
rainTree consulting

Arboricultural Management

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28 October 2021

8a LINKMEAD AVENUE
CLONTARF, NSW

PLM2020/0115

DEVELOPMENT PROPOSAL

ARBORICULTURAL IMPACT

ASSESSMENT REPORT

Report Ref No- 17221

Prepared for
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INTRODUCTION

This report has been commissioned by Andrew Little & Vanessa Peltier C/- CM Studio Pty Limited to assess the remaining Useful Life Expectancy (ULE) and potential impacts that may occur to significant trees in relation to a new development proposal. The new development proposal consists of additions and alterations to the existing dwelling located within Lot 2 of DP 534547 known as 8a Linkmead Avenue CLONTARF NSW.

Recommendations for retention or removal of trees is based on the trees condition, accorded ULE category, current design and potential impacts to trees under this development application.

Development incursions within tree protection zones (TPZ) and impacts to trees have been outlined within Note 2 of Appendix- A where incursions are described as Minor (<10%) & Major (>10%) TPZ occupancy having low, moderate to high level impacts within the TPZ. Where site restrictions within notional root zone radiuses exists development impacts or encroachment disturbances are based on author's experience, observations of site conditions, soil type and topography.

Each tree assessed has been accorded a temporary identification number and is referred to by number throughout this report. For additional trees not plotted on provided documentation their location has been estimated by taking offsets from existing trees and structures. The trees, their location, development impact and design requirements may be referenced within the Tree Assessment Schedule and Tree Location Plan of Appendices D & E.

Care has been taken to obtain information from reliable sources. All data has been verified as far as possible, however, I can neither guarantee nor be responsible for the accuracy of information provided by others.

DISCLAIMER & LIMITATION ON THE USE OF THIS REPORT

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or copy) is referenced in, and directly to that submission, report or presentation. Unless stated otherwise: Information contained in this report covers only the tree/s that were examined and reflects the condition of the trees at the time of inspection: and the inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Trees are a living entity and change continuously, they can be managed but not controlled and to be associated near one involves some degree of risk.

METHODOLOGY

1. In preparation for this report a site consultation & ground level Visual Tree Assessment (VTA) was conducted on Monday 5th October 2021 by the author of this report. The principles of VTA were primarily adopted from components of Mattheck & Breloer 1994 '*The Body Language of Trees*' with basic risk values determined by criteria explained within the ISA TRAQ manual 2017. The inspection included assessment of the overall health and vigour of trees, tree form, structure and structural condition commencing from near the lower trunk to the upper first order branch division as best as site conditions would allow. On completion of the VTA the retention value of the tree was summarised utilizing the tree assessment Checklist provided within Appendix- C.
2. The inspection was limited to visual assessment from within the subject site where the retention value, condition and diameters of neighbouring trees was estimated. No aerial (climbing) inspections, woody tissue testing, or tree root investigation was undertaken as part of this tree assessment. Tree height and canopy spread was estimated and expressed in metres with trunk diameters measured at approximately 1.4 metres above ground level, rounded off to the nearest 50mm and expressed as DBH (Diameter at Breast Height). The height of palms was taken from ground level to the top of the crown shaft only and excludes the central apical spear projection.
3. This report acknowledges and utilizes the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009 as explained within Notes of Appendix- A.
4. Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree.
5. Plans and/or documentation received to assist in preparation of this assessment include:
CM Studio project No: 2019_106 *specific to:*
 - Site Plan Dwg No. DA002 issue 8 dated 19.10.2021
 - Existing & Demo GF Plan Dwg No. DA102 issue 8 dated 19.10.2021
 - Ground Floor Plan Dwg No. DA111 issue 8 dated 19.10.2021
 - L1 Plan Dwg No. DA112 issue 8 dated 19.10.2021
 - Pool & Section Dwg No. DA120 issue 8 dated 19.10.2021
 - SW Elevation Dwg No. DA212 issue 8 dated 19.10.2021
 - Section 1 & 2 Dwg No. DA301 & 302 issue 8 dated 19.10.2021
 - Excavation Plan Dwg No. DA610 issue 8 dated 19.10.2021Melissa Wilson Landscape Architects
 - Landscape Ground Floor Dwg No: LS02 issue A dated 19.10.2021Hill & Blume Consulting Surveyors
 - Survey Plan ref No: 61871 issue A dated 19.2.2021

1. SUMMARY OF ASSESSMENT

1.1 General tree assessment

1.1.1 Eight (8) trees have been assessed under this development proposal. Of the eight trees six (6) trees are exempt non-prescribed trees/palms noted within Northern Beaches Council / Manly DCP 2013 exempt species list.

Exempt non-prescribed trees are identified as Bougainvillea vine T3 and palms 4, 5, 6, 7 & 8. Being exempt non-prescribed species, the trees are permitted to be managed (pruned, removed, or relocated) without Council consent. Within the documentation provided the exempt non-prescribed species are proposed for removal to accommodate design.

1.1.2 Remaining Melaleuca trees T1 & 2 are considered viable for retention without change in existing site conditions or modification within Tree Protection Zone (TPZ) radiuses as indicated within the SRZ & TPZ distance column of Appendix- D.

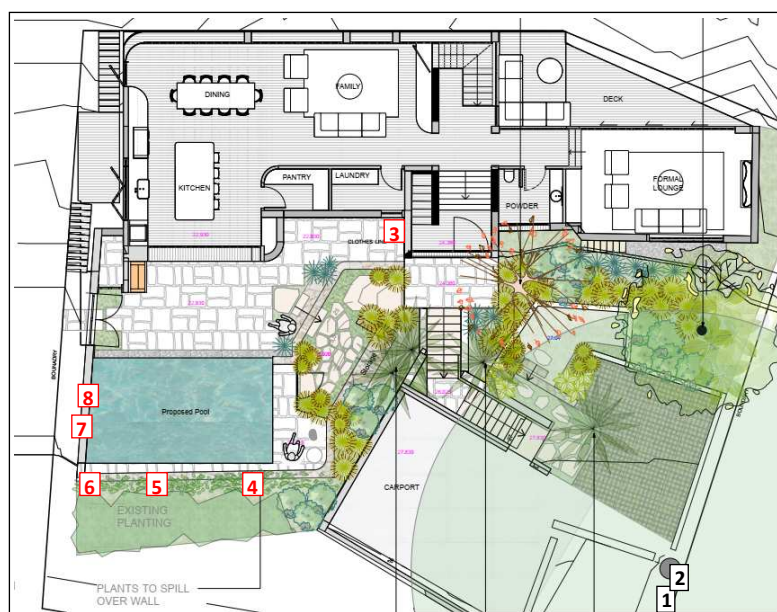
1.2 The development proposal

1.2.1 The development proposal consists of additional and alterations to the existing dwelling with redevelopment of the existing garage and provisions for a new swimming pool proposal. Proposed works are located within Tree Protection Zone (TPZ) radiuses of T1 & 2.

1.3 Tree removal to accommodate design

1.3.1 No prescribed trees are proposed for removal under this development application. Within this development proposal all exempt non-prescribed species T3, 4, 5, 6, 7 & 8 have been identified for removal to accommodate design.

Figure 1, showing design footprint & tree removal plan



The identified development impacts and design requirements have been detailed within Appendix- D and summarized within the following sections.

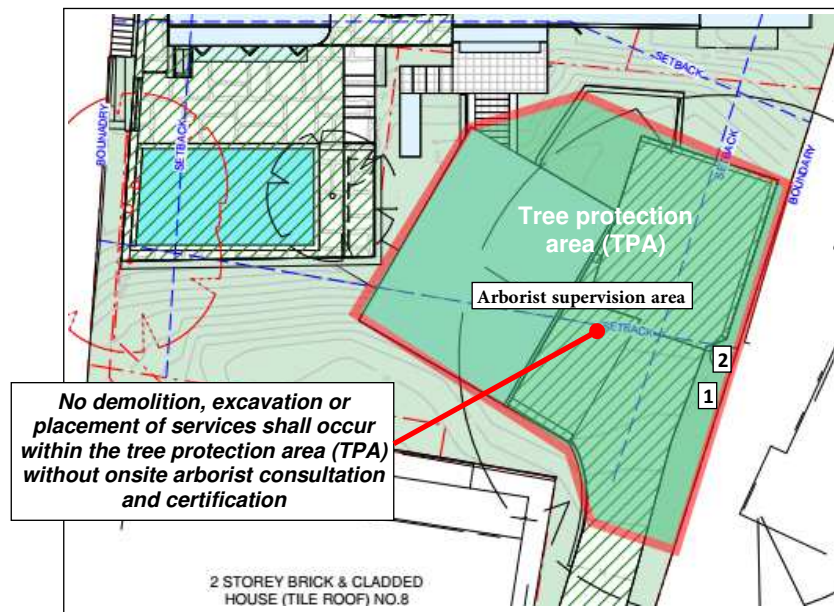
1.4 Discussion of development impacts – prescribed trees

1.4.1 Melaleuca trees T1 & 2:

Both trees are subject to Minor (<10%) TPZ disturbances with additions and alterations occurring mostly on existing hard surfaces. Visually tree roots appear to be lifting the existing driveway pavers adjacent drainage grates, indicating underlying roots may be affected by renovation works. Part excavation within the garage is proposed adjacent T1 with proposed garage FFL at RL27.83 requiring minor fill. The alteration to lift the garage floor level and minor works for adjacent stair access are unlikely to affect the trees with the following tree management guidelines are provided to mitigate impacts within tree protection zones.

- a) Prior to works the trunk of the trees are to be protected with timber beam trunk protection as indicated within Appendix- B diagram [C].
- b) The existing driveway pavers and hard surfaces within the TPZ or tree protection area (TPA) identified within Figure 2 are recommended to remain during main construction works acting as root protection barriers. The storage of materials may only occur while the existing surfaces remain in place [Plan DA003].
- c) Prior to removal of existing pavers and garage floor level consultation with an appointed project arborist is required to manage underlying roots lifting pavers within the driveway surface. Pavers are recommended to be carefully lifted and underlying roots exposed for arborist review.
- d) No tree root(s) at or >30mm(Ø) are to be pruned without arborist consultation. Where larger roots are exposed the appointed project arborist shall assess the impact of root pruning and provide further advice in tree root management. Where significant tree roots may require retention new works are to be conducted utilizing tree sensitive design such that the trees will not be affected by works.
- e) Where root pruning is approved by the arborist root pruning shall be undertaken in accordance with AS4970 – 2009 Section 4.5.4 *Root protection during works within the TPZ* and Section 2.3 f) of this report. All roots shall be documented with photographic evidence of works conducted for certification by the appointed project arborist.
- f) No demolition or excavation shall occur within the Structural Root Zone (SRZ) of trees being *the area required for tree stability* without arborist consultation and certification.
- g) Reinstatement of driveway surfaces within the SRZ shall be supervised by the site arborist ensuring no tree root is damaged during demolition and reinstatement of surfaces occurs. Within the SRZ and preferably the TPZ new works are to be constructed without excavation / site grading cut and compaction.

Figure 2, showing T1 & 2 protection area



2. CONCLUSIONS & RECOMMENDATIONS

2.1 Tree Removal

- 2.1.1 No prescribed trees require removal to accommodate this development application.
- 2.1.2 Exempt non-prescribed trees or palms T3, 4, 5, 6, 7 & 8 are permitted to be managed (pruned, removed or relocated) without the consent of Council. Within this proposal the exempt trees require removal to accommodate design.

2.2 Recommended tree management & protection principles

- 2.2.1 In addition to the recommendations provided within this report and Australian Standard AS4970 – 2009 Protection of Trees on Development Sites the following summary and/or additional recommendations are provided as a guide for tree protection during works:

Specific recommendations

- a) Trees 1 & 2.

In conjunction with recommendations provided within Section 1.4.1 there shall be no demolition or excavation within the SRZ without prior consultation with an appointed project arborist. All demolition within the designated tree protection area (TPA) or Tree Protection Zone (TPZ) shall be supervised by the arborist. Where excavation within the TPA is required, excavation shall be conducted manually by hand under the supervision of the arborist.

In specific, the root system lifting driveway access pavers shall be carefully exposed for arborist review, ensuring significant roots are not damaged and where possible retained.

2.3 General tree protection requirements

- a) Prior to demolition works Tree Protection Fencing (TPF) and/or zones as identified within Appendix- B are recommended to be located under the guidance of an appointed site arborist. Unless specified otherwise the location of tree protection fencing is to be positioned to allow for adequate work access and/or be located at the extremity of the TPZ radius, see SRZ & TPZ distance column Appendix- D. Where design & construction access may be restrictive timber beam trunk protection is recommended to be installed, with ground protection mats provided to protect underlying tree roots within tree protection zones or areas.
- b) Unless approved otherwise activities prevented within the TPZ include: machine excavation including trenching, storage & work preparation, wash down areas, soil level change, utility services and physical damage to trees.
- c) In accordance with AS4970 - 2009 (1.4.4) a Project or Site Arborist is to be engaged to monitor, supervise excavation within TPZ setbacks, advise and provide certification of protection works conducted. The project arborist is recommended to hold a minimum Australian Qualification Framework (AQF) Level 4 certification and be competent in methodology of protecting trees on development sites.
- d) The project arborist is to provide final certification outlining tree protection measures with photographic evidence of ongoing works retained for certification purposes (AS4970 S/5.5.2 *Final certification*).
- e) The project arborist is to be familiar with protection measures specific to Australian Standard AS4970 'Protection of Trees on Development Sites' – 2009 requirements with any modification in Tree Protection Fencing (TPF) or Zones (Z) to be compliant with AS4970 Section 4.5 *Other Tree Protection Measures*.
- f) Unless specified otherwise during approved excavation within TPZ setbacks excavation is to be conducted manually (by hand) under the supervision of an appointed project arborist.

Where approved by the arborist the pruning of roots at or <30mm(Ø) is to be conducted in accordance with AS4970 – 2009 Section 4.5.4 *Root protection during works within the TPZ*, such that tree roots are not damaged or ripped beyond the point of excavation by site machinery.

Where larger roots have been encountered, they are to be referred to an independent Level 5 arborist for further advice.

For deep excavations exposed roots at the excavated cut face are to be protected with jute mesh, geotextile fabric or similar being secured in place to avoid drying of roots and the exposed soil profile.

- g) During approved excavation within TPZ setbacks there shall be no over excavation beyond the line of cut as shown within construction drawings. Should over excavation be required the extent of excavation should be detailed within approved drawings or a construction management plan for arborist review and certification.
- h) *Additional inground services* which may include landscape works, sewer, stormwater, water and electrical services, final design and impact to trees shall be reviewed and endorsed by the project arborist prior to their installment. Where landscaping (excavation) is required within the SRZ further advice from an appointed project arborist is recommended.
- i) *Tree sensitive construction measures* such as pier and beam bridging over critical roots, suspended slabs, cantilevered building sections, screw piles and contiguous piling can minimise the impact of encroachment (AS4970).
Where Bushfire BAL construction conflicts exist with tree management advice the appointed project arborist shall be consulted to advise on appropriate design outcomes.
- j) *Canopy pruning / tree removal*: where required tree removal and canopy reductions are to be approved by the Local Government Authority. Works are to be conducted by a suitably qualified AQF Level 3 certified arborist in accordance with AS4373 Pruning Standards, and specifically be conducted in accordance with Safe Work Australia – Guide to managing risks of tree trimming and removal works 2016 (www.swa.gov.au).
- k) To ensure tree(s) are appropriately protected the development site superintendent is recommended to be familiar with all tree protection and ongoing certification requirements.
The superintendent is responsible for informing all subcontractors of the responsibilities and requirements of tree protection prior to their engagement.
- l) Should there be any uncertainty with tree protection requirements the site superintendent shall contact the appointed project arborist for advice prior to works occurring within tree protection zones (TPZ) or specified tree protection areas (TPA).

- k) *Hold points*: specific to no works are to commence without arborist advice, inspections & certifications:
- 1) Prior to construction arboricultural certification is required ensuring that all trees have been adequately protected in accordance with this report.
 - 2) No works (including landscaping) shall occur within the SRZ of any tree without prior arborist advice and certification. Where excavation may be required prior exploratory tree root investigation are to identify the location, distribution and impact to underlying tree roots.
 - 3) No excavation shall occur within the TPZ without prior project arborist notification and/or site supervision.
 - 4) No access or work activity is permitted within fenced or designated tree protection areas (TPA's) without arborist advice.

Table 1, certification requirements & hold points

1	Pre-construction	Prior to works install tree protection fencing & zones as specified within this report or as directed and certified by the site arborist.
2	During construction	Project arborist to supervise & certify approved excavation works within tree protection areas.
3	Post construction	Prior to handover project arborist to provide final inspection & certification of tree health & vitality

Should you require further liaisons in this matter please contact me direct on
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Yours sincerely



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AQF Level 5 consulting arborist

Diploma of Hort/Arboriculture (AQF5), Associate Diploma Parks Management (AQF4)
Certified Arborist / Tree Surgeon (AQF3), ISA Tree Risk Assessment Qualified 6/2024
Member: ISA, Arboriculture Australia & IACA, Working With Children No: WWC0144637E



APPENDICES

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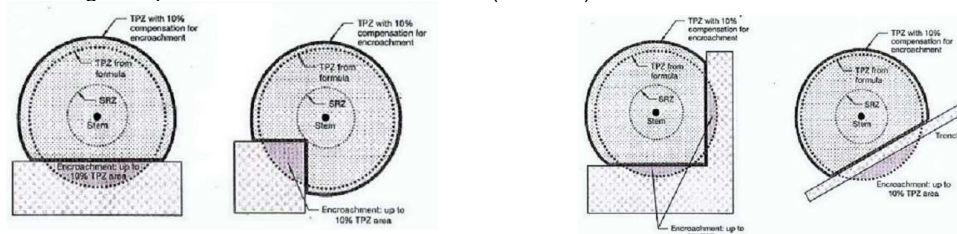
APPENDIX- A: Terminology & references

Acceptable Risk: Exposure to or reject risk of varying degrees. The acceptable risk is defined as 'The person who accepts some degree of risk in return for a benefit being exposed to some risk of varying degree. **Age classes:** (I) Immature refers to a well established but juvenile tree. (ESM) refers to an early semi mature tree not of juvenile appearance. (SM) Semi-mature refers to a tree at growth stages advancing into maturity and full size. (LSM) Late Semi-Mature, refers to a tree between semi-mature and close to mature. (EM) refers to a tree at the first stages of maturity. (M) Mature refers to a full size tree with some capacity for future growth. **Health:** Refers to a trees vigor exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and the degree of dieback. **Condition:** Refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. Trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk / branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition. **Decay:** (N) – an area of wood that is undergoing decomposition. (V) – decomposition of an area of wood by fungi or bacteria. **Decline:** Is the response of a tree to a reduction of energy levels resulting from stress. Recovery from decline is difficult and slow; is usually irreversible. **Defect:** A identifiable fault in a tree. **Epicormic Shoots:** Shoots that arise from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of the tree. A symptom / result of stress related factors. **Footprint:** The area occupied by site structures, including the dwelling driveways and hard surfaces. **Included Bark:** (Inclusion) a genetic weak fault, pattern of development at branch junctions where the bark is turned inwards rather than pushed out, can pose a potential hazard. **Order of branches:** First order being those that are the first to extend from the main trunk or codominant limbs, second order branches extend from the first order and third order branches extend from the second order. **Probability:** The likelihood of some event happening. **Risk:** Is the probability of something adverse happening. **Suppression:** Restrained growth pattern from competition of other trees or structures. **Wound:** Damage inflicted upon a tree through injury to its living cells, may continue to develop further weakening of the structure compromising structural integrity.

NOTE 1: This report acknowledges the current **Australian Standards 'Protection of Trees on Development Sites'** AS 4970 – 2009 with reference to the Tree Protection Zone (TPZ): being a combination of the root and crown area requiring protection. The TPZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. Determined by AS4970 - 2009 Figure 1, Table of determining the SRZ, section 3.3.5 of the standards. The standard states where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.4. Encroachments are referred to within this report as major or minor encroachments (AS4970 s. 3.3.2 & 3.3.3). Below is the terminology used for estimated percentage of development incursion used within this report. To retain specific trees and ensure their viability development must take into consideration protection of the TPZ radius.

NOTE 2: The extent of inclusion within the TPZ radius has been categorised as follows:

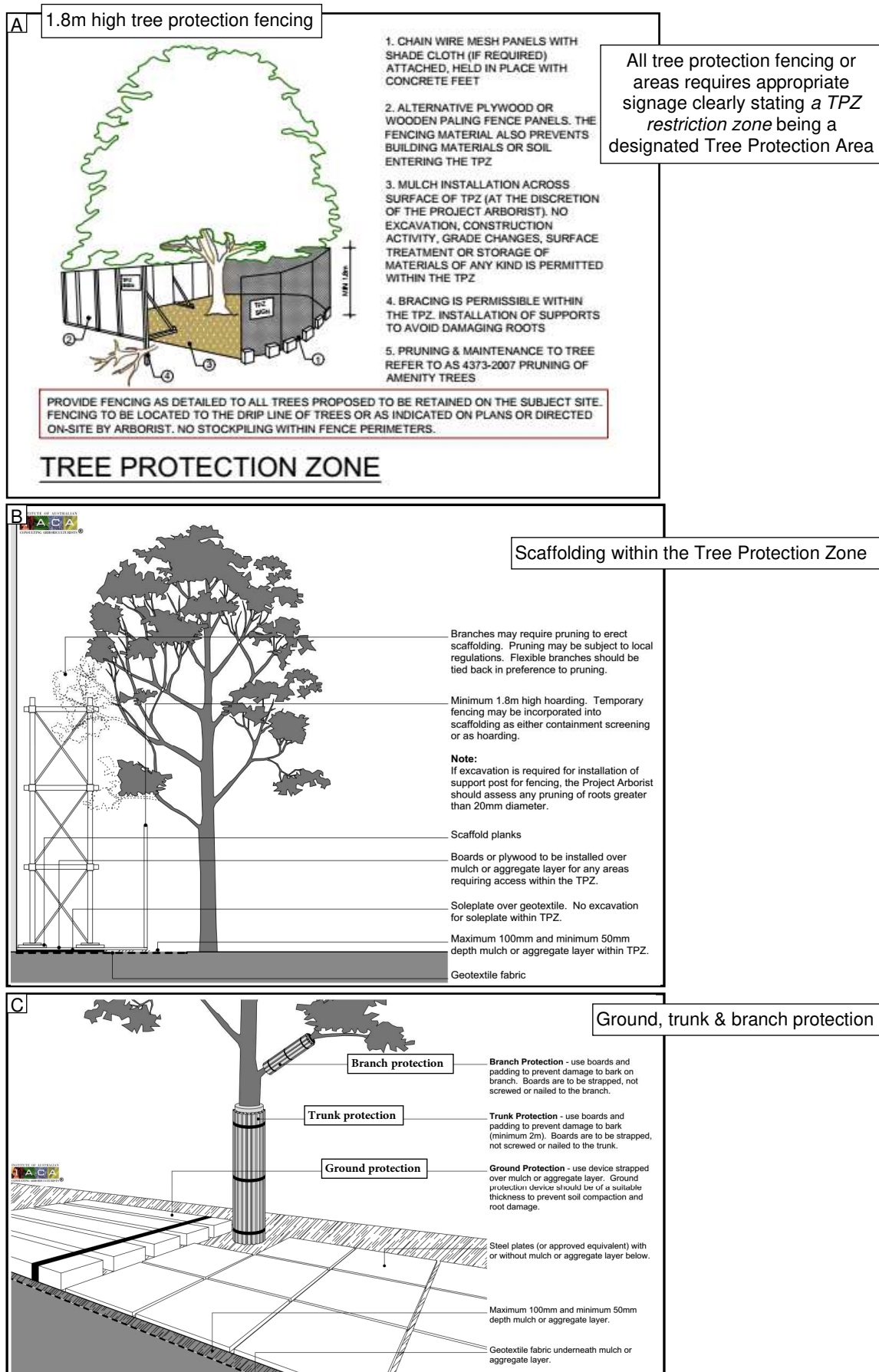
No impact (0%) incursion, Low to negligible impact (<10%) of minor consequence, 10 - <15% incursion of moderate to low impact, 15 - <20% Medium to moderate level of impact and incursion where the project arborist is to demonstrate the tree/s remain viable by tree sensitive construction techniques, 20 - <25% incursion of Medium to high level of impact, 25 - <35% of High level impact to significant >35% incursion where moderate to high level impacts may require design changes or further information to manage tree vitality. **WBF** = located within the building footprint where design necessitates tree removal. Showing acceptable incursion within the TPZ (AS4970)



SELECTED REFERENCES:

- Barrell J. 1993, 'Preplanning Tree Surveys: Safe useful Life expectancy (SULE) is the Natural Progression', *Arboricultural Journal* 17: 1, February 1993, pp. 33-46.
- International Society of Arboriculture (ISA) 2013, *Tree Risk Assessment Manual*, Martin Graphics, Champaign Illinois U.S.
- Mattheck, C. & Breloer, H.(1994) *The Body Language of Trees*. Research for Amenity Trees No.4 the Stationary Office, London.
- Matheny N. & Clark J. 1998, *Trees & Development 'A Technical Guide to Preservation of Trees During Land Development'* International Society of Arboriculture, Champaign USA.
- ProSafe: TPZ encroachment calculator https://proofsafe.com.au/tpz_incursion_calculator.html
- Australia 2009, *Australian Standards 4970 Protection of Trees on Development Sites* - Standards Australia, Sydney, Australia.
- Standards Australia 2007, *Australian Standards 4373 Pruning of Amenity Trees* - Standards Australia, Sydney, Australia.
- Northern Beaches Council DCP <https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/planning-controls>

APPENDIX- B: Tree protection fencing, ground and trunk protection detail



APPENDIX- C: Tree Retention Value Check list @rainTree consulting

VTA i) Landscape Significance (LS): The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values.

Values may be subjective however, offer a visual understanding of the relative importance of the tree to the environment. The Landscape Significance of a tree is described in seven categories to assist in determining the retention value of trees.

1	Significant	2	Very High	3	High	4	Moderate	5	Low	6	Very Low	7	Insignificant
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ii) Visual Tree Assessment (VTA)

0	If appropriate to VTA - *exempt trees from Local Government Authority (LGA) Tree Management or Preservation Orders (TPO)	2E	Trees location likely to be affected by infrastructure restricting root growth potential, or tree has potential to cause infrastructure damage &/or risk mitigation or rectification works may compromise tree anchorage. Tree(s) may be contained within a vault have restricted anchoring root potential
0A	Noxious or invasive species located within heritage conservation area		
1	Trees that are dead, significantly declining >75% volume or obviously hazardous	3	This rating incorporates trees that may require further investigation of defects such as cavities or symptoms indicating internal decay to an extent that cannot be quantified under visual examination. Further inspections may be in the way of arborist climbing inspection within the canopy, root crown investigation and/or drill penetrating or Picus Sonic Tomograph ultrasound testing procedures to determine percentage of internal decay.
2	Trees that are structurally damaged. Have poor structure or weak & detrimental large stem inclusions capable of failure opposed to 2B. Tree also may be affected by extensive borer damage, fungal pathogens (wood rot) or viruses. Some symptoms may be reversible, remediated or controlled give appropriate management.		
2A	Tree damage specific to basal and/or root plate damage, very shallow soils or steep topography resulting in poor anchorage where condition may become problematic in near future / may include trees with included bark splits to ground level	4	Trees which appear specifically environmentally stressed by drought, poor soil or site conditions. Symptoms may be reversible given appropriate management
2B	Defect specific to stem inclusions development (weak branch attachments) where the condition may not be immediately detrimental however, require annual to biannual monitoring with control to prevent stem failure by installing slings, cable or bracing. Tree may also contain multi stems or codominant twin stems	5	Trees that would benefit from crown maintenance pruning as identified within the Australian Standards AS 4373 – 2007 Pruning of Amenity Trees
		5A	Trees that require little or no maintenance at time of inspection other than close monitoring
2C	Tree may contain minor wounds, pest or minor pathogen activity, altered from storm damaged to an extent that is not considered immediately detrimental - may also display average form. Likely to require close annual monitoring or minor corrective pruning	6	Trees may be typical for species type, of good form and visual condition for age class May have suppressed one sided canopies or are low risk trees
2D	Trees significantly altered by recent storm or over pruning events which may reduce retention values due to average form- or tree extensively pruned for power line clearance	7	VTA restricted by canopy or plant material vine or ivy covering tree parts, or site conditions which do not allow access- fences to neighbouring sites

iii) Retention Value (RV): Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

1	High retention	2	Medium retention	3	Low retention	4	Consider removal
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iv) U.L.E. categories Useful Life Expectancy (after Barrell 1996, modified by the author). A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. U.L.E. assessments are not static but may be modified as dictated by changes in trees health and environment.

1. Long U.L.E. - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.
2. Medium U.L.E. - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.
3. Short U.L.E. - Trees appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk assuming reasonable maintenance.
4. Very short - Removal- Trees which should be scheduled for removal within the very short term or as specified within this report.
5. Small, young or regularly pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

APPENDIX- D: Tree Assessment Schedule

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification				Trees with low retention values: senescence, developing defects or being low significant or *exempt trees within the site from the LGA tree management orders								
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	SRZ TPZ	Age	Vigour	Condition	Significance	VTA	RV	U. L.E.	Comments
1	Melaleuca quinquenervia Paperbark	11 x 8	550	2.7 m 6.6	SM	Fair / Good	Good	4/3	4	2	2	CV = Council verge tree NT= Neighbouring tree Canopy slightly environmentally stressed, slightly low foliage volume, low suppressed canopy form N side
Design & impact summary: Retain with timber beam trunk protection, likely negligible to Minor (<10%) TPZ occupancy by proposed excavation for garage in TPZ [Plan DA610]. Works located on existing hard surface footprints reducing TPZ disturbances with all existing driveway pavers to remain acting as root protection area during construction. Resurfacing of driveway requires no root severance and arborist supervision & advice prior to lifting and replacement with new surface.												
2	Melaleuca quinquenervia Paperbark	12 x 10	950	3.3 11.4	M	Fair / Good	Good	4/3	4/2B/C	2	2	Minor wound at base W side with slight decay pocket, canopy slightly environmentally stressed with low foliage volume, surface roots lifting driveway pavers by drain
Design & impact summary: Retain with timber beam trunk protection, likely Minor (<10%) TPZ occupancy or disturbance by proposed garage renovation & addition, stair access and driveway reinstatement in TPZ [Plan DA111 & 112]. All existing pavers to remain acting as root protection area during construction. Resurfacing of driveway requires no root severance without consultation with arborist, arborist supervision & advice prior to lifting and replacement with new surface & permeable Turfgrid [LP / LS02]												
*3	Bougainvillea spectabilis Bougainvillea	5 x 5	150at base	1.6 2	SM	Good	Good	4	0/6	1	1	Exempt non-prescribed species, within 2m of dwelling with canopy spanning roofline
Design & impact summary: Proposed removal of exempt species												
*4	Archontophoenix cunninghamiana Bangalow Palm	5 x 3.5	150	- 2.75	ESM	Good	Good	4	0/2E	2	2	Exempt palm species, location to infrastructure likely to become problematic in the future
Design & impact summary: Exempt palm species manage in accordance with design requirement, likely removal for pool construction [Section 1]												
*5	Archontophoenix cunninghamiana Bangalow Palm	6 x 4	200	- 3	ESM	Good	Good	4	0/2E	2	2	Exempt palm species, location to infrastructure likely to become problematic in the future
Design & impact summary: Exempt palm species manage in accordance with design requirement, likely removal for pool construction [Section 1]												
*6	Archontophoenix cunninghamiana Bangalow Palm	6 x 5	200	- 3.5	ESM	Good	Good	4	0/2E	2	2	Exempt palm species, location to infrastructure likely to become problematic in the future
Design & impact summary: Proposed removal of exempt palm species												

	Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification						Trees with low retention values: senescence, developing defects or being low significant or *exempt trees within the site from the LGA tree management orders					
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	SRZ	Age	Vigour	Condition	Signifi- cance	VTA	RV	U. L.E.	Comments CV = Council verge tree NT= Neighbouring tree
				TPZ								
*7	Syagrus romanzoffiana Cocos Palm	10 x 5	200	- 3.5	M	Good	Good	4	0/6	1	1	Exempt palm species with no significant visual faults
Design & impact summary: Proposed removal of exempt palm species												
*8	Syagrus romanzoffiana Cocos Palm	9 x 5	250	- 3.5	M	Good	Fair / Good	4	0/2A	2	<2	Exempt palm species with past root plate issue identified
Design & impact summary: Proposed removal of exempt palm species												

