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EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

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PO Box 35, Newport Beach NSW 2106

Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217

E-mail: kyleahill@optusnet.com.au

ABN 97 965 355 200

Construction Impact & Management Statement

July 2021 UPDATED January 2022

Site:	Lot 152 in DP 29335 1 Kanimbla Crescent BILGOLA PLATEAU, NSW
Client:	John & Helen Wood 1 Kanimbla Crescent BILGOLA PLATEAU, NSW 2107
Author:	Kyle A Hill Registered (Arb Aus #1884) Practising & Consulting Arborist Post Graduate Certificate in Arboriculture, Uni of Melb 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 Member of Arboriculture Australia

1 Summary

John & Helen Wood (property owners) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed Alterations & Additions to existing dwelling within the property known as 1 Kanimbla Crescent, Bilgola Plateau (from herein the subject site).

This document is an updated version of our original that was submitted as part of the now withdrawn DA2021/1200. As briefed a new DA is to be submitted in the very short term.

Two (2) individual trees have been identified as being impacted upon. Both are confirmed to be protected tree species & as such are required to be discussed in detail. One (1) tree is confirmed to be located within the subject site (near road reserve) north-eastern corner; one (1) tree is confirmed to be located within the subject site (near rear boundary) south-eastern corner.

The discussed in detail trees are subject to the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the SEPP "Vegetation in non-rural Areas, August 2017.*

No other NBC protected trees (near the proposed works) are located within either the subject site or adjoining common boundary properties.

One (1) of the two (2) discussed trees is supported to be replaced. The previously supported to be replaced second tree is now considered as a consequence of design modification as able to be viably retained with intensive management.

The proposed southern boundary retaining wall below Tree #1 is confirmed to be within the trees calculated Tree Protection Zone & Structural Root Zone radial distances. On this basis, the section of retaining wall within 4.80m of its trunk centre will require a structure to be built with "*flexibly located, manually excavated footing sites*" with the retaining wall portion supported by beams preferably at or above existing natural ground level. See page 10, proposed site plan to confirm the location of the retaining wall.

The very bottom portion of the site is captured by the NSW Government "Department of Planning, Industry & Environment" Biodiversity Values Map. No vegetation disturbance other than footings for the as proposed on existing ground level southern new boundary retaining wall. Simply, no vegetation captured by the BVM will be damaged or destroyed.

On this basis the proposal from a tree management perspective is considered as able to satisfy compliance criteria within the *Australian Standard (AS4970-2009 Protection of trees on development sites).*

Motor vehicle & pedestrian access is only via Kanimbla Crescent.

The sole consent authority is the NBC. The old *Pittwater Council Planning Instrument (Local Environment Plan, 2014)* applies at the time of writing.

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

- *Site Survey by Vase Surveying, dated, 4 October 2020;*
- *Plans, Sections & Elevations, by Lienarchitects, Revision D, all dated, 13 January 2022;*
- *Pittwater Council/NBC "Tree Management Provisions" &*
- *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.*

The aim of this report is:

1. *To confirm individual tree health, vigour & condition considering any potential impact foreseen by the proposed demolition & redevelopment.*
2. *To provide a list of potentially suitable to the subject site replacement trees.*

This document supports (relative to tree management) the proposal Alterations & Additions to existing dwelling within the subject site.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist*) has prepared this report based on “Visual Tree Assessment” (VTA). Data was originally collected on Tuesday, 25 May 2021.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the two (2) trees identified as necessary to be discussed by virtue of location & the proposed Alterations & Additions to existing dwelling with new carport & driveway re-configuration.

We confirm to be familiar with both the old *Pittwater Council* & now NBC “*Tree Management Provisions*” plus the new SEPP “*Vegetation in non-rural Areas, August 2017*”.

The sole consent authority is NBC.

The subject site is NOT within a NBC designated “*Heritage Conservation Area*”. The subject site is confirmed to NOT be a listed “*Heritage Item*” nor are any of the discussed trees known to be listed on any “*Significant Tree Register*”.

One (1) of the two (2) discussed trees is supported to be replaced. The previously supported to be replaced second tree is now considered as a consequence of design modification as able to be viably retained with “*intensive management*”. See Section 5 of this document for more detailed comment.

The subject site is zoned “*E4*”, ‘*Environmental Living*’. The subject site very lower portion is additionally confirmed to be captured by the NSW Government “*Department of Planning, Industry & Environment*” Biodiversity Values Map (BVM).

3 Methodology

Assessment of the tree discussed has been from ground level by eye, using *Visual Tree Assessment** (VTA) techniques developed by Claus Mattheck. The principles of VTA are explained in his widely-used reference book “*The Body Language of Trees (1994)*”.

Assessment includes:

- Tree’s current condition & likely future health. Species tolerance to root disturbance &/or development
- Likely future hazard potential to persons & property
- Tree’s amenity value, such as significance, screening & habitat.

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 terms
- Appendix B Tree Protection & management Prior to & During Construction

* **VTA–Visual Tree Assessment**, as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such an inspection is merited. Visual indicators are outlined within *The Body Language of Trees (Mattheck & Breloer, 1994)*. VTA is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed.

4 Observations

4.1 The Site

The report discusses only two (2) trees within 1 Kanimbla Crescent, Lot 152 of DP 29335. The site is 705.3m² by Site Survey in size. The site is linked to one (1) public road/road reserve, two (2) developed residential lots & a public reserve.



Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool.

The subject site is Land Zoned “E4” ‘Environmental Living’.

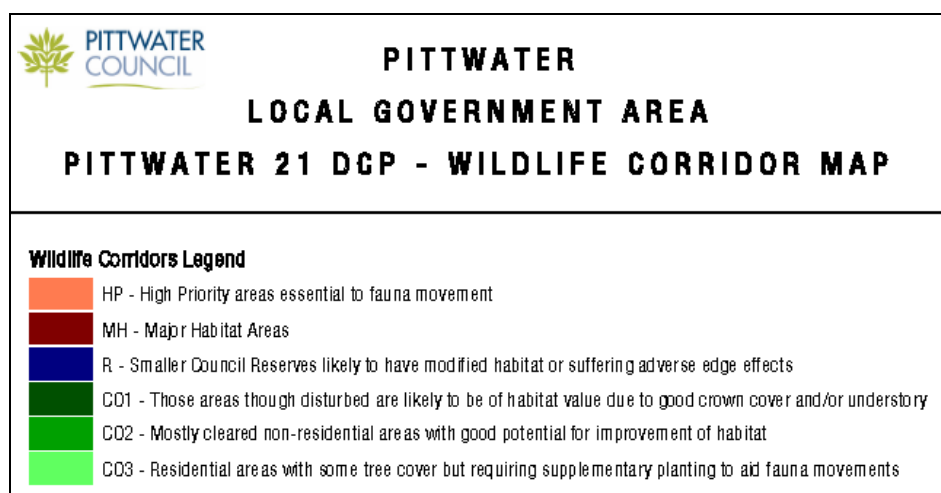
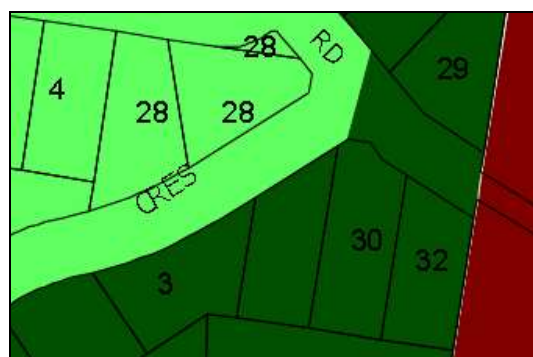
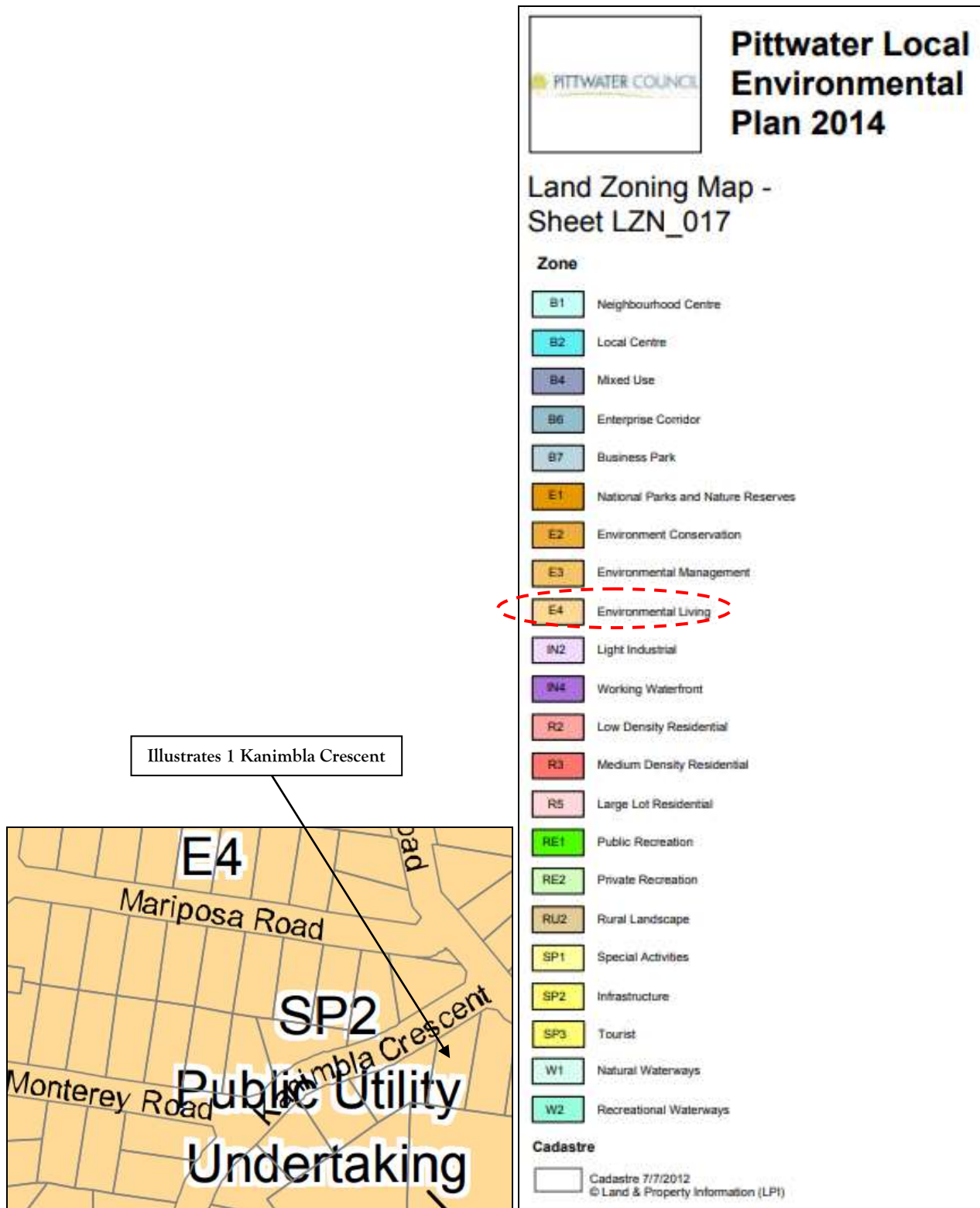


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.



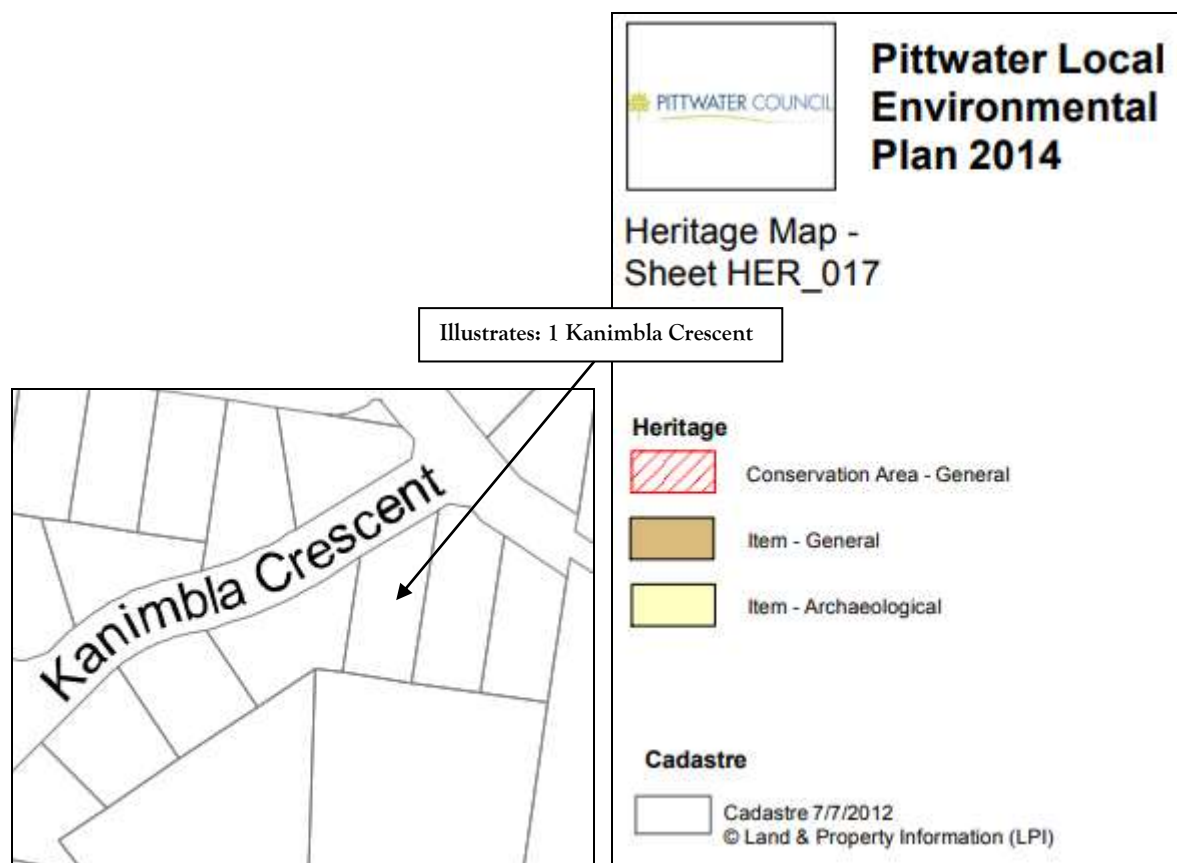


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a NBC designated “Heritage Conservation Area” (see page 6). The site is also confirmed to NOT be a listed “Heritage Item” nor is it near any listed “Heritage Item”. The discussed tree is NOT known to be on any ‘significant tree register’. The subject site & local environs are located within a designated ‘Wildlife Corridor’ C01 – “Those areas though disturbed are likely to be of habitat value due to good crown cover &/or understory”.

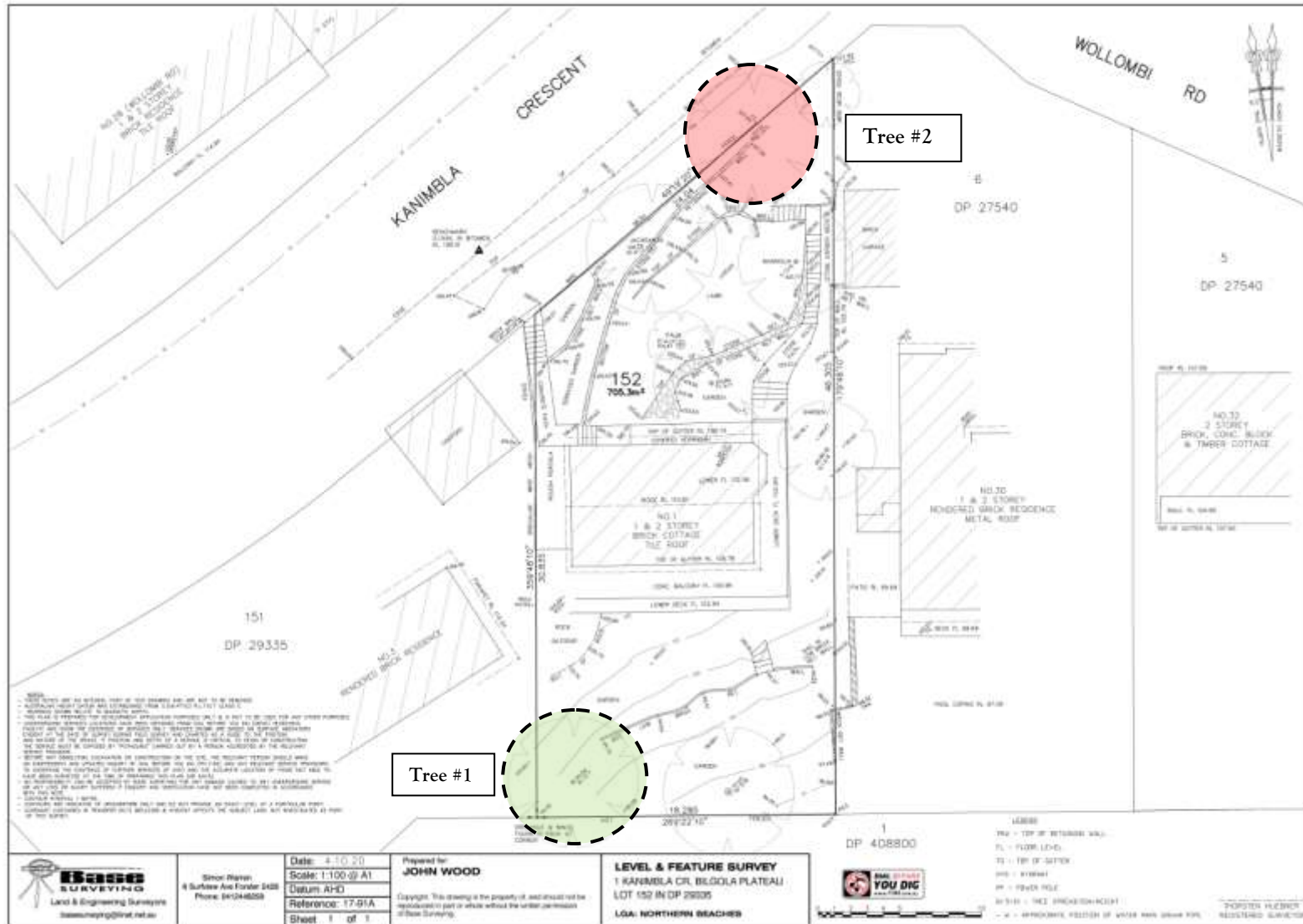
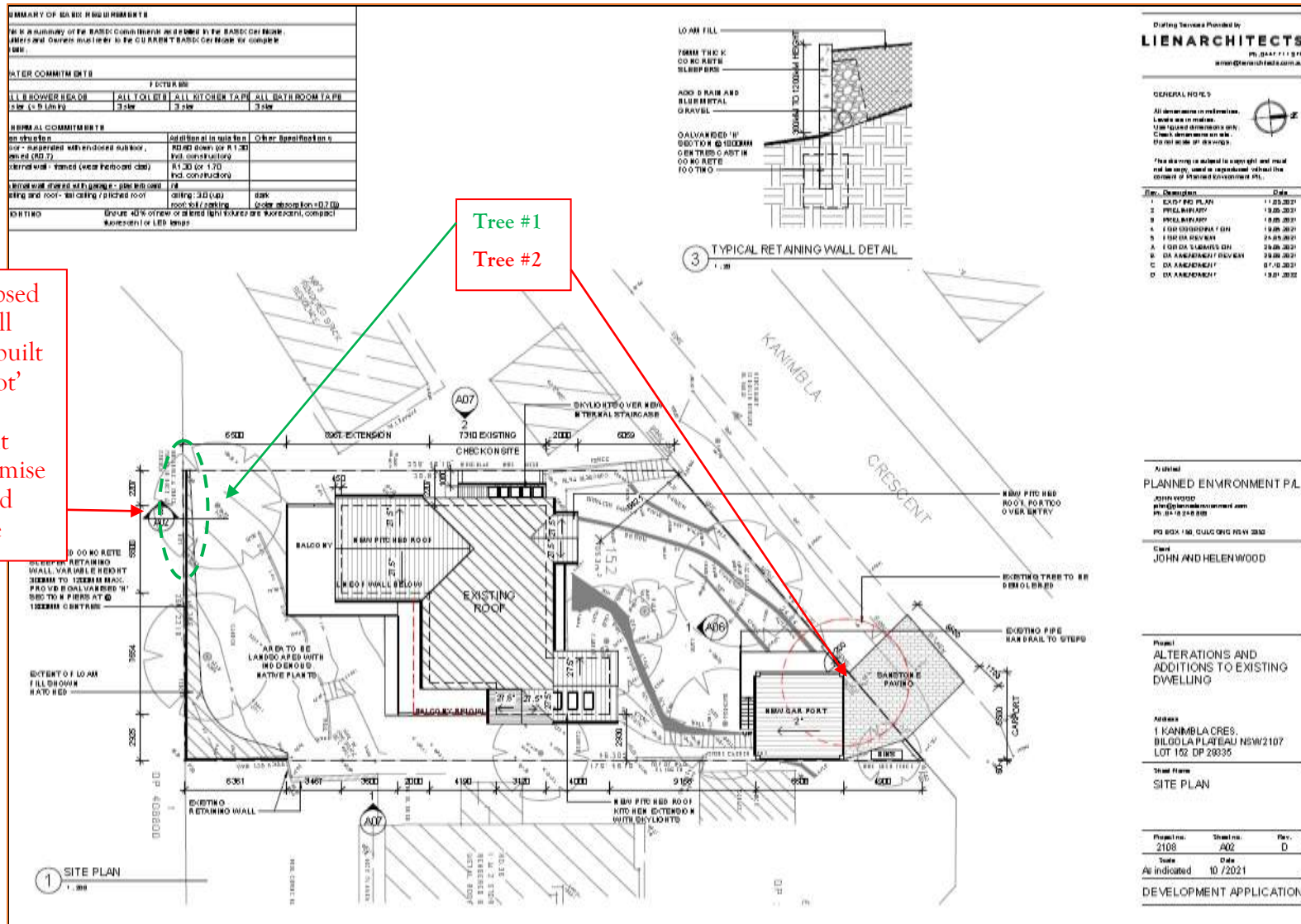
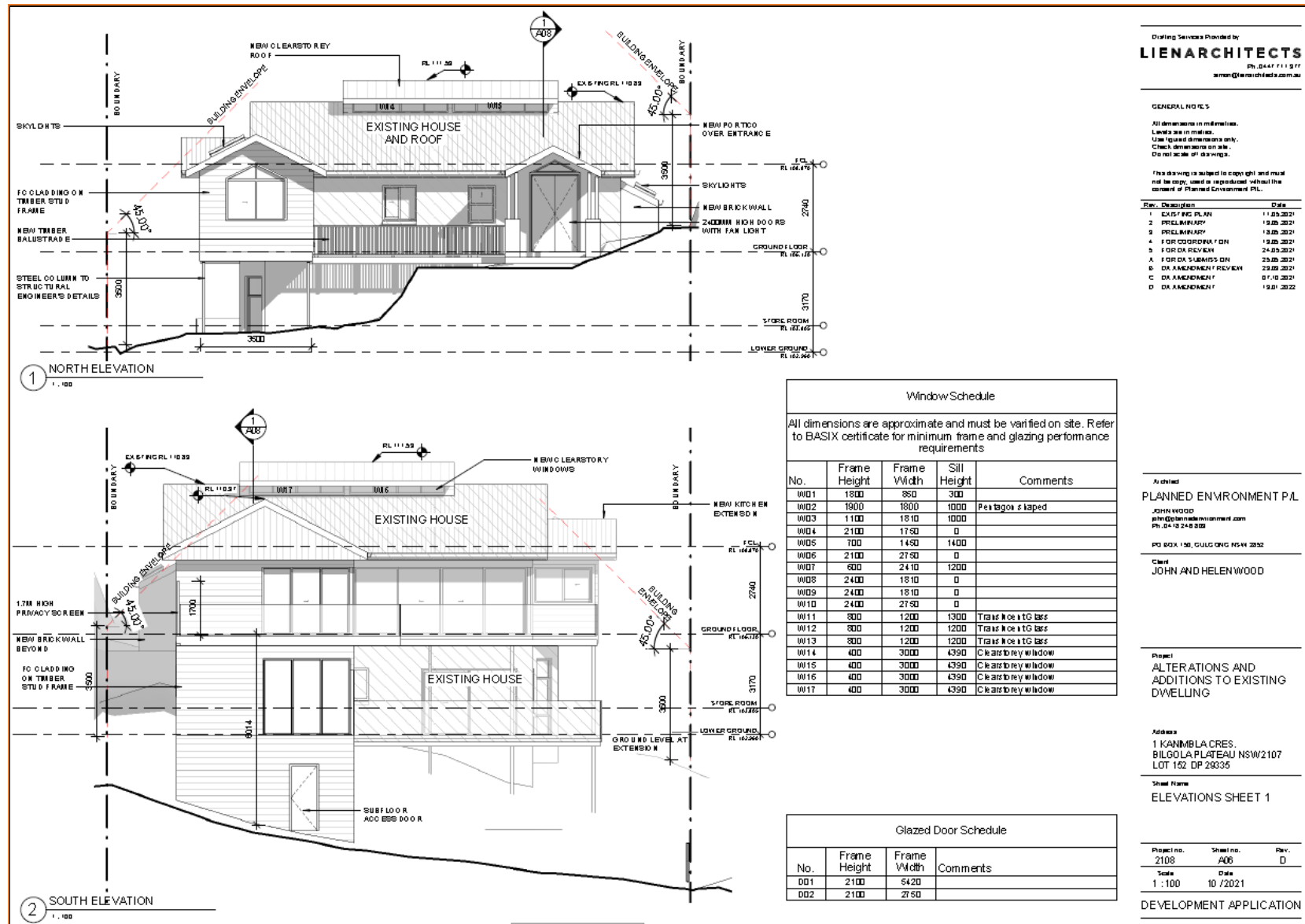
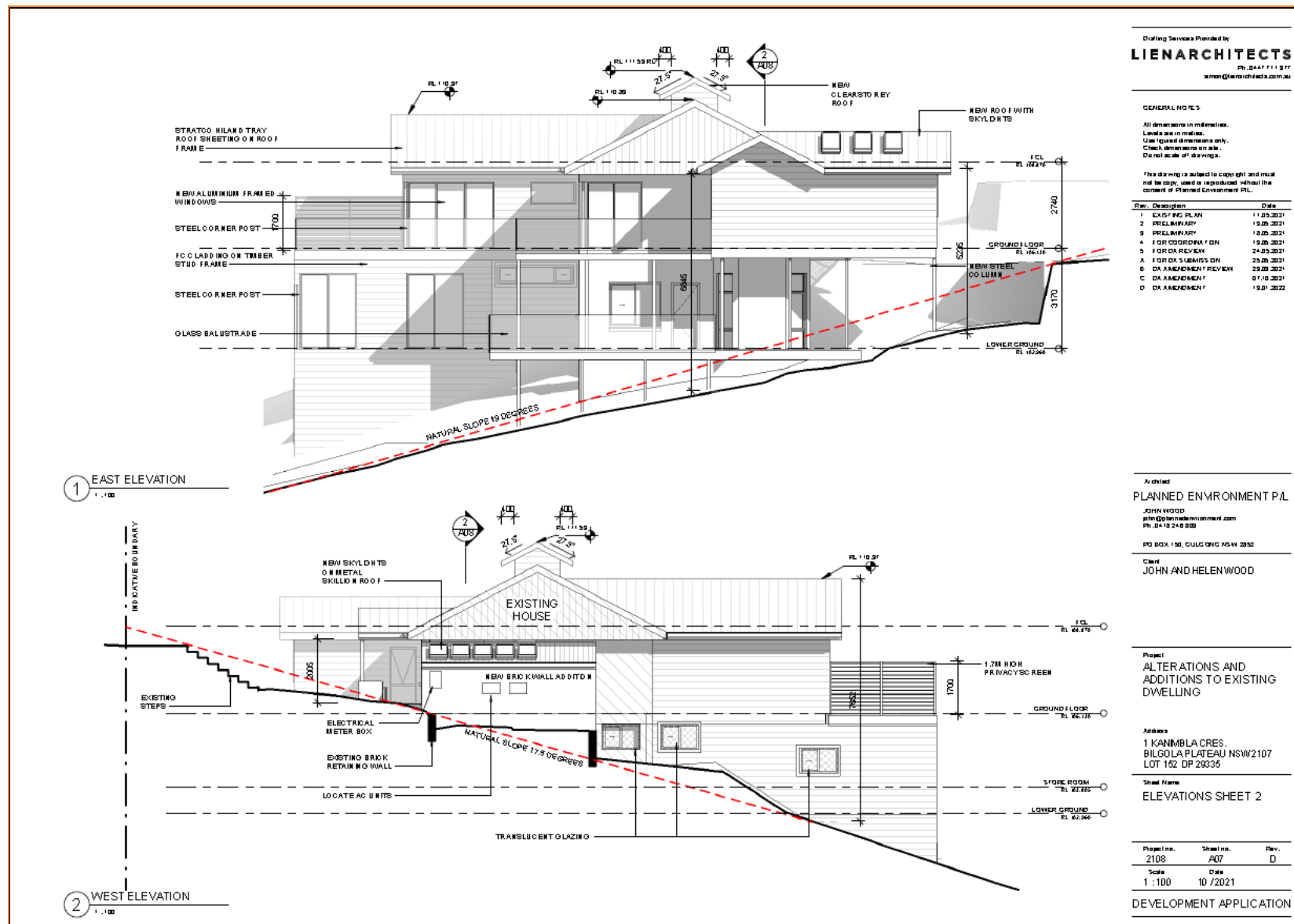


Figure 4: Site Survey with discussed Tree Locations plotted.

4.2 The Proposal







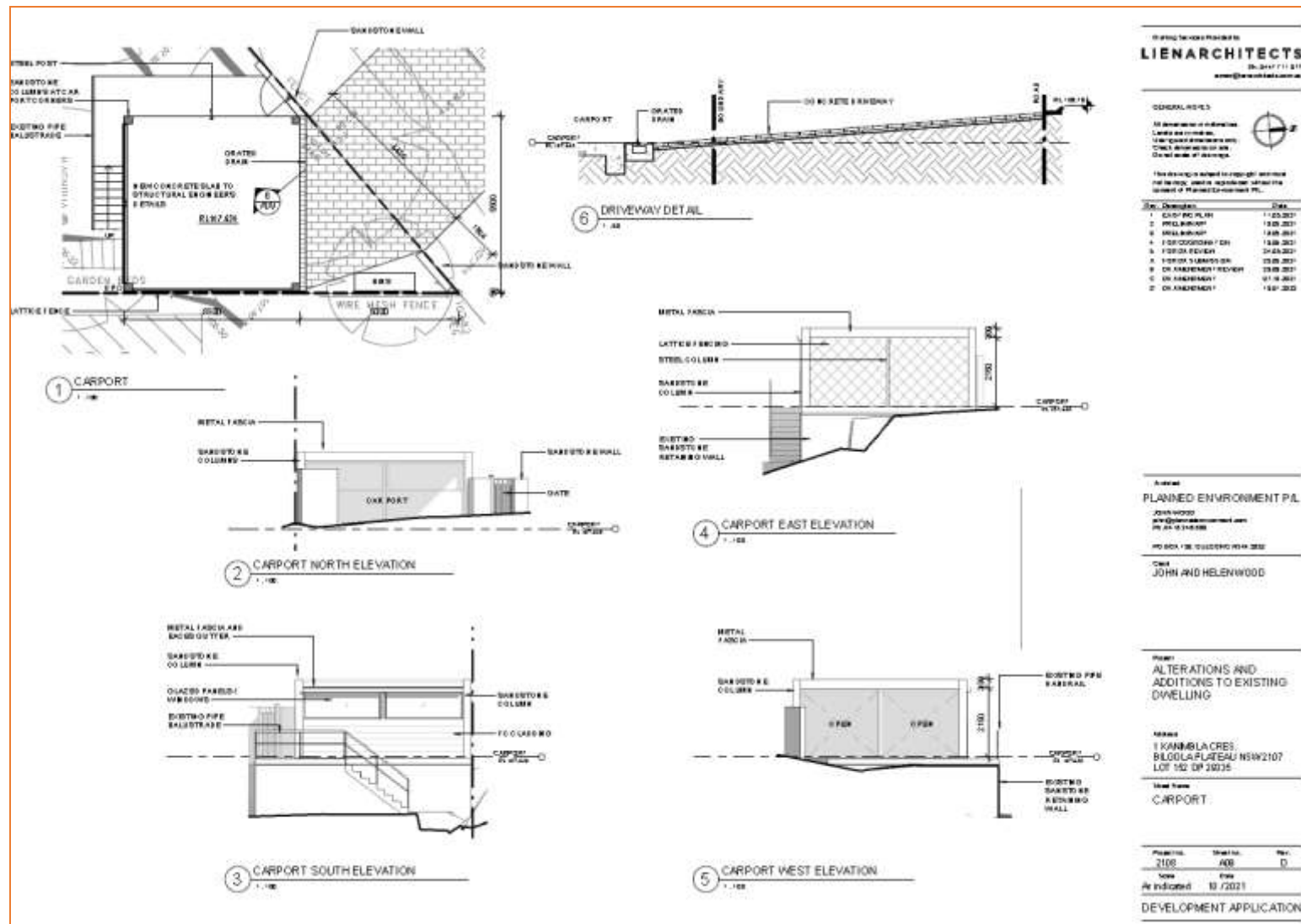


Figure 5: Illustrates the as proposed UPDATED DESIGN CONCEPT: Pages 9 thru 12: Site Plan/Elevations/Carport /Driveway Plan/Elevations.

4.3 Tree Location & Site Images



Figure 6: Photograph confirm the location & habit of the discussed Tree #1. Note: Asymmetrical canopy profile.





Figure 7: Above & previous page illustrates Tree #2 location & condition. Note; change of soil level at tree trunk base.

4.4 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

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Significance/ Retention Values	Comments
1	<i>Synoum glandulosum</i> Scentless Rosewood	<8.00	<7.50	0.40	4.80	2.40	Mature	Good & Good (seabreeze impacted)	Atypical, tree has asymmetrical canopy as a consequence of seeking solar access.	Moderate/ Moderate	<p>Retain, Manage & Protect: Modified design concept has reduced ground level disturbance near this tree. On this basis, the tree is NOT considered as being impacted upon relative to its Useful Life Expectancy.</p> <p>The tree will be specified to be isolated from works proposed by standard 'temporary metal mesh fencing panels with above ground supports' prior to the commencement of any works.</p> <p>Any excavation (proposed retaining wall) within its TPZ radial distance must be completed manually & documented in writing with supporting photographic evidence confirming any 'live root' management strategies applied as being minimal.</p> <p>Tree canopy is heavily biased to grow uphill. Minor pruning (if required) for new built form separation from canopy is at worst minimal (<10%). shorten the ULE of this tree.</p>

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Structure	Significance/Retention Values	Comments
2	<i>Syzygium paniculatum</i> Lilly Pilly	<8.50	<7.00	0.28	3.50	2.00	Mature	Fair & Fair (seabreeze impacted)	Tree has been poorly pruned	Moderate/Moderate	<u>Replace:</u> Tree has already been subjected to very significant 'change of soil levels within both its calculated SRZ & TPZ radial distances. Simply, the tree is incompatible with the proposed carport/driveway reconfiguration.

5 Discussion

On the basis both discussed trees are proposed to be replaced the *Australian Standard* (AS4970–2009 *Protection of trees on development sites*) is not required to be referenced except for the confirmed to have already occurred change to natural ground level at the base of Tree #2.

Both of the discussed trees are confirmed to be within the subject site (Tree #1, near rear Southeast corner of the lot, Tree #2 near the road reserve Northeast corner of the lot).

Tree #1 is acknowledged as being an unusual species to the local environment. It is not known to be listed as rare, threatened or endangered as part of any plant community.

As can be seen page 13, Figure 6 photograph the tree is long term exposed to the prevailing off the Pacific Ocean East & South wind events. Hence its canopy bias away from the ocean winds.

The proposed southern boundary retaining wall below Tree #1 as briefed & discussed in detail with the property owner/developer is confirmed to be within the trees calculated Tree Protection Zone & Structural Root Zone radial distances. On this basis, the section of retaining wall within 4.80m of its trunk centre will require a structure to be built with “flexibly located, manually excavated footing sites” with the retaining wall portion supported by beams preferably at or above existing natural ground level. See page 10, proposed site plan to confirm the location of the retaining wall. Taking into additional consideration, minor canopy pruning likely to be required for new built form/tree canopy separation Tree #1 is considered as able to be managed without any compromise to its *Useful Life Expectancy*.

The very bottom portion of the site is captured by the NSW Government “Department of Planning, Industry & Environment” Biodiversity Values Map. No vegetation disturbance other than footings for the as proposed on existing ground level southern new boundary retaining wall. Simply, no vegetation captured by the BVM will be damaged or destroyed. (See below portion of BVM.)



Figure 8: Confirms linking BVM vegetation. Note; the proposed works do not impact in any manner upon the highlighted area of vegetation.

On this basis of the page last two (2) paragraphs, the proposal from a tree/vegetation management perspective is considered as able to satisfy compliance criteria within the *Australian Standard (AS4970-2009 Protection of trees on development sites)*.

Tree #2 is simply incompatible with the location of the as proposed carport & driveway re-configuration. Additionally, it has been subjected to at least one (1) change in natural soil levels within both its calculated SRZ & TPZ radial distances.

These facts combined with the proposed works is considered as being reasonably predicted to have an adverse impact on its Useful Life Expectancy.

Below is a list of considered to be suitable to the subject site replacement specie trees:

- *Callitris rhomboidea* (Port Jackson Cypress)
- *Corymbia gummifera* (Red Bloodwood Gum)
- *Glochidion ferdinandi* (Cheese Tree)
- *Banksia integrifolia* (Coast Banksia)
- *Acacia binervia* (Coast Myall)
- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Melaleuca linariifolia* (Snow in Summer)
- *Murraya paniculata* (Orange Jessimine)

Specifications for Supported Outcomes:

- Tree #1 must be managed in compliance with the *Australian Standard (AS4970-2009 Protection of trees on development sites)*, see Chapters 3, 4 & 5.
- The tree proposed for removal must be removed by persons that abide at all times to the "WorkCover NSW Industry Code of Practice, (1998)".
- Any pruning of Tree #1 must be undertaken by suitably qualified & experienced practitioners in compliance at all times with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*, see Chapter 7 parts 7.2 & 7.3.
- Any NBC specified replacement tree/s 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 for the production of quality container produced trees.
- Any NBC specified new tree specimens are to be professionally planted & maintained for a minimum period of one (1) full active growing season in the Sydney Environment.

6 Conclusions

- Relative to the (new concept) information as presented, the GMW consultancy supports the proposed works as per documentation reviewed.
- The DA submission is supported to be lodged for determination by council officers as per plans referenced considering the specified new tree replacement specifications.

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

Kyle A. Hill

[AQF level 5 & AQF level 8 Registered with Arboriculture Australia (Reg #1884)
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

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

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', LSA Illinois USA 1995

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

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	<i>Immature</i> refers to a refers to a well-established but juvenile tree
	SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size
	M	<i>Mature</i> refers to a full sized tree with some capacity for further growth
	LM	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
	OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining
	LS	<i>Live Stag</i> 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 Fifteen years

Medium = Fifteen – Twenty-five years

Long = more than Twenty-five 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 $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$.

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 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**.

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 hand held 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.

