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203 BALGOWLAH ROAD - BALGOWLAH, NSW PROPOSED ADDITIONS & ALTERATIONS ARBORICULTURAL ASSESSMENT & PRUNING PLAN

Report ref No. RTC-15119

INTRODUCTION

This report has been commissioned by Louise Ford on behalf of Enviro Frontier to determine potential conflict that may occur to trees located within 5m of a new development proposal. Proposed works primarily consist of internal additions, alterations and construction of a second storey within the existing building footprint. Given works located within the existing building footprint the majority of tree conflict exists in canopy reduction pruning of one (1) large and significant Sydney Red Gum tree.

METHODOLOGY

In preparation for this report a basic ground level visual tree inspection was conducted by the author on Monday 8th October 2019. Works and documentation reviewed to assist in preparation of this report include:

- Observing two (2) trees likely to be affected by works and undertaking a limited site & ground level Visual Tree Assessment adopted from components of Mattheck & Breloer 1994 '*The Body Language of Trees*'. Providing each tree with a temporary number where each tree is identified by number throughout this report.
- On completion of the VTA the retention value of the tree was summarized utilizing the Tree Assessment Checklist provided within Appendix- A.
- Measuring trunk diameter in accordance with AS4970 to determine the estimated Structural Root Zone (SRZ) *the area required for tree stability*, and Tree Protection Zone (TPZ) radius.
- Conducting a visual assessment of tree health, growth habit, age, structure, stability and growing environment to determine the viability of undertaking the proposed works without adverse impact to the tree.
- Observing extent and size of extending limbs likely to be affected by the proposal and estimating the residual effect of pruning to the trees remaining canopy form.

Documentation reviewed

Dona Barns Design

- Site Plan Dwg No. DA03 dated 6.9.2019

PEAK Surveying Services

- Survey Plan Sheet 1 of 1 within job No. 18-1098 dated 26.11.2018

This report is primarily based on the specifications and requirements outlined within Australian Standards Pruning of Amenity Trees AS4373 2007.

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7**1. SUMMARY OF ASSESSMENT***The development proposal*

- 1.1 The development proposal primarily consist of internal works with provisions for an additional second storey and part demolition to the rear of the dwelling. The extent of the design proposes a negligible root zone encroachment or impact to adjacent trees where the trees assessed are considered viable for retention.

Demolition of the rear part dwelling requires tree 2 to be protected with timber beam trunk protection having existing astro turf acting as a protection barrier to underlying tree roots. Tree 1 will receive minor canopy impacts by the second storey addition where the amount of canopy loss will unlikely affect tree vitality, canopy balance or aesthetics. Tree 1 will also require timber beam trunk and ground protection as indicated within Figure 2 to minimise potential conflicts during works.

Figure 1, showing proposed development footprint

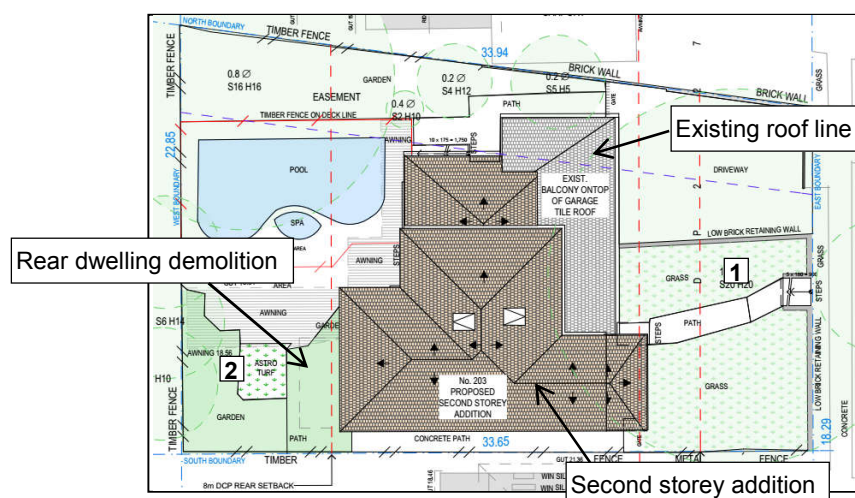
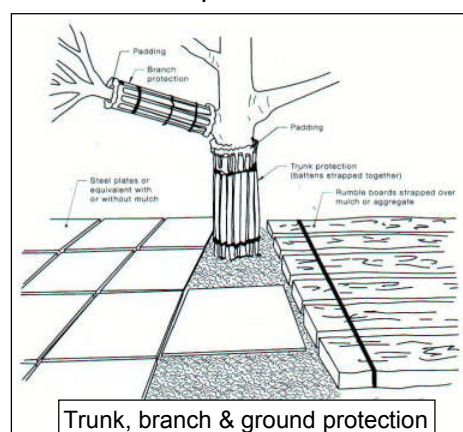


Figure 2, Showing ground and trunk protection detail



2. TREE 1 - PRUNING DISCUSSIONS

- 2.1 Canopy pruning is to be limited to activities identified within Australian Standards AS4373 Pruning of Amenity Trees 2007 such as:
- *General pruning* (Section 7.3.1) which forms a combination of pruning activities to achieve the desired outcome, *where the size of branch stem is to be specified at the time of assessment* (AS4373). General pruning requirements include:
 - *Selective pruning* (Section 7.2.4) which removes branches that are causing a specific problem - they may include crossed and damaged stems.
 - *Reduction pruning* (Section 7.3.2) where the ends of branches are removed to internal branches or stems, and
 - *Crown lifting* (Section 7.3.3) being the removal of lower branches to allow for appropriate building line clearances.
- 2.2 The proposed pruning is estimated to result in a near 12% canopy loss. Reduction pruning is required on the southern side of the canopy only where visual aesthetics and canopy balance will not be disrupted to the north when viewed from Balgowlah Street frontage. The size of branches and pruning cut locations have been provided within Section 3, where Council approval is required prior to any pruning activities being conducted.
- 2.3 Pruning 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). At the time of pruning works the certified arborist is to identify any additional pruning that removes suddenly exposed stems and pruning that maintains canopy balance and aesthetics.
- All pruning works are to be conducted with sharp disinfected pruning saws or horticultural pruning tools, ensuring clean cuts that reduced risk of infection resulting in wood rot decay.

Figure 3, Showing estimated canopy loss, see Section 3 for further detail



Yours sincerely

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3 – TREE 1, PRUNING SCHEDULE

Tree	Stem & pruning location
1	<u>RECOMMENDED PRUNING</u> [1] = Prune out 1x stem 110mm(Ø) at 8m over roofline E side [2] = Prune out 4x stem 50-80mm(Ø) at 12m over central roof line (stems 2a, b, c & d) [3] = Prune out 1x stem 110(Ø) at 9m extending to W side of centre roof line *Additional crown raising of low bowing stems <40mm(Ø) may be required after the pruning event to maintain balance
	

APPENDIX- A: Terminology, notes & references

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 tree's 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. **Footprint:** The area occupied by site structures, including the dwelling driveways and hard surfaces. **Hazard:** When a tree failure hazard is present when a tree has potential to cause harm to people or property. (A source of potential harm). **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. **Wound:** Damage inflicted upon a tree through injury to its living cells, may continue to develop further weakening of the structure compromising structural integrity.

NOTES: 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). Given the existing site conditions both the SRZ & TPZ cannot be accurately determined

Development encroachments are referred to as No impact (0%) incursion, Low impact (<10%) of minor consequence, Medium impact (<20%) incursion where the project arborist is to demonstrate the tree/s remain viable by tree sensitive construction techniques, and High level impact (>20%) where design changes or further information is required to manage tree vitality.

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.

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.

Matheny N. & Clark J. 1998, *Trees & Development 'A Technical Guide to Preservation of Trees During Land Development'* International Society of Arboriculture, Champaign USA.

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.

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.

APPENDIX- B: Visual Tree Inspection Checklist

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 where risk mitigation or rectification works may likely compromise tree anchorage
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 pathogen activity, cavities or symptoms indicating internal decay of 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 by minor pruning or storm damaged 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): [1] Low risk - tree free of visual defects & viable for retention, [2] Medium – low risk - viable for retention with minor faults which may reduce ULE, [3] Medium risk - trees which containing issues or faults that are likely to become problematic in the near future, [4] M/High risk - trees to be considered for removal due to poor 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. The five categories of U.L.E. are as follows:

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.

Trees with low retention values: senescence, developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO)

Tree Location Plan

