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30 July 2024

56 CRESCENT ROAD
NEWPORT, NSW

SECONDARY DWELLING DEVELOPMENT PROPOSAL

ARBORICULTURAL IMPACT ASSESSMENT REPORT

Ref No- 7024

Prepared for
J & R Lisle
56 Crescent Road
NEWPORT NSW 2106

Prepared by
Mark A. Kokot
AQF Level 5 Consulting arborist

INTRODUCTION & METHODOLOGY

This report has been commissioned by J & R Lisle. The reason this report has been commissioned is to assess potential impacts that may occur to significant trees in relation to a new secondary dwelling development proposal situated within the rear yard of 56 Crescent Road NEWPORT NSW.

In preparation for this report a site and tree inspection was conducted on Friday 19 July 2024 by the author of this report. Documentation reviewed and/or works conducted to assist in the preparation of this arboricultural assessment include:

- Undertaking a limited ground level visual tree inspection adopting components for Mattheck *& Breloer* 'The *Body Language of Trees*'1994. On completion of the inspection the retention value of the tree was summarized utilizing the Tree Assessment Checklist provided within Appendix- B.
- Estimating tree height and measuring trunk diameters to determine the estimated Structural Root Zone (SRZ) *the area required for tree stability*, and Tree Protection Zone (TPZ) radiuses as indicated within Appendix- C.
- Determining age, vitality & condition of trees to withstand works within the tree protection zone.
- Determining *Minor* (<10%) or *Major* (>10%) TPZ encroachments by new works, where encroachments are discussed as *Low*, *Moderate* to *High-level* impacts by the design proposal.
- Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree. For trees not plotted within documentation tree location and design impacts have been estimated.

Documents reviewed

Network Design- *specific to design plans*:

- Secondary Dwelling Dwg No: 04-24-CRE, Sheet 1, issue DA dated April 2024.
- Secondary Dwelling Elevations Dwg No: 04-24-CRE, Sheet 3, issue DA dated April 2024.
- Sections & Notes Dwg No: 04-24-CRE, Sheet 4, issue DA dated April 2024.
- Site Plan Dwg No: 04-24-CRE, Sheet 5, issue DA dated April 2024.

DP Surveying

- Survey Plan ref No: 3060 dated 30.11.2017.

SUMMARY OF ASSESSMENT

General tree assessment

1. Three (3) trees have been inspected for the purpose of this secondary dwelling development proposal. Of the three trees two (2) trees T4 & 5 are located within a neighbouring property and within the site remaining tree T3 contains a somewhat low retention value.

The development proposal

2. The development proposal requires construction of a part suspended or on ground secondary dwelling / granny flat that requires minor excavation for site leveling to accommodate the eastern design footprint as shown within Sheet 3 Section Plan 04-24-CRE. Being a part suspended and on ground structure the design is of a part tree sensitive construction method as indicated within Australian Standard AS4970-2009 Protection of Trees on Development Sites Section 3.3.4 *TPZ encroachment considerations* subsection *h)*.

Discussion of development impacts

Tree removal

3. Based on the documentation assessed, no trees require removal to accommodate this development proposal.

Tree retention

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

5. Neighbouring trees T4 & 5.

   Of these trees T4 (Coachwood) receives *negligible* (0%) Tree Protection Zone (TPZ) encroachment by the building footprint with T5 receiving *Minor* (<10%) TPZ encroachment without Structural Root Zone (SRZ) occupancy.

   Given *Negligible* (0%) and *Minor* (<10%) TPZ encroachments without SRZ occupancy the trees are considered capable of being managed in accordance with Section 9 *General tree protection requirements,* specific to:

   - No soil disturbance or excavation within Structural Root Zone (SRZ) radiuses is to occur without prior arborist advice & certification.

6. Tree 3.

   The secondary dwelling building footprint proposes a manageable *Moderate* (15-20%) TPZ incursion, at or near 16.4% occupancy being outside the SRZ. Given the manageable occupancy within the TPZ the tree is considered capable of being managed in accordance with Section 9 *General tree protection requirements,* specific to:

   - No soil disturbance or excavation is to occur within the SRZ. The SRZ is to remain an excavation exclusion zone.
   - To mitigate impacts by the proposal the tree is to be protected with trunk & ground / root protection as indicated within Diagram 1: *trunk & ground protection*.

CONCLUSIONS & RECOMMENDATIONS

7. The design proposal being a part on ground & suspended design is a tree sensitive construction method where the trees inspected appear capable of retention without high-level impacts by the proposal.

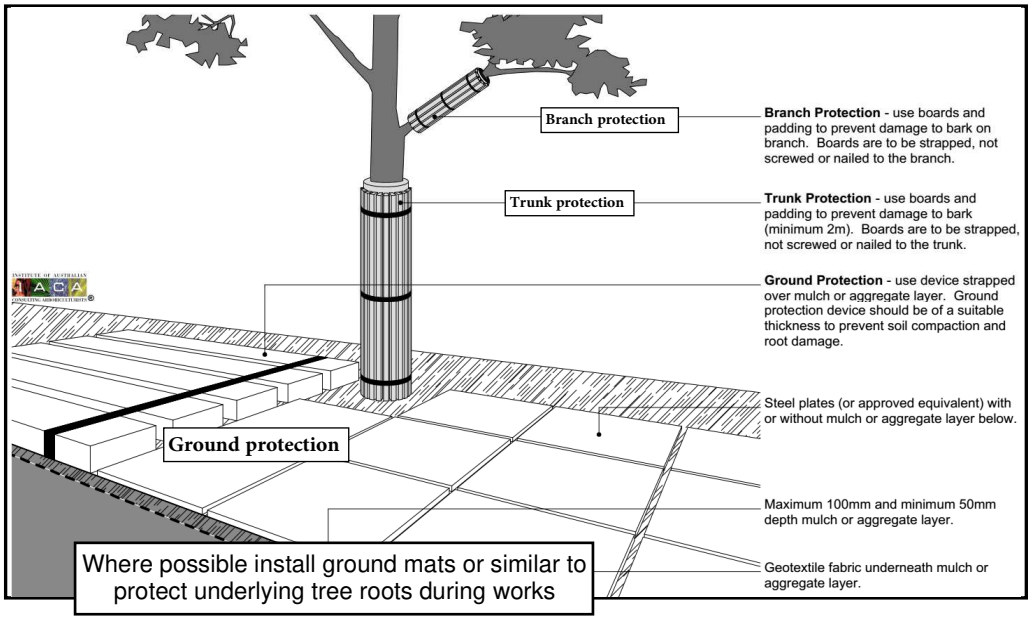
8. Ensuring the Structural Root Zone (SRZ) being *the area required for tree stability* is not disrupted, ground protection is recommended to be installed adjacent trees 3 & 4, with timber beam trunk protection placed on tree 3 as indicated within Diagram 1 below.

GENERAL TREE PROTECTION REQUIREMENTS

9. In accordance with Australian Standard AS4970 Protection of Trees on Development Sites– 2009, the following general recommendations are provided as a guide for tree protection during works.

   a) Given limited site access for construction activities Tree Protection Fencing (TPF) may interfere with construction site access. Therefore, ground mat root protection spanning the SRZ is recommended for trees 3 & 4, with T3 protected with additional timber beam trunk protection. The installation of tree protection is recommended to be certified by an appointed project arborist prior to works commencing.

Diagram 1, showing trunk & ground protection



   b) Unless approved otherwise activities to be excluded within the SRZ & part TPZ radiuses, or specified tree protection areas (TPAs) include:
      - Excavation & disturbance within the SRZ. The SRZ is to remain a development activity exclusion zone. Works and/or access within the SRZ requires prior arborist advice and certification.
      - Machine access, excavation, including trenching & installation of utility services, storage & work preparation including wash down areas, soil level change and physical damage to trees.

c) In accordance with AS4970 - 2009 (1.4.4) during works 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 site arborist. Where approved by the arborist the pruning of roots at or <20mm(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 without arborist advice. 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, fencing, 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 minimize the impact of encroachment (AS4970).

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) *Hold points*: specific to no works are to commence without arborist advice, inspections & certifications:

1) Prior to construction arboricultural certification is required ensuring all trees have been adequately protected in accordance with this report, or as indicated within Australian Standard AS 4970 – 2009 Protection of Trees on Development Sites.
2) No works (including landscaping) shall occur within the SRZ of any tree without prior arborist advice and certification.
3) No excavation shall occur within the TPZ without prior project arborist notification and/or site supervision.

m) 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).

Should you require further liaisons in this matter please contact me direct on 0419 250 248
Yours sincerely

Mark A Kokot
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

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. **Vitality** – the state of being strong & active, capacity for survival or for the continuation of a meaningful or purposeful existence which includes ***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*****:** referring 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 week 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, **Minor** <10% incursion to >10 or <15% = **low** to moderate level of incursion. >15 - <20% = **moderate** level of incursion to >20 - <25% - moderate to **high** level of incursion. >25 - <35% where design changes or further information is required to manage tree vitality and >35% - significant inclusion within the TPZ

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.
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.
Northern Beaches Council DCP https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/planning-controls

APPENDIX- C: Tree Retention Value *Check list* ©*rainTree consulting*

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

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 compromise tree anchorage. Tree(s) may be contained by sloid structures with restricted anchoring root potential
0A	Noxious or invasive weed species located within heritage conservation areas		
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 or 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, or 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 have become exposed or are subject to wind loading pressure, or have tall forest form where exposure may result in windthrow or limb snap
		5A	Screen trees or shrubs that are routinely hedged or pruned for height control
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 fee of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees containing faults that are likely to become problematic in the future, [4] trees to be considered for removal due to average condition.

1	High retention	2	Medium retention	3	Low retention	4	Consider removal

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 to15 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

Refer Appendix- C Tree retention value Checklist

	Consider tree removal due to dead or high-risk 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 (m)**	**Age**	**Vigour** (health)	**Condition** (structure)	**LS**	**VTA**	**RV**	**ULE**	**Comments** CV = Council verge tree NT = Neighbouring tree
3	*Syncarpia glomulifera* Turpentine	17 x 9	550	2.7 / 6.6	SM	Good	Fair	2	2D	2	3	Tree of tall forest form, live crown starts at 8m, large limb snap at 5m S side, long weight loaded exposed branch (beam) W, codominant at 9m. Evidence of works within the SRZ
Design impact summary: Proposed dwelling footprint of a somewhat manageable Moderate (15-20%) TPZ incursion at or near 16.4% encroachment being outside the SRZ. Given manageable encroachment tree capable of being managed in accordance with Section 9 General tree protection requirements, specific to: no demolition or excavation within the SRZ with SRZ protected with ground protection during works.												
4 *NT*	*Ceratopetalum apetalum* Coachwood	15 x 8	300	2.1 / 3.6	SM	Good	Fair / Good	3	2D-2B	2	2	Twin stems at 2.2m with minor stem inclusion development, past pruning cuts SW side modifying form, above ground vigour - good
Design impact summary: Proposed dwelling footprint including paving of Negligible (0%) design footprint occupancy within the TPZ with existing low retaining wall to remain indicating tree capable of being managed in accordance with Section 9 General tree protection requirements, specific to: no access, disturbance or occupancy within the SRZ.												
5 *NT*	*Araucaria heterphylla* Norfolk Island Pine	25 x 15	1100	3.5 / 13.2	M	Good	Good	3	7	1	2	Restricted visual inspection by site conditions, above ground visual parts appear in good order
Design impact summary: Proposed dwelling footprint excluding rear yard paving having a Minor (<10%) TPZ occupancy, of low-level impact being well outside the SRZ. Given low level occupancy tree capable of being managed in accordance with Section 9 General tree protection requirements.												

APPENDIX- D: Tree Location Plan