Arboricultural Impact Assessment

TREEISM
Arboricultural Services

Prepared For
Peter and Phoebe Brisbane
13 Garden Street
NORTH NARRABEEN NSW 2101

SITE ADDRESS
13 GARDEN STREET
NORTH NARRABEEN NSW 2101

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R2

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Contents

1 Introduction

1.1 Brief

1.1.1 This Arboricultural Impact Assessment (AIA) was prepared by Chantalle Hughes of Treeism Arboricultural Services. This report was commissioned by Peter and Phoebe Brisbane, owners of the subject site. The site is Lot 1 in DP 24227 and is known as 13 Garden Street, North Narrabeen, New South Wales. Alterations and additions to a residential dwelling house are proposed.

1.1.2 The purpose of this report is to identify the species of each assessed tree, assess their vigour, condition, landscape prominence and ascribe a Retention Value to each tree.

1.1.3 This report identifies the potential impacts the proposal will have on the retention or long-term viability of each tree and aims to provide guidelines for tree protection and maintenance during development.

1.2 Context

1.2.1 Acknowledgement of the original inhabitants of the Northern Sydney area is complex. The Aboriginal Heritage Office (AHO) states…' Clan names which can be found on most maps for the northern Sydney region of the AHO partner Councils are the following: Gayamaygal, Gamaragal, Garigal, Darramurragal and many more'…..exact clan name knowledge has been lost, or at the very least is hard to find, as traditional inhabitants of Australia were told to 'give up their language, stop practicing ceremony and hide their Aboriginality'.

1.2.2 The Department of Planning, Industry and Environment 'Espade' states site geology as 'Holocene silty to peaty quartz sand. Medium to fine marine sand with podzols.'

1.2.3 The Department of Planning, Industry and Environment 'Espade' states site vegetation as 'Extensively cleared, sclerophyll scrub and woodland. Remaining native tree species include *Melaleuca quinquenervia, Banksia integrifolia, Casuarina glauca* and *Eucalyptus robusta*. Remaining scrub and understorey species include *Leptospermum laevigatum*, *Eleochari*s spp., and *Gahnia sieberiana*.'

1.3 Methodology

1.3.1 In preparation for this report, ground level, visual tree assessments* or limited VTA (e.g. where access was limited), of seven (7) trees was completed by Treeism on 12th December 2024. Inspection details of these trees are provided in Appendix 3 — Schedule of Assessed Trees.

1.3.2 Tree data and field observations were entered into a data dictionary on a Trimble TDC600. Data was managed through Terraflex Trimble Connect.

1.3.3 The tree heights were visually estimated or measured using a Nikon ForestryPro, unless otherwise noted in Appendix 3, the trunk Diameter at Breast Height were measured at 1.4 metres above ground level (DBH) using a diameter tape unless indicated otherwise. Tree canopy spreads were stepped out with field observations written down, and photographs of the site and trees were taken using an iPhone 16 Pro Max.

1.3.4 The Structural Root Zone (SRZ) and the Tree Protection Zone (TPZ) of each tree is established using the formula provided within the Australian Standard 4970-2009 Protection of trees on development sites (AS4970).

1.3.5 Tree Retention Values (RV) were calculated utilising STARS – Significance of a Tree Assessment Rating System (IACA 2010) ©.

1.4 Plans and documents referenced

1.4.1 AS4970-2009 Protection of trees on development sites, Standards Australia.

1.4.2 AS4373 Pruning of amenity trees, Standards Australia.

1.4.3 Detail Plan, Job/Drawing no. 2364, dated 1st November 2021, authored by True North Survey Group.

1.4.4 Design Plans, Project no. 2023-015, drawing no's A101—A109, A110.1-A110.2 and A111.2, dated 3rd April 2025, Revision 1, 'New Build', authored by Blue Sky Building Designs.

1.4.5 Request for Additional Information, re: DA2025/0376, dated 10 April 2025, Northern Beaches Council.

1.4.6 This AIA takes account of the State Environmental Planning Policy (Biodiversity and Conservation) 2021 'Bio SEPP' and Pittwater 21 Development Control Plan, B4.22 Preservation of Trees or Bushland Vegetation (P21DCP).

1.5 Limitations

1.5.1 Care has been taken to obtain all 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.

1.5.2 This report is not intended to be a comprehensive tree risk assessment; however, the report may make recommendations, where appropriate, for further assessment, treatment or testing of trees where potential structural problems have been identified, or where below ground investigation may be required.

1.5.3 No aerial inspections, root mapping or woody tissue testing were undertaken as part of this tree assessment.

1.5.4 Information contained in this report only reflects the condition of the trees at the time of inspection. Trees are dynamic, living things which can be subject to change without notice in certain circumstances.

1.5.5 No Landscape or Hydraulic Service Plans were viewed as part of this assessment.

1.5.6 This AIA is not intended as an assessment of any impacts on the trees by any proposed future development of the site.

* Visual Tree Assessment (VTA) is a procedure of defect analysis developed by Mattheck and Breloer (1994) that uses the growth response and form of trees to detect defects.

2 Observations and Discussion

2.1 Threatened Species/Conservation Status

2.1.1 No assessed tree was found to be of a species subject to endangered or threatened conservation status under either Federal and State Government legislation i.e. NSW Biodiversity Conservation Act 2016 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

2.1.2 The northern boundary of the site is identified on the NSW Government Biodiversity Values Map and Threshold Tool.

2.2 Assessed Trees

2.2.1 Seven (7) trees were assessed or identified and are included in this report. Details of these are included in the Schedule of Assessed Trees — Appendix 3.

2.2.2 **Tree locations**—of the seven (7) assessed trees, the following is noted:

- Four (4) assessed trees are located on neighbouring property adjoining the subject site—Tree 1-4.
- Three (3) assessed trees are located within a Council managed reserve adjoining the subject site—Tree 5-6.

2.2.3 **Tree origins**—of the seven (7) assessed trees, the following is noted:

- Three (3) assessed trees are introduced exotic species—Tree 1-3.
- One (1) assessed tree is an introduced native species—Tree 4.
- Three (3) assessed trees are locally native species—Tree 5-7.

2.2.4 **Retention Value (RV)** — Seven (7) prescribed/neighbouring trees and their respective Retention Value (RV) are identified in Table 1, below/next page. Note: Refer to Appendix 2 for the methodology used to assess the Retention Value of a tree.

Table 1—Tree Identification and Retention Value, where L = Low, M = Medium, H = High, R = Removal Proposed.

Tree No.	Common Name	RV	Tree No.	Common Name	RV
1	Cocos Palm	**L**	**5**	River She-oak	**H**
2	Cocos Palm	**L**	**6**	River She-oak	**H**
3	Cocos Palm	**L**	**7**	River She-oak	**H**
4	Weeping Bottlebrush	**M**			

3 Impact of the Proposed Development

3.1 Potential Impacts on Prescribed Trees Proposed for Retention

3.1.1 Under the Australian Standard 4970-2009 Protection of trees on development sites (AS4970), encroachments less than 10% of the Tree Protection Zone (TPZ) are considered to be minor. No specifications are provided in AS4970 for potential impacts of 10% or greater. This 10% is interpreted as the threshold figure, if the proposed encroachment is greater than 10% of the TPZ or inside the SRZ, the project arborist must demonstrate that the tree(s) would remain viable.

3.1.2 When determining the potential impacts of encroachment into the TPZ, the project arborist should consider the following items listed under Clause 3.3.4 of AS4970-2009:

(a) Location and distribution of the roots to be determined through non-destructive investigation methods (pneumatic, hydraulic, hand digging or ground penetrating radar). Photographs should be taken, and a root zone map prepared.

(b) The potential loss of root mass resulting from the encroachment: number and size of roots.

(c) Tree species and tolerance to root disturbance.

(d) Age, vigour and size of the tree.

(e) Lean and stability of the tree. NOTE: Roots on the tension side are likely to be most important for supporting the tree and are likely to extend for a greater distance.

(f) Soil characteristics and volume, topography and drainage.

(g) The presence of existing or past structures or obstacles affecting root growth.

(h) Design factors.

3.1.3 Disturbance within the Structural Root Zone (SRZ), and extent of encroachments into the TPZ's of prescribed trees to be retained are summarised in Table 1 below/next page.

Table 1: Estimated encroachments of permanent structures into the SRZ and TPZ of trees proposed for retention. Note 1: These figures are based on the SRZ and TPZ's offsets of the trees as calculated under AS4970 and do not necessarily reflect the actual root zones of the trees. Existing at or below ground structures, site topography and soil hydrology will influence the presence, spread and direction of tree root growth.

Tree No.	Tree	Tree located on site	SRZ affected	TPZ area (m^2)	TPZ encroachment (approx. m^2)	TPZ encroachment (approx. %)
1	Cocos Palm	**x**	N/A	49	11.2	22.9
2	Cocos Palm	**x**	N/A	49	3.4	6.9
3	Cocos Palm	**x**	N/A	49	0	0
4	Weeping Bottlebrush	**x**	**x**	18	0	0
5	River She-oak	**x**	**x**	69	0	0
6	River She-oak	**x**	**x**	41	0.49	1.2
7	River She-oak	**x**	**x**	125	2.8	2.2

NOTE: Visual encroachment mark ups are detailed in Appendix 6 - TPZ Encroachment Calculations - Visual.

3.1.4 **Tree 1 Cocos Palm** – located within adjoining neighbouring property.

Structural Root Zone impacts:

- The AS4970 formula for calculating the SRZ of a tree does not apply to palms/monocots, cycads, and tree ferns.

Tree Protection Zone impacts:

- The proposed refiguration of the dwelling house (and raising off ground level) encroaches an estimated 22.9% of the calculated TPZ (see pink shading Appendix 6 TPZ Encroachment Calculations - Visual). This places the proposed works within *major* encroachment under AS4970 and consideration to the items listed under Clause 3.3.4 of AS4970-2009 is required.
- The most relevant items are (c) *Tree species and tolerance to root disturbance*, and (h) *Design factors*. This species is highly tolerant of root disturbance and the calculated TPZ is a gross overestimate of what palm trees require given their dense, compact root systems.
- The proposed dwelling is proposed to be raised above existing ground levels however the sandstone entry will be on ground.
- Impact of tree health/condition is unlikely.

Pruning impacts:

- Minor frond pruning maybe required to facilitate works.

3.1.5 **Tree 2 Cocos Palm** – located within adjoining neighbouring property.

Structural Root Zone impacts:

- The AS4970 formula for calculating the SRZ of a tree does not apply to palms/monocots, cycads, and tree ferns.

Tree Protection Zone impacts:

- The proposed refiguration of the dwelling house (and raising off ground level) encroaches an estimated 6.9% of the calculated TPZ (see pink shading Appendix 6). This places the proposed works within *minor* encroachment under AS4970 and consideration to the items listed under Clause 3.3.4 of AS4970-2009 is not required.
- Nil impact on tree health/condition is foreseen.

Pruning impacts:

- Minor frond pruning maybe required to facilitate works.

3.1.6 **Tree 3 Cocos Palm** – located within adjoining neighbouring property.

Structural Root Zone impacts:

- The AS4970 formula for calculating the SRZ of a tree does not apply to palms/monocots, cycads, and tree ferns.

Tree Protection Zone impacts:

- All works fall outside the calculated TPZ of this specimen (see Appendix 6 TPZ Encroachment Calculations – Visual).

Pruning impacts:

- Minor frond pruning maybe required to facilitate works.

3.1.7 **Tree 4 Weeping Bottlebrush** – located within adjoining neighbouring property.

Structural Root Zone impacts:

- All works fall outside the calculated SRZ of this specimen (see Appendix 6 TPZ Encroachment Calculations – Visual).

Tree Protection Zone impacts:

- All works fall outside the calculated TPZ of this specimen (see Appendix 6 TPZ Encroachment Calculations – Visual).

Pruning impacts:

- Minor pruning may be required to facilitate works, this pruning would be less than 10% total live canopy and 50mm in diameter branches.

3.1.8 **Tree 5 River She-oak** – located within adjoining Council reserve.

Structural Root Zone impacts:

- All works fall outside the calculated SRZ of this specimen (see Appendix 6 TPZ Encroachment Calculations – Visual).

Tree Protection Zone impacts:

- All works fall outside the calculated TPZ of this specimen (see Appendix 6 TPZ Encroachment Calculations – Visual).

Pruning impacts:

- No required pruning is foreseen, canopy is held high over the subject site.

3.1.9 **Tree 6 River She-oak** – located within adjoining Council reserve.

Structural Root Zone impacts:

- All works fall outside the calculated SRZ of this specimen.

Tree Protection Zone impacts:

- The proposed carport encroaches an estimated 1.2% of the calculated TPZ (see pink shading Appendix 6). This places the proposed works within *minor* encroachment under AS4970 and consideration to the items listed under Clause 3.3.4 of AS4970-2009 is not required.

- Nil to minor impact on tree health/condition is likely.

Pruning impacts:

- No required pruning is foreseen, canopy is held high over the subject site.

3.1.10 **Tree 7 River She-oak** – located within adjoining Council reserve.

Structural Root Zone impacts:

- All works fall outside the calculated SRZ of this specimen.

Tree Protection Zone impacts:

- The proposed dwelling extension encroaches an estimated 2.2% of the calculated TPZ (see pink shading Appendix 6). This places the proposed works within *minor* encroachment under AS4970 and consideration to the items listed under Clause 3.3.4 of AS4970-2009 is not required.

- Nil to minor impact on tree health/condition is likely.

Pruning impacts:

- No required pruning is foreseen, the canopy is held high over the subject site.

4 Conclusions

4.1.1 A total of seven (7) trees are included in this Arboricultural Impact Assessment.

4.1.2 No assessed tree has been identified as endangered or threatened under State or Federal Government legislation nor is the site identified on the Department of Planning and Environments Biodiversity Values Map (BV).

4.1.3 One (1) assessed tree located on neighbouring property adjacent to the subject site (Tree 1) will incur 'major' encroachment under AS4970. Tree species and design methods have been assessed, tree protection and retention are considered viable for this specimen.

4.1.4 The remaining assessed trees will incur nil to minor encroachment, impact on tree health is considered unlikely – Tree 2-7.

5 Recommendations

5.1 General Tree Protection Measures

5.1.1 Works within TPZs of trees to be retained shall be done under supervision of an AQF Level 5 Consulting Arborist.

5.1.2 Non-destructive excavation is to be used when working within the TPZ of trees to be retained and must be supervised by an AQF level 5 consulting arborist.

5.1.3 Encroachment within the TPZ must be offset with a range of mitigation measures to ensure that impacts to trees to be retained are reduced or restricted wherever possible. Mitigation must be increased relative to the level of encroachment within the TPZ to ensure trees to be retained remain viable. This can mean (but is not limited to) specific watering over warmer months, carbohydrate/mycorrhizal treatments and regular monitoring of tree condition.

5.1.4 Activities such as replacing or installing footpaths/driveways/retaining walls shall be done with minimal ground and root disturbance within the TPZs of trees that are proposed to be retained.

5.1.5 Any pruning required (including clearances for vehicle movements or other construction impacts) will need to be assessed and supervised by an AQF level 5 consulting arborist and is subject to consent authority approval. This shall be specified in the Tree Protection Plan.

5.1.6 If temporary access for machinery is required within the TPZ of trees to be retained, ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Ground protection may include a permeable membrane such as geotextile fabric beneath a layer of mulch (minimum 75-100mm thickness), crushed rock or rumble boards. This is to be directed within the Tree Protection Plan.

5.1.7 Any additional construction activities within the TPZ of trees to be retained must be assessed. All activities require approval by the Project Arborist and must comply with AS 4970-2009 - Protection of trees on development sites.

5.2 General arboricultural advice

5.2.1 Tree and Root Pruning

- Any pruning required is to be assessed and approved by the Council/PA, prior to undertaking any of this type of work.
- Pruning shall not be undertaken by unqualified site personnel at any time.
- Pruning of branches must be undertaken by a minimum AQF Level 3 arborist in accordance with the Australian Standard AS4373-2007 *Pruning of amenity trees*,
- Unless otherwise approved by the Conditions of Development Consent, or by separate application and approval by the consent authority, pruning is to be limited to cutting of limbs less than 80mm diameters, and no more than 10% total live material removed.

5.2.2 Stockpiling and location of site sheds

- The project arboriculturist must be consulted prior to placing any items within a tree's TPZ.
- Where stockpiling must be located within the TPZ offset of trees to be retained, the existing/undisturbed natural ground must be covered with thick, coarse mulch to a minimum 75-100mm thickness.
- Large, or bulky materials (non-contaminating) can be stacked on wooden pallets or boards placed over the mulch.
- Tarpaulins (or similar) placed on boards or pallets on top of mulch shall be used to prevent loose or potentially contaminating materials from moving into the soil profile within the TPZ of trees or within 10m upslope of trees.
- Where site sheds must be located within the TPZ offset of a tree/s, the shed must be fully elevated on all sides with a minimum 300m between existing ground and the floor/floor bearers. Isolated pad footings must be carefully dug by hand and not damage or sever any roots greater than 20mm diameters.
- Any conflict between footing locations and larger roots (i.e. 20mm Ø plus) must be brought to the attention of the project arboriculturist who is to provide practical alternatives that do not include unnecessary tree root removal.

5.2.3 Fill Material

- Placement of fill material within the TPZ of trees to be retained should be avoided where possible.
- The fill material should be consolidated by hand to minimise compaction of the underlying soil.
- Permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. No fill material shall be placed in direct contact with the trunk.

5.2.4 Pavements

- Pavements should be avoided within the TPZ of trees to be retained where possible.
- Proposed paved areas within the TPZ of trees to be retained is to be placed above grade to minimise excavations within the root zone, avoiding root severance and damage.

5.2.5 Fencing and walls within the SRZ and TPZ of retained trees.

- Where fencing and/or masonry walls are to be constructed along site boundaries, they must provide for the presence of any living woody tree roots greater than 50mm diameter.
- Hand digging must occur within the SRZ of trees to be retained.
- For masonry walls/fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (e.g. steel or timber pickets, lattice etc) fixed to pillars.

5.2.6 Landscaping within tree root zones.

- The level of introduced planting media into any proposed landscaped areas within the TPZ is not to be greater than 75mm depth, and be of a coarse, sandy material to avoid development of soil layers that may impede water infiltration.

- Appropriate container size of proposed plants within the SRZ of trees should be determined prior to purchase of plants. Otherwise, any proposed landscaping within the SRZ must consist of tubestock only. This is required to ensure that damage to tree roots is avoided.
- Mattocks and similar digging instruments must not be used within the TPZ of the trees. Planting holes should be dug carefully by hand with a garden trowel, or similar small tool.
- Where possible, do not plant canopy trees beneath, or within 6 - 8m of overhead lines.

5.2.7 Other

- No washing or rinsing of tools or other equipment, preparation of any mortars, cement mixing, or brick cutting is to occur within 8m upslope of any palms or trees to be retained.
- Regular monitoring of the trees during development works for unforeseen changes or decline will help maintain the trees in a healthy state.

6 References

6.1.1 Mattheck, C. & Breloer, H. (1994) The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees No. 4, The Stationery Office, London.

6.1.2 Standards Australia AS4970-2009 Protection of trees on development sites, Standards Australia, Sydney.

6.1.3 Council Arboriculture Victoria (CAV) AS 4970-2009 Calculator, accessed 16/12/2024. https://as4970calculator.web.app/

6.1.4 Espade Information – accessed 16/12/2024 www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9130ha.pdf

6.1.5 Biodiversity Values Map – accessed 16/12/2024 www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap

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7 Appendices

Appendix 1 – Terms and Definitions

Age classes

Y Young refers to an established but juvenile tree.
SM Semi-mature refers to a tree at growth stages between immaturity and full size.
EM Early-mature refers to a tree close to full sized still actively growing.
M Mature refers to a full sized tree with some capacity for further growth.
LM Late-Mature refers to a full sized tree with little capacity for growth that is not yet about to enter decline.
OM Over-Mature refers to a full sized tree with little capacity for growth that is entering or has entered decline.

Co-dominant: refers to stems or branches equal in size and relative importance.

Condition/Structure: 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/structure.

Deadwood: refers to any whole limb that no longer contains living tissues (e.g. live leaves and/or bark). Some dead wood is common in a number of tree species.

Diameter at Breast Height (DBH): Refers to the tree trunk diameter at breast height (1.4 metres above ground level).

Epicormic growth: adventitious branches that are considered to be a weak attachment in the short term due to minimal wood formation. There are generally formed following storm-related branch breakage or poor pruning practices. Should sufficient holding wood form in the long-term this growth is less of an issue.

Hazard: refers to anything with the potential to harm health, life or property.

Health: Refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

Secondary Stem: refers to stems or branches with one of unequal size and relative importance.

SRZ: refers to the Structural Root Zone of the tree, this is the area required for tree stability.

TPZ: refers to the Tree Protection Zone of the tree, this is the primary method of protecting trees, it is a combination of the root area and the canopy and the SRZ is located within it.

Visual Tree Assessment (VTA): a procedure of defect analysis developed by Mattheck and Breloer (1994) that uses the growth response and form of trees to detect defects.

Appendix 2 – STARS – Significance of a Tree Assessment Rating System (IACA 2010)©

Estimated Life Expectancy – STARS refers to estimated life expectancy of a tree, Treeism utilises ULE categories (after Barrell 1996, Updated 01/04/01) to clarify how this was obtained/decided.

The five categories and their sub-groups are as follows:

1. Long ULE - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Structurally sound trees located in positions that can accommodate future growth
    b) Trees which could be made suitable for long term retention by remedial care
    c) Trees of special significance which would warrant extraordinary efforts to secure their long term retention

2. Medium ULE - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Trees which may only live from 15 to 40 years
    b) Trees which may live for more than 40 years but would be removed for safety or nuisance reasons
    c) Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    d) Trees which could be made suitable for retention in the medium term by remedial care

3. Short ULE - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Trees which may only live from 5 to 15 years
    b) Trees which may live for more than 15 years but would be removed for safety or nuisance reasons
    c) Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    d) Trees which require substantial remediation and are only suitable for retention in the short term.

4. Removal - trees which should be removed within the next 5 years:
    a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions
    b) dangerous trees through instability or recent loss of adjacent trees
    c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form
    d) Damaged trees that are clearly not safe to retain
    e) Trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    f) Trees which are damaging or may cause damage to existing structures within the next 5 years
    g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f)
    h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review

5. Small, young or regularly pruned - Trees that can be reliably moved or replaced:
    a) small trees less than 5m in height
    b) young trees less than 15 years old but over 5m in height
    c) formal hedges and trees intended for regular pruning to artificially control growth

Landscape Significance

The landscape significance of a tree is an essential criterion for establishing the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree.
This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance and *Useful Life Expectancy* of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria

1. High Significance in landscape.

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape.

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area;
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street;
- The tree provides a fair contribution to the visual character and amenity of the local area;
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape.

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings;
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area;
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen;
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions;
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms;
- The tree has a wound or defect that has potential to become structurally unsound.

STARS – Significance of a Tree Assessment Rating System (IACA 2010)© continued

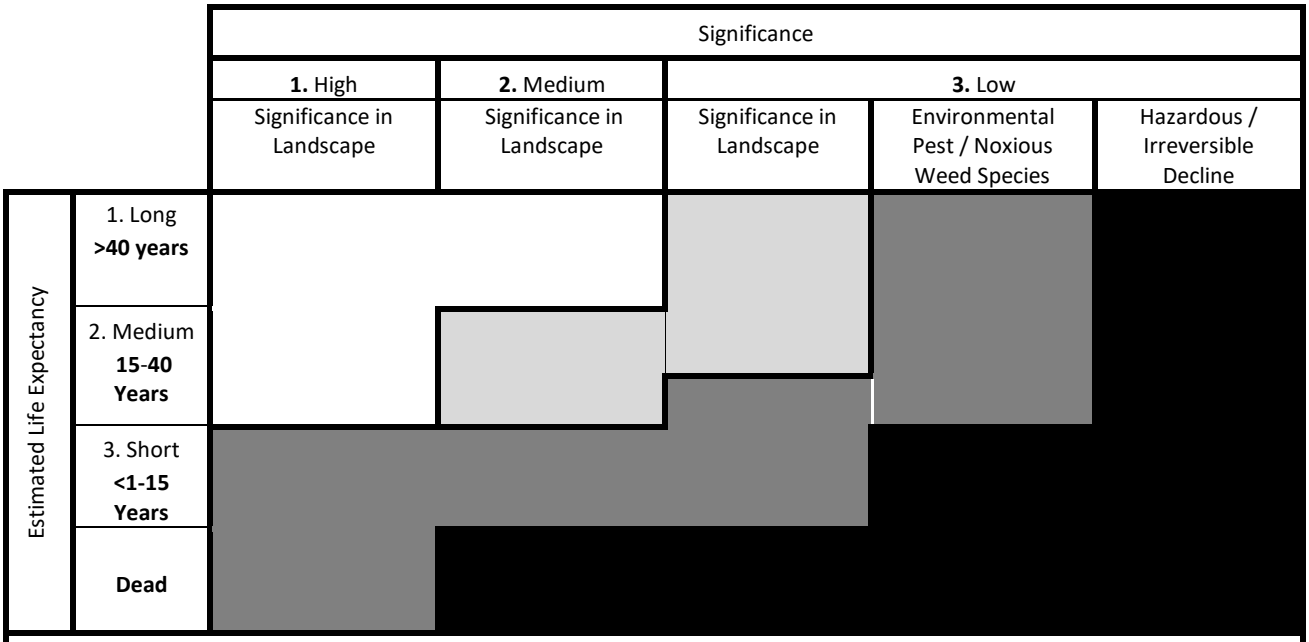
Environmental Pest / Noxious Weed Species:
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties;
- The tree is a declared noxious weed by legislation.

Hazardous/Irreversible Decline:
- The tree is structurally unsound and/or unstable and is considered potentially dangerous;
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are designed for individual trees only but can be applied to a monocultural stand in its entirety e.g. hedge.

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd and Andrew Morton in June 2001.



Legend for Matrix Assessment

	Priority for Retention (High) -These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 *Protection of trees on development sites*. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.
	Consider for Retention (Medium) -These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for Removal (Low) -These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for Removal -These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

Table 1 - Tree Retention Value - Priority Matrix.

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

Appendix 3 – Schedule of Assessed Trees – Site inspection 12/12/2024, 13 Garden Street, North Narrabeen.

Tree No	*Genus & species* **Common Name**	Ht (m)	Sp (m)	DBH (mm)	AB (mm)	Age	V	C	Comments	ULE	TSR	RV	SRZ (m)	TPZ (m)	TPZ (area)	TPZ encroachment (%)
1	*Syagrus romanzoffiana* | **Cocos Palm**	11	6	*220	N/A	M	G	G	Located on neighbouring property. |Introduced exotic species.	2A	L	**L**	N/A	4.0	49	22.9
2	*Syagrus romanzoffiana* | **Cocos Palm**	10	6	*170	N/A	M	G	G	Located on neighbouring property. |Introduced exotic species.	2A	L	**L**	N/A	4.0	49	6.9
3	*Syagrus romanzoffiana* | **Cocos Palm**	9	6	*150	N/A	M	G	G	Located on neighbouring property. |Introduced exotic species.	2A	L	**L**	N/A	4.0	49	0
4	*Callistemon viminalis* | **Weeping Bottlebrush**	9	12	*200	*220	M	G-F	G-F	Located on neighbouring property. |Introduced native species. High percentage of deadwood, thin canopy. Very minimal overhang of branches on subject site.	2A	M	**M**	1.8	2.4	18	0
5	*Allocasuarina cunninghamiana* | **River She-oak**	17	13	390	620	M	G	G	Located on Council managed land. |Locally native species. Canopy high over site.	2A	H	**H**	2.7	4.7	69	0
6	*Casuarina cunninghamiana* | **River She-oak**	14	12	300	470	M	G	G	Located on Council managed land. |Locally native species. Minimal overhang of canopy and held high over site. Decay pockets noted with several stubs in canopy. Crown raised over subject site.	2A	H	**H**	2.4	3.6	41	1.2
7	*Casuarina cunninghamiana* | **River She-oak**	20	15	525	680	M	G	G	Located on Council managed land. |Locally native species. Twisted form, clean stem with branches well clear of site.	2A	H	**H**	2.8	6.3	125	2.2

KEY

Trees to be retained.

Dead/non-prescribed tree or palm on site that may be removed or retained without Development Consent or Tree Management Permit.

Trees proposed for removal.

L Low Retention Value-These trees are not considered important for retention.

M Medium Retention Value-These trees may be retained & protected.

H High Retention Value -These trees are considered important for retention and should be retained and protected.

* DBH is visually estimated (usually adjoining trees/those hard to access). AB – above *buttress roots*. AGL - above ground level. Figures in brackets indicates the determined DBH for a multi-stemmed tree based on the formula shown in Appendix A of AS4970-2009.

NOTE: According to AS4970, the TPZ of palms, other monocots, cycads, and tree ferns should not be less than 1m outside the crown projection. The AS4970 formula for calculating the SRZ of a tree does not apply to palms/monocots, cycads, and tree ferns.

H refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

Sp refers to the approximate and average spread in metres of branches/canopy (the 'crown') of a tree.

DBH refers to the approximate diameter of tree stem at breast height i.e. 1.4 metres above ground (unless otherwise noted) and expressed in millimetres. Figures in brackets indicate the minimum TPZ allowable as per Section 3.2 within AS4970-2009.

Age refer to Appendix 1 -Terms and Definitions for more detail.

V refers to the tree's vigour (health) Refer to Appendix 1 -Terms and Definitions for more detail. G- Good, F-Fair, P-Poor.

C refers to the tree's structural condition. Refer to Appendix 1 -Terms and Definitions for more detail.

ULE refers to the estimated *Useful Life Expectancy* of a tree. Refer to Appendices 1 and 2 for details.

TSR The *Tree Significance Rating* considers the importance of the tree because of its prominence in the landscape and its amenity value, from the point of view of public benefit. Refer to Appendix 2 – Significance of a Tree Assessment Rating for more detail.for more detail.

RV Refers to the retention value of a tree, based on the tree's ULE *and* Tree Significance. Refer to Appendix 2 – Significance of a Tree Assessment Rating for more detail.

SRZ Structural Root Zone (SRZ) refers to the critical area required to maintain stability of the tree. Refer to Appendix 1 for more detail. Expressed as a radial measurement from centre of stem in meters. This is not calculated/does not apply for palms, cycads, tree ferns or monocot species.

TPZ Tree Protection Zone (TPZ) refers to the *tree protection zones* for trees to be retained. Refer to Appendix 1 -Terms and Definitions for more detail. Expressed as a radial measurement from centre of stem in meters. For palms, cycads, tree ferns or monocot species it is calculated to be no less than 1m outside the crown projection

Appendix 4 – Photographs

Plate 1 – Tree 1-3 noted in photograph.

Plate 2 – Tree 1. Note location close to existing dwelling.

Plate 2 – Tree 3 and 4 shown. Tree 3 noted with arrow. Tree 4 behind Tree 3.

Plate 3 – Tree 6 and 7. Canopies clear over subject site.

Plate 4 – Tree 5 noted with arrow. Canopy clear over subject site.

Appendix 5 – Tree Location Plan

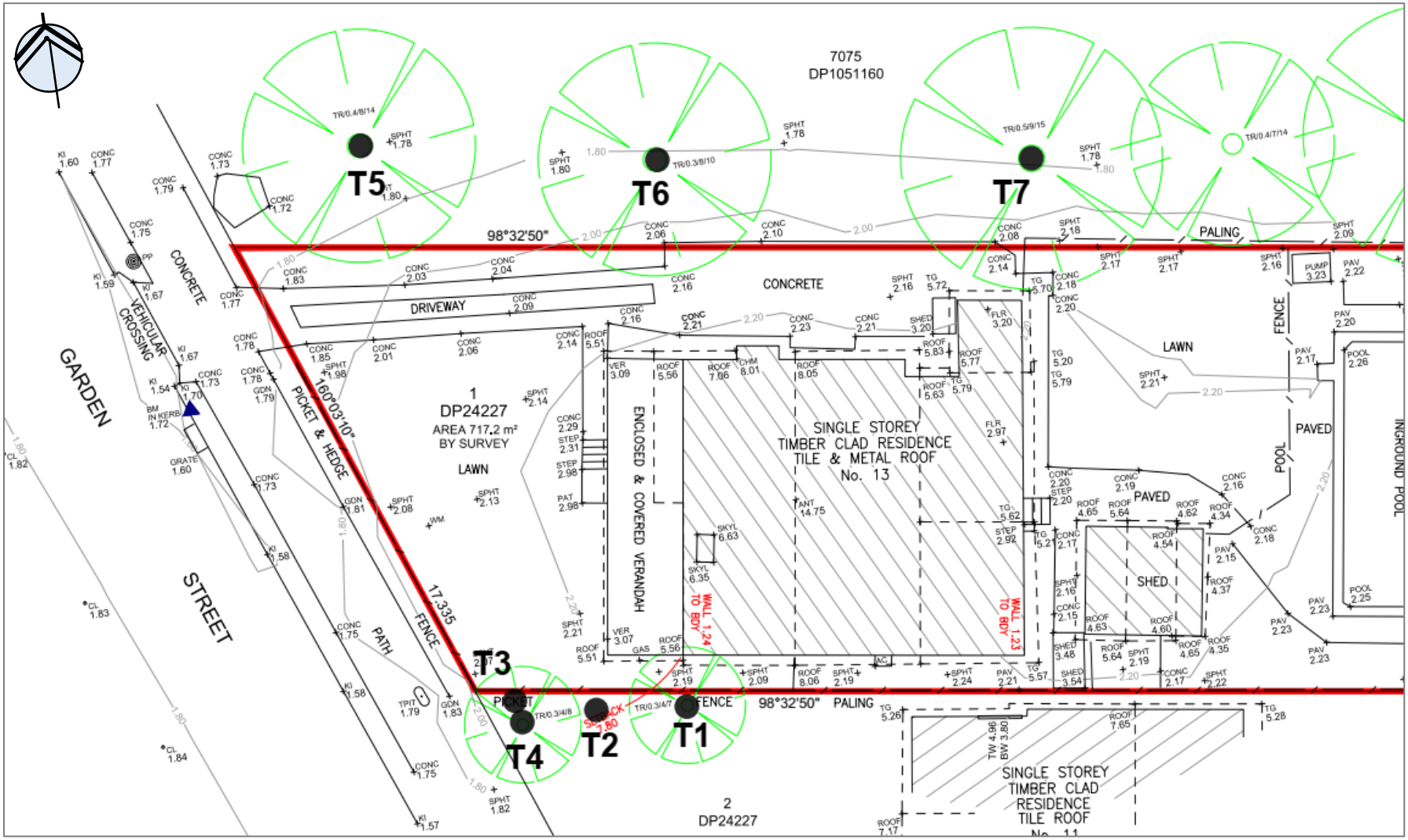


Figure 1 - Marked Up Survey Plan - Plan no. 26072, dated 16th April 2024, authored by G.K. Wilson & Associates. NOT TO SCALE.

Appendix 6 – TPZ Encroachment Calculations – Visual

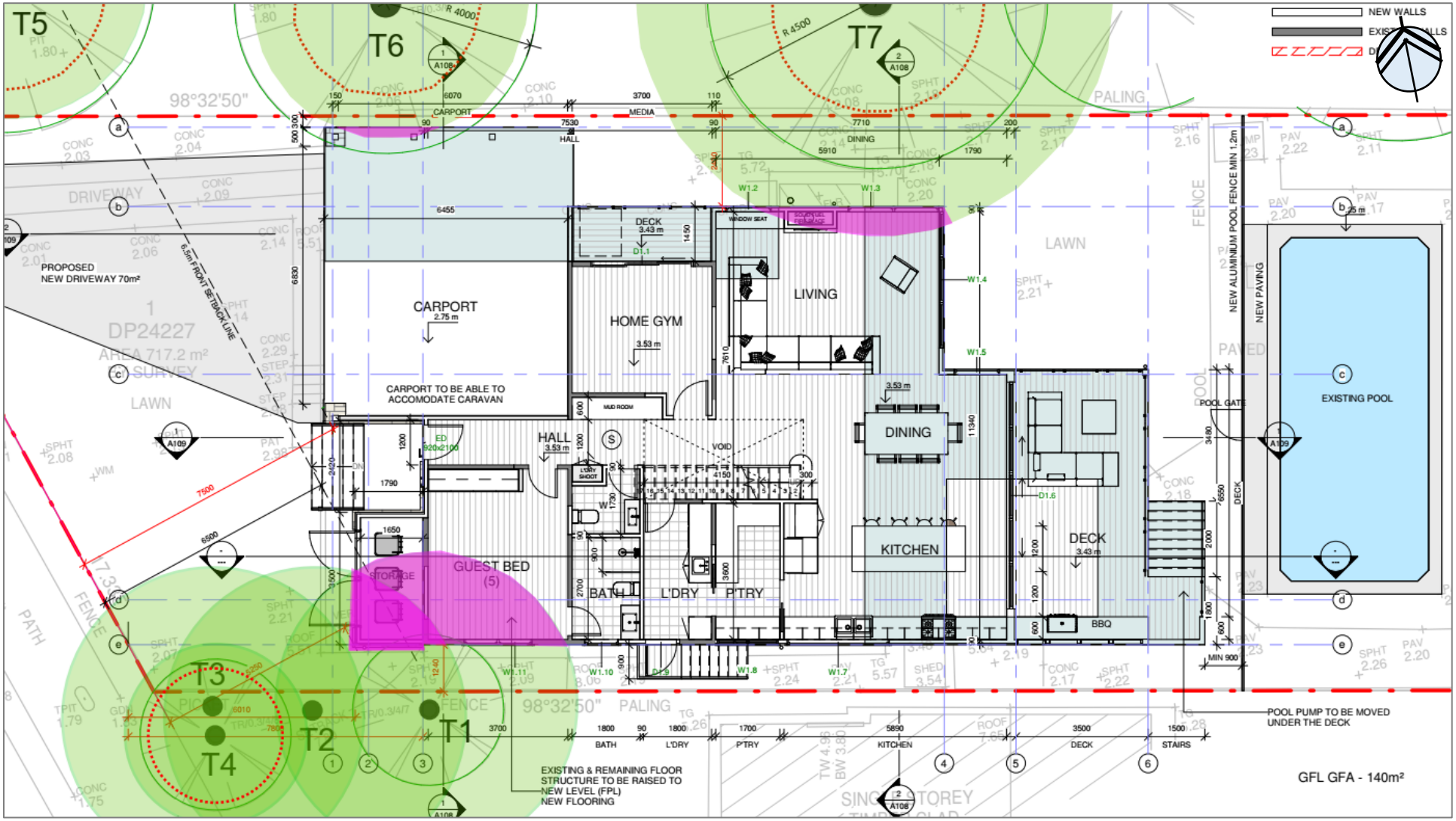


Figure 2 - Excerpt of Ground Floor Level Plan, dwg no A103, Issue 5, dated 25/11/2024, authored by Blue Sky Building Designs. SRZ noted with red dotted circle, TPZ green shaded circle. Pink shading notes encroachment. NOT TO SCALE. Marked up by C Hughes.

NOTE: 10 APRIL 2025 - No change in encroachments under 'New Build' plans, dated 3/4/2025.