



Arboricultural Impact Assessment

252 Hudson Parade Clareville



Prepared by Alex Austin

For

Marcel Dupont-Louis

April 2023

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1 Summary

Alex Austin, an AQF level 8 Arborist, was commissioned by Marcel Dupont-Louis, to complete an Arboricultural Assessment (AIA) of the trees that could be impacted by the proposed works at 252 Hudson Parade Clareville.

The site inspection was completed on the 27th of July 2021 where 19 trees in proximity to the proposed development were inspected and are now subject to this report. This document and data has been prepared in accordance with Australian Standard 4970: 2009 *Protection of trees on development sites*. The trees have been tagged and plotted onto the site plan numbered 30 - 48. The site is zoned as C4 Environmental Living under the Pittwater Local Environmental Plan 2014

The 19 trees are comprised of;

- Six (6) A Retention Value Trees
- Eleven (11) B Retention Value Trees
- Two (2) C Retention Value Trees

The proposed development works include demolition, tree removal, excavation and then construction of a new two story residence, garage and granny flat structure, pool, boathouse, inclinator, storm water and landscaping.

If the proposed construction layout is to proceed, then Two (2) semi mature *Corymbia maculata* (Spotted Gums) are required for removal. Tree 35 requires removal to facilitate to the projects the garage structure. Site constraints including, slope the neighbouring driveway and powerlines provide considerable constraint and the removal of this one tree is not avoidable. Tree 47 conflicts with the proposed inclinator alignment. Alternative options to tree removal were exhausted by the architect.

17 trees will be retained if the tree protection measures in the report are adhered to. Proposed Layout of the carport, inclinator, proposed pool and boathouse has been designed to ensure no more than <10% of TPZ areas are used and SRZ's are avoided. All proposed works within their TPZ require sensitive excavation and construction methods. The proposed minimal excavation required is considered acceptable and the works will not impact upon tree health/viability if the tree protection measures in this report are adhered to.

In order to ensure the 17 trees nominated for retention remain viable during and post construction, tree protection measures including, the engagement of a project arborist, tree protection fencing, tree protection signage, trunk protection, a restriction of activities within Tree Protection Zones (TPZ's), Arborist supervision of works' within the TPZ's and compliance reporting, must be incorporated into the project.

A Tree Protection plan has been prepared and can be located in the Appendix.

New should be planted onsite to replace the Two (2) Spotted Gums trees to be removed. New trees to be planted are to be prescribed by the Ecologist and shown on Landscape Plans.

This document must be used in its entirety & Further questions are to be directed to:

Alex Austin



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2 Document Details

| Version Number | Date | Description |
|----------------|------------|-------------------|
| 001 | 21/09/2022 | Draft |
| 002 | 27/4/2023 | Final - New Plans |

3 Background

Alex Austin, an AQF level 8 Arborist, was commissioned by Marcel Dupont-Louis, to complete an Arboricultural Assessment (AIA) of the trees that could be impacted by the proposed works at 252 Hudson Parade Clareville.

The site inspection was completed on the 27th of July 2021 where 19 trees in proximity to the proposed development were inspected and are now subject to this report. This document and data has been prepared in accordance with Australian Standard 4970: 2009 *Protection of trees on development sites*. The tree locations and TPZ details have been plotted onto the site plan.

3.1 Reviewed Documents

The following documents have been reviewed in the preparation of this report.

- Site Survey by C.M.S. Surveyors dated 13/03/22
- Storm Water Plans, by Taylor Consulting, dated April 2023
- Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023
- Tree Impact Plan ANNE ROBSON ARCHITECTURE PTY LTD dated 18/4/2023
- Proposed Boat Shed Plan DA11 by ANNE ROBSON ARCHITECTURE PTY LTD dated 27/4/2023

4 Legislation

4.1 Zoning

The site is zoned as C4 Environmental Living under the Pittwater Local Environmental Plan 2014.

4.2 Biodiversity and Conservation SEPP

The subject trees are protected by the State Environmental Planning Policy (Biodiversity and Conservation SEPP) 2021. Trees proposed for removal or pruning, are covered by the SEPP unless they are considered an imminent danger to life and property (By a AQF Level 5 or above Arborist) and require a permit to be issued by Council.

4.3 Pittwater Spotted Gum Forest

The species identified in this report form part of The Pittwater Spotted Gum Forest. This plant community is listed as an Endangered Ecological Community in the Sydney Basin Bioregion listed under The Biodiversity Conservation Act (2016) (NSW).

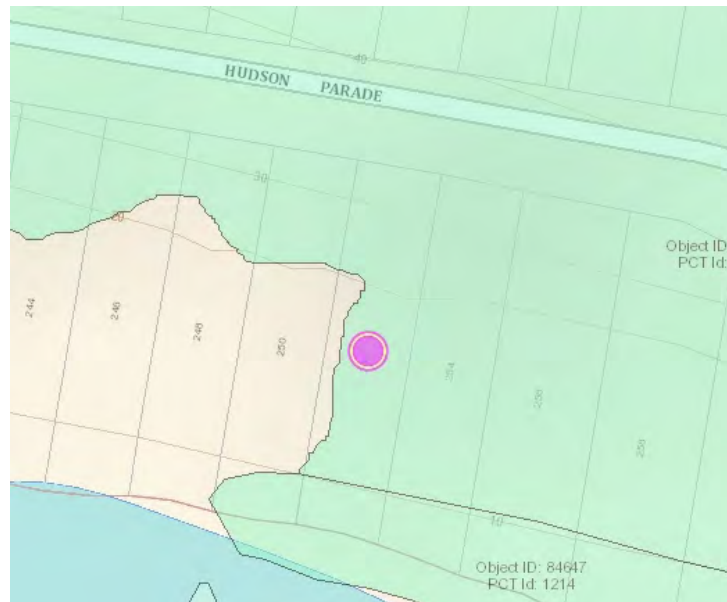


Figure 1: Indicates the location of the mapped Pittwater Spotted Gum Forest on the site. (Source: SEED 2022)

5 Aims and Objectives

- Determine the Retention Value and required area for each tree to be protected and remain viable during and post construction.
- Identify and reduce potential conflicts between subject trees and site development by providing accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction.
- Encroachments to the TPZs are to be minimized prior to construction.
- Works within the defined Tree Protection Zone shall utilize special measures to avoid or minimize adverse impacts on trees.
- Provide information on restricted activities within the area nominated for tree protection, as well as suitable construction methods to be adopted during construction.
- The trees to be retained must be protected from all other demolition, excavation and construction activities.

6 Methodology

6.1 Tree Health and Condition

The inspection of the trees was made from the ground and involved inspection of the external features only. No invasive, diagnostic or laboratory testing was carried out.

Tree height and canopy spread were estimated and trunk diameter (DBH) and Diameter at Root Crown (DRC), have been measured with a diameter tape where applicable.

Data including species, age class, health, structure, landscape significance, defects, life expectancy were recorded. Tree species were identified using available seed and fruit during the site inspection.

All photographs were taken at the time of the site inspection by the inspecting arborist. Photographs have been altered for brightness and/or cropped only.

6.2 Tree Protection Zone and Structural Root Zone

The Tree Protection Zone method has been derived from the Australian Standard 4970–2009: *Protection of trees on development sites*.

The Tree Protection Zone (TPZ) is defined as a specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown. It is the area required to provide for the viability of a tree to be retained where it is potentially subject to damage by development.

The radius of the TPZ is calculated for each tree by multiplying its Diameter at Breast Height (DBH) by 12

$$TPZ\ radius = DBH \times 12$$

The trunk diameter method has been used in this report to determine the TPZ. This area provides a general guide where the roots are likely to be located.

The Structural Root Zone (SRZ) is the area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.

$$SRZ\ radius = (Drc \times 50)^{0.42} \times 0.64$$

6.3 Root Loss

In line with section 3.3.2 of AS 4970:2009, a 10% incursion to a TPZ is considered a minor encroachment. Any more than 10% is considered a major incursion and special measures should be taken to minimise impact on the retained trees and the Arborist must demonstrate that the tree will remain viable post construction.

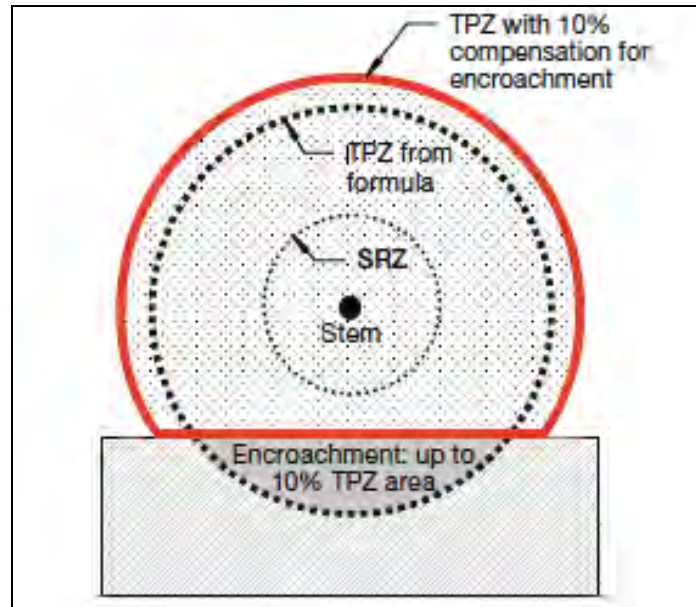


Figure 2: An example acceptable 10% minor encroachment. (Source: AS 4970:2007)

6.4 Retention Value

A simplified rating system consisting of 4 categories as a summary of the survey's cascading process. The retention value considers the trees health and structure, age class, defects, life expectancy and significance in the landscape. The retention value method has been derived from the British Standard 5837:2012.

- A – Retention Value **(Green)** Trees of high quality suggesting considerable efforts should be made to retain these trees.
- B – Retention Value **(Blue)** Trees of moderate quality suggesting reasonable efforts should be made to retain these trees.
- C – Retention Value **(Grey)** Trees of low quality and significance, These trees may be removed or retained without significant impact to the longevity of the landscape.
- R – Remove **(Red)** Trees that are not worthy of preservation and should be removed due to defects, weed species and high hazard values.

7 Findings

7.1 Suburb Map

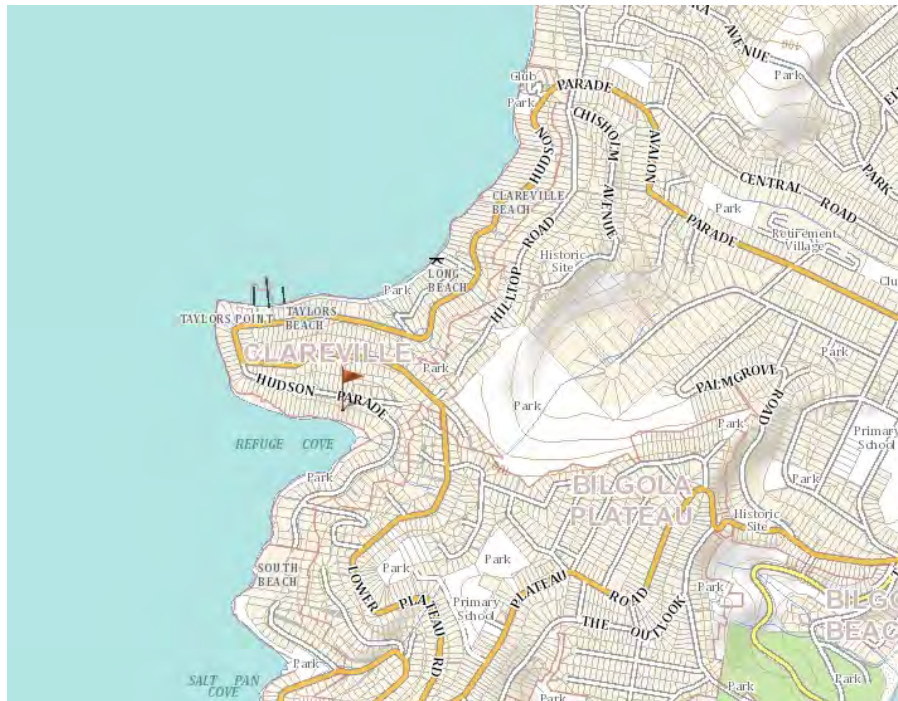


Figure 3: Map of Suburb showing site location (Source: Sixmaps 2022)

7.2 Aerial Image



Figure 4: Aerial image of site showing tree layout (Not to survey accuracy) (Source: TreePlotter 2022)

7.3 Site conditions

The site is a steep south sloping water front block with an existing residence that is One (1) storey high. The council verge has numerous large trees that are located away from the proposed works. Powerlines are located above the council verge at the Hudson Parade end of the block.

There is no driveway or off street parking for the site.

A set of stone steps runs down the entire western boundary of the site

A small tin shed is located at the Hudson Parade end of the block and is set down slightly from the road where a previously levelled area is situated.

The area between the existing residence and the street is dense shrubby vegetation.

The neighbouring property 250 Hudson has large neighbouring trees at the Hudson Parade frontage.

The waterfront frontage has a group of trees forming 1 large canopy and joining to mature Spotted gums in both neighbouring properties. The ground layer at the waterfront end of the block is heavily weed infested.



Figure 5: The Hudson Parade end of the site depicting the steep slope onsite and the trunk of Tree 35 *Corymbia maculata* (Spotted gum). (Source: Austin 27th July 2022).



Figure 6: The dense shrubs covering the middle of the block can be observed. (Source: Austin 27th July 2022).



Figure 7: The neighbours driveways viewed from the front of the site (Source: Austin 27th July 2022)



Figure 8: The western side of the rear garden with the retaining walls separating site trees from works. (Source: Austin 27th July 2022)

8 Tree Survey

The site inspection was completed on the 27th July 2022 where 19 trees in proximity to the proposed development were inspected and are now subject to this report.

The 19 trees comprise of;

- Six (6) A Retention Value Trees
- Eleven (11) B Retention Value Trees
- Two (2) C Retention Value Trees

The complete data table is located in the appendix and the trees have been mapped on the site plan.

8.1 Six (6) A Retention Value Trees

8.1.1 Tree 37 *Angophora costata* (Sydney Red Gum) – Neighbours Tree

Tree 37 *Angophora costata* (Sydney Red Gum) is a large tree with High Landscape Significance located in the neighbouring property of 250 Hudson Parade at the northern end of the site. The tree has good health and average structure. The tree has a 9.36m TPZ and a 3.14m SRZ. Observations included; Crossing/rubbing branches (Large rubbing branch with significant flattening), Deadwood > 60mm, Mechanical damage (Pile of timber against trunk), Sap exudation.

Recommendations included; Move timber pile at base away from trunk and Prune the large rubbing branch - Remove top side branch back to collar.



Figure 9: The steps on the subject site are next to the trunk of tree 37 and the timber pile at the base of the tree that should be moved can be observed. (Source: Austin 27th July 2022)



Figures 10 & 11: The large rubbing branch in tree 37 overhanging the site (Left) and the canopy of tree 37 when viewed from the street. (Right). (Source: Austin 27th July 2022)

8.1.2 Trees 40, 45, 46 & 48 *Corymbia maculata* (Spotted gum)

Trees 40 – 48 *Corymbia maculata* (Spotted gums) are located on the water front and have intertwining canopies. Trees 40, 45, 46 & 48 are of A retention value and the remainder of the trees in this area received a B retention value. Trees 40 & 48 are located on neighbouring properties.



Figure 12: Trees 40 - 48 *Corymbia maculata* (Spotted gums) are located on the waterfront. (Source: Austin 27th July 2022)

8.2 Eleven (11) B Retention Value trees

Trees in this category generally possess fair or better health and structure and have life expectancies greater than 15 years. Reasonable attempts should be made to retain the trees through the project as they have the ability to be continuing components of the landscape. Examples include;

8.2.1 Tree 35 *Corymbia maculata* (Spotted gum)

Tree 35 *Corymbia maculata* (Spotted gum) that has average health and good structure. The tree has a 4.3m TPZ and 2.3m SRZ. Observations included Deadwood < 30mm, Dieback that resulted in the average health allocation and B Retention Value. The tree is located in the middle of the Hudson Parade end of the site and provides considerable constraint for any proposed development.



Figures 13 & 14: Tree 35 in the landscape (Left) and tree 36 located in the neighbouring property of 250 Hudson Parade. (Source: Austin 27th July 2022)

8.2.2 Tree 36 *Eucalyptus globoides* (White Stringybark)– Neighbours Tree

Tree 36 *Eucalyptus globoides* (White Stringybark) is a medium sized tree located in the neighbouring property of 250 Hudson Parade at the northern end of the site. The tree has good health and average structure. The tree has a 3.6m TPZ and a 2.1m SRZ. Observations included; Deadwood > 60mm, Suppressed. Recommendations include; Remove deadwood over phone line. Move timber pile at base away from trunk.

8.2.3 Trees 41 - 44 *Corymbia maculata* (Spotted gums)

Trees 41- 44 *Corymbia maculata* (Spotted gums) are located on the water front and have intertwining canopies. Trees 41- 44 are of B retention value.



Figure 15: Trees 40 - 48 *Corymbia maculata* (Spotted gums) viewed from the middle of the site.. (Source: Austin 27th July 2022)



Figure 16: Trees 40 - 48 *Corymbia maculata* (Spotted gums) viewed from the existing back deck. . (Source: Austin 27th July 2022)

8.3 Two (2) C Retention Value trees

Trees in this category should not be considered a constraint on development as they have reduced health or condition, or have short life expectancies or have low landscape significance or are easily replaceable due to their small size. Examples include;

8.3.1 Tree 38 *Ficus benjamina* (Weeping Fig) Neighbours Tree

Tree 38 *Ficus benjamina* (Weeping Fig) is a small tree at the base of Tree 37 located on the neighbouring property of 250 Hudson Parade with good health and poor structure. Observations included Co-dominant stems, Inappropriate location, Infrastructure contact to the driveway supports. This tree is an exempt species that should be considered for removal as it is likely to cause damage to the neighbours property. The TPZ of Tree 37 extends far beyond that of Tree 38 and any analysis of Tree 37 covers impacts to Tree 38. The condition of this tree should be discussed with the neighbour.



Figures 17 & 18: Tree 38 in the landscape (Left) and the contact between the trunk and the neighbours driveway supports. (Right). (Source: Austin 27th July 2022)

8.3.2 Tree 39 *Camellia sasanqua* (Camellia) Neighbours Tree

Tree 39 *Camellia sasanqua* (Camellia) is a small tree located on the neighbouring property of 250 Hudson Parade next to the steps on the subject site. The canopy overhangs the subject site access steps and considerable screening is provided by the canopy.



Figure 19: Tree 39 *Camellia sasanqua* (Camellia) can be observed. (Source: Austin 27th July 2022)

9 Proposed Works.

9.1 Existing layout

The exiting layout includes a existing residence that is One (1) storey high. There is no driveway or off street parking. A set of stone steps runs down the entire western boundary of the site.

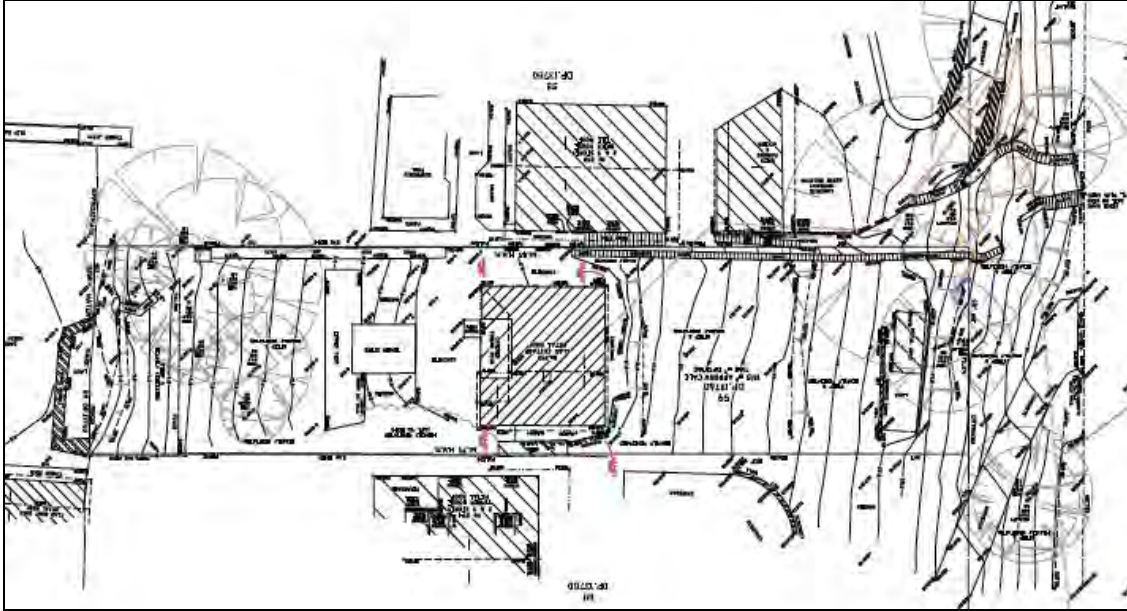


Figure 20: The existing layout. (Source: Site Survey by C.M.S. Surveyors dated 13/03/22)

9.2 Proposed Layout

The proposed development works include demolition, tree removal, excavation and then construction of a new two story residence, garage and granny flat structure, pool, boathouse, inclinator, storm water and landscaping.

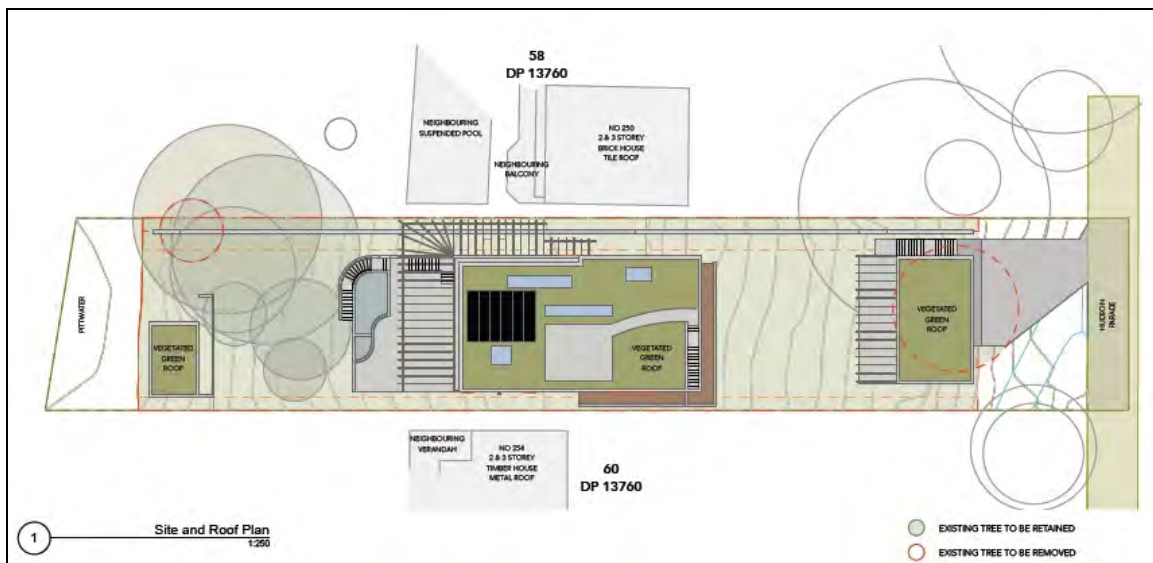


Figure 21: The site and roof plan. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

9.3 Two (2) Tree Removals.

9.3.1 Tree 35 *Corymbia maculata* (Spotted gum)

Tree 35 *Corymbia maculata* (Spotted gum) is a B retention Value tree that conflicts with the proposed carport footprint. Tree 35 requires removal to facilitate the project as no alternatives for redesign of a garage and driveway were possible due to the significant site constraints.

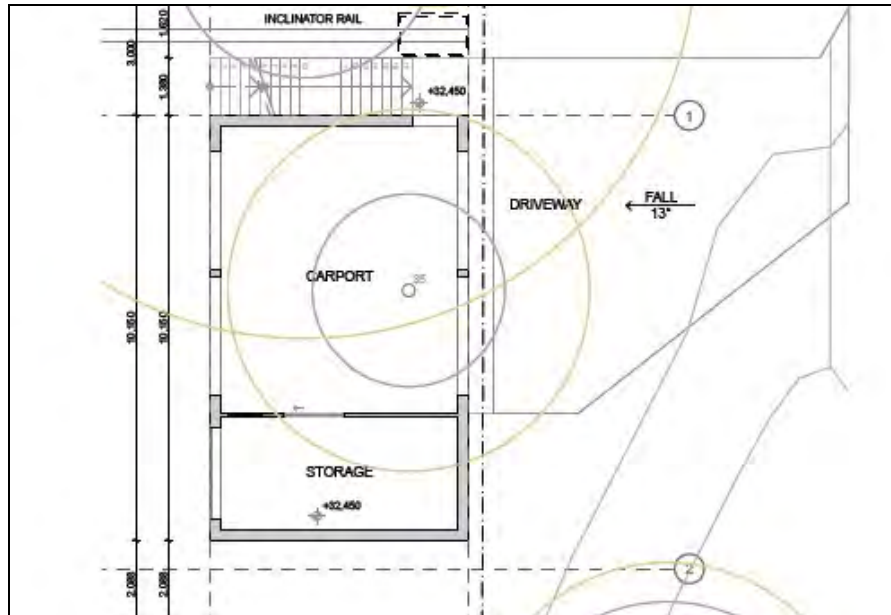


Figure 22: The proposed carport plan showing TPZ and SRZ of Tree 35 conflicting with the location of the carport. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

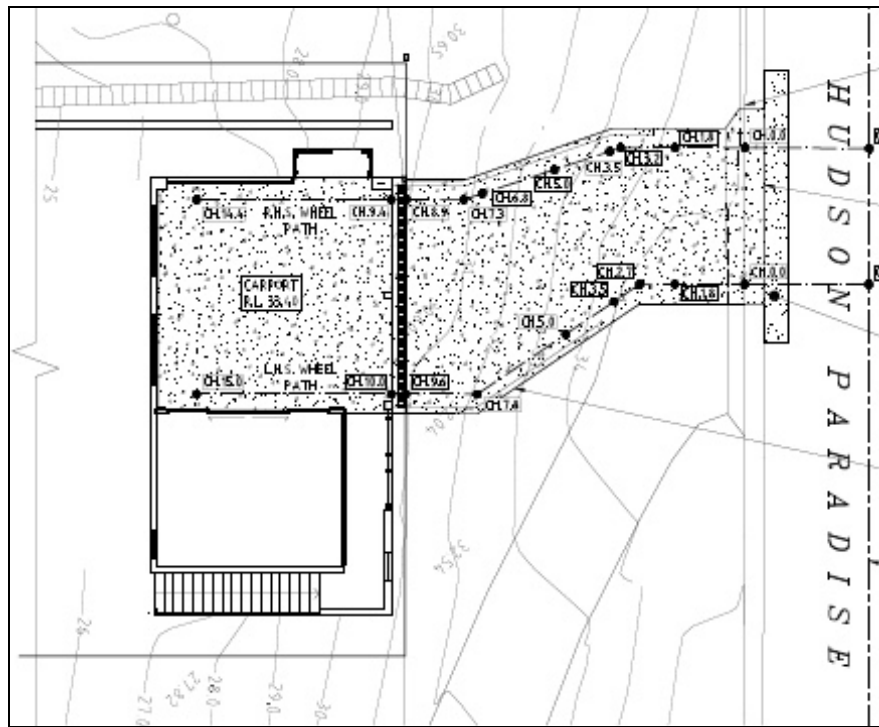


Figure 23: The proposed driveway layout is restricted in its layout due to significant site constraints and conflicts with the location of Tree 35. (Source: Driveway Plan and Long Sections, by Taylor Consulting, dated 30th August 2022)

9.3.2 Tree 47 *Corymbia maculata* (Spotted gum)

Tree 47 *Corymbia maculata* (Spotted gum) is a B retention Value tree that conflicts with the inclinator path. Considerable unsuccessful attempts were undertaken by the Architect and the Inclinator engineer to incorporate this tree within the design. Tree 47 requires removal to facilitate the inclinator path to the water level. .

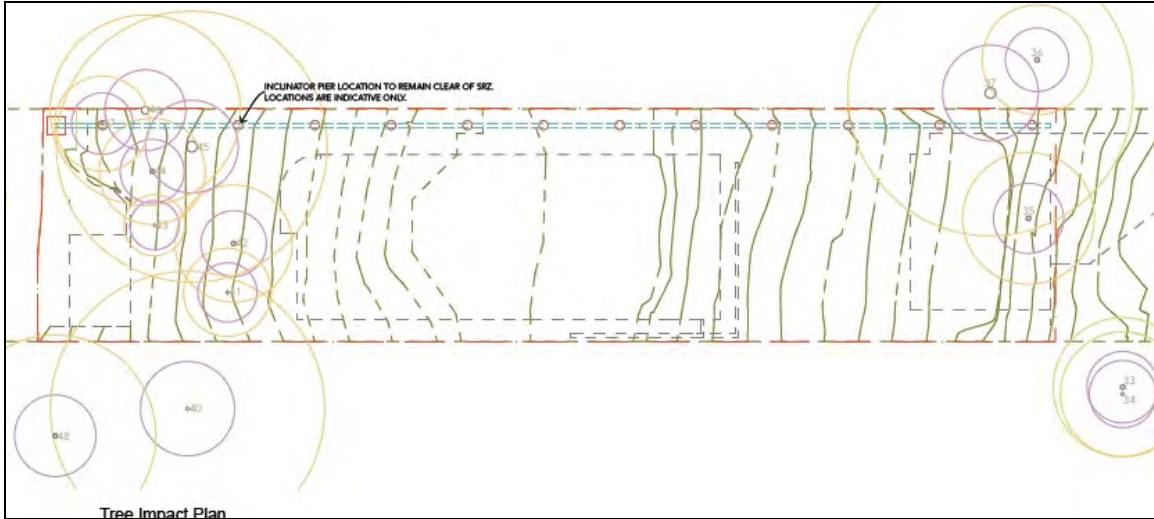


Figure 22: The tree impact plan showing the location of the proposed inclinator path. . (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 18/4/23)



Figure 22: The tree impact plan showing the conflict between Tree 47 and the proposed inclinator path and footing. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

9.4 17 Trees for Retention

Trees 36, 37 & 38 are in close proximity to the garage / granny flat and inclinator works.

Trees 41, 42 & 45 *Corymbia maculata* (Spotted gums) are in close proximity to the proposed pool works.

Tree 46 is in close proximity to the stormwater, and inclinator pier locations.

9.4.1 Proposed Carport

Works occur within the TPZ of neighbouring Trees numbered 36, 37 & 38. The TPZ of tree 37 is the largest and contains the TPZ's of Tree 37 & 38.

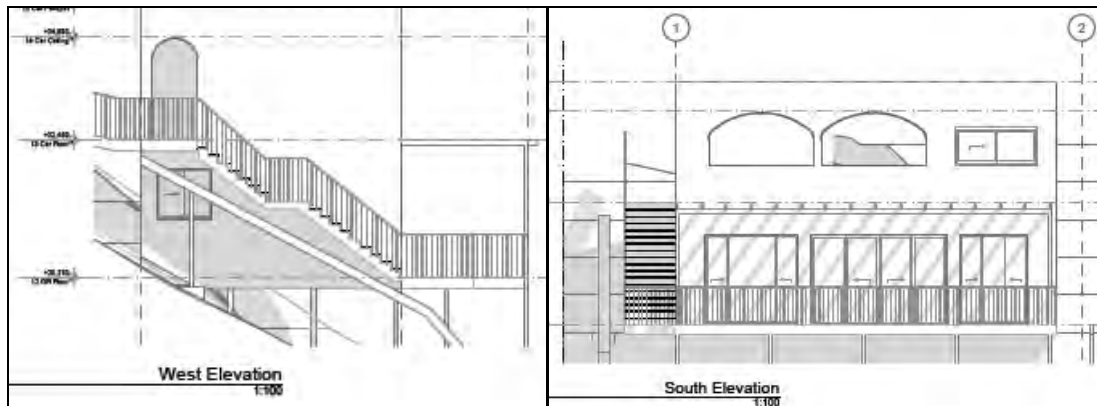
A 8.72% (minor <10%) TPZ encroachment is proposed with the garage/granny flat into the TPZ of Tree 37 *Angophora costata* (Sydney Red Gum). The proposed construction type (Piers) and the existing ground contours which have restricted root growth and result in minor excavation in the TPZ that will be tolerated by the tree. The proposed works include suspended steps above grade, piers for the granny flat/carport and piers for the inclinator.

The tree has a 9.36m TPZ and a 3.14m SRZ. The works are outside the SRZ and at or above existing grade. No noticeable impact to the health of 37 is expected and the tree will remain viable during and post construction.

Recommendations included; Move timber pile at base away from trunk and Prune the large rubbing branch - Remove top side branch back to collar.



Figures 24 & 25: The proposed 8.72% encroachment into the TPZ of Trees numbered 36, 37 & 38 garage/granny flat (Left) and the inclinator pier locations outside the SRZ as well as the natural contours which result in minor excavation can be observed (Right). (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)



Figures 24 & 25: The suspended steps, inclinator track and minor excavation requirements on the western side of the structure can be observed. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

9.4.2 Proposed Pool

A Minor <10% encroachment is expected with the proposed pool into the TPZ's of Trees 42 & 45 *Corymbia maculata* (Spotted gums) at the waterfront end of the site. The proposed pool design has been created to minimize excavation in the TPZ's of Trees 42 & 45 to <10% of TPZ area. The proposed construction location result in minor excavation in the TPZ that will be tolerated by the trees. Pool surrounds are to be timber decks which provide air and water transfer to the soil providing good growing environment.

No noticeable impact to the health of Trees 41, 42 & 45 *Corymbia maculata* (Spotted gums) is expected and the tree will remain viable during and post construction if the protection measures in this report are adhered to .

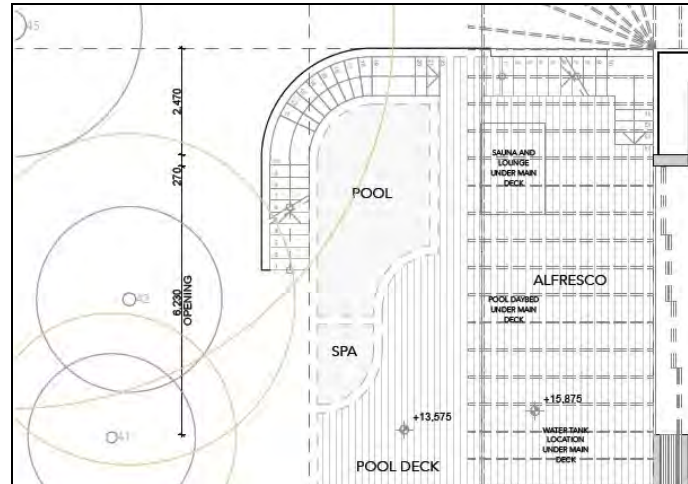
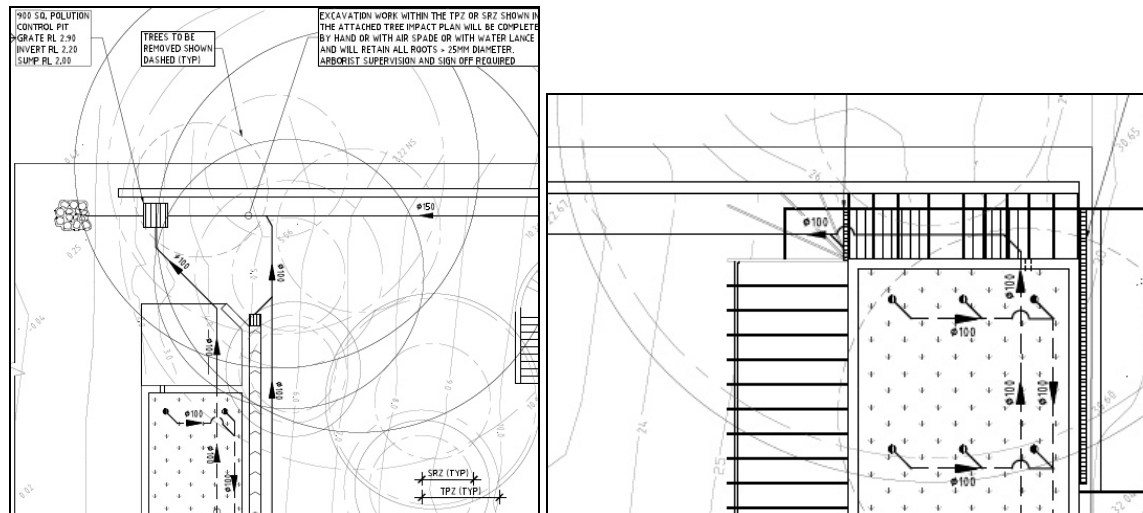


Figure 26: The proposed location of the pool and minor TPZ encroachment to Tree 42 & 45. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

9.4.3 Proposed Storm water

Storm water lines will need to be run above grade through the TPZs and SRZs of trees 36, 44, 45 & 46. Existing land shape requires minor hand excavation for installation.



Figures 27 & 28: The proposed location of the stormwater lines at the lower waterfront end of the site (Left) and at the carport (Right). (Source: Storm Water Plans, by Taylor Consulting, dated April 2023)

9.4.4 Proposed Inclinator Footings – Lower level

The inclinator runs through the trunk of Tree 47 necessitating removal. With the proposed removal of tree 47, the inclinator path and footings have been designed to avoid the SRZ of the trees to be retained. Piers are to be strategically placed as to avoid impacts to the trees.

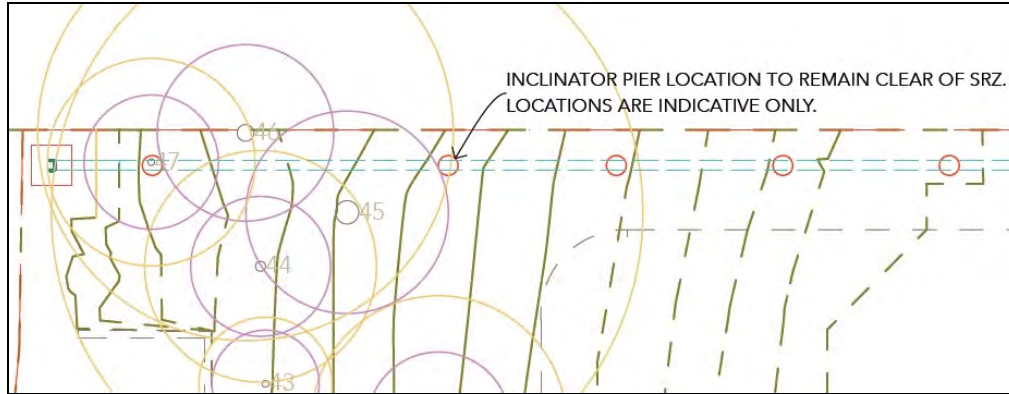


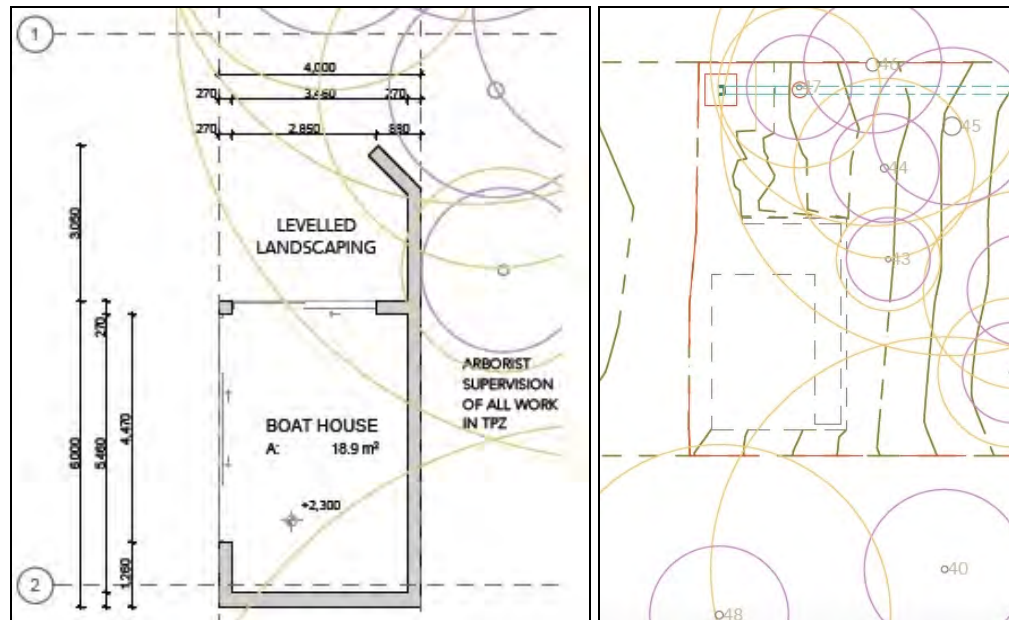
Figure 29: The proposed location of the inclinator piers are outside of all SRZ's of trees to be retained. (Source: Proposed Plans by ANNE ROBSON ARCHITECTURE PTY LTD dated 29/03/2023)

9.4.5 Proposed Boatshed

The proposed boatshed is located on an existing level area near the water frontage of the site within the edge of the TPZ's of site trees 43 & 44 Neighbours trees 40 and 48 which are all *Corymbia maculata* (Spotted gums).

The proposed construction location and geographical features result in minor excavation in the TPZs that will be tolerated by the trees.

No noticeable impact to the health of site trees 43 & 44 Neighbours trees 40 and 48 *Corymbia maculata* (Spotted gums) is expected and the tree will remain viable during and post construction if the protection measures in this report are adhered to



Figures 30 & 31: The proposed location of the boathouse results in a minor encroachment of <10% of trees to be retained (Left) and the existing contours that result in the need for minor excavation (Right). (Source: Proposed Boat Shed Plan DA11 by ANNE ROBSON ARCHITECTURE PTY LTD dated 27/4/2023 left & Tree Impact Plan ANNE ROBSON ARCHITECTURE PTY LTD dated 18/4/2023 Right)

10 Measures to minimise impacts to retained trees.

17 Trees be retained if the tree protection measures in the report are adhered to. In order to minimise the impact to the tree nominated for retention, the following measures must be incorporated into the works;

10.1 Project Arborist

An official “Project Arborist” should be commissioned to oversee the tree protection, any works within the TPZ’s and complete compliance certification. The Project Arborist should have minimum five (5) years industry experience in the field of arboriculture.

10.2 Two (2) Tree Removals

Trees 35 & 47 are proposed for removal and should be removed at the beginning of the project (STCA). The trees nominated for retention must not be damaged during the tree removal works.

10.2.1 Standard of Works

To ensure a high standard of works is achieved, all proposed arboricultural works must be completed by a suitably qualified and experienced Arborist(s) of a minimum AQF Level 3 in accordance with the principles of the Australian Standard 4373-2007 *Pruning of Amenity Trees*.

10.3 Tree protection fencing

The trees nominated for retention must be fenced as per the fencing method described below.

Protective fencing is to be installed as close as practicable from the trunk to the TPZ distances listed in the Tree Data table. Existing site features such as boundary fences will influence the extent of the TPZ fencing. The project arborist is to determine the suitability and extent of the tree protection fencing to be used.

Tree protection fencing must remain intact throughout all proposed construction works and must only be dismantled after the works are complete. The temporary dismantling of tree protection fencing must only be done with the authorisation of the project arborist and/or the responsible authority.

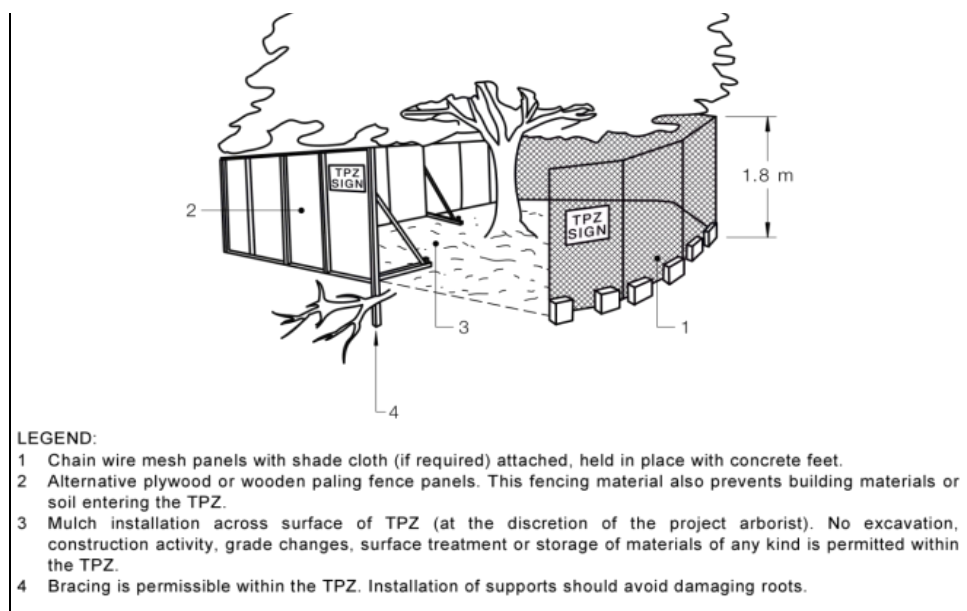


Figure 32: TPZ fencing specification. (Source: AS 4970:2007)

10.4 Tree Protection Signage

The tree protection signage below should be installed at 10m intervals along the Tree Protection Fences.



Figure 33: TPZ signage specification. (Source: Austin 2022).

10.5 Trunk wrapping

Trees numbered 32, 37, 41, 42, 45 & 46 require trunk wrapping to a height of 2m, in line with AS 4970:2007.

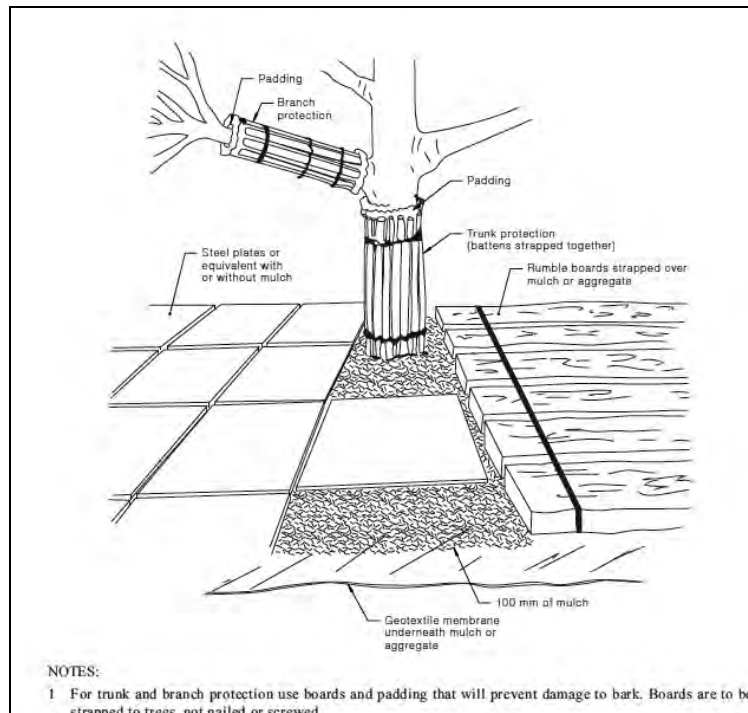


Figure 34: Trunk wrapping guidance. (Source: AS 4970:2007)

10.6 Mulching.

The TPZ for each tree should to be retained be should be mulched where it is deemed practicable. The mulch must be maintained to a depth of 50–100 mm using material that complies with AS

4454. If the existing landscape within the TPZ is to remain unaltered (e.g. turf, understory plants) mulch is not required, however, it will be beneficial for tree health.

10.7 Arborist Supervision within TPZ's

The project Arborist must supervise of works within the TPZ's of Trees to be retained. Upon completion of the works within the TPZ, the project Arborist is to document whether the works have impacted the viability of the subject trees.

10.8 Works within TPZ's

All works within the TPZs must be completed by techniques that do not damage tree roots. Excavation works should be undertaken using techniques that are sensitive to tree roots to avoid unnecessary damage. Such techniques include:

- Excavation/ demolition by hand
- Excavation/ demolition by machine with Arborist supervision.
- Excavation using a high pressure water jet and vacuum truck.
- Excavation using an Air Spade with vacuum truck.

Machine excavation is prohibited within the remaining TPZ areas of retained trees unless undertaken at the direct consent from the project arborist and/or the responsible authority.

10.9 Activities Restricted within the TPZ

- Machine excavation without Arborist supervision
- Demolition by machine without Arborist supervision
- Excavation for silt fencing
- Storage
- Preparation of chemicals, including preparation of cement products
- Dumping of waste
- Wash down and cleaning of equipment
- Placement of fill
- Soil level changes
- Temporary or permanent installation of services, utilities or signs
- Physical damage to the tree
- Parking or driving of vehicles/machinery.

10.10 Compliance Inspections & Reports

Inspections should be conducted by the Project Arborist at key points during the construction in order to ensure that protection measures are being adhered to during construction stages and decline in tree health or additional remediation measures can be identified.

Tree inspections and compliance reporting by the project arborist is required:

1. Following the tree removal works, the installation of the trunk protection for Trees numbered 32, 37, 41, 42, 45 & 46 and tree protection fencing as per the Tree Protection Plan.
2. For the pier excavation works within the TPZ's of Trees to be retained.
3. During any works within TPZ's of trees to be retained unless specific methodologies are developed and approved by the project arborist.
4. Every 2 months during the works to ensure compliance.
5. At the practical completion of the project.

Following each inspection, the project arborist shall prepare a brief Compliance report detailing the condition of the trees. These reports should contain photographic evidence where required to demonstrate that the protection measures are in place as specified.

Any Non-Compliance Statements shall be submitted to the Project Manager (as well as the clients' nominated representative) if tree protection conditions have been breached. Reports should contain clear remedial action specifications to minimise any adverse impact on any subject tree.

11 Re Planting

11.1 Landscape Plan

New should be planted onsite to replace the Two (2) Spotted Gums trees to be removed. New trees to be planted are to be prescribed by the Ecologist and shown on Landscape Plans.

12 Conclusion

This Arboricultural Impact Assessment has provided a detailed analysis of the trees that could be affected by development on the subject site. The requirements for Tree Preservation Zones are in line with AS 4970:2009 *Protection of tree on development sites*.

13 References

Australian Standard 4970: 2009 *Protection of trees on development sites*.

British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*.

14 Industry Qualifications

- AQF Level 5 & 8 Consulting Arborist.
- ISA Certified Arborist # AU-0348A
- Tree Risk Assessment Qualification (TRAQ) (Exp Oct 2023)
- Advanced Quantified Tree Risk Assessment Registered User # 3692
- Masters of Environmental Law

15 Appendices

15.1 Tree Data

15.2 Tree Protection Plan

| Tree Id | Tree Ownership | Common Name | Botanical Name | Trees In Group | Tree Age | TPZ Radius [m] | TPZ Area [m ²] | SRZ Radius [m] | Height [m] | Canopy [m] | Health | Structure | ULE [Yrs.] | Observations | Recommendations | Arborist Notes | Landscape Significance | Retention Value | Proposed Impact | Retention Status |
|---------|-----------------------|----------------------------|------------------------------|----------------|-------------|----------------|----------------------------|----------------|------------|------------|---------|-----------|----------------------|--|---|--|------------------------|-----------------|------------------------------------|--------------------|
| 30 | Council land | Spotted Gum | <i>Corymbia maculata</i> | 1 | Mature | 12.6 | 498.51 | 3.69 | 25 | 20 | Good | Good | Long (>40 years) | Deadwood < 30mm, Sap exudation, Wound(s) | | Council tree | High | A | No Impact | Retain and Protect |
| 31 | Council land | Spotted Gum | <i>Corymbia maculata</i> | 1 | Mature | 7.2 | 162.78 | 2.81 | 25 | 1 | Good | Average | Long (>40 years) | Deadwood > 30mm, Wound response growth, Wound(s) | | Council tree. Basal wound with good response growth. | High | B | No Impact | Retain and Protect |
| 32 | Council land | Smooth-barked Apple Myrtle | <i>Angophora costata</i> | 1 | Semi-Mature | 2.88 | 26.04 | 1.61 | 12 | 5 | Good | Average | Medium (15-40 years) | Suppressed | | Council tree | Medium | B | No Impact | Retain and Protect |
| 33 | Council land | Turpentine | <i>Syncarpia glomulifera</i> | 1 | Semi-Mature | 4.56 | 65.29 | 2.34 | 10 | 10 | Good | Average | Long (>40 years) | Suppressed | | Council tree | Medium | B | No Impact | Retain and Protect |
| 34 | Council land | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 4.08 | 52.27 | 2.2 | 20 | 6 | Good | Average | Long (>40 years) | | | Council tree | Medium | B | No Impact | Retain and Protect |
| 35 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 4.32 | 58.6 | 2.3 | 20 | 8 | Average | Good | Long (>40 years) | Deadwood < 30mm, Dieback | | | High | B | Within Development footprint | Remove |
| 36 | Neighbouring property | White Stringybark | <i>Eucalyptus globoidea</i> | 1 | Semi-Mature | 3.6 | 40.69 | 2.08 | 15 | 10 | Good | Good | Long (>40 years) | Deadwood > 60mm, Suppressed | Remove deadwood > 30mm | Deadwood over phone line. Move timber pile at base away from trunk. | Medium | B | Minor Encroachment | Retain and Protect |
| 37 | Neighbouring property | Smooth-barked Apple Myrtle | <i>Angophora costata</i> | 1 | Mature | 9.36 | 275.09 | 3.14 | 25 | 20 | Good | Average | Long (>40 years) | Crossing/rubbing branches, Deadwood > 60mm, Mechanical damage, Sap exudation | Remove deadwood > 30mm, Remove selective branches, Remove TPZ/SRZ incursion | Move timber pile at base away from trunk. Large rubbing branch with significant flattening. Remove top side branch | High | A | Minor Encroachment | Retain and Protect |
| 38 | Neighbouring property | Weeping Fig | <i>Ficus benjamina</i> | 1 | Semi-Mature | 2.64 | 21.88 | 1.88 | 10 | 10 | Good | Average | Medium (15-40 years) | Co-dominant stems, Inappropriate location, Infrastructure contact | Consider removing | Exempt | Low | C | Minor Encroachment | Retain and Protect |
| 39 | Neighbouring property | Camellia | <i>Camellia sasanqua</i> | 1 | Semi-Mature | 2 | 12.56 | 1.61 | 5 | 5 | Good | Good | Long (>40 years) | Wound(s) | | Overhangs site | Low | C | Canopy Encroachment | Retain and Protect |
| 40 | Neighbouring property | Spotted Gum | <i>Corymbia maculata</i> | 1 | Mature | 9 | 254.34 | 3.09 | 22 | 18 | Good | Average | Long (>40 years) | Epicormic growth, Previous failure(s) | | | High | A | No Impact | Retain and Protect |
| 41 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 2.88 | 26.04 | 1.94 | 12 | 4 | Good | Good | Long (>40 years) | | | | Medium | B | Minor Encroachment | Retain and Protect |
| 42 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 3.84 | 46.3 | 2.15 | 18 | 6 | Good | Good | Long (>40 years) | Deadwood < 30mm | | | Medium | B | Minor Encroachment | Retain and Protect |
| 43 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 2 | 12.56 | 1.61 | 12 | 4 | Good | Good | Long (>40 years) | Mechanical damage, Wound(s) | | Minor trunk wound | Medium | B | No Impact | Retain and Protect |
| 44 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 3.48 | 38.03 | 2.1 | 14 | 6 | Good | Average | Long (>40 years) | Epicormic growth, Suppressed | | | Medium | B | No Impact | Retain and Protect |
| 45 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Mature | 8.88 | 247.6 | 3.04 | 22 | 20 | Good | Average | Long (>40 years) | Epicormic growth, Wound(s) | | | High | A | Minor Encroachment | Retain and Protect |
| 46 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Mature | 6.24 | 122.26 | 2.65 | 20 | 12 | Good | Average | Long (>40 years) | Epicormic growth, Wound(s) | | | High | A | No Impact | Retain and Protect |
| 47 | Client site | Spotted Gum | <i>Corymbia maculata</i> | 1 | Semi-Mature | 3.12 | 30.57 | 2.02 | 12 | 4 | Good | Good | Long (>40 years) | | | | Medium | B | Conflicts with inclinor alignment. | Remove |

| Tree Id | Tree Ownership | Common Name | Botanical Name | Trees In Group | Tree Age | TPZ Radius [m] | TPZ Area [m2] | SRZ Radius [m] | Height [m] | Canopy [m] | Health | Structure | ULE [Yrs.] | Observations | Recommendations | Arborist Notes | Landscape Significance | Retention Value | Proposed Impact | Retention Status |
|---------|-----------------------|-------------|-------------------|----------------|----------|----------------|---------------|----------------|------------|------------|--------|-----------|------------------|--------------|-----------------|----------------|------------------------|-----------------|--------------------|--------------------|
| 48 | Neighbouring property | Spotted Gum | Corymbia maculata | 1 | Mature | 6.6 | 136.78 | 2.67 | 20 | 10 | Good | Good | Long (>40 years) | | | | High | A | Minor Encroachment | Retain and Protect |

Tree Protection Plan April 2023

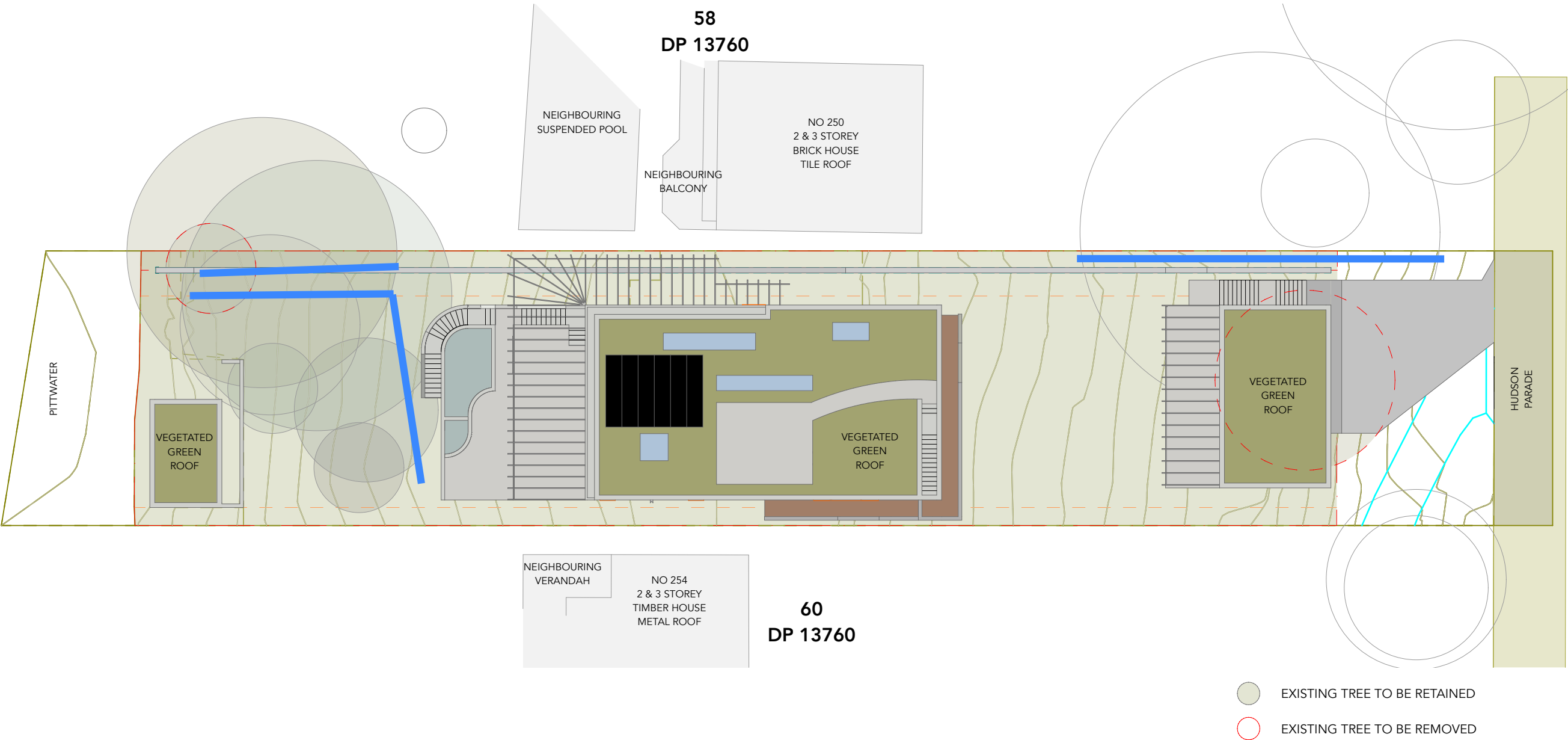
AREA SCHEDULE

| | |
|----------------|---------|
| LANDSCAPE | 611.6m2 |
| BOAT SHED | 24m2 |
| HOUSE | 305.1m2 |
| CARPORT/STOAGE | 74.7m2 |

SITE AREA 1015.4m2



Tree Protection Fence



General Notes
The Builder shall check all dimensions and levels on site prior to construction.
Notify any errors, discrepancies or omissions to the architect.
Drawings shall not be used for construction purposes until issued for construction.
Do not scale drawings.
All boundaries and contours subject to survey

Project Name
Proposed primary & secondary dwellings

Project Address
252 Hudson Parade, Clareville, NSW 2017