

“GROWING MY WAY”

Tree Consultancy

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EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

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Construction Impact & Management Statement

September 2021, Updated December 2021

Site:	Lot 19 in DP 236667 61B Wandeen Road CLAREVILLE, NSW
Client:	M L Tyrell Family c/ CHROFI Architect Attention: Kimberley Nguyen 3 / 1 The Corso MANLY, NSW 2095
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

M L Tyrrell (property owner) via CHROFI Architects Pty Ltd (Kimberley Nguyen) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed *Alterations/Additions to the existing dwelling* within the property known as 61B Avenue, Clareville, (from herein the subject site).

Two (2) individual trees have been identified as being required to be discussed relative to the proposal for *Alterations/Additions to an existing dwelling* with respect to tree management issues.

The two (2) 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 subject site, being within the Pittwater Spotted Gum Forest Endangered Ecological Community is additionally confirmed to have been added (partially) onto NSW Department of Planning, Industry & Environment 'Biodiversity Values Map' (effective 25 February 2021).

The discussed trees are confirmed to be within the subject site. 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.

Both discussed trees are proposed to be retained & managed with Tree Protection instated & maintained pre commencement through until completion of the construction phase Tree Protection.

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

Motor vehicle access is via a private Right of Carriageway (ROC) via Wandeen Road. It is additionally linked to the public roadway Georgia Lee Place. Pedestrian access is mostly via Wandeen Road.

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

- *Site Survey* by CMS Surveyors Pty Ltd, Issue B, updated, 22 September 2020;
- *Plans, Sections & Elevations*, by CHROFI Architects, Revision A, dated, 22 December 2021;
- *Pittwater Council/NBC "Tree Management Provisions"*;
- *Pittwater Council LEP (2014), Pittwater 21 DCP (2007) &*
- *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 demolition & redevelopment.*
2. *Provide an AS4970-2009 compliant 'Tree Plan of Management'*

This document supports (relative to tree management) the proposal for *Alterations/Additions to an existing dwelling* 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 Sunday, 2 May 2021.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the two (2) individual trees identified as necessary to be discussed by virtue of their location & proposed works, i.e., *Alterations & Additions to an existing dwelling* with respect to tree management issues. This is an updated version of the September 2021 version previously provided.

Existing built form within the subject site is a single dwelling residence with separate Garage & established landscape concept.

This document supports the proposed *Alterations/Additions to an existing dwelling* with respect to tree management issues. See *Plans & Elevations*, by CHROFI Architects, updated, 22 December 2021.

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*”. Tree #2 is 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*’. The subject site is confirmed to be within a ‘C03’, “*Wildlife Corridor*” as defined within the *Pittwater 21 DCP* (see page 8).

Both of the individually discussed trees are proposed to be retained, managed & protected. One (1) tree will be supported to be replaced. Other trees, both within the subject site & adjoining common boundary properties nearby are assessed as able to be retained, managed without any formal specified protection.

The subject site is zoned “E4”, ‘*Environmental Living*’.

A Site Specific “*Tree Plan of Management*” is included within this document.

Both discussed trees are interpreted as likely able to be retained without compromise to individual Useful Life Expectancy. As such, by information provided, the DA proposal is able to be supported with management specifications being implemented & maintained until completion of the as proposed works.

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 Site Survey
- Appendix C Tree Protection & Management

^{*} **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.

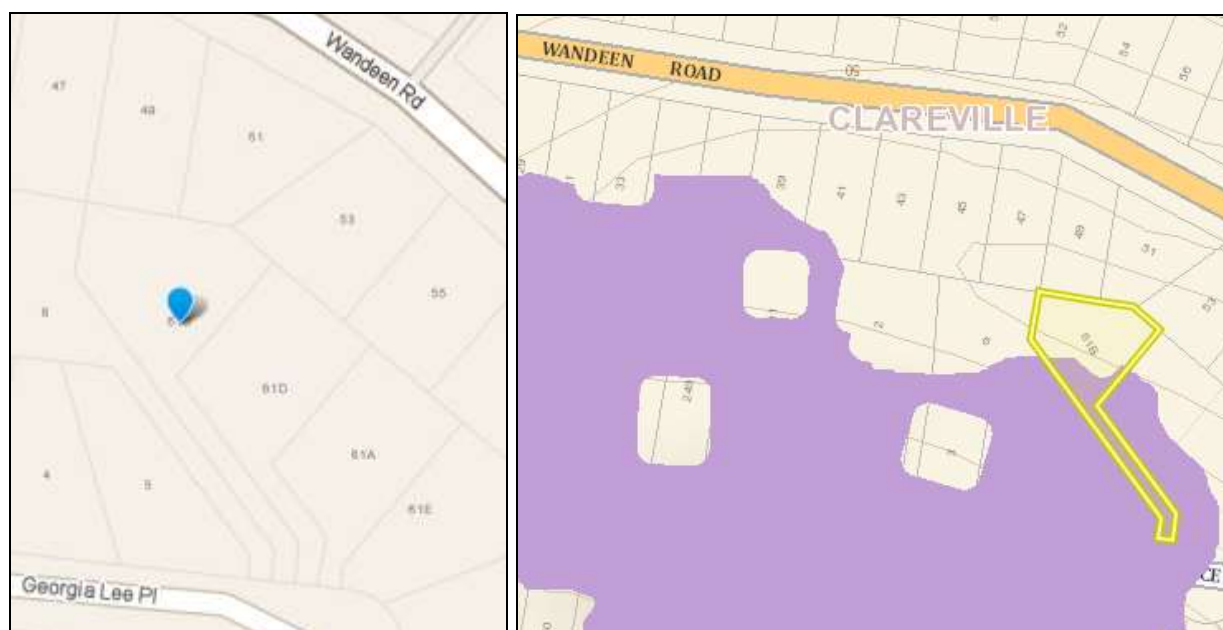
4 Observations

4.1 The Site

The report discusses only trees within Lot 19 of DP 236667. The site is 1044.40m² by Site Survey in size. The site is linked to one (1) public road, one (1) private road & three (3) residential lots.



Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool. Location Map courtesy of Whereis.com, Biodiversity Values Mapping, NSW Legislation.com.



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

All trees discussed 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 any specified, "Wildlife Corridor" as defined within the *Pittwater 21 DCP* (see page 7). The subject site is partially captured by NSW Legislation 'Biodiversity Values' mapping, (see previous page, bottom right).

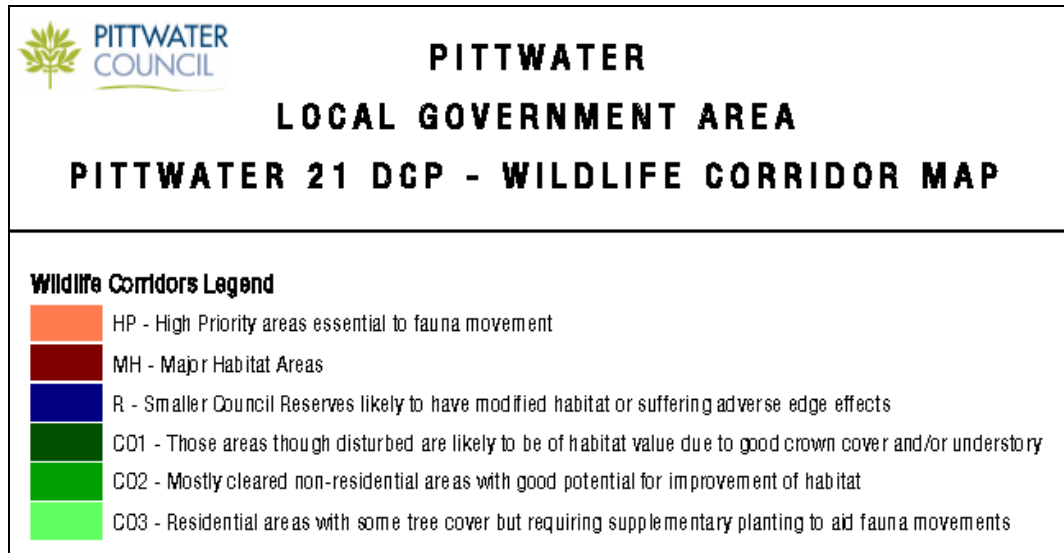
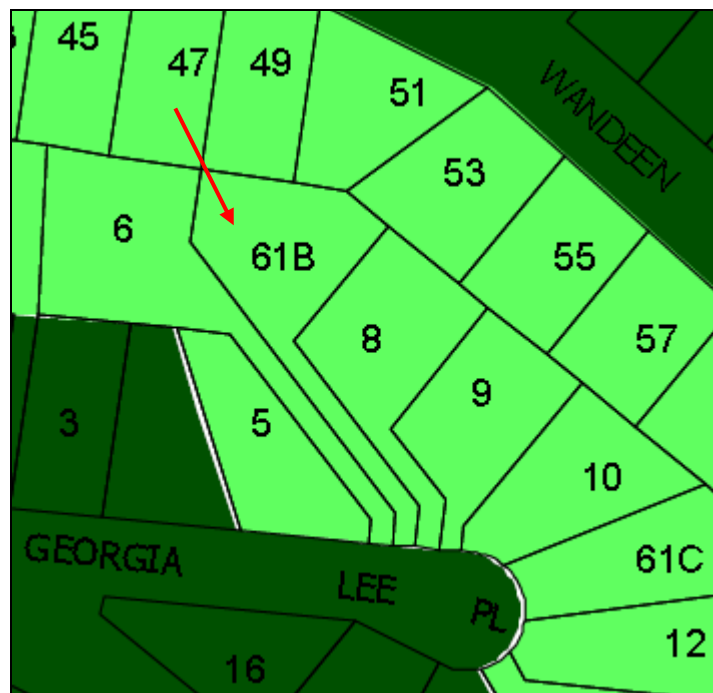
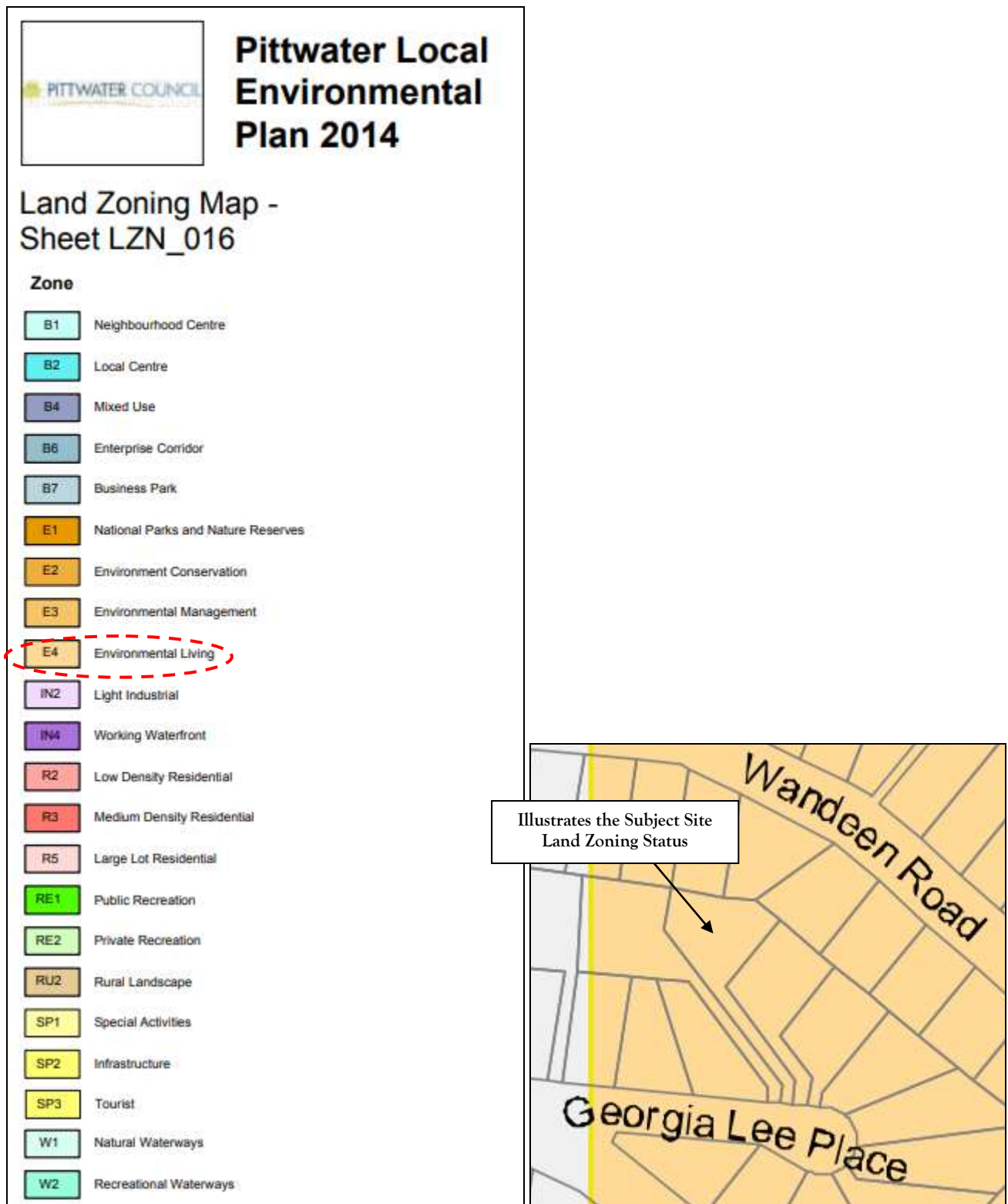


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.





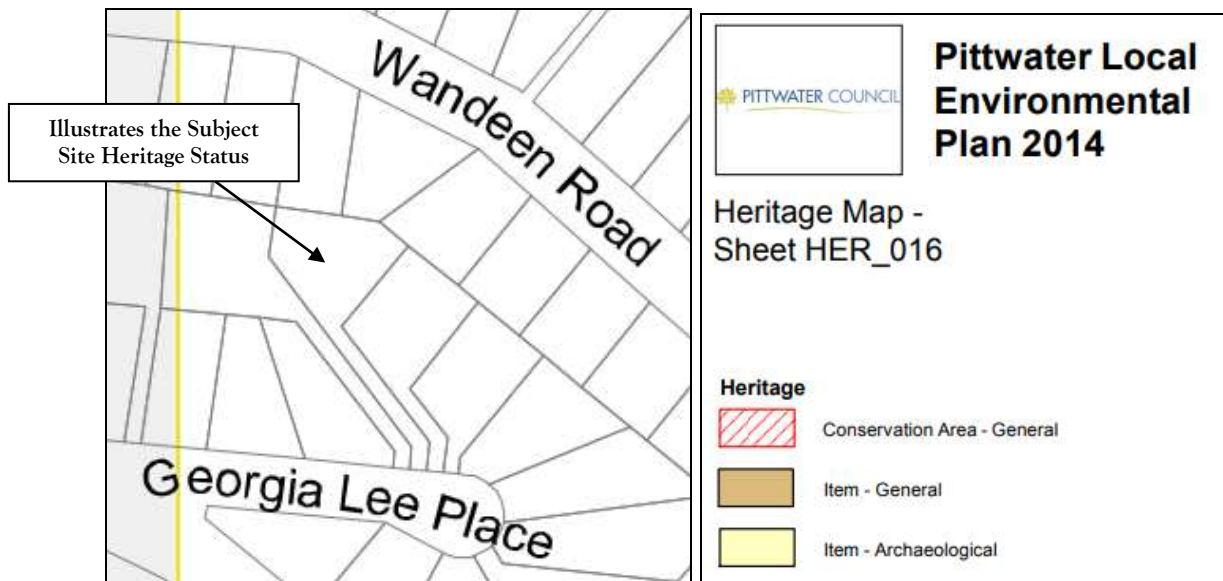


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a NBC designated “Heritage Conservation Area” (see 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 known to be on any ‘significant tree register’. The subject site & local environs are located within a ‘CO3’ (Residential areas with some tree cover but requiring supplementary planting to aid fauna movements.) designated ‘Wildlife Corridor’.

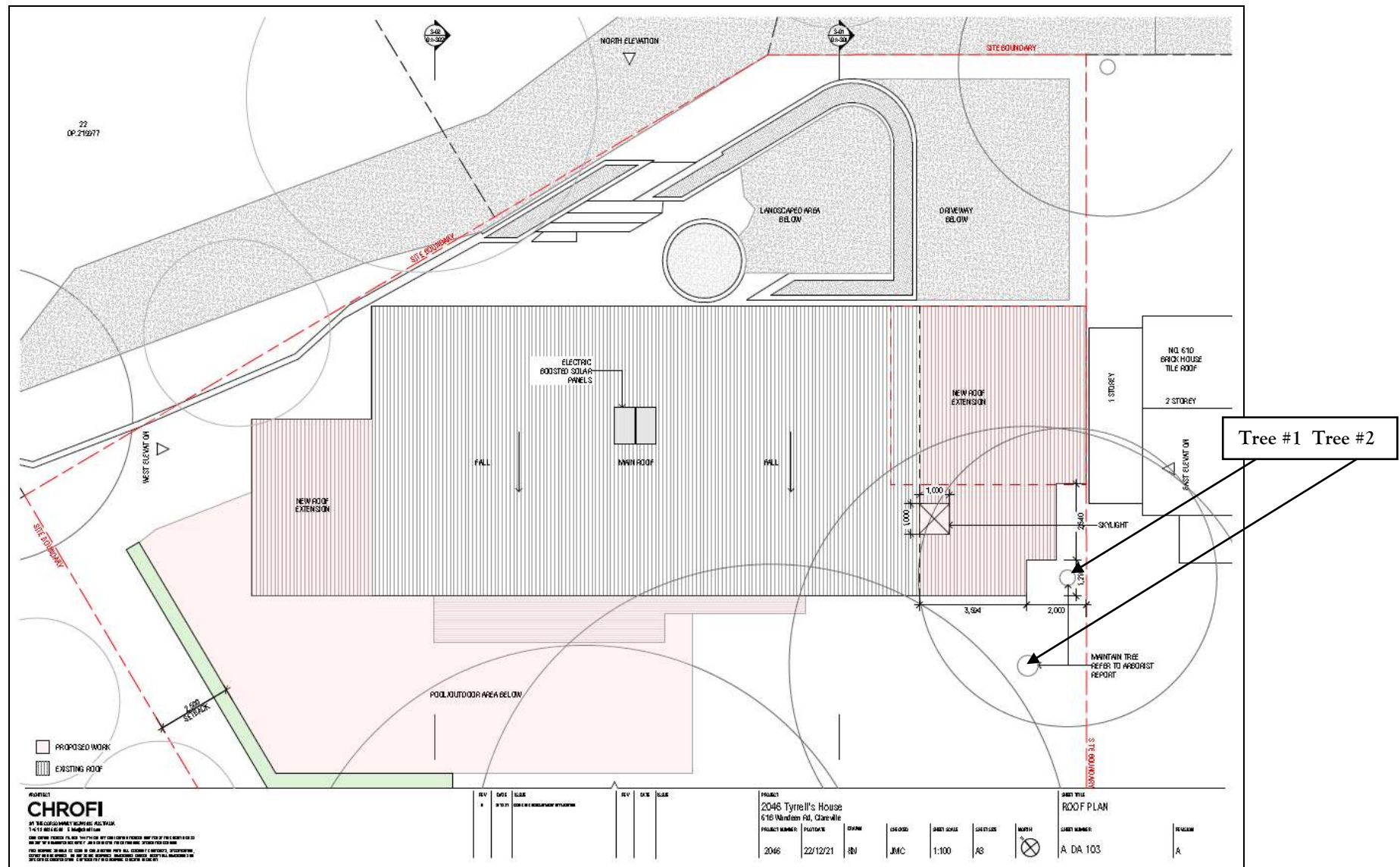


Figure 4: Illustrates tree locations as per the proposed Roof Plan.

4.2 The Proposal

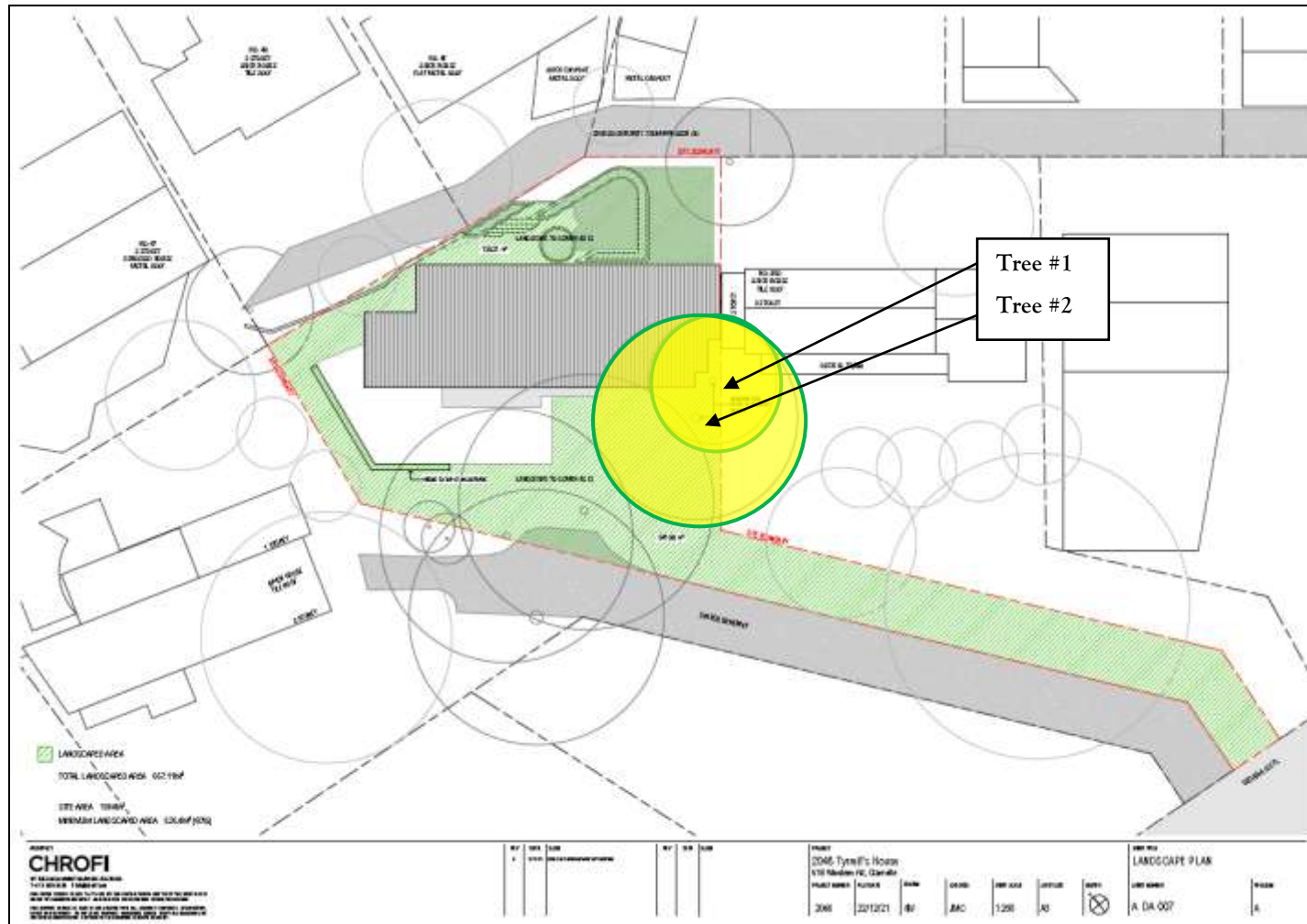
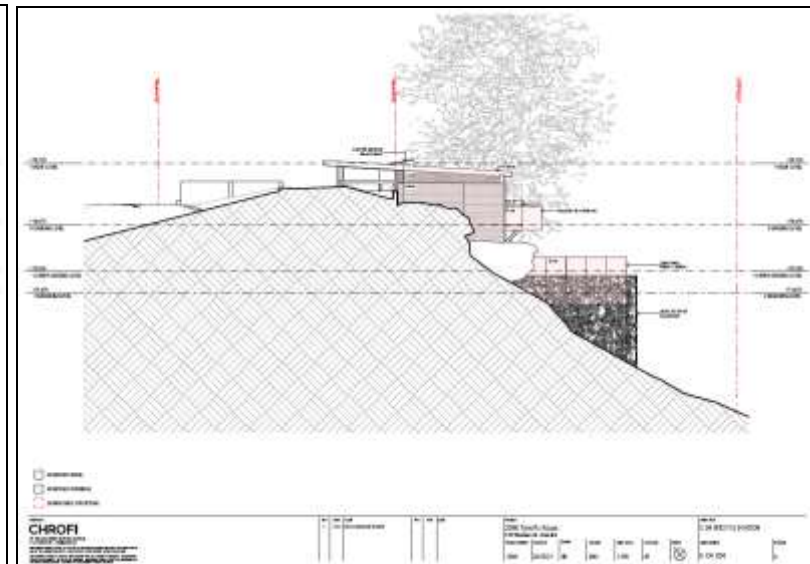
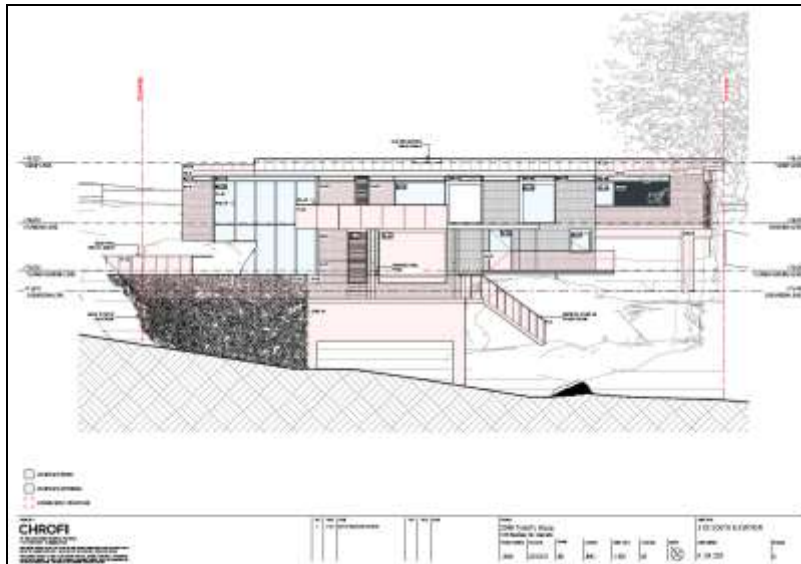
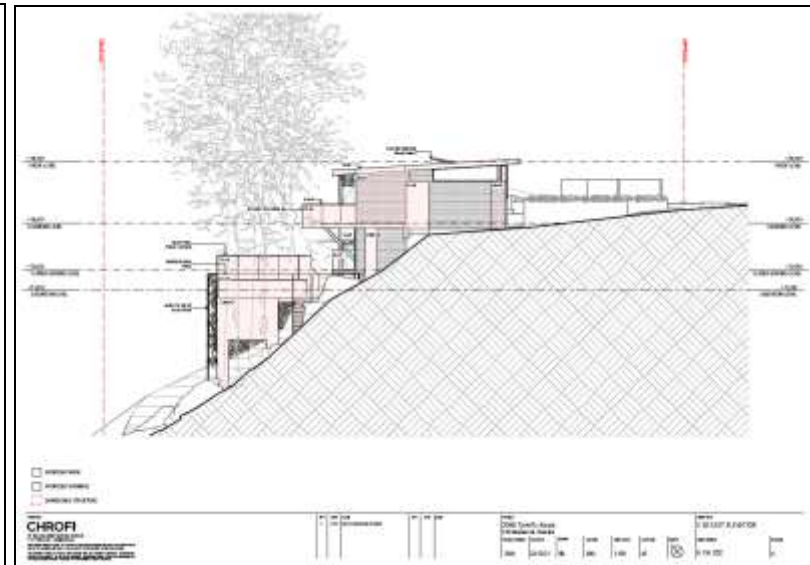


Figure 5: Proposed Landscape Plan with discussed Tree Locations.



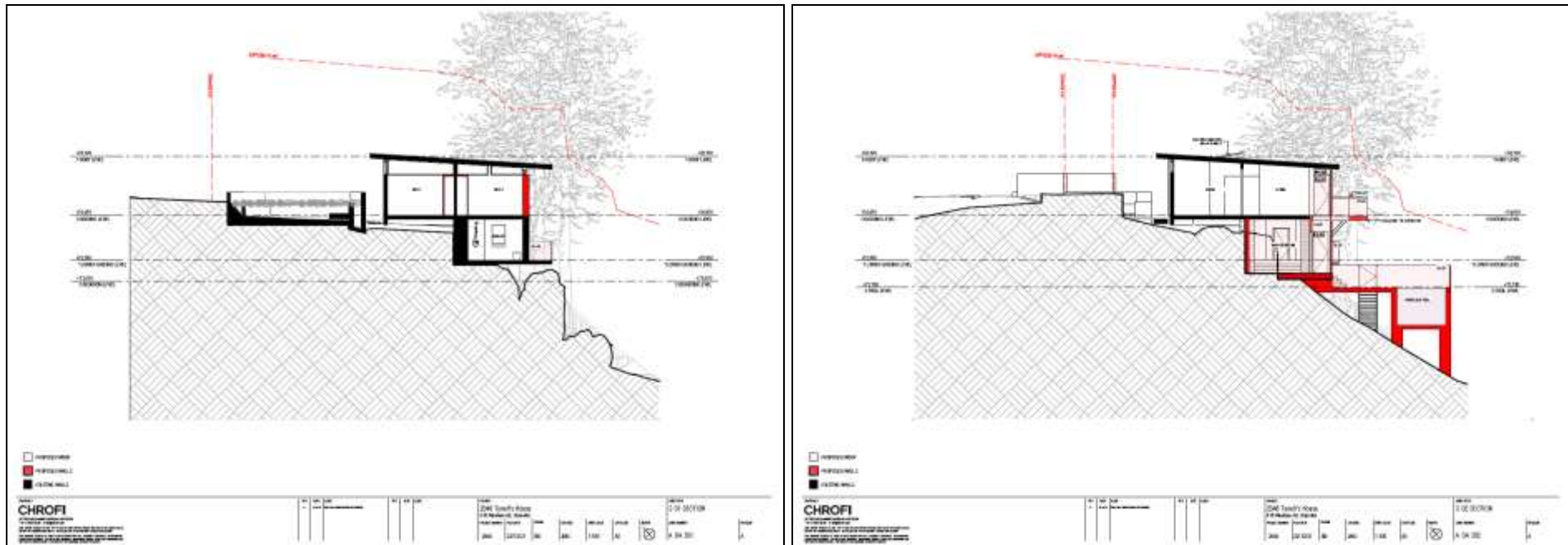


Figure 6: Elevations & Sections as proposed confirm minimal existing site ground level disturbance near the two (2) discussed trees.

4.3 *Tree Locations & Site Images*



Figure 7: Illustrates the Tree #1 & tree #2 base of trunk environment. Note Tree #2 trunk base has no flare.



Figure 8: Illustrates the discussed tree canopies as viewed from the ROC linked to Wandeen Road.

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 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>Eucalyptus microcorys</i> Tallowood	<24.00	<13.50 (linked with T2)	0.74	8.88	2.93	Mature	Good & Good	Typical	High/High	<u>Retain, Manage & Protect</u> Manual excavation for footings (flexibly located) is specified. Temporary 'Tree Trunk Guard' as protection strategy.
2	<i>Corymbia maculata</i> Spotted Gum	<23.00	<17.00 (linked with T1)	0.73	8.76	3.03	Mature	Good & Good	Typical	High/High	<u>Retain, Manage & Protect</u> Manual excavation for footings (flexibly located) is specified. Temporary 'Tree Trunk Guard' as protection strategy. Has significant 'Habitat' potential

5 Discussion

At the time of the site being assessed (Sunday, 2 May 2021), numerous exempt &/or not assessed as being potentially impacted upon trees as well as the two (2) required to be discussed trees were viewed. All adjoining common boundary sites are also confirmed to have similar vegetation to the subject site. Exempt &/or not assessed as being potentially impacted upon trees are not discussed in detail past this point.

This document references 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.

One (1) discussed tree is a locally indigenous species, Tree #2 is confirmed to be a Spotted Gum. Both discussed trees 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 plus adjoining common boundary properties are confirmed to be mapped as part of the *Pittwater Spotted Gum Forest Endangered Ecological Community* as well as *NSW Legislation* ‘*Biodiversity Values*’ mapping.

Tree #2 displays a large cavity considered to have very high ‘Habitat’ potential. See below photograph.



Figure 9: Confirms ‘Habitat’ potential for Tree #2.

Both discussed trees (Tree #1 & Tree #2) thru Tree #7 are assessed as able to be managed with no predictable compromise to individual Useful Life Expectancy (from herein ULE). Both discussed trees are specified to be isolated from subject site works by the installation of ‘Tree Trunk Guards’ with a composted mulch layer (minimum 50mm thick) be maintained through all construction/demolition phases. TPZ individual tree trunk protection plus installation of the native tree mulch (composted) must be signed off as AS4970-2009 compliant.

Footings/piers/engineered 'bracing structures' should be as few as possible & able to be flexibly located by design. By virtue of natural geological features (sandstone formations) able to be engineer certified as being 'footings' significantly minimises any existing ground level disturbance. Any excavation required again by virtue of natural geological features can only be completed manually. This fact additionally minimises any required site disturbance.

In the event a significant diameter 'live root' (defined as being greater than 50mm in diameter) be exposed & cannot be avoided by shifting the footing/pier site/bracing structures, a 'bridging over type' (or similar) strategy is to be adopted. 'Live tree roots' exposed by any footing/pier site/bracing structures excavation process may be cleanly severed without any input from the retained Project Arborist if less than 50mm in diameter. Finalised footing/pier sites/bracing structures must be confirmed in writing & be supported by photographic evidence confirming that significant diameter 'live root' damage is minimal to nil.

In the event any significant diameter 'live root' is exposed within an individual footing/pier site/bracing structure & deemed unable to be to be avoided by moving the footing/pier site or it being 'bridged over' the retained Project Arborist must be summoned to the site so as to create, oversee & document an as close to best practice outcome as the site allows. Should this happen, only the retained Project Arborist can create, oversee & document the process adopted.

TPZ individual tree trunk protection plus installation of the native tree mulch (composted) must be signed off as AS4970-2009 compliant.

“Site Specific Tree Plan of Management”

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	INSTALL MULCH	MANUAL EXCAVATION (footings/piers/ bracing structures &/or excavation related to their installation)	Project Arborist Supervision of Excavation	CC Signoff	OC Signoff
1 <i>Eucalyptus microcorys</i> (Tallowood Gum)	Yes (Tree Trunk Guard)	Yes (not required over rock formations)	Yes	Only if ‘live roots’ of a significant diameter are exposed – i.e. >50mm in diameter	Yes (confirming tree trunk guards plus completed excavation sites)	Yes (confirming tree condition post completion of works)
2 <i>Corymbis maculata</i> (Spotted Gum)	Yes (Tree Trunk Guard)	Yes (not required over rock formations)	Yes	Only if ‘live roots’ of a significant diameter are exposed – i.e. >50mm in diameter	Yes (confirming tree trunk guards plus completed excavation sites)	Yes (confirming tree condition post completion of works)

6 Conclusions

- Relative to the information as presented, the GMW consultancy supports the proposed works as presented in documentation reviewed.
- The DA submission be lodged for determination by council officers as per plans referenced considering the specified 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	<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.

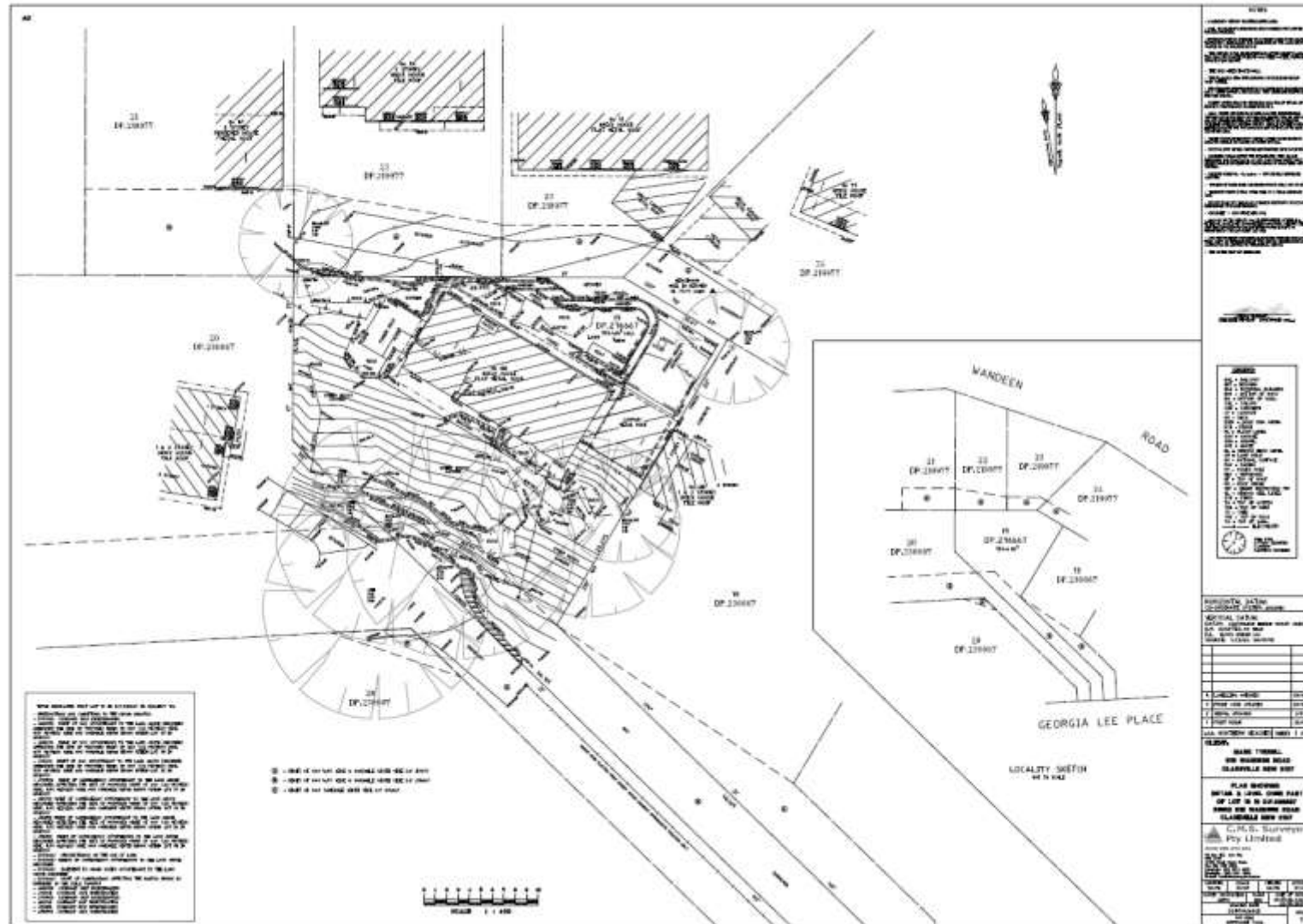
Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

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 Site Survey



Appendix – C Tree Protection & Management

Tree Protection & Management Prior to Excavation & 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.

