



TREE SYSTEMS • TREE CONSULTANCY MAINTENANCE SYSTEMS

Arboricultural Impact Assessment



St Aloysius' College – Middle School Upper Pitt Street Milsons Point Sydney, NSW

11 March

Ref: C91109

ASSESSMENT & REPORT COMMISSIONED BY:

Peter Brogan Managing Director Bloompark Consulting Pty Ltd Suite 2.04/41 McLaren Street North Sydney, NSW 2060



ASSESSMENT & REPORT PREPARED BY:

Andrew Clark AQF 5 Consulting Arborist



11 March 2018

Peter Brogan Managing Director Bloompark Consulting Pty Ltd Suite 2.04/41 McLaren Street North Sydney, NSW 2060

RE: Arboricultural Impact Assessment for five (5) trees located in the vicinity of a proposed garden upgrade at St Aloysius' College – Middle School, Milsons Point

Dear Peter,

We are pleased to provide you with the following Arboricultural Impact Assessment for five (5) site trees located within or adjacent to the St Aloysius' College – Middle School site.

Complete use of this report is authorised under the conditions limiting its use as stated in Appendix A Item 7 of "Arboricultural Reporting Assumptions and Limiting Conditions".

Should you have any queries relating to this report, its recommendations, or the options considered please do not hesitate to contact us on 1300 272 671.

Regards,

andy Clork.

Andy Clark Consulting Arborist Dip. Hort. (Arb.), AQF Level 5



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1 Executive Summary

- 1.1.1 The following Arboricultural Impact Assessment (Report) relates to five (5) trees located within the grounds of St Aloysius' College Middle School. The client identified the subject site as possessing trees that may be impacted by a proposed development.
- 1.1.2 In part, the project scope was to nominate subject trees that can be retained, or require removal to facilitate this development, as well as identify and reduce potential conflicts between subject trees and site development. Accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction have been provided.
- 1.1.3 An arborist inspection of the subject trees was undertaken on 26 February 2018 by Tom Axford of ArborSafe Australia Pty Ltd where tree data was collected.
- 1.1.4 Tree retention values have been determined based upon the assessment of the trees' health, structure, dimensions, age class, life expectancy, location and environmental amenity/significance in accordance with *British Standard BS5837-2012: Trees in relation to design, demolition and construction recommendations.* The Tree Protection Zone (TPZ) method has been derived from the *Australian Standard AS4970–2009: Protection of Trees on Development Sites.* The TPZ is defined as a specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown.
- 1.1.5 One (1) tree was of a Category B retention value. Trees in this category are typically of medium size, have good to fair health and good to fair structure, and a Useful Life Expectancy (ULE) of more than 15 years. Moderate Retention Value trees made moderate amenity contributions to the landscape and made low to moderate environmental contributions. The Category B retention value tree was numbered 60 and had a Moderate Retention Value. The tree was located on the adjacent property but was close enough to the boundary that the proposed development would be within its estimated TPZ. Tree 60 was proposed to be retained with specific protection measures during the development
- 1.1.6 The remaining four (4) trees highlighted in the report are exempt under the North Sydney Development Control Plan (DCP) due to their size. These trees were allocated a Category C retention value. Trees in this category were typically of small-medium size, of low significance in the landscape, may have poor health or structure, are easily replaceable and do not warrant design consideration. The trees are numbered 1, 2, 3 and 61 and are being removed as part of the proposed development.
- 1.1.7 Information and details on each tree subject to this report can be found in Appendix C Tree Assessment Data.



2 Introduction

- 2.1.1 ArborSafe Australia Pty Ltd was engaged by Peter Brogan of Bloompark Consulting on behalf of St Aloysius' College (the client) to complete an Arboricultural Impact Assessment (report) on five (5) trees located within or adjacent to the St Aloysius' College – Middle School.
- 2.1.2 The report has been requested as part of a State Significant Development Application (SSDA) that involves the demolition of an existing garden bed, located at the eastern end of the central quadrangle, and construction of a new landscaped open area in a similar location.
- 2.1.3 The report was intended to provide information on site trees and how they may be impacted upon by the proposed development. Report findings and recommendations provided are based upon guidance provided within the *Australian Standard AS4970–2009 Protection of Trees on Development Sites*.
- 2.1.4 Observations and recommendations provided within this report are based upon information provided by the client and an arborist site visit.

3 Scope

- 3.1.1 Carry out a visual examination of the nominated trees located in the vicinity of the proposed garden upgrade, including any impacted trees located within the gardens of neighbouring properties.
- 3.1.2 Inspect the nominated trees and their growing environment in the context of the proposed development.
- 3.1.3 Provide an objective appraisal of the subject trees in relation to their species, estimated age, health, structural condition and viability within the landscape.
- 3.1.4 Based on the findings of this investigation, provide independent recommendations on the retention value of the trees.
- 3.1.5 Nominate subject trees that can be retained or require removal to facilitate this development.
- 3.1.6 Review the proposed development in the context of North Sydney Council DCP 2013, specifically Section 16 Tree & Vegetation Management.
- 3.1.7 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.
- 3.1.8 Provide information on restricted activities within the area nominated for tree protection, as well as suitable construction methods to be adopted during construction.



4 Methodology

4.1 Data Collection

- 4.1.1 Tom Axford of ArborSafe Australia Pty Ltd carried out a site inspection of the subject trees on 26 February 2018.
- 4.1.2 Trees that are the subject of this report were identified during discussions with the client via email correspondence from Peter Brogan Managing Director Bloompark Consulting Pty Ltd on 6 February 2018 and an onsite meeting with client on 26 February 2018.
- 4.1.3 The subject trees within the school grounds were inspected from ground level. Tree 60 located within the neighbouring property was viewed from within the school grounds only. No foliage or soil samples were taken. No aerial or internal investigations were undertaken.
- 4.1.4 Tree height and canopy width were estimated and have been provided to the nearest whole metre. Trunk Diameter at Breast Height (DBH) was measured with a diameter tape and provided to the nearest centimetre.
- 4.1.5 Data collected on site was analysed by Andrew Clark, collated into report format, and relevant recommendations were formulated.

4.2 Tree Protection Zones

- 4.2.1 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) methods have been derived from the Australian Standard AS4970–2009: Protection of Trees on Development Sites.
- 4.2.2 The TPZ is defined as a specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown. It is the area required to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. The radius of the TPZ is calculated by multiplying its DBH by 12. TPZ radius = DBH × 12. (Note "Breast Height" is nominally measured as 1.4m from ground level).
- 4.2.3 The 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 = (D x 50)^{0.42} x 0.64
- 4.2.4 Retention values are determined based upon the *British Standard BS5837–2012 for Trees in Relation to Design, Demolition and Construction.* This standard categorises tree retention value based upon assessment of the tree's quality (health and structure) and life expectancy. Other criteria such as its physical dimensions, age class, location and its Amenity, Heritage and Environmental significance are also considered. A breakdown of attributes required for each category can be obtained from Appendix B Explanation of Tree Assessment Terms.

4.3 Images and Site Photographs

4.3.1 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. Other images used within this report have been sourced from ArborSite or via the internet. The source of all images has been referenced accordingly.



5 **Observations**

5.1 Aerial Images



Figure 1: Aerial image showing St Aloysius' College – Middle School in the context of Milsons Point. The red line delineates the College boundary. The yellow arrow sits astride the central quadrangle and points to the garden bed area which is the subject of the proposed development. Source: Six Maps 2018

5.2 Site Details

- 5.2.1 The site is located within the North Sydney Council Local Government Area (LGA).
- 5.2.2 The proposed development site was located within the grounds of St Aloysius' College Middle School. Specifically, the area designated in this report is the raised brick garden bed located along the eastern edge of the Schools' central quadrangle.
- 5.2.3 The quadrangle is a flat concrete area bordered on the North, West and South by existing school buildings. To the East is a sandstone wall, built on what is assumed to be solid sandstone bedrock, which sits astride the property boundary between the school and the adjacent property to the east.
- 5.2.4 A photo of the raised brick garden bed, the sandstone boundary wall and the foundation bedrock are all visible in Figure 2. Note the small drainage hole situated at the base of the stone boundary wall, which is assumed to be replicated at intervals along the interface between the bedrock and stone wall. The exact height and disposition of the interface is unknown as the soil within the raised brick garden bed has been raised above the interface for most of the length of the garden bed. The construction of the stone wall does not appear recent and shows no signs of cracking, misalignment or movement. Such signs would indicate the interface and foundation, between the bedrock and wall, has not been compromised or degraded by root infiltration.
- 5.2.5 The school site has a southerly sloping aspect, with Upper Pitt Street located at the top northern side of the school and Kirribilli Avenue at the bottom of the school. The central quadrangle has stairs situated in the northeastern corner joining the area to Upper Pitt Street.



- 5.2.6 It has been assumed that the site was excavated into bedrock, when originally developed and built upon, to form a level area for the school construction. This assumption is based upon the visible sandstone bedrock which forms the foundation of the eastern stone boundary wall.
- 5.2.7 Usage surrounding the central quadrangle was a mixture of school grounds, residential properties and school buildings. Residential properties bordered the site to the East.



Figure 2: View of the sandstone bedrock, stone boundary wall and the raised brick garden bed. The red arrow highlights what is assumed to be a drainage hole under the wall. Source: Tom Axford 2018

5.3 Heritage Status

- 5.3.1 St Aloysius' College Middle School did not have any local or State heritage listing when searches on the websites of the North Sydney Council and NSW Office of Environment & Heritage were undertaken. Consequently, the subject trees do not have any known legislative acknowledgement or protection.
- 5.3.2 Buildings within the St Aloysius' College Junior School property have local heritage listing but are at a different address and site and should not be confused with the subject site detailed in this report.



5.4 Proposed Construction

- 5.4.1 Plans of the existing site and the proposed development were provided to ArborSafe on 19 February 2018 and included:
 - Proposed Landscape Plan, Issue E, Arcadia Architects, Feb 2018



Figure 2: Excerpt from Arcadia Landscape Plan, St Aloysius' College, Feb 2018. The yellow arrow points to the stone boundary wall. The red arrow identifies the category tree numbered 60 and located on the adjacent property. Source: Bloompark Consulting 2018

- 5.4.2 The proposed development has been reviewed and in summary consists of the demolition of an existing raised garden bed and its reconstruction with a new landscaped garden bed area, incorporating seating, vertical gardens, planter beds and a water feature located across a similar footprint.
- 5.4.3 No proposed underground service locations have been reviewed in the preparation of this report.

5.5 Site Trees

- 5.5.1 Five (5) trees were inspected and are the subject of this report. Complete attributes for each tree can be found in Appendix C Tree Assessment Data.
- 5.5.2 The project scope has been used in conjunction with the North Sydney Council to identify subject trees within, or adjacent, the site that require inclusion into the report.
- 5.5.3 Pursuant with the North Sydney Council DCP, the one (1) site tree (Tree 60) prescribed as a relevant tree (above 10m in height and/or with a crown spread of greater than 10m or have a DBH greater than 1.5m measured at 1m above ground) has been included within this report. The one (1) prescribed tree (Tree 60) was located within the neighbouring property, to the east of the central quadrangle.



- 5.5.4 Four (4) smaller trees (Trees 1, 2, 3 and 61) growing in the raised garden bed located within the grounds of St Aloysius' College Middle School quadrangle have been included within the report although they are technically exempt under the North Sydney DCP based on their current size and/or potential future size and contribution to local amenity. They have been included as a record of what was existing within the area of proposed development. The trees will be removed as part of the development.
- 5.5.5 The subject trees form part of the existing ArborSite Tree Management System for the entire site and as such have been tagged, positioned on aerial imagery and visually assessed annually since 2017.
- 5.5.6 The subject trees have been numbered in line with the existing ArborSite tree numbering system. Trees within St Aloysius' College Middle School can be identified on site using tree tags which are typically located at approximately 2.0m from ground level on the south side of the trunk. The single tree located on the neighbouring property has not been tagged.



Figure 3: Sitemap showing subject trees. Note that icon colour indicates trees current risk rating (not Retention Value). Tree attributes are to be obtained from Appendix C – Tree Assessment Data. Source: ArborSite 2018

6 Tree Retention Values

6.1 Determining Tree Retention Values

- 6.1.1 Tree Retention Value has been determined based on a combination of tree attributes. Tree retention value is categorised as per the *British Standard BS5837–2012 for Trees in Relation to Design, Demolition and Construction*. Attributes considered when determining the retention value include tree health, structure and form, life expectancy, suitability of the tree in the context of local landscape. Arboricultural, Cultural, Environmental and Heritage significance are all also considered within the subcategories identified.
- 6.1.2 Collectively tree attributes are reviewed and used to categorise tree value in a development context. Additional information explaining Tree Retention Value can be found in Appendix B – Explanation of Tree Assessment Terms.



6.2 Category A Trees (High Retention Value)

6.2.1 No trees were determined to be Category A Trees. Typically trees in this category are of high quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in less than 20 years. The tree may make significant amenity contributions to the landscape and may make high environmental contributions. In some cases, trees within this category may not meet the above criteria, however possess significant heritage or ecological value. Trees of this retention value warrant design consideration and amendment to ensure their viable retention.

6.3 Category B Trees (Moderate Retention Value)

- 6.3.1 One (1) tree was identified as a Category B tree and to have a Moderate Retention Value. Typically trees in this category are of moderate quality with an estimated remaining life expectancy of 15–25 years and prominence of size dimensions that cannot be readily replaced within 10 years. They may make moderate amenity contributions to the landscape and make low/moderate environmental contributions. Trees with this retention value warrant minor design consideration in an attempt to allow for their retention.
- 6.3.2 The Category B tree was numbered 60 within the ArborSite software.



Figure 5: Image is showing Tree 60 Liquidambar. Red line indicates canopy outline. Source: Tom Axford, 2018

- 6.3.3 Tree 60 is a *Liquidambar styraciflua* (Liquidambar). The tree is of moderate size and was considered to be in good health with fair structure.
- 6.3.4 The tree is situated in the adjacent property, but the proposed development would be within its calculated TPZ and also has lateral branches which extend over the school property line. It provides amenity value and shading to the area which will be subject to the proposed landscape upgrade.



6.3.5 The TPZ for Tree 60 is 7.8m measured at a radial distance from the centre trunk taken from the estimated DBH. The TPZ of Tree 60 will be expanded on further in the discussion section (7.1.1) of this report.

6.4 Category C Trees (Low Retention Value)

6.4.1 The four (4) trees identified as being Category C Trees are exempt under the existing North Sydney Council DCP based on their height, age and/or future potential. Generally, trees in this category are of low quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable, may have poor health and/or structure, or are of undesirable species and do not warrant design consideration.



6.4.2 Category C trees are: Trees 1, 2, 3 and 61.

Figure 6: Image is showing the location of the exempt trees listed as category C trees. Complete tree attributes are to be obtained from Appendix C – Tree Assessment Data. Source: Tom Axford 2018

- 6.4.3 The trees are a mixed planting including *Pittosporum undulatum* (Sweet Pittosporum), *x Cupressocyparis leylandii* (Leyland Cypress), *Murraya paniculata* (Orange Jessamine). The trees are growing in the garden bed which is subject to the development proposal.
- 6.4.4 The trees provide minimal additional screening between the College and neighbouring residential properties over and above the existing stone wall and are of an age, species or size which are easily replaceable in a short space of time.

6.5 Category U Trees (Unsuitable for Retention)

6.5.1 No trees were found to be in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than five years. These trees may be dead and/or of a species recognised as a weed that resulted in them being unretainable. These trees should be removed irrespective of any future development on the site.



7 Discussion

7.1 Major and Minor TPZ Encroachment

- 7.1.1 As per the *Australian Standard* AS 4970–2009 *Protection of Trees on Development Sites* a major encroachment into the TPZ of any tree is considered to occur when it is beyond 10% of the total TPZ area. A minor encroachment is determined as being less than 10% of the total TPZ area.
- 7.1.2 Using the above criteria, the proposed development would constitute a major encroachment into the TPZ of Tree 60, identified as the only tree on site which is relevant to the definition of a prescribed tree within the North Sydney DCP as outlined in 5.5.3 of this report. Trees generally require removal if they are located within the development footprint or have major encroachment into their TPZs.
- 7.1.3 The general criteria for TPZ calculation, in the instance of Tree 60, should be considered void as the solid stone bedrock and the rock boundary wall appears to have formed an effective barrier for any significant structural roots. This assumption, in the absence of any root mapping or root friendly exploratory excavation, is based on the size, weight, components, age, construction and general appearance of excellent stability of the stone boundary wall.
- 7.1.4 Some root growth from Tree 60 into the raised garden bed may have occurred through various drainage holes along the length of the garden bed. Based on the size of the drainage hole identified in Figure 2, any root encroachment would be considered non-structural roots limited to water and nutrient absorption rather than for stability. Care when excavating the garden bed will be required to substantiate this assumption.

7.2 Impact of Proposed Development

- 7.2.1 Review of the proposed design has been undertaken in the context of tree retention and removal across the site. The proposal includes removal of the raised garden bed and all smaller Category C trees numbered 1, 2, 3 and 61 and other minor vegetation growing within it.
- 7.2.2 The full encroachment, if any of tree 60 cannot be determined until verification of roots with the St Aloysius' College Middle School has occurred. At this stage the current proposed design cannot be termed a major or minor encroachment.

7.3 Proposed Pruning

7.3.1 Tree 60 may require some targeted reduction pruning of several lower lateral branches during the installation of the vertical garden and/or the new landscape plantings. It is anticipated that minor pruning only will be required of less than 10% of the trees total canopy cover.

7.4 Excavation within the TPZ

7.4.1 In the absence of any root mapping or exploratory excavation within the raised brick garden bed, it is advised that a consulting Arborist (Cert 5) is on site during the existing garden bed demolition to guide the excavation and root pruning if the assumption of minimal root incursion from Tree 60 is found to be incorrect. Root sensitive excavation methods, such as manual excavation, may be required as the excavation gets closer to the stone wall.

8 Recommendations

8.1 Tree Removal

8.1.1 Four (4) trees would require removal to facilitate this development. These are the North Sydney Council DCP exempt, Category C trees numbered 1, 2, 3 and 61.



8.2 Tree Retention

- 8.2.1 Tree 60 was recommended for retention and requires specific protection measures during construction to ensure it remains viable following the completion of works.
- 8.2.2 Excavation adjacent Tree 60 is to be carried out only under arborist supervision. It was recommended that the proposed excavation commence at the outer extent of the TPZ and move inwards to minimise existing root damage if any significant incursion through the stone boundary wall was discovered.
- 8.2.3 Roots discovered are to be treated with care and minor roots (<40mm diameter) pruned with a sharp, clean handsaw or secateurs.
- 8.2.4 All significant roots (>40mm diameter) are to be recorded, photographed and reported by the project arborist during supervision.
- 8.2.5 If significant roots (>40mm diameter) are discovered all existing grades within the estimated TPZ may need to remain unaltered regardless of proposed designs within the grounds of St Aloysius' College Middle School.

8.3 Tree Pruning

- 8.3.1 Pruning may be required within the lower western lateral branches, of Tree 60, which are overhanging the College quadrangle. All pruning is to be undertaken in accordance with the Australian Standard AS 4373–2007: Pruning of Amenity Trees and undertaken by a suitably qualified arborist (minimum AQF 3 arborist). Obtaining consent from the tree owner and relevant Consent Authority prior to any pruning is recommended.
- 8.3.2 Reduction pruning should focus on smaller diameter branches overhanging the property boundary and remove no greater than 10% of the total crown. Branches no greater than 50mm diameter are to be removed unless approved by the relevant Consent Authority and specified by the project arborist.

8.4 Reporting Measures During Construction

- 8.4.1 Tree 60 requires specific measures during the construction stage. Tree protection measures include, but are not limited to:
 - Activities restricted within the TPZ
 - Involvement from the project arborist
 - Compliance reporting

8.5 **Project Arborist**

- 8.5.1 An official Project Arborist must be commissioned to oversee the initial excavation adjacent Tree 60 if requested by the client, advise of any specific pruning works within the crown of Tree 60 and complete a final sign off following project completion.
- 8.5.2 The Project Arborist must have minimum five (5) years industry experience in the field of arboriculture, horticulture with relevant demonstrated experience in tree management on construction sites, and Diploma level qualifications in arboriculture AQF Level 5.



8.6 Project Milestones

8.6.1 The following visits and milestones were recommended as to when on-site tree inspection by the project arborist is required:

ltem	Purpose of Visit	Timing of Visit(s)	Prerequisites		
1	Supervision of demolition/excavation works adjacent Tree 60	During the raised brick garden bed demolition/excavation work. Contractor to provide a minimum of 10 days advance notice for visit			
2	Pruning advice	Prior to installation of the vertical garden wall	If requested		
3	Final sign off	Following completion of works	Practical completion of works		

8.7 Compliance Reporting

- 8.7.1 Following each visit, the Project Arborist shall prepare a report detailing the condition of the trees. These reports should certify whether the works have been completed in compliance with the SSDA consent relating to work around the trees.
- 8.7.2 These reports should contain photographic evidence, where required, to demonstrate that the work has been carried out as specified.
- 8.7.3 Matters to be monitored and included in these reports should include tree condition and impact of site works which may arise from changes to the approved plans.
- 8.7.4 The reports and Compliance Statements shall be submitted to the Project Manager (as well as the clients' nominated representative) following each inspection.

8.8 Replacement Planting

- 8.8.1 Planting should reflect the number of trees removed and the initial loss of amenity and biomass. New trees should be of long-term potential and sourced from a reputable supplier.
- 8.8.2 Replacement species must suit their location on the site in terms of their potential physical size and their tolerance(s) to the surrounding environmental conditions.

8.9 Trenching for Installation of Underground Services

8.9.1 No additional excavation or trenching which may be required to facilitate installation of underground services during development would affect the retained Tree 60 due to its location in the adjacent property and the previously described soil structure.

9 References

- Standards Australia AS 4373–2007: Pruning of Amenity Trees, Standards Australia, G.P.O. Box 476, Sydney, New South Wales, 2001
- Standards Australia AS 4970–2009: Protection of Trees on Development Sites, Standards Australia, G.P.O. Box 476, Sydney, New South Wales, 2001
- British Standard BS 5837–2012: Trees in Relation to Design, Demolition and Construction



10 Appendices

10.1 Appendix A – Arboricultural Reporting Assumptions and Limiting Conditions

- 1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership of any property are assumed to be good. No responsibility is assumed for matters legal in character.
- It is assumed that any property/project is not in violation of any applicable codes, ordinances, statutes
 or other government regulations.
- Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible, however, the consultant can neither guarantee nor be responsible for the accuracy of the information provided by others.
- The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
- 5. Loss or alteration of any part of this report invalidates the entire report.
- 6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the person to whom it is addressed, without the prior written consent of the consultant.
- 7. Neither all nor any part of the contents of this report, nor any copy thereof, shall be used for any purpose by anyone but the person to whom it is addressed, without the written consent of the consultant. Nor shall it be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the written consent of the consultant.
- This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
- Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise.
- 10. Information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection.
- 11. Inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee expressed or implied that the problems or deficiencies of the plants or property in question may not arise in the future.



10.2 Appendix B – Explanation of Tree Assessment Terms

Tree name: Provides the botanic name, (Genus, species, sub-species, variety and cultivar where applicable) in accordance with the International Code of Botanical Nomenclature (ICBN), and an accepted common name.

Category	Description
Young	Newly planted tree not fully established may be capable of being transplanted or easily replaced.
Juvenile	Tree is small in terms of its potential physical size and has not reached its full reproductive ability.
Semi-mature	Tree in active growth phase of life cycle and has not yet attained an expected maximum physical size for its species and/or its location.
Mature	Tree has reached an expected maximum physical size for the species and/or location and is showing a reduction in the rate of seasonal extension growth.
Senescent	Tree is approaching the end of its life cycle and is exhibiting a reduction in vigour often evidenced by natural deterioration in health and structure.

Age: Refers to the life cycle of the tree.

Health: Summarises the health and vigour of the tree.

Category	Description
Excellent	Canopy full with dense foliage coverage throughout, leaves are entire and are of an excellent size and colour for the species with no visible pathogen damage. Excellent growth indicators, e.g. seasonal extension growth.
Good	Canopy full with minor variations in foliage density throughout, leaves are entire and are of good size and colour for the species with minimal or no visible pathogen damage. Good growth indicators.
Fair	Canopy with moderate variations in foliage density throughout, leaves not entire with reduced size and/or atypical in colour, moderate pathogen damage. Reduced growth indicators, visible amounts of deadwood/dieback, and epicormic growth.
Poor	Canopy density significantly reduced throughout, leaves are not entire, are significantly reduced in size and/or are discoloured, significant pathogen damage. Significant amounts of deadwood and/or epicormic growth, noticeable dieback of branch tips, possibly extensive.
Dead	No live plant material observed throughout the canopy, bark may be visibly delaminating from the trunk and/or branches.



Table 1. ArborSafe Structure Descriptors

Category	Description
Good	Good form and branching habit. Minor structural defects that are insignificant and typical or common within the species. e.g. included bark, co-dominant stems. No fungal pathogens present. No visible wounds to the trunk and/or root plate.
Fair	Moderate structural defects present that impact longevity e.g. apical leaders sharing common union(s). Minor damage to structural roots. Small wounds present where decay could begin. No fungal pathogens present. A fair representation of the species.
Poor	Significant structural defects present that have a significant impact on longevity and result in a poor representation of the species e.g. Branch/stems with included bark with failure likely within 0–5 years. Wounding evident with cavities and/or decay present. Damage to structural roots.
Hazardous	Serious structural defects with failure determined to be imminent (<12 months). Defects may include active splits and/or partial branch or root plate failures. Tree requires immediate arboricultural works to alleviate the associated risk.

Structure: Summarises the structure of the tree from roots to crown.

Useful Life Expectancy (ULE): Useful Life Expectancy refers to an expected period of time the tree can be retained within the landscape before its amenity value declines to a point where it may detract from the appearance of the landscape and/or becomes potentially hazardous to people and/or property. ULE values consider tree species, current age, health, structure and location. ULE values are based on the tree at the time of assessment and do not consider future changes to the tree's location and environment which may influence the ULE value.

Category:
0–5 Years
5–10 Years
10–20 Years
20–30 Years
30–50 Years
>50 Years



Tree Retention Value: (based upon BS5837–2012: Trees in relation to design, demolition and construction – recommendations)

Category and definition	Criteria (including sub-categories where appropriate)										
Category U											
Trees in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than 5 years.	 Trees that have a severe structural defect that are not remediable such that failure is expected within 12 months. Trees that will become unviable after removal of other Category U trees (e.g. where for whatever reason the loss of companion shelter cannot be mitigate pruning). Trees that are dead or are showing signs of significant, immediate and irreversible overall decline. Trees infected with pathogens of significance to the health and or safety of trees nearby Low quality trees suppressing adjacent trees of better quality. Noxious weeds or species categorised as weeds within the local area. Note: Category U trees can have existing or potential conservation value* will might make it desirable to preserve. 										
1. Arboricultural Qualities3. Cultural environmental											
Category A											
Trees of High Quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years.	Trees that are particularly good examples of their species, especially if rare or unusual (in the wild or under cultivation); or those that are important components of groups or avenues.	Trees or groups of significant visual importance as arboricultural and/or landscape features. (e.g. feature and landmark trees).	Trees, groups or plant communities of significant conservation, historical, commemorative or other value (e.g. remnant trees, aboriginal scar trees, critically endangered plant communities, trees listed specifically within a Heritage statement of significance).								
Category B											
Trees of Moderate Quality with an estimated remaining life expectancy of 15–25 years and of dimensions and prominence that cannot be readily replaced within 10 years.	Trees that might be included within Category A but are downgraded because of diminished condition such that they are unlikely to be suitable for retention beyond 25 years.	Trees that are visible from surrounding properties and/or the street but make little visual contribution to the wider locality.	Trees with conservation or other cultural value (trees within conservation areas or landscapes described within a statement of significance, locally indigenous species).								
Category C											
Trees of Low Quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable.	Trees of very limited value or such impaired condition that they do not qualify in higher categories.	Trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.								

*Where trees would otherwise be categorised as U, B or C but have significant identifiable conservation, heritage or landscape value even though only for the short term, they may be upgraded, although they might be suitable for retention only.



Table 2. Tree Quality

			Hea	lth**	
		Excellent/ Good	Fair	Poor	Dead
	Good	А	В	С	U
ture	Fair	В	В	С	U
Struc	Poor	C	C	U	U
	Hazard*	U	U	U	U

*Structural hazard that cannot be remediated through mitigation works to enable safe retention.

** Trees of short term reduced health that can be remediated via basic, low cost plant health care works (e.g. mulching, irrigation etc.) may be designated in a higher health rating to ensure correct retention value nomination.



10.3 Appendix C – Tree Assessment Data

Tree no.	Botanical Name	Common Name	Trees in group	Diameter DBH 2 (cm)	DBH Total (cm)	DRB (cm)	Radial TPZ (m)	TPZ area (m2)	Radial SRZ (m)	Tree Height (m)	Canopy (m)	, Health	Structure	Age	TLE (Yrs.)	Defects	Significance	Action (irrespective of development)	Arborist comments	Tree Quality Score	Tree Retention value subcategory	Recommendation
1	Metrosideros sp	Metrosideros Species	1	15 15	21	38	4.2	55.42	2.2	6	4	Good	Fair	Mature	10-15	Co-dominant stems;Wound(s);	Amenity value/shade;Attractive landscape feature;			С	2	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
2	x Cupressocyparis leylandii	Leyland Cypress	1	11	11	18	2.0	12.57	1.6	4.5	3	Good	Fair	Juvenile	15-25	Co-dominant stems;Included bark;Suppressed;	Amenity value/shade;Attractive landscape feature;			С	2	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
3	Pittosporum undulatum	Sweet Pittosporum	1	22	22	28	2.6	21.90	1.9	7	6	Good	Good	Mature	15-25	Co-dominant stems;	Amenity value/shade;Attractive landscape feature;			С	2	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
60	Liquidambar styraciflua	Sweet Gum	1	65	65	85	7.8	191.13	3.1	15-20	25-20	Good	Fair	Mature	25-50	Co-dominant stems;Epicormic growth;Included bark;	Amenity value/shade;Attractive landscape feature;		06-02-2017 : tomsac : Tree located on neighbouring property and tree not tagged. VTA limited to observations from inside school premises.	В	2	Retain tree with specific protection requirements (i.e. Generic measures plus supervision of works within the TPZ and/or use of root sensitive construction techniques).
61	Murraya paniculata	Orange Jessamine	6	10	10	10	2.0	12.57	1.5	3	2	Good	Fair	Mature	15-25	Co-dominant stems;Suppressed;	Amenity value/shade;		27-02-2018 : tomasafe : Tree not tagged added for DA assessment.	С	3	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.

