AURA TREE SERVICES pty ltd

"We go out on a limb for you"

# *Arboriculture Impact Assessment & Management Report*

November 2021

| | |
|---|---|
| **Site:** | **Lot 114 in DP 8394**<br>**73 Marine Parade**<br>**AVALON BEACH, NSW** |
| **Client;** | **Lincoln Courtney**<br>**73 Marine Parade**<br>**AVALON BEACH, NSW 2107**<br>**Phone: 61 402 439 820**<br>**Email:** linc@interlinklandscapes.com.au |
| **Commissioned:** | **Lincoln Courtney** |
| **Author:** | **Kyle A Hill**<br>Registered (Arb Aus #1884) Practising & Consulting Arborist<br>Post Graduate Certificate in Arboriculture, Uni of Melbourne<br>Diploma of Horticulture–Arboriculture; TAFE, Grow SA<br>Certificate of Horticulture, TAFE<br>Certificate Advanced Tree Care TAFE<br>Founder -Growing My Way Tree Services (1977)<br>Member of International Society of Arboriculture<br>Member of Arboriculture Australia |

# 1 Summary

The Lincoln Courtney Family as the property owner have commissioned *Aura Tree Services Pty Ltd* to prepare an "*Arboriculture Impact Assessment & Management Report* for the management of trees within both the 73 Marine Parade, Avalon Beach property & the front of property road reserve. Some discussed trees are exempt from protection on the basis of species/size or location. No trees within either side (north/south) common boundary properties are assessed as being potentially impacted upon by the proposed redevelopment of the site.

The subject site is known as 73 Marine Parade, Avalon Beach (Lot 114 in DP 8394).

The subject site is currently developed to contain a single dwelling house. This is proposed to be demolished & replaced with a new dwelling, including swimming pool & new landscape concept.

A soon to be lodged Development Application (from herein DA) will propose demolition of the existing dwelling house& construction of a new dwelling house with a Grey Waste Water management system.

The new, subject of this document dwelling house is a single multi-level structure

The subject site is within the Northern Beaches Council–Local Government Area, i.e., previously within the Pittwater Council – Local Government Area. From herein acknowledged as the NBC.

The NBC is the sole consent authority relative to the trees discussed within this document.

Technically, the trees are still subject to the old *Pittwater Council Development Control Plan, Pittwater 21 adopted 2003, see Part B4 Controls Relating to the Natural Environment*. This document additionally acknowledges the SEPP 'Vegetation in Non-Rural Areas', August 2017. The discussed trees are mostly medium to long term established (i.e., less than fifteen years to well in excess of forty-five years). Several (both within the subject site & the road reserve) are locally indigenous species.

Any tree supported or able to be removed (without permission) will ideally be replaced with new subject site preferably locally indigenous suitable species. The reason being preservation of land stability & continuity of 'canopy footprint density'.

Kyle Hill, Practicing & Consulting Arborist AQF Level 5 & 8, has prepared this document based on onsite observations & discussion with Lincoln Courtney on Wednesday, 27 October 2021.

# TABLE OF CONTENTS

# 2 Introduction

NBC is the local government area primary consent authority relative to development & tree management for the discussed site.

The Site Plan (A01) identifies twenty-eight (28) trees within the subject site & road reserve. Not all trees are required to be discussed relative to the proposed works.

Trees numbered on the Site Plan as Tree #1, Tree #2, Tree #3, Tree #4, Tree #12, Tree #13, Tree #14, Tree #15, Tree #20 & tree #28 are proposed to be retained.

Additionally, three (3) *Livistona australis* (Cabbage Palms), Tree #9, Tree #10 & Tree #11 are proposed to be transplanted.

All discussed trees are within the subject site or the front of the subject site road reserve.

Relative to the Pittwater 21 DCP, the following Part B, section B4 Controls are believed to apply to the subject site; B4.1 Flora & Fauna Conservation Area Category 1, B4.2 Flora & Fauna Habitat Enhancement Category 2 Land, B4.4 Wildlife Corridors, B4.5 Protection of Native Wildlife, B4.6 Pittwater Spotted Gum Forest-Endangered Ecological Community, B4.10 Land Adjoining Bushland & B4.22 Preservation of Trees Bushland Vegetation. Also acknowledged is the SEPP 'Vegetation in Non-Rural Areas', August 2017.

The subject site is 'Land Zoned' both E3, 'Environmental Management' & E4 'Environmental Conservation'. The subject site is NOT within a "Heritage Conservation Area". (See page 7 of this document.) The subject site & adjoining sites are not listed "Heritage Items". The discussed trees are not known to be listed on any "Significant Tree Register". Relative to "Habitat Potential" the discussed trees only have the capacity to support canopy nesting fauna.

This document is based on Visual Tree Assessment (Stage 1 & 2) plus observations made when onsite where discussion/data collection was undertaken.

This document will support the proposal for development as has been presented in documents provided by GartnerTrovato Architects via the property owner, Lincoln Courtney.

# 3 Methodology

Assessment of the discussed trees has been by eye from ground level & aerial photography from multiple sources. Implementation of the *Visual Tree Assessment (VTA) Stage 1 principles* developed by Claus Mattheck, et.al is the assessment method & tool chosen for this site. The principles of *VTA* Stage 1 are explained & illustrated in his publication *The Body Language of Trees (1994).*

Assessment includes:

- *Tree's current condition & likely ULE.*
- *Perusal of NBC 'Tree Management Provisions' i.e., the old Pittwater Council Development Control Plan, Pittwater 21, adopted 2003. Part B, Section B4,*
- *Perusal of "Heritage Conservation Area" Pittwater Council LEP 2014 mapping*
- *Perusal of NBC "Endangered Ecological Community listing" information.*
- *Research for listing on any "Significant Tree Register".*
- *Discussion of environment where the trees are growing &*
- *Tree's amenity & retention value, related to significance, screening & habitat.*

No root tissue (laboratory) analysis, soil testing, '*Resistograph*'®, '*ArborTom*'® assessment or similar was undertaken.

See the Attachments Included as Appendix A & Appendix B for further information:

- *Appendix A Glossary of Common Arboreal terms*
- *Appendix B Tree Protection & Management Prior to & During Construction*

# 4 Observations

## *4.1 The Site*

The subject sit is mostly Land Zoned 'E3' Environmental Conservation. By Site Survey the lot is 933.00m$^2$. It is additionally classified as being subject to the provisions within the Pittwater spotted gum forest in the Sydney Bioregion – endangered ecological community listing (NSW Scientific Committee – final determination, see Part 3 of schedule 1of the Act.)

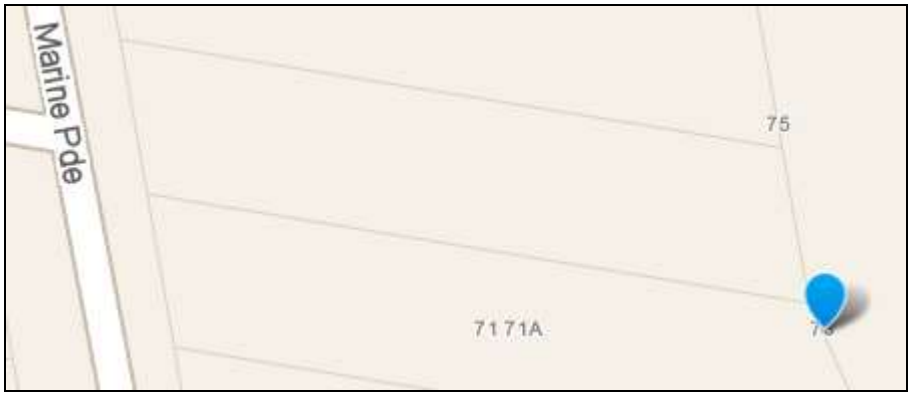
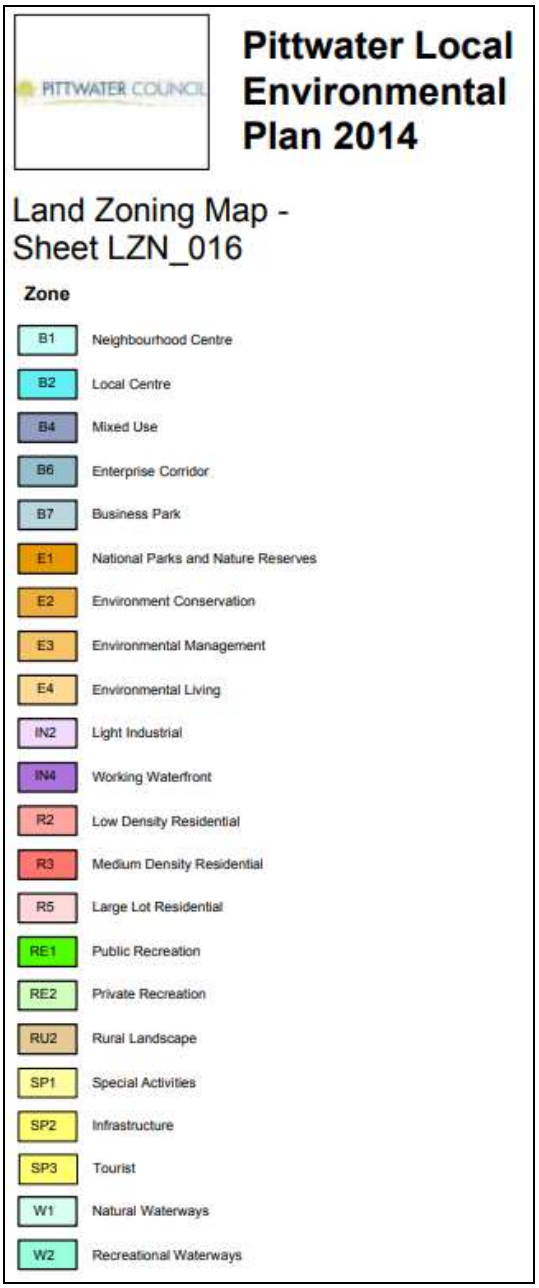
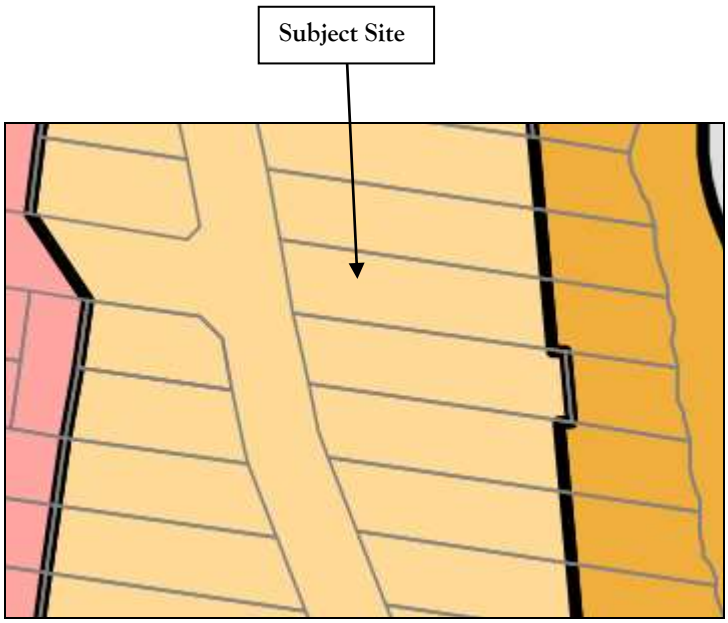




**Figure 1: Map & Aerial photograph courtesy Whereis.com & NBC (web tools)**


PITTWATER COUNCIL
Pittwater Local Environmental Plan 2014
Land Zoning Map - Sheet LZN_016
Zone
B1 Neighbourhood Centre
B2 Local Centre
B4 Mixed Use
B6 Enterprise Corridor
B7 Business Park
E1 National Parks and Nature Reserves
E2 Environment Conservation
E3 Environmental Management
E4 Environmental Living
IN2 Light Industrial
IN4 Working Waterfront
R2 Low Density Residential
R3 Medium Density Residential
R5 Large Lot Residential
RE1 Public Recreation
RE2 Private Recreation
RU2 Rural Landscape
SP1 Special Activities
SP2 Infrastructure
SP3 Tourist
W1 Natural Waterways
W2 Recreational Waterways


Subject Site

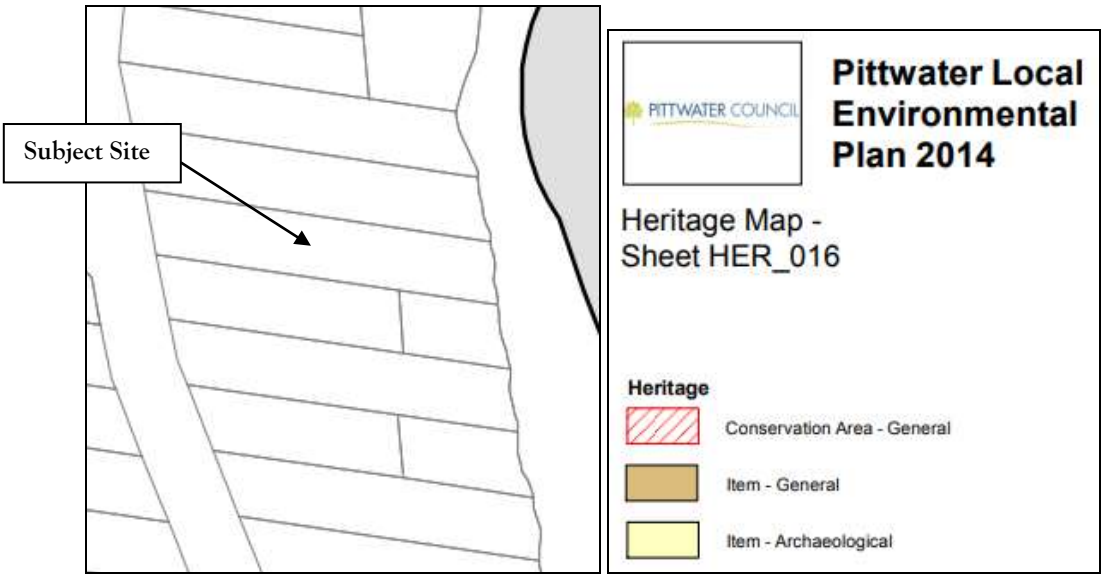
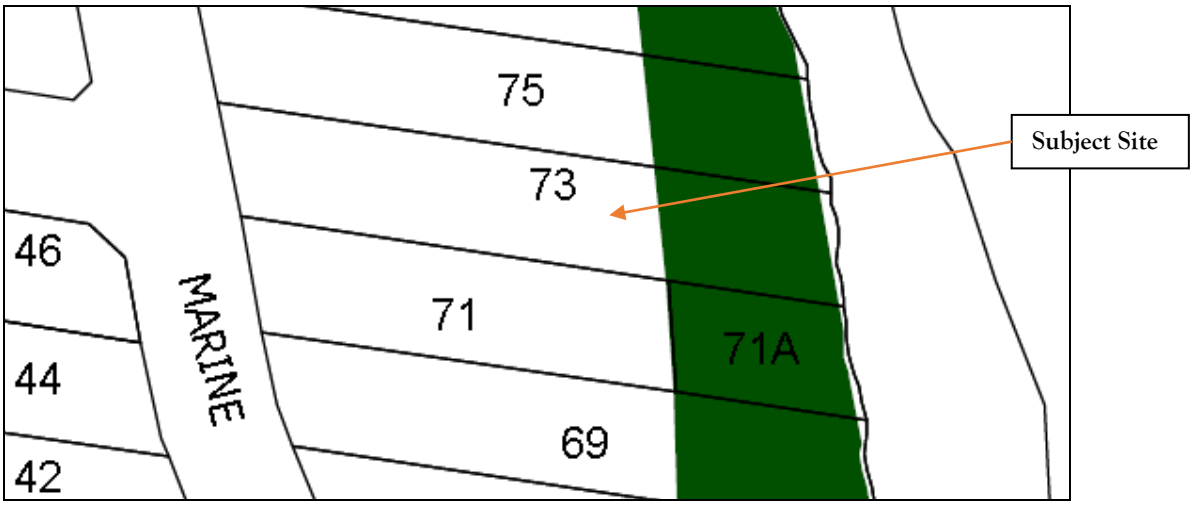
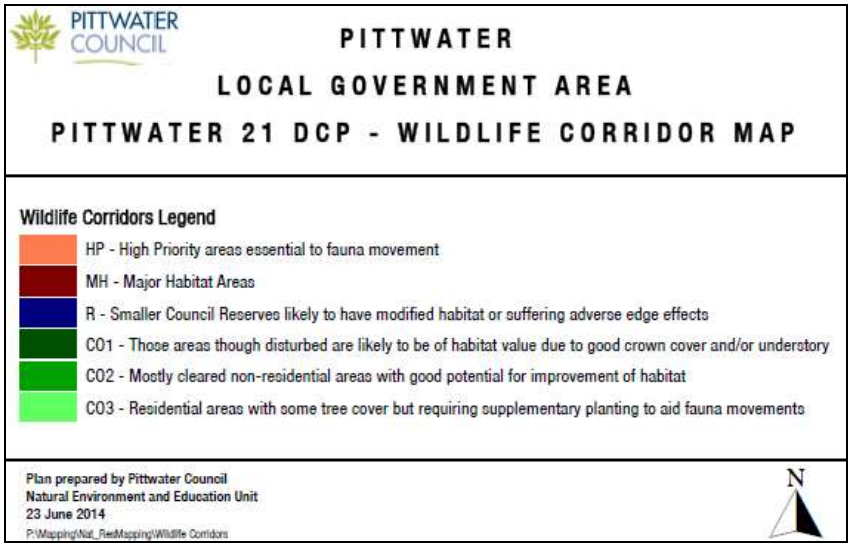



**Figure 2: Above; confirms 'Heritage Conservation Area & Previous page; confirms Land Zoning Status', Below; confirms Wildlife Corridor Status**



## *4.2 Site Survey with Tree Locations Confirmed & Tree Images*

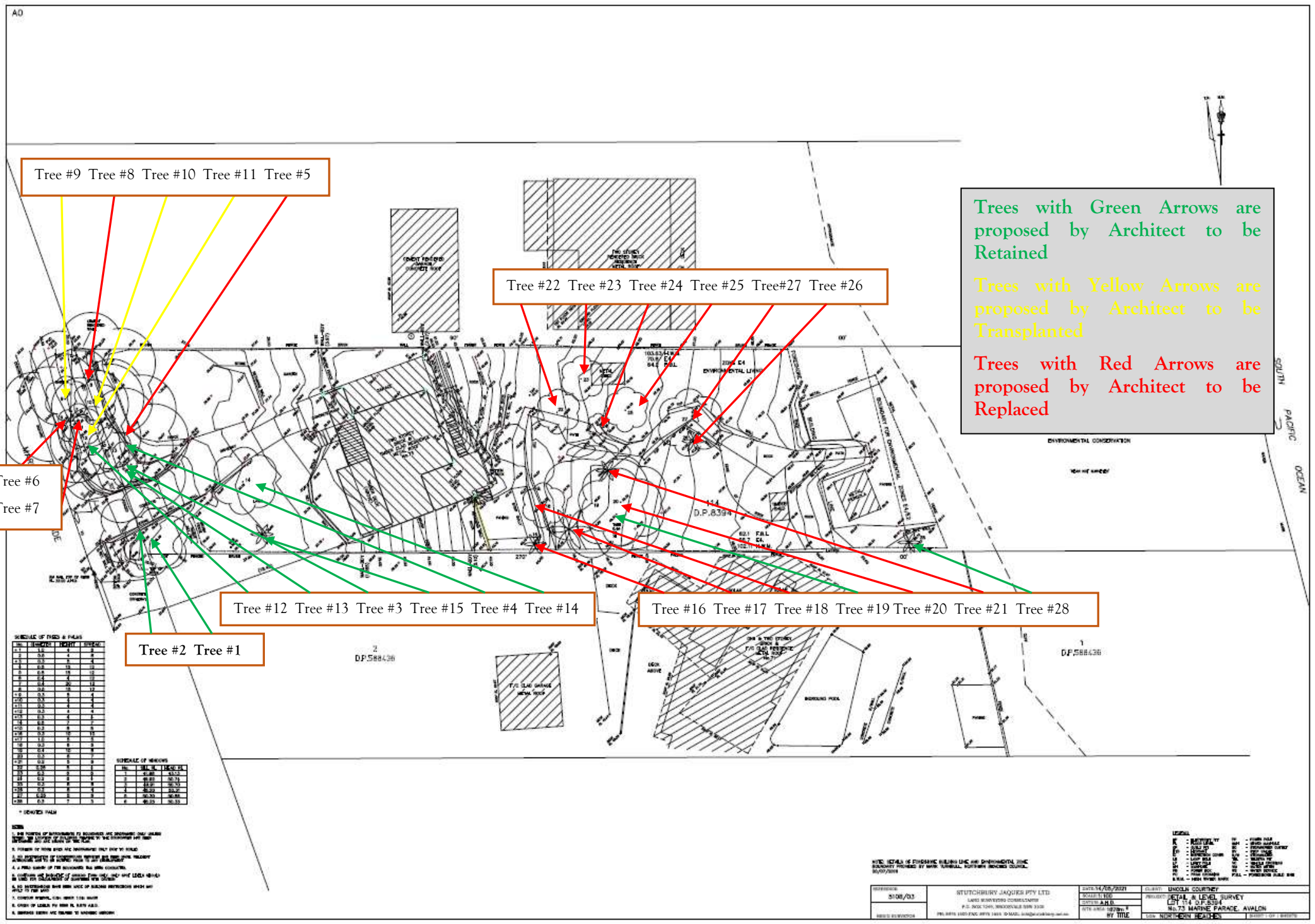



**Figure 3: Above illustrates the road reserve discussed trees. Below illustrates front & rear yard high value trees proposed to be retained.**

# 5 The Trees Summary Table & The Proposal

## *5.1 The Trees Summary Table:*

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

| Trees Recommended for removal | Trees Supported for retention |
|---|---|
| Proposed to be transplanted | Trees retainable but of low amenity/significance or Exempt species |

| | Identification | Height (m) | Crown (m) | DBH (m) | TPZ (m) | SRZ (m) | Age | Health/ Vigour | Structure | Form/ Habit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Phoenix canariensis* Canary Isle Date Palm | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Retain, Protect & Manage: No discussion required. Tree is are away from any works. Standard TPZ fencing. |
| 2 | Banksia integrifolia Coast Banksia | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Retain, Protect & Manage: No discussion required. Tree i away from any works. Standard TPZ fencing. |
| 3 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Retain, Protect & Manage: Tree is close to disturbance. Standard TPZ fencing. |
| 4 | *Melaleuca quinquenervia* Broad Leaf Paperbark | <11.50 | <10.50 | 0.52 | 6.24 | 2.67 | M | Good & Good | Moderate/ Moderate | Typical | Retain, Protect & Manage: Tree is close to disturbance. Manual excavation within TPZ radial distance Standard TPZ fencing. |
| 5 | *Melaleuca quinquenervia* Broad Leaf Paperbark | <14.00 | <12.50 | 0.62 | 7.44 | 2.87 | M | Good & Good | Moderate/ Moderate | Typical | Replace: Tree is within or too close to new driveway footprint. |
| 6 | *Melaleuca quinquenervia* Broad Leaf Paperbark | <14.00 | <12.50 | 0.62 | 7.44 | 2.87 | M | Good & Good | Moderate/ Moderate | Typical | Replace: Tree is within or too close to new driveway footprint. |
| 7 | *Banksia integrifolia* Coast Banksia | <12.00 | <11.50 | 0.56 | 6.72 | 2.81 | M | Good & Good | High/High | Typical | Replace: Tree is within or too close to new driveway footprint. |
| 8 | *Melaleuca quinquenervia* Broad Leaf Paperbark | <14.00 | <12.50 | 0.62 | 7.44 | 2.87 | M | Good & Good | Moderate/ Moderate | <14.00 | Replace: Tree is within or too close to new driveway footprint. |
| 9 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Proposed to be Transplanted: See Proposed Site Plan. |

| Trees Recommended for removal | Trees Supported for retention |
|---|---|
| Proposed to be transplanted | Trees retainable but of low amenity/significance or Exempt species |

| | Identification | Height (m) | Crown (m) | DBH (m) | TPZ (m) | SRZ (m) | Age | Health/ Vigour | Structure | Form/ Habit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Proposed to be Transplanted: See Proposed Site Plan. |
| 11 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Proposed to be Transplanted: See Proposed Site Plan. |
| 12 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Retain, Protect & Manage: Tree is close to disturbance. Manual excavation within TPZ radial distance Standard TPZ fencing. |
| 13 | *Livistona australis* Cabbage Palm | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Retain, Protect & Manage: Tree is close to disturbance. Manual excavation within TPZ radial distance Standard TPZ fencing. |
| 14 | *Banksia integrifolia* Coast Banksia | <4.50 | <4.50 | <0.30 | 3.60 | N/A | SM | Good & Good | High/High | Typical | Retain, Protect & Manage: Manual excavation within TPZ radial distance Standard TPZ fencing. |
| 15 | *Stelitzia Nicholai* Giant Bird of Paradise | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Retain, Protect & Manage: Site Plan proposes retention. Standard TPZ fencing. |
| 16 | *Syagrus romanzoffianum* Cocos Palm | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Replace: Tree is within or too close to new dwelling/hard landscape area footprint. |
| 17 | *Phoenix canariensis* Canary Isle Date Palm | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Replace: Tree is within or too close to new dwelling/hard landscape area footprint. |
| 18 | *Eucalyptus* spp. Gum Tree (not recognised as locally indigenous) | <8.00 | <7.50 | 0.38 | 4.56 | 2.34 | M | Poor & Poor | Low/Low | Typical | Replace: Tree is within or too close to new dwelling/hard landscape area footprint. |
| 19 | *Ficus rubiginosa* Port Jackson Fig | <8.50 | <8.00 | 0.48 | 5.67 | 2.65 | M | Fair & Fair | Moderate/ Moderate | Typical | Retain, Protect & Manage: Site Plan proposes retention. Standard TPZ fencing. |

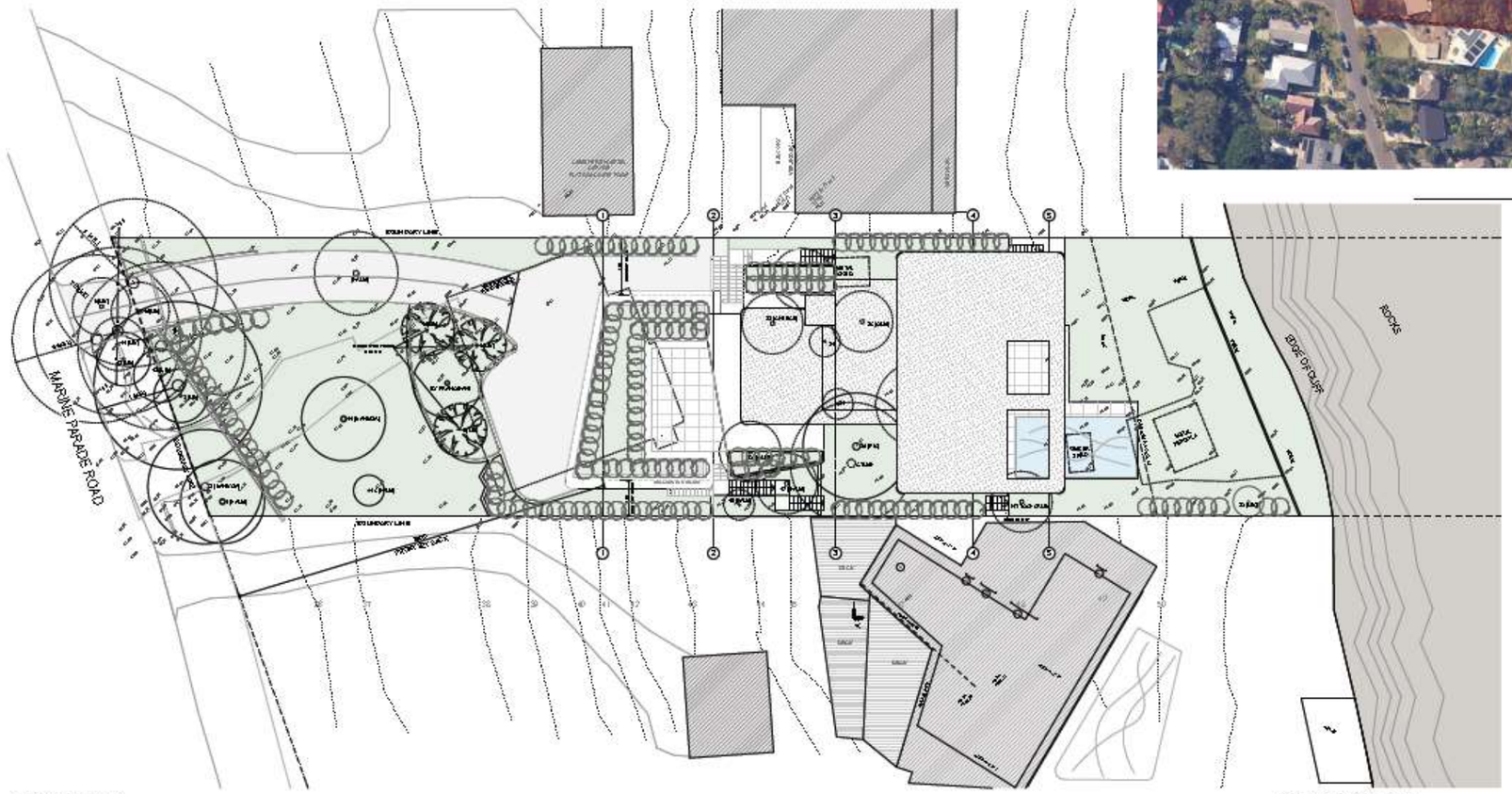
| Trees Recommended for removal | Trees Recommended for retention |
|---|---|

| Proposed to be transplanted | Trees retainable but of low amenity/significance or Exempt species |
|---|---|

| | Identification | Height (m) | Crown (m) | DBH (m) | TPZ (m) | SRZ (m) | Age | Health/ Vigour | Structure | Form/ Habit | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | Stump<br>Giant Bird of Paradise | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Only a stump is present: |
| 21 | *Archontophoenix cunninghamiana*<br>Bangalow Palm | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Replace:<br>Tree is within new dwelling footprint. |
| 22 | ***Brachychiton acerifolius***<br>Illawarra Flame Tree | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 23 | *Glochidion ferdinandi*<br>Cheese Tree | <7.50 | <6.50 | 0.23 | 2.76 | 1.91 | M | Good & Good | Moderate/ Moderate | <7.50 | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 24 | *Unknown* spp.<br>Likely Rainforest Tree | <8.00 | <4.50 | 0.20 | 2.40 | 1.82 | M | Good & Good | Moderate/ Moderate | Typical | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 25 | *Eucalyptus microcorys*<br>Tallowwood Gum | <8.50 | <9.50 | 0.27 | 3.24 | 2.02 | M | Good & Good | Moderate/ Moderate | Typical | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 26 | *Syagrus romanzoffianum*<br>Cocos Palm | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 27 | *Glochidion ferdinandi*<br>Cheese Tree | <6.50 | <4.50 | 0.19 | 2.28 | 1.79 | M | Fair & Fair | Moderate/ Moderate | Typical | Replace:<br>Tree is within or too close to new dwelling/hard landscape area footprint. |
| 28 | *Livistona australis*<br>Cabbage Palm | <2.50 | <3.00 | <0.30 | <3 .60 | N/A | M | Fair & Fair | Moderate/ Moderate | Typical | Retain, Protect & Manage:<br>Standard TPZ fencing. |

## *5.2 The Proposal:*

LOCATION PLAN




SITE PLAN

SCALE 1:200

N

GARTNERTROVATO ARCHITECTS

| Issue Date | Rev | Description | Drawn | Checked |
|---|---|---|---|---|
| | | | | |

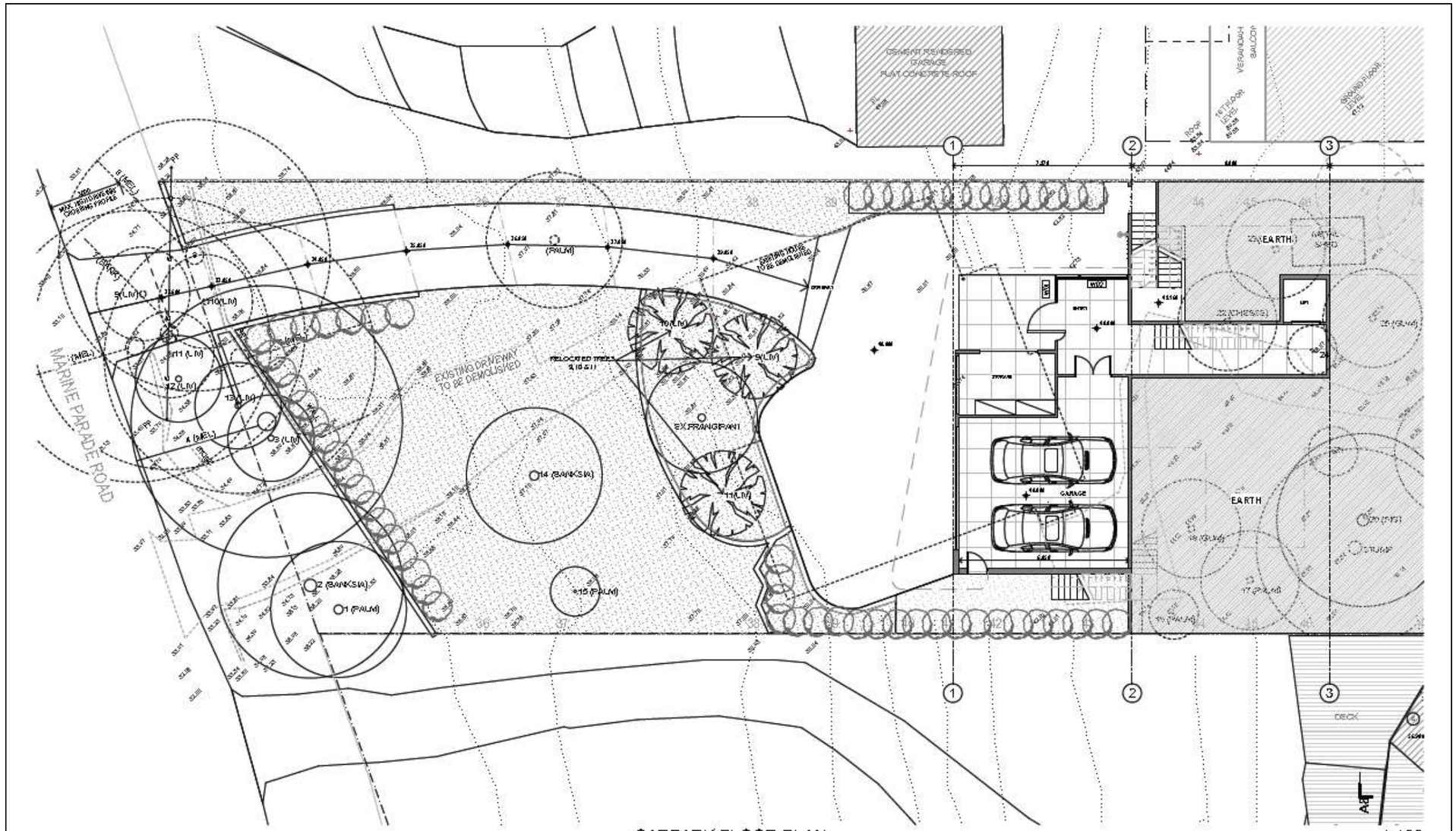
NEW DWELLING

73 Marine Parade, Avalon Beach

FOR COURTNEY FAMILY

Site Plan

2105 A 01




CARPARK FLOOR PLAN 1:100

N

GARTNERTROVATO ARCHITECTS

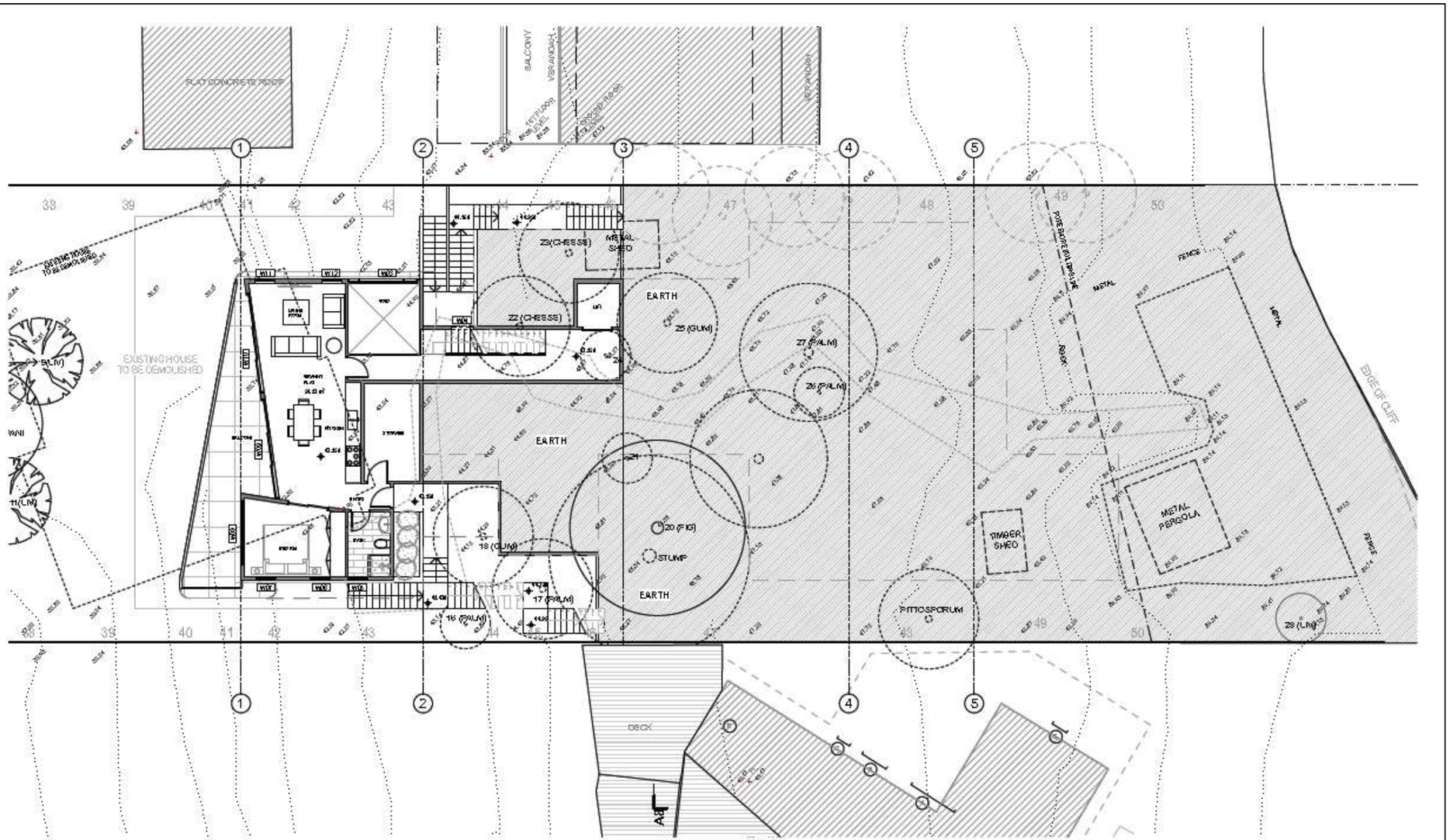
NEW DWELLING

73 Marine Parade, Avalon Beach.

FOR COURTNEY FAMILY

Carpark Floor Plan

2105 A 02




GRANNY FLAT FLOOR PLAN 1:100

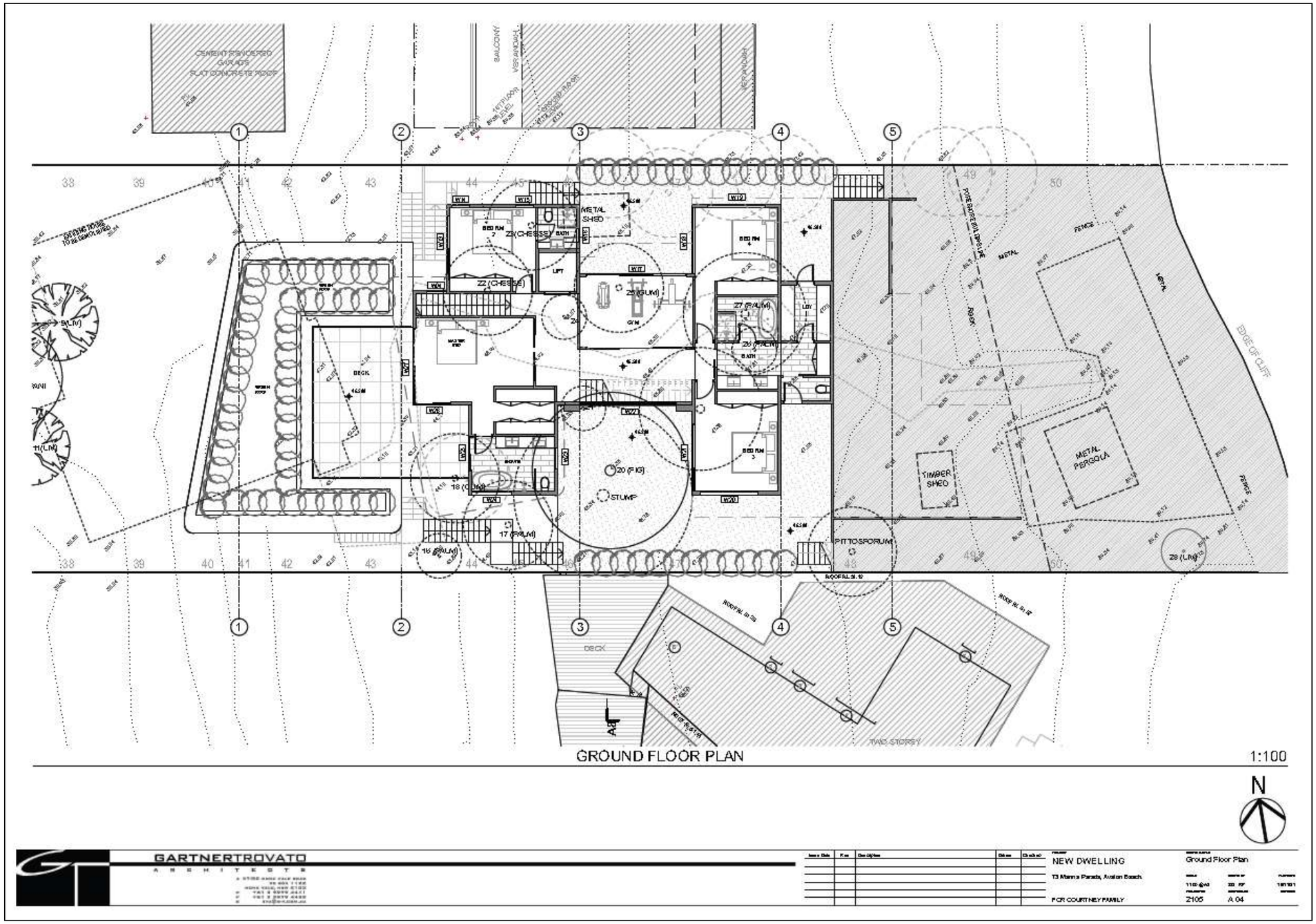
N

GARTNERTROVATO ARCHITECTS

| | | | | | |
|---|---|---|---|---|---|
| | | | | | NEW DWELLING |
| | | | | | 73 Marine Parade, Avalon Beach |
| | | | | | FOR COURTNEY FAMILY |

Granny Flat Floor Plan

1100 @A3 | 2105 | A 03



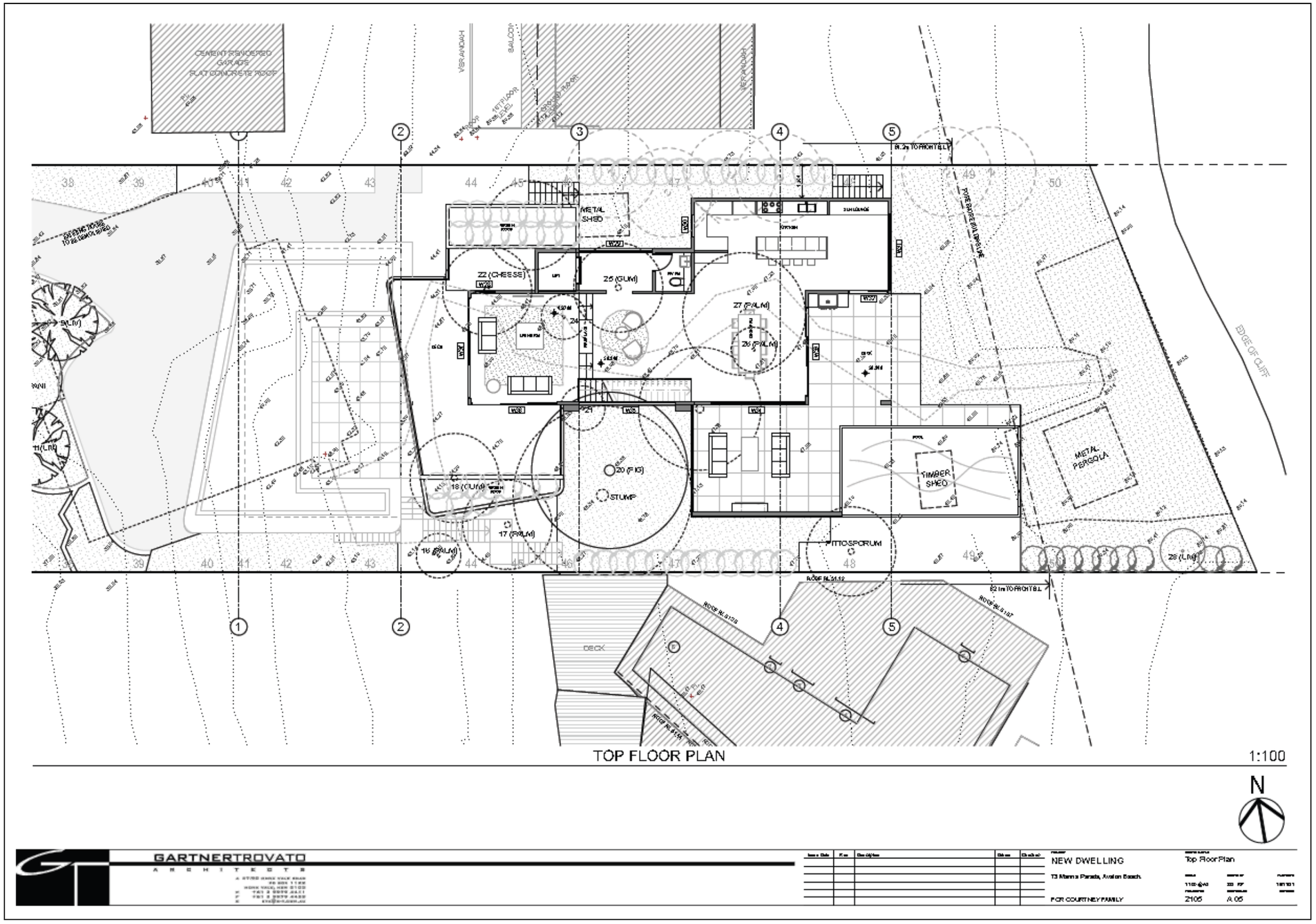

GROUND FLOOR PLAN 1:100

N

GARTNERTROVATO ARCHITECTS

NEW DWELLING
73 Marine Parade, Avalon Beach.
FOR COURTNEY FAMILY

Ground Floor Plan
1100 @ A3
2105
A 04




TOP FLOOR PLAN 1:100

N

GARTNERTROVATO ARCHITECTS

| Issue Date | Rev | Description | Drawn | Checked |
|---|---|---|---|---|
| | | | | |

NEW DWELLING
73 Marine Parade, Avalon Beach.
FOR COURTNEY FAMILY

Top Floor Plan
1100 @A3
Z105
A 05

**Figure 4: Page 13 illustrates the proposed SITE PLAN, Page 14 illustrates the proposed CARPARK FLOOR PLAN, Page 15 illustrates the proposed GRANNYFLAT FLOOR PLAN, Page 16 illustrates the proposed FLOOR PLAN, Page 17 illustrates the proposed TOP FLOOR PLAN**

## *5.3 Discussion:*

The proposed works requires a significant number of subject site & road reserve trees to be replaced.

By Site Survey of the twenty-eight (28) discussed trees, ten (10) are located within the front of subject site road reserve. All other discussed trees are located within the subject site.

Ten (10) trees are proposed by the Architect to be retained, protected & managed. Three (3) trees are proposed by the Architect to be transplanted (from within the road reserve to within the subject site. (See Page 13 Proposed Site Plan.) Fourteen (14) trees are proposed by the Architect to be replaced. One (1) discussed tree does not exist (except as a stump) but is discussed on the basis it is located nearby a significant (by species) tree proposed to be retained (Tree #19).

Road reserve trees proposed to be retained will by Site Specific 'Tree Plan of Management' (required post DA determination) will require manual excavation within any single tree's calculated Tree Protection Zone (from herein TPZ) radial distance. They will also be specified to be isolated from the as proposed works installing 'Temporary Metal Mesh Fencing Panel with above ground Supports. Two (2) groups of trees are envisaged as being managed in this manner.

The four (4) trees as proposed to be retained, protected & managed within the subject site are to have individual TPZ structures erected around them. (See above description.) Likewise for the road reserve trees being retained any disturbance within any individual tree TPZ radial distance must be completed manually.

The as proposed Tree Transplanting of three (3) *Livistona australis* Palms can only be completed by suitably qualified & experienced persons (or persons under the direct instruction/supervision of a suitably qualified/experienced person).

The fourteen (14) trees proposed to be removed plus one (1) tree that does not exist are specified to be replaced.

TPZ installations are to be maintained in a manner compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites).* See Chapters 3, 4 & 5.

Any tree removal must be completed in compliance with the *WorkSafe NSW 'Amenity Tree Industry Code of Practice, 1998.*

Replacement trees must be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303-2015 Tree stock for landscape use).*

Any tree pruning for retained trees must be completed by suitably qualified & experienced persons (or persons under the direct instruction/supervision of a suitably qualified/experienced person) in compliance with the Australian Standard (AS4373-2007 Pruning of amenity trees). See Chapters 7 (Pruning Classes) & 9 (Root Pruning).

Once a DA determination has been granted, a Site Specific 'Plan of Tree management' will be essential.

# 6 Conclusion

- **Of the discussed trees only Tree #1, Tree #2, Tree #3, Tree #4, Tree #12, Tree #13, Tree #14, Tree 315, Tree #19 & Tree #28 is considered as potentially being able to be viably retained, managed & protected prior to the commencement & throughout the development process in a manner that will not compromise any individuals tree's ULE.**
- **Trees supported to be transplanted must be completed by suitably qualified/experienced persons (or under supervision/instruction from such a person).**
- **Trees supported for replacement ideally at maturity should replicate the temporary loss of 'landscape amenity' they currently provide in a manner that equals or exceeds the current 'canopy density' footprint they provide.**
- **The replacement trees ideally should be of a mix of Genus/species of the Pittwater spotted gum forest in the Sydney Bioregion – endangered ecological community listing (NSW Scientific Committee – final determination, see Part 3 of schedule 1of the Act.)**

If you have any questions relating to this report or require the implementation of recommendations, please contact Kyle Hill (Wednesdays or Fridays) on 02 9939 0078.

# 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, AURA Tree Services Pty Ltd, 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; and

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

Barrell, J. 1993. '*Preplanning Tree Surveys: Safe Useful Life Expectancy (SULE) is the Natural Progression*', Arboricultural Journal 17:1, February 1993,

Barrell, J. 1995, '*Pre-development Tree Assessments*', in Trees & Building Sites, Proceedings of n International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois,

Dr. G. Watson & Dr. D. Neely, '*Trees & Building Sites*', ISA Illinois USA 1995,

Dr. N. Matheny & Dr. J.R. Clark, '*Trees & Development*', ISA Illinois USA 1998 ,

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Clark, Ross. '*Purchasing Landscape Trees*', Construction Information Systems Australia Pty. Ltd., Milson's Point NSW, 1996.

# 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.

AS4373.2007 '*Pruning of amenity trees*', Standards Australia.

AS4970.2009 '*Protection of trees on development sites*', Standards Australia.

BS5837-2005. '*Guide for Trees in Relation to Construction*', Standards Board, UK.

# Appendix A–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** refers to any trees potential life expectancy (viability) not related to potential disturbances based on VTA assessment, classifications are: **Short, (0 – 5 years), Medium, (5 – 15 years) & Long, (15 or more years).**

**Retention Value** is expressed as Low, Medium, High or of Heritage Importance

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

**Significant Diameter Roots** are defined as being woody roots with a diameter greater than 0.05m/50mm. (Unless otherwise specified)

**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.*

**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 affect 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 |

# Appendix B – 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**.

Trunk protection "Tree Guards" are detailed (below) by generic diagram.

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 fortnightly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within the 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.