



Project No: DOLLS/POINT/23 Report No: DOLLS/POINT/AIA/B

ARBORICULTURAL IMPACT ASSESSMENT TREE PROTECTION SPECIFICATION

Dolls Point Café
Russell Avenue, Dolls Point

Prepared for: SAM CRAWFORD ARCHITECTS

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Revision B

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 This Arboricultural Impact Assessment Report and Tree Protection Specification was prepared for Sam Crawford Architects in relation to the proposed Dolls Point Café, Depena Reserve. The purpose of this Report is to undertake a Visual Tree Assessment¹ (VTA), determine the impact of the proposed works on the trees, and where appropriate, recommend the use of sensitive construction methods and tree protection measures to minimise adverse impacts.
- 1.1.2 This Revision B report is based on an additional site inspection undertaken in late August 2024 to assess Tree 8, following a Request for Information (RFI) from Bayside Council seeking clarification on its suitability for retention or removal. No other trees were inspected, and the plans addressed in the Revision A report remain unchanged.
- 1.1.3 In preparing this Report, the authors are aware of and have considered the objectives of the following:

- *State Environmental Planning Policy - Biodiversity and Conservation (2021)*
- *Botany Bay Local Environmental Plan (2013)*
- *Bayside Development Control Plan (2022)*
- *Bayside Council Landscape Technical Specification (2022)*
- *Australian Standard 4970 Protection of Trees on Development Sites (2009)*
- *Australian Standard 4373 Pruning of Amenity Trees (2007)*
- *Australian Standard 2303 Tree Stock for Landscape Use (2015)*
- *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)*

Refer to Methodology (**Appendix 1**)

- 1.1.4 This impact assessment is based on an assessment of the following supplied documentation/plans only:
- Site Plan (Dwg. No. A102 - Rev A, dated 03.11.23) - prepared by Sam Crawford Architects
 - Landscape DA Report (Issue F, dated October 2023) - prepared by Sam Crawford Architects

Refer to Plans (**Appendix 2**)

1.2 The Proposal

- 1.2.1 The proposal is for new cafe and amenities building and includes the following works:
- Demolition of the existing building and sections of the existing carpark
 - Construction of a new café building, accessible footpaths and loading bay
 - Landscaping and associated works

¹ Mattheck & Breloer (2003)

2.0 RESULTS

2.1 The Site

- 2.1.1 Despena Reserve is located at Russell Ave, Dolls Point. For the purpose of this Report, the site the leased restaurant and kiosk building known as Le Beach Hut. The site is located adjacent to the northern boundary of the Reserve and is bound by the carpark area on Russell Avenue and Curruthers Drive to the north and the Reserve to the south, east and west.
- 2.1.2 The kiosk is a single storey building of brick and timber construction with a large, outdoor dining area located on the Russell Street building frontage. The curtilage of the building comprises of pavements and garden beds with a loading dock running along the western facade.

2.2 The Trees

- 2.2.1 Eleven (11) trees were assessed using the Visual Tree Assessment (VTA) criteria and notes and comprises of a mix of locally indigenous, Australian native and exotic species including *Hibiscus rosa-sinensis* (Chinese Hibiscus), *Schefflera actinophylla* (Umbrella Tree), *Lagerstoemia indica* (Crepe Myrtle), *Ficus rubiginosa* (Port Jackson Fig), *Araucaria heterophylla* (Norfolk Island Pine), *Eucalyptus robusta* (Swamp Mahogany), *Eucalyptus botryoides* (Southern Mahogany) and *Pinus pinea* (Stone Pine).
- 2.2.2 A review of historical aerial imagery from 1955 shows a number of small trees in similar locations to Trees 5 and 10 *Ficus rubiginosa* (Port Jackson Fig).² Based on the current size and estimated age of the trees, it is likely that Trees 5 and 10 are the trees shown in the aerial imagery. The ecological significance and heritage value of the trees has not been assessed and is beyond the scope of this Report.
- 2.2.3 As required by Clause 2.3.2 of *Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970)*, each of the trees assessed has been allocated a Retention Value. TreeiQ allocates one of four Retention Value categories based on a combination of Landscape Significance and Useful Life Expectancy (ULE). The assessment of Landscape Significance and ULE involves a degree of subjectivity and there will be a range of tree quality and value within each of the Retention Value categories. The Retention Values do not consider any proposed development works and are not a schedule for tree retention or removal. The trees have been allocated one of the following Retention Values:

- Priority for Retention
- Consider for Retention
- Consider for Removal
- Priority for Removal

Refer to Tree Assessment Schedule (**Appendix 3**)

² NSW Spatial Services (2023)

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Tree 1

- 3.1.1 Tree 1 was identified as *Hibiscus rosa-sinensis* (Chinese Hibiscus) and is located to the north of the kiosk building. The tree is in fair health with a reduced crown density of 50-75%. Tree 1 is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal*.
- 3.1.2 The supplied plans show that Tree 1 is to be removed to accommodate the new cafe and amenities building. New tree planting using a healthy, advanced-sized specimen could replace the loss of amenity from tree removal within a short timeframe.

3.2 Trees 2 & 3

- 3.2.1 Trees 2 and 3 were identified as *Schefflera actinophylla* (Umbrella Tree) and *Lagerstoemia indica* (Crepe Myrtle) respectively and are located to the north of the kiosk building. The trees are in good health and good structural condition with no significant defects identified at the time of assessment. However, their crowns are in contact with the roof of the existing building. Trees 2 and 3 are of low Landscape Significance and have been allocated a Retention Value of *Priority for Removal*.
- 3.2.2 The supplied plans show that Trees 2 and 3 are to be removed to accommodate the new cafe and amenities building. New tree planting using healthy, advanced-sized specimens could replace the loss of amenity from tree removal within a short timeframe.

3.3 Tree 4

- 3.3.1 Tree 4 was identified as *Ficus rubiginosa* (Port Jackson Fig) and is located to the north of the kiosk building. The tree is in fair structural condition due to the presence of major bark inclusion which has developed at the junction of co-dominant stems. There is limited clearance between the crown of the tree and the roof of the adjacent kiosk building. Tree 4 is of low Landscape Significance and has been allocated a Retention Value of *Priority for Removal*.
- 3.3.2 The supplied plans show that Tree 4 is to be removed to accommodate the new cafe and amenities building. New tree planting using a healthy, advanced-sized specimen could replace the loss of amenity from tree removal within a short timeframe.

3.4 Tree 5

- 3.4.1 Tree 5 was identified as *Araucaria heterophylla* (Norfolk Island Pine) and is located in a small garden bed within the carpark to the north of the kiosk building. The tree is in good health and good structural condition with no significant defects identified at the time of assessment. Tree 5 is of high Landscape Significance and has been allocated a Retention Value of *Priority for Retention*.

3.4.2 The supplied plans show Tree 5 is to be retained with the demolition of a section of existing road/carpark and installation of an accessible path proposed within its Tree Protection Zone (TPZ). The extent of works represent a *Major Encroachment* as defined by AS-4970. Clause 3.3.4 of AS-4970 outlines that design factors and tree sensitive methods should be considered when determining the potential impact of the encroachment.

3.4.2 Recommendations

- Trunk protection should be installed to protect the tree from impact damage
- Ground protection (100mm of mulch overlaid with plywood sheeting, or ground mats) should be installed in landscape areas of the TPZ (areas of existing pavement provide adequate ground protection). Ground protection should only be modified with prior approval from the Project Arborist
- Demolition works should be undertaken using tree sensitive methods and machinery should work from ground protection or areas of existing pavement
- The existing subbase layer and existing kerb within the Structural Root Zone (SRZ) should be retained in-situ
- Where possible, new pavements in areas of existing pavement should be installed at existing grade and utilize the existing subbase layer
- Roots (>25mmØ) identified with existing subbase layers should be retained (as required by the Project Arborist) and surfaces and subbase layers should be thinned/modified as required
- New pavements that cannot be installed at existing grade should be installed above existing grade (including subbase layer) with adjacent finished levels adjusted accordingly
- The basal cavity should be reinspected by a qualified Arborist (AQF level 5) in 24 months' time to monitor the development of decay. Where deemed necessary, internal diagnostic testing (Resistograph or Tomograph) should be undertaken to more accurately assess the structural condition of the tree

3.5 Tree 6

3.5.1 Tree 6 was identified as *Ficus rubiginosa* (Port Jackson Fig) and is located to the west of the of the kiosk building. The tree is in good health and good structural condition with no significant defects identified at the time of assessment. Tree 6 is of high Landscape Significance and has been allocated a Retention Value of *Priority for Retention*.

3.5.2 The supplied plans show Tree 6 is to be retained with the demolition of a section of existing road/carpark and installation of accessible paths and a loading bay proposed within its TPZ. The extent of works represent a *Major Encroachment* as defined by AS-4970. Clause 3.3.4 of AS-4970 outlines that design factors and tree sensitive methods should be considered when determining the potential impact of the encroachment.

3.5.3 Recommendations

- TPZ fencing should be established at the perimeter of the landscape area in which the tree is located TPZ. TPZ fencing should only be modified with prior approval from the Project Arborist
- Ground protection (100mm of mulch overlaid with plywood sheeting, or ground mats) should be installed in landscape areas of the TPZ (areas of existing pavement provide adequate ground protection). Ground protection should only be modified with prior approval from the Project Arborist
- Demolition works should be undertaken using tree sensitive methods and machinery should work from ground protection or areas of existing pavement

- The existing subbase layer and existing kerb within the SRZ should be retained in-situ
- Where possible, new pavements in areas of existing pavement should be installed at existing grade and utilize the existing subbase layer
- Roots (>25mmØ) identified with existing subbase layers should be retained (as required by the Project Arborist) and surfaces and subbase layers should be thinned/modified as required
- New pavements that cannot be installed at existing grade should be installed above existing grade (including subbase layer) with adjacent finished levels adjusted accordingly
- Mechanical cultivation and replacement of soil in landscape areas within the TPZ should be avoided. New mass planting should be undertaken using hand tools only with roots (>25mmØ) retained and protected. The application of a 100mm thick layer of a proprietary soil conditioner should be spread across landscape areas prior to installation of mass planting which will allow for incorporation when excavating planting holes

3.6 Tree 7

- 3.6.1 Tree 7 was identified as *Eucalyptus robusta* (Swamp Mahogany) and is located to the south of the kiosk building. The tree is in fair health and fair structural condition based on its reduced crown density and presence of high volumes of small (<25mmØ) and medium (25mm-75mmØ) epicormic growth. The decline in health of Tree 7 may be associated with soil level build up in its root zones as evidenced by the lack of basal flare. Tree 7 is of moderate Landscape Significance and has been allocated a Retention Value of *Consider for Retention*.
- 3.6.2 The supplied plans show that Tree 7 is to be removed to accommodate the pavement areas and site grading works associated with the new cafe and amenities building. Although the tree meets the criteria to be allocated a Retention Value of *Consider for Retention*, it has a short ULE (5-15 years). Within the context of the proposed development, the removal and replacement of this tree with a healthy, advanced size replacement tree is considered appropriate.

3.7 Tree 8

- 3.7.1 Tree 8 was identified as *Eucalyptus robusta* (Swamp Mahogany) and is located to the south of the kiosk building. The tree is in fair health and fair structural condition with a reduced crown density and moderate to high volumes epicormic growth and deadwood within its crown. Tree 8 is of moderate Landscape Significance and has been allocated a Retention Value of *Consider for Retention*.
- 3.7.2 The assessment of Tree 8 in August 2025 remains largely unchanged, and the tree is in fair health. The supplied plans show the proposed building footprint represents a *Minor Encroachment* only. However, the associated pavement and fill installation would result in more substantial impacts. The finished floor level of the proposed building is at RL 3.0, while the base of the tree is at RL 2.23 which would require up to 770 mm of fill installed within the TPZ. The combined works represent a *Major Encroachment* as defined by AS-4970 and are likely to significantly impact the tree.
- 3.7.3 Tree retention would require the pavement to the rear of the building to be constructed entirely above grade with no excavation, and the design to be modified so that only very limited fill material is placed within the TPZ.

- 3.7.4 Although the tree meets the criteria to be allocated a Retention Value of *Consider for Retention*, it has a short ULE of 5–15 years. Its fair health would make the tree less tolerant of construction impacts and may increase ongoing management requirements for monitoring and deadwood removal. Removal and replacement with an advanced specimen are therefore considered the more viable outcome, offering a stronger contribution to the canopy at the site in the longer term and avoiding compromise to the proposed landscape design.

3.8 Tree 9

- 3.8.1 Tree 9 was identified as *Eucalyptus botryoides* (Southern Mahogany) and is located to the south of the kiosk building. The tree is in good health and good structural condition with no significant defects identified at the time of assessment. Tree 9 is of high Landscape Significance and has been allocated a Retention Value of *Priority for Retention*.

- 3.8.2 The supplied plans show Tree 9 is to be retained with no works proposed within its TPZ.

3.8.3 Recommendations

- TPZ/site fencing should be established at the perimeter of the TPZ. TPZ/site fencing should only be modified with prior approval from the Project Arborist

3.9 Tree 10

- 3.9.1 Tree 10 was identified as *Ficus rubiginosa* (Port Jackson Fig) and is located to the south of the kiosk building. The tree is in fair structural condition due to the presence of basal decay and a major bark inclusion which has developed at the junction of co-dominant stems. Tree 10 is of high Landscape Significance and has been allocated a Retention Value of *Priority for Retention*.

- 3.9.2 The visible basal decay is located between the buttressing at the base of the trunk. Internal diagnostic testing should be undertaken to determine the extent of sound wood/decay. Recommendations for tree management should be based on the test results. The co-dominant inclusion has adventitious roots emerging from the inclusion. The development and expansion of adventitious roots between the stems exerts additional pressure on the defect. Furthermore, the cross-sectional area of woody tissue immediately below the inclusion is significantly less than that of the branch above the inclusion which may further increase the likelihood of failure. Therefore, if internal diagnostic testing indicates the tree is suitable for retention, the branch with included bark should be removed.

- 3.9.3 The supplied plans show Tree 10 is to be retained with a section of turfed embankment, infiltration tank and accessible path proposed within its TPZ. The extent of works represents a *Major Encroachment* as defined by AS-4970. Clause 3.3.4 of AS-4970 outlines that design factors and tree sensitive methods should be considered when determining the potential impact of the encroachment.

- 3.9.4 As individual components the infiltration tank and accessible path represent a *Minor Encroachment* only and should not significantly impact the tree. The turfed embankment represents an area of approximately 25% of the TPZ and increasing soil depths over this amount of the root zone may impact root function and tree health. The footprint of the embankment should be reduced to no greater than 15% of the TPZ area with the remainder of the existing landscape levels retained. Sandstone boulders/gabions could be used to create a retaining wall to shorten the length of the embankment.

- 3.9.5 The tree is a late-mature specimen with various structural defects. Therefore, turf should be substituted for mass planting below the canopy to exclude public access.

3.9.6 Recommendations

- TPZ fencing should be established at the perimeter of the landscape area with a setback to allow for infiltration tank, pavement and turf embankment/retaining wall installation. TPZ fencing should only be modified with prior approval from the Project Arborist
- Ground protection (100mm of mulch overlaid with plywood sheeting, or ground mats) should be installed in landscape areas of the TPZ (areas of existing pavement provide adequate ground protection). Ground protection should only be modified with prior approval from the Project Arborist
- Sandstone boulders/gabions should be installed to create a retaining wall to shorten the embankment of fill within the TPZ. The retaining wall should be installed at existing grade without excavation and installation of a footing
- Imported soil for localized raising of landscape levels/embankment installation should be an 80/20 washed river sand/screen topsoil blend. To prevent settlement, imported soil should be consolidated in 200mm thick layers at the time of installation
- Turf should be substituted for mass planting below the crown of the tree
- Mechanical cultivation and replacement of soil in landscape areas within the TPZ should be avoided. New mass planting should be undertaken using hand tools only with roots (>25mmØ) retained and protected. The application of a 100mm thick layer of a proprietary soil conditioner should be spread across landscape areas prior to installation of mass planting which will allow for incorporation when excavating planting holes
- No over-excavation should extend beyond the footprint of the infiltration tank and hand excavation and root pruning should be undertaken along the excavation line prior to the commencement of the works

3.10 Tree 11

3.10.1 Tree 11 was identified as *Pinus pinea* (Stone Pine) and is located to the southwest of the kiosk building. The tree is in fair health with a reduced crown density. It has developed an etiolated form from growing under the crown of the adjacent Fig (Tree 9). Tree 11 is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal*.

3.10.2 The supplied plans show a new infiltration tank is proposed within the TPZ. As the encroachment into the TPZ is less than 10% and outside of the Structural Root Zone (SRZ), the extent of works represents a *Minor Encroachment* as defined by AS-4970. A *Minor Encroachment* is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ.

3.10.3 Recommendations

- TPZ fencing should be established at the perimeter of the TPZ and extended to compensate for the *Minor Encroachment*. TPZ fencing should only be modified with prior approval from the Project Arborist
- No over-excavation should extend beyond the footprint of the infiltration tank and hand excavation and root pruning should be undertaken along the excavation line prior to the commencement of the works

3.11 Other Works within TPZ Areas

3.11.1 Mulch, Turf & Vegetation Removal

The removal of small areas of mulch, turf and vegetation within TPZ areas should be undertaken using hand tools. Larger woody shrubs and small trees which cannot be removed without significant ground disturbance should either be cut to ground level and treated with herbicide to prevent regrowth (where required) or stump ground. Stump grinding should not be undertaken in the SRZ of existing trees to be retained.

3.11.2 Demolition Works

Demolition works within TPZ areas should be supervised by the Project Arborist and utilise tree sensitive methods. Structures should be demolished in small sections ensuring demolition machinery/equipment does not contact with any part of the tree. Existing structures within the SRZ can contribute to tree stability by providing ballast to the rootplate or act as a stop to the overturning of the rootball and should be retained in-situ if possible.

3.11.3 Underground Services

The installation of new underground services should be routed outside of TPZ areas. Where this is not possible, trenches should be excavated using tree sensitive methods (i.e. hand/compact excavator or hydrovac excavation) which can be both time consuming and costly. The use of tree sensitive methods is achievable where pipe/conduit diameters are not overly large (<300mm dia.) and trench depths do not require benching, battering or the use of shoring boxes. The excavation requirements for new services should be considered in the design development stage of the project to ensure infrastructure installation can be achieved without significantly impacting the trees.

3.11.4 Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1200mm below existing grade. Excavations for starting and receiving pits for boring equipment should be located outside of the TPZ areas or located to avoid roots (>25mmØ) as deemed necessary by the Project Arborist.

3.11.5 Soft Landscaping

The installation of plants/turf within the TPZ should be undertaken using hand tools and roots (>25mmØ) should be protected. No mechanical cultivation/ripping of soils should be undertaken within TPZ areas. Soil conditioners and turf underlay may be installed however should not increase existing soil levels within the TPZ by greater than 100mm and must not raise levels within 1.5m of the base of any tree.

3.12 New Tree Planting

3.12.1 New trees should be installed to help off-set the loss of amenity and canopy cover from the removal of Tree 1-4 and 7-8. The new tree should be grown in accordance with *Australian Standard 2303 Tree Stock for Landscape Use (2015)*.

4.0 CONCLUSION

4.1.1 Eleven (11) trees were addressed within this report and comprise of a mix of locally indigenous, Australian native and exotic species.

4.1.2 The supplied plans show the works include demolition of the existing building and sections of existing carpark, construction of a new café building, accessible footpaths and loading bay, and landscaping and associated works.

4.1.3 The supplied plans show that six (6) trees (Trees 1-4, 7 & 8) are proposed for removal as part of the development works. Trees 1, 2, 3 and 4 are of low Landscape Significance and have been allocated a Retention Value of either *Consider for Removal* or *Priority for Removal*. Trees 7 and 8 meet the criteria to be allocated a Retention Value of *Consider for Retention*. However, they have a short ULE (5-15 years) and their removal and replacement within the context of the proposed development is considered appropriate. New trees should be installed to help off-set the loss of amenity and canopy cover from the tree removal. The new trees should be grown in accordance with *Australian Standard 2303 Tree Stock for Landscape Use (2015)*.

- 4.1.4 The supplied plans show that five (5) trees (Trees 5, 6 & 9-11) are to be retained as part of the proposed development works. Tree sensitive methods will be required (as outlined within Section 3) to minimise adverse impacts.
- 4.1.5 The CC plans should be updated to reflect the recommendations within this Report. A Tree Protection Plan should be prepared based on the Construction Certificate (CC) Plans. The CC Plans should be updated for consistency with the recommendations outlined within this Report. The trees should be protected in accordance with the Tree Protection Plan, Section 3.0 Arboricultural Impact Assessment, the Tree Protection Specification (**Appendix 5**) and Typical Tree Protection Details (**Appendix 6**).

5.0 LIMITATIONS& DISCLAIMER

TreeiQ takes care to obtain information from reliable sources. However, TreeiQ can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Report are visual aids only and are not necessarily to scale. This Report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc issues.

This Report has been prepared for exclusive use by the client. This Report shall not be used by others or for any other reason outside its intended target or without the prior written consent of TreeiQ. Unauthorised alteration or separate use of any section of the Report invalidates the Report.

Many factors may contribute to tree failure and cannot always be predicted. TreeiQ takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators. There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the trees or site may not arise in the future. Information contained in this Report covers only the trees assessed and reflects the condition of the trees at the time of inspection. Additional information regarding the methodology used in the preparation of this Report is attached as Appendix 1. A comprehensive tree risk assessment and management plan for the trees is beyond the scope of this Report.

Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this Report are subject to approval from the relevant Consent Authority.

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6.0 BIBLIOGRAPHY& REFERENCES

Barrell (1995), 'Pre-development Tree Assessments', in *Trees & Building Sites, Proceedings of an International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings*, International Society of Arboriculture, Illinois, USA, pp. 132-142.

Harris, Clark & Matheny (1999), *Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines*, Prentice Hall, New Jersey.

Mattheck & Breloer (2003), *The Body Language of Trees: A Handbook for Failure Analysis*, The Stationary Office, London.

Office of Environment and Heritage (2011), *BioNet Atlas of NSW Wildlife*.

Safe Work Australia (2016), *Guide for Managing Risks of Tree Trimming and Removal Work*.

Standards Australia (2009), *Protection of Trees on Development Sites AS-4970*

Standards Australia (2007), *Pruning of Amenity Trees AS-4373*

Standards Australia (2015), *Tree Stock for Landscape Use AS-2303*

Appendix 1: Methodology

- 1.1 Site Inspection:** This report was determined as a result of a comprehensive site during October 2023. The comments and recommendations in this report are based on findings from this site inspection.
- 1.2 Visual Tree Assessment (VTA):** The subject tree(s) was assessed using the Visual Tree Assessment criteria and notes as described in *The Body Language of Trees – A Handbook for Failure Analysis*.³ The inspection was limited to a visual examination of the subject tree(s) from ground level only. No internal diagnostic testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.
- 1.3 Tree Dimensions:** The dimensions of the subject tree(s) are approximate only.
- 1.4 Tree Locations:** The location of the subject tree(s) was determined from the supplied plans. Trees not shown on the supplied plans have been plotted in their approximate location only.
- 1.5 Trees & Development:** Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in *Australian Standard 4970-2009 Protection of Trees on Development Sites*.

The *Tree Protection Zone* (TPZ) is described in AS-4970 as a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

The *Structural Root Zone* (SRZ) is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree.

In some cases it may be possible to encroach into or make variations to the theoretical TPZ. A *Minor Encroachment* is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A *Major Encroachment* is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods.

- 1.6 Tree Health:** The health of the subject tree(s) was determined by assessing:
- I. Foliage size and colour
 - II. Pest and disease infestation
 - III. Extension growth
 - IV. Crown density
 - V. Deadwood size and volume
 - VI. Presence of epicormic growth
- 1.7 Tree Structural Condition:** The structural condition of the subject tree(s) was assessed by:
- I. Assessment of branching structure
(i.e co-dominant/bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures)
 - II. Visible evidence of structural defects or instability
(i.e root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth)
 - III. Evidence of previous pruning or physical damage
(root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)
- 1.8 Useful Life Expectancy (ULE):** The ULE is an estimate of the longevity of the subject tree(s) in its growing environment. The ULE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (Modified from Barrell, 2001):
- I. 40 years +
 - II. 15-40 years
 - III. 5-15 years
 - IV. Less than 5 years

³Mattheck&Breloer (2003)

1.9 Landscape Significance: Landscape Significance was determined by assessing the combination of the cultural, environmental and aesthetic values of the subject tree(s). Whilst these values are subjective, a rating of high, moderate, low or insignificant has been allocated to the tree(s). This provides a relative value of the tree's Landscape Significance which may aid in determining its Retention Value. If the tree(s) can be categorized into more than one value, the higher value has been allocated.

1.10 .

Landscape Significance	Description
Very High	The subject tree is listed as a Heritage Item under the <i>Local Environmental Plan</i> with a local or state level of significance.
	The subject tree is listed on Council's Significant Tree Register or meets the criteria for significance assessment of trees and/or landscapes by a suitably qualified professional. The criteria are based on general principles outlines in the Burra Charter and on criteria from the Register of the National Estate.
High	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of cultural or historical importance or is widely known.
	The subject tree is a prominent specimen which forms part of the curtilage of a heritage item with a known or documented association with that item.
	The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species for the site defined under the provisions of the NSW <i>Biodiversity Conservation Act (2016)</i> or the Commonwealth <i>Environmental Protection and Biodiversity Conservation Act (1999)</i> .
	The subject tree is known to contain nesting hollows to a species scheduled as a Threatened or Vulnerable Species for the site as defined under the provisions of the NSW <i>Biodiversity Conservation Act (2016)</i> or the Commonwealth <i>Environmental Protection and Biodiversity Conservation Act (1999)</i> .
	The subject tree is an excellent representative of the species in terms of aesthetic value.
	The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality.
Moderate	The subject tree makes a positive contribution to the visual character, amenity or canopy cover of the area
	The subject tree provides a specific function such as screening or minimising the scale of a building.
	The subject tree is a good representative of the species in terms of aesthetic value.
Low	The subject tree is a known environmental weed species or is exempt under the provisions of the local Council's Tree Management Controls
	The subject tree is small in size and/or or makes little or no contribution to the amenity or canopy cover of the area
	The subject tree is a poor representative of the species in terms of aesthetic value.

1.10 Retention Value: Retention Value was based on the subject tree's Useful Life Expectancy and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structural condition and site suitability. The subject tree(s) has been allocated one of the following Retention Values:

- I. Priority for Retention
- II. Consider for Retention
- III. Consider for Removal
- IV. Priority for Removal

ULE		Landscape Significance			
	Very High	High	Moderate	Low	Insignificant
40 years +	Priority for Retention	Priority for Retention		Consider for Removal	Priority for Removal
15-40 years		Priority for Retention	Consider for Retention		
5-15 years		Consider for Retention			
Less than 5 years	Consider for Removal	Priority for Removal			

The above table has been modified from the Footprint Green Tree Significance and Retention Value Matrix.



Refer Drawing T-02 for
TPZ / SRZ Plan

MUST BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT REPORT
PRELIMINARY ADVICE ONLY - NOT FOR SUBMISSION

BASED ON SUPPLIED SURVEY

REV	DESCRIPTION	DRAWN	REVIEW	DATE
A	TPZ/SRZ PLAN - FOR COORDINATION	MT	AH	20-11-23



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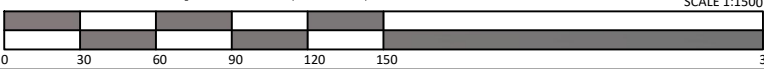


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ADDRESS	179 RUSSEL AVENUE, DOLLS POINT, NSW
PROJECT	DOLLS POINT CAFE
CLIENT	SAM CRAWFORD ARCHITECTS

SITE PLAN

Do not scale - use dimensions & callouts on drawings & schedules. Refer discrepancies to Landscape Architect for clarification.



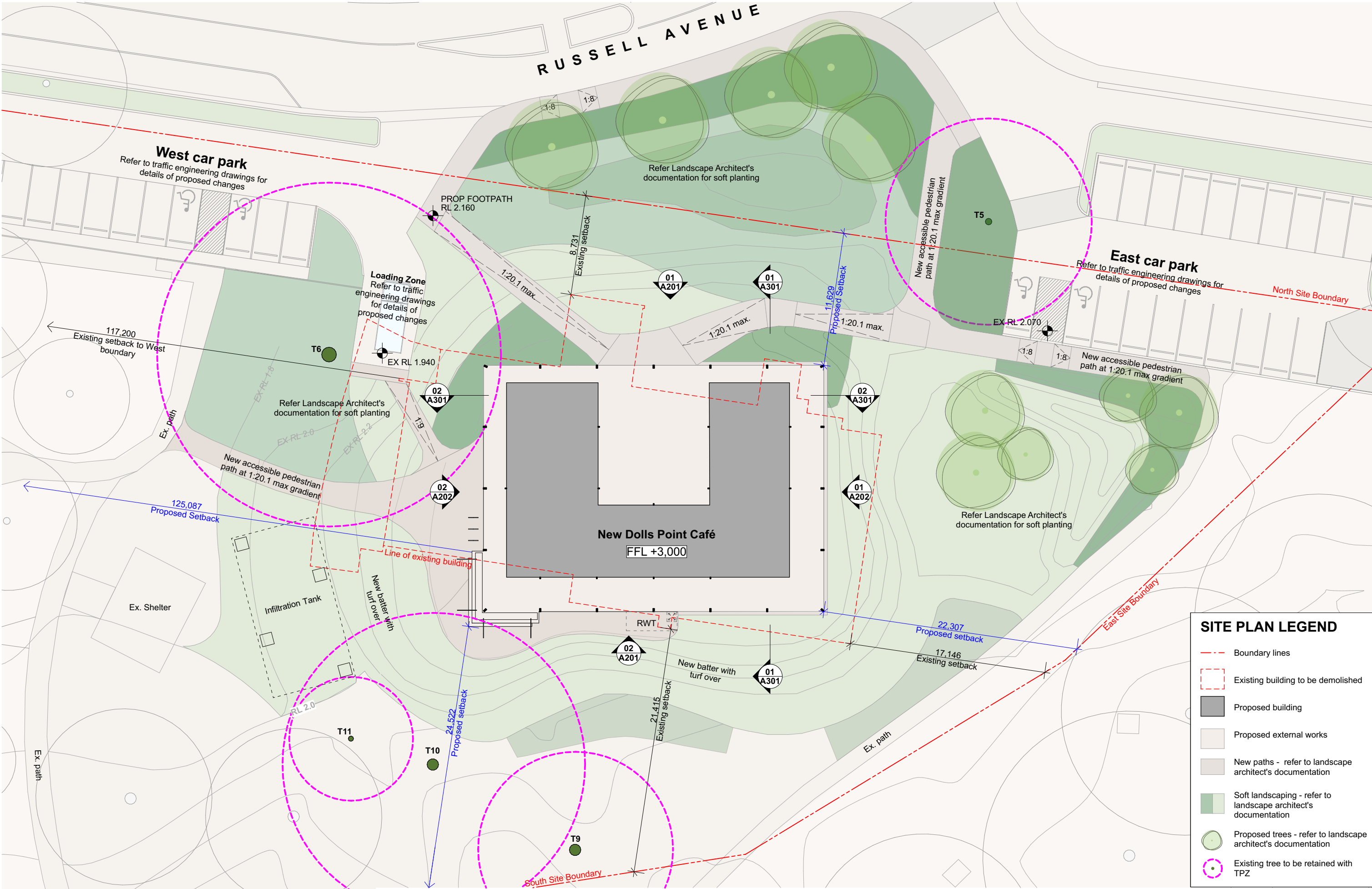
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DRAWN MT REVIEW AH

DATE 20-11-23

SCALE 1:1500

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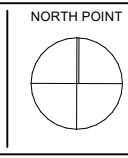


FOR DEVELOPMENT APPLICATION ONLY - NOT FOR CONSTRUCTION

DESCRIPTION	REV	APP'D	DATE
75% DA FOR REVIEW DRAFT DA SUBMISSION DA SUBMISSION	P2	SC	06-Apr-23
	P3	SC	01-Nov-23
	A	SC	03-Nov-23
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CLIENT
BAYSIDE COUNCIL
PROJECT
DOLLS POINT CAFÉ
179 RUSSELL AVENUE, DOLLS POINT NSW 2219



SCALE @ A3 1:300	PROJECT NO. 19.34	STAGE AA	DRAWING NO. A102	REV A
DRAWING TITLE SITE PLAN				

Appendix 3: Tree Assessment Schedule

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
1	<i>Hibiscus rosa-sinensis</i> (Chinese Hibiscus)	200 @ base	3	2	Fair	Good	Crown density 50-75%.	Mature	5-15	Low	Consider for Removal	2.4	1.7	Remove. New building footprint.
2	<i>Schefflera actinophylla</i> (Umbrella Tree)	100 200	6	2	Good	Good	In contact with roof.	Mature	<5	Low	Priority for Removal	2.8	1.8	Remove. New building footprint.
3	<i>Lagerstoemia indica</i> (Crepe Myrtle)	100 100	6	3	Good	Good	In contact with roof.	Mature	<5	Low	Priority for Removal	2.0	1.5	Remove. New building footprint.
4	<i>Ficus rubiginosa</i> (Port Jackson Fig)	200 250	6	5	Good	Fair	Co-dominant inclusion, major. Limited roof clearance.	Early-mature	<5	Low	Priority for Removal	4.0	2.1	Remove. New building footprint.
5	<i>Araucaria heterophylla</i> (Norfolk Island Pine)	750	22	6	Good	Good	Basal wound. Restricted soil volume. Kerb displacement. Possible root growth under road.	Mature	15-40	High	Priority for Retention	9.0	3.0	Retain. Major encroachment, pavement.
6	<i>Ficus rubiginosa</i> (Port Jackson Fig)	1300	20	15	Good	Good	Large (75mmø+) deadwood in low volumes. Co-dominant inclusion, minor. Pruning wound(s), early stages of decay. Fill in root zone. Cocos palm in branch crotch.	Late-mature	15-40	High	Priority for Retention	15.0	3.7	Retain. Major encroachment, pavement.
7	<i>Eucalyptus robusta</i> (Swamp Mahogany)	620	15	8	Fair	Fair	Crown density 75-95%. Small (<25mmø) and medium (25mm-75mmø) deadwood in moderate volumes. Small (<25mmø) and medium (25mm-75mmø) epicormic growth in high volumes. Partially suppressed. Fill in root zone.	Mature	5-15	Moderate	Consider for Retention	7.4	2.8	Remove. Grading.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
8	<i>Eucalyptus robusta</i> (Swamp Mahogany)	510	15	8	Fair	Fair	Crown density 75-95%. Small (<25mmø) and medium (25mm-75mmø) deadwood in moderate volumes. Small (<25mmø) and medium (25mm-75mmø) epicormic growth in high volumes.	Mature	5-15	Moderate	Consider for Retention	6.1	2.5	Remove. Grading.
9	<i>Eucalyptus botryoides</i> (Southern Mahogany)	710	17	15	Good	Good	Small (<25mmø) and medium (25mm-75mmø) deadwood in low volumes.	Mature	15-40	High	Priority for Retention	8.5	2.9	Retain. No works within TPZ.
10	<i>Ficus rubiginosa</i> (Port Jackson Fig)	1100	16	15	Good	Fair	Small (<25mmø), medium (25mm-75mmø) & deadwood in low volumes. Co-dominant inclusion, major. Adventitious roots in bark inclusion. Mechanical damage to exposed surface roots. Basal wound, internal diagnostic testing recommended.	Late-mature	15-40	High	Priority for Retention	13.2	3.5	Retain. Fill & infiltration tank.
11	<i>Pinus pinea</i> (Stone Pine)	450	15	5	Fair	Good	Crown density 75-95%. In crown of fig. Etiolated form. Fill.	Mature	15-40	Low	Consider for Removal	5.4	2.4	Retain. Infiltration tank.

Appendix 4: Plates



Appendix 5: Tree Protection Specification

1.0 Appointment of Project Arborist

A Project Arborist shall be engaged prior the commencement of work on-site and monitor compliance with the protection measures. The Project Arborist shall inspect the tree protection measures and Compliance Certification shall be prepared by the Project Arborist for review by the Principal Certifying Authority prior to the release of the Compliance Certificate.

The Project Arborist shall have a minimum qualification equivalent (using the Australian Qualifications Framework) of NSW TAFE Certificate Level 5 or above in Arboriculture.

1.1 Tree Protection Zone

The trees to be retained shall be protected prior and during construction from activities that may result in an adverse effect on their health or structural condition. The area within the Tree Protection Zone (TPZ) shall exclude the following activities, unless otherwise stated: -

- Modification of existing soil levels, excavations and trenching
- Mechanical removal of vegetation
- Movement of natural rock
- Storage of materials, plant or equipment or erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials, refueling or disposal of waste materials and chemicals
- Lighting fires
- Movement of pedestrian or vehicular traffic
- Temporary or permanent location of services, or the works required for their installation
- Any other activities that may cause damage to the tree

NOTE: If access, encroachment or incursion into the TPZ is deemed essential, prior authorisation is required by the Project Arborist.

1.2 Tree Protection Fencing

TPZ fencing shall be installed at the perimeter of the TPZ (**Appendix 2**). The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works. Fencing may be setback to allow for demolition/construction access and for the installation of pavements only where appropriate ground protection is installed and approved by the Project Arborist.

As a minimum, the Tree Protection Fence shall consist of 1.8m high wire mesh panels supported by concrete feet. Panels shall be fastened together and supported to prevent sideways movement. The tree shall not be damaged during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (3) (**Appendix 6**).

1.3 Signage

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site. The lettering on the sign should comply with *Australian Standard - 1319 (1994) Safety signs for the occupational environment*. The signage shall be installed prior to the commencement of works on-site and shall be maintained in good condition for the duration of the development period.

1.4 Site Management

Materials, waste storage, and temporary services shall not be located within the TPZ.

1.5 Works within the Tree Protection Zones

In some cases works within the TPZ may be authorized by the determining authority. **These works shall be supervised by the Project Arborist.** When undertaking works within the TPZ, care should be taken to avoid damage to the tree's root system, trunks and lower branches.

1.6 Ground Protection

Ground protection shall be installed as required by the Project Arborist. Vehicular and machinery access shall be restricted to areas of existing pavement or from areas of temporary ground protection such as ground mats or steel road plates. Refer to Typical Tree Protection Details (3) (**Appendix 4**).

1.7 Trunk Protection

Trunk protection shall be installed on Trees 3 and 4 by wrapping padding (either carpet underlay or 10mm thick jute geotextile mat) around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (3) (**Appendix 4**). Branch protection shall be installed as deemed necessary by the Project Arborist.

1.8 Structure & Pavement Demolition

Demolition works within TPZ areas should be supervised by the Project Arborist and utilise tree sensitive methods, ensuring demolition machinery/equipment does not contact the trees. Demolition machinery is to be excluded from TPZ areas unless operating from the existing slabs, pavements or areas of ground protection.

Small structures to be demolished within TPZ areas shall be carefully broken up in small sections using a hand-operated pneumatic/electric breaker and waste material removed by hand/ hand tools. Large structures to be demolished within the TPZ shall be undertaken within the footprint of the existing structure ('top down, pull back') and away from the trees.

Existing pavements/slabs to be demolished must avoid disturbance of the underlying soil profile and shall be lifted by working backwards out of the TPZ to ensuring machinery remains on un-demolished sections of pavement/slab at all times. The broken-up slab/pavement shall be removed by hand where tree roots are present below the pavement surface. Removal by machine is not permitted due to the potential for impact damage to exposed roots. Wheelbarrow movements for the removal of the pavement shall remain on areas of existing intact pavement or ground protection only and shall not be positioned on the exposed surfaces and sub-base materials.

Where roots (>25mm $\varnothing$) are found growing beneath underground elements (i.e footings, pipes, rocks etc.) these elements shall be temporarily left in situ and roots retained and protected for assessment by the Project Arborist. Where the Project Arborist deems these elements to be providing support to the trees, they shall be left in-situ. Where pavement/demolition cutting is required within TPZ areas, the depth of the pavement surface shall be established by a series of trial cuts undertaken outside of the TPZ. No over-cutting of the existing pavement surface is permitted.

1.9 Pavement Installation

Installation of the pavements and sub-base within the TPZ shall be supervised by the Project Arborist. The new surfaces and sub-base materials shall be placed at (for areas of existing pavement only) or above grade to minimise excavations and retain roots (unless prior root mapping results show above sensitive construction to be unnecessary).

If roots (>25mm $\varnothing$) are encountered during the installation of the new sub-base and surfaces, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Adjustment of final levels and design shall remain flexible to enable the retention of structural roots (>25mm $\varnothing$) where deemed necessary by the Project Arborist. Compaction of the sub-base shall be consolidated with a pedestrian-operated plate compactor only. If possible, the pavement material shall be permeable.

Where required, new kerbs within the TPZ should be modified to bridge tree roots (>25mm $\varnothing$) unless root pruning is approved and undertaken by the Project Arborist.

1.10 Underground Services

Underground service installation within the TPZ shall be supervised by the Project Arborist.

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using tree sensitive excavation methods (hand/hydrovac/airspade) with the services installed around/below roots (>25mm $\varnothing$, or as determined by the Project Arborist). Excavation using compact machinery fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mm $\varnothing$).

Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1200mm below existing grade. Excavations for starting and receiving pits for boring equipment shall be located outside of the TPZ areas or located to avoid roots (>25mmØ) as deemed necessary by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

1.11 Excavations, Root Protection & Root Pruning

Excavations and root pruning within the TPZ shall be supervised by the Project Arborist. Excavations within the TPZ shall be avoided wherever possible.

Excavations within the TPZ shall be undertaken by hand or using hydro vacuum excavation methods (or similar approved device) to protect tree roots. If there is any delay between excavation works and backfilling, exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute mat. The mat shall be kept in a damp condition at all times.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist. Hand excavation and root pruning shall be undertaken along the excavation line prior to the commencement of mechanical excavation to prevent tearing and shattering damage to the roots from excavation equipment.

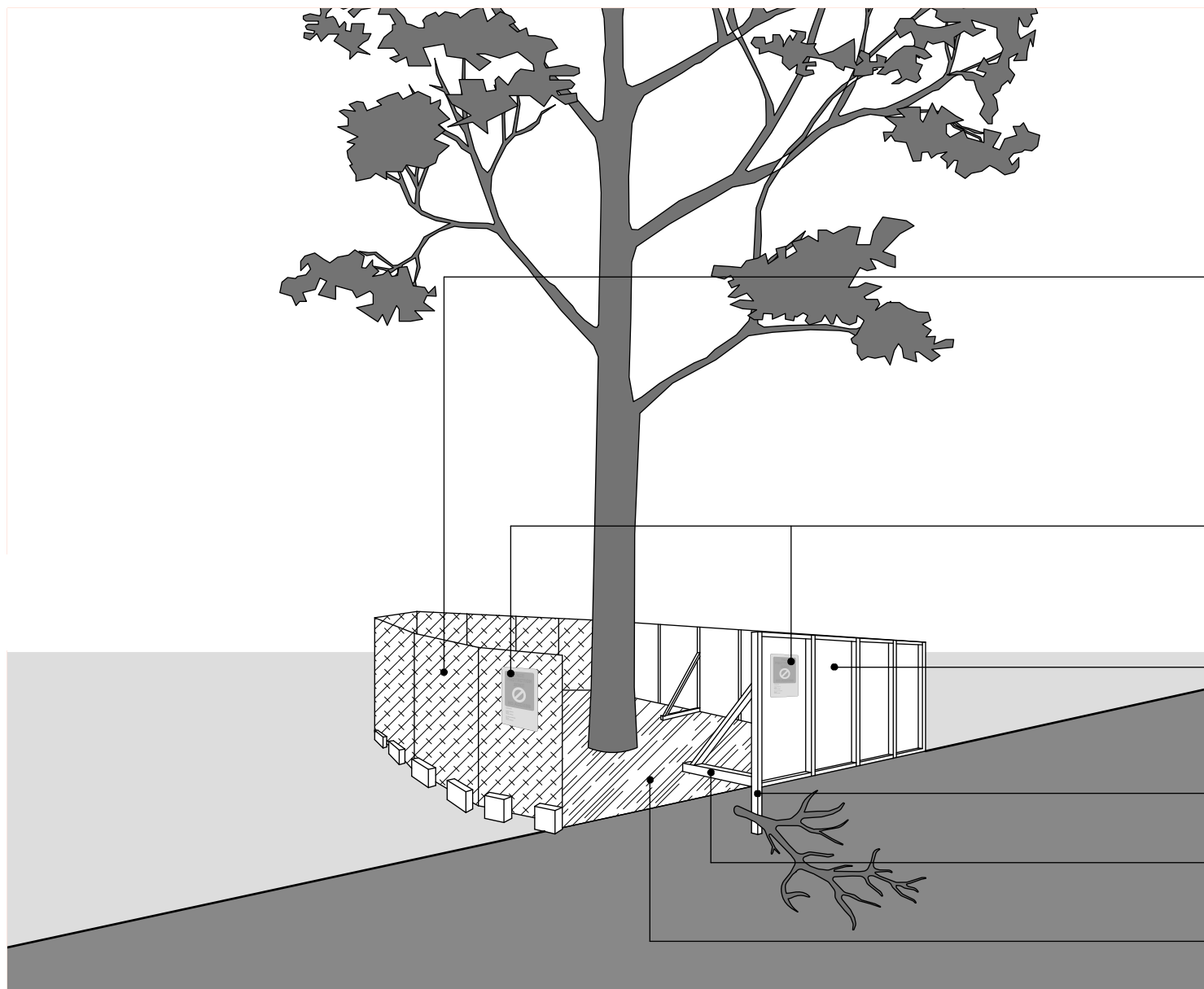
Roots (>25mmØ) shall be pruned by the Project Arborist only. Roots (<25mmØ) may be pruned by the Principal Contractor. Root pruning shall be undertaken with clean, sharp secateurs or a pruning saw to ensure a smooth wound face, free from tears.

Damaged roots shall be pruned behind the damaged tissues with the final cut made to an undamaged part of the root.

1.12 Landscape Planting

Planting of new trees, shrubs and ground covers and the installation of turf within the TPZ areas shall be undertaken using hand tools and roots (>25mmØ) shall be protected. No mechanical cultivation/ripping of soils shall be undertaken within TPZ areas.

Landscape planting shall be completed in the final stage of the development works and tree protection fencing and trunk protection shall remain in place until these works are due to commence.



Note:

No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

Option 1 - Fencing

1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

Option 2 - Fencing

Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

