"GROWING MY WAY"
Tree Consultants
Established 1977
EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT
FULL INSURANCE PROTECTION
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ABN 97 965 355 200

Construction Impact & Management Statement & Preliminary Tree Plan of Management

February 2025

Prepared for: Phil & Lorraine Scott

103 Ocean Street Narrabeen NSW 2101

Prepared by: Kyle A Hill

Registered (Arb Aus #1884) Practising & Consulting Arborist
Post Graduate Certificate in Arboriculture (University of Melbourne)
Diploma of Horticulture–Arboriculture TAFE, Grow SA
Certificate of Horticulture, TAFE
Certificate Advanced Tree Care TAFE
Founder -Growing My Way Tree Services (1977)
Member of International Society of Arboriculture (ISA)
Member of Arboriculture Australia
Victorian Tree Industry Organisation (VTIO)

Assisted by: Ao Wang

Master of Protected Area, Governance & Management (University of Tasmania)
Bachelor of Environmental Biotechnology (University of Technology Sydney)

1. Summary

Phil & Lorraine Scott (as the Property Owners of 103 Ocean Street Narrabeen NSW 2101) commissioned the Growing My Way Tree Consultancy (GMW) to prepare an Arboriculture Impact Assessment & Preliminary Site - Specific Tree Plan of Management to be linked to a Development Application (DA) submission for *Proposed New Dwelling including swimming pool.*

The site is Land Zoned as *"R2 Low Density Residential".*

This report discusses eight (8) trees in total, three (3) protected trees will be discussed in detail. Seven (7) discussed are located within the subject site (103 Ocean Street Narrabeen NSW 2101) and one (1) is located within adjoining (northern boundary) property (105 Ocean Street Narrabeen).

The subject site shares common boundaries with three (3) same land zoning common boundary adjoining properties & one (1) public road (Ocean Street). All same zoning common boundary adjoining properties are developed to contain dwellings & other infrastructure.

Motor vehicle & pedestrian access to the subject site is only via Ocean Street.

The sole consent authority is the Northern Beaches Council. (from herein *NBC)*.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by Burton & Field Surveying & Land Development, dated 20 November 2024.*
- *Proposed Plans, Elevations Sections etc., by* Design OC*, dated 27 February 2025.*
- *Proposed Stormwater Plans, by E2 Design, dated 25 February 2025.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'.*
- *NBC "Tree Management Provisions".*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*

The aim of this report is:

1. *To confirm the viability of the discussed tree, relating to its individual health, vigour & condition considering any potential impact foreseen by the proposed works.*
2. *Provide a Preliminary Site Specific 'Tree Plan of Management'.*

This document supports (relative to tree management), the proposal as presented with replacement tree/s that at maturity will at the least replicate the 'loss of green footprint' provided by the two (2) supported to be replaced tree/s.

We confirm, one (1) protected tree (105 Ocean Street property) assessed can be retained with no able to be reasonably predicted compromise to its Useful Life Expectancy with intensive management during all phases of the proposed works.

Kyle A Hill - AQF level 5, Diploma of Horticulture / Arboriculture, (TAFE NSW & other) & AQF level 8, Post Graduate Certificate in Arboriculture, (University of Melbourne) Practicing/Consulting Arborist) with the assistance of Ao Wang (Master of Protected Area, Governance & Management (University of Tasmania) &

Bachelor of Environmental Biotechnology (University of Technology Sydney) has prepared this report based on “Visual Tree Assessment” (VTA) undertaken on Saturday, 22 February 2025 with property owner/client.

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2. Introduction

This report contains observations & recommendations intended to assist in the management of the eight (8) trees in total including one (1) group of trees; three (3) protected trees will be discussed in detail

This document only discusses trees within 5 meters from the as proposed works new built form.

Tree #1, Tree #2, Tree #3 & Tree #4 are located within the subject site rear yard.

Tree #5, Tree #6 & Tree #8 are located within the subject site front yard.

Tree #7 is location within adjoining property (105 Ocean Street Narrabeen), adjacent to the front driveway.

We acknowledge & confirm to be familiar with the NBC "Tree Management Provisions", specifically the documents; Warringah Local Environmental Plan 2011, (from herein Warringah LEP), Warringah Development Control Plan 2011 (from herein Warringah 11 DCP), Wildlife Corridor Map)" & the NBC DCP plus the new (August 2017) SEPP, Vegetation in Non–Rural Areas.

The sole consent authority is NBC.

The site is NOT within an *NBC* designated "*Heritage Conservation Area"*. Neither is the subject site or adjoining properties listed 'Heritage Items'.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by Burton & Field Surveying & Land Development, dated 20 November 2024.*
- *Proposed Plans, Elevations Sections etc., by* Design OC*, dated 27 February 2025.*
- *Proposed Stormwater Plans, by E2 Design, dated 25 February 2025.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'.*
- *NBC "Tree Management Provisions".*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*

This document includes a Preliminary Site Specific "Tree Plan of Management".

3. Methodology

Assessment Methodology for the discussed trees has been from ground level by eye, using *Visual Tree Assessment (VTA Stage 1),* techniques developed by Claus Mattheck. The principles of *VTA* are illustrated & explained in his widely used reference textbook *"The Body Language of Trees (1994)"*.

Assessment includes:

- *Tree's current condition & likely future health*
- *Species tolerance to root disturbance &/or development*
- *Likely present & future risk to persons & property.*
- *Tree's (public & private landscape) amenity value, considering habitat potential.*

No root analysis, soil testing, 'Resistograph'® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

- *Appendix A Glossary of Common Arboreal term*
- *Attachment A Tree Protection/Management (Generic) Prior to & During Construction*

4. Observations

4.1 The Site

This report discusses eight (8) trees in total, three (3) protected trees will be discussed in detail. Seven (7) discussed are located within the subject site (103 Ocean Street Narrabeen NSW 2101) and one (1) is located within adjoining property (105 Ocean Street Narrabeen).

The subject site is 650.3m^2 in size (*Site Survey by Burton & Field Surveying & Land Development*).

The subject site shares common boundaries with three (3) same land zoning common boundary adjoining properties & one (1) public road (Ocean Street). All same zoning common boundary adjoining properties are developed to contain dwellings & other infrastructure.

No Geotechnical issues are known to exist relative to tree management.

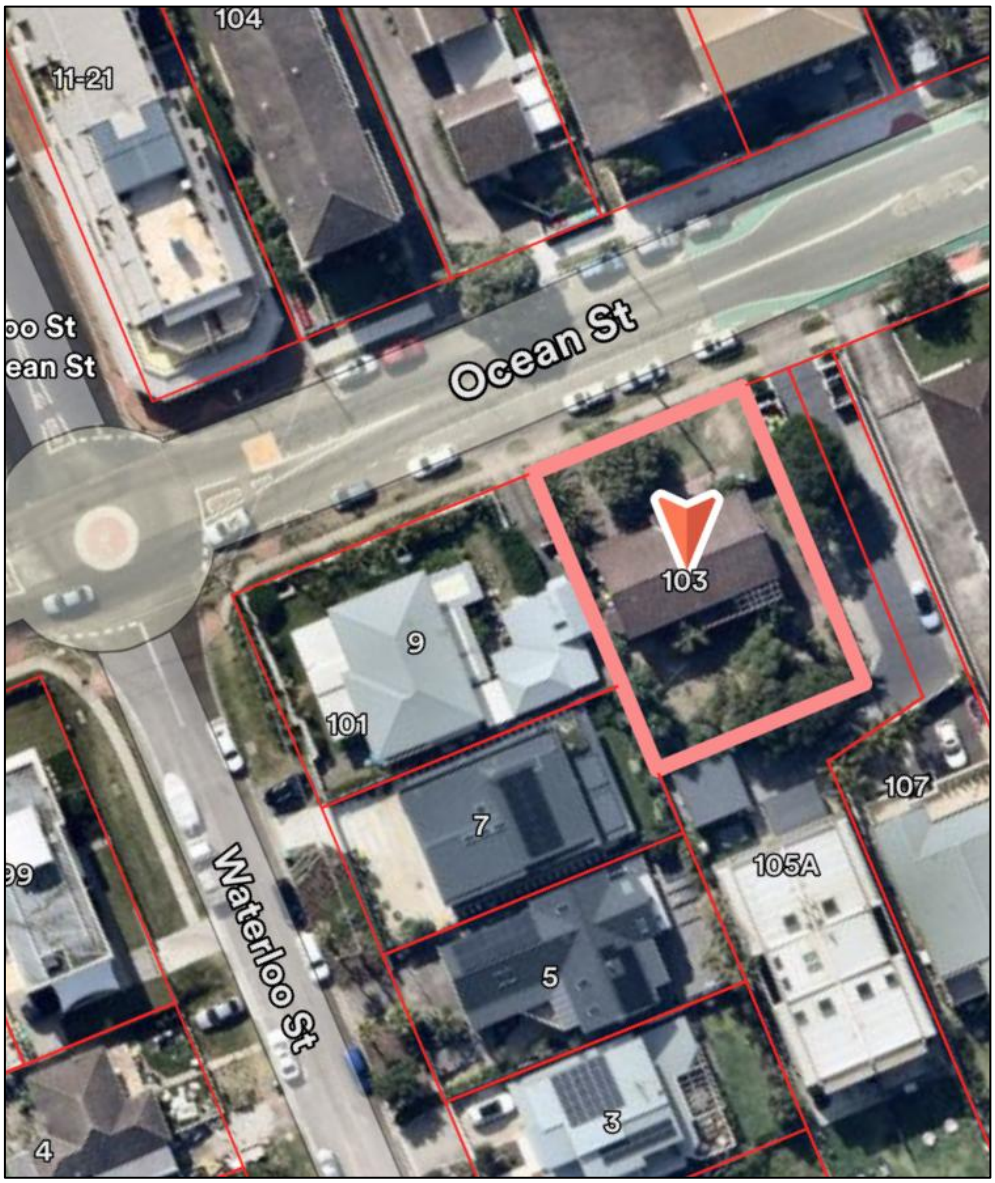


FIGURE 1: ABOVE ILLUSTRATES THE DISCUSSED TREES RELATIVE TO THE SITE 103 OCEAN STREET NARRABEEN NSW 2101. (AERIAL PHOTOGRAPH ON TUESDAY 04 FEBRUARY 2025, MAP DATA COURTESY OF NEARMAP™)

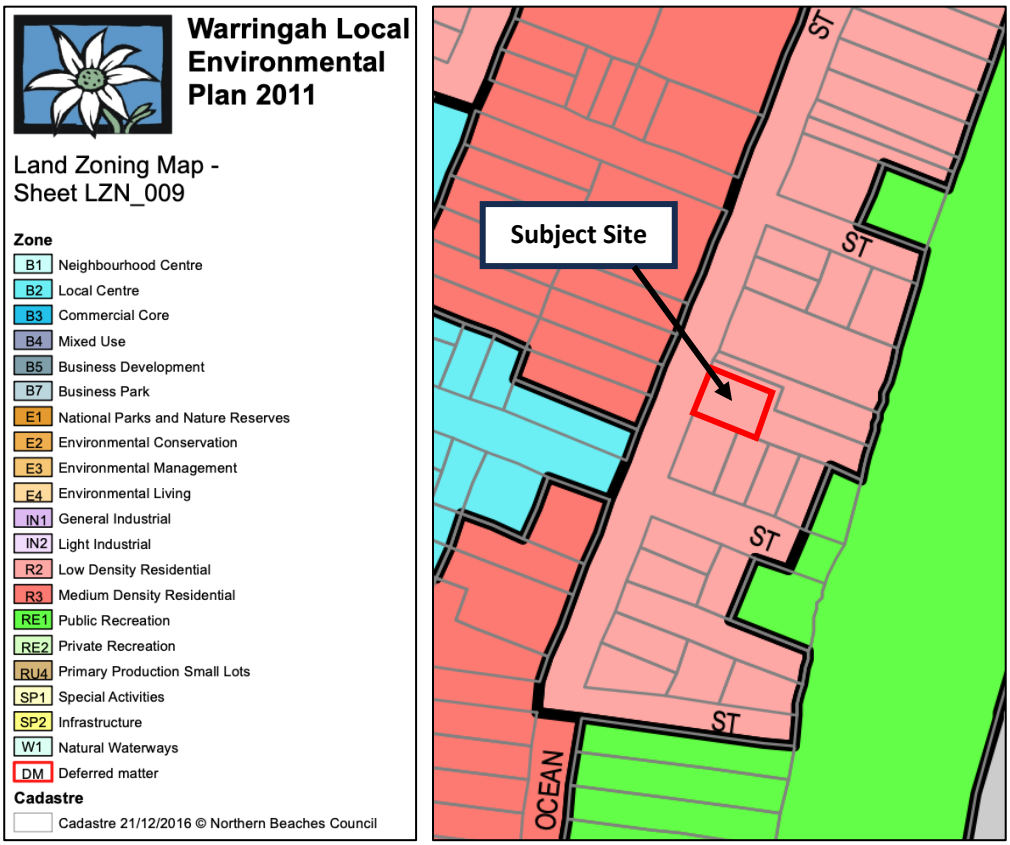


FIGURE 2: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE R2 LOW DENSITY RESIDENTIAL. (WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011, LAND ZONING MAP - SHEET LZN_ 009).

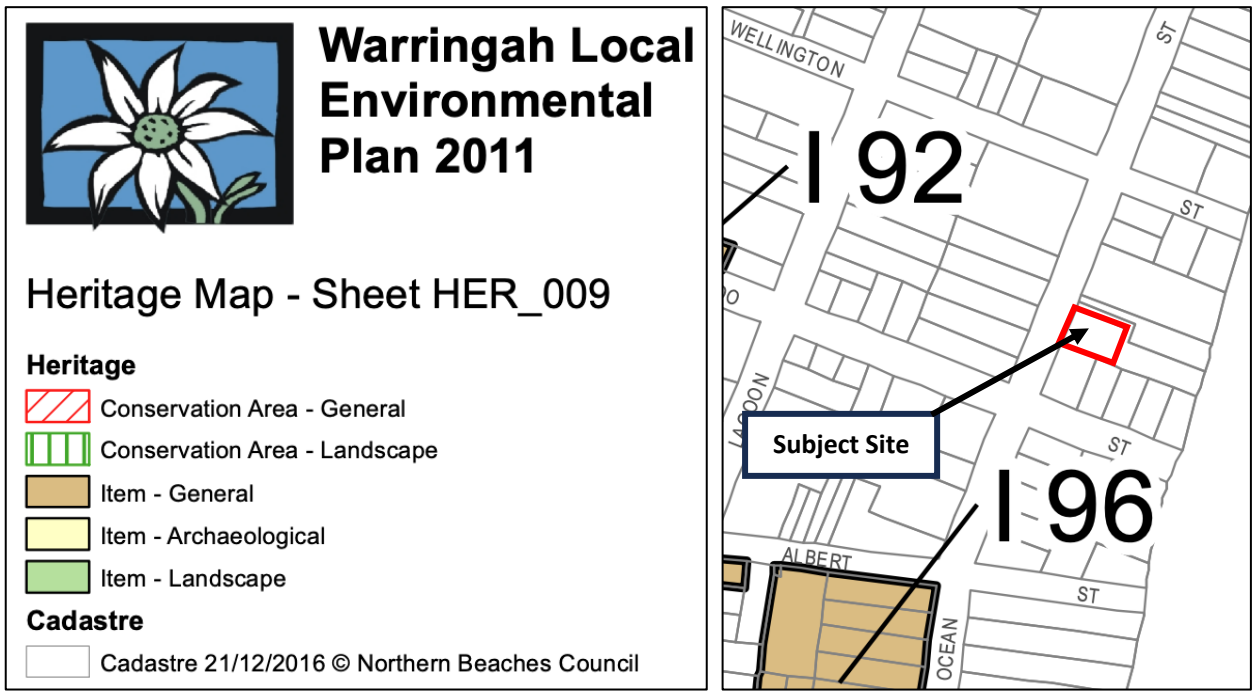


FIGURE 3: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE TO CADASTRE (WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011, HERITAGE MAP SHEET HER_009).

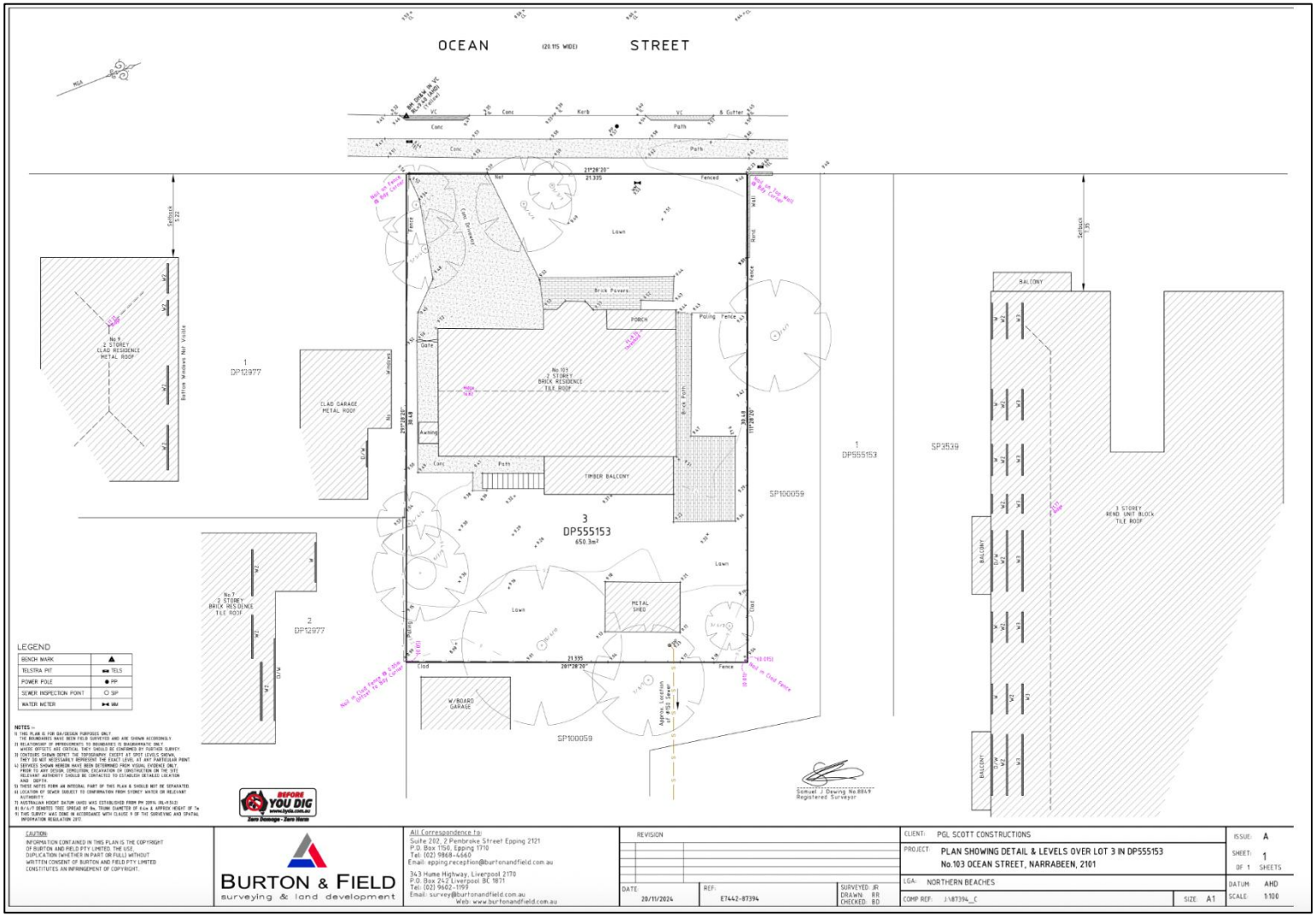


FIGURE 4: THE SITE SURVEY (SITE SURVEY BY BURTON & FIELD SURVEYING & LAND DEVELOPMENT)

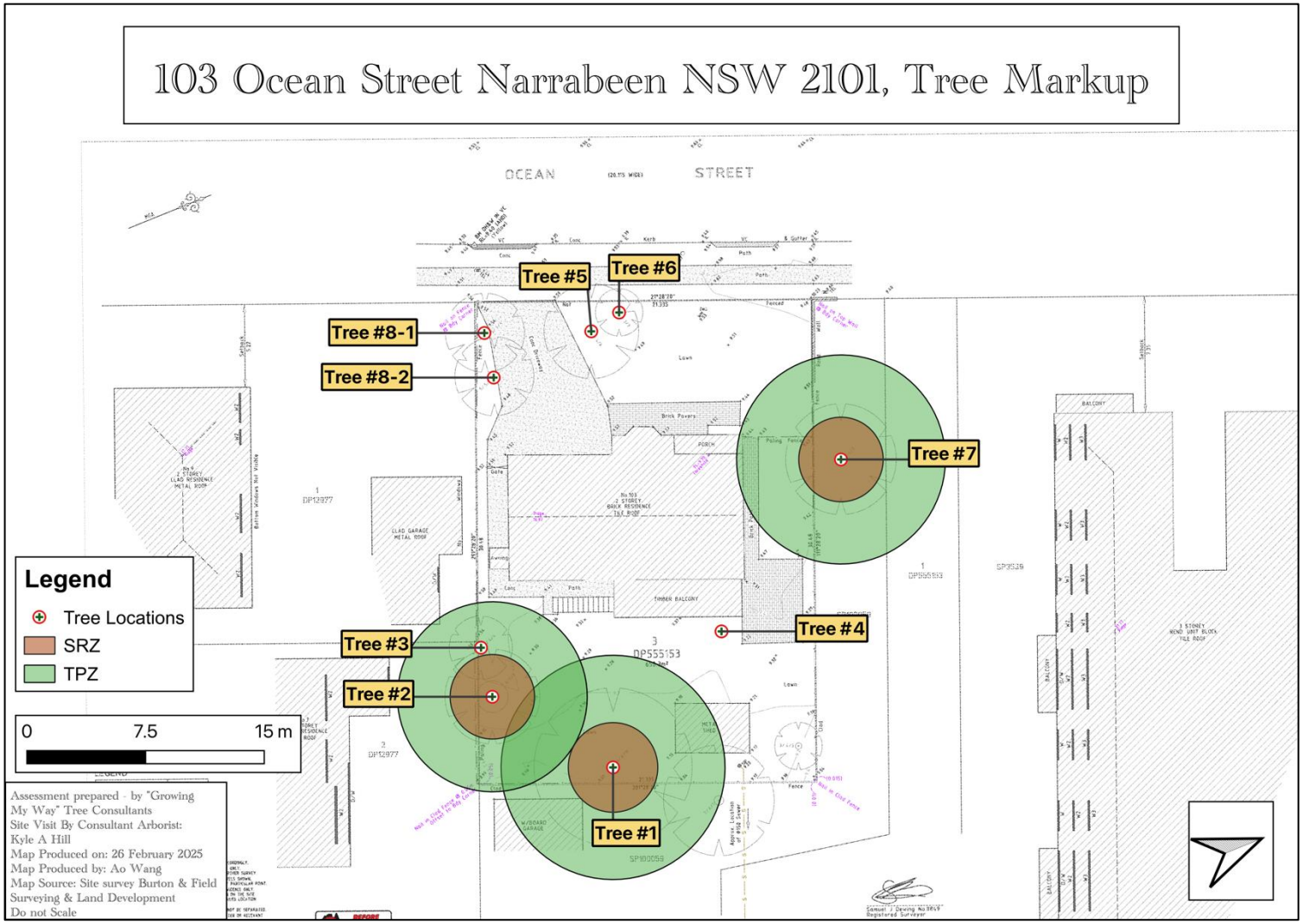


FIGURE 5: NUMBER AND LOCATION OF THE TREES ON SUBJECT SITE. (BY QGIS)

4.2 The Proposal

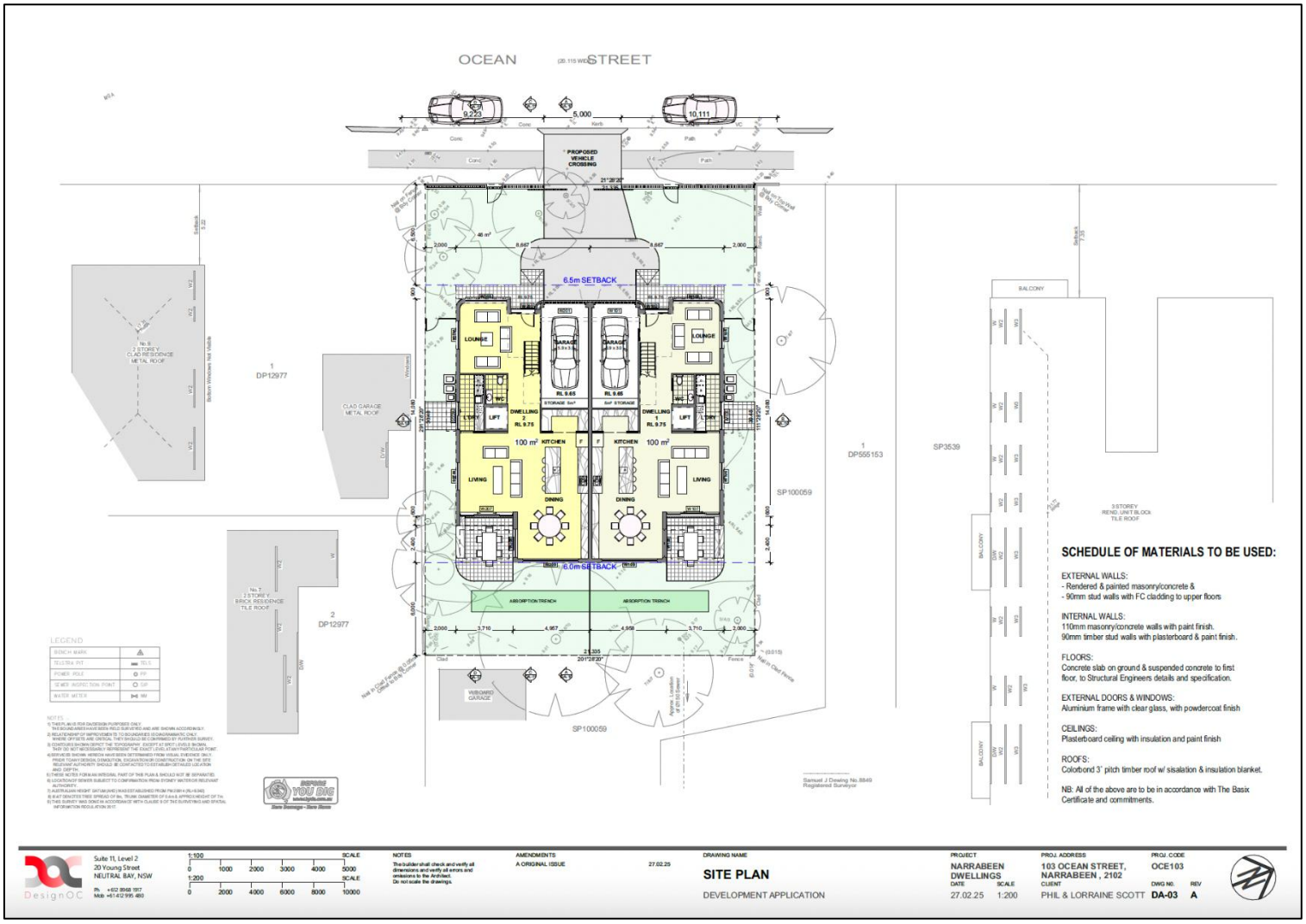


FIGURE 6: PROPOSED SITE PLAN

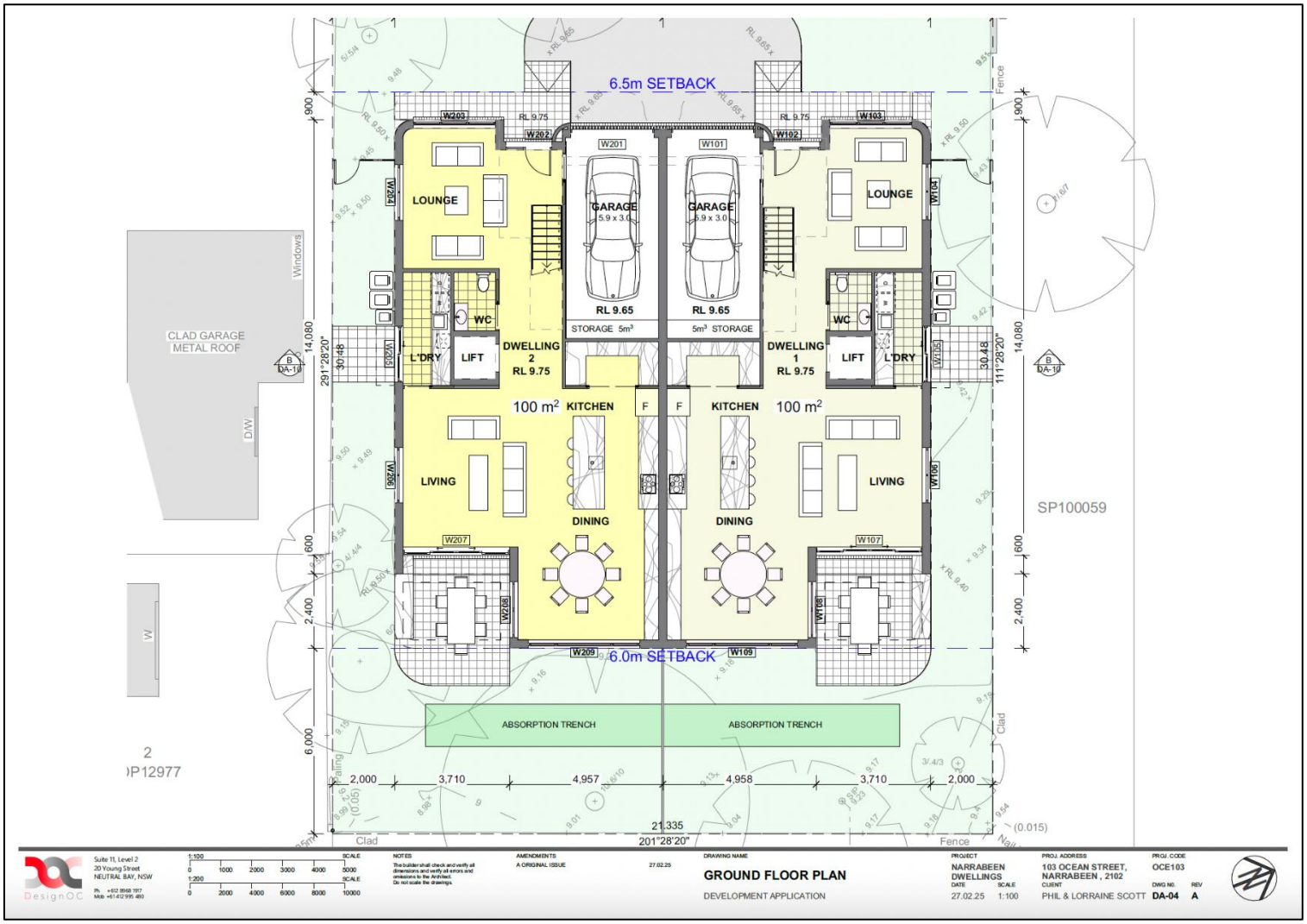


FIGURE 7: PROPOSED GROUND FLOOR PLAN

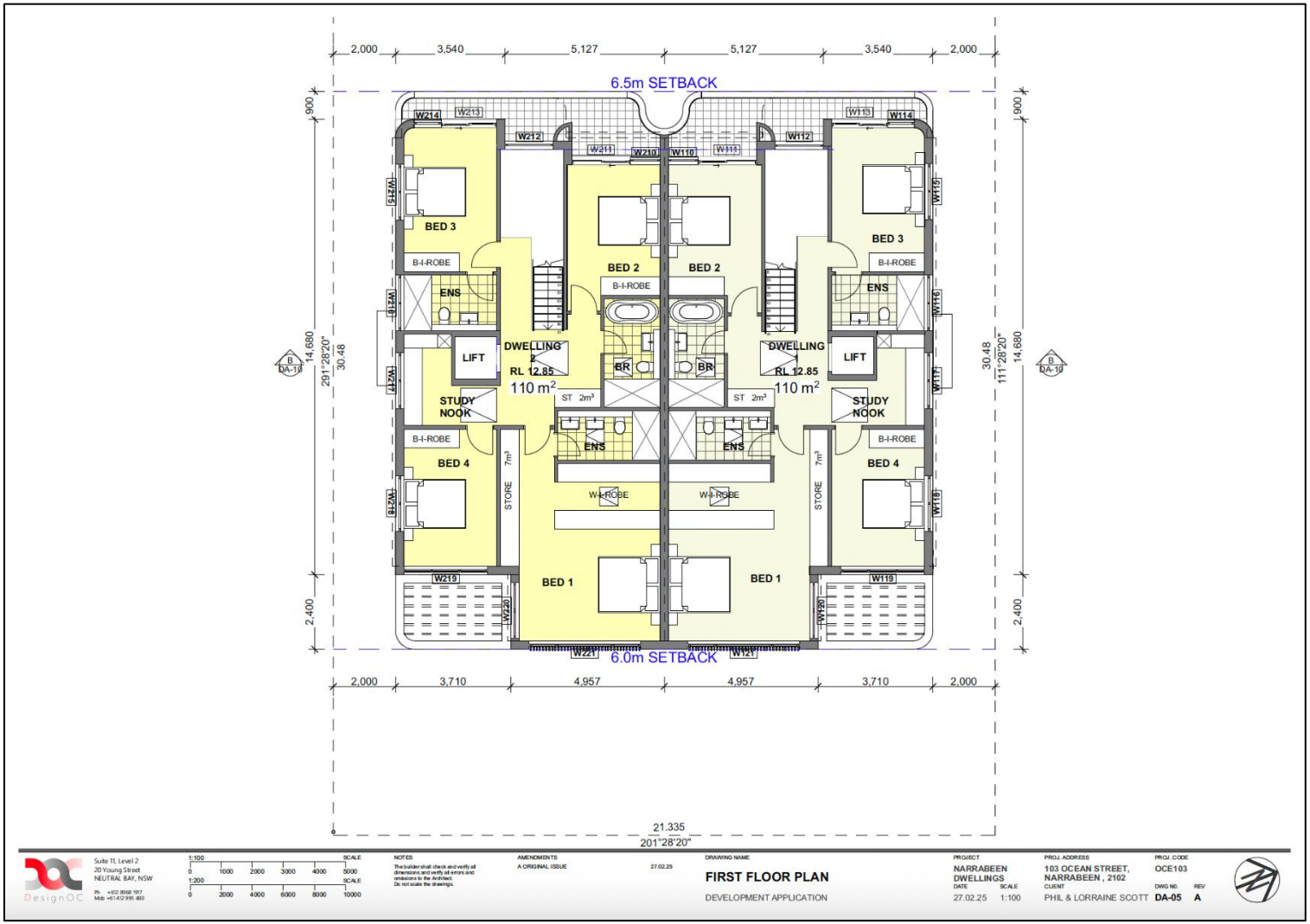


FIGURE 8: PROPOSED FIRST FLOOR PLAN

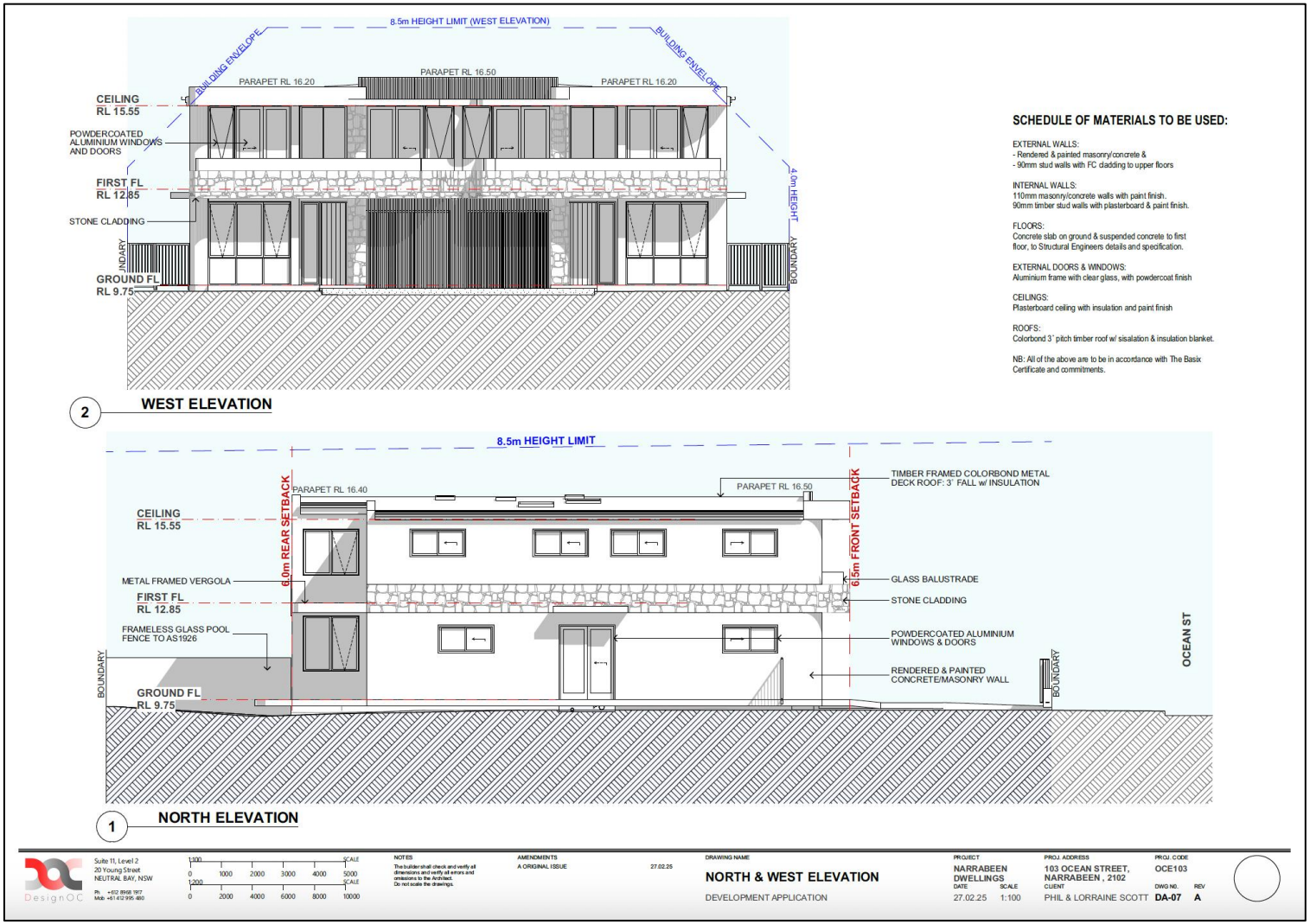


FIGURE 9: PROPOSED NORTH & WEST ELEVATION

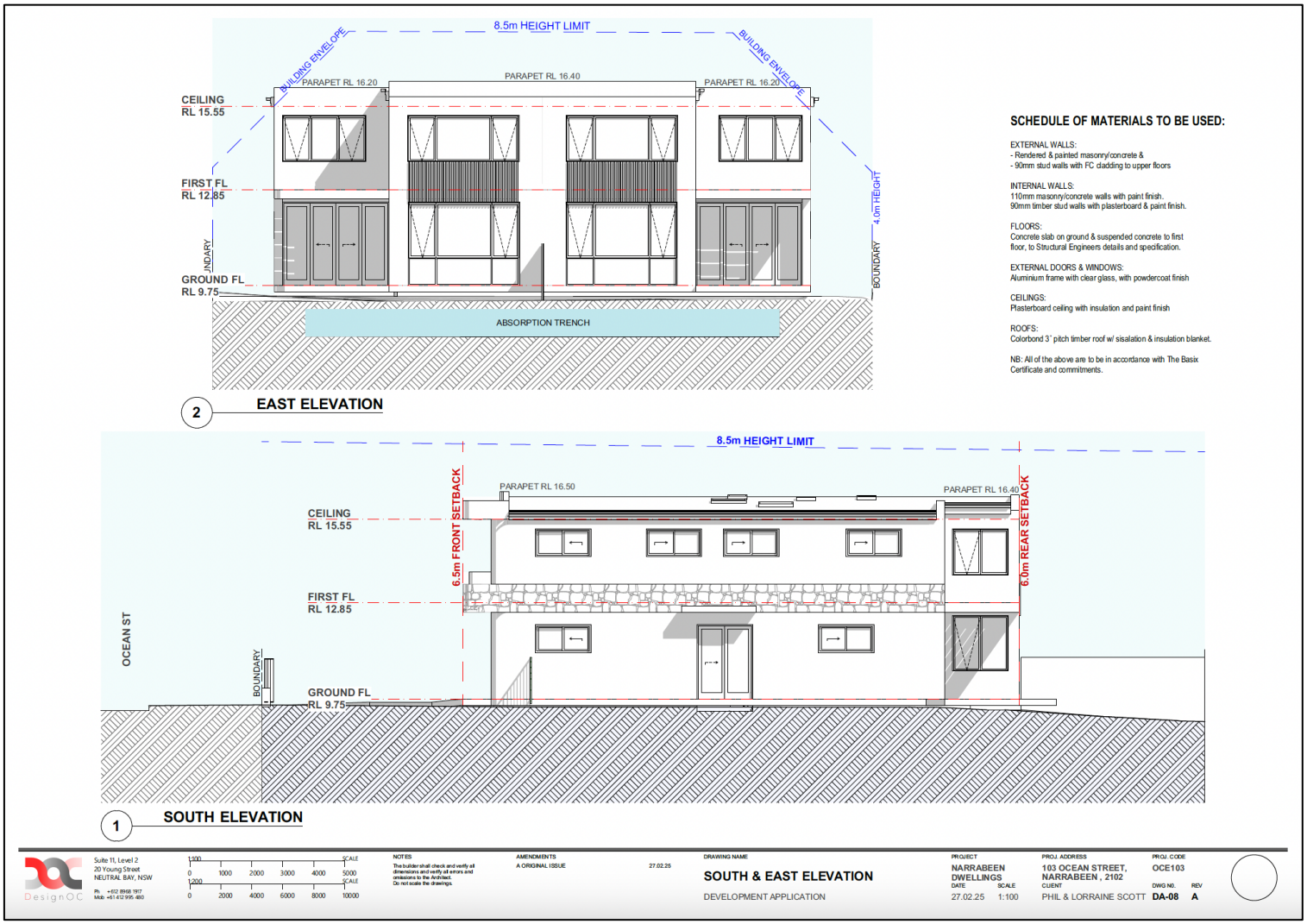


FIGURE 10: SOUTH & EAST ELEVATION

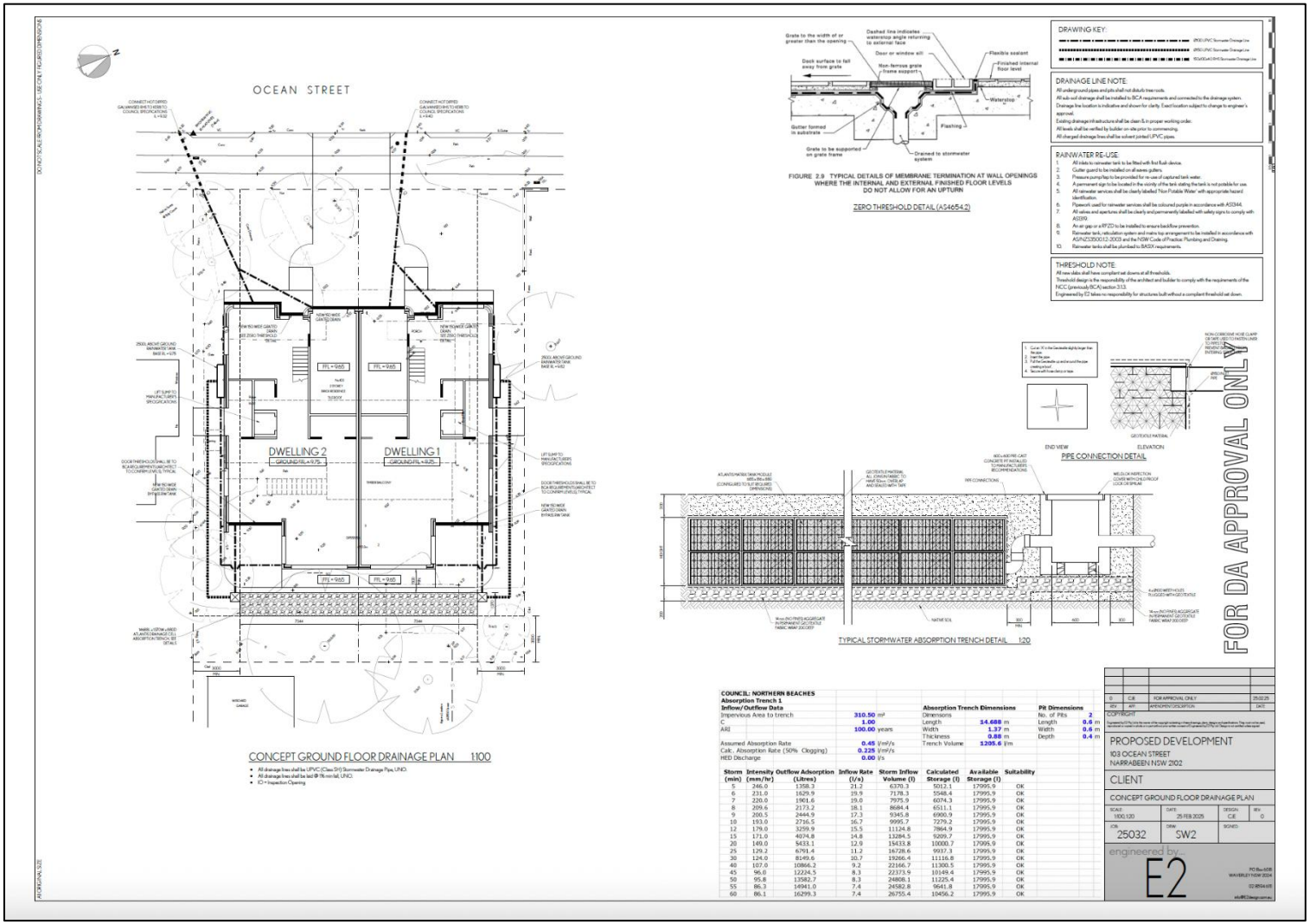


FIGURE 11: CONCEPT GROUND FLOOR DRAINAGE PLAN

4.3 The Trees – Summary Table

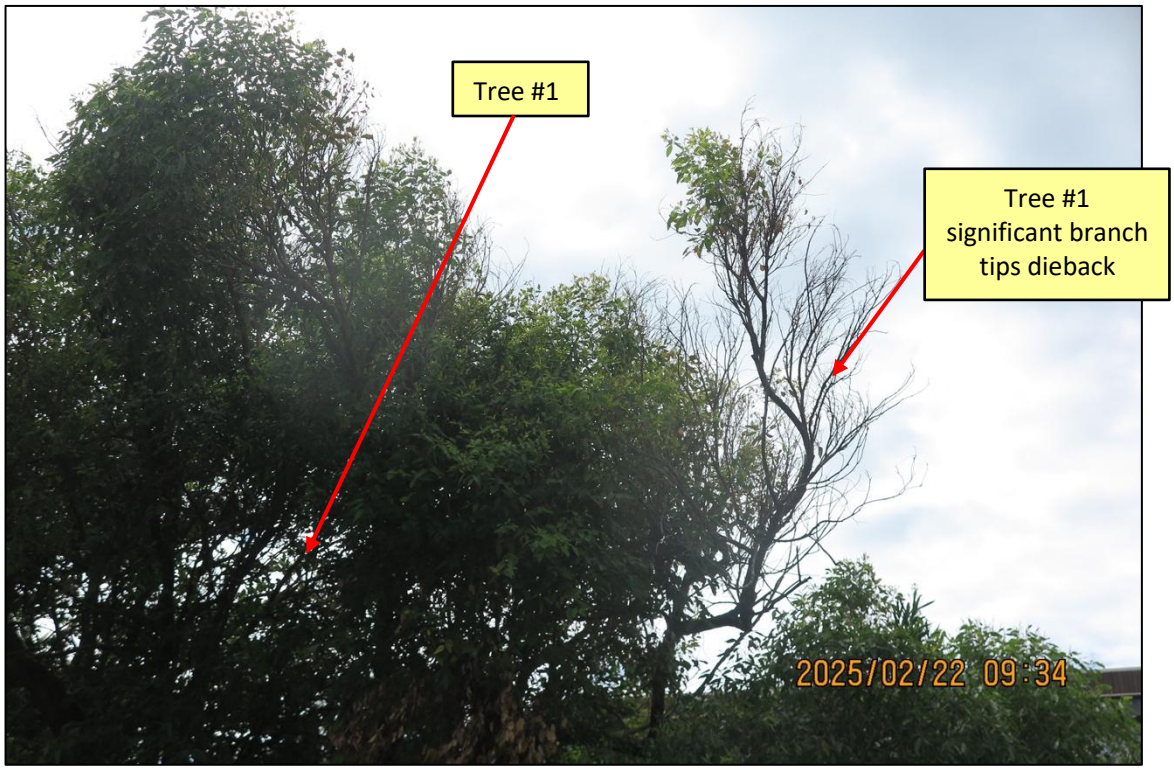
Read this table in conjunction with Appendix A– Common Arboreal Terms

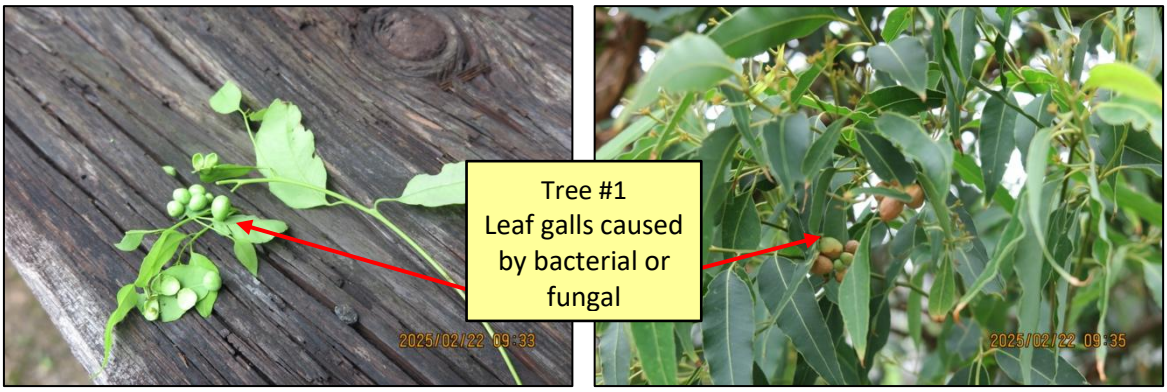
Trees Recommended for removal							Trees Recommended for retention					
Exempt species							Trees retainable but of low amenity/significance					
#	**Identification**	**Height (m)**	**Crown (m)**	**DBH (m)**	**DRC (Base) (m)**	**TPZ (m)**	**SRZ (m)**	**Age**	**Health/Vigour**	**Structure / Retention value**	**Form/Habit**	**Comments**
1	***Eucalyptus* spp,** *Likely Eucalyptus microcorys* (Tallowwood)	<7.00	12.50	0.59	0.69	7.08	2.83	M	Fair & Fair	Moderate & Moderate	Atypical (Topped)	**REPLACE:** Proposed works footprint significantly breach the Tree #1 TPZ & SRZ.
2	***Yucca gigantea*** (Spineless Yucca)	<8.00	<7.50	0.50	0.60	6.00	2.67	M	Good & Good	Low & Moderate	Typical	**REPLACE:** Proposed works footprint significantly breach the Tree #2 TPZ & SRZ.
3	***Phoenix canariensis*** (Canary Island Date Palm)	<2.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**EXEMPT** Exempt by size & species refer to NBC DCP Tree Exemption
4	***Strelitzia nicolai*** (Bird of Paradise)	<4.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**EXEMPT** Exempt by size & species refer to NBC DCP Tree Exemption

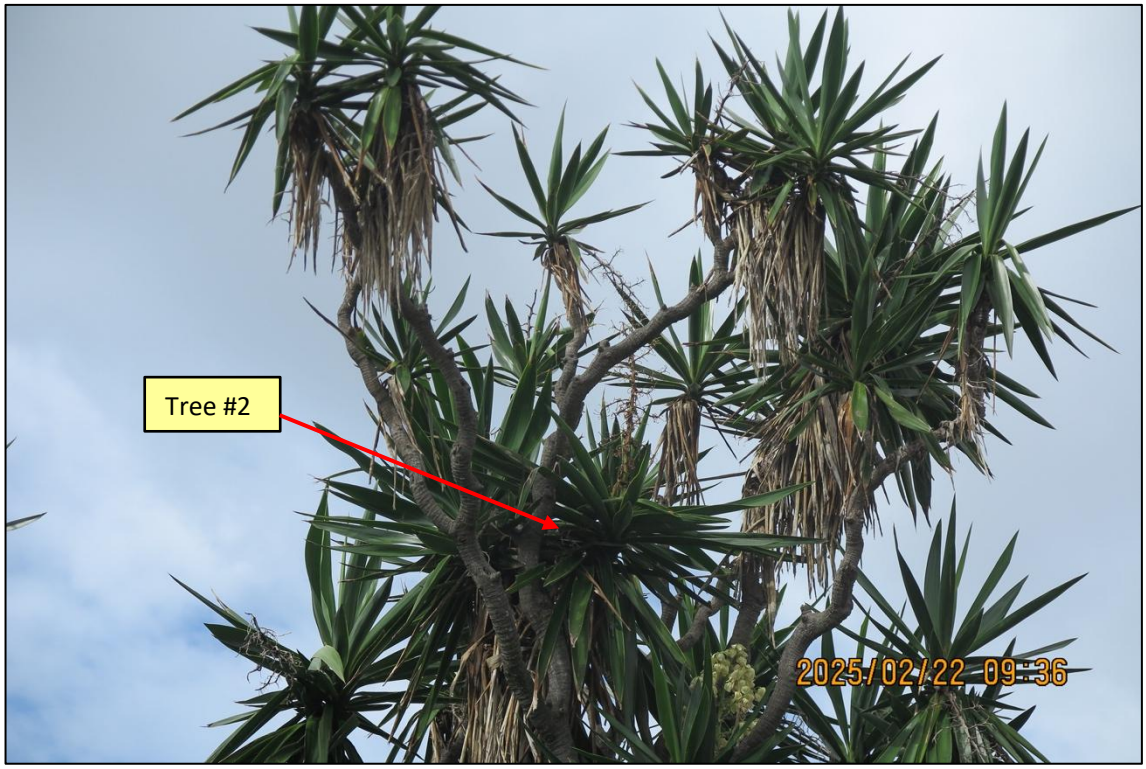
#	Identification	Height (m)	Crown (m)	DBH (m)	DRC (Base) (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Structure / Retention value	Form/Habit	Comments
5	***Lagunaria patersonia*** (Norfolk Island Hibiscus)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**EXEMPT** Exempt by species refer to NBC DCP Tree Exemption
6	***Corymbia maculata*** (Spotted Gum)	<3.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**EXEMPT** Exempt by size refer to NBC DCP Tree Exemption
7	***Cupaniopsis anacardioides*** (Tuckeroo Tree)	<8.50	<7.00	0.55	0.60	6.60	2.67	M	Good & Good	Moderate & Moderate	Typical	**RETAIN, PROTECT & MANAGE:** Install temporary metal meshed fencing with ground level support Manual Excavation within TPZ radial distance is specified.
8	***Phoenix canariensis* X2** (Canary Island Date Palm)	<2.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**EXEMPT** Exempt by size & species refer to NBC DCP Tree Exemption

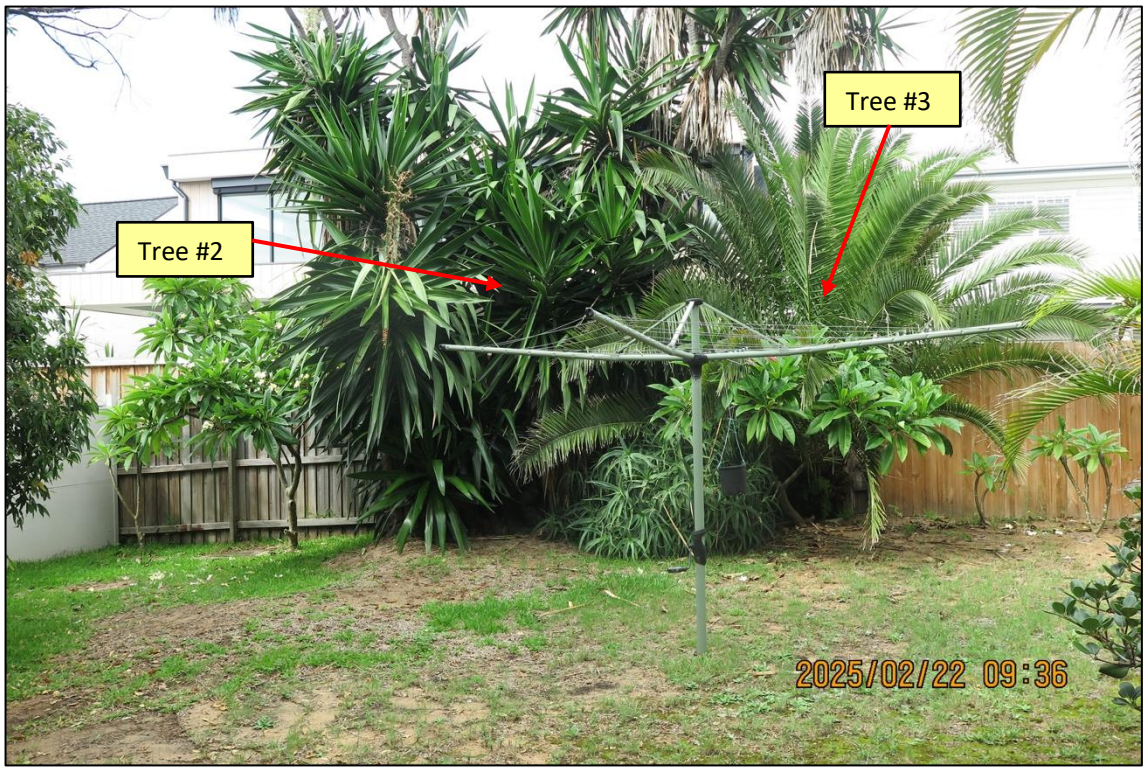
4.4 Tree & Site Images

(Photographs taken on Saturday, 22 February 2025 (Canon G1X MkII digital camera)

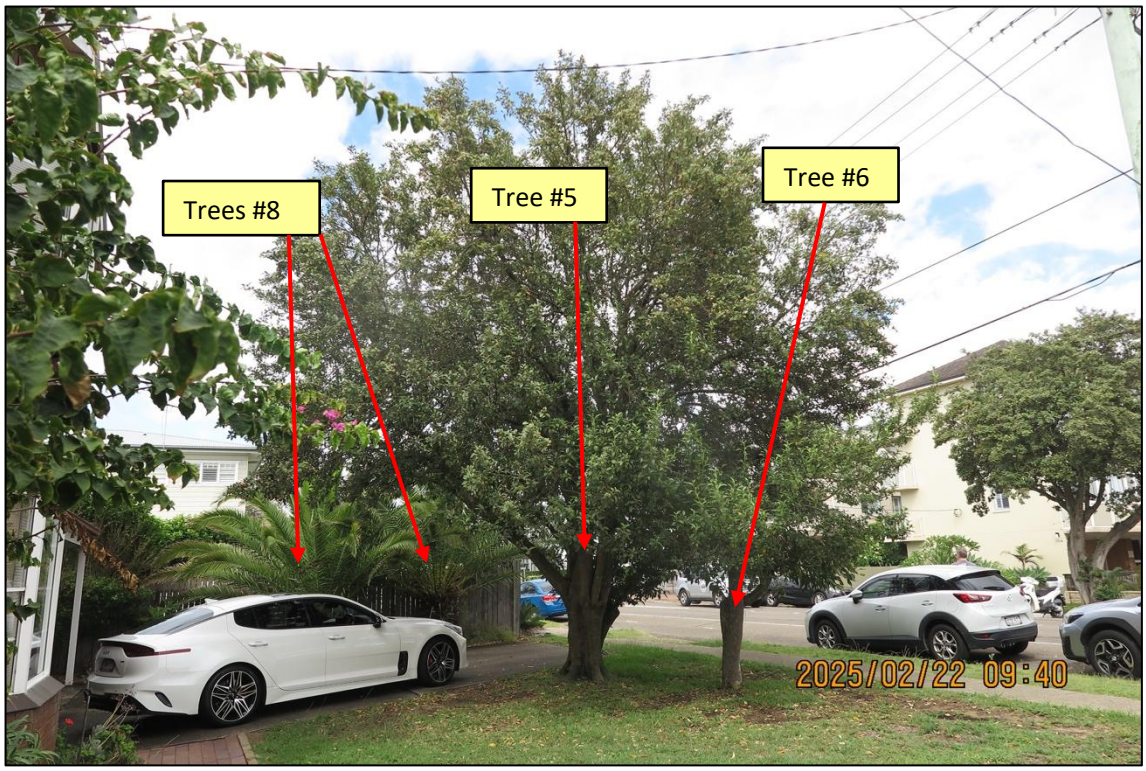



Tree #1
Leaf galls caused by bacterial or fungal
2025/02/22 09:33
2025/02/22 09:35


Tree #2
2025/02/22 09:36


Tree #3
Tree #2
2025/02/22 09:36


Tree #4
2025/02/22 09:37


Trees #8
Tree #5
Tree #6
2025/02/22 09:40

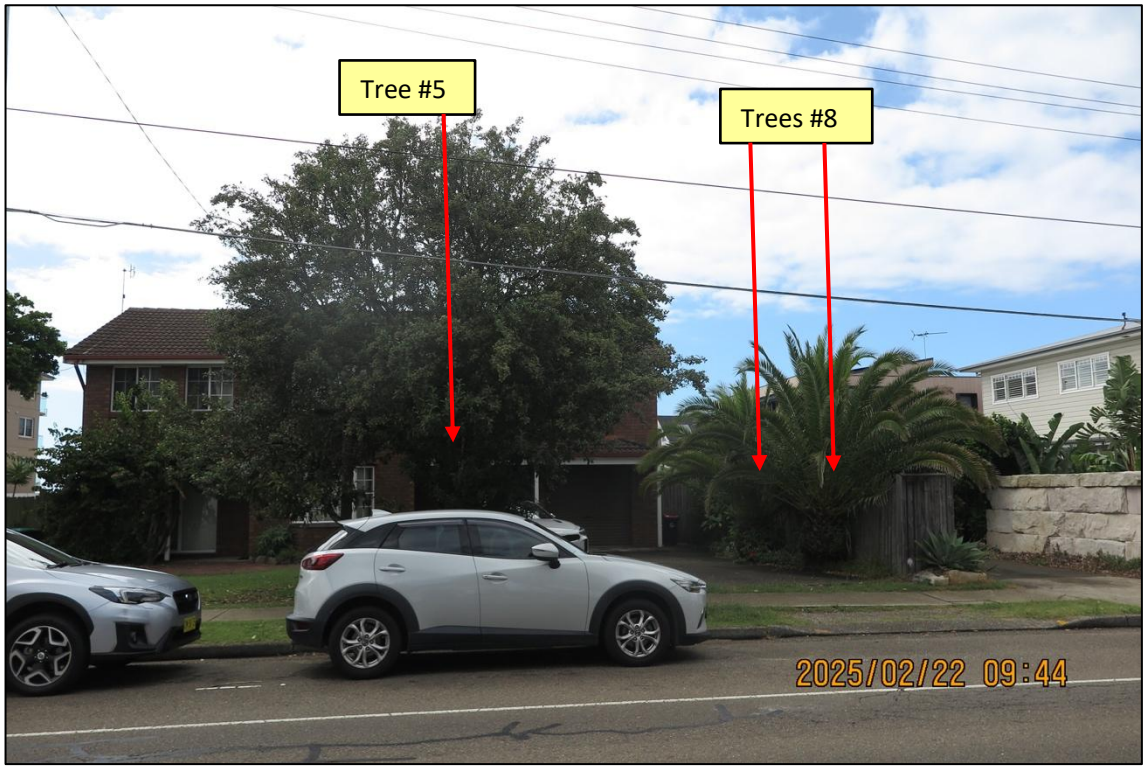

Tree #5
Trees #8
2025/02/22 09:44

FIGURE 12: ABOVE & PREVIOUS PAGE PHOTOGRAPHS ILLUSTRATES THE EIGHT (8) DISCUSSED TREES LOCATIONS & SITE FEATURES

5. Discussion

5.1General Discussion /Tree Environments:

The total number of trees discussed is eight (8).

Tree #1: ***Eucalyptus* spp**., Likely ***Eucalyptus microcorys*** (Tallowwood)

Tree #1 is located within subject site rear yard. The proposed works are confirmed to breach the TPZ total surface area of Tree #1.

Tree #1 regardless of any development proposal is exhibiting a significant number of bacterial leaf galls (potentially fatal, but at the least an indicator of stress). Tree #1 also displays multiple branch dead/dying tips (dieback), This the likely consequence of environmental stress (salt laden air), pathogen activity, or underlying root issues. All are symptom that indicate declining of tree health & vigour.

By our calculation, the total TPZ surface area of Tree #1 is 157.34m^2. The proposed works equate to an approximate 43.69m^2 mathematical disturbance of total TPZ surface area for Tree #1. This mathematically is approximately 27.8% of total TPZ surface area, (defined by *AS4970-2009 as a Major Encroachment*). By virtue of our assessment with respect to declining health & vigour can only describe this tree to have compromised Useful Life Expectancy regardless of any development proposal.

On this basis, we support replacing it with a potentially new locally indigenous species specimen.

Any replacement tree/s are specified to be planted as far from any permanent existing (neighbours) & new subject site infrastructure as possible.

The replacement tree/s must be sourced from a grower/supplier whose stock is certified to meet the production benchmarks as described within the *Australian Standard (AS2303- 2015 Tree stock for landscape use)*.

Required new replacement tree/s are to be professionally planted & and maintained for at least a minimum full Sydney active growing season. defined as being from mid-August through late May.

Tree #2: ***Yucca gigantea*** (Spineless yucca)

Tree #2 is located within subject site rear yard. The proposed works are confirmed to breach the TPZ total surface area of Tree #2.

By our calculation, the total TPZ surface area of Tree #2 is 113.00m^2. The proposed works equate to an approximate 31.13m^2 mathematical disturbance of total TPZ surface area for Tree #2. This mathematically equates to approximately 27.5% of total TPZ surface area, (defined by *AS4970-2009 as a Major Encroachment*). Based on the architectural design, the proposed works breach with the existing raised garden area which Encroached with Tree #2 SRZ. By genus/species, this plant is determined to be of low significance & retention value.

On this basis, we support replacing it with a potentially new locally indigenous species specimen.

Any replacement tree/s are specified to be planted as far from any permanent existing (neighbours) & new subject site infrastructure as possible.

The replacement tree/s must be sourced from a grower/supplier whose stock is certified to meet the production benchmarks as described within the *Australian Standard (AS2303- 2015 Tree stock for landscape use)*.

Required new replacement tree/s are to be professionally planted & and maintained for at least a minimum full Sydney active growing season. defined as being from mid-August through late May.

Tree #3: ***Phoenix canariensis*** (Canary Island Date Palm)

Tree #3 is located within subject site rear yard.

It is exempt by size & species refers to NBC DCP.

Tree #4: ***Strelitzia nicolai*** (Bird of Paradise)

Tree #4 is located within subject site rear yard.

It is exempt by size & species refers to NBC DCP.

Tree #5: ***Lagunaria patersonia*** (Norfolk Island Hibiscus)

Tree #5 is located within subject site front yard.

It is exempt by size & species refers to NBC DCP.

Tree #6: ***Corymbia maculata*** (Spotted Gum)

Tree #6 is located within subject site front yard.

It is exempt by size refers to NBC DCP.

Tree #7: ***Cupaniopsis anacardioides*** (Tuckeroo Tree)

Tree #7 is location within adjoining property (105 Ocean Street Narrabeen), adjacent to the front driveway. The proposed works are confirmed to breach the TPZ total surface area of Tree #7.

By our calculation, the total TPZ surface area of Tree #7 is 136.73m^2. The proposed works equate to an approximate 24.50m^2 mathematical disturbance of total TPZ surface area for Tree #7. This mathematically equates to approximately 17.9% of total TPZ surface area, (defined by *AS4970-2009 as a Major Encroachment*).

By our assessment (including anecdotal knowledge) relative to the species being tolerant to most change of environment al status situations (i.e., the proposed works), we support Tree #7 as able to be viably retained (relative to its Useful Life Expectancy) with implementation of standard but intensive 'live root' management practices.

The total TPZ surface area breach can be minimised by using 'live tree root friendly' materials, (e.g., by incorporation of permeable paving material) that can be instated in a manner whereby the existing ground levels are left in as undisturbed a state as can reasonably be applied with minimal impact to gaseous exchange & rainfall event penetration of water to the Tree #7 'live root' system. This strategy will reduce the actual TPZ surface area of Tree #7 to reduced to 19.16 m^2. This strategy equates to a14%. TPZ total surface area breach.

As such, it is our opinion that Tree #7 can be managed and retained without reducing its Useful Life Expectancy (ULE).

Should any significant diameter 'live root/s' (greater than 50mm in diameter), be exposed that are unable to be avoided, the direct input & documentation with supporting evidence photographs from the retained project arborist is essential to confirm as close as possible to Best Arboriculture Practice strategy being applied.

Tree #7 is additionally specified to require a 'Metal Mesh Fencing Panels with above ground

supports' (retain the exist boundary dividing fence) within TPZ radial distance during construction phase as well as native tree mulch being instated within the subject site ground level where proposed works are within the Tree #1 total TPZ surface area.

In our opinion, with intensive management, this tree is assessed as able to be viably retained.

Trees 8: ***Phoenix canariensis*** **X2** (Canary Island Date Palm)

Tree #8 is located within subject site front yard.

It is exempt by size & species refers to NBC DCP.

NBC policy when trees have been approved to be replaced by impacts for proposed works, is to replace those trees with new trees that at maturity will equal & preferably exceed the existing 'green footprint' previously provided (when in good health & vigour) by the discussed in detail.

In our opinion, there is ample room for a new tree/s to be planted & successfully established relative to providing potentially up to long term landscape & visual amenity within the front yard of the subject site. Applying this methodology will replicate the existing 'green footprint' assessed as being required to be replaced.

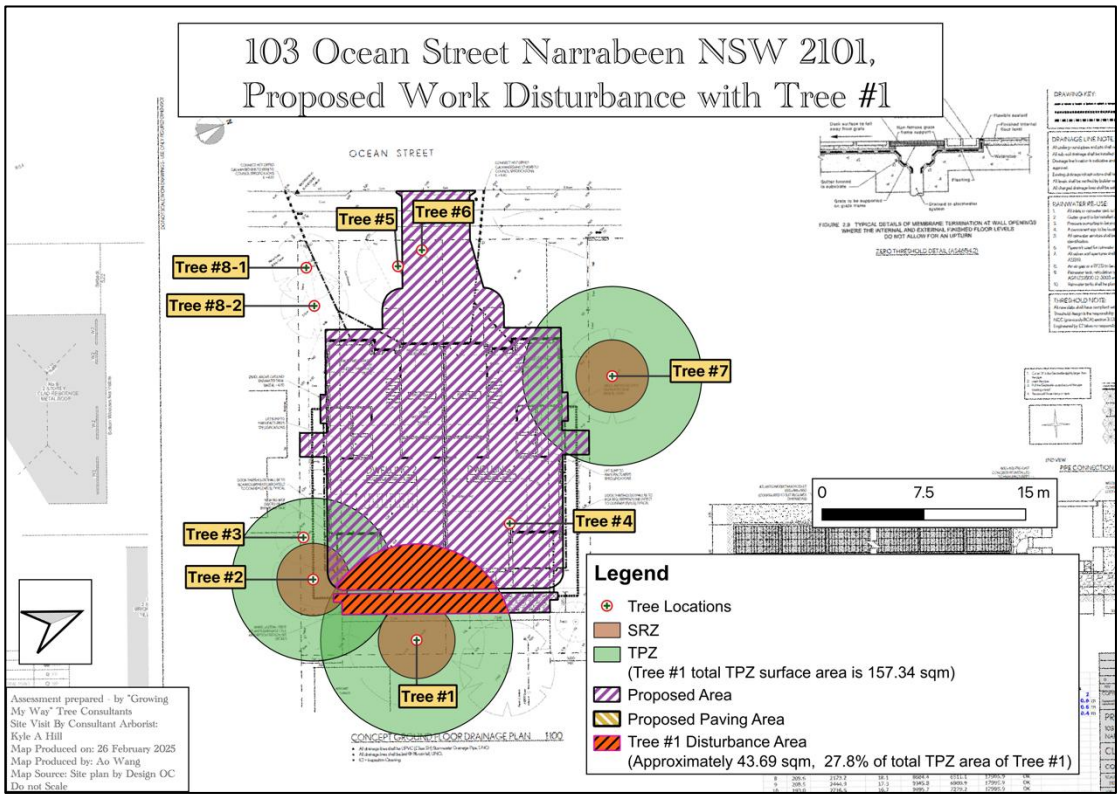
New trees are specified to be sourced from growers/suppliers whose stock is certified to meet the production benchmarks of the Australian Standard (AS23023-2015 Tree stock for landscape use). New trees are to be professionally planted & managed for a minimum of one coastal Sydney growing season (late August through early June).

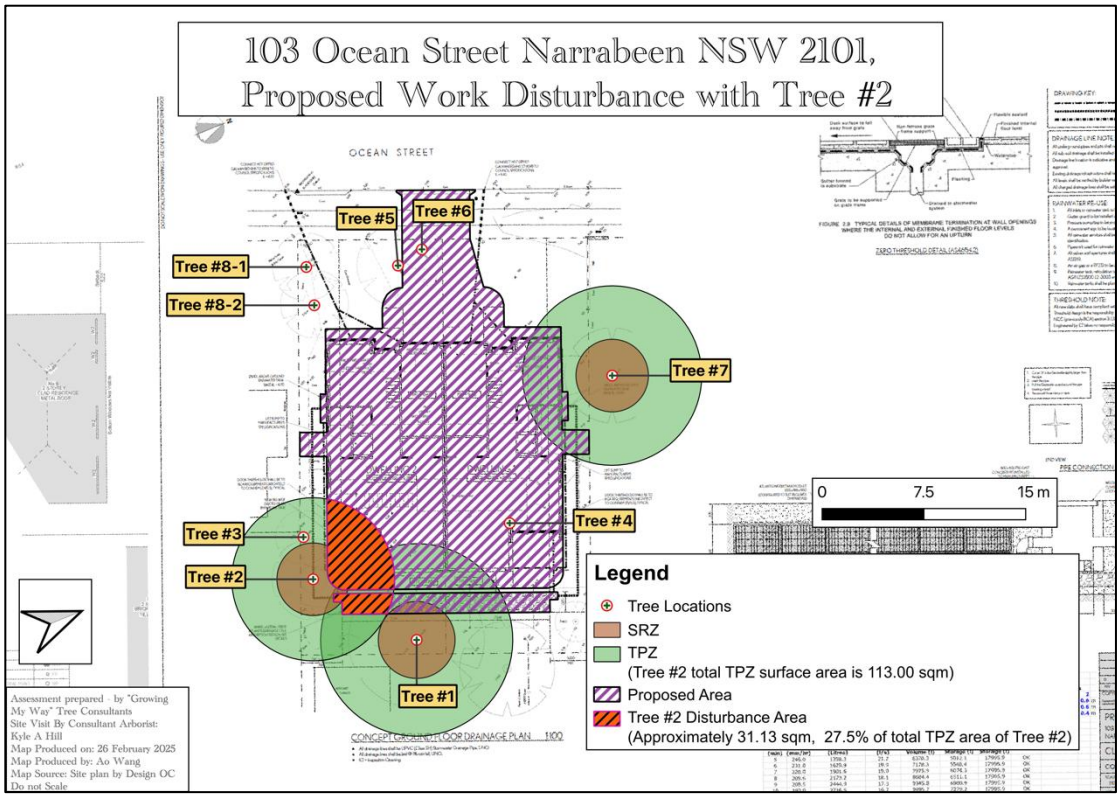
Tree removal can only be undertaken by suitably qualified practitioners (or those always supervised/instructed by such a person) in compliance with the provisions within the WorkSafe NSW, (old WorkCover *NSW*) "*Amenity Tree Industry – Code of Practice 1998*".

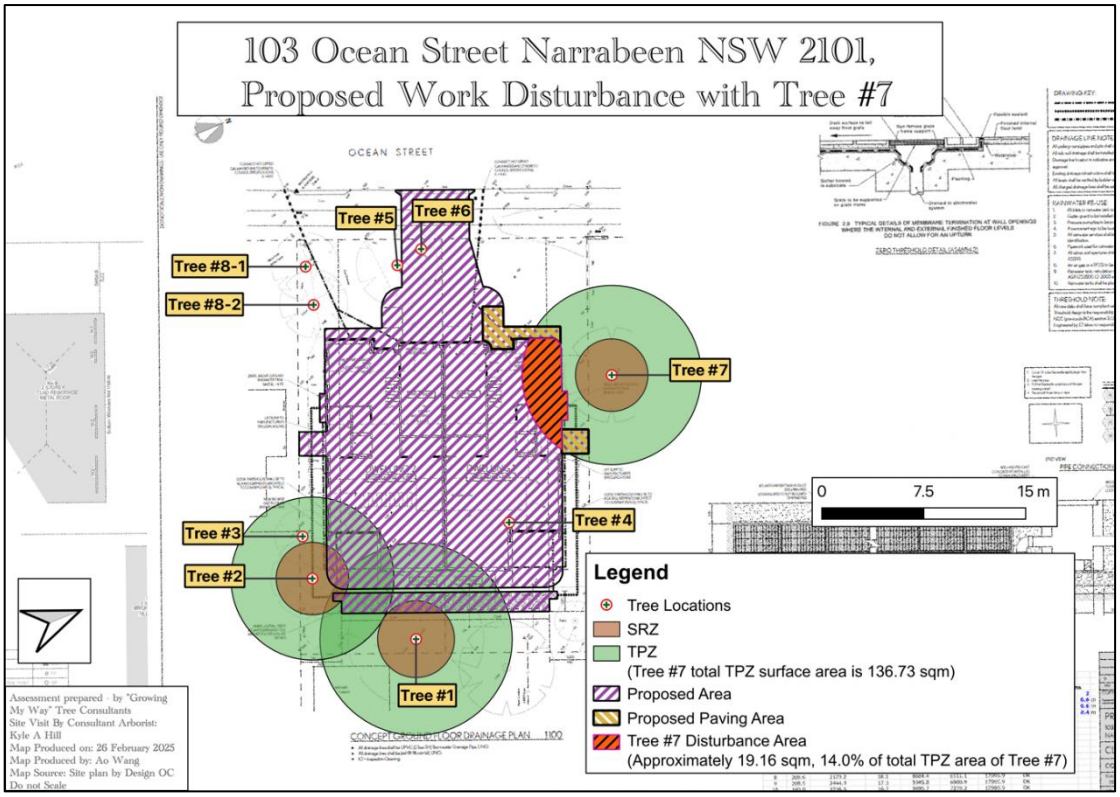
See the below potentially suitable to the subject site tree species list is provided within this document. (The list includes both Exotic & Australian Native species. It is not necessarily the only species potentially chosen/specified for the subject site. We additionally, acknowledge that species availability may have an impact on the preferred chosen species.)

- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Banksia integrifolia* (Coast Banksia)
- *Banksia serrata* (Old Man Banksia)
- *Melaleuca linariifolia* (Snow in Summer)
- *Murraya paniculata (Orange Jessimine)*
- *Michelia champaca* (Himalayan Magnolia)
- *Tristaniopsis laurina* 'Luscious'™ (Watergum Cultivated Variety)
- *Waterhausea floribunda* 'Green Avenue'™ (Weeping Lilly Pilly)

5.2 TPZ / SRZ Tree Disturbance Calculation Diagrams







5.3 Preliminary Site Specific "Tree Plan of Management"

Pre-Commencement of Works

- *Establish builder's common boundary fencing to establish isolation for the one (1) discussed as able to be retained in a viable manner tree.*
- *Retain the existing boundary dividing fence for Tree #7.*
- *Remove Tree #1, Tree #2, Tree #3, Tree #4, Tree #5, Tree #6 & Trees #8.*
- *TPZ installation (specified & existing) must be 'signed off' as being AS4970-2009 compliant. This requires documentation to be in writing with supporting photographic evidence. This document must be provided to the appointed Principle Certifying Authority.*

Commencement of and During Works

- *Ensure common boundary & any temporary isolation fencing is always intact.*
- *Any demolition of existing infrastructure within any retained, managed & protected tree TPZ radial distance is to be completed manually, especially when 'live roots' of a significant diameter belonging to any retained trees may be exposed. Any exposed 'live root' of a significant diameter must be covered until the required input & documentation from the retained Project Arborist can be obtained. Preferably, any 'live root' exposed would be covered in subject site topsoil. If this is not practicable, hessian or geotextile matting kept moist can be used until able to be covered & isolated from the proposed works.*
- *In the event of any significant diameter 'live root' being exposed, only the retained Project Arborist can determine, supervise & document with supporting evidence photographs the as close to best Arboriculture Practice strategy applied.*

Post Completion of Works

- *Confirm the presence & condition of all required by the DA determination 'Conditions of Consent' individual trees required to be retained.*
- *The above is to be certified in writing with supporting photographic evidence as being DA determination 'Conditions of Consent' plus AS4970-2009 provisions compliant relative to all required to be retained trees.*
- *All documentation from each stage of works must be provided to the appointed Principle Certifying Authority as soon as is reasonably possible post each stage of works being completed.*

New Tree Generic Specifications:

- *Replacement trees are to be sourced from growers/suppliers whose stock meets the production benchmarks of the Australian Standard (AS2303.2015 Tree stock for landscape use) or NATSPEC specification to produce quality container produced trees.*

- *New tree specimens are to be professionally planted & maintained for a minimum period of six (6) months once installed.*
- *New tree specimens are to be 45 litre container stock as the local environment has only shallow topsoil on top of sandstone bedrock. (A lack of natural topsoil depth may dictate smaller container replacement trees to be more appropriate.*

6. Conclusions

The proposal in its present format is considered as able to be built without any compromise to Tree #7 with respect to its individual Useful Life Expectancy with implementation of a once finalised (DA determination) Site Specific 'Tree Plan of management'.

This submission in its present format can be submitted to the NBC for review by council officers.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Yours faithfully,

Kyle A. Hill (AQF level 5 & 8 Practicing & Consulting Arborist)

7. Limitations on the use of this report

This report is to be utilised 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 a copy) is referenced in, & directly attached to that submission, report or presentation.

8. Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

9. Recommended References

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Phillip J. Craul, '*Urban Soil in Landscape Design',* J. Wiley & Sons, New York USA 1992

10. Selected Bibliography

Hitchmough, J.D. 1994. '*Urban Landscape Management*', Inkata Press, Sydney.

Mattheck, C. & Breloar, H. 1994 '*Body Language of Trees'*, The Stationery Office, London.

AS 4373:2007, '*Pruning of Amenity Trees'*, Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites'', Standards Australia.

BS 5837:2005, '*Guide for Trees in Relation to Construction'*, Standards Board, UK.

Appendix A – Glossary

Glossary of common Arboreal terms

Age: **I** *Immature* refers to a refers to a well-established but juvenile tree

SM *Semi-mature* refers to a tree at growth stages between immaturity & full size

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 tree about to enter decline or already declining

LS *Live Stag* refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death

Hth & Vig Health & Vigour

Health refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Vigour refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Useful Life Expectancy (ULE) refers to any individual tree specimen's potential life

expectancy (viability) based on VTA assessment, three groups are described,

Short = Less than Five years

Medium = Five–Fifteen years

Long = more than Fifteen years

Significant diameter roots are defined as those being greater than 0.05m/50mm in diameter.

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

Structural Root Zone (SRZ) refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula *SRZ radius= (D x 50)$^{0.42}$ x 0.64.*

Primary Root Zone (PRZ) refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk. This zone often contains a significant amount of (but by no means all of a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

Tree Protection Zone (TPZ) is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

Stem/bark inclusion refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

Decay refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different effect on both the tree's health & structural integrity.

Point of Attachment refers to the point at which a stem/branch etc join.

Dead wood refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

Die back refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

One dimensional crown refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

Epicormic growth/shoots refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

Over Head Powerlines (OHP) Over head electricity wiring.

LVOHP Low Voltage Over head Powerlines

HVOHP High Voltage Over head Powerlines

ABC Aerial Bundled Cable

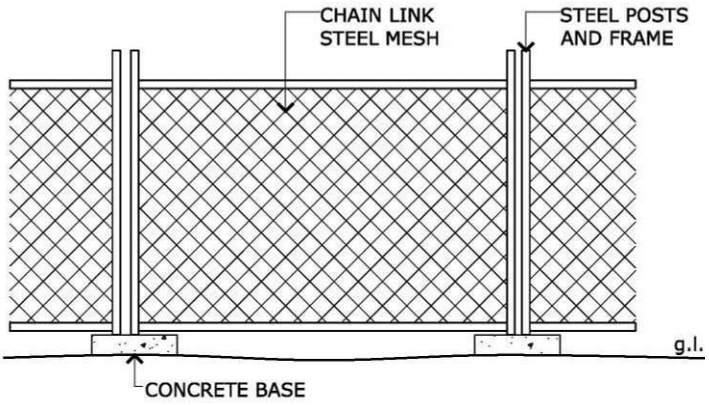
Attachment A: Tree Protection/Management Prior to & During Construction

The installation of Tree Protection Zone (TPZ) fencing is to be carried out prior to commencement of all works. The most suitable fencing material is 1.8m tall chain link mesh with 50mm metal pole supports, see **detail 1: tree protection fencing**.

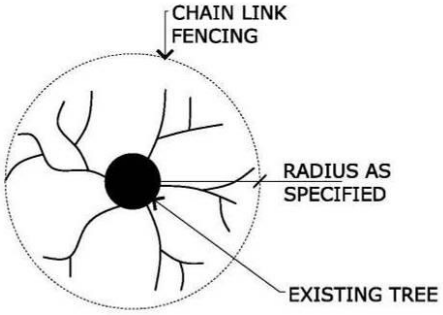
A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by handheld or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering is to be carried out by either an Arborist or is to form part of the Builder's/Contractor's contract, with recommended monthly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within TPZ of any retained tree. Access to personnel & machinery, & storage of fuel, chemicals, cement or site sheds is prohibited.

Regular monitoring of protected trees during development works for unforeseen changes or decline, will aid in the success & longevity of the retained trees.



ELEVATION



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