

# SITEDESIGN +STUDIOS

In Collaboration with



## Arboricultural Impact Assessment For Proposed development at 17 Gilbert Place, Frenchs Forest NSW Metricon Job number 699571

---

Prepared for  
Mrs & Mr Waller

By  
Michael Shaw  
Diploma Horticulture (Arboriculture) AQF5

28 February 2019

# Contents

|  |    |
|--|----|
| 1. Brief .....   | 3  |
| 2. Scope .....   | 3  |
| 3. The proposed development.....   | 3  |
| 4. Site description.....   | 3  |
| 5. Site visit details .....  | 3  |
| 6. Main documents utilised .....   | 4  |
| 7. Methodology .....   | 5  |
| 7.1. All tree assessments were carried out utilising the following methods ..... | 5  |
| 7.2. Measurements and observations were taken using .....                        | 5  |
| 7.3. Data collection and encroachment calculation.....                           | 5  |
| 8. Trees potentially affected by the proposed development .....                  | 6  |
| 9. Tree protection zone information .....  | 8  |
| 10. Activities prohibited within the Tree Protection Zone.....                   | 9  |
| References .....   | 9  |
| Sitedesign Studios contact details.....  | 10 |
| Qualifications and experience (Michael Shaw).....                                | 10 |
| Appendix 1 Tree AZ .....   | 11 |
| Appendix 2 Landscape significance and tree retention determination .....         | 12 |
| Appendix 3 Tree survey data table.....   | 13 |
| Appendix 4 Images.....   | 15 |

## 1. Brief

- 1.1. I am requested by Metricon (on behalf of property owners Mrs & Mr Waller) to identify and assess all trees at or near 17 Gilbert Place, Frenchs Forest, that will be potentially affected by the proposed development, and to provide an arboricultural impact assessment which discusses relevant aspects of the proposed development's impact on existing trees.

## 2. Scope

- 2.1. This report focuses on trees within and close to the subject site that may be affected by the proposed development.
- 2.2. All trees were assessed visually from ground level in accordance with Mattheck and Breloer's Visual Tree Assessment methodology.
- 2.3. No excavation or invasive testing was conducted as a part of the visual tree assessment.

## 3. The proposed development

- 3.1. The proposed development is for the demolition of an existing residential structure and pool and the construction of a replacement residential structure.
- 3.2. The proposed development is located within the residential suburb of Frenchs Forest in the Northern Beaches (Warringah) local government area.

Several existing trees at or near the site will be affected if the proposed development occurs as planned.

## 4. Site description

- 4.1. The subject site (17 Gilbert Pl, Frenchs Forest) is a residential property.
- 4.2. Trees on the site are located mainly on the periphery and in neighbouring yards and consist of a mixture of native and non-native, planted and self-sown mature and immature trees.
- 4.3. The subject property is located within an NSW Rural Fire Service 10/50 clearing entitlement area.

## 5. Site visit details

- 5.1. One unaccompanied site visit was made by the author on 25 February 2019 for the purposes of data collection and tree assessment for this document.
- 5.2. During this visit, tree location and other data was collected and assessments undertaken for the subject trees in relation to the proposed development.
- 5.3. The weather at the time of the site visit was fine and the effect of wind was negligible.

Site location (Google maps)



## 6. Main documents utilised

6.1 The following documents were provided for the author's information by Vince Caccavo from Site Design Studios,

- Job number 699571 Design drawings (10 sheets), by Metricon, Revision B dated 11/02/2019
- Site survey by Intrax, dated 11/12/2018

Other documents and information may have been provided however, the main ones used to assist the author with this assessment are listed above.

These documents were provided to the author in electronic format via email.

## 7. Methodology

### 7.1. All tree assessments were carried out utilising the following methods

- Visual Tree Assessment Method (VTA) (Mattheck and Breloer,)
- Tree AZ (Barrell)
- Significance and retention value was assessed using STARS (IACA 2010)
- No aerial inspections, root excavations or soil sampling were conducted as part of this assessment
- Tree identification was based on visual inspection of features available at the time of inspection. A complete taxonomical process of identification was not conducted; therefore, the identification of trees in this document represents the probable identity of the species.

### 7.2. Measurements and observations were taken using

- Positioning and data recording conducted using an Ashtech Mobile Mapper 10 GPS PDA device.
- Binoculars and naked eye
- Diameter at breast height (DBH) was measured using a diameter tape or estimated at approx. 1.4 metres above ground level.
- Tree height and canopy spread was estimated

### 7.3. Data collection and encroachment calculation

Where appropriate, all assessed and recorded trees were physically tagged with an aluminium tag and nail inscribed with the number corresponding on the tree survey data table at Appendix 3.

All assessed and recorded trees have been identified with a number which corresponds with the number on the tree survey data table at Appendix 3 and its location at the subject site may be viewed on the aerial image at Appendix 4 Images.

The author attempted to locate the trees as accurately as possible by using Google Earth in conjunction with plan drawings and provided professional survey images, which were overlaid using the tools available in the Google Earth application. These images were placed manually, as accurately as possible and cross referenced with the location point data collected by the author and displayed on the Google Earth interface screen.

Measurements to the nearest TPZ/SRZ disturbance was measured using tools available in the Google Earth application and encroachment percentages were calculated using the *"Proofdocs" TPZ Incursion Calculator* which is available online.

Some existing trees on the subject property which may be affected were not surveyed, therefore these trees were placed as accurately as possible in the google earth application based on measurements and compass bearings taken on site.

For these trees, measurements and calculations relating to location, tree diameter and encroachment are based on the estimated location.

Accuracy of location and calculations relating to these trees cannot be guaranteed.

## 8. Trees potentially affected by the proposed development

### Discussion

- 8.1. **Tree 1** is a mature, Council owned Jacaranda which is located on the nature strip immediately to the west of the subject property. No works are planned to occur within the Tree Protection Zone (TPZ) of this tree and hence, no adverse effects are expected. This tree may be protected and retained and a TPZ which complies with Section 4 of AS4970-2009 should be established and certified before demolition or construction commences and shall remain in place until completion of the project. The dimensions of the TPZ shall be to the dimensions specified at Appendix 3; Tree Survey Data Table and indicated at Appendix 4 Indicative Placement of TPZ Fencing
- 8.2. **Tree 2** is a semi mature Japanese maple which is located on the subject property near the western end of the driveway. No works are planned to occur within the Tree Protection Zone (TPZ) of this tree and hence, no adverse effects are expected. This tree may be protected and retained and a TPZ which complies with Section 4 of AS4970-2009 should be established and certified before demolition or construction commences and shall remain in place until completion of the project. The dimensions of the TPZ shall be to the dimensions specified at Appendix 3; *Tree Survey Data Table* and indicated at Appendix 4 *Indicative Placement of TPZ Fencing*
- 8.3. **Tree 3** is a semi mature Camellia which is located in an informal garden area at the western end of the subject property. No works are planned to occur within the Tree Protection Zone (TPZ) of this tree and hence, no adverse effects are expected. This tree may be protected and retained and a TPZ which complies with Section 4 of AS4970-2009 should be established and certified before demolition or construction commences and shall remain in place until completion of the project. The dimensions of the TPZ shall be to the dimensions specified at Appendix 3; Tree Survey Data Table and indicated at Appendix 4 Indicative Placement of TPZ Fencing
- 8.4. **Tree 4** is a small mature Camellia which is exempt from protection due to its height being 5m or less. This tree is proposed to be removed as a part of the development.

- 8.5. **Tree 4A, 4B, 5 and 6** are, in order, a semi mature bangalow palm, a semi mature camellia, a mature firewheel tree and a mature cheese tree. All are located on the subject property and all are exempt from protection due to either their species being listed as exempt from protection, their height or their distance from the wall of the existing structure being under the 2 metres applicable to the Warringah DCP or under 10m applicable to the RFS 10/50 legislation. All of these trees are proposed to be removed to facilitate the proposed development.
- 8.6. **Tree 7** is a mature Jacaranda located at the eastern end of the subject property. This tree is exempt from protection due to both its unprotected species status and also under the 10/50 legislation as it is closer than 10m from the wall of the existing dwelling. It is the owner's intention to retain this tree although it may be removed without consent if desired. This tree may be protected and retained if protected by a TPZ which complies with Section 4 of AS4970-2009. A TPZ is to be established and certified before demolition or construction commences and shall remain in place until completion of the project. The dimensions of the TPZ shall be to the dimensions specified at Appendix 3; Tree Survey Data Table and placement shall be as indicated at Appendix 4 Images. Any works or activity proposed to occur within the TPZ other than works evident on the plans are to be conducted sensitively and in consultation with /under direct supervision by an AQF5 consulting arborist. No activity as specified at Section 10 of the report is to occur within the TPZ.

**All recommended tree protection measures must be installed before any phase of development related activity occurs.**

**Tree protection measures must be assessed and certified in writing by an AQF5 consulting arborist with a sufficient time allowance to make physical adjustments to protection measures in order to ensure efficacy of tree protection before any works commence.**

**Any soil disturbance in the form of trenching or fill placement or tunnelling for the installation of infrastructure including but not limited to pipes for communications, electrical, drainage, water or sewer must be considered in relation to retained trees and advice shall be sought from an AQF5 consulting arborist if any infrastructure as described above is proposed to be installed within the TPZ radius for any tree to be retained.**

**All other trees not listed specifically here will not be affected by the proposed development if protected in accordance with AS4970-2009.**



## 9. Tree protection zone information

**TPZ-** (Tree protection zone) the tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is 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.

**SRZ-** (Structural root zone) The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

Any trees recorded within the scope of this assessment that are to be retained shall be protected by a physical TPZ exclusion zone to the radius from the trunk calculated in accordance with section 4 of AS 4970-2009 *Protection of Trees on Development Sites* (Provided at Appendix 3) Tree survey data table) and in consultation with the project arborist.

It is strongly recommended that a copy of this standard is obtained by the project manager as a reference before any work commences on site.

Tree protection zones shall be established in accordance with Section 4 of AS 4970-2009 before commencement of any other demolition or construction work. This will include trunk, branch and ground protection if considered necessary by the project arborist and also placement of appropriate and compliant TPZ signage to the physical TPZ fence.

The TPZ shall remain until the completion of all demolition and construction related activity.

Any pruning and tree works recommended are to be conducted by a certificate 3 (minimum) qualified and experienced arborist and work is to be conducted according to AS4373: *Pruning of Amenity Trees*.

Consent to prune trees may be required from the tree owners and Council.

Establishment and erection of tree protection zone and signage should be inspected and certified by the project arborist to ensure compliance with the standard.

**Unless approved by the project arborist beforehand, no activity as detailed in section 4.2 of AS 4970-2009 Protection Of Trees On Development Sites and Section 10 of this document is to occur within the TPZ.**



## 10. Activities prohibited within the Tree Protection Zone

- Modification of existing soil levels
- Excavations and trenching
- Cultivation of the soil
- Mechanical removal of vegetation
- Soil disturbance
- Movement of natural rock
- Storage of materials, plant or equipment
- Erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials
- Disposal of waste materials and chemicals
- Lighting fires
- Refuelling
- 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.

## References

- Warringah DCP Part E1 Preservation of Trees or Bushland Vegetation
- Standards Australia (2009) "AS4970: Protection of trees on development sites"
- Standards Australia (2007) "AS4373: Pruning of Amenity Trees"
- [http://www.treetec.net.au/TPZ\\_SRZ\\_DBH\\_calculator.php](http://www.treetec.net.au/TPZ_SRZ_DBH_calculator.php)
- [http://www.proofdocs.com/arborist\\_report\\_template/tpz\\_incursion\\_calculator/](http://www.proofdocs.com/arborist_report_template/tpz_incursion_calculator/)
- Mattheck, C., Breloer, H (1994) The Body Language of Trees- A handbook for failure analysis . HMSO, London.

## Sitedesign Studios contact details

For all matters regarding Trees please contact;

Vince Caccavo (Project Manager / Senior Landscape Architect)

Telephone 0421 575 888

Email [Vince@sdstudios.com.au](mailto:Vince@sdstudios.com.au)

Note: Vince manages Landscape Design & Arboriculture Services for all Metricon Projects. Please contact Vince for any questions regarding this report.

## Qualifications and experience (Michael Shaw)

Practising consulting arborist from 2009- present

AQF level 5 Diploma of Horticulture (Arboriculture)

Licensed QTRA practitioner (quantitative tree risk assessment)

Senior Tree Risk Assessment Officer (Central Coast Council) Sep 2015- Dec 2017

ISA conference Canberra 2017

Tree Assessment And Vegetation Management Officer Port Stephens Council from September 2009 - Dec 2011

ISA Tree risk assessment qualification (TRAQ) October 2013

VTA (visual tree assessment) workshop March 2011 and March 2013

ISA 87th annual Conference delegate, Parramatta NSW July 2011.

Matheny & Clark "Arboriculture" Seminar. Melbourne November 2009

Specialising in arboriculture and tree assessment from Feb 2008

Certificate 3 Horticulture (Parks and gardens)

Working in horticultural industry from April 2004

## Appendix 1 Tree AZ

### Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

|    |   |
|----|---|
| Z1 | Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc   |
| Z2 | Too close to a building, i.e. exempt from legal protection because of proximity, etc  |
| Z3 | Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc |

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

|    |  |
|----|--|
| Z4 | Dead, dying, diseased or declining   |
| Z5 | Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc |
| Z6 | Instability, i.e. poor anchorage, increased exposure, etc  |

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

|    |  |
|----|--|
| Z7 | Excessive, severe and intolerable inconvenience to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. dominance, debris, interference, etc                          |
| Z8 | Excessive, severe and intolerable damage to property to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. severe structural damage to surfacing and buildings, etc |

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

|     |  |
|-----|--|
| Z9  | Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc |
| Z10 | Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc  |
| Z11 | Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc  |
| Z12 | Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc   |

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorisation hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

## A

### Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

|    |  |
|----|--|
| A1 | No significant defects and could be retained with minimal remedial care  |
| A2 | Minor defects that could be addressed by remedial care and/or work to adjacent trees   |
| A3 | Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years |
| A4 | Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)   |

NOTE: Category A1 trees that are already large and exceptional or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

## Appendix 2 Landscape significance and tree retention determination

### Tree Significance - Assessment Criteria



#### 1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

#### 2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

#### 3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

#### Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

#### Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.

|                              |                             | Significance  |   |  |   |  |
|------------------------------|-----------------------------|---|---|--|---|--|
|                              |                             | 1. High<br>Significance in<br>Landscape   | 2. Medium<br>Significance in<br>Landscape | 3. Low<br>Significance in<br>Landscape | Environmental<br>Pest / Noxious<br>Weed Species | Hazardous /<br>Irreversible<br>Decline |
| Estimated Life Expectancy    | 1. Long<br>>40 years        |   |   |  |   |  |
|                              | 2. Medium<br>15-40<br>Years |   |   |  |   |  |
|                              | 3. Short<br><1-15<br>Years  |   |   |  |   |  |
|                              | Dead                        |   |   |  |   |  |
| Legend for Matrix Assessment |                             |   |   |  |   |  |
|                              |                             | Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone. |   |  |   |  |
|                              |                             | Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.  |   |  |   |  |
|                              |                             | Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.  |   |  |   |  |
|                              |                             | Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.  |   |  |   |  |





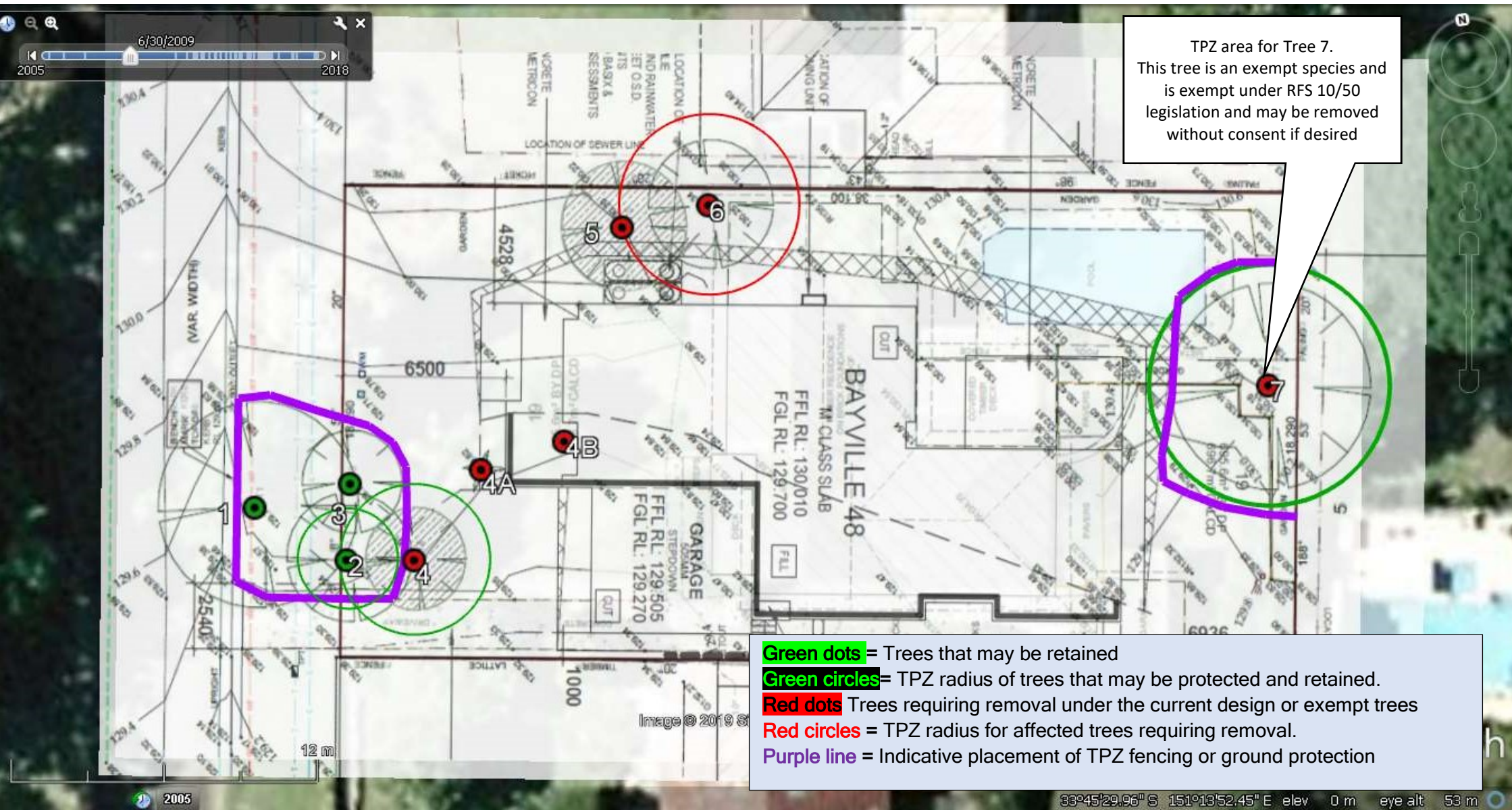
### Appendix 3 Tree survey data table

Significantly affected trees requiring removal or trees proposed for removal in red text

| Tree# | Botanical Name                        | Common Name        | DBH            | TPZ/SRZ | Height x radial canopy spread | Age | Estimated life expectancy | Significance | Retention value | TreeAZ | Overall Vigour/health. % live canopy | Comments   |
|-------|---------------------------------------|--------------------|----------------|---------|-------------------------------|-----|---------------------------|--------------|-----------------|--------|--------------------------------------|--|
| 1     | <i>Jacaranda mimosifolia</i>          | Jacaranda          | 35             | 4.2/2.3 | 4x8                           | SM  | Medium 15-40 years        | Medium       | Low             | A1     | 80                                   | Council Street tree. Beneath powerlines                                |
| 2     | <i>Acer palmatum</i>                  | Japanese maple     | 15             | 2.0/2.0 | 3x4                           | SM  | Medium 15-40 years        | Medium       | Low             | Z1     | 80                                   | Protect and retain   |
| 3     | <i>Camellia japonica</i>              | Camellia           | 20             | 2.4/2.0 | 4x4                           | SM  | Medium 15-40 years        | Medium       | Low             | A1     | 80                                   | Protect and retain   |
| 4     | <i>Camellia japonica</i>              | Camellia           | 15 10<br>10 10 | 3.0/2.0 | 4x4                           | M   | Medium 15-40 years        | Medium       | Low             | Z1     | 80                                   | Exempt height. Removal proposed  |
| 4A    | <i>Archontophoenix cunninghamiana</i> | Bangalow palm      | 20 20          | 5x2     | 6x4                           | SM  | Medium 15-40 years        | Medium       | Low             | Z1     | 80                                   | Exempt (RFS 10/50) less than 10m from existing house                   |
| 4B    | <i>Camellia sasanqua</i>              | Camellia           | 10 10<br>10    |         | 4x4                           | SM  | Medium 15-40 years        | Medium       | Low             | Z1     | 80                                   | Exempt (RFS 10/50) less than 10m from existing house                   |
| 5     | <i>Stenocarpus sinuatus</i>           | QLD firewheel tree | 40             | 4.8/2.4 | 10x8                          | M   | Medium 15-40 years        | Medium       | Low             | Z4     | 70                                   | Exempt (RFS 10/50) 4.3m from existing house Declining dominant from 3m |
| 6     | <i>Glochidion ferdinandi</i>          | Cheese tree        | 30             | 3.6/2.1 | 8x8                           | M   | Medium 15-40 years        | Medium       | Low             | Z1     | 80                                   | Exempt <1m from wall of existing house                                 |

| Tree# | Botanical Name               | Common Name | DBH   | TPZ/SRZ | Height x radial canopy spread | Age | Estimated life expectancy | Significance | Retention value | TreeAZ | Overall Vigour/health. % live canopy | Comments  |
|-------|------------------------------|-------------|-------|---------|-------------------------------|-----|---------------------------|--------------|-----------------|--------|--------------------------------------|---|
| 7     | <i>Jacaranda mimosifolia</i> | Jacaranda   | 30 30 | 4.8/2.4 | 6x8                           | M   | Medium 15-40 years        | Medium       | Low             | Z10    | 80                                   | Exempt (RFS 10/50) 8.8m from wall of house. Exempt species also. Phototropism towards west due to suppression by neighbouring Jacaranda. Protect and retain |

## Appendix 4 Images (Google Earth Image with plans and trees overlaid)





This page intentionally left blank