"GROWING MY WAY"

Tree Consultancy

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EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

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Arboriculture Construction Impact & Preliminary Management Statement

December 2022

Site:	**Lot 68 in DP 9519** **30 Burrawong Road** **AVALON BEACH, NSW**
Client:	**Carol & John Hirt** **JD Evans & Company** **Unit 7, 6 Jubilee Avenue** **WARRIEWOOD, NSW 2102**
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 Evans (representing the property owners, Carol & John Hirt) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Preliminary Management Statement* relative to the proposed *Alterations/Additions to the existing dwelling including new garage & driveway* within the property known as 30 Burawong Road, Avalon Beach, (from herein the subject site).

Three (3) individual trees have been identified as being required to be discussed relative to the proposal for *Alterations/Additions to an existing dwelling, including new garage & driveway* with respect to tree management issues.

All 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 new SEPP "Vegetation in non-rural Areas, August 2017.* The discussed trees confirmed to be within the subject site, (30 Burrawong Road). Multiple other trees are located within both the subject site & adjoining common boundary properties but are not discussed as they are well away from & therefore not impacted upon by the proposed works supported within this document.

One (1) of the discussed trees with implementation of a 'Preliminary Plan of Management' has been assessed as able to be retained without any reasonably predictable adverse impact to their individual *Useful Life Expectancy.*

The proposal is considered as able to satisfy compliance criteria with the relevant provisions for *Australian Standard (AS4970-2009 Protection of trees on development sites).*

Motor vehicle & pedestrian access is only via Burrawong Road.

The sole consent authority is the *NBC.* The old *Pittwater Council* Planning Instrument (*Local Environment Plan, 2014,* from herein *LEP*) & the *Pittwater 21 Development Control Plan, 2003,* from herein *DCP*) applies at the time of writing.

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

- *Site Survey by True North Survey Group, Rev 0, dated, 24 February 2022;*
- *Plans, Sections & Elevations, by JD Evans & Company, dated, May 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 trees' health, vigour & condition considering any impact foreseen by the proposed design concept & related works.*
2. *Provide Preliminary Site Specific "Tree Plan of Management".*

This document supports (relative to tree management) the proposal for *Alterations/Additions to an existing dwelling, new lower-level deck* with respect to tree management issues.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist* has prepared this report based on *"Visual Tree Assessment" (VTA).* Data was collected on Saturday, 12 June 2021 & Saturday 17 December 2022.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the three (3) individual trees identified as necessary to be discussed by virtue of NBC (Pittwater LEP 2014/ Pittwater 21 DCP 2003) Land Zoning/Tree Management provisions as well as being located nearby to proposed works, i.e., *Alterations/Additions to the existing dwelling including new garage & driveway* with respect to tree management issues.

The current built form within the subject site is a two (2) single storey dwelling residence plus granny flat (free standing).

This document supports the proposed *Alterations/Additions to the existing dwelling including new garage & driveway* with tree management applied to one (1) of the three (3) trees supported as able to be retained/protected/managed. Two (2) trees are supported to be replaced on the basis of root system, new built form/ canopy conflicts. Ample room exists within the subject site for at least two (2) new trees to be planted & established in a manner that exceeds the existing 'green footprint' the two (2) discussed in detail trees supported to be replaced.

We confirm to be familiar with both the old *Pittwater Council* & now *NBC "Tree Management Provisions"* plus the *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*". None of the three (3) discussed in detail trees are captured as being subject to the protection provisions within the state legislated '*NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the '*Pittwater spotted gum forest–endangered ecological community listing*' under '*NSW legislation'.* The subject site is confirmed to not be within a wildlife, "*Wildlife Corridor*" as defined within the *Pittwater 21 DCP (see page 8).*

The subject site is zoned *"R2", 'Low Density Residential'.*

A *Preliminary Site Specific "Preliminary Tree Plan of Management"* is included within this document.

3 Methodology

Assessment of the trees 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 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

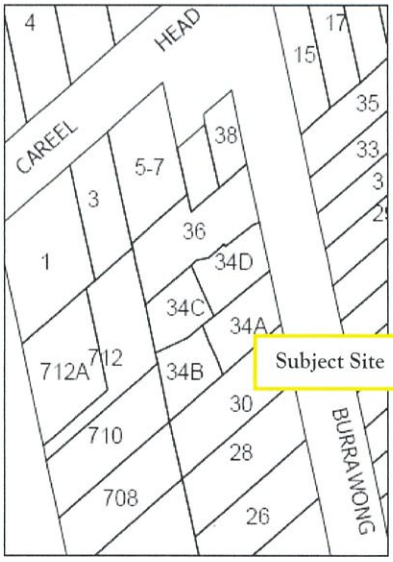
4.1 The Site

The report discusses only trees within Lot 68 in DP 9519. The site is 885.30m^2 by Site Survey in size. The site is linked to one (1) public road & four (4) residential lots..

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

The subject site is Land Zoned "R2" 'Low Density Residential'.

None of the discussed trees are captured as being subject to the protection provisions within the state legislated '*NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the '*Pittwater spotted gum forest–endangered ecological community listing*' under '*NSW legislation'*. The subject site is confirmed not to be within any identified, "*Wildlife Corridor*", as defined within the *Pittwater 21 DCP (see page 7).*



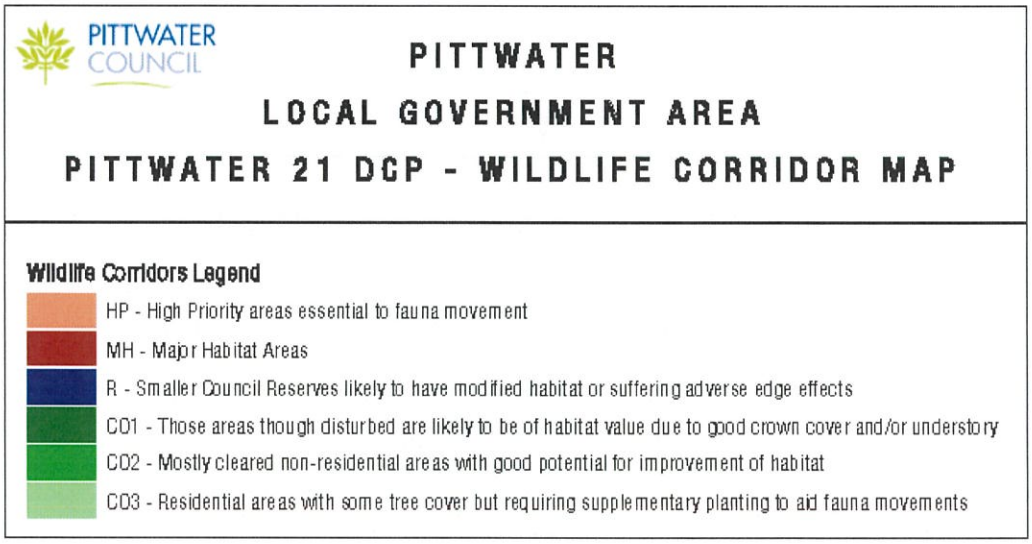


Figure 2: Confirms no link to Pittwater 21 DCP-Wildlife Corridor Status.

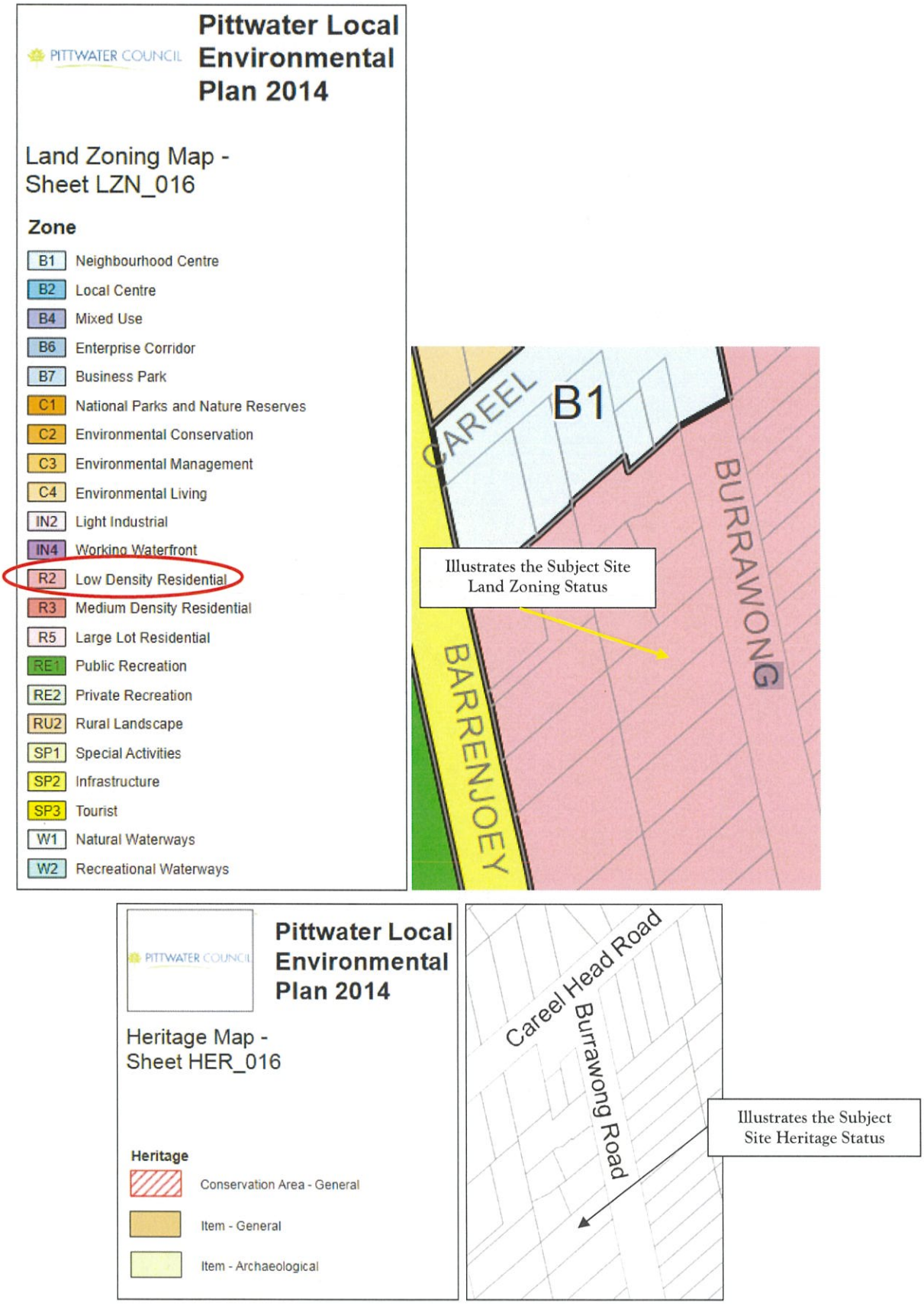


Figure 3: Above illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a *NBC* designated "*Heritage Conservation Area*" *(see above)*. The site is also confirmed to NOT be a listed "*Heritage Item*" nor is it near any listed "*Heritage Item*". The discussed trees are not captured as being subject to the protection provisions within the state legislated '*NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the '*Pittwater spotted gum forest–endangered ecological community listing*' under '*NSW legislation*'. The subject site is also confirmed not to be within any "*Wildlife Corridor*", as defined within the *Pittwater 21 DCP (see page 6)*.

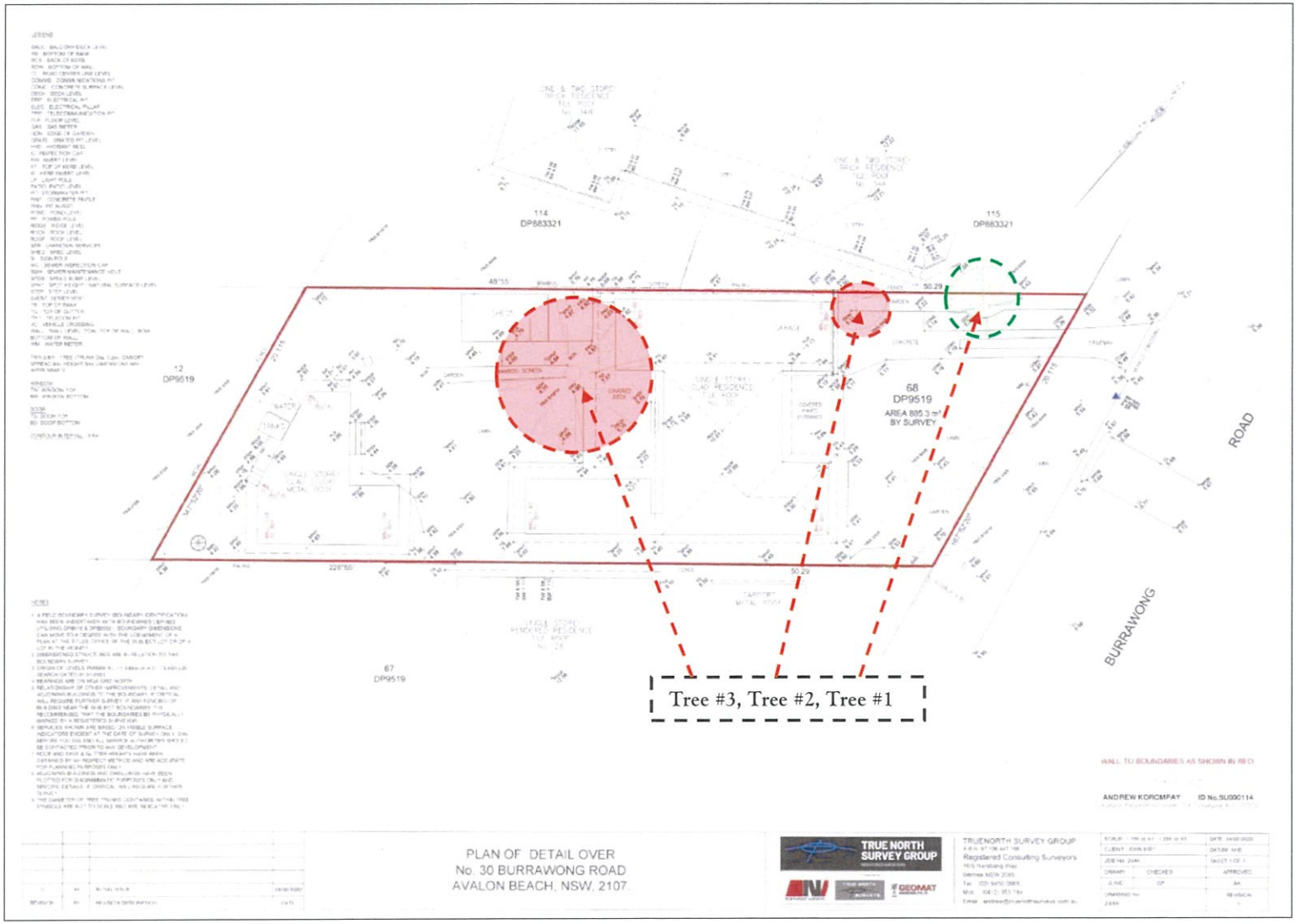


Figure 4: Site Survey.

4.2 *The Proposal*

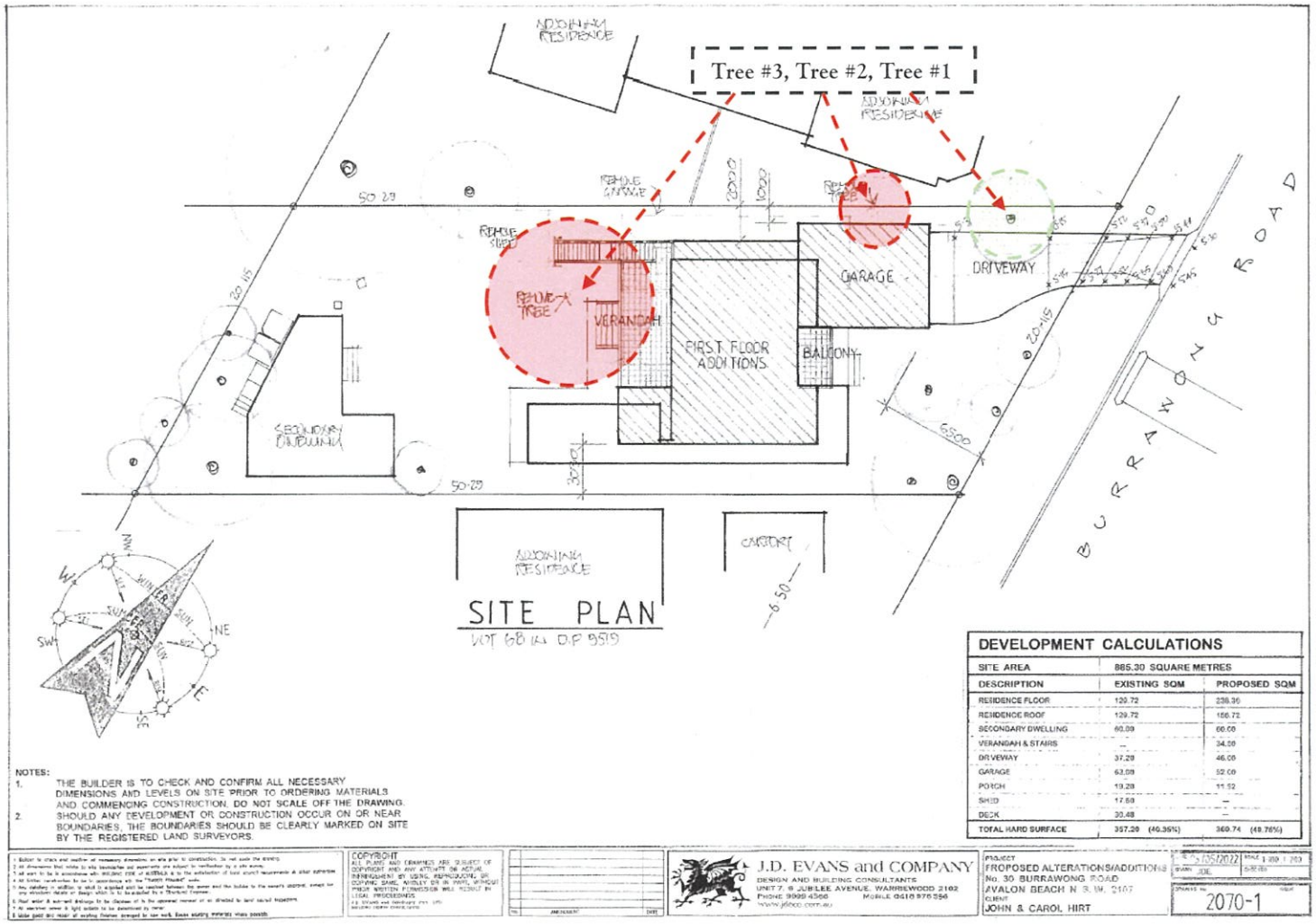


Figure 5: Site Plan as proposed

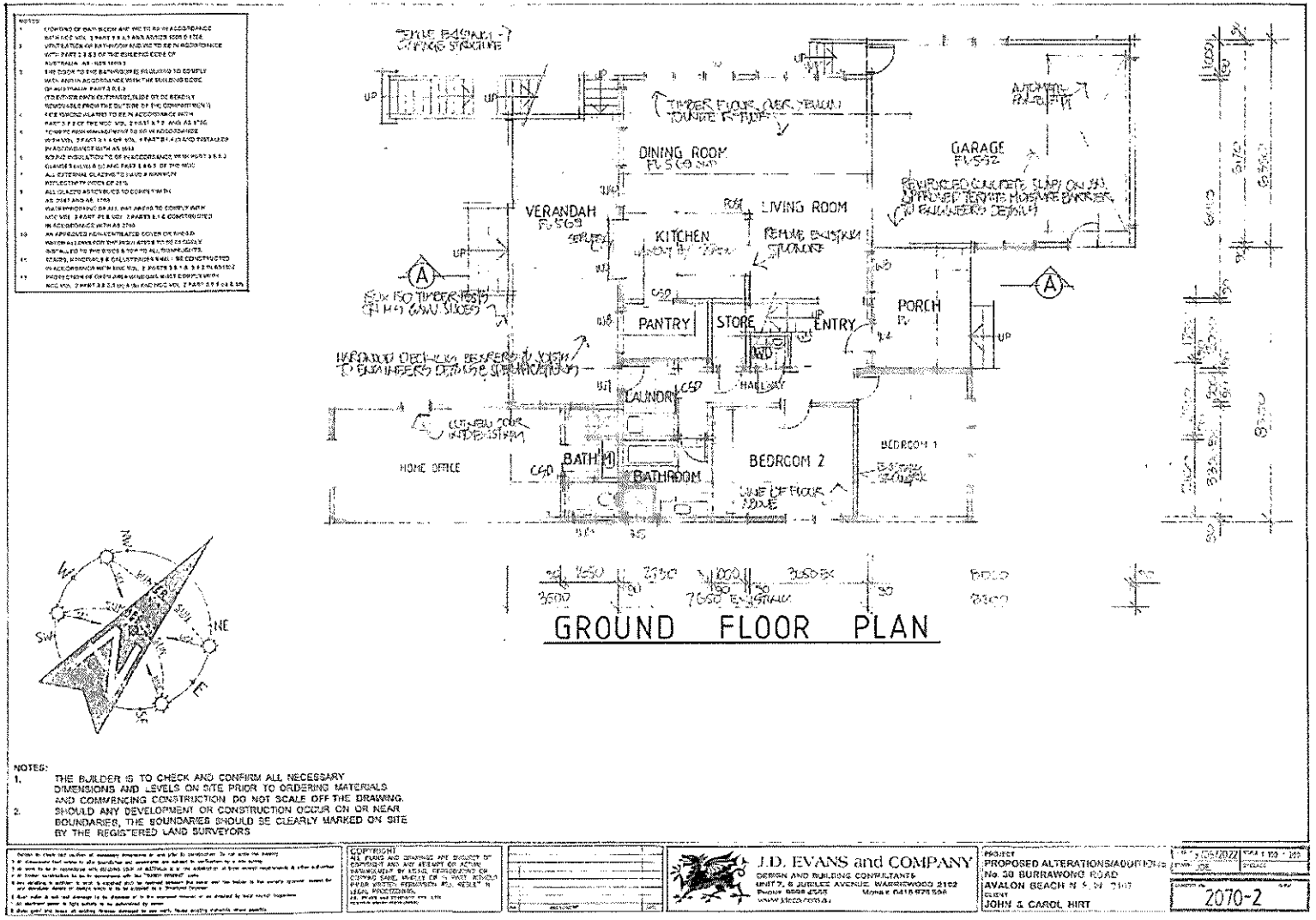


Figure 5: Proposed Ground Floor & Garage Plan

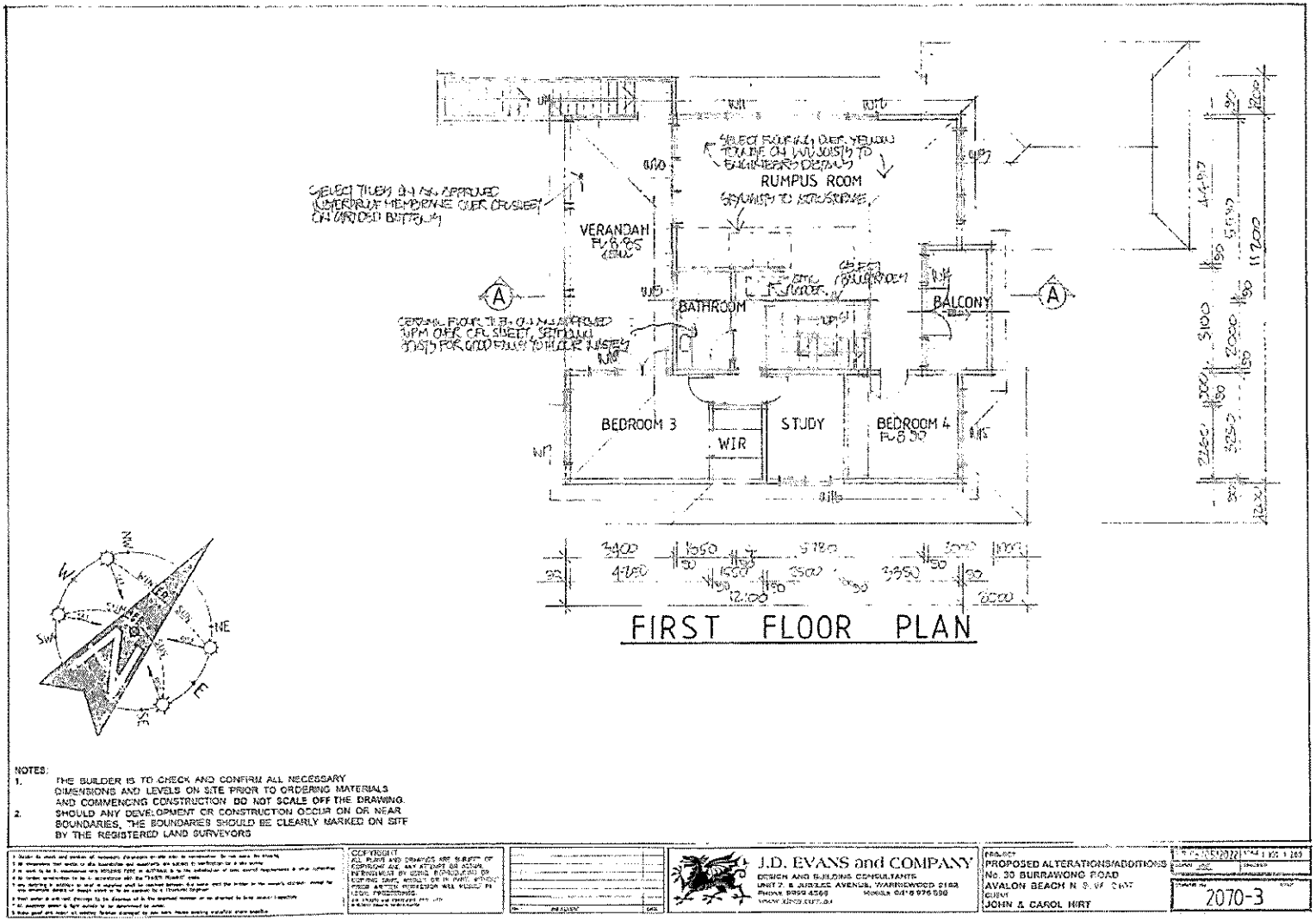
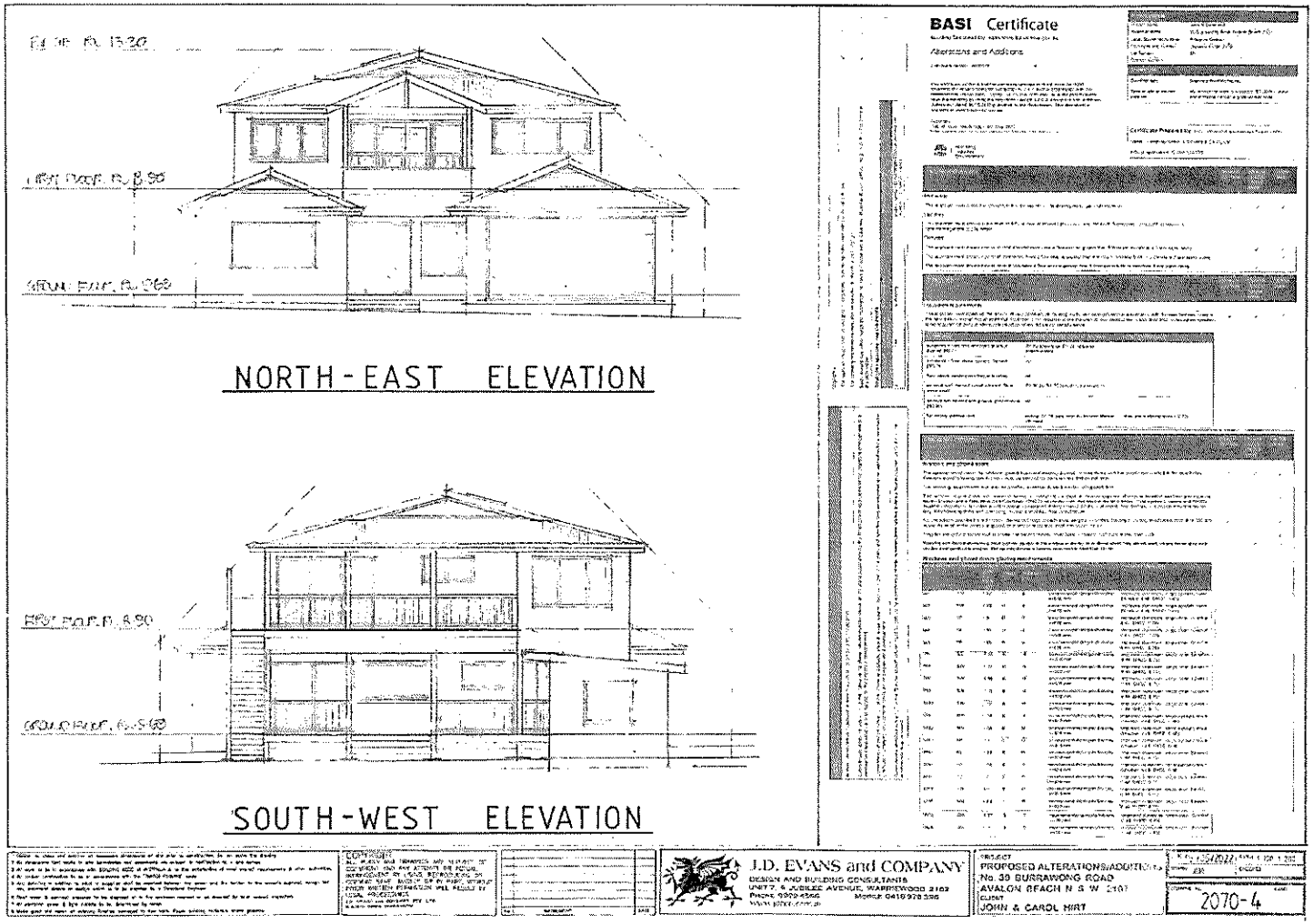


Figure 6: Proposed First floor Plan.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AVALON BEACH N.S.W. 2107
JOHN & CAROL HIRT
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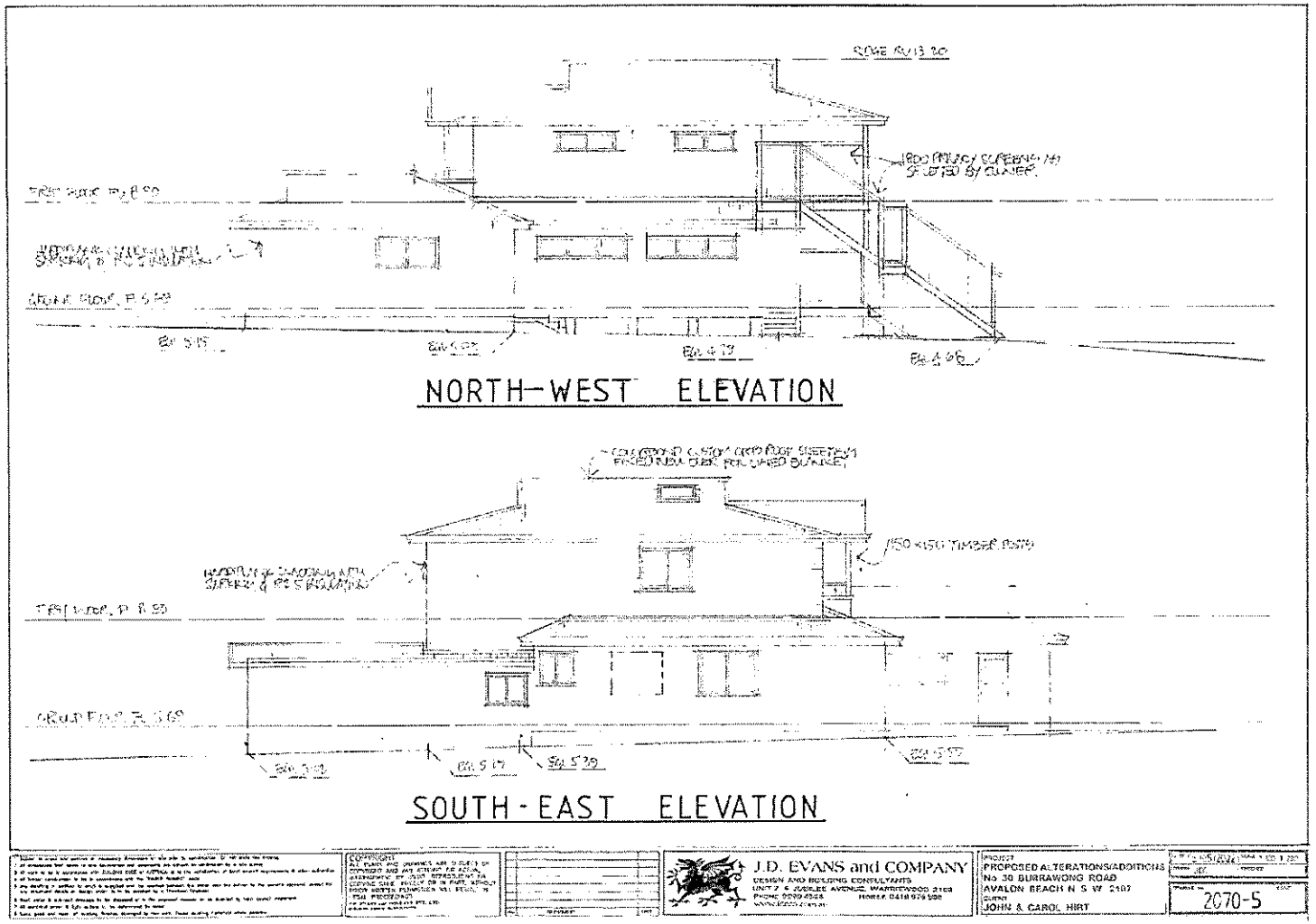
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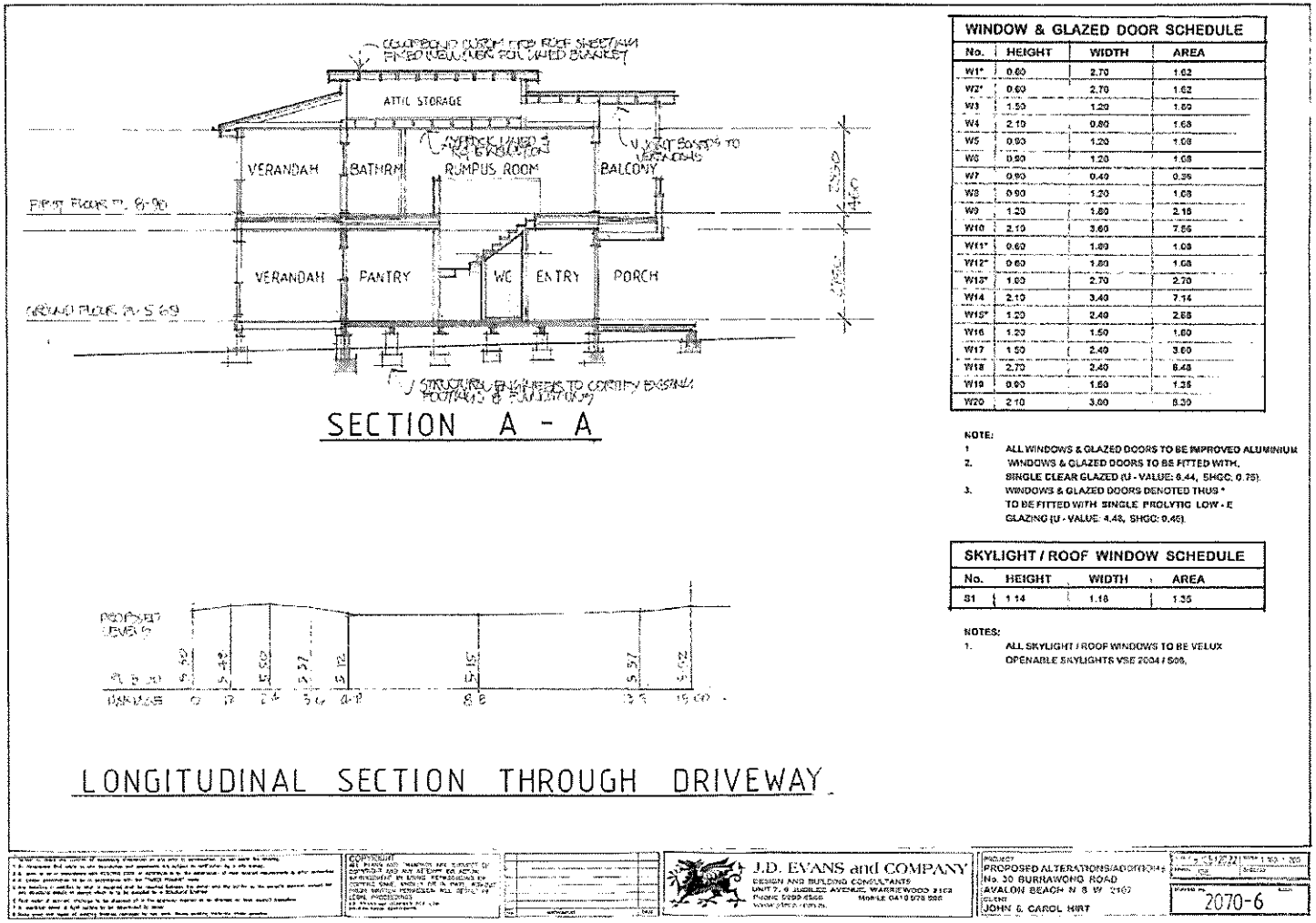


Figure 7: Pages 11 to 16 Floor Plans, Elevations & Sections.

4.3 Tree Locations & Site Images

Figure 8: Illustrates Tree #1 location & condition.

Figure 9: Illustrates the location & canopy condition of Tree #2.

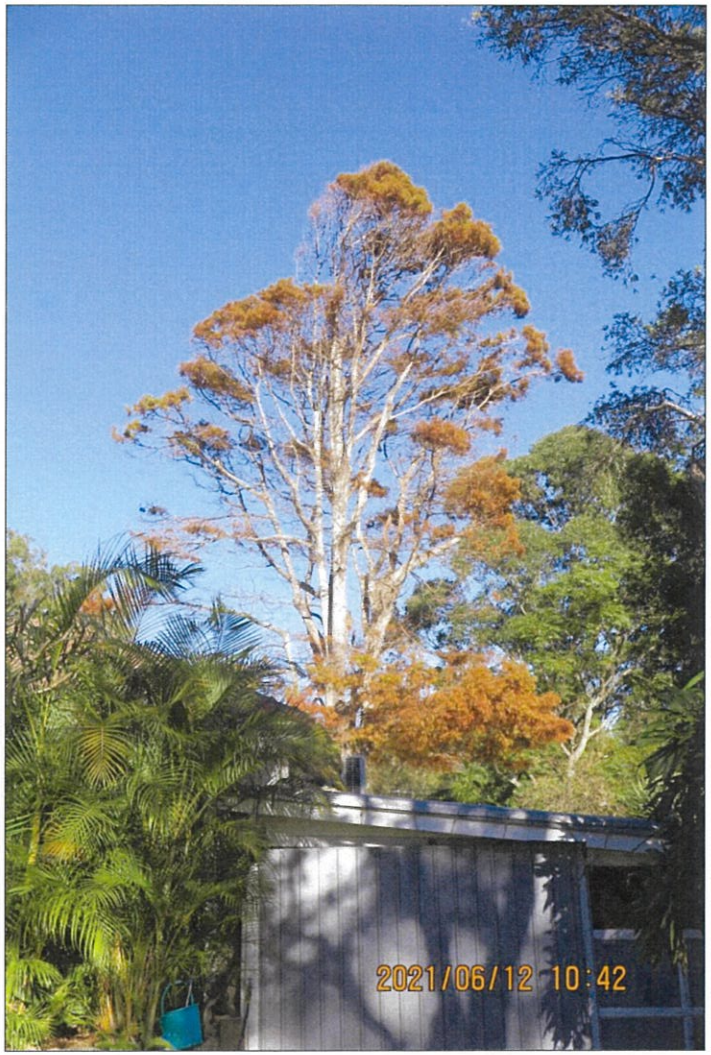


Figure 10: Illustrates the location & canopy condition of Tree #3.

4.4 The Tree – Summary Table

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

Trees Recommended for removal	Trees Recommended for retention
Exempt by species or size	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	***Melaleuca quinquenervia*** *Broadleaf Paperbark*	<16.00	<13.50	<0.85	<10.20	<3.44	Mature	Good & Good	Typical	Moderate/ Moderate	**Retain, Manage & Protect:** **Tree is located within subject site, near common boundary within adjoining property.** **Tree is assessed as easily managed.**
2	***Melaleuca quinquenervia*** *Broadleaf Paperbark*	<12.00	<7.00	<0.60	<7.20	<2.93	Mature	Fair to Good & Fair to Good	Typical	Moderate/ Moderate	**Replace:** **Tree root system & canopy is assessed as being compromised by the as proposed works.**
3	***Taxodium distichum*** *Swamp Cypress*	<23.00	<14.00	0.89	10.68	3.39	Mature	Good & Good	Typical	Moderate/ Moderate	**Replace:** **Tree root system & canopy is assessed as being compromised by the as proposed works.**

5 Discussion

This document acknowledges the *Australian Standard (AS4970–2009 Protection of trees on development sites)* & the *Australian Standard (AS4373–2007 Pruning of amenity trees)* as the best practice guideline documents for the management of trees in Australia. This document contains a Site Specific "Preliminary Tree Plan of Management" that will likely be the basis for *NBC DA* determination *'Conditions of Consent'*.

The discussed trees (Tree #1, Tree #2) are Australian Native species, Tree #3 is an exotic conifer from the northern hemisphere. By species, size & locations all three (3) trees discussed in detail are subject to the old *Pittwater Council* & now *NBC "Tree Management Provisions" plus the SEPP "Vegetation in non–rural Areas, August 2017"*. The subject site is confirmed to be mapped as part of the *Pittwater Spotted Gum Forest Endangered Ecological Community*.

Discussed Tree #1 & Tree #2 are confirmed to be just within the subject site along the eastern boundary adjoining properties. No vegetation/trees within the eastern common boundary properties are within five (5.00m) metres of any subject site proposed works.

Tree #1 is supported as able to be viably retained with intensive management of its 'live root' system. The 'Tree Protection' strategy required will include temporary isolation fencing as well as a strategy to minimise any TPZ radial distance existing ground level disturbance.

Tree #2 & Tree #3 are supported to be replaced. Both will be subjected to Structural Root Zone (from herein SRZ) radial distance ground level disturbance as well as requiring a significant percentage of total tree canopies to be pruned so as to create reasonable separation of tree canopies & new built form as per the DA proposal soon to be lodged..

Tree #1 is assessed as being able to be viably retained, managed & protected. It is confirmed the existing concrete 'strip driveway' driveway breaches both the TPZ & SRZ as calculated radial distances (<10.20m/3.44m respectively) with no adverse impact to the tree relative to Useful Life Expectancy. The new driveway (linked to new garage) is specified to be built above existing grade. Simply, no excavation is acceptable. This is interpreted to be a positive as it can easily be constructed so as to not significantly change gaseous exchange or restrict uphill gravitational & surface water penetration into the ground or rainfall event/gravitational water penetrating the soil for use by its 'live root' system.

Tree #2 & Tree #3 as previously stated are simply incompatible with the as proposed design concept for Alterations/additions to existing dwelling. They are assessed as unsuitable for any attempt to create a viable retention management strategy by virtue of SRZ radial distance ground level disturbance for new footings as well as significant both canopies requiring significant pruning to establish new built form/canopy separation. As such, we support total tree replacement with new trees in more suitable locations. We suggest, the trees be replaced with at least two (2) local plant community tree species suitable to the subject site. The subject site is mildly flood prone & as such we suggest new tree species suitable to sometimes saturated soils. See suggested list of potentially suitable new trees considered as suitable to the subject site.

Below is a list of suggested to be suitable new tree species compatible with the local environment & the subject site.

- *Casuarina glauca (Swamp She Oak)*
- *Eucalyptus robusta (Swamp Mahogany Gum)*
- *Glochidion ferdinandi (Cheese Tree)*
- *Melaleuca linariifolia (Snow in Summer Paperbark)*

Tree Protection measures to be adopted are:

- ***Tree #1: Install temporary metal mesh fencing panels with above ground supports as close to TPZ calculated radial distance for Tree #1 as the site/proposed works allows. Photographs confirming compliance for the TPZ installation must be provided to the appointed Principle Certifying Authority. (This can be completed by either the site manager or the retained Project Arborist.)***

  TPZ temporary fencing is to stay installed until near the end of the project when the ne driveway can be formed & built. Once TPZ temporary fencing is removed the tree trunk is to have a temporary 'Tree Trunk Guard ' installed for the duration of the project.

"Preliminary Site-Specific Tree Plan of Management"

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	Replacement Required	MANUAL EXCAVATION (for new driveway &/or garage footingsfootings)	Install TPZ Fencing Install Tree Trunk Guard	CC Signoff	OC Signoff (confirming new trees to have been planted)
1 *Melaleuca quinquenervia* *(Broadleaf Paperbark Tree)*	YES	NO	YES	YES YES	YES	YES
2 *Melaleuca quinquenervia* *(Broadleaf Paperbark Tree)*	NO	YES	N/A	NO NO	YES	YES
3 *Taxodium distichum* *(Swamp Cypress)*	NO	YES	N/A	NO NO	YES	YES

6 Conclusions

- Ample land is available to plant & establish for up to the very long-term at least two (2) new replacement tree species (suitable to sometimes soil saturated sites)

that will contribute to not only local/subject site amenity but also contribute to drying the subject site when water inundated.

- **Relative to the information as presented, the *GMW consultancy* supports the proposed works with intensive management for Tree #1 as proposed in documentation reviewed.**
- **The *DA submission* be submitted for determination by council officers as per plans referenced considering the specified Preliminary Site Specific "*Tree Plan of Management*".**

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 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** *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 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 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 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

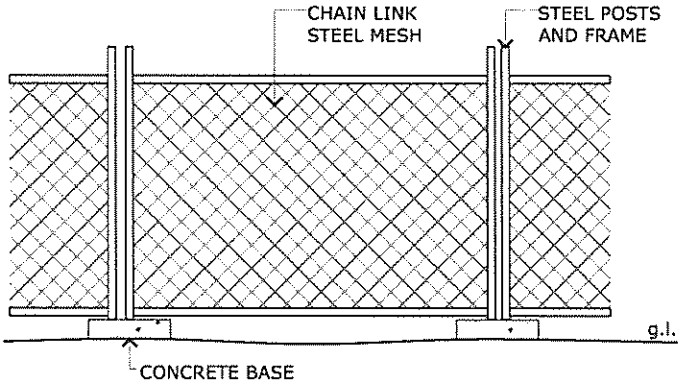
Appendix B – Tree Protection/Management Prior to & During Construction

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.**

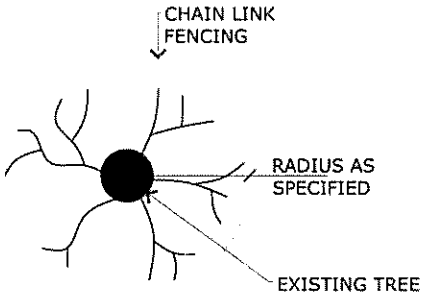
A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by hand held or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering 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.



ELEVATION



PLAN