
rain Tree consulting

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9 September 2021

8 BUNGAN HEAD ROAD
NEWPORT, NSW

DEVELOPMENT PROPOSAL

ARBORICULTURAL IMPACT

ASSESSMENT REPORT

Report Ref No- 14421

Prepared for
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INTRODUCTION

This report has been commissioned by Mr. Nagle C/- Arclab 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 adjacent significant trees consist of new swimming pool, decking and associated infrastructure within 8 Bungan Head Road, NEWPORT 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 C & D.

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

- i In preparation for this report a site consultation & ground level Visual Tree Assessment (VTA) was conducted on Monday 28th June 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- B.
- ii 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.
- iii 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.
Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree.
- iv Plans and/or documentation received to assist in preparation of this assessment include:
Arclab, job No: 0232/21, *specific to*:
 - Site Analysis Plan Dwg No. DA-02 issue – dated 15.1.21
 - Roof Plan Dwg No. DA-03 issue – dated 15.1.21
 - Ground Floor Plan Dwg No. DA-04 issue – dated 15.1.21
 - Lower Floor Plan Dwg No. DA-06 issue – dated 15.1.21
 - Elevations Dwg No. DA-07, 08 & 14 issue – dated 15.1.21
 - Section A, B & C Dwg No. DA-09, 10 & 11 issue – dated 15.1.21DA Surveys
 - Survey Plan, Sheet 1, File No. 5289 dated 8.5.2021

1. SUMMARY OF ASSESSMENT

1.1 General tree assessment

- 1.1.1 Two (2) trees have been assessed for the purpose of this development proposal. The two trees are local occurring endemic species being prescribed (protected) trees. In specific T1 (Spotted Gum) is associated with the local occurring Pittwater Spotted Gum Forest that is categorized as an Endangered Ecological Community (EEC).
- 1.1.2 The subject trees display no significant defects and are considered viable for retention without change or modification within the tree protection zone radiuses. The trees are located on moderately sloping land where observations noted that soil conditions are likely to be shallow caused by shallow sandstone bedrock. Given site topography and shallow soils both the Structural Root Zone (SRZ), *the area required for tree stability* & Tree Protection Zones (TPZ) *radius required for maintaining tree vitality* are likely to be greater than determined under Australian Standard AS4970 'Protection of Trees on Development Sites' 2009.

1.2 The development proposal

- 1.2.1 The development proposal consists of additions and alterations to the existing dwelling with provisions for lower level swimming pool, terraced decking and associated infrastructure within SRZ & TPZ radiuses.

1.3 Tree removal to accommodate design – *prescribed (protected) trees*

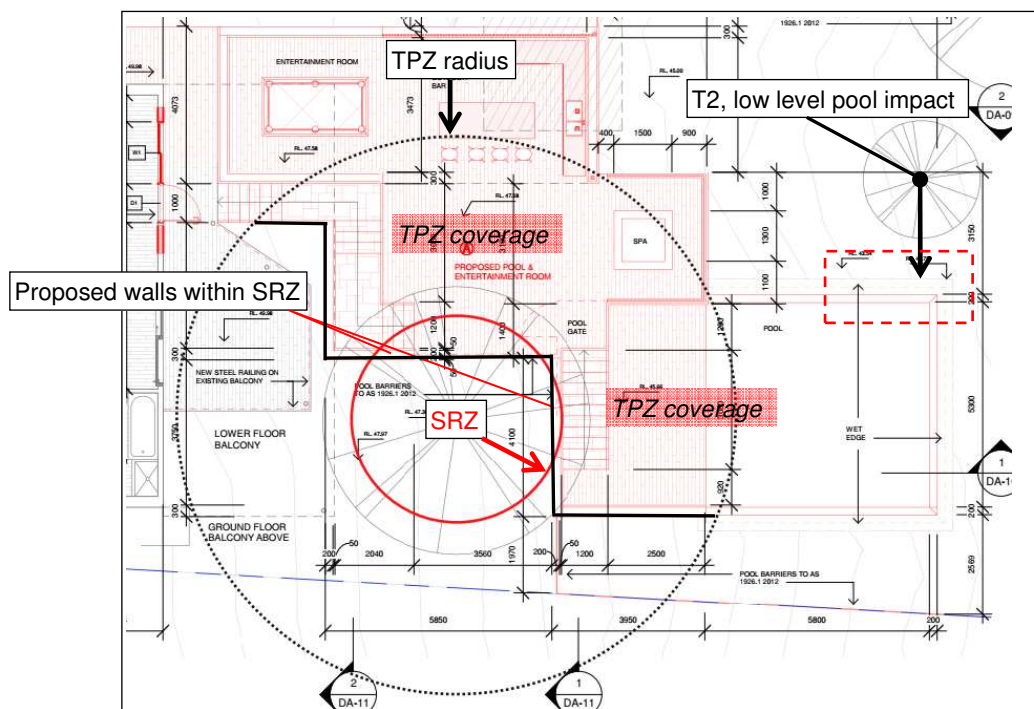
- 1.3.1 No prescribed trees have been identified for removal to accommodate this development proposal.
- Discussion of development encroachments and associated impacts have been detailed within Appendix- C and summarized within the following sections.

1.4 Discussion of development impacts – *prescribed trees*

- 1.4.1 Tree 1 Spotted Gum. Coverage over the SRZ & TPZ by proposed pool and entertainment area is considered a high level of occupancy within the TPZ. Overall coverage would likely result in environment stress by decline of soil biology required to maintain tree vitality (root function & growth). Works proposed within the SRZ & TPZ consist of pool barrier wall, stair access & wall to upper level with excavation for footings and pool footprint and deck wall cladding that restricts natural air movement and soil moisture within the TPZ. These are all factors that contribute to environmental stress where coverage may not be favorable in maintaining tree vitality. Mitigating impacts by the overall design footprint is recommended to consist of the following specific recommendations:
- a) The overall decking and design is recommended to consist of construction methodology that utilizes tree sensitive techniques that minimizes stress on trees. AS4970 states *tree sensitive construction measures* such as pier and beam, suspended slabs, cantilevered building sections, screw piles and contiguous piling can minimise the impact of encroachment.

- b) In specific: there shall be no excavation within the trees 2.8m Structural Root Zone (SRZ).
Where new footings or excavation (ie. pool barrier wall) within the SRZ is required arboricultural tree root investigations are to be conducted to identify the impact to critical underlying tree roots. The management of the tree should then be based on the outcome of the investigation and additional arborist advice.
- c) A pier footing plan showing tree location to single post footings and continuous strip footings shall be provided for arborist review and endorsement. Where decking is proposed within the SRZ decking is recommended to be cantilevered to increase the setback of footing excavation to the tree.
- d) In conjunction with the above a detailed colour coded cut & fill plan showing any area of excavation or over excavation is recommended such that the extent of soil modification can be clearly identify within the SRZ & TPZ of trees. An appointed site arborist shall review and endorse the proposal providing any additional tree management recommendations where over excavation beyond the design footprint is required.
- e) Propose decking is recommended to be constructed utilizing tree sensitive design allowing for water or precipitation to drain freely between boards contacting the lower natural soil level.
- f) Wall cladding on proposed blockwork [Plans DA07 & 08] fronting the face of decking is not recommended. The suspended deck structure is recommended to be open to the air to allow for free air movement to maintain soil moisture and soil biology responsible for maintaining tree vitality and root growth.

Figure 1: showing design footprint adjacent T1



2. CONCLUSIONS & RECOMMENDATIONS

2.1 Tree Removal

- 2.1.1 No protected trees require removal to accommodate the design proposal.

2.2 Specific tree management recommendations

- 2.2.1 In addition to tree management requirements provided within this report and those identified within 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:

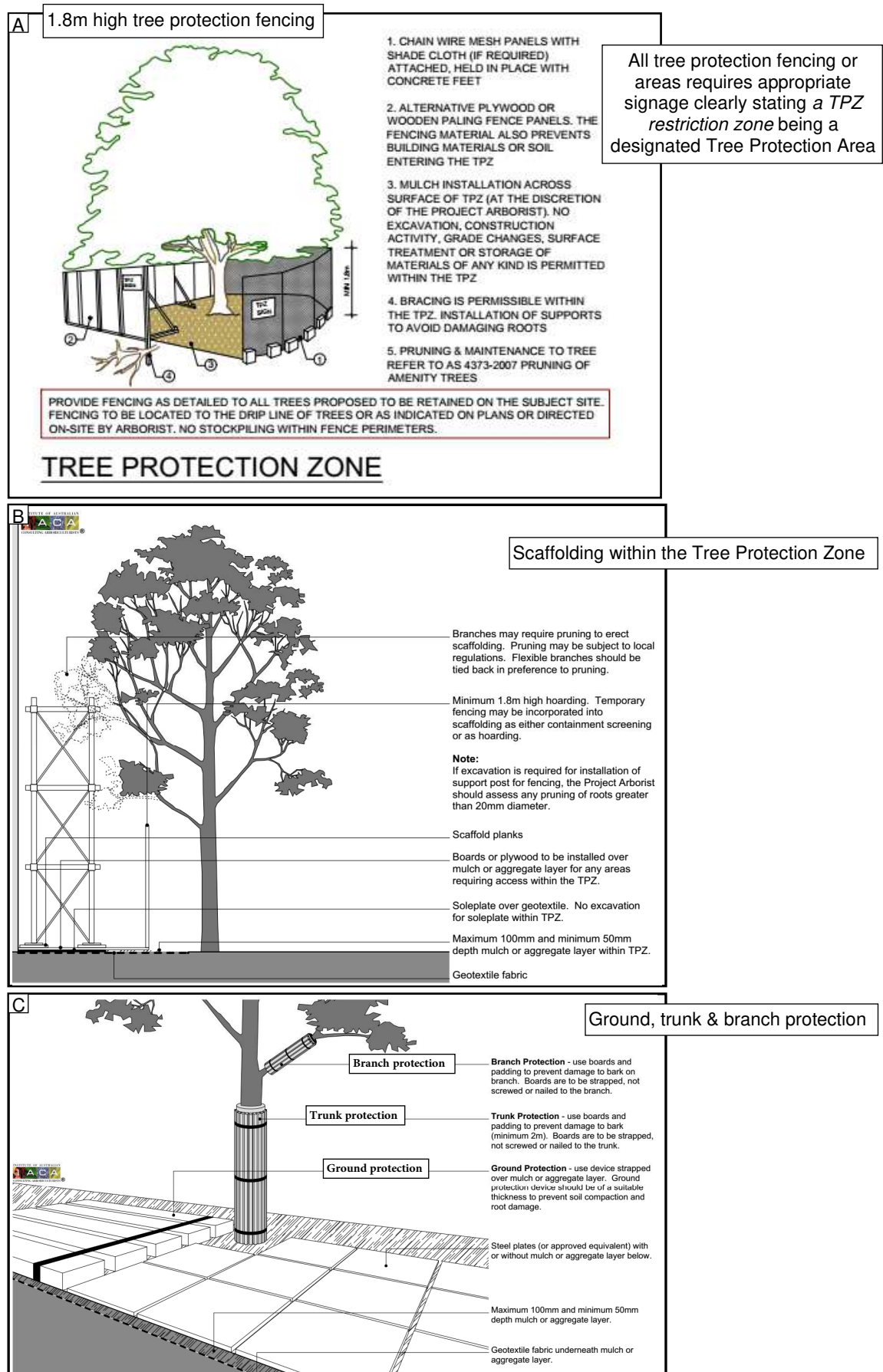
Tree 1:

- a) In general the design should consider tree sensitive construction methods that reduce impacts within the tree protection zone. The TPZ should remain exposed to natural elements of water and air movement being not restricted by block walls or covered wall cladding proposed below suspended finished floor levels. Decking should also be constructed in a manner that permits water / precipitation to drain freely to natural ground such that soil biology responsible for tree vitality is not degraded.
- b) Prior to obtaining a Construction Certificate (CC) a detailed pier footing plan and colour coded cut & fill plan including intended over excavation areas within the SRZ & TPZ is recommended for arborist review and comment. Specific areas of concern are strip footings within the SRZ & TPZ in support of block walls, likely cut areas to accommodate construction and pool excavation within tree protection zones.
- c) Where excavation is proposed within the SRZ tree root investigations are recommended to provide further information on the location, distribution and impact to critical underlying tree roots.
- d) The tree should also be specifically managed in accordance with the below recommendations.

2.3 General tree protection requirements

- a) Prior to demolition & works Tree Protection Fencing (TPF) and/or zones as identified within Figure 2 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- C.
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 specified protection areas.
Should there be any uncertainty with all recommended tree protection requirements the site superintendent shall contact the appointed project or site arborist for advice prior to works occurring within tree protection zones (TPZ).

Figure 2: Tree protection fencing, ground and trunk protection detail



- b) 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.
- c) 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*).
- d) 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*.
- e) 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.
- f) 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.
- g) *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.
- h) *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.

- i) *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).
- j) *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, or as directed & approved by appointed site arborist.
 - 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 for arborist review.
 - 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 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

- 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.

Yours sincerely



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APPENDICES

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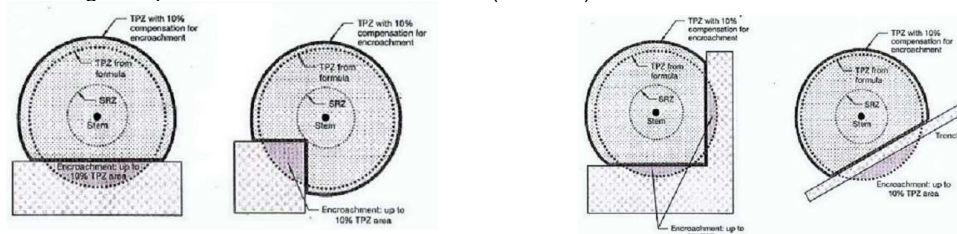
APPENDIX- A: Terminology & references

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 Standards 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 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- C: 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 *exempt trees from the LGA Tree Preservation Order (TPO)					
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	SRZ	Age	Vigour	Condition	Significance	VTA	RV	U. L.E.	Comments CV = Council verge tree NT= Neighbouring tree
				TPZ								
1	<i>Corymbia maculata</i> Spotted Gum	16 x 15	600	2.8m 7.2	SM	Good	Good	3	6	1	2	Slightly environmentally stressed with minor low foliage volume, appears located on rock with lower trunk swelling in compensation for sloping topography & potential shallow soils increasing SRZ
Design & impact summary		Retain with timber beam trunk & ground protection. Given suspended structures TPZ occupancy or disruption resulting in impacts to tree vitality consist of new pool barrier to lower pool excavation, spar, stair construction to upper-level wall barrier and decking within the SRZ & TPZ. Based on TPZ coverage by site features TPZ occupancy is likely to be at a Significant level (>35%) occupancy / coverage, at or near 40.9% which is likely to disrupt tree vitality. Impacts of encroachment have been mitigated by proposed suspended structures, with decline of soil biology by TPZ coverage likely to result in environmentally stress and possibly decline in tree vigour. Mitigating impacts & tree retention requires tree root investigations in excavation areas within the SRZ, pier footing plan in TPZ with cantilevering towards the tree, cut & fill plan to clearly detail impact areas with suspended structures clear to the air allowing for air movement (not cladded infill) and decking that allows for moisture drainage to ground level. Overall construction impacts are likely to be high with topography and soil conditions indicating tree vitality would likely be difficult to maintain or improve given extent of works proposed.										
2	<i>Acmena smithii</i> Lilly Pilly	9 x 8	450	2.7 5.4	ESM	Good	Good	3	2C	2	2	Minor lower trunk wounds with past pruning cuts W side, exposed surface roots E side likely from shallow soils and rock subsurface increasing SRZ, with no significant visual faults identified
Design & impact summary		Retain with tree protection fencing. Based on Plan DA06 the proposed pool footprint including coping has manageable Moderate to Low (10-15%) TPZ occupancy, at or near 12.37% encroachment of low-level impact. Mitigating impacts requires no excavation within the SRZ, manual hand excavation within the TPZ with appropriate root management (clean cutting) by appointed site arborist. After demolition tree protection fencing shall be installed at a 4.5m radius and slightly reduced to accommodate pool construction to the east.										

