# AMENDED ARBORICULTURAL IMPACT ASSESSMENT S34 2021/00269445

Prepared for LDJ Solutions Pty Ltd.54 Adderton Road Telopea 20.12.2021

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#### FOREWORD

In response to the Land & Environment Courts resolution, this is a revised report based on the original. changes to this report are highlighted in red text to assist the council and the Land & Environment Court appreciate the changes to it and to address their concerns. The majority of additional red text is contained in Section 4. Discussion Section 6 Recommendations and Section 10. Tree Protection Specifications. Appendix A. Tree Preservation Plan Tree 1 & Appendix A. Tree Preservation Plan Street Tree.

The revised Arboricultural Impact Assessment reviews the removal and protection of trees on and off site as well as the street tree affected by the measures for the proposed crossover widening and basement excavations that may impact Tree 1. Including the recommendations and specifications for Tree Protection measures.

The Arboricultural Impact Assessment which has been provided is inadequate as it fails to:

- (i) identify all trees proposed to be retained or removed as a result of the works associated with proposed development, including the existing tree on the street verge which is of high landscape significance and must be retained.
   Refer Section 4. Discussion
- (ii) include a tree protection plan where trees are proposed to be retained.

Refer Appendix A. Tree Preservation Plan

- (iii) reference all documentation used during the assessment process.Refer Section 9. Methodologies
- (iv) address all likely impacts the proposed development has on trees recommended for retention.
- (v) Refer Section 4 Discussion
- (vi) detailed methodology used to evaluate the health and condition of the trees, retention values and determined tree protection zones.
- (vii) Refer Section 9. Methodologies

(f) The plan annexed to the Arboricultural Impact Assessment is inadequate as it fails to include survey detail of the existing ground levels at the base of each tree, the actual canopy spread to scale. Location of and diameter of breast height of the tree trunk and the tree number.
(g) Amended site plans indicating the tree protection zone requirements as set out in the Arborists report along with any note requirements that the Arborist deems necessary to ensure the long-term health and sustainable retention of the trees.

Refer Appendix A. Tree Preservation Plan Tree 1 Refer Appendix A. Tree Preservation Plan Street Tree

In relation to landscaping/arboriculture, we are instructed to provide the following comments in anticipation of receiving an updated arborist report and landscaping plans:

applicant to ask their arborist to address the impacts of the proposed fire booster in the front setback on Tree 1 as it encroaches into the structural root zone of this tree. Originally, the arborist only made reference to the impacts of the widening of the driveway.

Refer: Architect Plan showing the proposed fire booster has been relocated to north boundary.

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#### 1.Introduction

At the request of Mr. R. Tan of LDJ Solutions Pty Ltd, Lee Hancock Consulting Arborist AQF Level 5 was commissioned to prepare an Arboricultural Impact Assessment of trees on and offsite of 54 Adderton Road Telopea also known as Lot 1001 DP 777077 in the local government area (LGA) of Parramatta Council.

#### 1.1 The Proposal

The applicant seeks permission to demolish existing residence and construct a 3 storey Boarding House with 1 basement car park

1.2 Please note the supplied survey does not include Tree 2 survey plan.

#### 2. Aim

The purpose of this assessment is to provide quantitative and qualitative information on the trees located onsite and offsite of 54 Adderton Road, Telopea. The report will assess any potential impact on the subject trees, together with recommendations for amendments to the design or construction methodology where necessary to minimise any adverse impact. The report includes recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate.

2.1 All trees included in the site survey are numbered and assessed by the Author as the basis for deciding which trees are suitable for retention.

For each tree they have been assessed for.

Correct botanical identification and common name

- a) Correct botanical identification and common name
- b) Health and vigour
- c) Structure
- d) Dimensions, height, crown spread and DBH.
- e) Age class
- f) Estimated life expectancy.
- g) Heritage and /or cultural matters
- h) Ecological and habitat matters.
- i) The location relative to existing site features
- j) Other matters to the site
- k) Retention value

2.2 Tree protection controls for most of the City of Parramatta Council Local Government Area generally apply to any tree or palm, whether it is a native or an exotic species that:

- has a height equal to or exceeding 5 metres.
- any tree or mangrove vegetation located on public land, irrespective of size.
- forms part of a heritage item, or that is within a heritage conservation area.
- forms part of an Aboriginal object, or that is within an Aboriginal place of heritage significance.
- is listed on the NSW Heritage Register.

#### 2.3 Wildlife Habitat

The majority of the trees are non – local native species.

#### 2.3.1 Noxious Plants and Environmental Weeds

None of the trees assessed are scheduled as weeds by the Biosecurity Act 2015.

#### 2.3.2 Threatened species& Ecological Communities

None of the subject trees are listed as NSW Threatened Species Scientific Committee or form part of Endangered Ecological Communities (EEC's) under the provisions of the Biodiversity *Conservation Act 2016.* 

#### 2.3.3 Heritage Conservation Area

The site does not form part of a Heritage Conservation Area

#### 2.3.4 Significant Tree Register

Parramatta Council does not currently maintain a Register of Significant Trees.

2.4 The Author is aware of and will comply with the determining authorities Parramatta Council Development Control Plan (DCP) 2011, Local Environment Plan (LEP) 2011.

#### **Table 1 Documents Provided**

Architect	TEXCO Design	Revision 001,003,006,007,008,009,010, 011,012,014,015,016,101,102,103 104,105,201,301,401.	October 2021
Surveyor	C & A Surveyors NSW P/L	15 - 2421	27.3.2015 24.3,2021 Drawn 27.3.2015
Landscape Architect	Conzept Landscape Architect	LPS3421-309	December 2021

# 3. Site Analysis

The site is positioned to the rear of the land and is a single storey fibro residence with a pool in the rear yard, the existing vegetation comprises mostly non – native species, with an informal hedge of Lilli PIIlys on the rear northern boundary. The site slopes down to Adderton Road.



#### 4. Discussion

An assessment of each tree was made using the Visual Tree Assessment (VTA) procedure. The subject trees were assessed from the ground. No aerial inspection has been undertaken as part of this assessment. The initial point of reference in assessing the impacts of the proposed development is AS4970 (2009) '*Protection of trees on development sites*.

#### Street Tree Melaleuca quinquenervia (Paperbark) RL 67.62

Large mature tree in fair form and vigour, the amended plans show the existing driveway will remain in, with plans to widen the crossover inside the property, this will ensure the retention of the Street Tree. Tree will require overhead pruning to allow plant and equipment access to site. Refer Appendix C. Pruning Specifications. Tree is considered to be High landscape significance, amenity, and ecological value. High retention value.

#### Tree 1. Pistacia chinensis (Chinese Pistacia) RL67.25

Mature tree with a broad canopy, in good form and vigour, positioned in retaining wall front of site. The revised plans show basement will not encroach inside the tree protection zone. The proposed fire booster has been relocated outside the SRZ of the subject tree to mitigate any issues with woody tree roots inside structural root zone. Rated as high landscape significance and amenity value. High retention value.

#### Tree 1A. Sasanqua camellia (Camellia)

Smothered by branch extension from Tree 1. Shrub form is not considered worthy of any special measures for its retention. Rated as moderate landscape significance and amenity value. Low retention value.

#### Tree 2. Lagerstroemia indica (Crepe Myrtle) RL 69.73

Mature small tree positioned northern boundary front of site. The supplied plans show tree will be adversely impacted upon by the proposed basement excavations. Tree is not considered worthy of any special measures for its retention. Rated as moderate landscape significance and amenity value. Low retention value.

#### Tree 3. Lagerstroemia indica (Crepe Myrtle) RL70.05

Mature shrub/tree positioned southern boundary gateway to rear of site, tree is also in close proximity to another Tree A. *Lagerstroemia indica* (Crepe Myrtle) and Tree B. Morus Spp. (Mulberry) on the adjacent boundary. The supplied plan shows the proposed basement excavations will adversely impact the tree and to a lesser extent trees A & B Crepe Myrtle and Mulberry on the adjacent site. The basement will be

constructed using contiguous pilings which will mitigate any issues with the below ground parts of the two trees offsite. As stated in AS 4970 Clause 3.3.4 AS4970 (2009) outlines that *tree species and tolerance to root disturbance should be considered when determining the potential impact of the encroachment. Lagerstroemia indica* (Crepe Myrtle) is a common street tree in surrounding Council areas and can withstand alterations to site conditions, such as high levels of root disturbance/loss from footpath and kerb work. Clause 3.3.4 AS4970 (2009) *The area lost to this encroachment should be compensated for elsewhere and contiguous with TPZ.* Tree 3. Is rated as moderate landscape significance and amenity value. Low retention value.

#### Tree 4. Robinia pseudoacacia (Robinia) RL71.42

Semi mature tree in good form and vigour, tree is considered a weed in some states of Australia, the supplied plans show the proposed basement and removal of existing pool, during demolition will adversely impact upon tree. Tree should not be considered as a constraint to the potential development of the site. Rated as moderate landscape significance and amenity value. Low retention value.

#### Tree 5. Syzygium australe (Lilli Pilly) RL 72.13 – RL71.35

Informal hedge of semi mature trees, positioned in 1m high retaining wall, in close proximity to existing pool, the trees appear in good form and vigour, 2 trees have co-dominant stems showing early formation of branch bark inclusion, although the trees provide amenity and screening, the demolition of the pool shall adversely impact upon them structurally. *Grade changes made near trees will seriously disturb the delicate relationship between roots and the surrounding soil. This results in root mortality, decline in vigour and frequently, death of the tree.* E. Thomas Smiley, PhD, Urban Forestry. The trunks all varied in their diameter, the tree with the largest trunk DBH was calculated for the structural root zone and tree protection zones of all the trees forming part of the hedge, this method provided a generous protection zone for the small diameter trees. Although, the proposed basement will adversely impact upon the above and below ground parts of the hedge. Rated as high landscape significance amenity and ecological value. Low retention value.

#### Tree C Camellia sasanqua (Sasanqua camellia) RL 75.30

Positioned offsite rear property in good form and vigour, the tree shrub located in a 1metre high retaining wall, the supplied plans show tree/shrub shall not be adversely impacted upon by the proposed development. Rated as high landscape significance and amenity value. High retention value.

#### Street Tree Melaleuca quinquenervia (Paperbark)

Mature tree in fair form and vigour, the supplied plans show driveway widening will result in a 10.07% incursion into tree protection zone, this is an acceptable incursion as stated in AS4970 Protection of Trees on Development Sites (2009). Clause 3.3.4 of the AS4970 outlines *that tree species and tolerance to root disturbance should be considered when determining the potential impact of an encroachment*. Melaleuca quinquenervia are commonly used Street Trees in most Councils in the Sydney as they can withstand alterations to site conditions, such as high levels of root disturbance/loss from footpath and kerb work. Rated high landscape significance Council amenity, high amenity value. High retention value.

	Genus &	Height	DBH /DAGL	Crown	Maturity	Health	Landscape	Useful Life	Retention
Tree	Species			Spread		and	Significance	Expectancy	Value
						Vigour	Rating		
1	Pistacia chinensis (Chinese Pistacia)	6m	250x210x270 /700mm	25m2	Mature	Good	High	Long greater than 40 years	High
2A	<i>Camellia sasanqua</i> ( Sasanqua camellia)	3m	Multi stem	10m2	Semi mature	Fair	Moderate	Long greater than 40 years	Low
2	<i>Lagerstroemia indica</i> (Crepe Myrtle)	4m	Multi stem	15m2	Mature	Good	Moderate	Long greater than 40 years	Low
3	<i>Lagerstroemia indica</i> (Crepe Myrtle)	4m	Multi stem	15m2	Mature	Good	Moderate	Long greater than 40 years	Low
А	<i>Lagerstroemia indica</i> (Crepe Myrtle)	6m	Multi stem	15m2	Mature	Good	Moderate	Long greater than 40 years	Off Site High
В	<i>Morus spp.</i> (Mulberry)	5m	No Access	10m2	Semi mature	Good	Moderate	Long greater than 40 years	Offsite High
с	Camellia sasanqua (Sasanqua Camellia)	5m	No Access	10m2	Semi mature	Good	Moderate	Long greater than 40 years	Offsite High
4	Robinia pseudoacacia (Robinia)	6m	320/ 420mm	20m2	Mature	Good	Moderate	Long greater than 40 years	Low
5 Hedge	<i>Syzygium australe</i> (Lilli Pilly <b>)</b> x5	7m	190/ 230mm average measure	40m2	Semi mature	Good	High	Long greater than 40 years	Low

#### Table 1.Tree Health and Retention Values.

Tree	Genus & Species	Height	DBH /DAGL	Crown Spread	Maturity	Health and	Landscape Significance	Useful Life Expectancy	Retention Value
						Vigour	Rating		
Street Tree	<i>Melaleuca quinquenervia</i> (Paperbark)	8m	310/ 410mm	20m2	Mature	Good	High	Long greater than 40 years	High

# 5. Conclusion

To conclude the site supports a total of 6 trees on site and one Street Tree, Trees labelled A, B and C. off - site southern boundary. The site analysis has collected all relevant data in assessing the condition of trees on site, an assessment of their health and vigour, estimated life expectancy and their significance in the landscape and amenity value have been recorded.

# 6. Recommendation

The proposed Boarding House will necessitate the removal of trees 2A, 2, 3, 4 and 5. Trees should not be considered as a constraint to the potential development of the site.

Approved tree removal shall be undertaken by an experienced Certified AQF Level 3 Arborist in accordance with Safe Work Australia Code of Practice 'Guide to Managing Risks of Tree Trimming and Removal Work'.

6.1 Tree 1. *Pistacia chinensis* (Chinese Pistacia) is nominated for retention. The revised architectural plans show trees protection zone is outside the proposed basement excavations, however Project Arborist to supervise basement excavations outside of tree protection zone to ensure no woody roots are damaged.. Rumble boards shall be placed inside tree protection zone to minimise compaction from plant and equipment and shall remain in place for the duration of the proposed development. The proposed fire booster has been relocated outside SRZ and TPZ to mitigate root issues inside SRZ. The tree will remain viable into the future.

6.2 Trees A and B southern boundary, offsite Tree A has an offset of 2.5m (including 1m offset from development site) as does Tree B which has an offset of 2.74m. The supplied plans show basement walls will be constructed using contiguous pilings 2m apart. This shall mitigate any issues with below ground parts of both trees offsite.

#### 6.3 Street Tree Melaleuca quinquenervia (Paperbark)

Street tree is to be retained; the revised plans show the tree will experience an incursion of 10.07% which is within acceptable limits as stated in AS 4970. Clause 3.3.4 of the AS4970 outlines *that tree species and tolerance to root disturbance should be considered when determining the potential impact of an encroachment*. Melaleuca quinquenervia are commonly used Street Trees in most Councils in the Sydney as they can withstand alterations to site conditions, such as high levels of root disturbance/loss from footpath and kerb work.

6.4 To compensate for the loss of amenity, replacement planting of trees as specified by the project Landscape Architects plan should be considered.

- The tree should have a minimum 10m height at maturity to compensate for the loss of existing trees.
- A proportion of the trees to be planted should be native canopy trees.
- The planting size shall be 75 litres and compliant with the AS2373 *Tree Stock and Specifications for Landscape Uses.*
- Planted by a qualified horticulturalist or arborist AQF Certificate 3.
- The replacement plantings must be planted in such a manner as to promote good health during the establishment period, and must be maintained, as far as practicable to ensure tree growth into mat

# 7. Images

Plate 1.

# Tree 1. Pistacia chinensis (Chinese Pistacia)



Plate 2.

# Tree 2. Lagerstroemia indica (Crepe Myrtle)



Plate 3.

# Tree 3. Lagerstroemia indica (Crepe Myrtle)

# Background offsite Tree A & B



Plate 4.

# Tree 4. Robinia pseudoacacia (Black Locust)



Plate 5.

# Tree C. *Camellia sasanqua* (Sasanqua Camellia)



# Plate 6. Trees 5 x 5 *Syzygium australe* (Lilli Pilly) Informal screening hedge



# 8. References

AS4373 Pruning of Amenity Trees (2007)

AS4970 'Protection of Trees on development Sites'. (2009)

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

Mattheck, C. & Breloer, H. (1994) The Body Language of Trees.

Morton, A. Earthscape Horticultural Services -Tree Retention Values

E. Thomas Smiley, PhD, Urban Forestry

www.nearmap.com.au

cityofparramatta.nsw.gov.au

# 9. Methodologies

#### 9.1 Visual Tree Assessment (VTA)

A technique developed by (Mattheck & Breloer) was carried out on all trees from the ground. The technique involves, identification of the Genus and Species of trees on the site. The Diameter at Breast Height (DBH) 1.4m above ground level determined from the circumference of the trunk divided by  $pi(\pi)$ . Tree height (m) Diameter at Ground Level (DAGL), Canopy spread (m) in four cardinal points (north, south, east, west) Structural integrity, Amenity value, Indigenous/ Endemic value, Health and vigor of trees.

#### 9.2 Useful Life Expectancy (ULE)

An assessment procedure has been developed by (Barrell, J.D.) 1993 'by which trees on a site are accurately recorded and designated according to their suitability for retention in the short, medium or long term'. This methodology is a measure of the "sustainability" of the remaining contribution in years that the tree can provide in the context of the site.

#### 9.3 Landscape Significance

The significance of trees in the landscape is assessed in determining their retention values in 3 categories. Heritage Value reflects Historical significance, Ecological Value maintains biodiversity values and Amenity values contributes to the character of the landscape.

#### 9.4 Tree Retention Values

A rating was given to each tree on site; the information gathered was then processed by evaluating the health and vigour, the remaining useful life expectancy (ULE), plus their significance in the landscape. A retention value for each tree was then evaluated ranging from High, Moderate, Low and Very Low.

#### 9.5 Structural Root Zone (SRZ)

SRZ is the measurement of the area around the base of the tree. Measurements are taken at the centre of the trunk; a radial measurement is calculated in meters. This process determines the trees structural stability. The formula is SRZ radius =  $(D \times 50) \times 0.64 D$  = trunk diameter, in metres.

#### 9.6 Tree Protection Zone (TPZ)

This area is specified above and below the ground at a given distance from the trunk to protect tree roots and canopy to protect the viability and stability of a tree retained on site where there is a potential for the tree to be damaged by development.

#### 9.6.1 Determining Tree Protection Zones

As defined in AS 4970 Section 1.4.7 the TPZ is 'A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown (canopy) to provide for the viability and stability of a tree to be retained where it can potentially cause damage by development'. The TPZ is the root zone/canopy area required for vigour and long-term viability. The TPZ area has been calculated as specified in Section 3.2 of AS 4970.

9.6.2 Variations to the TPZ - Minor

If there are no other options a minor encroachment ( $\leq$ 10%) into the TPZ area may be acceptable provided the incursion does not impact the SRZ. Examples of how minor encroachments can be configured. Refer to Section 3.3.2 of AS 4970 for additional details relating to minor encroachments.

AS 4970 states that the area lost to the encroachment must be compensated for elsewhere and must be contiguous with the TPZ.

9.6.3 Variation to the TPZ – Major

Should major encroachments (> 10%) of the TPZ be proposed it must be demonstrated by The Project Arborist that the tree will remain viable into the long term. Demonstration of viability may include non destructive methods of root investigation and should be made in consideration of the following factors as listed in Section 3.3.4 of AS 4970:

	Landscape Significance Rating								
Estimated Life Expectancy	1	2	3	4	5	6	7		
Long - Greater than 40 Years	High I	Retention V	alue						
Medium- 15 to 40 Years			Moder Value	rate Retenti	ion				
Short - 5 to 15 years				Low F	Ret. Value				
Transient - Less than 5 Years				Very I	Low Retent	ion Value			
Dead or Potentially Hazardous									

#### Tree Retention Values – Assessment Methodology

# Retention Value Methodology

RETENTION VALUE	RECOMMENDED ACTION
"High"	<ol> <li>These trees considered worthy of preservation as such careful consideration should be given to their retention as a priority.</li> <li>Proposed site design and placement of buildings and infrastructure should consider lessening any mitigating issues in relation to trees.</li> <li>In addition, the extent of the canopy (canopy dripline) should also be considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the</li> </ol>
	building envelope or temporary scaffolding is generally not acceptable.
"Moderate"	<ol> <li>The retention of these trees is desirable.</li> <li>These trees should be retained as part of any potential development if possible however they trees are considered less critical for retention.</li> </ol>
	3. If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
"Low"	4. These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their ULE.
	5. These trees should not be considered as a constraint to the potential development of the site.
	<ol> <li>These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds.</li> </ol>
"Very Low"	<ol><li>The removal of these trees is therefore recommended regardless of the implications of any proposed development.</li></ol>

#### **10. Tree Protection Specifications**

#### 10.1 Specifications for Tree Protection

The tree protection measures included in this document are site specific and are to be implemented prior to, during and after the construction phase, including embellishment works. The project arborist will monitor the impacts of demolition, bulk earth works, installation of temporary infrastructure including bunding, sediment control and drainage works.

The intention is to ensure that construction related issues and conflicts are resolved prior to the commencement of this project.

The aim is to ensure that specifications are site specific and that the previously approved masterplan Tree Management Plan can be implemented as part of the conditions of consent.

#### **10.2 Certification Reporting**

Following each stage, Site establishment, Construction Stage and Landscape Construction. The Project Arborist shall prepare a statement of compliance certifying whether the works have been completed in accordance with this plan and the conditions of development consent granted by the Parramatta Council to Tree Protection.

#### 10.3 Appointment of a Project Arborist

An Arborist with an AQF Level 5 Diploma in Arboriculture with experience in tree protection on construction sites should be engaged prior to the commencement of work on the site. Site monitoring will occur at each Hold Point. If conditions have been breached, remedial action shall be recommended to minimise any further adverse effect on the tree's health.

#### 10.4 Tree Removal

Approved tree removal shall be obtained prior to the removal of Trees 2A, 2, 3, 4, 5 X5 and 6 . before site establishment. Tree removal work shall be carried out by an experienced Certified AQF Level 3 Arborist in accordance with Safe Work Australia Code of Practice 'Guide to Managing Risks of Tree Trimming and Removal Work'.

Tree No.	Genus/Species	SRZ	ТРΖ	Incursions to root Zone &/or Canopy	Likely Impact	Recommendation
1	Pistacia chinensis (Chinese Pistacia)	2.8mR	5.0mR	The revised plans show No incursion into TPZ	Nil Impact	Project Arborist to supervise basement excavations to monitor tree roots if any.
2A	<i>Camellia sasanqua</i> (Sasanqua Camellia)					Exempt species under 5m removal is recommended.
2	<i>Lagerstroemia indica</i> (Crepe Myrtle)	Multi stem	Multi stem	Major incursion to above and below ground parts	Adverse impact	Removal is recommended
3	<i>Lagerstroemia indica</i> (Crepe Myrtle)	Multi stem	Multi stem	Major incursion to above and below ground parts	Adverse impact	Removal is recommended
А	<i>Lagerstroemia indica</i> (Crepe Myrtle)	No access	No access			Project Arborist to supervise excavations within Trees A & B offsite.
В	Morus Spp. (Mulberry)	No access	No access		-	Project Arborist to supervise excavations within Trees A & B offsite.
4	Robinia pseudoacacia (Black Locast)	2.3mR	3.8mR	Adverse impact	Root severance, compaction	In footprint of proposed basement. Removal is recommended.
с	<i>Camellia sasanqua</i> (Sasanqua Camellia)	No Access	No Access	Nil impact	Nil Impact	The proposed 4 m setback and positioning of tree in retaining wall should not result in an adverse impact.
5	<i>Syzygium australe</i> (Lilly Pilly) x5	1.9mR	2.0mR	Adverse impact	Root severance compaction	Adverse impact from proposed basement. Removal is recommended.
Street Tree	<i>Melaleuca quinquenervia</i> (Paperbark)	2.7mR	6.8mR	Minor incursion 10.07%	Trunk damage, compaction	Within acceptable limits as stated in AS 4970. Trunk and ground protection installed prior to site establishment. Minor pruning works required. Refer Appendix B. Pruning Specifications.

Table 3. Trees Impacted by Proposed development Assessment Schedule.

#### 10.5 Tree Protection Fence. Tree 1.

Fencing to be chain link fencing of 1.8m high, suitably clamped and braced to prevent sideways movement held in place with concrete feet. Existing perimeter fencing, and other structures may be suitable as part of the protective fencing. Fencing to be installed before site establishment.

10.5.1 Unless otherwise stated, the following activities must not be carried out within the TPZ:

- Modification of existing soil levels
- Cultivation of soil
- Movement of natural rock
- Storage of materials plant or equipment
- Preparation of chemicals, including preparation of cement products.
- Parking of vehicles and plant
- Refuelling
- Wash down and cleaning of equipment.
- Physical damage to tree.

#### 10.5.2 Mulch

To be applied in TPZ minimum 75 -100mm using material that complies with Australian Standard<sup>®</sup> 4454-2003 *Composts, soil conditioners and mulches.* 

HOLD POINT Project Arborist to supervise proposed Basement Cut, edge of tree protection fence.

#### 10.5.3 Signage - Tree Protection Zone

To be displayed around the edge of all TPZ fenced off areas and visible within the development site. Identifying the TPZ should be placed outside the edge of TPZ the lettering on the sign should comply with AS1319.



#### 10.6 Ground Protection:

Ground protection if temporary access for machinery is unavoidable within the TPZ ground protection measures will be required. The purpose of ground protection is to avoid root damage and soil compaction. The area within the TPZ may be protected with mulch and geo textile fabric blanket or crushed rock below rumble boards to provide access of equipment.

#### 10.6.1 Street Tree

Trunk Protection by way of Timber planks (50mmx 100mm or similar) with a geotextile fabric shall be placed around Street tree. The timber planks shall be spaced at 100mm intervals, and must be fixed against the trunk secured together with 2mm galvanised wire. These shall be strapped around the trunk (not fixed in anyway) to avoid mechanical injury or damage. Trunk protection should be installed prior to any site works and maintained in good condition for the duration of the construction period. The hessian and timber planks must not be fixed to the tree in any instance or in any fashion.

Figure 1. Indicative Street Tree Protection



HOLD POINT – Project Arborist to supervise approved Pruning Works to Street tree LEE HANCOCK CONSULTING ARBORIST AQF LEVEL 5

# HOLD POINT - To assess recommended tree protection specifications are compliant with AS 4970 Protection of Trees on Development Sites (2009) prior to site establishment.

#### 10.6.2 Demolition Phase

Demolition of existing walls, kerbs, and other structures with the Tree Protection Zone of trees to be retained shall be undertaken under the supervision of the Site arborist. The structures shall be demolished stationed outside the TPZ where possible or within the footprint of existing hardstand areas.

Care shall be taken to avoid root systems trunks and lower branches of trees in the vicinity of the structures during demolition works with special attention required during demolition of the footings and other subsurface members to avoid damage to woody roots.

#### 10.7 Tree Protection Plan Construction Phase.

The following Tree protection measures are to be implemented during the construction phase.

10.7.1 Temporary Infrastructure Site sheds, Waste disposal and Stock piling areas to be placed outside the Tree Protection Zone.

10.7.2 Haul Route vehicles accessing site.Haul route usage entry from Adderton Road.

#### 10.7.3 Plant and Equipment

Light weight plant equipment such as small rubber tracked excavators and the demolition material for excavations removed to stockpiling area using small tipper trucks (2-3 tonne maximum).

#### 10.8 Underground services

Installing underground services should be routed outside of TPZ. When this is unavoidable services installed by directional drilling or manually excavated trenches.

#### 10.9 Landscape Construction

The landscape plan to be checked for compliance with the tree protection plan. Project Arborist to approve the staged removal of protection measures required to allow for landscape works. This includes the installation of paving, irrigation, installing and planting.

#### 10.9.1 Fill Material

Placement of fill material within the Tree Protection Zone of trees to be retained should be avoided where possible. Where placement fill is unavoidable, the material should be a welldrained friable material, equivalent in texture to the existing site topsoil material (heavy clay or subsoil material is unacceptable). The fill should be free from rocks vegetation and other unsuitable materials. Fill shall be compliant with AS 4419:2003 (*Soils for Landscape and Garden Use*)

# 10.9.2 Post Construction Phase

On completion of construction and landscaping works. Project Arborist to assess tree condition and provide certification of tree protection. Following final inspection Project Arborist should certify that the completed works have been carried out in compliance with the approved plans and specifications for tree protection

# Appendix A. Tree Preservation Plan Tree 1

#### Tree 1

SRZ = 2.8m radius (No incursion proposed)

TPZ = 5m radius (78.54m<sup>2</sup>, with 3.57m<sup>2</sup> incursion due to driveway widening only) = 4.5% incursion due to proposed works



# Legend:

Rumble Boards	Tree Protection Fencing	SRZ	TPZ	Incursion Area 4.5%
		$\bigcirc$	$\bigcirc$	

### Appendix A.1 Tree Preservation Plan Street Tree

#### Street Tree (no change from previous scheme)

SRZ = 2.7m radius (No incursion proposed)

TPZ = 6.8m radius (145.27m<sup>2</sup>, with 16.98m<sup>2</sup> incursion due to driveway extent) = 10.7% incursion



Legend:



# Appendix B. Pruning Specifications

#### 1.Introduction

The purpose of this pruning specification is to provide branch clearance for plant and equipment for the proposed development in a manner, which is sustainable for the prescribed trees.

#### 2. Methodology

The inspection was limited to visual tree assessment (VTA) from the base of the prescribed tree without aerial inspection.

#### 3. Observations

3.1 All recommendations in this application are in accordance with AS 4373 (2007) *Pruning of Amenity Trees.* 

Even where the Arborist has provided this Pruning Specification, it should be noted that such pruning should also be undertaken under the direct supervision of the Project Arborist, due to the likelihood that discrepancies will arise from this information, given the dynamic nature of the development process.

3.2 The following are specification for crown lifting required for Street tree identified as *Melaleuca quinquenervia* (Paperbark)

#### 4. Discussion

Consideration has been given to the tree's growth habit, species, age, condition, wind loading, location and timing of the trees biological processes.

4.1 The determination of the distribution of foliage and the resulting wound size has been considered. It is also considered the tree would not be adversely affected by the scheduled pruning, nor does it result in aesthetically disfigured canopy. The tree was assessed as being a mature tree in good form and vigour, appears structurally stable with good branch attachment.

4.2 Crown Lifting is proposed for the street tree positioned 54 Adderton Road, Telopea. The main objective is to provide sufficient clearance for plant and equipment entering and exiting proposed development.
These terms and procedural requirements are specified in Australian Standard *Pruning of*Amenity Trees AS 4373—2007

#### 3.13 Crown Lifting

The removal of the lower branches.

Table 2. Tree Health Retention Values.

Tree	Genus/Species	Height	DBH	Canopy Spread	Health	Location
1	Melaleuca quinquenervia (Paperbark)	9m	570/ 600mm	20m2	Good	Street tree 54 Adderton Road.

The extent of pruning required for clearance may marginally exceed the annual allowance as per City of Parramatta Council Tree maintenance schedule, however the trees current good health and vigour, will tolerate the branch loss with no adverse effects on the long – term useful life expectancy of the tree.

The removal of the one branch pictured below, removed to the nearest collar to provide clearance for plant and equipment. Estimated percentage of foliage removed is 10% of overall canopy.

Remove one (1) branch in yellow extending south over existing driveway to the nearest collar blue cross.



Insitu Branch facing south over driveway, 80mm in diameter.