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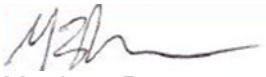
PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL
Approval no: DEV2025/1674
Date: 15 September 2025
Queensland Government

ARBORICULTURAL REPORT

Arboricultural Impact Assessment

Site Address:	Building D 70 Park Road Yeronga, Qld, 4104
Real Property Address:	L1 SP328496
Commissioned by:	Retire Australia
Local Authority:	Brisbane City Council (BCC)
Project:	Planning Application
Date of report:	Wednesday, 23 July 2025
Version:	Two (2) DA Set For Review By EDQ Urban Planning
Prepared by:	 Matthew Duncan Director / Principal Arborist e: mattarborist@gmail.com m: 0450 355 770 ABN: 68 153 548 531

This document was prepared for the sole use of Retire Australia and any regulatory agencies involved in this project. No other party should rely on this information without the prior written consent of Consult Arborist.

The findings laid out in this report are valid for 12 months from the date of the assessment.

If the advice and recommendations made in this report are not strictly adhered to, no responsibility will be taken for the continuing health and condition of retained trees. Trees are dynamic living organisms that respond to changes in their environs; repeat assessments are key to maintaining tree vitality and structural integrity and reducing any potential risk they may pose.

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Document Control

The latest approved version of this 25_07_23_AIA_RetireAus_ParkRd_Yeronga should be available to all personnel involved in the Project in consultation with Consult Arborist Pty Ltd.

Each new revision should be distributed to all key personnel for review and endorsement.

Version	Date	Written	Reviewed	Approved
DRAFT	25/06/2025	MJD	SCD	MJD
One	22/07/2025	MJD	SCD	MJD
Two	23/07/2025	MJD	SCD	MJD

Documents Reviewed

The following documents have been reviewed, analysed, and referenced during the production of this report.

Reference / Date	Title / Details
July 2025	Marchese Partners | Life: MP-AR-DWG-A2.03_BASEMENT 1_F MP-AR-DWG-A2.04_LOWER GROUND LEVEL_G MP-AR-DWG-A2.05_UPPER GROUND LEVEL_G

Note: Extracts from the above document have been used to illustrate the text within this report, but should be read with the full document.

CONTENTS

1 Brief

Consult Arborist Pty Ltd has been commissioned by Retire Australia to produce this Arboricultural Impact Assessment (AIA) report as part of a Development Application (DA) to Brisbane City Council (BCC).

This report addresses the arboricultural questions raised and provides information on a tree's condition at the time of the assessment and position within the proposed project design. Recommendations for tree protection measures during the construction phase are provided with the aim of long-term tree retention.

2 Site Inspection & Qualifications

Consult Arborist, led by Director and Principal Arborist Matthew Duncan, is a trusted authority in arboricultural consulting. With over 30 years of industry experience, Matthew holds an AQF Level 5 Diploma of Arboriculture (AHC50510) and an ISA Tree Risk Assessment Qualification (valid 2015–2030) and undertook the most recent Visual Tree Assessment on the site from a ground level in June 2025.

Since founding Consult Arborist in 2011, he has provided expert arboricultural guidance for private, civil, and capital works projects across Queensland. As a Qualified Member and Approved Consultant of the Queensland Arboricultural Association (QAA), Matthew ensures professional, informed, and tailored solutions for clients seeking high-quality tree assessment and management services.

Consult Arborist has been involved in the project at the former Yeronga TAFE site since 2019. Working closely with various project partners, including EDQ, Lambert & Rehbein, and Bellwether, to provide information and advice regarding the trees at the site. Due care and consideration were provided to the retained trees at the site, but those that involved the most significant amount of care, consideration, and design innovation were trees 99 and 95.

Figure 1: Google Map site location at Park Road, Yeronga

3 Scope and Limitations

This assessment was based on the International Society of Arboriculture's Risk Assessment Methodology for trees. The level of assessment undertaken for this report was a basic Level 1 visual assessment of the surrounding area and the subject tree's structure and health, from the ground on one side and a Level 2 assessment on all sides of the tree was completed to assess further any visual defects noted.

It is an assessment that includes the use of basic tools and techniques, i.e., cavity probing, minor root collar excavation, measuring tapes and devices and photography to gather information and not a full assessment of any tree's structural safety. No trunk decay detection equipment or ground radar was used as part of this assessment; no conclusive comments on what may have been or may be happening within the internal structure of the tree or the tree's roots will be made. No tissue or soil samples have been collected or submitted for testing. All data is based on visual inspection based on known industry methodology of visual tree assessment (VTA) of the tree/s and their location, species, health, and condition at the time of inspection unless otherwise stated.

The timeframe for this report is the inspection period; re-inspection should occur 1 year from this inspection.

The information contained in this report is based on a visual inspection of each recorded tree and its location, species, health, and condition at the time of inspection unless otherwise stated. It is the author's opinion and is a 'snapshot in time' of the specific tree's health and condition at the time of the inspection, and no guarantee can be given that faults or issues may not arise in the future.

The relevant tree information has been recorded to be used as a functional tool to determine management strategy for the subject trees, considering attributes, conditions, past works, location, project design, construction, and future use. *AS 4970:2025 Protection of trees on development sites*, relevant industry best practices and experience were used for the compilation of the reports and assessments involved in the development of this AIA.

This report does not take into consideration changes to the site design or activities on which Consult Arborist has not been requested to comment or been advised.

The locations of the trees have been surveyed and included in the plans. Consult Arborist's visual assessment regarding tree health, condition and retention status, or amendments to the measurements are included for context.

This report should be read in conjunction with all available project plans.

Information provided by the client is considered current and accurate.

Note:

- Photos of the subject trees have been taken with an iPad or iPhone when required, and the light/exposure has been adapted to improve the clarity of the picture quality.
- This report has been amended to reflect the new wording and terms within the updated *AS 4970:2025 Protection of trees in development sites.*

4 INTRODUCTION

The site is Building D, 70 Park Road, (L1 SP328496) in the Brisbane City Council (BCC) suburb of Yeronga.

The site is at the former location of Yeronga TAFE, where over the past decade, the site has been cleared and decontaminated in preparation for the development works to create the EDQ project, Yeronga Heart.

Currently, the site is in the midst of major construction works. The Retire Australia project is located on Lot 1, in the south west corner of Park Road and Villa Street, facing the newly constructed Currawong Circuit. The project plans to build a retirement facility and associated infrastructure.

On the western, or Park Road, side of the project stand two (2) maturing Hoop Pine trees, *Araucaria cunninghamii,* ID numbers 95 and 99, that have been retained as part of the original landscaping of the TAFE complex.

As part of the broader site rehabilitation and major civil works, these two trees were retained and protected with extensive tree protection and mitigation measures provided.

The trees were captured on the original site tree plot plan, and the allocated ID numbers 95 and 99 are retained for this project and reporting.

During the planning and implementation of the overall site civil works, Consult Arborist was engaged by EDQ to work with the awarded civil contractor, Bellwether, to assist with tree protection measures across the site.

The two (2) subject Hoop Pines were given special attention with the intent to retain these trees as part of the entry statement for the project. With tree 99 located on the corner of Park Road and the newly constructed Currawong Circuit, tree 99 is sighted just within what is now the BCC road reserve and, as such, is protected under BCC Local Laws and the NALL process.

As a street tree, tree 99 falls under the jurisdiction of the BCC Department of Arboricultural Planning - Program Planning and Integration (PPI). It is anticipated that BCC will place a monetary bond on tree 99 to ensure its retention is successful.

V2 Note: Version 2 of this report clarifies some of the terminology from the new AS 4970:2025 in section 6.

5 Background

The following information has been collated over a number of years, with Consult Arborist commencing involvement with this site in 2019 and actively consulting during various stages of the site redevelopment up to and including the construction of the Retire Australia facility at Building D, 70 Park Road.

The two subject trees are maturing Hoop Pines on the western side of the Lot, adjacent to the road reserve on Park Road. The current project design has made an allocation of space based on an area that was calculated to create a workable Tree Protection Zone (TPZ).

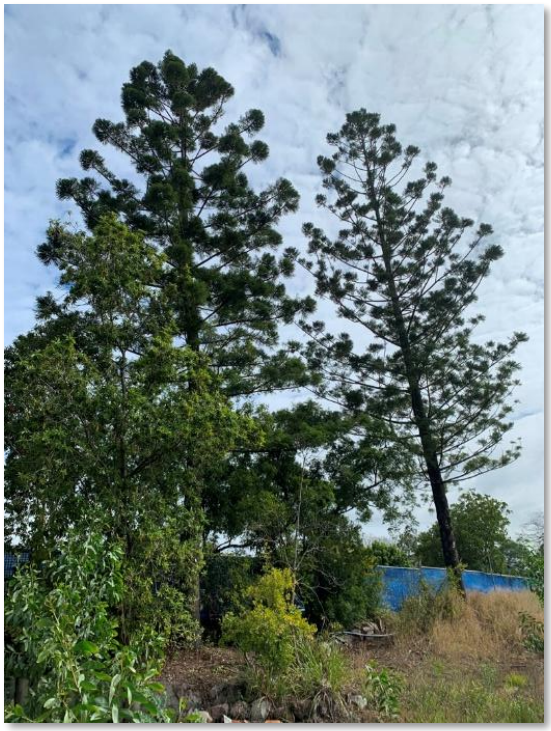

Figure 2: Subject trees 2021.
Tree 95 on the left and 99 on the right.

Figure 3: Subject trees June 2025
Tree 95 on the left, and tree 99 on the right.

During the main earthworks at the site, the subject trees were provided with a Plant Health Care program to assist with mitigation of the earthworks to install and construct in-ground services, the new road, and the pedestrian path.

The surrounding ground beneath these trees was carefully tidied, removing past landscaping, pathways, weeds, and general debris. The area was then levelled with a combination of quality topsoil, organic compost, and mulch. The moisture levels in the ground were monitored, and supplemental watering occurred as required.

Figure 4: Surface improvements

Figure 5: Supplemental irrigation

With the work completed, these trees have been able over the past few years to take advantage of these mitigation measures and are now displaying improved health and vigour throughout their canopies.

This is a good demonstration of how, if provided with the right ground conditions, trees can adapt and thrive within a changed site.

The current project design seeks to retain these trees as a project feature, and further mitigation measures and Plant Health Care will be implemented to achieve this, without relying on a calculated root zone area. Urban and suburban trees are often found not to comply with industry standards, but given the right opportunity, can still be retained.

When reviewing trees where root zone intrusion is being suggested, an individual assessment of works and remediation measures required will provide a more tailored opportunity for success beyond the reliance on the mathematical equation as was prescribed in *AS4970-2009 Protection of trees on development sites*.

6 Calculated Root Zones

The dimensions of the TPZ area are calculated from the trunk diameter that was estimated as part of a broader site Tree Survey in 2021. These figures provided a good representation of the area required by these trees, taking into consideration past site activities and ground mitigation measures, tree species and their tolerance to root disturbance and ability to adapt to change. The calculations and disturbance areas were based on the AS 4970-2009. The updated version, *AS 4970:2025 Protection of trees on development sites* formalised the concept of a theoretical or Notional Root Zone (NRZ) as the primary trigger for arborist involvement in the development and planning of a site with trees. The NRZ is now the standard's starting point for determining the TPZ.

- Tree 95 Notional Root Zone (NRZ) = 5.4m radius.
- Tree 99 Notional Root Zone (NRZ) = 6m radius.
- The SRZ has not been calculated as intrusion is not anticipated.

Consult Arborist is advised that the Retire Australia design for the site has been developed based on an existing Development Approval design that incorporates a basement design and a deep planting area. Within the past approved DA design on the site, the illustrated TPZ would have been included in the BCC approvals. The allocated deep planting area, approximately 140-150m², will form the TPZ during the construction phase, after which it will be landscaped to create a garden area with the retained trees as a feature.

The tree protection and mitigation measures within this report aim to provide the best opportunity for the trees to be retained for longevity whilst achieving a workable project design for Retire Australia.

The site Lower Ground Level drawings depict the subject tree's canopy size based on the calculated NRZ of each tree. As the plan reflects, the building intrusion would be classed as Minor (up to 10%). However, taking into consideration more recent site amendments over the past few years by EDQ, the level of intrusion could be described as Moderate (up to 20%).

To complete the site activities, intrusion will be required in the TPZ area, and although ground disturbance will be kept to a minimum with protection and mitigation measures adhered to, it might be considered a Major TPZ intrusion (greater than 20%). However, this will be a surface-level intrusion only as required for access and will not impact the tree’s roots at depth, thereby, as has been seen from previous site activities with these trees, can be successfully mitigated by ground improvements and Plant Health Care applications.

Hoop Pines tend to have a dense, multidivisional root system that is adaptive and can regrow where conditions are favourable. The current health of the subject trees illustrates their ability to adapt to site changes and recover successfully from past ground disturbances. This can be witnessed frequently in urban tree management and particularly on trees within changing urban development sites.

The constructability of the site will require disturbance for the placement of scaffolding and pedestrian access. Additional protection measures will be put in place to mitigate these activities as per the Tree Protection Specifications.

The net soil area and volume are not anticipated to be reduced within the TPZ. Past soil remediation has already occurred beneath the trees, producing a visible increase in their health and vigour. This style of mitigation is proposed again as part of this project, and if adhered to, the trees are expected to be successfully retained as part of the project aesthetics.

The successful retention of the trees will be bettered by the education and cooperation of all parties of the construction team during the build and communication with the Project Arborist to assist and advise during the construction phase for works carried out adjacent to the TPZ of protected trees.

The Project Arborist may at any time implement new or additional procedures as may be required for the site in the best interest of the trees and the project as a whole.

7 Project Plans

Figure 6: Preliminary Perspective View 5

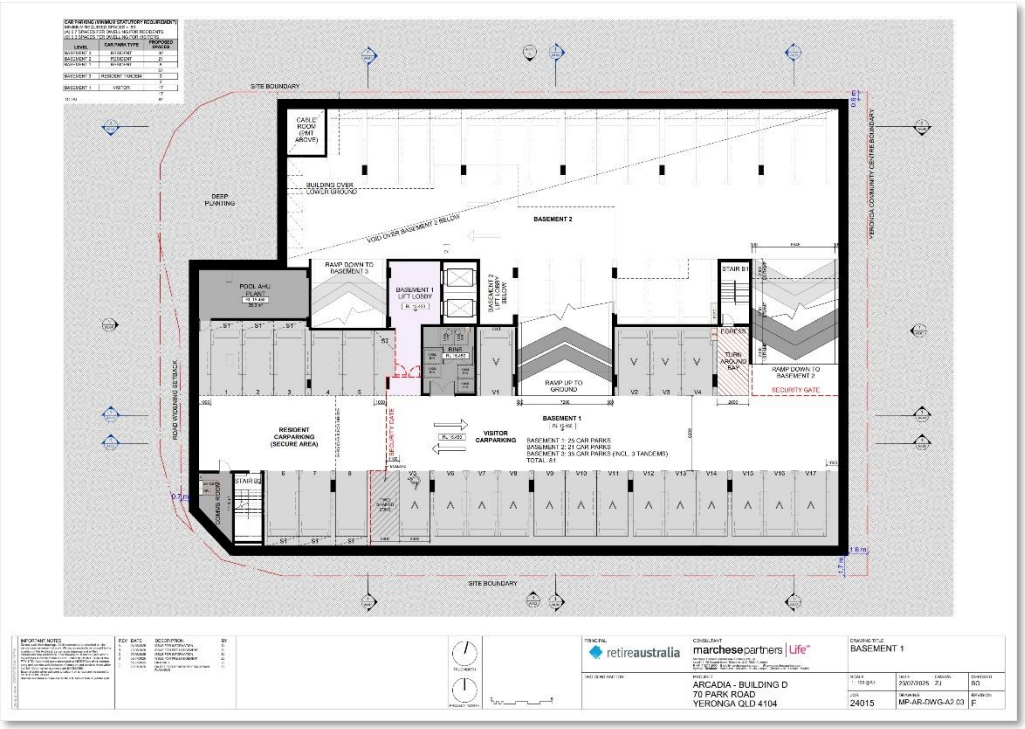

Figure 7: Marchese Partners Basement 1

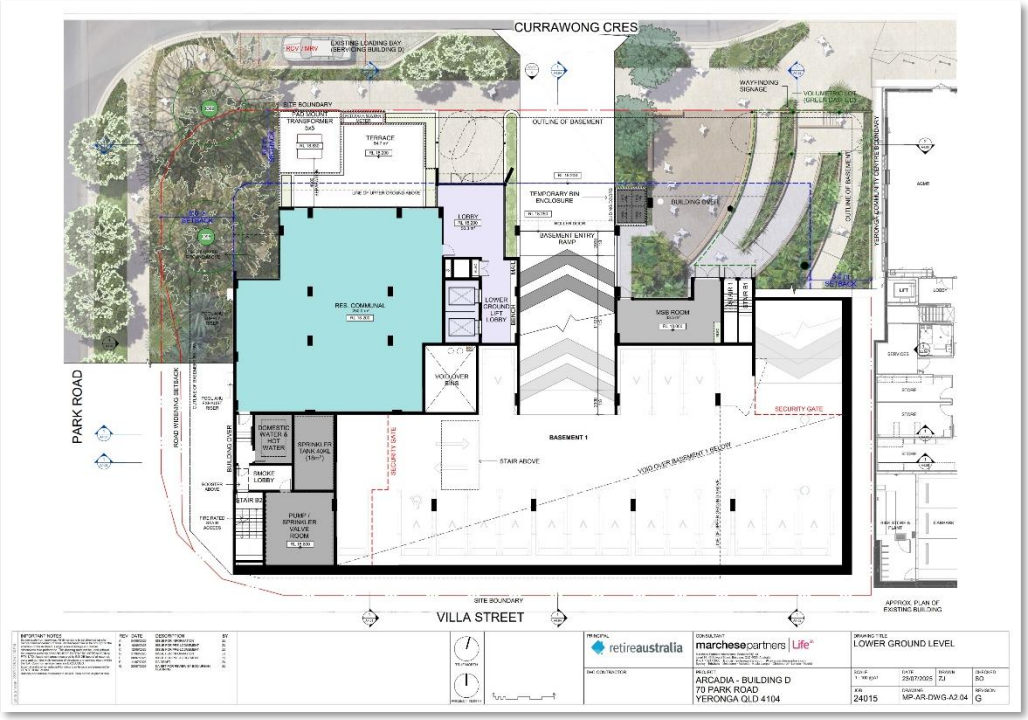

Figure 8: Marchese Partners Ground Level

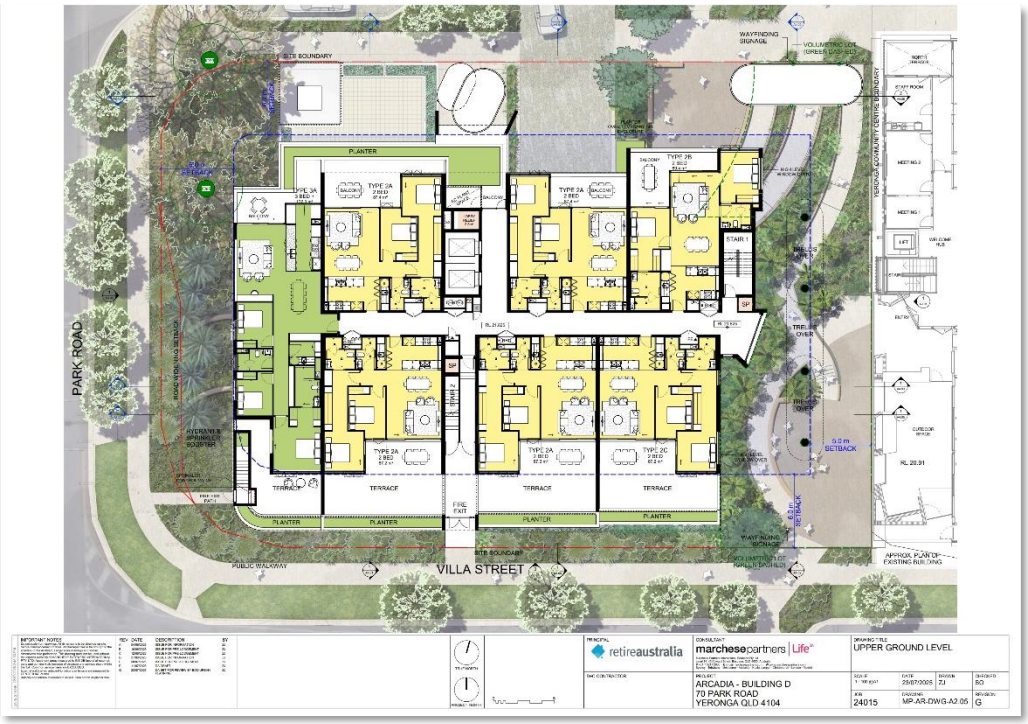

Figure 9: Marchese Partners Upper Ground Level

8 Site Photographs

A selection of photographs was taken on the site to provide a visual representation and explanation of the current trees and the surrounding area

Figure 10: Trees 95 and 99

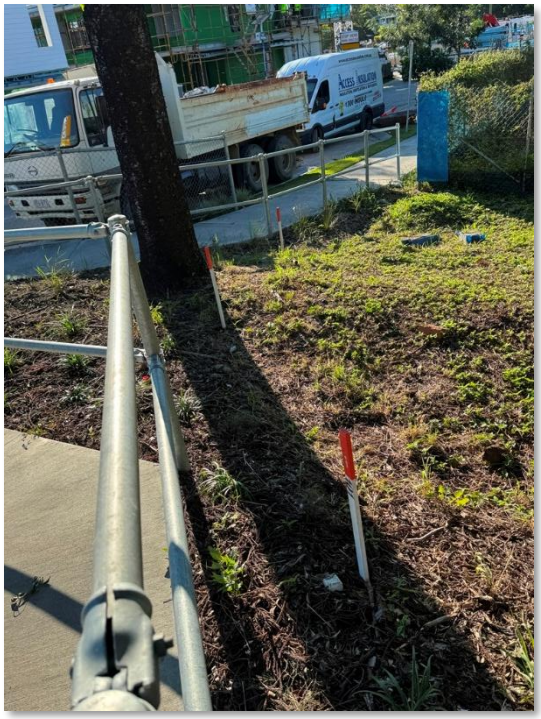

Figure 11: Tree 99 on the BCC side of the property boundary demarcated with survey pegs

Figure 12: Slope in front of tree 95

Figure 13: Newly constructed pathway in front of tree 99

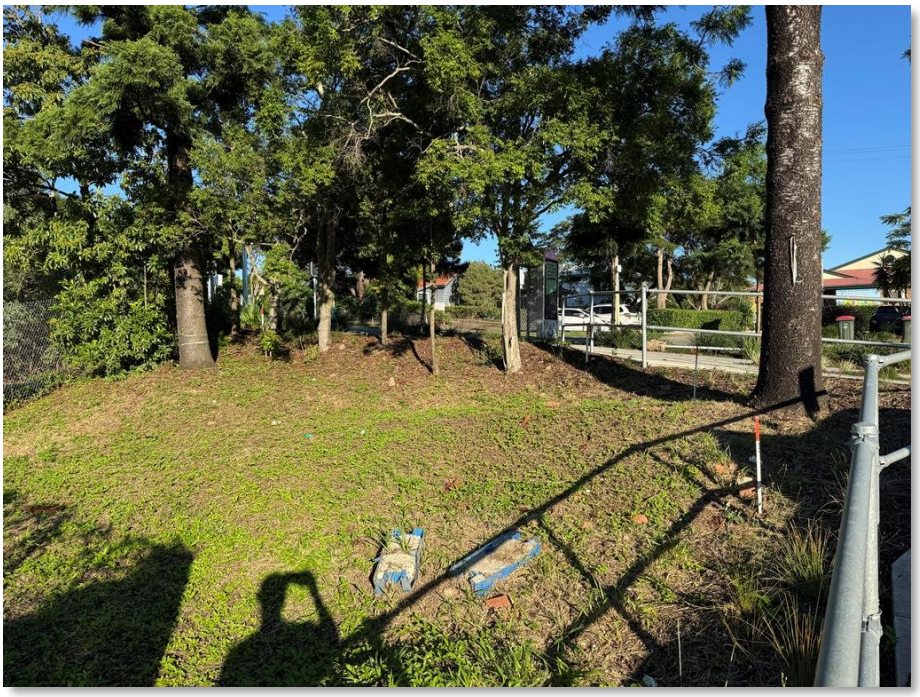

Figure 14: Overview of the sloping deep planing area

9 Tree Protection Specifications

The project proposes to construct a multi-level building with a basement car park. The two retained Hoop Pines within the northwest corner of the Lot are to form part of the site's landscaping. An area of 'Deep Planting' is shown on the plans (Lower Ground Level) in which the trees will stand. This area has been guided by a Tree Protection Zone calculation taken from a previous DA approval.

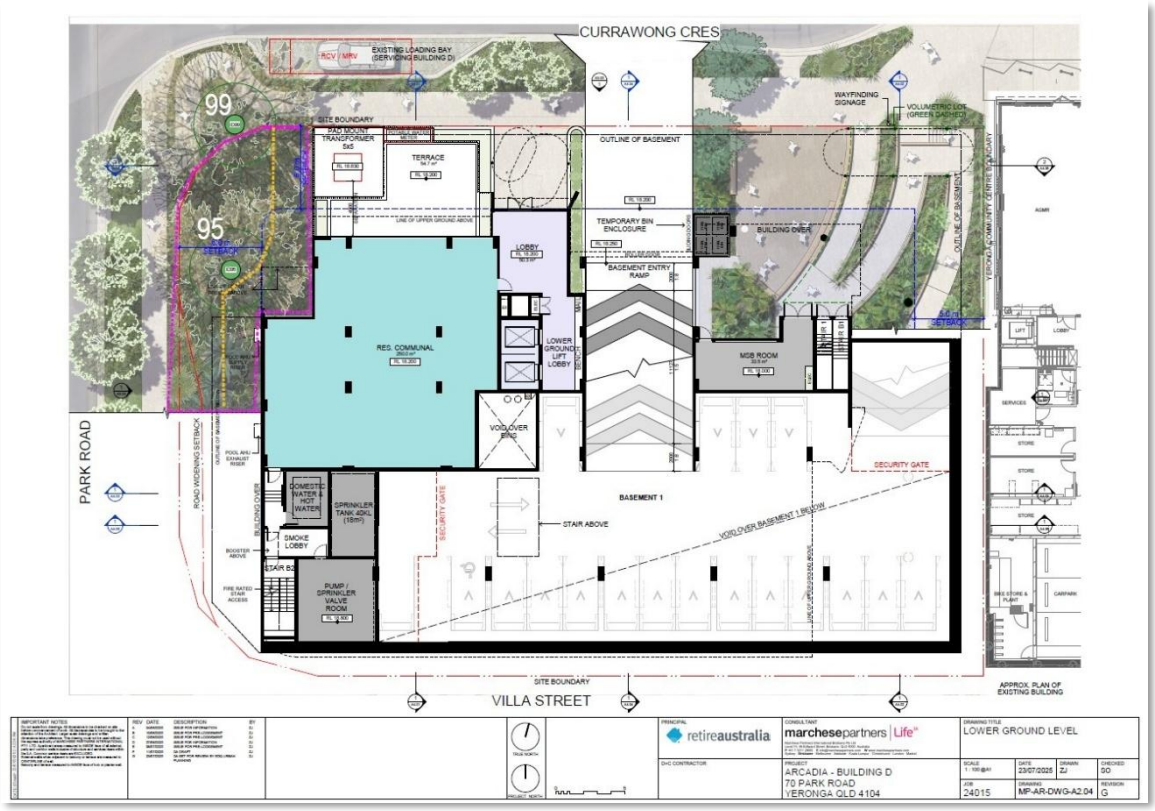

Figure 15: Marchese Parktners Lower Ground Level plan, with subject trees 95 and 99 Indicative TPZ illustrated within the property Lot

The project design shows a basement to be constructed at a distance of between 5 and 6m from the trees on their eastern side. This alone is not deemed to be a major intrusion into the trees' TPZ. The building projection will in some limited places protrude further towards the trees, with the balcony design achieving a 2-2.5m gap from tree 95's trunk at the closest point.

Being a multi-level building with a basement, two major construction factors need to be considered: basement excavation and safety scaffolding.

The basement walls will be formed using continuous piers, which are to be installed with the machinery and equipment sat within the building footprint. The Deep Planting / TPZ area is to be secured as a No-Go-Zone during this operation. Site fencing is to be installed to create the TPZ.

During the construction of the piers, intrusion into the outer TPZ will occur; this is only expected to impact smaller diameter roots.

Upon commencement of the works to construct the main building, safety scaffolding will be required. Consult Arborist has been advised that a 4m wide work zone will be required around the building footprint. To achieve this and to provide adequate building clearances, side branches of Tree 95 will require pruning, and a ground-level scaffolding walkway constructed to keep pedestrian foot traffic off the ground and therefore reduce tampering at the base of the tree. The final details and design of the scaffolding require confirmation.

During the site set-up works, the area of Deep Planting will be established to create the allocated TPZ for trees 95 and 99. Currently, a layer of weeds and low-level plants is growing in the mulch layer. These lower-order plants will need to be removed before any further ground treatments.

As part of a Plant Health Care program, monthly applications of a seaweed-based plant food or soil conditioner should be applied to the area, with the first application applied prior to re-mulching. The mulch is to be aged forest mulch, 50-75mm in depth and is to be spread across the entire TPZ / Exclusion Zone. Wherever possible, the area is to be restricted to all site use.

The deep planting area slopes to the current natural ground of the project footprint, and it is anticipated that some Fill will likely be required on the eastern/site side of the trees. If required, the surface layer of mulch can be carefully removed and a sandy free-draining material used as Fill. The exact requirements will be specified within the Landscape plan.

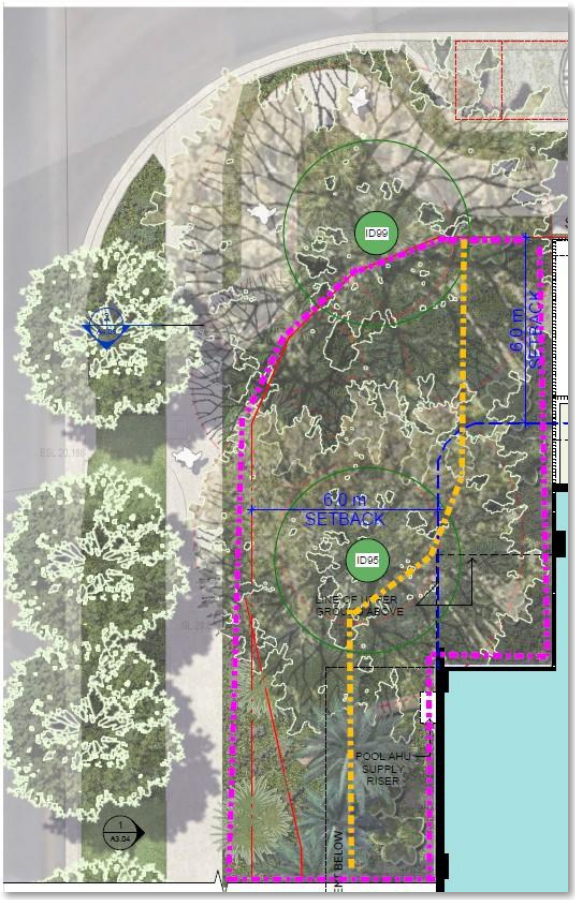

Figure 16: Marchese Parktners Lower Ground Level plan, with subject trees 95 and 99
Purple line - Indicative TPZ illustrated within the property Lot
Yellow line – indicative area allowance for site access – TBC.

10 Tree Protection Guidelines (TPG)

For the proposed retention of the above trees onsite, the following guidelines are recommended to be implemented to minimise the impact of the Project works. The protection recommendations offered will be guided by *AS 4790:2025 Protection of trees on development sites*, industry best practice and the supervising presence of a suitably qualified and experienced Arborist with a high level of experience as an onsite Project Arborist.

The information within these Guidelines is **generic** and can be used within the project as required.

The successful retention of the trees will be bettered by the education and cooperation of all parties of the construction team during the build and the presence of the Project Arborist on site to assist and advise during the construction phase for all works carried out adjacent to the TPZ of protected trees.

ALL workers on the site are to be made aware of the Tree Protection Guidelines and any site-specific measures by the main contractor prior to commencing works.

10.1 The Role of the Project Arborist and Tree Protection

An Arboricultural Assessment was undertaken by the Consult Arborist for the trees that require consideration. The information within this Arboricultural Impact Assessment report should be read in conjunction with guidelines laid out in the Australian Standard, *AS 4970:2025 Protection of Trees on Development Sites* and ongoing advice from the Project Arborist.

A designated onsite foreman/supervisor from the construction company is to liaise with the Project Arborist to ensure that Tree Protection is adhered to in their absence from the site.

Project Arborist to undertake regular inspection and supervision of works adjacent to the exclusion zone in consultation with the Project Team.

A Post Construction Arborist Report can be prepared by the Project Arborist on request for the retained tree, comprising a Visual Tree Assessment detailing each of the trees' condition and vigour, damage or disturbance which may have occurred, and remedial works are undertaken.

After the final inspection, a Certification of Compliance can be supplied along with any monitoring documentation as required.

The Project Arborist may at any time implement new or additional procedures as may be required for the site in the best interest of the trees and the development as a whole.

10.2 Calculating Tree Protection Zone

The descriptions of the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) are taken from the Australian Standards, *AS 4970:2025 Protection of trees on development sites*. These descriptions provide an outline for calculating the TPZ; when encroachment or reduction in the size/area of the TPZ is required to facilitate the development, these can also be calculated.

10.2.1 NRZ – Notional Root Zone

As specified in *AS 4970-2025*, the NRZ is the primary trigger for arboricultural input on a development site. It encompasses a radius of twelve times the Diameter at Standard Height (DSH - trunk diameter at 1.4m above ground) from the centre of the trunk. Unless otherwise stated, the NRZ = <2m or >15m.

NRZ RADIUS = 12 x DSH

10.2.2 TPZ – Tree Protection Zone

A TPZ is a specified exclusion or management area, determined by the project arborist and to be shown on the Tree Protection Plan. It is the area above and below the ground necessary to protect the tree's roots and crown from development, so it remains a viable tree and is determined using guidelines laid out in section 3.3 of *AS 4970:2025*.

10.2.3 SRZ – Structural Root Zone

The SRZ is the notional area around the base of the tree required to maintain that tree's stability – a larger area than this is required to maintain a tree in a viable condition for the future. It is only necessary to calculate the SRZ when major encroachment (20%+) into an NRZ is proposed.

An indicative SRZ RADIUS can be determined from the lower trunk diameter (above the root buttress), D, measured in metres and applying the following formula:

$$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$$

The SRZ for trees with a trunk diameter of less than 0.15m will automatically be 1.5m.

Please note that these are theoretical calculations and are to be used as a guide. Large tree species, especially Fig trees, will have woody structural and feeder roots that extend to a greater distance than the calculations. Trees within urban environments where solid structures restrict root growth can also alter a tree's root spread and direction. An additional water/food source would also encourage roots to grow further than expected.

10.3 Establishing Tree Protection

Figure 17 below shows a typical representation of a tree protection system. Tree root systems are generally shallow, with the majority found within the top 1m of soil and a higher density of roots found closest to the surface, where moisture and nutrients are more readily available. The function of the TPZ is to ensure the tree has a viable root system, so it remains a functional future as an amenity asset within the development.

The structural standing of a tree is linked to critical aspects of roots (found in NRZ) to bind the soil and create a mass that the tree can anchor to. These roots consist of 'Secondary roots' (medium size) and 'Tertiary roots' (small size). Primary roots (large size) found in the SRZ connect the Tree to the anchor system. Primary roots by themselves do not bind enough soil to create a stable anchor system.

The shallow nature of tree roots should be taken into consideration when working close to trees and when installing the tree protection fencing for the TPZ.

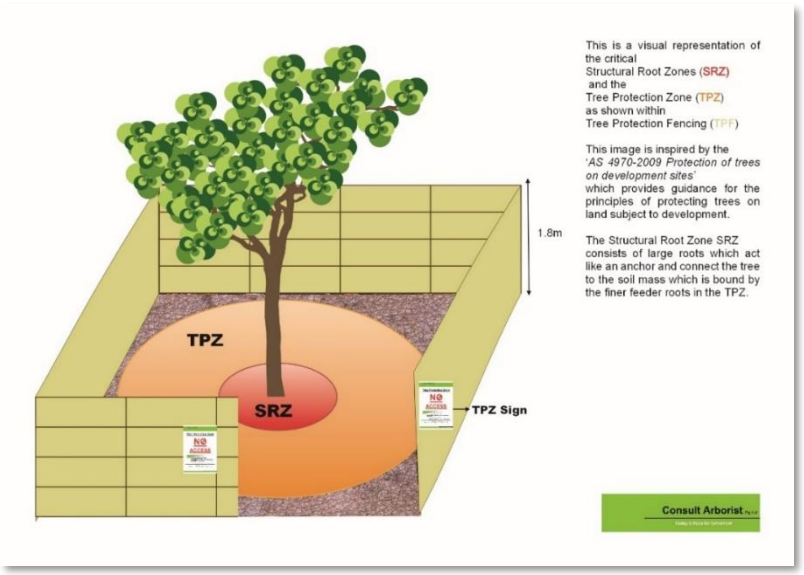

Figure 17: Example of an ideal generic Tree Protection System

10.3.1 TPZ Signs

The TPZ identifying signs in Appendix 2 – Sample TPZ Sign are to be placed around the edge of the TPZ in locations visible to the site. Signs should be printed in A3 at a minimum, and lettering should conform to *AS 1319*.

10.3.2 Trunk Protection

Trunk protection, to prevent direct contact with the tree's trunk and buttress roots, can be installed. This can comprise of Geo fab/20mm thick hessian and wooden battens strapped/taped to the tree's trunk with a skirt over the buttress roots.

10.3.3 Restricted Activities Within the TPZ

Restricted activities within the TPZ that would cause harm to the retained trees include, but are not limited to:

- Any non-approved construction works.
- Any non-approved excavation or cultivation of the ground.
- Any non-approved storage.
- Preparation of chemicals, including cement products.
- Parking of vehicles and plant.
- Refuelling.
- Dumping of waste.
- Wash down and cleaning of equipment.
- Placement of Fill.
- Fires.
- Any non-approved soil level changes.
- Temporary or permanent installation of utilities and signs.
- Physical damage to the tree.

10.3.4 Tree Protection Fencing (TPF)

The Tree Protection Fencing (TPF) is to be installed onsite before any development works commence to restrict access to the nominated TPZ as laid out in the TPS. The fence should not be easily moved to restrict access is for those with approval only.

AS 4687.2 specifies requirements where temporary fence panels are used. Shade cloth or something similar can be attached to the fence to protect the area from airborne matter if required. Uneven ground and/or exposed sites may require additional staking to hold the fencing in place. Care is to be taken when installing the additional bracing so as not to damage tree roots or hit underground services.

Where the adequate TPZ is not achievable, the TPF can be erected in a non-standard alignment and additional measures, including ground protection, e.g., Trak-mats/geo fabric and mulch to spread the load of site activities and minimise ground disturbance. These measures will be established between the developer and the project arborist.

As an alternative to steel mesh panels for temporary or low access areas, TPZ fencing may consist of 1m high plastic orange mesh barrier fencing or a double row of flagging with star pickets with end caps as support, spaced at 4 – 5m and attached with zip ties. This style of fencing is deemed suitable for larger sites when work activities are generally to be within the central area of the site, with the proposed retained trees on the periphery and away from main site activities.

Figure 18: Standard TPF with ground protection mulch

Figure 19: TPF adjacent bushland with fauna access

Figure 20: Exclusion Zones with Trunk Protection

10.4 Site Preparation

When the final design is agreed upon and the areas for tree protection are established, Site Preparation is to be undertaken.

One of the key elements of tree preservation is to ensure that the ground around the tree is unharmed and/or improved. Poor soil conditions will cause a slow death to trees over many years. The effects on the health of the tree of soil compaction caused by site traffic, storage of materials and other factors are often underestimated.

Protecting the surrounding ground in which a tree grows is key. Trees naturally grow in shaded forests with tree debris covering the ground. Trees that grow in grass with compacted and depleted soil will not be as healthy as trees growing in mulched garden beds. Placing mulch over the tree protection area will assist in improving the soil conditions and encourage beneficial soil life while discouraging access.

- Trees for removal will be clearly marked by the Project Arborist.
- Trees requiring work will be clearly marked by the Project Arborist.
- Remove unwanted plants by hand within the Tree Protection Zone, no grubbing of stumps and roots.
- Remove permitted trees – cross-check with the approved plans and the markings by the Project Arborist – If in Doubt, Shout Out!
- Undertake any agreed pruning on the grounds of safety, canopy/structural improvements, or to prevent conflict during the works, under the supervision of the Project Arborist in accordance with the AS 4373 – 2007 Pruning of amenity trees.
- Apply organic seaweed-based plant food and soil conditioner.
- Where possible, cover with 50-100mm of composed forest mulch (not any form of Pine bark or chip). Site mulch can be used where it does not contain weed species seeds.
- When required, supplemental watering with a water cart or sprinkler system can be used to retain adequate moisture levels in the soil.
- Install TPZ fencing and signs on the agreed alignments under the supervision of the Project Arborist.
- Do not adjust the TPZ fencing without permission.

10.5 Temporary Ground Protection

Where access over the TPZ area is required during construction, site preparation is crucial to minimise damage and disturbance to the ground in which the roots of the trees are growing.

These measures aim to reduce the compaction and disturbance to the soil, spreading the load of machinery and preventing wheel/track ruts from site machinery. There is a range of measures and materials that can be used to achieve this. The level of ground protection required is determined by the load, actions, and frequency of access for works to be undertaken.

- 200mm of forest mulch placed over root zones where occasional, light access only is to occur.
- Geotextile membrane can be laid on the surface with aggregate placed on top to create light vehicle access.
- Suitably thick rumble boards (e.g. pine sleepers) can be strapped together and laid over the aggregate for additional load-bearing capacity.
- For light rubber track/wheeled vehicles, and/or heavy pedestrian use, ground protection mats are considered suitable.
- These temporary measures can be wholly removed when access is no longer required.
- The mulch can be reused and spread throughout the site.

Figure 21: Light vehicle ground protection

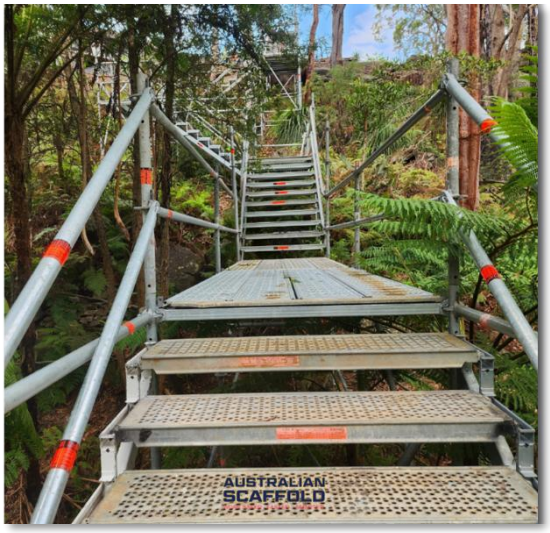

Figure 22: Scaffold walkway

10.6 General Excavation Methodologies

Details below give examples of work methodologies to excavate a trench or general excavation when working in proximity to trees.

When using a mechanical excavator, ground protection is advisable to minimise compaction and damage to the surrounding soil and roots. With a combination of a small bucket and ripper, the spoil from the trench can be carefully extracted. General excavation is to be undertaken, when possible, with the bucket positioned perpendicular to the tree, and the spoil dug away from the tree; this helps to minimise roots being accidentally torn or fractured.

When excavations are being undertaken within a tree's root zone, all necessary precautions are to be adhered to. The Project Arborist will advise on the progression of the works and undertake root pruning as required.

Roots deemed to be pruned and removed are to be carefully cut using a sharp saw and/or secateurs. Root removal is carried out by the Project Arborist on a root-by-root basis, taking into consideration the type of tree, distance from the cut to the tree, and the size and number of roots found.

Where possible, trenches and excavations are to be carefully backfilled using topsoil from the site or imported topsoil with a low organic matter content and lightly compacted by hand within the tree zone. Ideally, the ground is then irrigated to increase moisture in the soil (not waterlogged), and where possible, 100mm of mulch is spread to cover the surface area.

Where possible, create a preliminary trench/excavation at the outer edges of the required cut line using a Hydro-vacuum excavator. Roots found can be cleanly cut by the Project Arborist. Once the preliminary cut line is completed, excavation of the remaining area outside the cut line can be dug using the appropriate excavator with all due care and attention to the adjacent protected trees.

Figure 23: Example of preliminary trench/excavation cuts

10.6.1 Hard Surface Removal

Where the Project requires the removal of existing roadways/hard surfaces adjacent to the subject retained trees, these require careful removal overseen by the onsite Project Arborist working alongside the contractors.

Cut sections of the old surface can be removed with the use of an excavator sitting and working away from the tree. Hand jackhammers or concrete cutting tools may be required when in proximity to the tree/roots. Begin the process of removal in the area closest to the tree and work removing smaller sections away from the tree until in a safe location. Machinery is not to be used on non-protected or bare ground within the TPZ or Exclusion Zone.

The excavation of any ground within or adjacent to retained trees should be cut perpendicularly to the tree to reduce the likelihood of roots being split or damaged longitudinally, and is to be overseen by the Project Arborist.

Exposed roots are to be covered with either damp hessian or sandy loam to protect the roots from drying out before the construction of the new surface.

10.6.2 Post-Hole Dig

The Project Arborist is to be onsite to oversee and guide all works within the TPZ of protected trees. Ground protection measures can be implemented.

A post-hole can be any form of a cylindrical hole in the ground that is used to facilitate the installation of a post, e.g., fence post or pier foundations. Depth will be determined by engineering requirements.

The top 1m of all post-holes inside the calculated TPZ of retained trees will be created with a Hydro-Vacuum Excavator (Sucker Truck) to determine the presence of tree roots. Below this depth, an auger can be used to remove the remaining spoil, as the presence of roots below this on this site is unlikely.

The excavator operating the auger is to be sat outside the calculated TPZ wherever possible to reduce ground compaction. A combination can be used of a larger machine with greater reach and a smaller mini excavator (under 3.5 tons) when access to the TPZ is required.

Pole-hole spoil is to be spread away from the TPZ of retained trees unless otherwise directed by the Project Arborist.

Large roots over 100mm will be retained wherever possible, with the post-hole relocated.

Where roots between 50-100mm in diameter are located, the Project Arborist will assess them on an individual and species basis and determine if the hole is required to be relocated or if it is suitable for the Project Arborist to prune.

Roots under 50mm in diameter will be cleanly cut by the Project Arborist when uncovered.

Turning and screwing of machinery tracks and wheels is to be kept to a minimum.

The site within and adjacent to the retained tree's TPZ is to be left clean of construction waste, and the mulch and spoil are to be evenly spread as directed by the Project Arborist.

10.7 Mitigation Measures

Remediation measures can be undertaken to limit and reduce any negative effects that may occur. Where suitable, the retained trees' TPZ areas are to be improved to provide a more favourable and beneficial growing environment for the trees' roots.

Where the soil levels are required to be raised, a sandy loam is to be used. This will improve drainage and allow for gaseous exchange. Trees can adapt to low levels of Fill being placed over the existing ground if undertaken with the correct material. In some cases, this additional medium can also provide ideal rooting conditions for feeder roots and a beneficial food source for the tree.

The following recommendations could be taken to improve an existing plant's vigour, and will in turn benefit the plant's health, safety, and the amenity that it provides and can be incorporated with the project landscaping details.

Where groundworks are carried out adjacent to or encroaching into the TPZ areas, the following mitigation measures and procedures should be implemented where deemed appropriate and should be supervised by Consult Arborist.

- Where possible, the excavated ground, including the cut roots, will be covered/backfilled with quality topsoil locally sourced or a sandy loam/river sand with low organic matter, as guided by *AS 4419—2003. Australian Standard™ Soils for landscaping and garden use*.
- An application of seaweed-based soil conditioner/plant food can be applied to the topsoil as per the manufacturer's guidelines. Monthly applications are recommended for the duration of the project.
- When required supplemental watering with a water cart or sprinkler system can be used to retain adequate moisture levels in the soil.
- The Project Arborist is to advise and oversee all mitigation measure works being undertaken on retained trees.

All tree works and tree protection measures are to be guided by industry best practices and the relevant Australian Standards, which include but are not limited to:

- *Australian Standards AS 4970:2025 Protection of trees on development sites*
- *Australian Standards AS4373-2007 Pruning of amenity trees*

11 References:

- Australian Standards AS4970-2009 Protection of trees on development sites (2009).
- Australian Standards AS 4373 – 2007 Pruning of amenity trees. (2007).
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12 Disclaimer and Limitations of Liability

The information contained in this report has been prepared independently, free of any bias and represents the honest opinion of the consulting arborist.

All data is based on visual inspection of the tree(s) and their location at the time of writing unless otherwise stated. The report includes opinions, advice, and recommendations based on information gathered during site inspections conducted by the author and data supplied by the Client (Retire Australia).

All information received from the Client shall be deemed to be true, accurate and up to date.

To the extent permitted by law, you agree Consult Arborist Pty Ltd is not liable to you or any person or entity for any loss of or damage (including loss or damage resulting from negligence), either directly or indirectly, arising from your use of the information presented in this report. In no event will the author be liable for any lost revenue or profits, or for any special, indirect, consequential, or incidental damages (however caused and regardless of the theory of liability) arising out of or related to your use of this information, even if the author has been advised of the possibility of such a loss or damage.

Consult Arborist Pty Ltd cannot be held responsible for the effects of non-conformance works carried out by inadequately qualified staff or without the supervision of Consult Arborist.

Unless otherwise stated, this report may not be used in a court of law or any legal proceeding without the prior consent of Consult Arborist Pty Ltd. The author is not required to provide testimony or attend court based on this report unless subsequent contractual arrangements have been made.

The information contained in this report pertains solely to the tree(s) that were inspected in June 2025 and reflects their condition at the time of the inspection.

No warranty or guarantee, expressed or implied, is made that the problems or deficiencies identified in the plants or property will not arise in the future. Likewise, remedial treatments cannot be guaranteed.

Arborists cannot detect every condition that could potentially lead to the structural failure of a tree. Trees are living organisms that fail in ways not fully understood, and conditions can often remain hidden within a tree or below ground. Consult Arborist Pty Ltd, and the author cannot guarantee that a tree will be healthy or safe under all circumstances or for a specified period.

This report does not account for the possibility of extreme weather events or other factors beyond the control of Consult Arborist Pty Ltd.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services, such as property boundaries, ownership issues, disputes between neighbours, sightlines, landlord-tenant matters and similar concerns. Consult Arborist Pty Ltd cannot address such issues unless complete and accurate information is provided. Furthermore, Consult Arborist Pty Ltd cannot be held responsible for the authorisation or non-authorisation of any recommended treatment or remedial measure.

Arborists are specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees and attempt to reduce the risk of living near trees. While trees can be managed, they cannot be controlled. To live or work near a tree involves inherent risks, and the only way to eliminate all risks associated with a tree is to remove it entirely.

Clients may choose to accept or disregard the recommendations of Consult Arborist Pty Ltd or to seek additional advice.

APPENDIX 1: DEFINITION OF TERMS

Age Class (AC): Is based on tree size and general visual characteristics of growth	
Y	**Young:** Early stage of growth, immature size and characteristics.
EM	**Early Mature:** A fast-growing, well-established tree which has not yet reached its mature size. Strong upright growth habit with dominant apical leader. Increased internode spaces between leaves and twigs. Slender lower trunk.
M	**Mature:** The tree reached its mature size for the species and location. Exhibiting slowing growth rates with reduced internode spaces between leaves and twigs. Reduced apical dominancy with a more divisional growth habit. Minor naturally forming dead or dysfunctional wood. Increasing trunk girth to height ratio. Minor hollows.
AA	**Advanced Age:** The tree has reached a mature size and is unlikely to increase noticeably in height or mass. The vigour/growth rate has reduced to the point that extension growth is very limited, if achieved. Canopy density is lessening and/or with some visible dieback/early retrenchment. Retrenchment of the upper crown, with increased vegetative vitality in the lower crown, creating a more compact form. Tree is displaying aged characteristics, including trunk swelling, enlarged buttress flare, trunk growth ridges, enlarge burrs, hollows, etc. Fungal activity and wood decay, and increased colonisation by flora and fauna.
V:	**Veteran:** A tree with advanced retrenchment, reduced crown size and annual increment growth, extensive hollowing, crown collapse, low vigour, advanced heartwood decay, and advanced colonisation by fauna and flora. The former canopy is replaced with secondary adventitious growth. Sections of branches on the trunk are dead or dysfunctional – potential stag.
Health (H): Is based on the tree's general appearance and vigour weight against its genetic potential	
G	**Good:** Full canopy with foliage having good colour, size, and density of leaves. Strong vigour with high canopy ratio, typically found in trees up to a mature age class. Minimal pathogen damage.
F	**Fair:** The majority of the canopy has foliage with average colour, size, and density of leaves; discolouration may be present, typical for the species in the location. Slowed vigour and average canopy ratio; typically found in Mature and Advanced-Age classes or on younger trees under stress. Some minor twig or small diameter deadwood, the canopy may be unbalanced. Minor pathogen damage. General health could be restored to Good with mitigation measures.
P	**Poor:** A tree with a depleted canopy and limited to no vigour The canopy has notable dieback and a low canopy ratio. Detrimental pathogen damage. The tree may be in irreversible decline.
D	**Dead** Dead and/or dysfunctional tree with minimal canopy ratio. Branches predominantly have no life.
Structure (St): Is based on a visual assessment of the tree's general form and visible defects	
G	**Good:** Structurally sound with no major visual defects. Trunk and buttress with no major wounds or decay. Canopy with sound stem and branch unions. The root system appears undamaged. No tree part failure is predicted
F	**Fair**: A tree with minor defects or disorders which are notable in the canopy. Small areas of bark are missing, and small cavities are on stems and the main trunk. Canopy with asymmetrical growth resulting in an uneven canopy form. Tall phototropic growth habits. Minor damage due to root zone intrusion. Limited tree part failure is predicted.
P	**Poor:** A tree with visual defects and disorders that are negatively affecting the tree's structural condition. Defects in the canopy, weak unions, actively decaying wounds and cavities, and problematically damaged roots. Increased tree part failure is predicted.
H	**Hazardous:** A tree with a major defect and visual faults that may fail at any time Active tree part failure is occurring.

Abbreviations:	
DSH	**Diameter at Standard Height:** Trunk diameter at 1.4m above ground level.
NRZ	**Notional Root Zone:** the primary trigger for arboricultural input on a development site. NRZ RADIUS = 12 x DSH
TPZ	**Tree Protection Zone:** as per *AS 4970-2025 Protection of trees on development sites*, is the principal means of protecting trees on a development site. The TPZ is a combination of the root and crown area requiring protection to be isolated from construction disturbance so that the tree can remain in a viable condition. The TPZ incorporates the Structural Root Zone (SRZ).
SRZ	**Structural Root Zone:** as per *AS 4970-2009 Protection of trees on development sites*, is a mathematical calculation of the surface area of protection required to maintain a tree's stability – a larger area is required to maintain a tree in viable health. It is only necessary to calculate the SRZ when a major encroachment into a TPZ is proposed.
Arborists:	
Consulting Arborist	A suitably qualified and experienced tree expert who provides independent, professional advice about the care, management, preservation, industry standards / best practice, hazard mitigation and risks associated with trees—typically in urban or development contexts. Experience in written Arborist Reports, Tree Management Plans and Expert Advice. Minimum Qualification AQF level 5 - 5 years
Project Arborist	An arborist specifically appointed to a construction or development project to oversee and manage tree-related matters in line with planning conditions, Arborist Reports, Environmental guidelines, and industry standards. Minimum Qualification AQF level 5
Craft Arborist	An AQF 3 qualified hands-on tree professional who specialises in the physical work of tree care and management, such as climbing, pruning, removing, or planting trees.

Appendix 2: Sample TPZ Fencing Sign

This sample sign is adapted from *AS 4970:2025 Protection of trees on development sites,* Appendix C, Fig C1 Sign example.

Signs should be printed in A3 at a minimum, and lettering should conform to *AS 1319.*