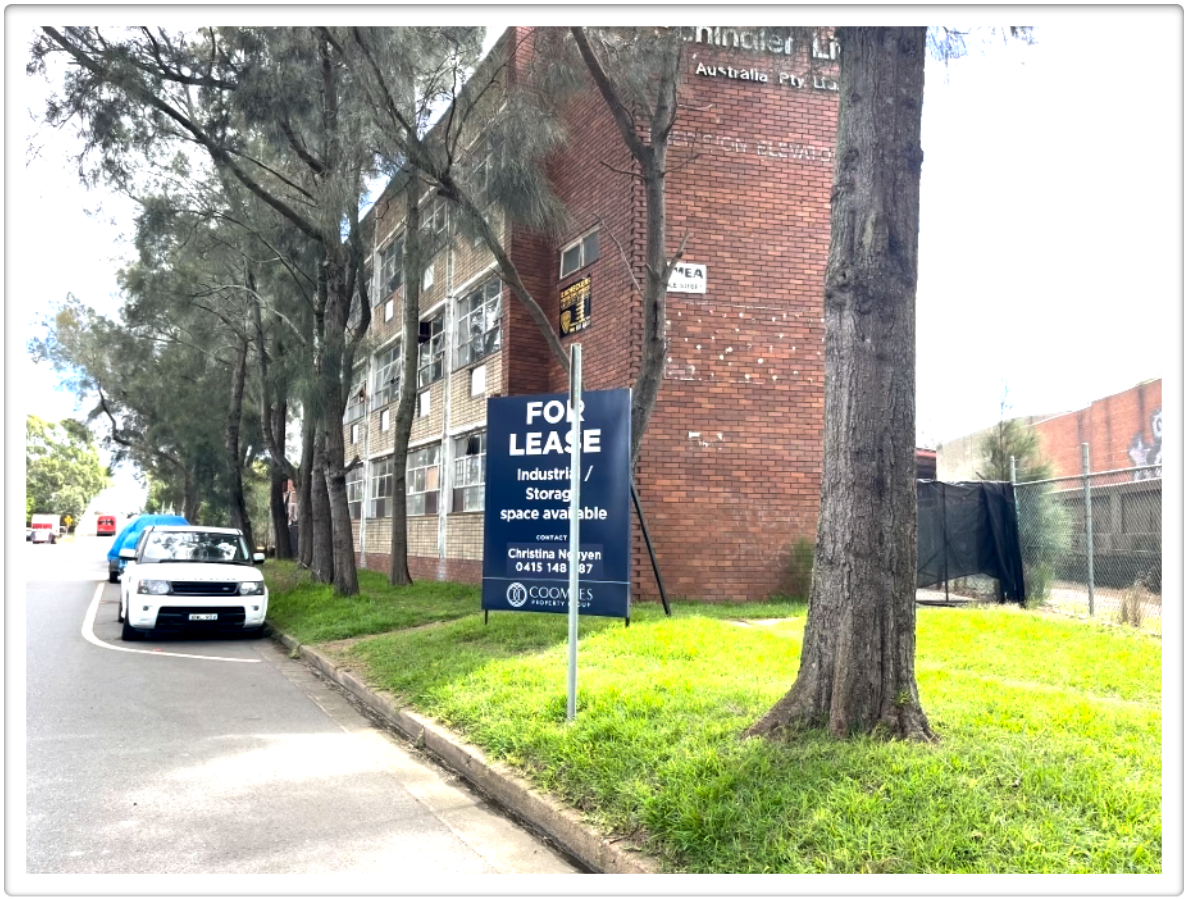
Arboricultural Impact Assessment and Management Plan



2-4 Hale Street, Botany.

Prepared For: **Coombes Property Group.**

Prepared By: **George Palmer, Botanics P/L.**

Dated: **July 2025.**

Report Reference: **2025/0450.**

CONTENTS

1.0 INTRODUCTION

1.1 Background

1.1.1 This Arboricultural Impact Assessment and Management Plan has been prepared for the Coombs Property Group. This report has been requested to update the documentation on the arboricultural significance of trees located within and adjacent to the site, and to make recommendations for their preservation or removal, based on this assessment and their location in relation to the proposed construction. This has been done in response to submissions from Bayside Council.

1.1.2 This update acknowledges advice received from Council in relation to the risk associated with breeding habitat for the White Ibis and makes a recommendation for the removal of a semi-mature Canary Island date Palm (Tree 1). This update also assesses those trees located adjacent to the site's western boundary. These include an additional two (2) Paperbarks (Trees 14 and 15) as well as an African olive tree (Tree 16).

1.1.3 The site has been identified as Lot 1 in Deposition Plan 562374, or 2-4 Hale Street, Botany. This is an irregular rectangular block of 7,439 m2. The site's arboricultural amenity comes primarily from a stand of *Casuarina glauca*, or She Oaks, located adjacent to the site's Hale Street boundary.

1.1.4 The existing building footprint has been constructed adjacent to the Hale Street boundary and will have directly affected the spread and development of these trees' structural and broader root growth. Vehicular access to the site is currently via a relatively narrow asphalt driveway, adjacent to the site's southern boundary.

1.1.5 The proposed works will reconfigure the construction footprint. This is predominantly within that of the existing construction footprint and will not directly affect the documented trees. The proposed reconfiguration of vehicular access has been designed to address efficient vehicular movements to the site more effectively. This portion of the work will require the removal of a number of semi-mature *Casuarina glauca*, or She oaks.

1.1.6 The Proposed Landscape Concept Design recognises a range of planting opportunities that have been proposed to significantly improve the site's horticultural and arboricultural amenity contribution, as well as manage drainage and water management.

1.1.7 The purpose of this report is to identify existing trees, assess both health and condition, determine landscape significance and safe useful life expectancy and make recommendations for preservation, removal or transplantation based on sustainability and suitability within the landscape. This report has assessed the likely impacts that the proposed development will have on the subject trees. An assessment of these impacts has been made in accordance with Australian Standard (AS) *4970:2025 for the Protection of Trees on Development Sites.* Pruning and removal works will be based on *AS4373 for the Pruning of Amenity trees* wherever applicable. This report has considered the objectives of the Bayside 2032 Community Strategic Plan.

1.2 Methodology

1.2.1 A Visual Tree Assessment (VTA) was performed from ground level, and consideration was given to the overall health of each documented tree, percentage of canopy, epicormic growth, deadwood and form for this species. The tree heights and canopy spreads have been estimated, and where relevant, the orientation of the canopy spread has been noted. The trunk diameters of each tree have been measured at breast height of 1.4 meters (DBH) and with a diameter tape to calculate Tree Protection Zones (TPZ) and Structural Root Zone (SRZ). The site was inspected by Level 5 Consulting Arborist, George Palmer, on the 21st July, 2025.

1.2.2 The impacts of the proposed works have been assessed based on the supplied plans. These show that the works will require the partial demolition of the existing boundary to allow for the excavation and construction of the proposed.

1.2.3 Supplied plans for Lot 1, DP 229042 include the following;

- **Reid Campbell:** Waste Management Facility- Cover Sheet/Drawing List A001.
- **Reid Campbell:** Waste Management Facility- Existing Site Condition Plan A002.
- **Reid Campbell:** Waste Management Facility- Demolition Plan A003.
- **Reid Campbell:** Waste Management Facility- Perspective A004.
- **Reid Campbell:** Waste Management Facility- Site Plan A005.
- **Reid Campbell:** Waste Management Facility- Signage Plan A006.
- **Reid Campbell:** Waste Management Facility- Warehouse Plan A101.
- **Reid Campbell:** Waste Management Facility- Roof Plan A102.
- **Reid Campbell:** Waste Management Facility- Warehouse Elevations A201.
- **Reid Campbell:** Waste Management Facility- Office Elevations A203.
- **CJ Arms:** Landscape Concept Design Landscape- Analysis Plan 8.
- **CJ Arms:** Landscape Concept Design Landscape- Concept Master Plan 9.

2.0 RESULTS

2.1 The Site

2.1.1 The site is an industrial block located on the northern side of Hale Street, Botany. The site covers an area of 7,439m2. This is relatively level with a gradual rise to the site's southwestern corner. The underlying soil profile will be a free-draining sand-based loam influenced by its proximity to both the Mill Pond and Mill Streams.

2.1.2 The site sits to the south of General Holmes Drive, with the Foreshore Road providing its closest crossroad. Hale Street meets Foreshore Road at a right angle, as does the site's vehicular access from Hale Street.

2.2.3 An above-ground sewer runs adjacent to the western and north-eastern boundaries, affecting vegetation here.

2.2 The Trees

2.2.1 This report focuses on those trees located within and adjacent to the site. A total of thirteen (13) trees have been assessed for the purpose of this report. These trees have been assessed using Visual Tree Assessment (VTA) criteria and notes. This is a requirement of Clause 2.3.2 of the *Australian Standard 4970* (2009) for the *Protection of Trees on Development Sites,* each tree has been allocated a Retention Value based on the tree's Useful Life Expectancy and Landscape Significance, with consideration to its health, structure, condition and site suitability.

2.2.2 The Retention Value does not take into account any proposed development. All trees have been allocated 1 of 4 Retention Values;

- **High Value -** Priority for Retention.
- **Moderate Value -** Consider for Retention.
- **Low Value** - Consider for Removal.
- **Remove** - Recommended for Removal Irrespective of works.

2.2.3 **Tree 1** is a well-established *Phoenix canariensis,* or Canary Island Date palm, located adjacent to the site's northern boundary. This is a mature example of the species that will likely have established from the site's earliest subdivision. This has been identified as a potential nesting habitat for the White Ibis. This has been identified as a potential hazard for aircraft and has been recommended for removal and replacement.

2.2.4 **Tree 2** is a well-established *Casuarina glauca,* or She Oak, located on the Hale Street verge. This tree has grown to over 14m and is supported on a well-structured single trunk of 51cm in diameter. High Value. Priority for Retention.

2.2.5 **Tree 3** is another *Casuarina glauca,* or She Oak, located adjacent to Tree 2. The tree's upper canopy has suppressed this tree and has grown to less than 8m, and is supported on a trunk of less than 20cm in diameter. Remove.

2.2.6 **Tree 4** is another *Casuarina glauca,* or She Oak, that has had its apically dominant leader removed as part of a failure. This has affected the tree's structure and undermined its value. Removal is recommended to improve growing conditions for the remaining trees. Remove.

2.2.7 **Tree 5** is another *Casuarina glauca,* or She Oak, located on the Hale Street verge. This is another poorly structured example of the species partially suppressed by the neighbouring She Oak. Low Value. Consider for Removal.

2.2.8 **Tree 6** is another well-established *Casuarina glauca,* or She Oak, that has grown to a height of just over 14m and is supported on a trunk of over 50cm in diameter. Moderate to High Value. Retain.

2.2.9 **Trees 7 and 8** are both semi-mature *Casuarina glauca,* or She Oaks, located on the Hale Street front verge. Both have grown to approximately 12m and are supported on trunks of just over 30cm in diameter. Both have an exposed network of surface roots. Low Value. Consider (Required) for Removal.

2.2.10 **Trees 9, 10 and 11** are part of the stand of *Casuarina glauca,* or She Oaks, located on the verge. All have grown to a height of approximately 12m and are supported on trunks of just over 40cm in diameter. All have been considered as being of Low to Moderate Value. Consider (Required) for removal.

2.2.11 **Trees 12 and 13** are another small stand of well-established *Casuarina glauca,* or She Oaks, located to the west of the remaining trees. These are both well-established examples of the species supported on trunks of over 50cm in diameter. Moderate to High Value. Retain.

2.2.12 **Trees 14 and 15** are both semi-mature *Melaleuca quinquinervia*, or Paperbark trees, located adjacent to the site's southwestern corner. These are well-suited native tree species that have grown to a height of approximately 10m and are supported on multiple leaders from less than 1m, resulting in a relatively broad canopy. Both have been considered as being of Moderate Value and documented for retention.

2.2.13 **Tree 16** is a well-established *Olea europaea*, or African olive, located adjacent to the site's western boundary. This is a well-recognised environmental weed species and comes with a General Biosecurity Duty to eliminate. ***https://weeds.dpi.nsw.gov.au/Weeds/AfricanOlive***

2.2.14 The remainder of the vegetation adjacent to the site's western boundary is largely *Ricinus*, or Caster oil plant. This is another well-recognised environmental weed species that will be removed in accordance with previously noted Biosecurity obligations. ***https://weeds.dpi.nsw.gov.au/Weeds/Castoroilplant***

2.3 Tree Assessment Schedule

Retention Value 1 High		**Retention Value 2 Moderate**		**Retention Value 3 Low**		**Retention Value 4 Remove**	
Retain	**Remove**	**Retain**	**Remove**	**Retain**	**Remove**	**Retain**	**Remove**
		2, 6, 12, 13, 14 + 15	7, 8, 9, 10 + 11		3, 4 + 5		1,16
Total: 0	**Total: 0**	**Total: 6**	**Total: 5**	**Total: 0**	**Total: 3**	**Total: 0**	**Total: 2**

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 The proposed construction footprint has been partially set back from the Hale Street boundary and is within the existing building footprint. This construction footprint will have directly affected the spread and development of these trees' basal root development. **https://en.wikipedia.org/wiki/Abiotic_component**.

3.2 The reconfiguration of vehicular access is within the Structural (Critical) Root Zone (SRZ) and Tree Protection Zone (TPZ) of Trees 7, 8, 9, 10 and 11 and will require their removal. The additional removal recommendations for Trees 1, 3, 4, 5 and 16 have been made due to poor species characteristics, structure, and to improve the growing conditions for the remaining trees. **https://en.wikipedia.org/wiki/Silviculture**

4.0 DISCUSSION

4.1 As noted, the site's arboricultural amenity comes primarily from a stand of *Casuarina glauca,* or She Oaks, located adjacent on the Hale Street verge. These are likely to have been planted following the construction of the existing building and have adapted to this over time. These trees are competing for both solar access and soil moisture and nutrients with their neighbours. Visible surface decay has been noted in several trees with decay spreading beyond the tree's ability to compartmentalise.

4.2 These trees remain a fraction of their biological potential and can be expected to continue to grow towards this in time. This will allow them to continue to compartmentalise smaller wounds and limit the further spread of decay. Larger wounds have resulted in columns of decay and will undermine structural integrity over time.

4.3 As noted, the vehicular access to and from the site is currently at right angles to Hale Street. This is no longer appropriate given the current and future high volumes of local traffic. While the proposed construction footprint has been set back from the existing one, there will be no direct impacts from the bulk of the proposed works. The reconfiguration of vehicular and pedestrian access is, however, required. This portion of the work will require the removal of Trees 7, 8, 9, 10 and 11. Additional removal recommendations include Trees 3, 4 and 5. These have been compromised and provide limited amenity. Removal will improve the growing conditions for those remaining and proposed.

4.4 As noted the well-established *Phoenix canariensis*, or Canary Island date palm, documented as Tree 1, has also been recommended for removal and replacement to address the hazard associated with a breeding population of Threskiornis, or White Ibis. **https://www.atsb.gov.au/sites/default/files/media/5353201/managing_bird_strike_risk_species_information_sheets.pdf**

4.5 Additional trees have been assessed. These include two (2) semi-mature *Melaleuca quinquinervia*, or Paperbark trees, located adjacent to the site's southwestern corner. These are well-suited native tree species that are located outside the construction impact zone of the proposed project and will be retained.

4.6 Additional trees assessed include a semi-mature *Olea europaea*, or African olive, located adjacent to the site's western boundary. This is a well-recognised environmental weed species and comes with a General Biosecurity Duty to eliminate. **https://weeds.dpi.nsw.gov.au/Weeds/AfricanOlive**

4.7 The remainder of the vegetation adjacent to the sites western boundary is largely *Ricinus*, or Caster oil plant. This is another well-recognised environmental weed species that will be removed in accordance with previously noted Biosecurity obligations. **https://weeds.dpi.nsw.gov.au/Weeds/Castoroilplant**

5.0 CONCLUSIONS

5.1 The reconfiguration of the proposed vehicular entrance is required to improve both pedestrian and vehicular access to the site. The affected trees are part of a stand of She oaks that appear to have been planted too close to each other. This has resulted in compromised growth and undermined the arboricultural contribution of the stand as a whole. The proposed removals will improve both growing conditions and the visual amenity of the broader stand.

5.2 Significant replanting works are proposed both here and throughout the site. These works will improve the structure and composition of the site's horticultural and arboricultural amenity over time.

6.0 RECOMMENDATIONS

6.1 It will be recommended that Trees 1, 3, 4, 5 and 16 will be removed due to poor species characteristics and/or structure. These removal recommendations would be made irrespective of the impacts of the proposed. Trees 7, 8, 9, 10 and 11 are recommended for removal to allow for the proposed driveway reconfiguration.

6.2 The remainder of the trees documented, including Trees 2, 6, 12 and 13, will all be retained and protected throughout the construction process. Construction impacts must be limited to those detailed. All works will need to be completed from within the existing or proposed construction footprints.

6.3 All permeable soil surface areas should be treated as being part of a Tree Protection Zone and allocated appropriate protection. Access will need to follow existing and remain within the current construction footprint wherever practical. All construction on site will require consideration for the preservation of topography outside the construction footprint.

6.4 Tree Protection Fencing design and locations have been detailed and should be installed prior to the commencement of site works.

6.5 All construction will require the preservation of larger diameter (30mm +) roots associated with preserved trees. All roots within the SRZ of a preserved tree will require preservation where possible. A pier and beam-based construction method will limit the direct impacts of the construction to those detailed.

6.6 The remainder of the indirect construction impacts should be mitigated with the implementation of the following:

AS4970:2025- PROTECTION of TREES on DEVELOPMENT SITES

AS.1 **Appointment of Site Arborist**

A site arborist shall be appointed prior to the commencement of work on the site. The Site Arborist shall clearly mark out all trees to be removed and ensure that all trees documented for retention are preserved with the implementation of the following tree protection measures. The Site Arborist shall have a minimum qualification equivalent to a NSW TAFE Certificate Level 5 or above in Arboriculture.

AS.2 **Inspection Points**

Give five (5) working days' notice to allow inspections to be undertaken at the following stages;

Inspection Point	Inspection Personnel
Installation of Tree Protection Zones including Tree Protection Fencing, Silt Fencing and Signage	Site Arborist
Modification of the Tree Protection Zone	Site Arborist
Works within the Tree Protection Zone	Site Arborist
Completion of Construction Works	Site Arborist Site Supervisor.

AS.3 **Education**

Contractors and site workers shall receive a copy of these specifications before the commencement of work. Contractors and site workers undertaking any works within a TPZ shall sign the site log to confirm that they have read and understand these specifications before starting work.

AS.4 **Tree Protection Zones**

Where applicable, all trees to be retained through the construction process shall be protected from mechanical damage and the indirect impacts of the construction process with the installation of Tree Protection Zones. Unless otherwise stated, the following activities must not be carried out within a TPZ;

- modification of existing soil levels
- excavation or trenching
- cultivation of soil
- mechanical removal of vegetation
- movement of natural rock
- storage of materials, plant or equipment
- erection of site sheds
- affixing signage or hoarding to trees
- disposal of chemical waste or construction material
- any activity that may directly or indirectly affect the health of these or surrounding trees.

Note: If access to a TPZ is required as part of the approved development, prior authorisation is required by the Site Arborist.

AS.5 Tree Protection Fencing

Tree Protection Fencing shall be installed at the perimeter of the TPZ. As a minimum, the Tree Protection Fencing shall be 1.8 meters high, temporary chain supported by steel stakes. This shall be fastened and supported to prevent sideways movement. The tree's woody roots shall not be damaged during the installation of this Tree Protection Fencing. This Tree Protection Fencing shall be erected prior to the commencement of works on site and shall be maintained for the duration of the construction process.

AS.6 Trunk and Branch Protection

Where TPZ fencing cannot be installed due to practical site constraints, trunk protection shall be installed around the trunk or branch to avoid mechanical damage. As a minimum, the trunk and branch protection shall consist of padding wrapped around the trunk and/or branches of the affected tree. Timber panels will then need to be erected around the affected branch or trunk.

AS.7 Signage

Tree Protection Signage shall be attached to the TPZ and displayed in a prominent location. These signs shall be repeated in 10m intervals or closer where the fence changes direction. These shall be a minimum of a 72 font size and each sign shall be at least 600 x 500mm.

AS.8 Mulching

The area within the TPZ shall be mulched and maintained with 80mm of leaf litter mulch for the duration of the construction process. This mulch shall be spread by hand to limit the impact on underlying roots and shall be installed prior to the commencement of works on site.

AS.9 Site Arborist

The Site Arborist shall inspect and approve the TPZ, including mulching. signage, Tree Protection Fencing, Silt fencing and Signage prior to the commencement of works on site.

AS.10 Ground Protection

Wherever applicable, pedestrian, vehicular and mechanical access shall be excluded from the TPZ. Where required access within the TPZ shall be restricted to areas where ground protection has been installed.

AS.11 Site Management

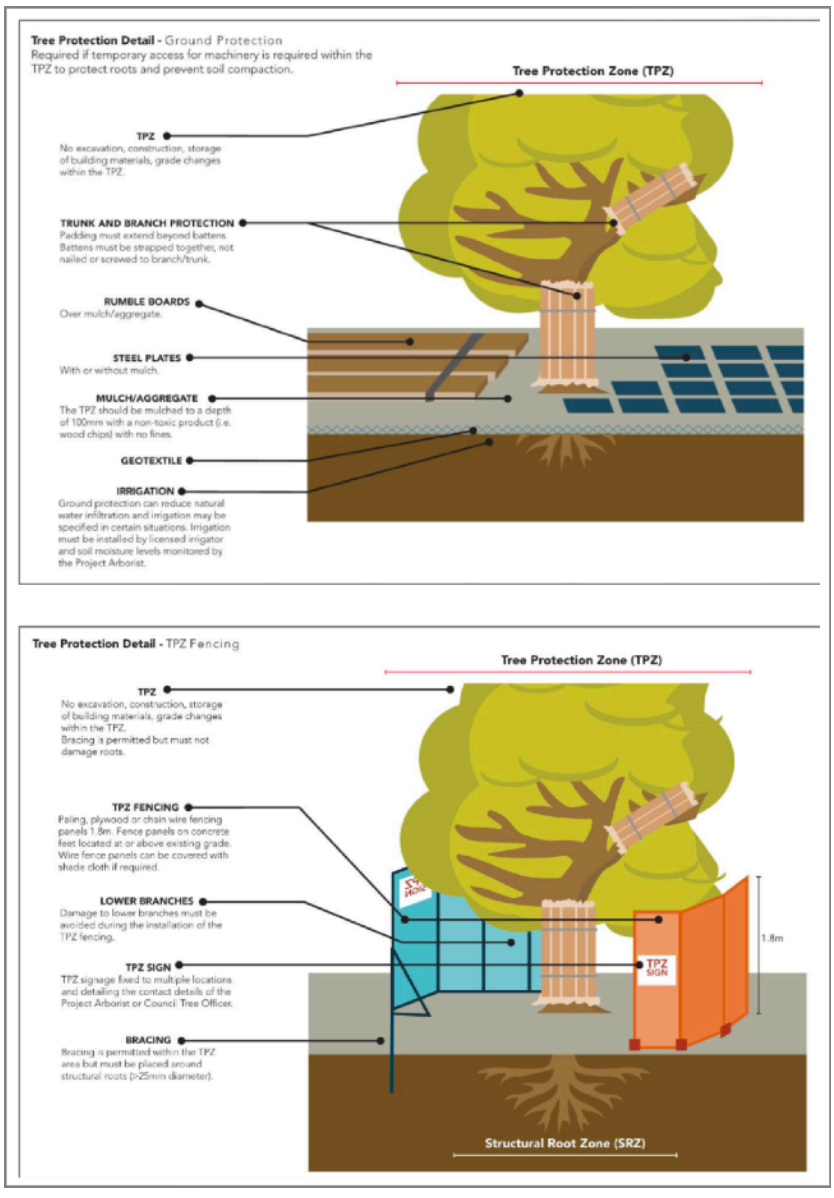
Materials and waste storage, site sheds, and temporary services shall not be located within the TPZ unless specified. Storage points shall be covered when not in use and shall be no greater than 2m in height.

AS.12 **Works Within the TPZ**

The TPZ may need to be modified during the works to allow access between the protected tree and the proposed construction. The TPZ shall remain as specified, and only those works detailed in the proposed construction shall be undertaken.

AS.13 **Completion of Works within Specified TPZ**

Upon the completion of works within a TPZ, the protective fencing shall be reinstated as specified. Where the construction of new structures does not allow for the reinstallation of fencing, the TPZ shall be modified by the Site Arborist.



9.0 GLOSSARY

COMMON NAME/GENUS SPECIES CULTIVAR – Common names can vary with selected texts. Where species is unknown, "sp." is indicated after the genus. Where cultivar is unknown, "cv" is indicated after the species. The number in brackets, e.g. (x9), after the species indicates the number of trees in this tree group.

DBH – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level). Fabric diameter tape is used, which assumes a circular cross-section. Multiple measurements indicate multiple trunks. More than three trunks are indicated as "multi". Where DBH measurement cannot be taken at 1.4m, the height at which it has been taken is indicated in the Comments column.

CANOPY SPREAD RADIUS – Average canopy radius (widest + narrowest 2). Circular canopy depictions on the Tree Plan/Survey are indicative only. Where canopy spread was significantly skewed, all four cardinal point measurements were recorded.

AGE CLASS – Immature (IM), Semi-mature (SM), Mature (M), Over-mature (OM). Assessment of the tree's current Age. A Mature (M) tree has reached a near-stable size (biomass) above and below ground. Trees can have a Mature age class for >90% of their life span. Over-mature (OM) trees show symptoms of irreversible decline and decreasing biomass.

VIGOUR–Good(G),Fair(F)orPoor(P). The general appearance of the canopy/foliage of the tree at the time of inspection. Vigour can vary with the season and rainfall frequency. A tree can have Good vigour but be hazardous due to Poor condition. A tree in Good vigour has the ability to sustain its life processes. Vigour is synonymous with health.

CONDITION – Good (G), Fair (F) or Poor (P). The general form and structure of the trunk/s and branching. Trunk lean, trunk/branch structural defects, canopy skewness or other hazard features are considered.

SRZ RADIUS – Structural Root Zone. The area around a tree is required for tree stability. Earthworks should be prohibited within the SRZ.. The area is calculated from the formula and graph in Figure 1 of AS4970-2009. The SRZ graph has been adapted from the work of Claus Mattheck (1994). DBH has been used instead of the stem diameter above the root buttress in the calculation of SRZ. 0.1m has been added to SRZ to allow for minor increases in stem diameter.

TPZ RADIUS – Tree Protection Zone. Radial offset (m) of twelve times (12X) trunk DBH measured from the centre of trunk (for trees with a minimum DBH of 0.3 metres, the TPZ is 2.0 metres). To satisfactorily retain the tree construction activity, both soil cut and fill must be restricted within this offset. TPZ offsets are rounded to the nearest 0.1 metre. Existing constraints to root spread can vary with TPZ. Generally, an area equivalent to the TPZ should be available to the tree post development. Encroachment occupying up to 10% of the TPZ area is acceptable without a detailed root zone assessment. Encroachments greater than 10% require a specific arboricultural assessment.

SULE – Safe Useful Life Expectancy. A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. The SULE method used in this assessment has been adapted for simplified use within the field. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium (retainable for 16-39 years), Short (retainable for 5-15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

RECOMMENDATIONS – Retain (R), Retain Plus (R+), Transplant (T) or Remove (Rm).

COMMENTS – Comments relating to the location, surroundings and hazard potential of the trees at the time of inspection and where applicable, the reason for removal.

9.0 BIBLIOGRAPHY & REFERENCES

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Figure 1 shows the existing construction footprint in relation to the documented trees.

Figure 2 shows the extent of the stand of She Oaks documented.

Figure 3 shows part of the stand required for removal to allow vehicular access.

Figure 4 shows the locations of Trees 14,15, and 16 and the site's western boundary.