



ARBORICULTURAL IMPACT ASSESSMENT REPORT

Prepared For: Ms. Emily Hill

Site Address: 52 Woodbine Street,
NORTH BALGOWLAH, NSW, 2093

Inspection Dates: 1st November 2022
Report Date: 8th November 2022
Amended Date: 3rd February 2023 (Version 3)



Image 1: The property as seen from the street.

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1 Introduction

1.1 Background

- 1.1.1 Blues Brothers Arboriculture has been engaged by the owner to inspect and report on trees for development purposes. A new dwelling is proposed.
- 1.1.2 The scope of works includes the assessment or identification of nine trees located within the immediate vicinity of proposed development.
- 1.1.3 Information supplied and relied upon in the preparation of this report included:
- Detail survey produced by Sydney Surveyors; Reference 18367/1A, Dated 22/08/2022.
 - Architectural suite of plans produced by Frank Bortolotti Architectural Design; Draft Issue, Dated 01/02/2023 and inclusive of:
 - Site plan,
 - Floor plans, and
 - Elevations,
 - Dial Before You Dig (DBYD); Job 33067818, Requested 08/11/2022.
 - Planning portal property report, Accessed 08/11/2022.
- 1.1.4 The use of these documents / sources is acknowledged with thanks.
- 1.1.5 The NSW Rural Fire Service online tool for determining eligibility under the '10/50' legislation was interrogated for the purposes of this report. As at the date of this report, the property is not eligible under the code of practice and no clearing provisions apply to the property.



1.2 Definitions & Abbreviations:

- 1.2.1 **The Standard** refers to the Australian Standard AS4970:2009 – *Protection of trees on development sites*.
- 1.2.2 **The site** refers to the land within the proposed development site.
- 1.2.3 An **Exempt Tree** is a tree that is exempt from planning controls due to meeting Council's definition of exempt vegetation or trees. Exempt Trees may be removed irrespective of development and at any time without Council approval.
- 1.2.4 **A significant root** is defined as any woody root with a diameter of 30mm or larger.
- 1.2.5 **AGL** – Above Ground Level
- 1.2.6 **LGA** – Local Government Area.
- 1.2.7 **DBH** – Diameter at Breast Height; Approximately 1.4 metres above ground level measured in metres.
- 1.2.8 **DGL** – Diameter at Ground Level; Measured above the root flare / collar measured in metres.
- 1.2.9 **TPZ** – Tree Protection Zone. Calculated per the standard:
$$TPZ\ radius = 12 \times DBH$$
- 1.2.10 **SRZ** – Structural Root Zone. Calculated per the standard:
$$SRZ\ radius = (DGL \times 50)^{0.42} \times 0.64$$
- 1.2.11 **FFL** – Finished Floor Level.
- 1.2.12 **RL** – Reduced Level.
- 1.2.13 **SEPP** – State Environmental Planning Policy.
- 1.2.14 **DBYD** – Dial Before You Dig

1.3 Change log:

- 1.3.1 Version 1 – Original.
- 1.3.2 Version 2 – Response to Council's RFI of 14/12/2022.
- 1.3.3 Version 3 – Updated architectural plans.

1.4 Disclaimers:

- 1.4.1 This report is considered limited to what could reasonably be seen from ground level only and expresses no commentary on changes which may have, or will, impact the trees or their environment outside the scope of works.



2 Methodology

2.1 Visual Tree Assessment

- 2.1.1 The trees were visually inspected from ground level only in accordance with VTA (Visual Tree Assessment); a methodology derived by Mattheck and Breloer (1994).
- 2.1.2 Canopy Assessment included foliage condition (volume and colour); the presence of pests and diseases, dieback, deadwood and epicormic growth.
- 2.1.3 Tree condition included assessment of structural stability, previous pruning and any damage/disturbance which may have occurred.
- 2.1.4 No destructive or aerial investigations occurred to the tree.
- 2.1.5 Hollows, where found or suspected, were probed to ascertain their size and extent to assist in calculating ratios of notional cavity size and useful life expectancy.
- 2.1.6 Access to neighbouring properties was not sought. Trees located on neighbouring property were assessed based on what was reasonably visible from within the site.
- 2.1.7 The Arborist assigned numbering to each tree for reference within this report. Tree tagging did not occur.
- 2.1.8 Tree data is displayed in Appendix 1.
- 2.1.9 Appendix 2 – Arboricultural mark-up including Tree identification, TPZ and SRZ zones and the degree of encroachment proposed by the development.
- 2.1.10 Tree height and canopy width were estimated with the assistance of a Leica Disto X4 (Laser Distometer).
- 2.1.11 A forestry Diameter tape was utilised in the measuring of trunk diameters of high significance trees.



3 Results

3.1 Desktop Research

3.1.1 Research from the NSW Planning portal revealed the following information for the properties:

- Zoning: R2 – Low Density Residential
- Landslide risk land:
 - Area A – Slope <5°

3.1.2 In accordance with published directives of Northern Beaches Council, a protected tree is a tree meeting the following criteria¹:

- Has a height of 5m or more;
- Not listed on the *Exempt Tree Species List*.

3.1.3 None of the assessed trees were listed in the Council significant tree register or listed under the Threatened species conservation Act 1995.

3.1.4 Interpretation of DBYD data indicates the property contains the following civil assets that would otherwise require additional works of protection (ie. Sewer encasement):

- Sydney Water Sewer main traversing across the front of the site. DBYD data indicates this main is scheduled for rehabilitation.

¹ Northern Beaches Council: Trees on Private Land: <https://www.northernbeaches.nsw.gov.au/planning-development/tree-management/private-land>



3.2 The Site

- 3.2.1 Located in central North Balgowlah, the previously developed site presented with a southerly aspect.
- 3.2.2 The sole existing structure on the site was a single storey brick dwelling located centrally to the land parcel.
- 3.2.3 Recent clearing of vegetation had occurred on the site. Several freshly cut stumps and cuttings were sighted during site attendance. Machinery tracks were also noted within the vicinity of remaining trees.
- 3.2.4 Numerous trees shown on the supplied survey had been removed prior to the site visit. Information pertaining to removed vegetation is annotated on the annexed markups within Appendix 2 - Tree identification and incursion potentials.
- 3.2.5 Remaining vegetation generally appeared in good health and condition despite evidence of the site being previously heavily overgrown.

3.3 The Development

- 3.3.1 All existing structures on the site are proposed for demolition under the proposed development.
- 3.3.2 A new two-storey weatherboard dwelling is proposed for construction on the site inclusive of a double garage & associated driveway, crossover, and layback. A covered deck will be constructed to the rear of the dwelling.
- 3.3.3 Elevations & sections show the proposed FFLs of the proposed dwelling will be located above existing grade. Consultation with the owner & architect indicates the dwelling will be situated on isolated piers.
- 3.3.4 The excavation of soils is anticipated to be limited to that required for the implementation of isolated footings and the new driveway.
- 3.3.5 The Arborist understands a landscaping plan is under preparation for this project. It is anticipated that associated landscaping will have a minor impact to retained trees.



3.4 The Trees

3.4.1 Nine trees were assessed within the scope of works:

- Two street trees
- One Neighbouring tree
- Six trees located on the site.

3.4.2 Exempt species identified within the scope of works include:

- | | | |
|----------|-------------|------------------------|
| • Tree 3 | Pittosporum | Listed Exempt Species* |
| • Tree 4 | Cocos Palm | Listed Exempt Species |

* Tree 3 was located on adjoining land and must be protected throughout the development.

3.4.3 Street trees, T1 & T2, were located atop a raised area of the verge. Both trees presented in good condition. Pruning of lower limbs had occurred for the trees which scored moderate scores of landscape significance.

3.4.4 Tree 5 was a Bangalay, the only tree scoring high values of landscape significance within the cohort. The tree presented in excellent health and condition and true to form despite minor inter-canopy branch contact. It was noted that recent clearing around the base of the tree had been cleared within a 4m radius of the trunk.

3.4.5 A Cabbage Tree Palm, T6, was located at the rear of the site. Scoring a moderate landscape significance, the palm stood in a healthy condition despite evidence of plant tracking adjacent to the base of the tree.

3.4.6 A dense stand of vegetation containing Trees T7-T9 in the north-eastern corner of the site was collectively seen with trees of low and moderate landscape significance. Smaller Kentia Palm species and other shrubs were interspersed among the trees.

3.4.7 Further commentary, TPZ and SRZ areas for the trees can be found in Appendices 1 & 2.



3.5 Construction impacts to the trees:

3.5.1 Trees 3 & 5 are the only trees likely to be impacted by the proposed development.

3.5.2 *Major* encroachment of Tree 3's (Pittosporum) TPZ & SRZ will occur due to the proposed driveway within the TPZ & SRZ areas.

3.5.3 *Major* encroachment of Tree 5's TPZ & SRZ will occur due to the proposed dwelling & driveway. Calculations of encroachment indicate the encroachment will interact with 44% of the TPZ area.

The arborist notes that due to the size and location of the tree, its respective TPZ spans almost entirely across the width of the site.

3.5.4 Due to the proposed construction techniques (isolated pier & bearers), it is likely that actual impacts to Tree 5 could remain within acceptable levels limiting long-term detriment to the tree. Accomplishment of this is dependent on the adherence of recommendations below.

3.5.5 Impacts to trees otherwise are expected to be negligible within the scope of works.



4 Conclusion

- 4.1.1 Nine trees were assessed or identified as part of the scope of works, all seen to be in good health.
- 4.1.2 The proposed development will impact two trees, Trees 3 & 5, to at least a moderate degree as part of the development proposal.
- 4.1.3 The Arborist supports the proposed amended development from an Arboricultural perspective, acknowledging the specific constraints posed by Tree 5.
- 4.1.4 The Arborist acknowledges Council's previous refusal for the removal of Tree 5. Design amendment has occurred resulting in a design which permits development whilst retaining the trees.

5 Recommendations:

5.1 Trees for removal

- 5.1.1 Tree 4 (Cocos Palm) is listed as an exempt species on Council's DCP. The removal of this tree is recommended due to the proximity of proposed excavation & retaining wall construction within its vicinity.

5.2 Trees for retention:

- 5.2.1 Tree 5 is recommended for retention under the proposed development with the following recommendations:
- It is recommended that the building be located on isolated piers. Engineering tolerances must permit minor translation of pier location should significant tree roots be found.
 - Piers may be excavated by mechanical means, provided excavation equipment used is no larger than 3 tonnes in size. (A larger machine is more powerful & may cause root severance).
 - It is recommended that an AQF 5 Arborist is engaged to supervise the excavation of footings for the proposed garage.
 - See below for recommendations pertaining to driveway surface.

5.3 Construction Recommendations:

- 5.3.1 It is recommended that the driveway be constructed at a level above existing grade. Construction of this surface which does not require excavation will significantly reduce possible impacts to Trees 3 & 5.

Hard edges of the driveway should be softened by battering of soft landscaping in conjunction with a landscape plan.

- 5.3.2 It is recommended that excavation works within the vicinity of the trees are cautious of significant roots which may exist beneath the surface, specifically where works are within the vicinity of non-palm species.
- 5.3.3 It is recommended that works within the TPZ area of all trees to be retained are cautious of *significant roots (1.2.4)* which may exist below ground. These roots shall be protected as much as possible in accordance with the standard (1.2.1) and advice from the project Arborist.
- 5.3.4 Significant roots may be found in areas outside the indicated TPZ areas on the plans due to the site's soil profile. In such cases, efforts to protect and preserve these roots should be undertaken where practical.

6 Tree Protection Plan:

6.1.1 A Tree Protection Plan (TPP) is recommended for this project.

6.1.2 The following table summarises the most appropriate tree protection devices required for the life of the project where trees are retained:

Tree ID	Fencing Required	Trunk Armouring Required	Ground Protection Required	Signage Required
3	Site perimeter fencing.	No	No	No
5	Yes, 2.9m radius	N	Yes, remaining TPZ area	Yes
6	Yes, 1x1 panel	If not fenced (Fencing Preferred)	No	No
7-9	Yes, see part 6.1.3 below			

6.1.3 Fencing shall consist of a contiguous exclusion zone around all vegetation with an offset of the TPZ area. Fencing shall form the site perimeter fencing, or integrate with existing fencing.

6.1.4 Where ambiguity or questions present regarding Tree Protection, a Project Arborist (or otherwise suitably qualified person) must be contacted in the first instance for advice. This clause is *not* a recommendation for the engagement of a Project Arborist.

6.1.5 Recommendations provided above are the minimum specification required for compliance. Additional protection zones should be afforded to the trees where possible.

6.1.6 Tree protection is a vitally important part of the development. Damage that occurs during construction is, in most cases, permanent. Consideration of living with unsightly scarring (or other tree health issues) should occur before any works commence.

6.1.7 Refer to the following sections for details of the implementation of tree protection.

6.1 Protective Fencing:

- 6.1.1 Protective fencing shall consist of standard temporary fencing panels enclosing all soft areas (turfed /exposed soil etc) beneath the canopies of trees to be retained. A radial offset from trunk centre may be stipulated for specific trees; however, Fencing shall ideally be located at the edge of the TPZ unless otherwise advised by the site arborist.
- 6.1.2 Fencing shall be erected in a manner that prevents worker or plant access during all phases of construction and demolition. Fencing may integrate with existing fences on the site. Protective fencing may also be the site perimeter fencing.
- 6.1.3 Signage (referred below) shall be affixed to the outer faces of the fence to maintain worker awareness.
- 6.1.4 The project arborist shall be contacted prior to any contractor entering the restricted area or upon discovery of unauthorised entry / interference. No exceptions to this clause are permitted.

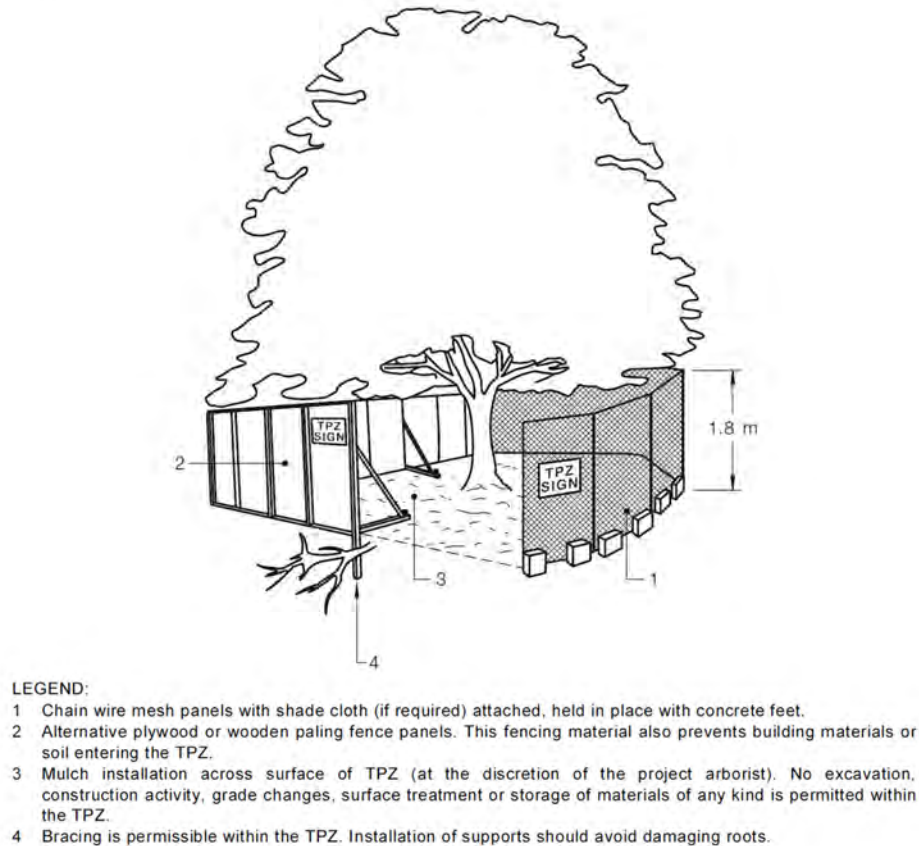


FIGURE 3 PROTECTIVE FENCING

Figure 1: An example of Tree Protective Fencing. Diagram Copyright of Standards Australia (AS4970:2009 - Protection of Trees on Development Sites.)

6.2 Trunk Armouring

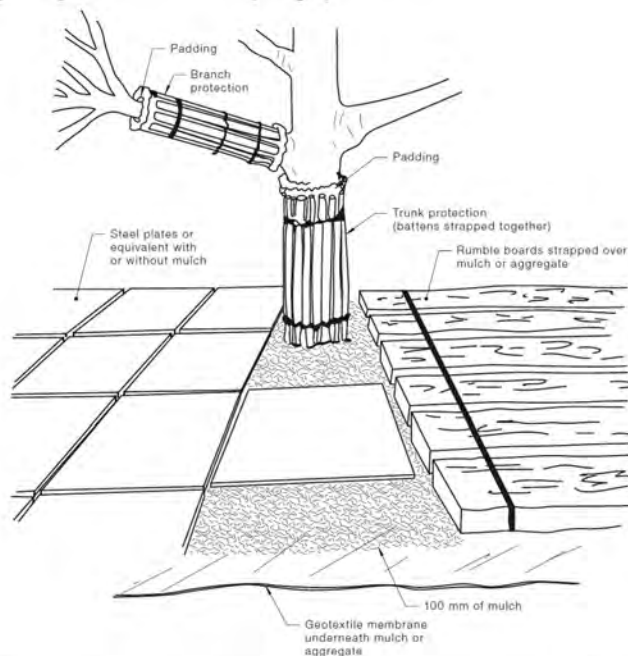
6.2.1 Trunk armouring is the temporary affixing of battens around a tree's trunk (including root flare) and or branches. Trunk armouring requires three main components:

- Porous, readily draining materials such as hessian or Geo-Textile fabric shall be used for padding limbs to be armoured. Duct tape or gaffer's tape can be used to temporarily affix padding during installation.
- Timber battens with a minimum size of 40x80mm are to be arranged around the trunk & branches to be protected. Battens shall be spaced no further than 100mm apart.
- Battens and padding can be secured using either galvanised builders strapping (preferred) or nylon tie-down straps (both ratchetting, and cam-buckle styles are acceptable).

6.2.2 Nylon straps may be beneficial in temporarily supporting timber battens during installation.

6.2.3 The use of 25mm (or thicker) plywood board may be used in conjunction with cushioning and battens around the root flare of trees to be protected.

6.2.4 Under no circumstance may the tree be physically harmed during the installation of trunk armouring. This means the tree shall not be drilled, nailed, or otherwise used to support powerlines, stays, guys etc.



NOTES:

- 1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
- 2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

Figure 2: An example of trunk armouring and ground protection. Diagram Copyright of Standards Australia (AS4970:2009 - Protection of Trees on Development sites.)



6.3 Signage

- 6.3.1 Fenced areas shall be appropriately signposted prominently with the appointed project arborist's contact details and the wording:

*"TREE PROTECTION ZONE
NO ACCESS WITHOUT PRIOR APPROVAL OF THE PROJECT ARBORIST"*

- 6.3.2 Trunk armouring devices shall be appropriately signposted with the appointed project arborist's contact details and the wording:

*"TREE PROTECTION DEVICE
DO NOT INTERFERE WITHOUT PRIOR APPROVAL OF THE PROJECT ARBORIST"*

6.4 Ground Protection

- 6.4.1 Ground protection is the installation of devices which reduce soil compaction and root damage.
- 6.4.2 Ground protection shall consist of a woodchip mulch layer distributed evenly over the indicated areas having a minimum thickness of 100mm.
- 6.4.3 The mulched area is then covered with commercially available load distribution boards, road plates or plywood sheeting (with a minimum thickness of 25mm.)
- 6.4.4 Areas indicated for ground protection shall not be utilised for the stockpiling of materials or vehicular parking throughout the life of the project. Likewise, these areas must not be used for washing down or cleaning of any equipment or plant due to the risk of soil contamination and tree impact.



Appendix 1 – Tree Data Summary

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Tree Data Summary - 52 Woodbine st, North Balgowlah - Assessed 1/11/2022

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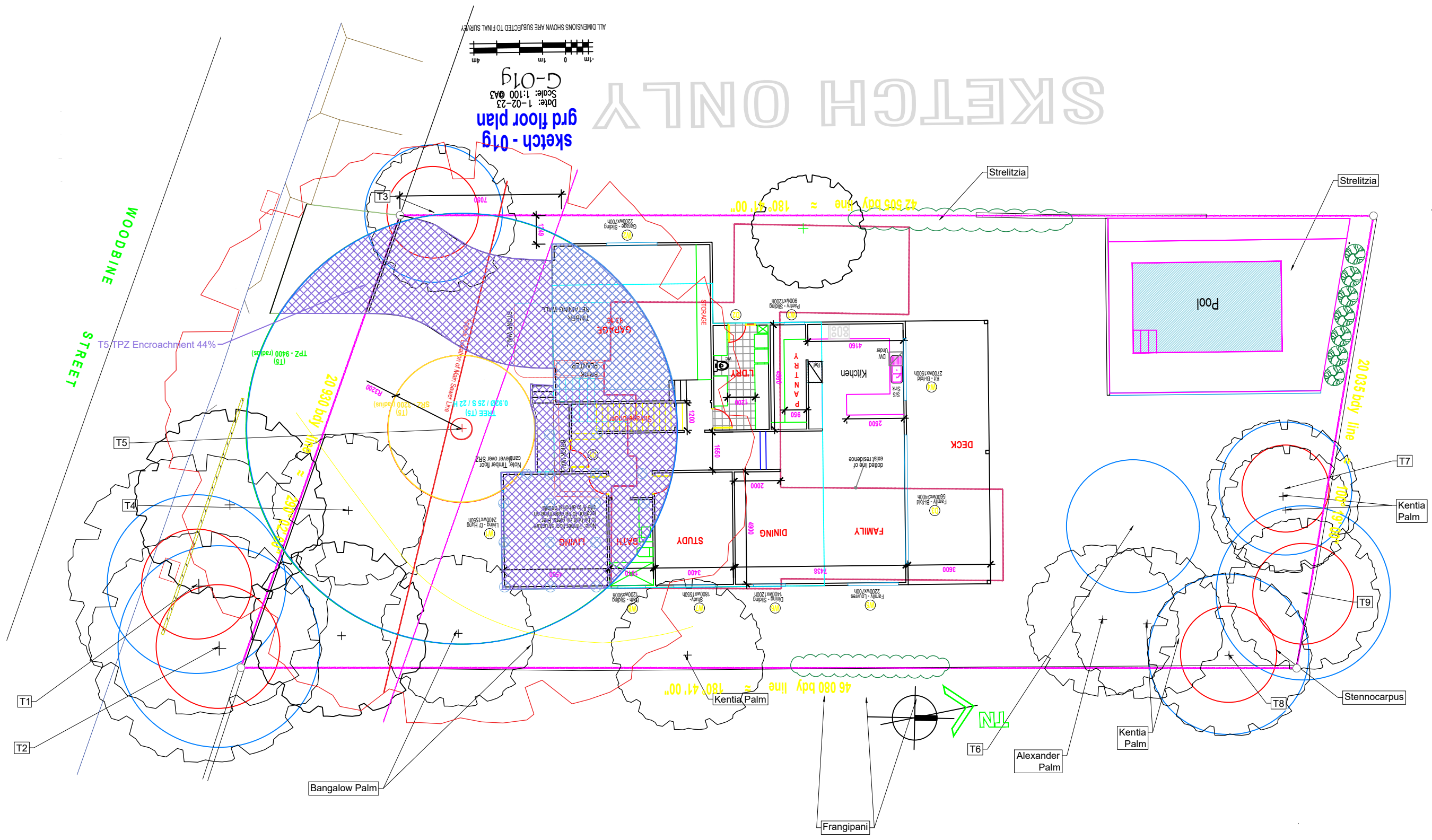
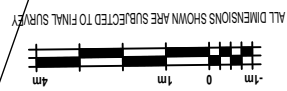


Appendix 2 - Tree identification and incursion potentials

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SKETCH ONLY

Sketch - 01g
gnd floor plan
Date: 1-02-23
Scale: 1:100 @A3
G-01g



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Title:
Encroachment Potentials

Project:
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Revision:
01

Plot Date:
06/02/2023

- Key:
- Tree Protection Zone (TPZ)
 - Structural Root Zone (SRZ)
 - Canopy Spread
 - Encroachment Area

Appendix 3 – Photographs



Image 2: Street trees T1 & T2, and the exempt Cocos Palm T4 [right].



Image 3: Tree 3 as seen.



Image 4: Vegetation along the Eastern boundary of the site.



Image 5: Tree 6 [centre] and vegetation in the North-eastern corner of the site [rear].



Image 6: The rear of the site had been extensively cleared.



Image 7: The rear of the site had been extensively cleared.