



Arboricultural Impact Assessment

New Driveway & Garage at
62 Rednall Street, Mona Vale

Client: Janelle & Cory Dunn

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2 Introduction

2.1 Background

This Arboricultural Impact Assessment (AIA) was prepared for Janelle & Corey Dunn in relation to two (2) trees and a proposed new driveway and garage.

The purpose of this AIA is to assess the likely impacts of the proposed works on the existing site trees and to make recommendations regarding construction methods and tree protection measures to limit adverse impacts on trees recommended for retention.

This AIA has been guided by the principles set out in the Australian Standard 4970-2009, *Protection of trees on development sites*.

2.2 Subject Site/Proposed Works

The subject site for this report is the area at the front of the property located within 5.0m of the proposed new driveway and garage.

2.3 Subject Trees

Two (2) trees have been assessed due to their proximity to the proposed works. These are made up of the following species:

- Prickly-leaved Paperbark, *Melaleuca stypheloides* (Tree 1)
- Broad-leaved White Mahogany, *Eucalyptus umbra* (Tree 2)

Both of the subject trees are locally native species that were assessed as having a High Retention Values. Refer to Figure A for tree locations and numbering. A detailed description of the subject trees is included in the Tree Assessment Table (Section 4 –page 6).

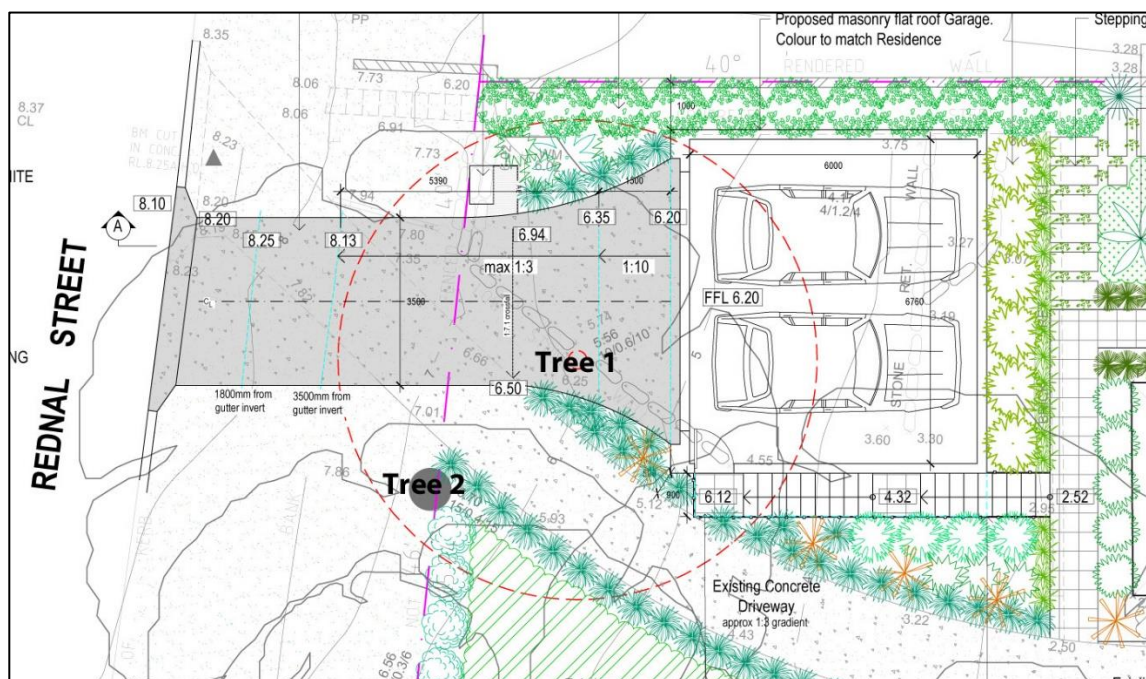


Figure A: Excerpt from the Landscape Plan showing tree locations and numbering.

3 Methodology

3.1 Site Inspection/Tree Assessment

Site inspection and tree assessment was undertaken by Alexis Anderson on the 12th of December, 2017. The trees were assessed from ground level using a Tree Assessment Table, as outlined in Section 4. The definitions and explanations of terms used are outlined in the Tree Table Definitions page which is included at Attachment A.

3.2 Exploratory Excavation

Exploratory excavation and root mapping was undertaken along the south-eastern edge of the proposed driveway alignment in the area where the driveway corresponds with the Structural Root Zone of Tree 2.



Photo A: Position of exploratory trench.

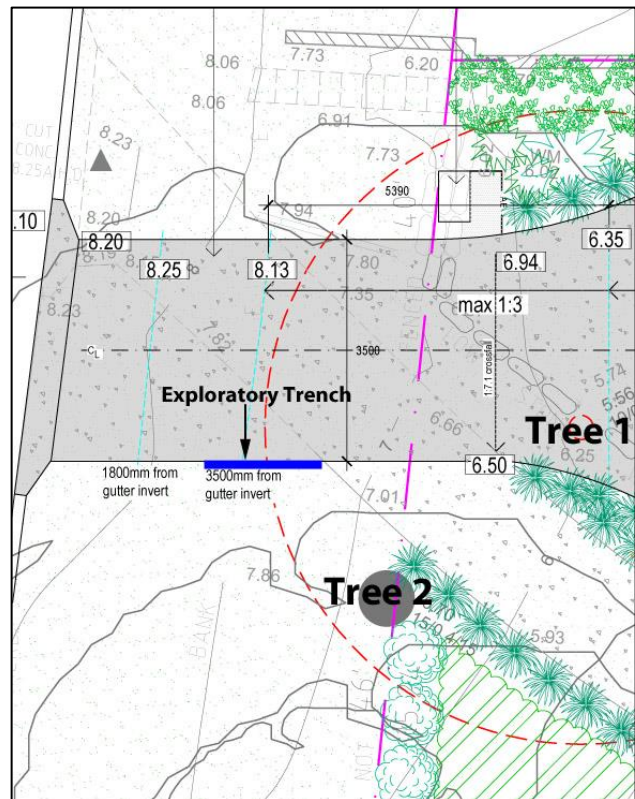


Figure B: Landscape Plan excerpt showing location of trench.

The purpose of this was to determine the size, depth and location of roots growing within the area that excavation for the driveway footings will cut into the existing embankment. Exploratory excavation was undertaken with care using hand tools to a depth varying between 100-400mm. This depth was sufficient to expose any roots that may be damaged as part of driveway excavation within the Structural Root Zone of Tree 2.

3.3 Plans and Diagrams

This report is based upon a review of the Landscape Plan (L-01 Revision B) prepared by Space Landscape Designs dated 14/11/2017.

No Architectural Plans, Hydraulics Plans or Engineering Detail were reviewed as part of this assessment.

3.4 Tree Protection Zones

Tree assessments in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites*, require calculation of a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ). The terms TPZ and SRZ are used throughout this report. The following is a brief explanation of these terms:

Tree Protection Zone -TPZ: This is the area that should be isolated from construction disturbance so that the tree remains viable. Some disturbance within the TPZ may be possible following arboricultural assessment.

Structural Root Zone -SRZ: This is the area of undisturbed soil and roots required to maintain tree stability. Excavation within the SRZ can lead to whole tree failure.

3.5 Retention Values

Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

- **HIGH Retention Value:** These trees are worthy of retention and design consideration should be made where possible to allow their retention. Removal of these trees will have an impact on the landscape amenity or local environment.
- **MEDIUM Retention Value:** These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, garden retaining walls, driveway levels). Removal of these trees will not have a significant impact on the landscape amenity or local environment.
- **LOW Retention Value:** These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.

4.1 Tree Assessment Table

	Species	Trunk Diameter @ 1.4m	Height	Canopy Spread Radius	Age Class	Health/ Vitality	Structural Condition	Estimated Life Expectancy	Landscape and Environmental Significance	Retention Value
1	Prickly-leaved Paperbark, <i>Melaleuca stypheloides</i>	570mm	10m	5m	Mature	Good	Good	Long (30+ yrs)	2	High
		Comments: Locally native species.								
2	Broad-leaved White Mahogany, <i>Eucalyptus umbra</i> .	510mm 460mm	18m	7m	Mature	Fair	Good	Long (30+ yrs)	2	High
		Comments: Locally native species.								

Tree Protection Offsets based on <i>AS4970-2009-Protection of Trees on Development Sites</i>		
Tree Number	Tree Protection Zone radius	Structural Root Zone radius
1	6.8m	2.6m
2	8.2m	2.8m

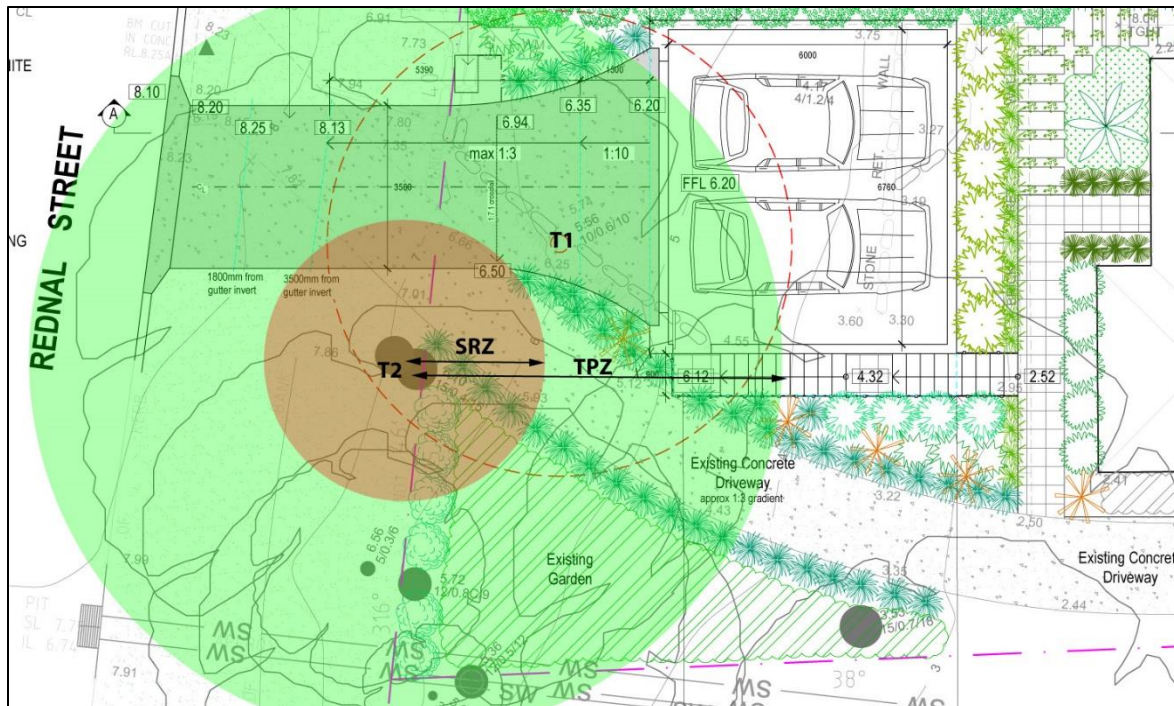


Figure C: Excerpt from the Landscape Plan showing the TPZ and SRZ of Tree 2

5 Exploratory Excavation Findings

Exploratory excavation was undertaken within the area outlined in Photo A and Figure B. A 2.0m long trench was carefully dig to a depth varying between 100-400mm. This depth was sufficient to expose any roots that may be affected by driveway excavation within the Structural Root Zone of Tree 2.

The soil material encountered within the trench consisted of disturbed fill made up of clay, broken up shale and sandstone. The structural roots of this tree are likely to be buried deeper within the natural soil profile.

One tree root was encountered within the trench. This root had a diameter of 30mm and was situated at a depth of 100mm. It was located at a distance of 2.2m from the centre of trunks and 900mm from the top of the embankment (start of the trench). This root is considered to be a woody transport root rather than a structural root.

It is likely that this root will be cut as part of driveway construction works. Cutting this root is not likely to compromise tree stability or have a significant on the health or longevity of the tree.



Photo B: Trench facing north east.



Photo C: Trench facing west.

30mm root

6 Potential Impacts of Proposed Works

6.1 Trees Proposed for Removal

Tree Number/Species	Retention Value	Reason for Removal
Tree 1 Prickly-leaved Paperbark	High	Located within the alignment of the proposed driveway.

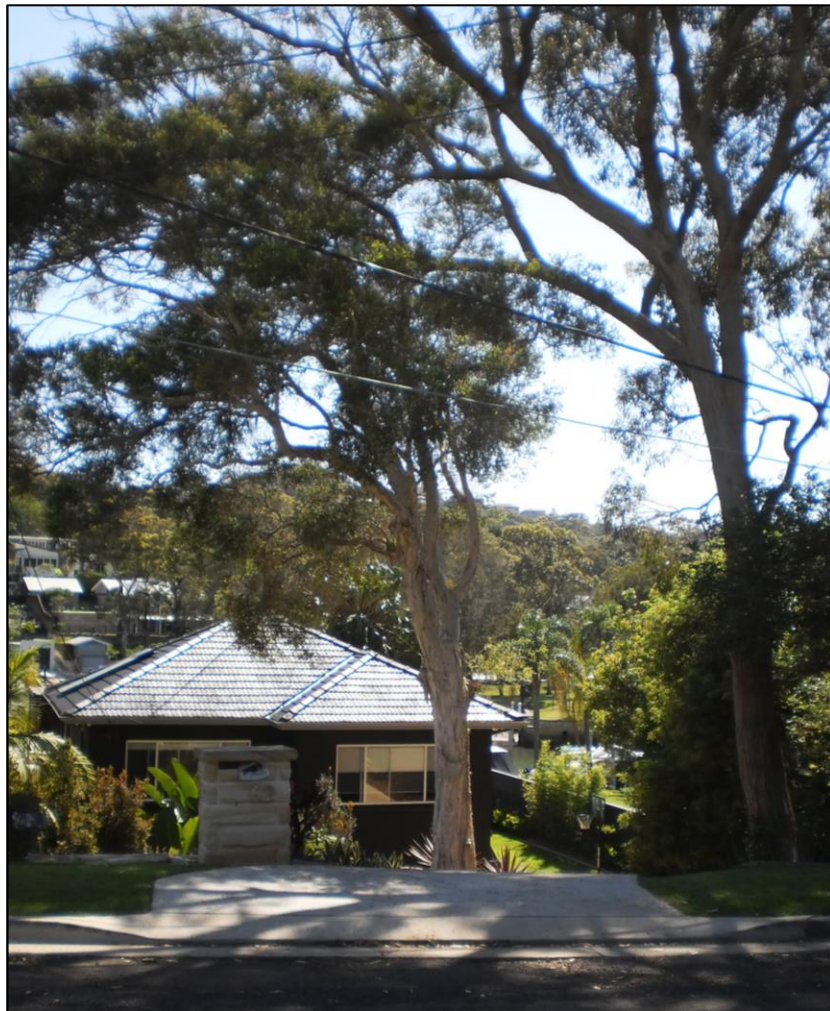


Photo D: Prickly-leaved Paperbark taken from the street frontage.

6.2 Potential Impacts of Proposed Works on Retained Trees

Tree Number/Species	Retention Value	Works Proposed Within the Tree Protection Zone (TPZ)
Tree 2 Broad-leaved White Mahogany	High	The proposed driveway and garage is proposed within the TPZ and Structural Root Zone. The majority of the new structures are to be elevated over existing levels. Root loss is likely to be limited to the 30mm diameter root exposed in the exploratory trench. This tree is expected to remain viable with no notable impact from the proposed works.

Incidental Impacts: Trees are commonly impacted on construction sites in the following ways. These impacts can be easily avoided through awareness and basic tree protection measures.

- Stripping of existing ground cover, topsoil and removal of organic material from the soil surface.
- Compaction of the topsoil and damage to surface roots through use of heavy machinery and frequent foot traffic.
- Soil contamination through washing out barrows and disposal or spillage of chemical materials.
- Root loss due to unforeseen excavation for plumbing upgrades and landscape construction.
- Bark/trunk and branch injuries from accidental contact with machinery.

7 Recommendations

7.1 Site Establishment –Prior to Construction

Tree Removal: Tree 1 is proposed to be removed as part of the project. Tree removal works should be undertaken in accordance with the WorkSafe Australia *Guide to Managing Risks of Tree Trimming & Removal Work*.

Trunk Protection: Trunk battening is aimed at preventing accidental bark wounds as often occurs on construction sites where heavy machinery is used. Trunk protection is recommended for both trunks of Tree 2 and should be installed prior to commencement of works.

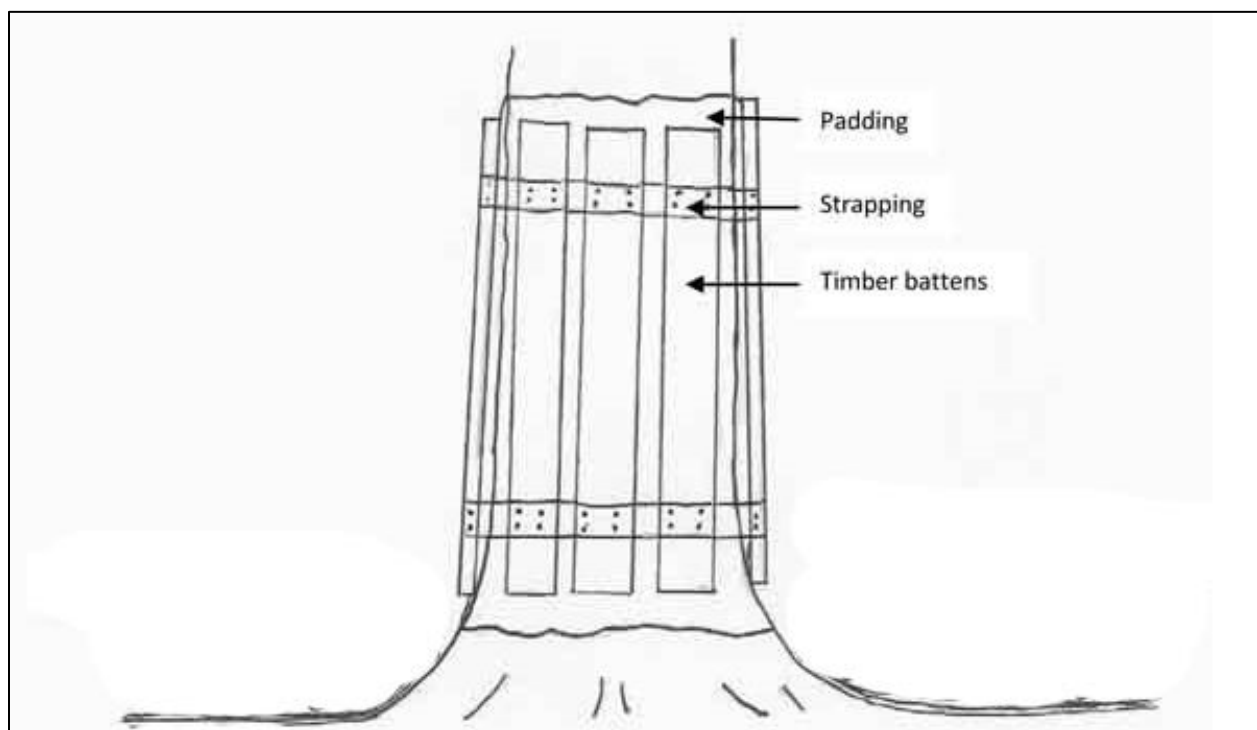


Figure D: Specification of appropriate trunk protection for both trunks of Tree 2.

7.2 During Construction

Tree Protection Zone: Refer to Figure C (page 6) for the Tree Protection Zone spread of Tree 2. The following should be prohibited within an 8.2m radius of Tree 2:

- Stripping of topsoil or organic surface material outside of construction zones.
- Storage of material, vehicles and machinery.
- Disposal of solid, liquid or chemical waste.
- Any excavation, fill or other construction activity other than that discussed in this report.

Excavation for driveway slab: Excavation for the driveway slab within the SRZ of Tree 2 (2.8m radius) should be undertaken using hand tools. All roots encountered should be cleanly cut using a hand saw or secateurs.

7.1 Post Construction Tree Care

At the completion of the project, the retained trees should be inspected by an AQF Level 5 Arborist. Depending on the health and vitality of retained trees, the Arborist may prescribe some remedial tree care. This may include installation of temporary or permanent irrigation, application of soil conditioners, compost application, fertiliser application and installation of mulch.

8 Statement of Impartiality

- This report prepared by Bluegum Tree Care & Consultancy (BTCC) reflects the impartial and expert opinion of Alexis Anderson.
- BTCC is acting independently of and not as the advocate for the owners of the subject trees.
- BTCC does not undertake tree pruning and removal works and will not have any involvement with pruning or removing trees which are the subject of this report.

9 Limitations

- The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.
- The findings of this report are based upon and limited to visual examination of trees from ground level without any climbing, internal testing or root crown excavation.
- This report reflects the health and structure of trees at the time of inspection. Bluegum cannot guarantee that a tree will be healthy and safe under all circumstances or for a specified period of time. There is no guarantee that problems or defects with assessed trees, will not arise in the future. Liability will not be accepted for damage to person or property as a result of failure of assessed trees.
- This report must be read in its entirety. No part of this report may be referred to, verbally or in writing, unless taken in full context of the whole report.