage to roots, lean to the West.	2a	Moderate	Retain and protect.
31a		*Hakea speices*	4	5	5/5 8	2 1.5	Immature, unbalanced canopy, good condition but poor development.	2a	Low	Retain and protect.
31b		*Hakea speices*	4	5	5/5 8	2 1.5	Immature, unbalanced canopy, good condition but poor development.	2a	Low	Retain and protect.
32	East fence	*Leptospermum species* Tea Tree	N-S 6, E-W 8	10	20/20/6 28	3.48 1.94	Semi mature, previously pruned at 1 meter, unbalanced canopy to the East.	2a	Low to Moderate	Retain and protect.
33	East fence	*Leptospermum species* Tea Tree	N-S 5, E-W 7	10	25 27	3 1.91	Semi mature, good condition but poor development and unbalanced canopy to the East.	2d	Low to Moderate	Retain and protect.
34	East fence	*Leptospermum species* Tea Tree	N4, S0, W5, E0	11	20 22	2.4 1.75	Semi mature, unbalanced canopy to the West.	2d	Low to Moderate	Retain and protect.
35	East fence	*Leptospermum species* Tea Tree	5	5	10/10 15	2 1.5	Immature, good condition but poor development.	2a	Low	Retain and protect.
36	East fence	*Leptospermum species* Tea Tree	4	5	5/8 10	2 1.5	Juvenile, good condition but poor development, previously pruned.	2a	Very Low	Retain and protect.
37	East fence	*Tristaniopsis laurina* Water gum	4	5	10 10	2 1.5	Immature, unbalanced canopy to the East.	2a	Low to Moderate	Retain and protect.
38	East fence	*Callistemon viminalis* Bottlebrush	8	8	20/15 32	3 2.05	Semi mature, good condition but poor development, twin stem, cavity to the East.	2a	Moderate	Retain and protect.
39	East fence	*Tristaniopsis laurina* Water gum	8	8	20/10/10 30	3 2	Semi mature, good condition but poor development.	2a	Moderate	Retain and protect.
40	Centre	*Tristaniopsis laurina* Water gum	3	4	10x3 15	2.04 1.5	Semi mature, good condition but poor development.	2d	Low	Retain and protect.
41	Adjacent fence	*Tristaniopsis laurina* Water gum	8	8	20/18/3x12 45	4.08 2.37	Semi mature, good condition but poor development, 30% hard surface impacts.	2a	Moderate	Retain and protect.
42	Neighbours	*Callistemon viminalis* Bottlebrush	6	6	10/12 15	2 1.5	Immature, good condition but poor development, 1 meter of canopy hanging over fence.	2a	Low to Moderate	Retain and protect.
55	North courtyard	*Tristaniopsis laurina* Water gum	12	14	25/40 66	5.64 2.78	Mature, good condition but poor development, failed the mallet test, decay damage to roots.	2d	High	Retain and protect.
56	North courtyard	*Tristaniopsis laurina* Water gum	12	14	46 60	5.52 2.67	Mature, good condition but poor development to the West, lean, decay on old cut.	3a	High	Retain and protect.
57	North courtyard	*Tristaniopsis laurina* Water gum	12	14	50 55	6 2.57	Mature, good condition but poor development, decay, cavity to the South at base, previously pruned.	3d	Moderate	Retain and protect.

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
58		*Leptospermum species* Tea Tree	4	5	5/5/5 10	2 1.5	Juvenile, unbalanced canopy to the West.	2a	Very Low	Remove and replenish.
59		*Melia azederach* White Cedar	5	7	12 14	2 1.5	Semi mature, previously pruned.	5e	Very Low	Remove and replenish. Toxicity concern.
60		*Tristaniopsis laurina* Water gum	8	10	32 35	3.84 2.13	Semi mature, good condition but poor development.	2a	Moderate	Remove and replenish.
61		*Melia azederach* White Cedar	3	5	5 8	2 1.5	Juvenile, moderate condition.	5e	Very Low	Remove and replenish. Toxicity concern.
62		*Pittosporum undulatum* Pittosporum	4	5	10 10	2 1.5	Immature, good condition but poor development.	2a	Low	Remove and replenish.
63	North	*Tristaniopsis laurina* Water gum	10	13	55 60	6.6 2.67	Mature, good condition but poor development, lean to the West, vine.	2d	High	Remove and replenish.
64		*Eucalyptus microcorys* Tallowwood	N0, S8, E9, W9	24	70 85	8.4 3.09	Mature, good condition.	2a	High	Remove and replenish.
65		*Eucalyptus microcorys* Tallowwood	N3, S8, E10, W9	18	67 68	8.04 2.81	Mature, unbalanced canopy to the South, topped, decay to the North, 10% dehydration.	2d	High	Remove and replenish.
66	West fence	*Callistemon viminalis* Bottlebrush	5	5	10 10	2 1.5	Juvenile, excellent condition, on fence.	2a	Low	Remove and replenish.
67		*Pittosporum undulatum* Pittosporum	5	7	20 22	2.4 1.75	Immature, decay at base.	3a	Low to Moderate	Remove and replenish.
68		*Melaleuca styphelioides* Prickly-leaved Paperbark	6	8	24/15/15 30	3.84 2	Immature, good condition, triple stem, supressed.	2a	Moderate	Remove and replenish.
69		*Pittosporum undulatum* Pittosporum	2	5	10 12	2 1.5	Immature, previously pruned, physical damage.	3a	Low	Remove and replenish.
70		*Eucalyptus torelliana* Cadaghi	12	15	60 60	7.2 2.67	Immature, good condition.	2a	Low	Remove and replenish.
71		*Melaleuca styphelioides* Prickly-leaved Paperbark	2	4	10 10	2 1.5	Immature, good condition.	2a	Low	Remove and replenish.
72		*Corymbia maculata* Spotted Gum	N-S 12, E-W 14	18	52 58	6.24 2.63	Semi mature, good condition but poor development, minor dehydration.	2a	High	Retain and protect.
73		*Leptospermum species* Tea Tree	3	4	5/5/5 10	2 1.5	Juvenile, good condition.	1a	Low	Retain and protect.
74	West fence	*Lophostemon confertus* Brushbox	N6, S6, E0, W6	15	54 66	6.48 2.78	Semi mature, good condition but poor development, previously pruned for power pole.	3a	Moderate	Retain and protect.
75	West, sign	*Callistemon viminalis* Bottlebrush	4	7	16 24	2 1.82	Immature, storm damage, good condition but poor development.	2a	Low to Moderate	Retain and protect.
76		*Callistemon viminalis* Bottlebrush	5	7	20 22	2.4 1.75	Immature, good condition but poor development.	2a	Low to Moderate	Retain and protect.
77		*Melaleuca styphelioides* Prickly-leaved Paperbark	N4, E-W 6	8	10/15 25	2.16 1.85	Immature, good condition, supressed.	2a	Low to Moderate	Remove and replenish.

Tree No.	Location Note *GPS in Appendix	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Proposed Measures
78		*Lophostemon confertus* Brushbox	10	12	30 34	3.6 2.1	Immature, twin stem, good condition but poor development, previously pruned to the West.	2d	Moderate	Remove and replenish.
79		*Hakea species*	3	5	10 15	2 1.5	Semi mature, decay at base, moderate condition, passed the push test.	4c	Low to Moderate	Remove and replenish. Safety concern.
80	West fence	*Hakea species*	6	5	16 17	2 1.57	Immature, good condition but poor development.	2a	Low	Retain and protect.
81	South fence	*Lophostemon confertus* Brushbox	14	14	62 74	7.44 2.92	Mature, slight lean to the West, artificial grass.	2a	High	Retain and protect.
82	South fence	*Angophora costata* Red Gum	18	24	74 80	8.88 3.01	Mature, good condition but poor development, lean to the West, grass swale.	2a	High	Remove and replenish.

3.5 Photographic Observations

Plate 1: Trees 24 to 27 seating and assembly area.

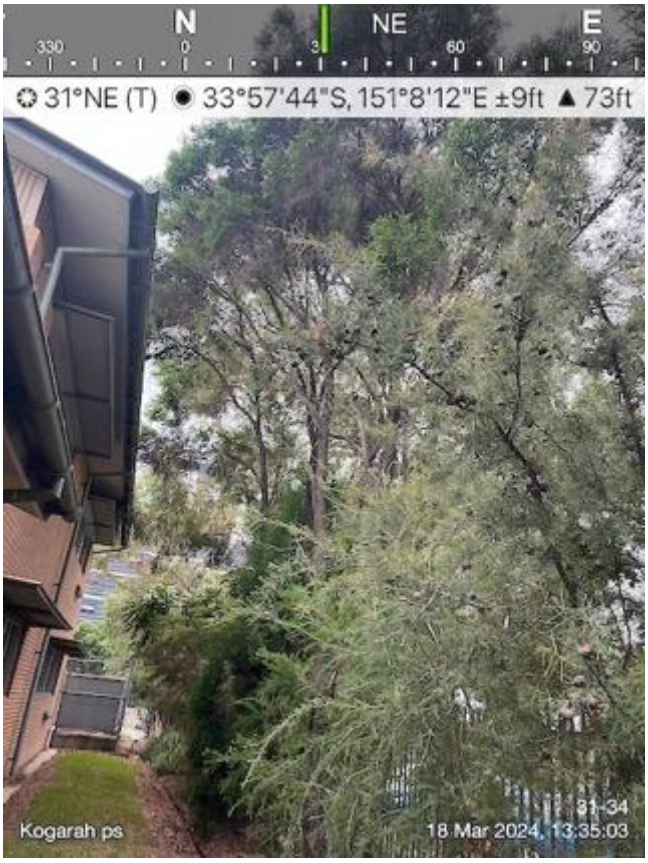


Plate 2: Trees 31 to 34 western boundary.

Plate 3: Trees 55 to 57 corridor on north of site.

Plate 4: Tree 65, Eucalyptus microcorys (Tallowwood), surrounded with artificial turf.

Plate 5: Tree 66 to 78 adjacent sited boundary fence.

Plate 6: Trees 79 and 80 adjacent school fence.

4. DISCUSSION

4.1.1 Forty-three (43) trees were assessed on site for the purposes of the development.

4.1.2 Eighteen (18) trees are proposed for removal, of which seven (7) possess high or moderate retention values. These trees were identified in the preliminary arborist report provided to the client. However, due to site constraints, the removal of these trees has become necessary.

4.1 Tree Useful Life Expectancy (TULE) and Landscape Significance

4.1.1 Trees 55, 64, 65, 70, 72, 81 and 82 have **medium** useful life expectancy ratings (2a/2d) of 15 to 40 years. The trees are considered to have **high** value in the landscape, given they are native species with live crown sizes exceeding 100m^2.

4.1.2 Trees 38, 39, 41, 60, 63, and 78 have **medium** useful life expectancy ratings (2a/2d) of 15 to 40 years. The trees are considered to have **moderate** value, given that they are native species with live crown sizes exceeding 40m^2.

4.1.3 Trees 56 and 57 have **short** useful life expectancy ratings (3a) of 5 to 15 years. The trees are considered to have **high** value in the landscape, given that they are native species with live crown sizes exceeding 100m^2.

4.1.4 Tree 74 has a **short** useful life expectancy rating (3a) of 5 to 15 years. The tree is considered to have **moderate** value in the landscape, given that it is a native species with a live crown size exceeding 40m^2.

4.2 Retention Values

4.2.1 Retention values are established by evaluating both the factors of TULE and Landscape Significance. (Appendix C,D & E). Retention values are determined as follows.

Table 5: Retention Values

Retention Values				
High (8 trees)	Moderate (9 trees)	Moderate-Low (11 trees)	Low (11 trees)	Very Low (4 trees)
Trees 55, 56, 63, 64, 65, 72, 81 and 82.	Trees 30, 38, 39, 41, 57, 60, 68, 74 and 78.	Trees 22, 32, 33, 34, 37, 42, 67, 75, 76, 77 and 79.	Trees 31a, 13b, 35, 40, 62, 66, 69, 70, 71, 73 and 80.	Trees 36, 58, 59 and 61.

4.2.2 Trees of very low retention value are numbered 36, 58, 59 and 61. These trees are considered are noxious weeds or very young specimens.

4.3 Impact Assessment

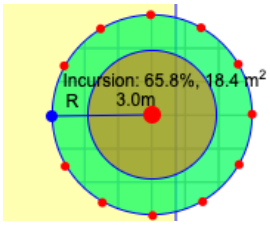
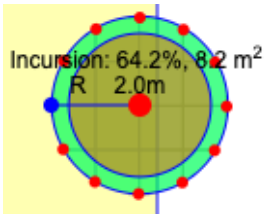
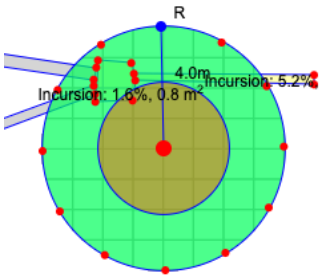
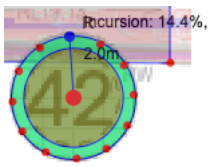
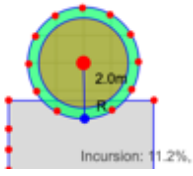
4.3.1 The assessment analyses the possible impacts of the proposed development on the Tree Protection Zones (TPZ) and tree canopies. The impacts are classified based on the percentage of TPZ encroachments: minor if they are less than 10%, and major if they are more than 10%.

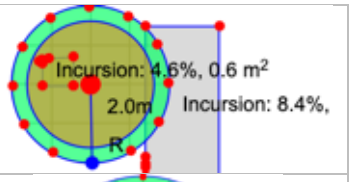
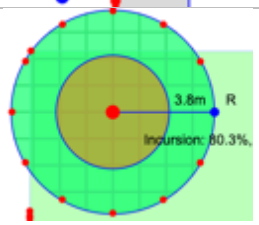
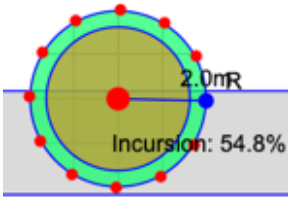
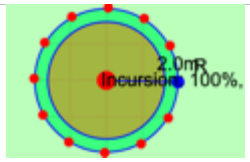
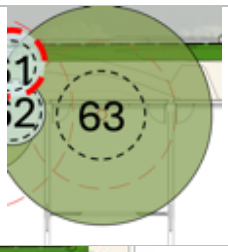
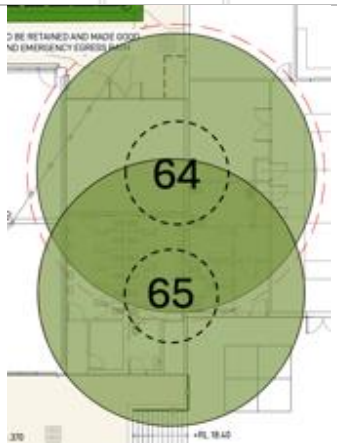
4.3.2 Thirteen (13) trees are not impacted, these are numbered 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 55, 56, and 57.

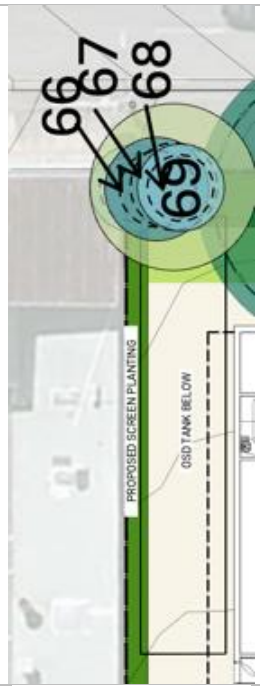
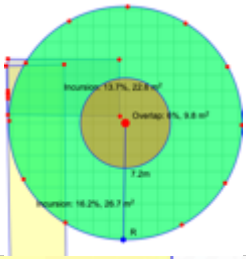
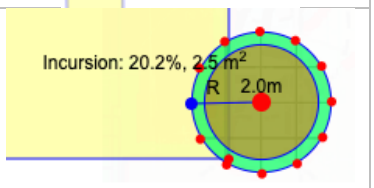
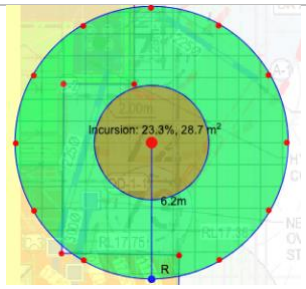
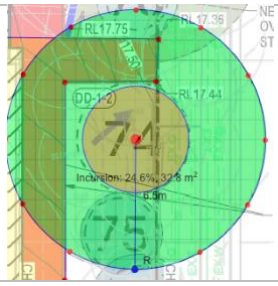
4.3.3 Six (6) trees have minor incursions, these are numbered 38, 73, 75, 76, 79 and 80.

4.3.4 Twenty-four (24) trees have major incursions, these are numbered 39, 40, 41, 42, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 77, 78, 81 and 82.

Table 6: Major TPZ Encroachments - more than 10%

Major TPZ Encroachment for Proposed Retention	
Tree 39, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 65.8% **Impact:** 100 mm of fill in TPZ and SRZ. **Viability Statement:** Tree is viable to be retained with 100 mm of fill. **Recommendation:** Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 40, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Low **TPZ Encroachment**: 64.2% **Impact:** 100 mm of fill in TPZ and SRZ. **Viability Statement:** Tree is viable to be retained with 100 mm of fill. **Recommendation:** Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 41, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 75% (including 6.8% from stormwater) **Impact:** Stormwater in TPZ. 100 mm of fill. **Viability Statement:** Viability is dependent on location of tree and tree roots. **Recommendation:** Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 42, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Low to Moderate **TPZ Encroachment**: 14.4% **Impact:** Retaining wall in SRZ, 350 mm cut from foot path. **Viability Statement:** Viability is dependent on location of tree and tree roots. **Recommendation:** Retain and protect with sensitive construction measures and root pot hole investigation.	
Tree 58, *Leptospermum species* (Tea Tree) **Retention Value:** Very Low **TPZ Encroachment**: 11.2% **Impact:** Proposed new courtyard in root system, canopy damage from proximity to works. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 59, *Melia azedarach* (White Cedar) **Retention Value:** Very Low **TPZ Encroachment**: 13%	

Impact: Root system impacted by proposed hardstand and pit. **Viability Statement:** **Recommendation:** Remove and replenish.	
Tree 60, *Tristaniopsis laurina* (Water Gum) **Retention Value:** Moderate **TPZ Encroachment**: 80.3% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 61, *Melia azedarach* (White Cedar) **Retention Value:** Very Low **TPZ Encroachment**: 54.8% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 62, *Pittosporum undulatum* (Pittosporum) **Retention Value:** Low **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 63, *Tristaniopsis laurina* (Water Gum) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 64, *Eucalyptus microcorys* (Tallowwood) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish. Tree 65, *Eucalyptus microcorys* (Tallowwood) **Retention Value:** High **TPZ Encroachment**: 100% **Impact:** Whole stem located within proposed classrooms. **Viability Statement:** Tree is not viable. **Recommendation:** Remove and replenish.	
Tree 66, *Callistemon viminalis* (Bottlebrush) **Retention Value:** Low **TPZ Encroachment**: 20% **Impact:** Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable, Tree is not worthy of being a constraint. **Recommendation:** Remove and replenish. Tree 67, *Pittosporum undulaltum* (Pittosporum) **Retention Value:** Low to Moderate **TPZ Encroachment**: 20%	

Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable, Tree is not worthy of being a constraint.	
Recommendation: Remove and replenish.	
Tree 68, *Melaleuca styphelioides* (Prickly-leaved Paperbark)	
Retention Value: Moderate	
TPZ Encroachment: 20%	
Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 69, *Pittosporum undulaltum* (Pittosporum)	
Retention Value: Low	
TPZ Encroachment: 20%	
Impact: Root system impacts from stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 70, *Eucalyptus torelliana* (Cadaghi)	
Retention Value: Low	
TPZ Encroachment: 30%	
Impact: Root system impacts from hardscaping, stormwater pit and access for OSD tank. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 71, *Melaleuca stypheliodes* (Prickly Leaved Paperbark)	
Retention Value: Low	
TPZ Encroachment: 20.2%	
Impact: Root system impacts from hardscaping, stormwater pit and access for OSD tank, and cut & fill. **Viability Statement:** Non-viable	
Recommendation: Remove and replenish.	
Tree 72, *Corymbia maculata* (Spotted Gum)	
Retention Value: High	
TPZ Encroachment: 26.3%	
Impact: Major encroachment 23.3% from cut n fill and footpath. Additional 3% from stormwater pipes and pit. **Viability Statement:** Tree is viable to be retained with 100 mm or less of fill.	
Recommendation: Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 74, *Lophostemon Confertus* (Brushbox)	
Retention Value: Moderate	
TPZ Encroachment: 24.6%	
Impact: Footpath, stormwater, cut and fill. **Viability Statement:** Tree is viable to be retained with 100 mm or less of fill.	
Recommendation: Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.	
Tree 77, *Melaleuca styphelioides* (Prickly-leaved Paperbark)	
Retention Value: Low to Moderate	
TPZ Encroachment: 11%	
Impact: Impacts to root system, stem and canopy from “out of bounds” fence.	

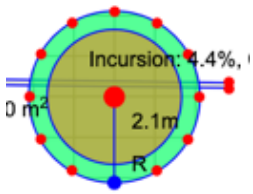
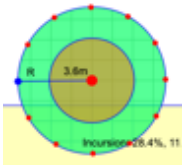
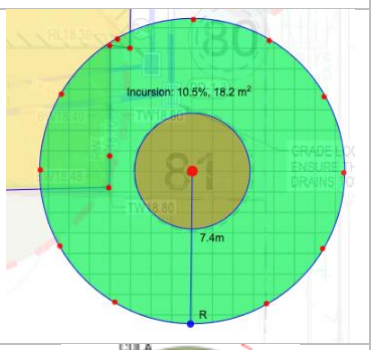
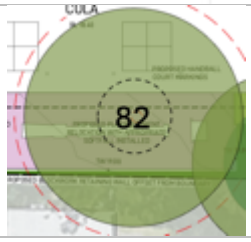
Viability Statement: Non-viable **Recommendation:** Remove and replenish	
Tree 78, *Lophostemon confertus* (Brushbox) **Retention Value:** Moderate **TPZ Encroachment**: 28% **Impact:** Root system impacted from proposed driveway, canopy damage from vehicle access. **Viability Statement:** Non-viable **Recommendation:** Remove and replenish	
Tree 81, *Lophostemon confertus* (Brushbox) **Retention Value:** High **TPZ Encroachment**: 13.5% **Impact:** TPZ impacts from landscaping, stormwater pit, and Soft fall area. **Viability Statement:** Tree is viable to be retained with impacts. **Recommendation:** Retain and protect. sensitive design considerations, ensure minimal earthworks within the Tree protection zone. Root pot hole investigation.	
Tree 82, Angophora costata (Red Gum) **Retention Value:** High **TPZ Encroachment**: 41% **Impact:** Stem impacts from Softfall area and proposed cola. **Viability Statement:** Tree is not viable to be retained due to proximity. **Recommendation:** Remove and replenish.	

Table 7: Impact Summary

Tree No.	Botanical Name Common Name	TPZ Encroachment %	Recommendation
38	*Callistemon viminalis* Bottlebrush	Minor (9.6%)	Retain and protect.
39	*Tristaniopsis laurina* Water gum	Major (65.8%)	Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
40	*Tristaniopsis laurina* Water gum	Major (64.2%)	Retain and protect. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
41	*Tristaniopsis laurina* Water gum	Major (75%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.
42	*Tristaniopsis laurina* Water gum	Major (14.4%)	Retain and protect. Sensitive construction measures. Root pot hole investigation.
58	*Leptospermum species* Tea Tree	Major (11.2%)	Remove and replenish.
59	*Melia azederach* White Cedar	Major (13%)	Remove and replenish. Toxicity concern.
60	*Tristaniopsis laurina* Water gum	Major (80.3%)	Remove and replenish.
61	*Melia azederach* White Cedar	Major (54.8%)	Remove and replenish. Toxicity concern.
62	*Pittosporum undulatum* Pittosporum	Major (100%)	Remove and replenish.
63	*Tristaniopsis laurina* Water gum	Major (100%)	Remove and replenish.
64	*Eucalyptus microcorys* Tallowwood	Major (100%)	Remove and replenish.
65	*Eucalyptus microcorys* Tallowwood	Major (100%)	Remove and replenish.
66	*Callistemon viminalis* Bottlebrush	Major (20%)	Remove and replenish.
67	*Pittosporum undulatum* Pittosporum	Major (20%)	Remove and replenish.
68	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major (20%)	Remove and replenish.
69	*Pittosporum undulatum* Pittosporum	Major (20%)	Remove and replenish.
70	*Eucalyptus torelliana* Cadaghi	Major (30%)	Remove and replenish.
71	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major (20.2%)	Remove and replenish.
72	*Corymbia maculata* Spotted Gum	Major (26.3%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction. Any fencing works to use existing pier holes.
73	*Leptospermum species* Tea Tree	Minor (<1%)	Retain and protect. Any fencing works to use existing pier holes.
74	*Lophostemon confertus* Brushbox	Major (24.6%)	Retain and protect with sensitive construction measures and root pot hole investigation. Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction. Any fencing works to use existing pier holes.
75	*Callistemon viminalis* Bottlebrush	Minor (<1%)	Retain and protect.
76	*Callistemon viminalis* Bottlebrush	Minor (<1%)	Retain and protect.
77	*Melaleuca styphelioides* Prickly-leaved Paperbark	Major impacts (totalling 11%) to	Remove and replenish.
78	*Lophostemon confertus* Brushbox	Major (28%)	Remove and replenish.
79	*Hakea species*	Minor (5%)	Remove and replenish. Safety concern.
80	*Hakea species*	Minor (<1%)	Retain and protect.
81	*Lophostemon confertus* Brushbox	Major (13.5%)	Retain and protect. sensitive design considerations, ensure minimal earthworks within the Tree protection zone. Root pot hole investigation.
82	*Angophora costata* Red Gum	Major (41%)	Remove and replenish.

4.4 Trees Proposed For Removal

4.4.1 The proposed **removal** of eighteen (18) trees, numbered 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.

4.4.2 **Tree Removals and Pruning** to be assessed and determined under the T&I SEPP - REF pathway. Provisions of the SEPP's (vegetation in non-rural areas) 2017 and Council DCP specify that a permit is required in respect to pruning or removing trees unless specified exempt. Dead stags without hollows are exempt from preservation but may be subject to council permit.

4.4.3 **Suitably Qualified Arborist** must have a minimum AQF 3 and work in accordance with Australian Standard® AS 4373 2007 Pruning of Amenity Trees, the Work Health & Safety (WHS) Act 2011 and the WHS Regulations 2017, the Safe Work Guide to Managing Risks of Tree Trimming and Removal Work 2016 and the Code of Practice for The Amenity Tree Industry 1998. Work near powerlines should be carried out in accordance with the Code of Practice for Work Near Overhead Power Lines. Tree contractors shall be members of Tree Contractors Association Australia (TCAA) or Arborists Australia (AA) and hold Workers Compensation and Public Liability Insurance. Tree contractors must liaise with the consulting arborist to ensure that pruning and / or removal is in accordance with specifications.

4.5 Canopy Cover Loss

4.5.1 **Canopy Cover Loss** calculates the reduction of canopy cover, due to tree removal. The calculation excludes exempt trees, the canopy cover formula is $((½ \times \text{canopy diameter})^2 \times \pi)$ as follow. See Appendix F.

Table 8: Canopy Cover Loss for trees proposed for removal.

Trees	Canopy Diameter (m)	Canopy Loss (m^2)	Total Canopy Loss (m^2)	New Plantings
58	4	13	1037 m^2	**A total of eighteen (18) new tree plantings:** 11 trees with a canopy diameter at maturity of 6m (11x28m^2=308m^2) and 6 trees with a canopy diameter at maturity of 10m (6x79m^2=474m^2) and 1 tree with canopy diameter at maturity of 18m (254m^2).
59	5	20		
60	8	50		
61	3	7		
62	4	13		
63	10	79		
64	13	133		
65	15	177		
66	5	20		
67	5	20		
68	6	28		
69	2	3		
70	12	113		
71	2	3		
77	5	20		
78	10	79		
79	3	7		
82	18	254		

4.6 Replenishment Planting

4.6.1 New Tree Planting should be planted on site to compensate for the proposed removal of trees. The Georges River councils tree preservation order specifies tree removals are to be replaced.

4.6.2 New Tree Planting of eighteen (18) trees of 45L volume pots are required to compensate for the proposed removal of trees.

4.6.3 Consideration should be given trees endemic to the local area or native trees already part of the vegetation community on site. Trees exempt from preservation are usually excluded from replenishment, see council's DPC.

4.6.4 New Plantings are to be completed in accordance with Planting Specifications from NATSPEC (Clark 2003) and Australian Standard ® AS 2303-2018 Tree Stock for Landscape Use. (Appendix F) and where possible at least 3-5 metres away from buildings, away from power lines, hard-surfaces, infrastructure and underground services.

4.6.5 **Watering Schedule:** Maintain a watering schedule for replenished trees; for example, a 45L pot requires approximately 35L of daily water. (Trees Impact: 2021).

4.6.6 **Mulch:** Maintain aged eucalyptus mulch to replenished trees in accordance with Australian Standards® AS 4454-2003 Compost, Soil Conditioners and Mulches.

Mulch should have at least 70% by mass of its particles, with a maximum size of greater than 16 mm and spread 50-75mm deep to the extent of the dripline, (never exceed 100mm depth). Mulch should not have contact with the tree trunk, apply 200mm from trunk and shaping a soil berm dish close to the root ball to facilitate establishment of watering.

4.7 Trees Proposed For Retention

4.7.1 Proposed Retention of twenty-five (25) trees numbered 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.

4.7.2 **Tree Pruning** is subject to Council approval. Provisions of the SEPP's (vegetation in non-rural areas) 2017, and Council DCP specify that a permit is required in respect to pruning or removing trees unless specified exempt.

4.7.3 **Root pot hole investigation** is advised for trees numbered 41, 42, 72, 74 and 81 to investigate the location and extent of the Structural Root Zone SRZ affected by the proposed built structures and to ascertain if the tree would remain viable. Root mapping investigations shall be conducted under the supervision of an Arborist Project (AQF 5), using non-destructive, digging NDD e.g., hand excavation or a high-pressure water vacuum.

Discussion on trees for retention continues on page below.

4.7.4 Additional impacts to trees during construction is considered in Figure 3 below. Trees along Princess Hwy numbered 72, 73, 74, 75 and 76 may require pruning specification due to the elevated hoarding placed adjacent. These trees have already been subject to pruning due to powerlines and therefore the pruning impacts would be considered minor. All pruning must be supervised by the AQF level 5 arborist and documentary evidence of the approved pruning will be necessary.

4.7.5 The Tree Protection Zone (TPZ) of tree 81 is affected by the truck turning area, large aggregate inert gravel (50 to 100 mm) is to be placed under metal sheets (B=*Blue Coloured Rectangle with blue outline*) for ground protection.

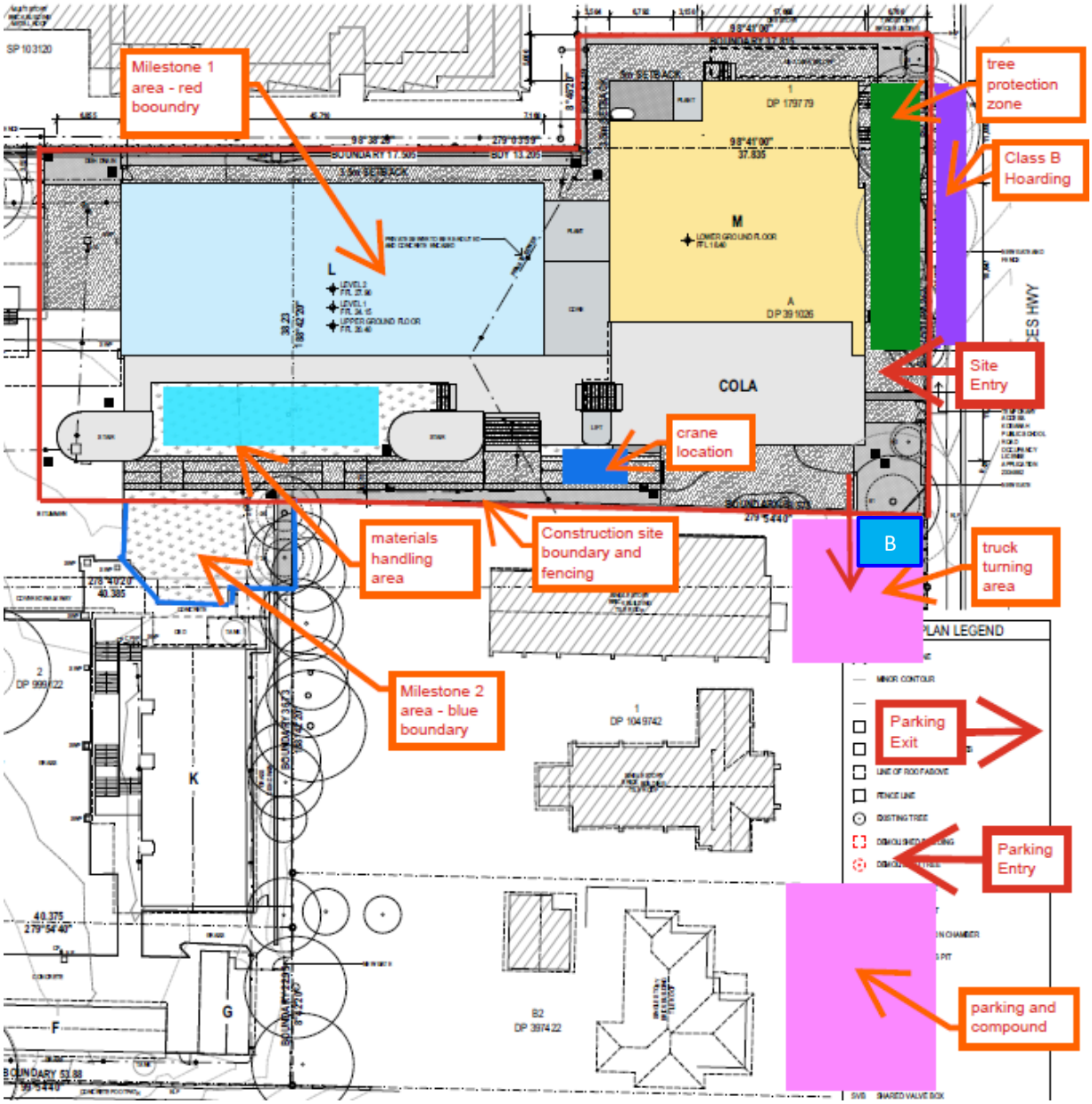


Figure 3: Construction site layout diagram. (Sourced from Michael Want on the 30th of January 2025).

5. RECOMMENDATION

5.1 Tree Retention and Removal Plan

5.1.1 Forty-three (43) trees were assessed on site and on the adjacent surroundings and are summarised as follows.

Table 9: Proposed Tree Retention and Removal Plan

Tree Management Plan	
Remove (18 trees)	Retain (25 trees)
58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.	22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81

5.2 Tree Protection Plan

Table 10: Proposed Tree Protection Plan

Tree Protection Measures	No of trees	Tree No.
Tree Protection Fencing	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Mulch Ground Cover Protection	12 trees	38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81.
Tree trunk protection	3 trees	39, 40 and 41.
Sensitive design considerations	5 trees	41, 42, 72, 74 and 81.
Root pot hole investigation	5 trees	41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction	6 trees	39, 40, 41, 72, 74 and 81.
Pruning specification	5 trees	72, 73, 74, 75 and 76.
Ground protection (gravel and metal sheets)	1 tree	81.

5.2.1 Existing boundary fences or walls shall constitute part of the tree protection fence where appropriate.

5.3 Sensitive Construction Measures

5.3.1 Trees 41, 42, 72, 74 and 81 requires a sensitive excavation method within the TPZ incursions to protect and minimise damage to the roots. Excavation using non-destructive digging NDD e.g., hand shovels or high-pressure water vacuums, will reduce impact on the trees stability and must be completed under the supervision of a Project Arborist.

For trees 39, 40, 41, 72, 74 and 81, Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction.

5.4 Replenishment Plantings

5.4.1 New Planting of **eighteen (18**) trees of 45L volume pots.

5.4.2 New Plantings Plan should be considered in line with landscape plan and should be species selected from indigenous species an according to NatSpec and council tree species list.

5.5 Tree Protection Specifications

5.5.1 **Tree removal can now be assessed in the REF under SEPP (Transport and Infrastructure 2021) Chapter 3 controls for a classroom building and a Hall. No pruning** of protected trees is permitted without the consultation of the Project Arborist.

5.5.2 **Tree Protection Fencing** is to be a chain wire-mesh fence that is 1.8-metre-high and anchored with concrete blocks. In some circumstances a red high-visibility plastic mesh fence fastened to star pickets may suffice. Fencing is to be in accordance with AS4687 Temporary fencing and hoardings. Existing boundary fences or walls shall constitute part of the tree protection fence where appropriate.

5.5.3 **Signage** with the project arborist's contact details is to be attached to the fencing and to read 'Tree Protection Zone: Do Not Enter' in accordance with Australian Standard® AS 1319-1994 – Safety Signage.

5.5.4 **Mulch** is to be certified eucalyptus species and must be spread at 75mm depth in accordance with Australian Standard® AS 4454-2003 – Compost, Soil Conditioners and Mulches. Mulch across the TPZ is at the discretion of the arborist.

5.5.5 **Trunk Protection;** A layer of geofabric will be wrapped around the trunk. Hardwood planks measuring 50mm x 100mm or similar shall be placed over the geofabric, spaced at intervals of 300mm. These planks shall be secured with 8-gauge wire or similar. Do not drive nails into trunks or branches. Trunk protection shall extend a minimum height of 2 metres or to the maximum possible length permitted by the first branches.

5.5.6 **Watering Schedule** must be maintained for new tree plantings, a 45L potted volume requires approximately 35L of water daily, depending on weather conditions. (Trees Impact: 2021).

5.5.7 Hoarding waste and amenities (HWA) should be stored outside the TPZs of the retained trees.

5.6 Project Arborist Hold Points

5.6.1 **Appointment of an AQF 5 Project Arborist** to implement and adhered to the Tree Protection Plan during works in accordance with Australian Standards *AS 4970-2009 Protection of Trees on Development Sites.*

5.62 **Monitor** protected trees with regular site visits and record with photographs.

5.6.3 **Supervise** works within the TPZ incursions by the Project Arborist, including increasing/decreasing soil level, installation of underground services, driveway, piers or anything that may adversely affect the tree.

5.6.4 **Root m**ust be pruned with sharp clean tools. Any root in the Tree Protection Zone (TPZ) less than 40 mm in diameter may be pruned under the direction of the Project Arborist. Any roots in the TPZ over 40 mm in diameter must be pruned by the Project Arborist. No root in the Structural Root Zone (SRZ) shall be pruned unless directed by the Project Arborist. Root pruning can be performed by an AQF 3 Arborist or higher. No more than 20% of the total root system should be pruned at a time.

5.6.5 **Remediation** of protected tree in decline or damaged must be supported with a Project Arborist remedial plan.

5.6.6 Site Induction with project manager and ensuring Tree Protection Plan TPP is presented in site sheds. All construction personnel to be inducted to TPP.

Table 11: Project Arborist Hold Points & Monitoring Schedule

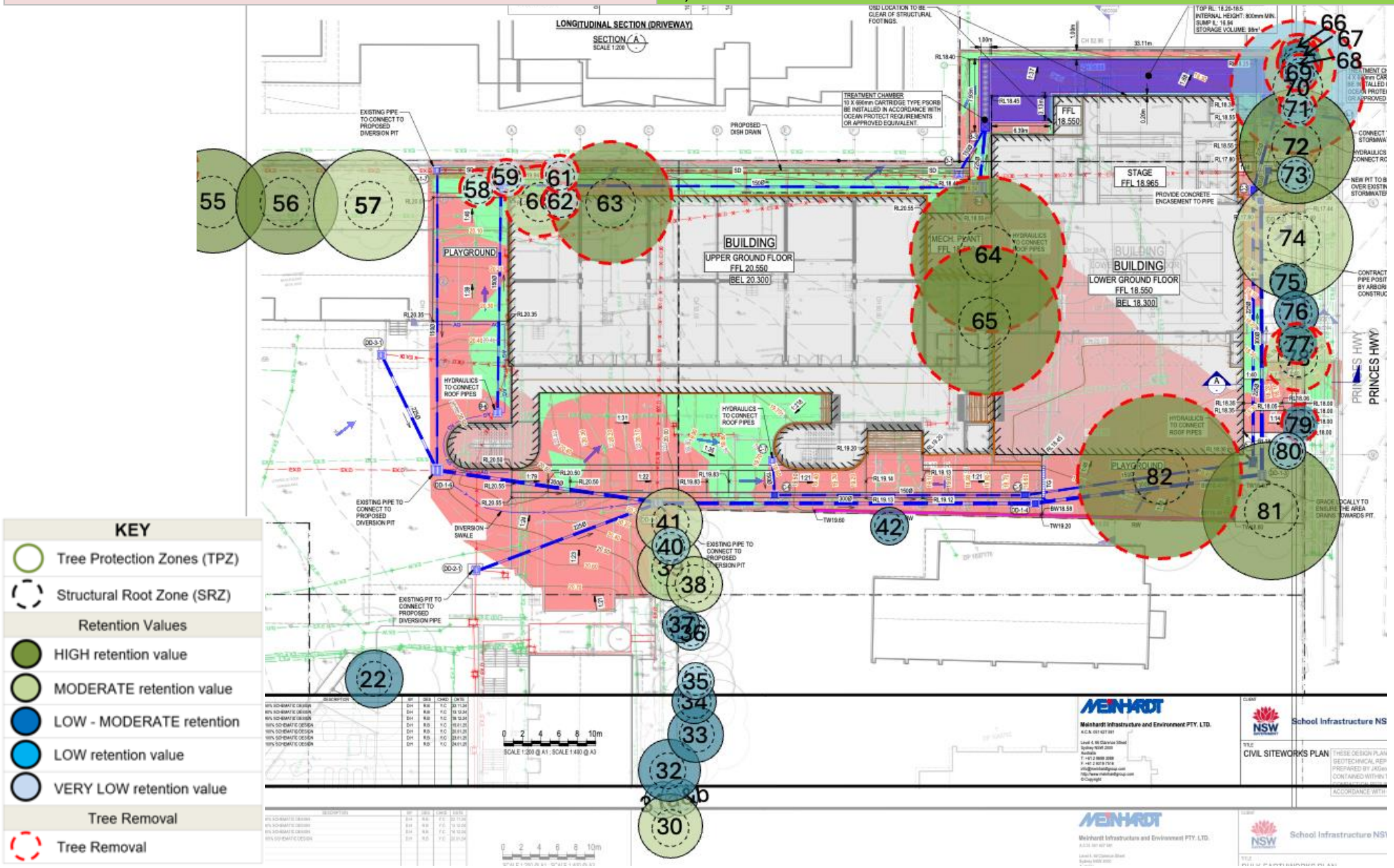
Hold Point	**Project Arborist Hold Points & Monitoring Schedule**	Timing
1	Obtain DA approval for Tree Protection Plan & Specifications.	Pre-construction & pre- demolition
2	Appoint an AQF5 Project Arborist to implement Tree Protection Plan.	
3	Certify Tree Protection Installation for trees approved for retention.	
4	Inspect and monitor Tree Protection Measures and tree health for the duration of works.	During Construction
5	Supervise and certify approved works within the Tree Protection Zone incursions. e.g., excavation, potholes, pruning, shoring and installations inside TPZ.	
6	Undertake any remedial works if necessary for declining tree health.	
7	Certify Final Tree Protection Measures and tree health.	Post construction

6. TREE MANAGEMENT PLANS

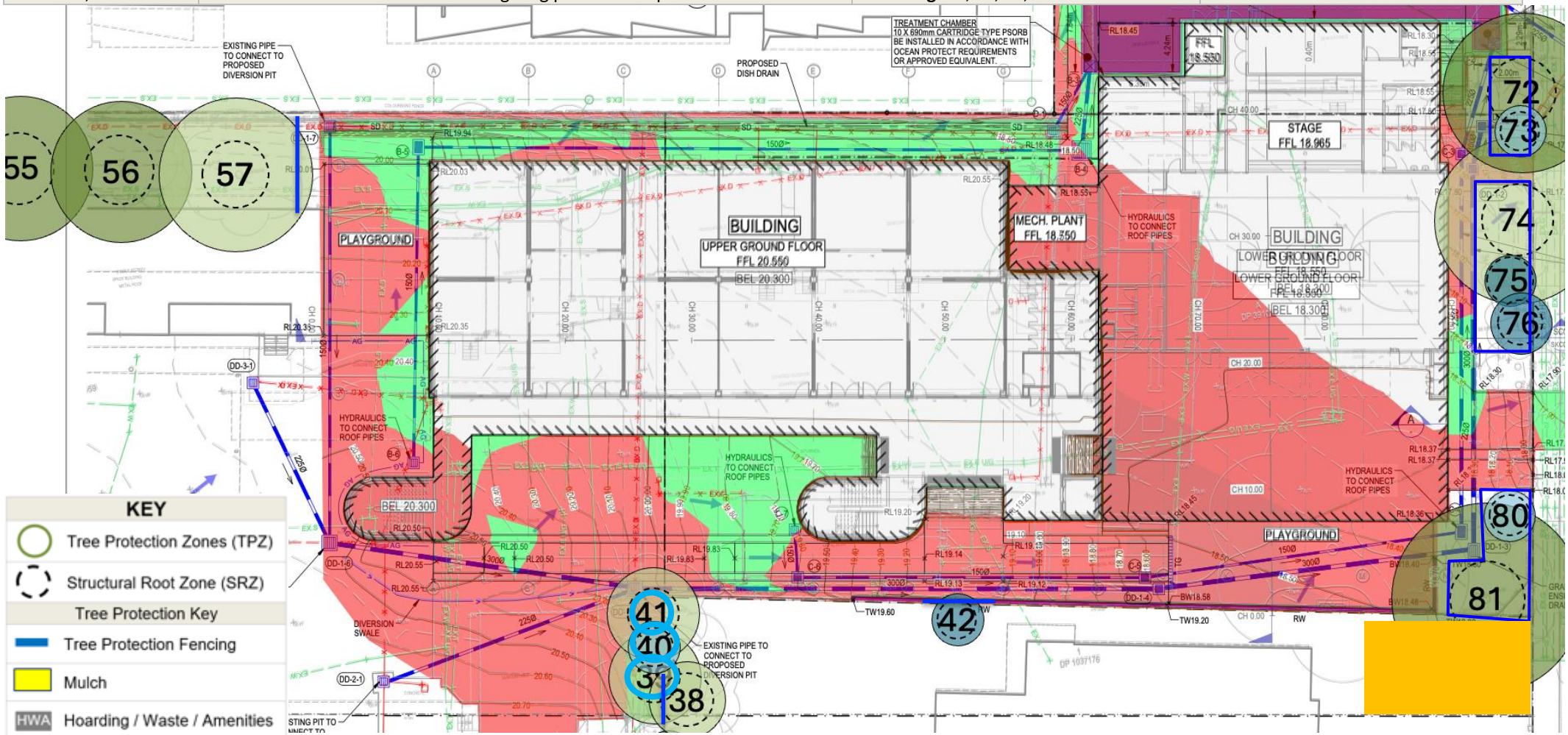
6.1 Plan 1 Tree Retention and Removal Plan	Kogarah Public School	Scale on plan 1:400 @A3	20.01.2025

Remove 18 trees: 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79 and 82.

Retain 25 trees: 22, 30, 31a, 31b, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81



6.2 Plan 2 Tree Protection Plan	Kogarah Public School	Scale on plan 1:400 @A3	20.01.2025
Trunk protection 3 trees: 39, 40 and 41.	**Fencing for 12 trees:** 38, 42, 55, 56, 57, 72, 73, 74, 75, 76, 80 and 81. Mulch to be installed within fenced area during long periods of exposed bare earth.	**Pruning specification for elevated hoarding:** 72, 73, 74, 75 & 76	Gravel under metal sheets for tree 81.



Sensitive design considerations 5 trees: 41, 42, 72, 74 and 81.
Root pot hole investigation 5 trees: 41, 42, 72, 74 and 81.
Ensure no more than 100 mm of cut or fill in TPZ with minimal compaction 6 trees: 39, 40, 41, 72, 74 and 81.

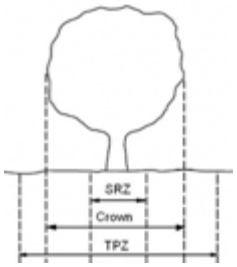
6.3 General Tree Management Specifications

Based on *Australian Standard® 4970-2009 Protection of Trees on Development Sites*.

Tree Protection Zones

Tree Protection Zone (TPZ) distances are measured as a radius from the center of the trunk at ground level and must be protected during construction. Structural Root Zone (SRZ) is a critical area for a tree's stability.

AS 4970-2009 Protection of Trees on Development Sites permits a 10% incursion into the TPZ (with Conditions) and incursions greater than 10% will require additional TPM.



Prohibitions for TPZ's

Prohibited activities within the TPZ of protected trees during demolition, excavation, and construction, include entry onto or across protected surfaces, disposal of chemicals and liquids (including concrete and mortar slurry, solvents, paint, fuel, or oil), stockpiling, storage or mixing of materials, refueling, parking, storing, washing and repairing tools, equipment, machinery and vehicles and disposal of building materials and waste.

Demolition

Tree Protection is to be installed around the retained trees and certified by the project arborist prior to any demolition, development, or soil stripping.

Post Construction

Tree Protection may be removed after the final certification is determined to be compliant.

Hoarding Waste & Amenities (HWA)

HWA's should be stored outside the TPZs of the retained trees.

Installing Underground Services Within TPZ

All services should be routed outside the TPZ. If underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches.

The directional drilling boring methods, such as horizontal drilling (HDD) may be at least 600 mm deep. The project arborist should assess the likely impacts of bore and bore pits on retained trees.

Excavations for entry/exit pits must be located outside the TPZ.

Excavation Within TPZ's

Excavations shall be undertaken under supervision of the project arborist, using sensitive, non-destructive methods (e.g., Manual excavation (hand tools), Air-spade or Hydro-vacuum excavations (sucker-truck).

Excavation is to be carried out in a manner that prevents tearing, splitting and displacement of the remaining roots; no roots greater than 40mm in diameter are damaged, pruned or removed. All care shall be taken to preserve and avoid damaging roots; excavation should not occur within the SRZ. Exposed roots shall be protected from direct sunlight by covering them with hessian or similar fabric and always kept moist.

Hand excavation and root mapping shall be undertaken along excavation lines within the TPZ Any conflicting roots (>40mm in diameter) shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears.

Backfilling is to be carried out as soon as possible.

Mulch Within TPZ

Maintain aged eucalyptus mulch to retained trees for the duration of the development in accordance with Australian Standards® AS 4454- 2003 Compost, Soil Conditioners and Mulches.

Mulch should have at least 70% by mass of its particles, with a maximum size of greater than 16 mm and spread 50-75mm deep to the extent of the dripline, (never exceed 100mm depth). Mulch should not have contact with the tree trunk, apply 200mm from trunk and shaping a soil berm dish close to the root ball to facilitate establishment of watering.

Mulch across the surface of the TPZ is at the discretion of the arborist.

CORRECT MULCH METHOD

Protective Fencing Specification

Tree Protection Fencing must be installed to fully enclose the TPZ prior to demolition.

Fencing in accordance with AS4687 Temporary fencing. Existing boundary fences or walls shall constitute part of the TPZ where appropriate.

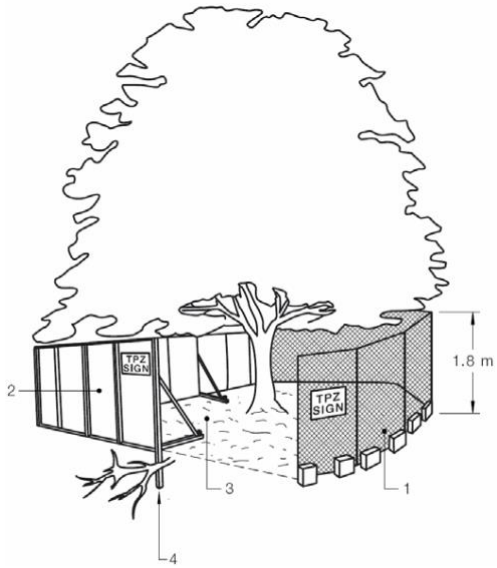
Fencing entails a 1.8-meter-high wire mesh fence, anchored with concrete.

Fencing on sloping or uneven ground will entail a 1-meter-high wire mesh fence anchored with star pickets, spaced at 2m intervals, and connected by a continuous high-visibility plastic mesh fence.

Shade cloth must be affixed to the fencing.

Tree protection fencing must not be removed or altered but may be relocated with permission from the Project Arborists to access the work site.

Signage attached to the fencing and reads 'Tree Protection Zone: No Access' in accordance with AS 1319-1994 – Safety Signage.



Tree Trunk and Branch Specification

Tree Trunk Protection is required if tree protection fencing would be impractical and block access to the work site.

The method requires a layer of padding, geotextile or similar fabric wrapped around the trees' trunk.

Followed by a layer of 1.8-metre-long timber planks measuring 50mm x 100mm aligned vertically and spaced with small gaps (100mm) evenly around the trunk. The timber planks are securely fastened against the trunk using suitable strapping, must not be nailed, or screwed into the trees.

Branch Protection requires adequate clearance of 250mm provided between the structure (hoarding/scaffolding), tree branches, limbs, and trunk.

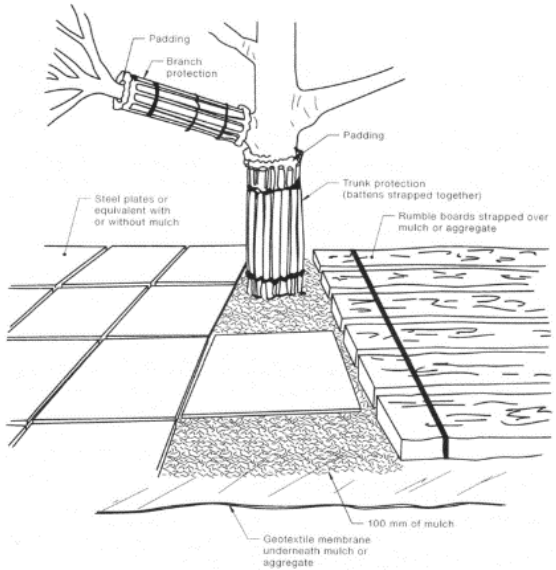
Tree trunks and or major branches located within 500mm of any hoarding or scaffolding must be protected by wrapped hessian or similar material to limit damage.

Ground / Root Protection Specification

Anticipate loads in the TPZ, to prevent root damage and soil compaction.

For foot traffic use a permeable membrane such as geotextile fabric beneath a layer of protective aggregate such as mulch or crushed rock (minimum depth of 75-100mm).

For loads over 3 tonnes use a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rocks (75-100mm) and a third layer of track mats (25mm thickness), steel plates or strapped rumble boards (120 x 65mm hardwood).



Scaffolding Specification / Canopy Protection

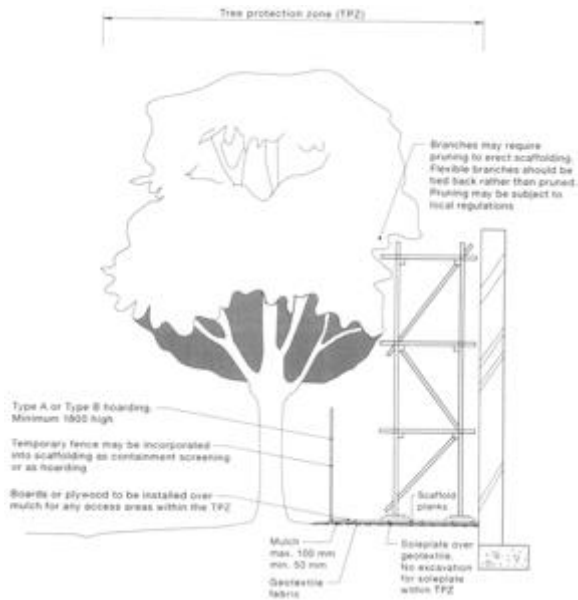
Type A hoarding may be installed directly adjacent to the tree trunk to a minimum height of 1.8m.

No branch is to be cut, broken, or removed without permission from AQF5.

Branches may require pruning to erect scaffolding.

Flexible branches may be gently pushed back and tied back rather than pruned.

Support post entering the TPZ must not cut roots greate
r than 20mm.



8. GLOSSARY

Aerial Inspection: Where a tree is climbed by an arborist to inspect upper stem and crown for signs or symptoms of defects and disease.
Branch collar: The ring of wood tissue which forms around the base of a branch (near the branch attachment).
Cavity: A void, initiated by a wound within the trunk, branches or roots. These voids are referred to as hollows.
Co-dominant: Stems or branches equal in size and relative importance.
Crown: All the parts of a tree arising above the trunk where it terminates by its division forming branches, e.g. the branches, leaves, flowers and fruit: or the total amount of foliage supported by branches.
Crown Lifting: The removal of the lower branches of the tree.
Dead wood: Refers to any whole limb that no longer contains living tissues
Decay: Process of degradation of woody tissues by fungi or bacteria through decomposition of cellulose and lignin.
Dieback: Tree deterioration where the branches and leaves die.
Drip line: Where the canopy releases water shed from the foliage during precipitation.
Epicormic Shoots: These shoots often have a weak point of attachment. Epicormic growth/shoots are generally a survival mechanism.
Inclusion: The pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet.
Maturity: Tree age, Assessed as over-mature (last 1/3 of life expectancy), mature (1/3 to 2/3 life expectancy) and semi mature (less than 1/3 life expectancy).
Resistograph® testing A Resistograph® is a specialised machine that measures timber density by drilling a 3mm diameter probe through the wood, simultaneously plotting the results on a graph at full scale.
Structural Integrity: Describes the internal supporting timber. (Substantial to frail)
Structural root zone (SRZ): Refers to the radial distance in metres, measured from the centre of the tree stem, which defines the critical area required to maintain stability of the tree.
Target: Are people, property, or activities that could be injured, damaged, or disrupted by a tree.
Tree Protection Zone (TPZ): Refers to the radius distance in metres, measured from the centre of the tree stem which defines the *tree protection zone* for a tree to be retained. This is generally the minimum distance from the centre of the tree trunk where protective fencing is to be installed to create an exclusion zone associated with construction works.
Vigour: Refers to the tree's health as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

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APPENDIXES

Appendix A Visual Tree Assessment (VTA)

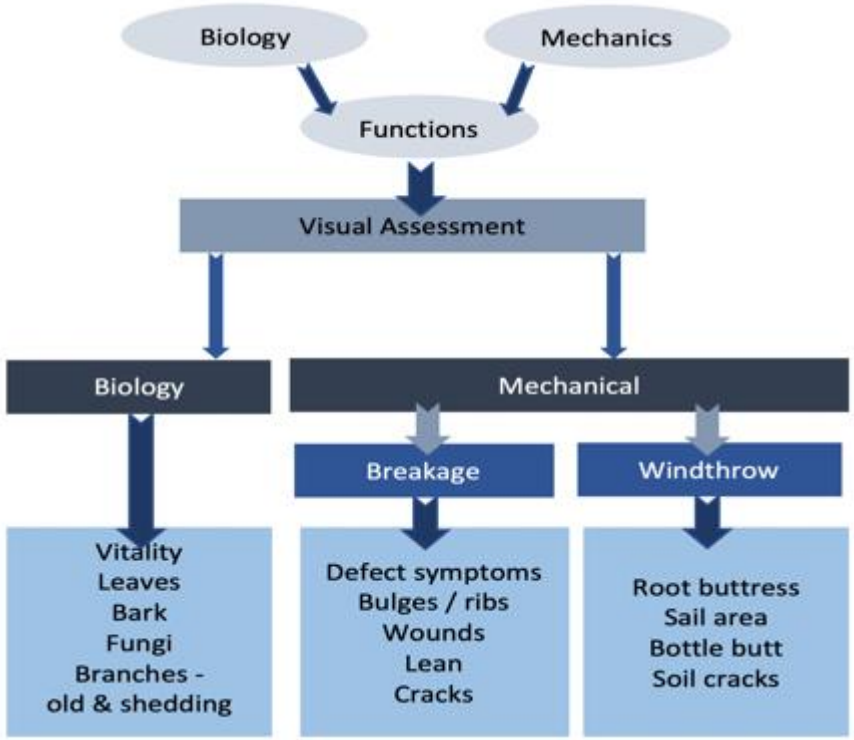

Diagram 1: VTA Chart by Claus Mattheck (1994) The Body Language of Trees, adapted.

Schedule 1: Categorises for VTA

VISUAL TREE DIAGNOSTICS **M**-Maturity: **J**-Juvenile; **IM**-Immature; **SM**-Semi-Mature; **M**-Mature	
Health & Vigour	**Condition of Tree**
	2 Good Condition
	3 Good Condition but poor development
	3b Moderate.
4 Dieback is more than 20%.	
4b Epicormics	
5 Sparse Foliage Crown	5b Unbalanced Canopy
	6 Physical Damage
7 Insect damage-foliage	
7b Borers	
8 Fungal Attack -pathogen	
	9 Cavity
10 Termite activity	10b Inclusions
	11 Lean
12b Dying	12 Heavily pruned
	13 Damage to roots
	13b Encroachment
14 Parasitic Vine Present	
15 Damage by Climbing Plant	
	16 Inclusions
17 Habitat Tree	
18 Endangered Species	

Appendix B Tree A-Z Categories

Schedule 2: Tree A-Z Categories Field Sheet (version 10.04-U8C)

Barrell (2019) Criteria for Assessing the importance of Trees on Development Sites.

TreeAZ Categories Field Sheet (Version 10.04-USC)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

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, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
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 remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

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 recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc

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 a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

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 categorization 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.

A1	Trees that do not require any specific remedial works above those that would be required for normal maintenance.
A2	Trees with minor defects likely to recover from remedial works to be retainable in the long term, i.e. pollards with little decay.
A3	'Special' means unusual, rare or uncommon, i.e. a tree of some historical/cultural significance, etc.
A4	Trees can be a habitat that may be protected by legislation, which may be a material constraint on the type and timing of changes that can occur on a site. If an ecological assessment has not been carried out by the time of the survey, and the arborist suspects there may be habitat issues, the tree should be identified as A4, and specialist assessment should be sought.

Category Z1 – Z3: Unimportant trees not worthy of being a material constraint, due to size, proximity and species.

Category Z4 – Z6: Unimportant trees not worthy of being a material constraint, due to high risk of death or failure, declining health and structural defects.

Category Z7 & Z8: Unimportant trees not worthy of being a material constraint, due to unacceptable impacts to people.

Category Z9 – Z12: Unimportant trees not worthy of being a material constraint, due to responsible management of tree populations.

Category ZZ; Unsuitable for retention due to urgent risk, dead; irreversibly or, causing severe inconvenience to people or structural damage.

Heritage: A heritage tree is automatically categorized as AA.

Appendix C Tree Useful Life Expectancy – TULE

Schedule 2: Adapted from SULE with permission from Jeremy Barrell (2014) for TCAA consulting arborist.

	1 LONG TULE	2 MEDIUM TULE	3 SHORT TULE	4 REMOVE	5 MOVE OR REPLACE	6 SMALL, YOUNG OR REGULARLY CLIPPED
	Trees that appeared to be retainable for more than 40 years with an acceptable degree of risk, assuming reasonable maintenance. Or with low level of risk.	Trees that appeared to be retainable for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance. Or with low to medium level of risk.	Trees that appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance. Or with medium to high level of risk.	Trees which should be removed within the next 5 years. Or with high to very high level of risk.	No potential for retention. Trees which can be readily moved or replaced. Or with very high to extreme level of risk.	Trees that can be easily transplanted or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live for between 15 and 40 more years.	Trees that may only live for between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5 meters (m) in height.	Small trees less than 5 meters in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 1 5 years old but over 5m in height.	Young trees less than 15 years old but over 5 meters in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Dangerous trees through structural defects including cavities, decay, bark, wounds or poor form.	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain.	Dangerous trees through instability or recent loss of adjacent trees.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	High Toxicity Allegan trees, asthmatic and poisonous trees and must be removed immediately.	
F				Trees that may cause damage to existing structures within 5 years.	Dead, dying or declining trees diseased or inhospitable conditions.	
G				Trees that will become dangerous after removal of other trees for reasons given in A to F.	OTHER, with legitimate explanation	
INSPECTION FREQUENCY						
	Every 1-5 years by a competent inspector, or event monitored.	Every 1-5 years by a competent inspector, or event monitored.	Every 1-3 years by a competent inspector, or event monitored.	Ascertain timeframe up to 1 year. By a competent inspection, or event monitored.	Ascertain timeframe up to 7-12 days. By a competent inspection, or event monitored.	Bi-annually by a competent inspector.

Appendix D Landscape Significance Rating

Schedule 3: Criteria for Assessment of Landscape Significance. Morton, A (2006)

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state, or national level of significance or is listed on Council's Significant Tree Register.	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999.	The subject tree has a very large live crown size exceeding 300m^2 with normal to dense foliage cover, is in a visually prominent position in the landscape, exhibits very good form and habit typical of the species.
	The subject tree forms part of the curtilage of a Heritage Item (building/structure/artefact as defined under the LEP) and has a known or documented association with that item.	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter, or nesting tree for endangered or threatened fauna species.	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity.
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event.	The subject tree is a remnant tree, being a tree in existence prior to development of the area.	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
VERY HIGH	The tree has a strong historical association with heritage items (building/structure/artefact/garden etc..) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m^2, a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.
HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence.	The tree is a locally indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link/Wildlife Corridor or has known wildlife habitat value.	The subject tree has a large live crown size exceeding 100m^2; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g., crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.
MODERATE	The tree has no known or suspected historical association but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m^2; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc.) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties but is not visually prominent – the view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item.	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance, or position relative to building or other structures.	The subject tree has a small live crown size of less than 40m^2 and can be replaced within the short term (5-10 years) with new tree planting.
VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
INSIGNIFICANT	The tree is completely dead and has no visible habitat value.	The tree is a declared noxious weed under the Biosecurity Act 2015 (NSW) within the relevant Local Government Area.	The tree is completely dead and presents a potential hazard.

Appendix E Retention Value Rating

Schedule 4: Determining the Tree Retention Value. Morton, A (2011)

Evaluating Sustainability and Landscape Significance to Determine Retention Value.	
RETENTION VALUE	**CRITERIA AND CATEGORIES**
HIGH	These trees considered worthy of preservation. As such careful consideration should be given to their retention as a priority. Proposed site design and placement of buildings and infrastructure should consider the Tree Protection Zones as discussed in the following section to minimise any adverse impact. In addition to Tree Protection Zones, the extent of the canopy (canopy dripline) should also be considered, particularly in relation to a high-rise development. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
MODERATE	The retention of these trees is desirable. These trees should be retained as part of any proposed development if possible, however these trees are considered less critical for retention. If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
LOW	These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. These trees should not be considered as a constraint to the future development of the site.
VERY LOW	These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds. The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Appendix F Tree Planting Specifications

Tree planting specifications are in accordance with NATSPEC Specification for Trees, Ross Clark (2003) and Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use.

Before Planting

Don't plant trees too close to buildings, in-ground pools, avoid planting under power lines and over drainage pipes or near other large trees. A consider the effect on neighbouring properties (i.e. shade, loss of views, impact on foundations, fences and services). Plant deciduous trees if you want in summer shade and winter sun. Consider shadows cast from evergreen trees. Use locally native to attract native fauna and to reduce watering required.

Basic Tree Planting

Dig the hole at least twice as wide as the pot size. Loosen the soil at the sides of the hole. Fill hole with water and allow to drain away. Place the loosened root ball in the hole. Fill back soil. The top of the root ball should be level with the surrounding soil. Water the plant deeply after planting, once a week for the first two months.

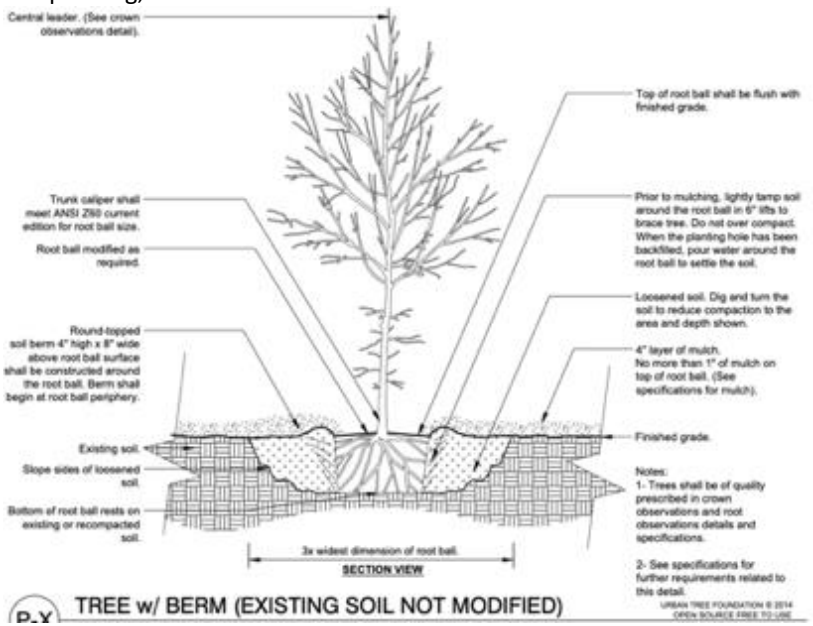

Diagram 2: *Urban J (2014) Tree Planting Specification diagram*

Watering Schedule a*dapted from Trees Impact: 2021*

		Watering Frequency		
Pot size	*Watering Amounts*	1-2 weeks	3-12 weeks	After 12 weeks
45L	3 to 6 Litres	Water daily	Water every 2-3 days	Weekly, until roots are established.
100L	5 to 8 Litres			

Water less in winter or after rain

Replenishment of Native Trees Species

Botanical Name	Common Name	Height at maturity (m)	Crown Spread at maturity (m)
Leptospermum petersonii	Lemon Scented Tea Tree	5-8	6-10
Tristaniopsis laurina	Water Gum	7-10	6-10
Corymbia ficifolia	Red-flowing Gum	7-10	3-6
Agonis flexuosa	Willow Maple	7-10	6-8
Melaleuca linariifolia	Snow in summer	8-12	8-10
Waterhousia floribunda	Weeping Lilly Pilly	8-12	5-8
Corymbia ficifolia	Red Flowering Gum	8-12	5-8
Syzygium leuhmannii	Riberry	8-12	5-8
Hymenosporum flavum	Native Frangipani	8-12	6-8
Acacia implexa	Lightwood	8-12	6-8
Elaeocarpus Eumundi	Eumundi Quandong	8-12	4-8
Tristaniopsis laurina	Water gum	9-12	6-10
Callistemon viminalis	Weeping Bottlebrush	10-14	8-10
Melaleuca linariifolia	Flax-leaved Paperbark	10-14	8-10
Corymbia exemia	Yellow Bloodwood	10-14	7-10
Cupaniopsis anacardioides	Tuckeroo	10-14	10-14
Eucalyptus cinerea	Argyle Apple	12-14	7-9
Callistemon salignus	Willow Bottlebrush	12-14	6-8
Eucalyptus cinerea	Argyle Apple	12-14	7-10
Elaeocarpus reticulatus	Blueberry Ash	15-18	8-12
Brachychiton populneus	Kurrajong Tree	15-18	12-15
Flindersia australis	Australian Teak	15-18	10-12
Backhousia citriodora	Lemon Scented Myrtle	18-20	6-8
Lophostemon confertus	Brush Box	20-22	16-20
Angophora costata	Smooth Bark Apple	20-22	10-12

Appendix G GPS of Tree Locations

ID	Latitude	Longitude
1	-33.962245	151.135928
2	-33.962193	151.135897
3	-33.962156	151.135901
4	-33.96216	151.135864
5	-33.962161	151.135867
6	-33.962163	151.13584
7	-33.962169	151.135827
8	-33.962082	151.135803
9	-33.962104	151.135789
10	-33.96209	151.135792
11	-33.962097	151.135764
12	-33.962036	151.135764
13	-33.961994	151.135745
14	-33.961993	151.135643
15	-33.961913	151.135655
16	-33.961789	151.135691
17	-33.961811	151.135675
18	-33.962254	151.136098
19	-33.962178	151.136143
20	-33.962059	151.136214
21	-33.962067	151.136216
22	-33.962065	151.13636
23	-33.962353	151.136181
24	-33.962408	151.136156
25	-33.96242	151.136184
26	-33.962425	151.136226
27	-33.962489	151.136625
28	-33.962291	151.1367
29	-33.962309	151.136717
30	-33.962318	151.136672
31	-33.962222	151.136756
32	-33.962238	151.136734
33	-33.962235	151.136735
34	-33.962205	151.136752
35	-33.962088	151.136765
36	-33.962076	151.136769
37	-33.962054	151.136761
38	-33.962032	151.136746
39	-33.962013	151.136742
40	-33.961982	151.136732
41	-33.961992	151.137023
42	-33.9616	151.135901
43	-33.961501	151.136038
44	-33.961494	151.136058
45	-33.961517	151.136059
46	-33.961535	151.136088
47	-33.961559	151.136076
48	-33.961567	151.136099
49	-33.961571	151.13612
50	-33.961579	151.136156
51	-33.961562	151.136173
52	-33.96155	151.136183
53	-33.96155	151.136261
54	-33.961557	151.136266
55	-33.961557	151.136311
56	-33.961539	151.136573
57	-33.961616	151.136669
58	-33.961614	151.136639
59	-33.96161	151.136649
60	-33.961605	151.136676
61	-33.96161	151.136683
62	-33.961635	151.136702
63	-33.961749	151.1372
64	-33.961797	151.13719
65	-33.96177	151.135402
66	-33.961663	151.137552
67	-33.961674	151.137551
68	-33.961683	151.137569
69	-33.9617	151.137578
70	-33.961732	151.137599
71	-33.961747	151.137597
72	-33.961767	151.137521
73	-33.961799	151.137524
74	-33.961823	151.137519
75	-33.961846	151.137511
76	-33.961867	151.137506
77	-33.961901	151.137511
78	-33.96193	151.137507
79	-33.961967	151.137495
80	-33.962012	151.137499
81	-33.962029	151.137403

DISCLAIMER

McArdle Arboricultural Consultancy Pty Ltd does not assume responsibility for liability associated with the tree on/or adjacent to this project site, the future demise and/or any damage which may result therefrom. They take care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

The address should inform the company if any of the data or information provided is incorrect or insufficient, which may impact the findings and proposals mentioned in the report.

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STATEMENT OF LIMITATIONS

McArdle Arboricultural Consultancy Pty Ltd makes every effort to accurately identify current tree health and hazards. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure. Not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure. All standing trees have an element of unpredictable risk.

The inspection was limited to a visual ground examination of the tree, without aerial inspections and below ground excavations. The assessments are limited and do not include specialised analysis. No internal diagnostics, aerial inspection and pathology test were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

Due to the variable nature of living organisms and the factors that can impact their health and wellbeing, the report will only be deemed valid for a period of five months from the date it was issued.

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