Arboricultural Impact Assessment

Figure 1 Trees adjacent to the detention basin.

Site Address: 19 Bungaree St Maitland

Client: Eagers Automotive Group Pty Ltd

Date: February 2024

Prepared by Ian Hills - Associate Diploma Horticulture
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1.0 Summary

Accurate Tree Assessment has been commissioned by Eagers Automotive Group Pty Ltd to provide an arboricultural impact assessment for trees located at 19 Bungaree St Maitland where it is proposed to construct additional parking along the Southern boundary of the site.

Most of the subject trees are protected by the provisions of Maitland DCP-2011-Part-B5 'Tree Management'.

Conclusions

Nineteen (19) trees and groups of trees including seven (7) exempt species are located within the plan area of the proposed extension to the car park and cannot be retained in conjunction with the proposed design.

Six (6) trees are setback from the proposed car park extension and will be retained and protected for the duration of the project.

Recommendations

That Nineteen (19) trees detailed in table 6.0 above, are approved for removal subject to the inclusion of compensatory replacement planting of suitable native trees in the landscaping of the site, or within the nearby reserve subject to consultation with Maitland City Council.

That the removal of trees is undertaken by a suitably qualified contracting arborist working in accordance with Safework Amenity Tree Industry Code of Practice, the removal of trees must not cause harm to any tree(s) proposed for retention.

That Six (6) trees detailed in table 6.0 above, are retained and protected as detailed in section 9.0 of this report and in accordance with the provisions of the Australian Standard AS4970-2009, '*Protection of Trees on Development Sites*' (AS4970).

2.0 Disclaimer

This report is to be read and considered in its entirety. The subject trees were inspected from the ground using Visual Tree Assessment methodology, no aerial investigations; underground or internal investigations were undertaken. It is the responsibility of the client to implement all recommendations contained in this report; Council consent may be required for substantial pruning and tree removal.

The assessment is made having regard for the prevailing site conditions; and does not account for the effects that extreme weather events may have on trees.

Information contained in this report reflects the condition of the trees at the time of the inspection. As trees are living organisms their condition will change over time, there is no guarantee that problems or deficiencies of the subject trees may not arise in the future. It must be accepted that living near trees involves some level of risk.

No investigation into heritage significance or the presence on the site of threatened or endangered species of shrubs, groundcovers, grasses, herbs or orchids has been undertaken.

This report is for the use of the client, sub-contractors and Maitland City Council to assist in determining the tree management measures to be undertaken in conjunction with the proposed development of the site. Distribution to other parties is not permitted except with the express permission of the author, Ian Hills.

3.0 Brief

Accurate Tree Assessment has been commissioned by Eagers Automotive Group Pty Ltd to provide an arboricultural impact assessment for trees located at 19 Bungaree St Maitland where it is proposed to construct additional parking along the Southern boundary of the site.

4.0 Method

A site inspection was carried out on 21 February 2024; the assessment of the trees was made using Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004) having regard for the provisions of AS4970-2009, 'Protection of Trees on Development Sites'.

Tree dimensions have been measured using a standard arboricultural diameter tape and Nikon Forestry Pro® laser hypsometer.

Tree data was collected using a mobile data collection app, identifying photos and approximate locations are provided on the interactive map available at the following link:

https://fulcrumapp.github.io/data-viewer/?id=8dda9b0750642dcc2d83

4.1. Documents

The client has provided copies of the following plans which are relied upon and have been used in the preparation of this assessment:

- Existing Demolition/Site Plan prepared by Centric Architects Drawing No. 0451-2001, Issue A, dated 19 February 2024 (Appendix 11.2)

- Proposed Site Plan prepared by Centric Architects Drawing No. 0451-2001, Issue M, dated 19 February 2024 (Appendix 11.3)

- Structural Ramp Plan prepared by Northrop Engineering. Job No. SY223448, Drawing No. SK-40, Revision 1, Dated 21 February 2024 (Appendix 11.4)

5.0 Site Conditions

The property has a complex zoning being E3 Productivity Support which is occupied by a car sales yard including various buildings and ancillary structures, while the Southern portion of the site is zoned C2 Environmental Conservation which contains the Telarah Lagoon. Most of the subject trees are protected by the provisions of Maitland DCP-2011-Part-B5 'Tree Management'

The soil is mapped as the Bolwarra Heights Landscape (9232bh) and has the following characteristics:

- Landscape—rolling low hills on Permian sediments in the centre-west of the sheet in the East Maitland Hills region. Slopes are 5–20%, elevation to 100 m, local relief to 80 m. Cleared tall open-forest.

- Soils—moderately deep (<150cm) well-drained yellow and brown clay Soils with some moderately deep (<100cm) well drained soils on crests, moderately deep (<140cm) imperfectly drained yellow soils on lower slopes.

- Qualities and Limitations—moderate foundation hazard, water erosion hazard, high run-on (localised), seasonal waterlogging (localised), localised steep slopes with mass movement hazard. *(NSW Environment and Heritage, 2024)*

According to climate data from the Tocal AWS, which is approximately 11 kilometres from the site, the district experiences prevailing winds from the West to North-west, with infrequent occurrences of winds above 40km/h (Willy Weather, 2024). The subject trees are somewhat protected due to their close grouping.

Figure 2 Subject Site (Sixmaps, 2024)

6.0 Tree Assessment

No.	Species (Common Name)	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Vigour	Age Class	SULE	Comments	Proposal
1	*Fraxinus griffithii* (Evergreen ash)	0.30	3.6	2.25	4 - 6	4 - 6	Mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention
2	*Banksia integrifolia* (Coast banksia)	0.25	3.0	2.0	4 - 6	0 - 3	Semi-mature	Good	2a	Appears structurally sound, Generally symmetrical	Removal
3	*Eucalyptus saligna* (Sydney blue gum)	0.7	8.4	3.17	16 - 20	7 - 10	Mature	Average	1a	Generally symmetrical, Small deadwood noted	Removal
4	*Casuarina glauca* (Swamp she oak)	0.4	4.8	2.47	16 - 20	7 - 10	Mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention
5	*Casuarina glauca* (Swamp she oak)	0.5	6.0	2.47	16 - 20	7 - 10	Mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention
6	*Ligustrum lucidum* (Broad leafed privet)	0.35	4.2	2.25	4 - 6	4 - 6	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
7	*Ligustrum lucidum* (Broad leafed privet)	0.15	2.0	1.5	4 - 6	0 - 3	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
8	*Ligustrum lucidum* (Broad leafed privet)	0.15	2.0	1.5	4 - 6	0 - 3	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
9	*Olea europea ssp. cuspidata* (African olive)	0.2	2.4	2.0	4 - 6	0 - 3	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
10	*Olea europea ssp. cuspidata* (African olive)	0.2	2.4	2.0	4 - 6	0 - 3	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
11	*Glochidion ferdinandii* (Cheese tree)	0.1	2.0	1.5	4 - 6	0 - 3	Juvenile	Good	1a	Appears structurally sound, Generally symmetrical	Removal
12	*Casuarina glauca* (Swamp she oak)	0.45	5.4	2.67	16 - 20	7 - 10	Mature	Average	2a	Poor form, included union at 4m	Removal
13	*Casuarina glauca* (Swamp she oak)	0.1	2.0	1.5	7 - 10	0 - 3	Juvenile	Good	1a	Appears structurally sound, group of young trees, 7m x 1m edge of water	Removal
14	*Olea europea ssp. cuspidata* (African olive)	0.2	2.4	2.0	4 - 6	0 - 3	Semi-mature	Good	4a	Appears structurally sound, group of exempt species	Removal

No.	Species (Common Name)	DBH (M)	TPZ (M)	SRZ (M)	HEIGHT (M)	SPREAD (M)	Vigour	Age Class	SULE	Comments	Proposal
15	*Olea europea ssp. cuspidata* (African olive)	0.30	3.6	2.25	7 - 10	4 - 6	Semi-mature	Good	4a	Appears structurally sound, exempt species	Removal
16	*Melaleuca quinquenervia* (Broad leaved paperbark)	0.35	4.2	2.25	7 - 10	4 - 6	Semi-mature	Average	2a	Appears structurally sound, Generally symmetrical	Removal
17	*Casuarina glauca* (Swamp she oak)	0.6	7.2	3.01	20 +	11 - 15	Mature	Good	1a	Appears structurally sound, Generally symmetrical	Removal
18	*Casuarina glauca* (Swamp she oak)	0.1	2.0	1.5	4 - 6	0 - 3	Juvenile	Good	1a	Appears structurally sound, Generally symmetrical	Removal
19	*Casuarina glauca* (Swamp she oak)	0.25	3.0	1.8	11 - 15	4 - 6	Semi-mature	Good	1a	Appears structurally sound, Generally symmetrical	Removal
20	*Acacia cognata*. (River Wattle)	0.25	3.0	1.8	4 - 6	4 - 6	Semi-mature	Average	2b	Major asymmetry, Poor form	Removal
21	*Casuarina glauca* (Swamp she oak)	0.1	2.0	1.5	4 - 6	0 - 3	Juvenile	Good	1a	Appears structurally sound, Generally symmetrical, group of young trees at edge of pond, 3m x 2m	Removal
22	*Casuarina glauca* (Swamp she oak)	0.2	2.4	2.0	4 - 6	0 - 3	Semi-mature	Good	1a	Appears structurally sound, Generally symmetrical	Removal
23	*Glochidion ferdinandii* (Cheese tree)	0.15	2.0	1.7	4 - 6	4 - 6	Semi-mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention
24	*Casuarina glauca* (Swamp she oak)	0.30	3.6	2.25	11 - 15	7 - 10	Mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention
25	*Casuarina glauca* (Swamp she oak)	0.15	2.0	1.8	7 - 10	4 - 6	Semi-mature	Good	1a	Appears structurally sound, Generally symmetrical	Retention

DBH – Trunk diameter at 1.4 metres
Vigour - P = Poor, F = Fair, Av = Average, G =Good, Ex = excellent
Age class – J = Juvenile, SM =Semi-mature M = Mature, OM= Over mature

TPZ = Tree Protection Zone (calculated in accordance with AS4970)
SRZ = Structural Root Zone (calculated in accordance with AS4970)
SULE = Safe Useful Life Expectancy (Barrel, J. 1993-5)

7.0 Development impact

All parts of a tree may be damaged by construction activities, and the effects of damage are often cumulative meaning that seemingly minor damage to the tree can have adverse effects that may not become apparent until well after the project has been completed.

Crown damage often occurs when machinery impacts branches of the tree resulting in a loss of foliage. As the foliage is where the tree produces the sugars required for healthy growth it therefore stands to reason that any loss of foliage will affect the trees' ability to function normally.

In addition, when branches are torn or improperly pruned the trees' ability to recover is affected and pathogens that cause wood decay or disease have an increased opportunity to penetrate the trees' natural defenses.

Trunk damage is usually caused by mechanical impact, and again wounding predisposes the tree to infection by pathogens.

Root damage is the most common cause of damage to trees on development sites, and often has the most serious effects as it commonly goes unnoticed for some time. Damage can be caused by mechanical factors such as tearing during excavation, as well as factors such as chemical contamination, changes in hydrology and altering gaseous exchange rates by filling, and compaction during movement of equipment.

Australian Standard 4970, *Protection of Trees on Development Sites* was adopted in 2009 to provide Arborists and the construction industry with a guide to assist in the preservation of retained trees on all types of development sites.

To assist professionals working to protect trees the Standard proposes the following:

> "Tree Protection Zone - A specified area above and below ground level at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.
>
> *Structural Root Zone – The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.*
>
> *This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be much larger."* (Ref. AS4970-2009)

Minor encroachment of the TPZ is sometimes unavoidable and at levels less than 10% of the total TPZ area can be tolerated if there is scope to increase the area of the TPZ contiguously about the unaffected perimeter. Where encroachment exceeds 10% further investigation will be required to determine the measures required to offset the incursion. Encroachment of the SRZ is not recommended as tree health and condition will almost certainly be adversely affected.

8.0 Discussion

The impacts of development on the subject trees are assessed against the design of the extension to the parking lot which proposes a suspended slab supported by pier and beam footings along the Southern boundary of the site. Nineteen (19) trees are proposed for removal including seven (7) trees identified as exempt species, six (6) trees are proposed for retention.

Tree Management Summary

	Retention	Removal
Exempt species	**-**	**7**
Mature	**4**	**3**
Semi-mature	**2**	**5**
Juvenile	**-**	**4**

The proposed car parking is located wholly within the portion of the site zoned E3 Productivity Support and is adjacent to the existing stormwater detention basin. The trees appear to have been planted during the initial landscaping of the site indicated by the use of several species which are not indicative of the local vegetation such as Coast Banksia and Sydney Blue Gum.

Trees 6 - 8 *Ligustrum lucidum* and 9, 10, 14 and 15 *Olea europea ssp. cuspidata* which have likely grown from seed dispersed by birds are identified on the Weedwise, NSW website as significant environmental weed species in the Hunter Region. In accordance with the provisions of Maitland DCP-2011-Part-B5 'Tree Management' they are exempt species and can be removed without the need for Council consent.

An additional twelve (12) trees and groups of trees including the mature Trees 3 *Eucalyptus saligna*, 4 and 5 *Casuarina glauca* are located between the edge of the existing hardstand and the boundary where they will be within the plan area of the proposed slab and are proposed to be removed.

The removal of trees is supported subject to the provision of suitable replacement planting within the site landscaping or with in the nearby reserve in consultation with Maitland City Council.

The removal of trees is to be undertaken by a suitably qualified contracting arborist working in accordance with Safework Amenity Tree Industry Code of Practice, the removal of trees must not cause harm to any tree(s) proposed for retention.

The proposed pier and beam design will cause minimal impact outside of the plan area allowing retention of Trees 1 *Fraxinus griffithii*, 4, 5, 24 and 25 *Casuarina glauca* and 23 *Glochidion ferdinandii* which are setback from the works.

The trees will be protected from adverse impacts by the installation of temporary fencing at the perimeter of the respective Structural Root Zones or if there is insufficient space the trunks of the trees are to be protected by armouring whereby timber slats are fixed around the trunk over a layer of padding to provide a protective shell against mechanical impacts.

Tree protection measures are to be installed prior to the commencement of works in accordance with the Tree Protection Plan at Appendix 11.3 and the provisions of AS4970 detailed at appendix 11.5.A - B

9.0 Conclusions

Nineteen (19) trees and groups of trees including seven (7) exempt species are located within the plan area of the proposed extension to the car park and cannot be retained in conjunction with the proposed design.

Six (6) trees are setback from the proposed car park extension and will be retained and protected for the duration of the project.

10.0 Recommendations

That Nineteen (19) trees detailed in table 6.0 above, are approved for removal subject to the inclusion of compensatory replacement planting of suitable native trees in the landscaping of the site, or within the nearby reserve subject to consultation with Maitland City Council.

That the removal of trees is undertaken by a suitably qualified contracting arborist working in accordance with Safework Amenity Tree Industry Code of Practice, the removal of trees must not cause harm to any tree(s) proposed for retention.

That Six (6) trees detailed in table 6.0 above, are retained and protected as detailed in section 9.0 of this report and in accordance with the provisions of the Australian Standard AS4970-2009, '*Protection of Trees on Development Sites*' (AS4970).

Ian Hills - Principal Arborist
Accurate Tree Assessment

Registered User

11.0 Appendices

11.1. Safe Useful Life Expectancy Categories

1: Long SULE: Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.
(a) Structurally sound trees located in positions that can accommodate future growth.
(b) Trees that could be made suitable for retention in the long term by remedial tree care.
(c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

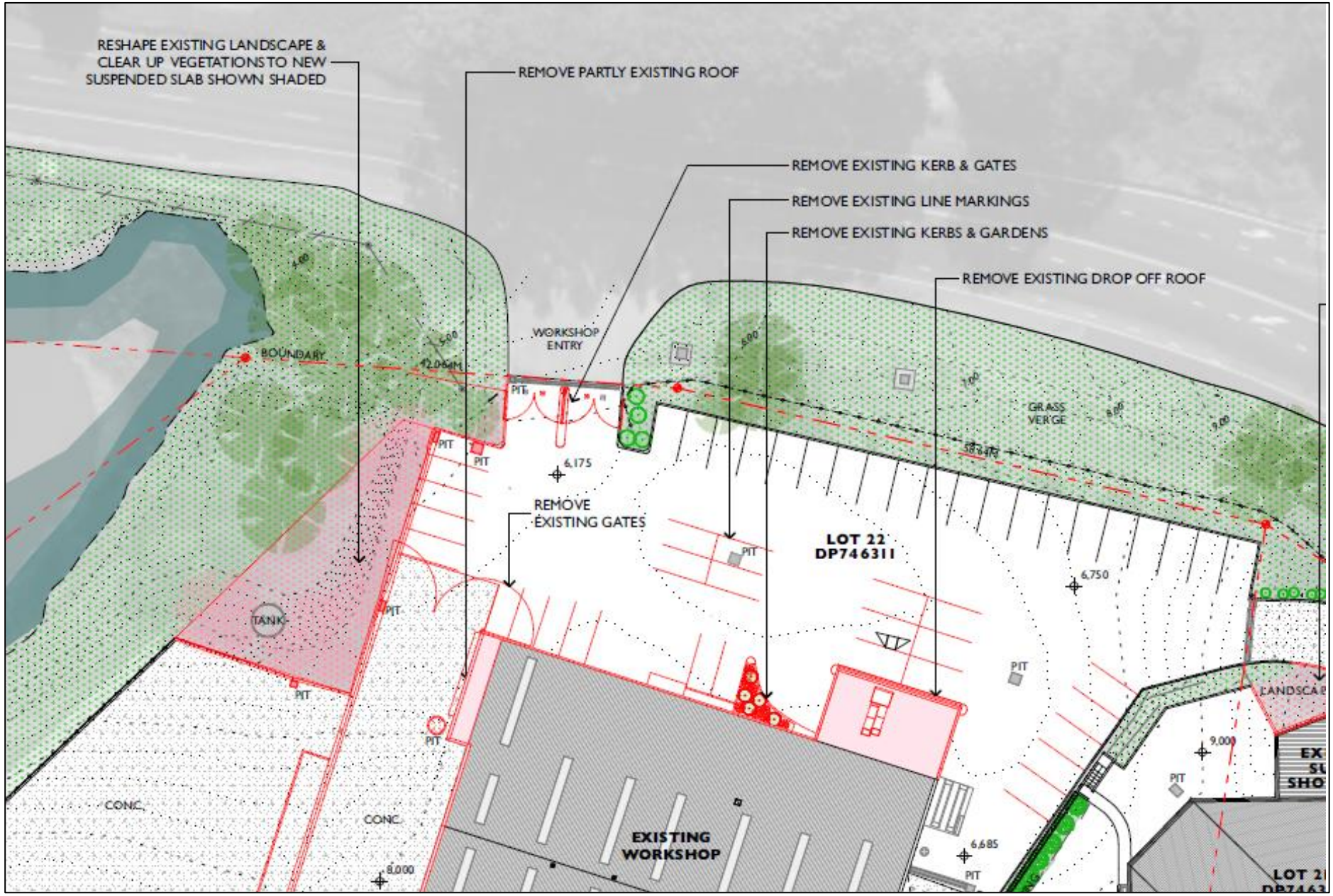
2: Medium SULE: Trees that appeared to be retainable at the time of assessment for 15–40 years with an acceptable level of risk.
(a) Trees that may only live between 15 and 40 more years.
(b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.
(c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(d) Trees that could be made suitable for retention in the medium term by remedial tree care.

3: Short SULE: Trees that appeared to be retainable at the time of assessment for 5–15 years with an acceptable level of risk.
(a) Trees that may only live between 5 and 15 more years.
(b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
(c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.

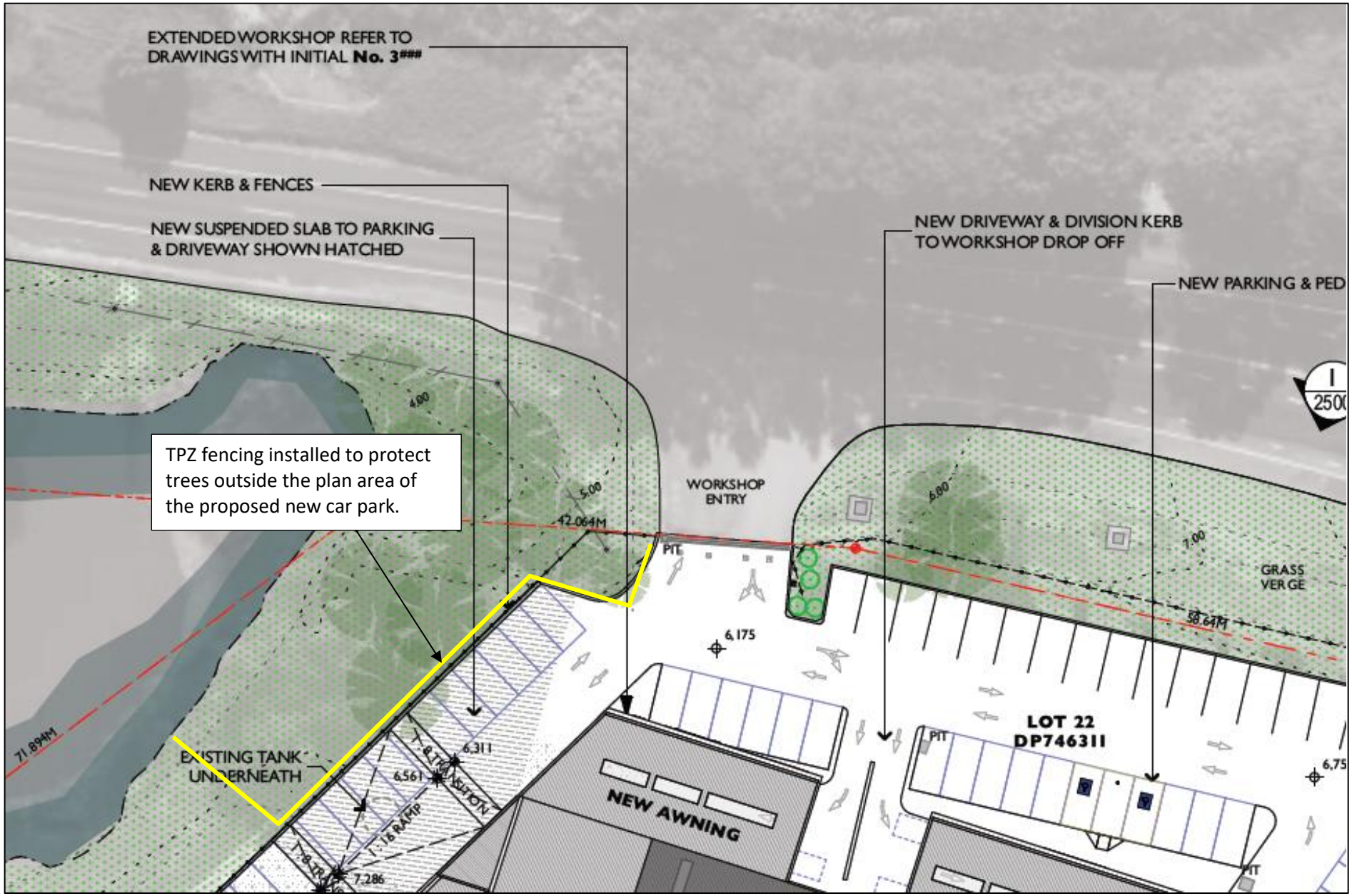
4: Remove: Trees that should be removed within the next 5 years.
(a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
(b) Dangerous trees because of instability or recent loss of adjacent trees.
(c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
(d) Damaged trees that are clearly not safe to retain.
(e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
(f) Trees that are damaging or may cause damage to existing structures within 5 years.
(g) Trees that will become dangerous after removal of other trees for the reasons given in (a)to(f)
(h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment could be retained subject to regular review.

5: Small, young, or regularly pruned: Trees that can be reliably moved or replaced.
(a) Small trees less than 5m in height.
(b) Young trees less than 15 years old but over 5m in height.
(c) Formal hedges and trees intended for regular pruning to artificially control growth.

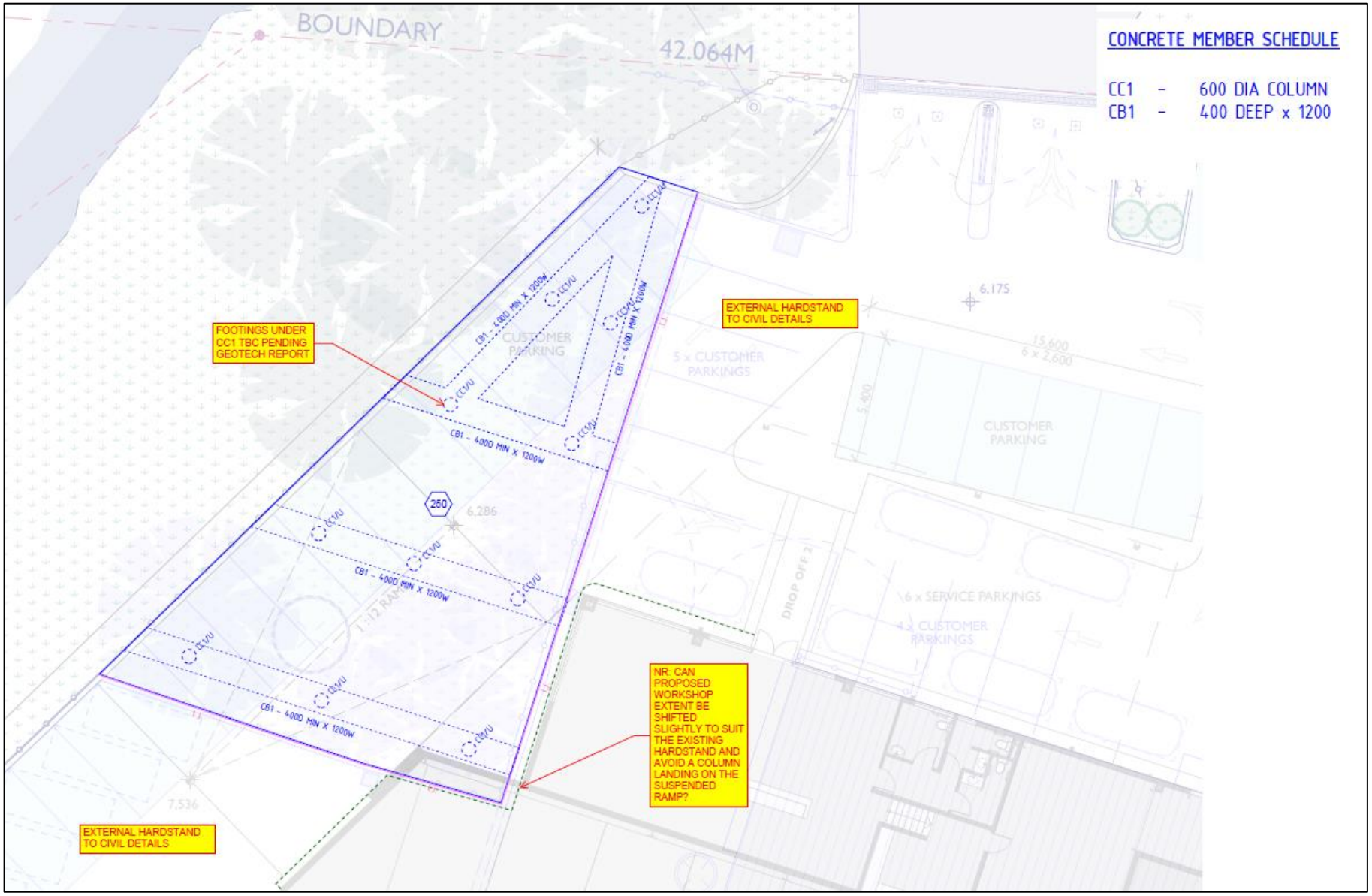
11.2 Existing Demolition/Site Plan



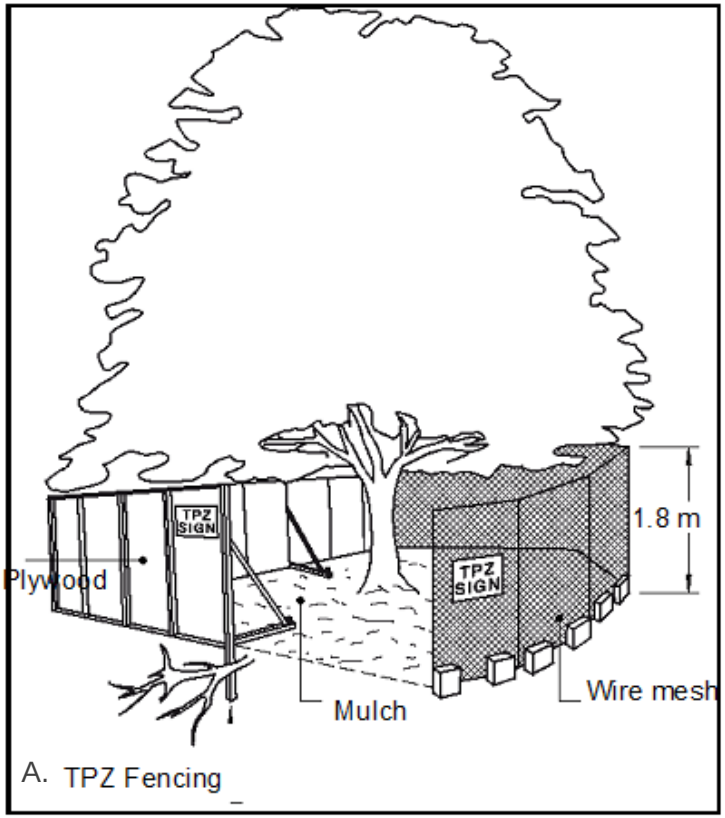
11.3 Proposed site plan + Tree protection



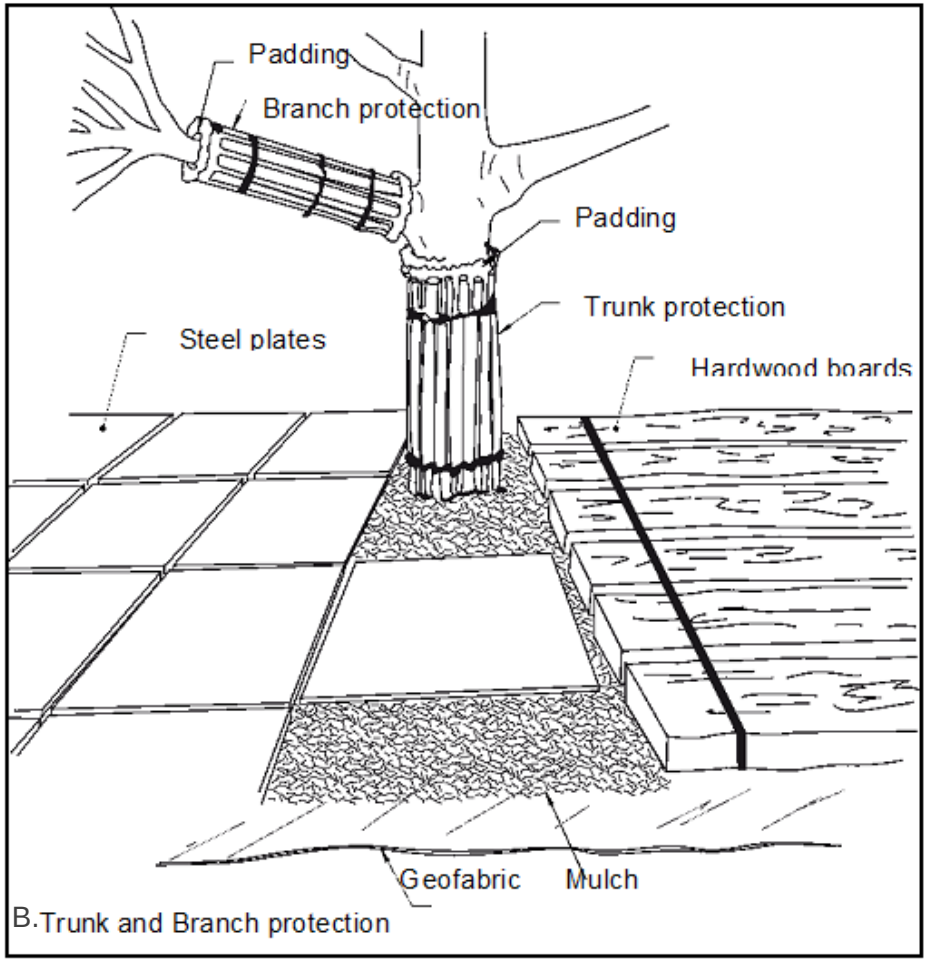
11.4 Structural Ramp Plan (extract)



11.5 Tree, Trunk and Branch Protection Methods (Source AS4970-2009)

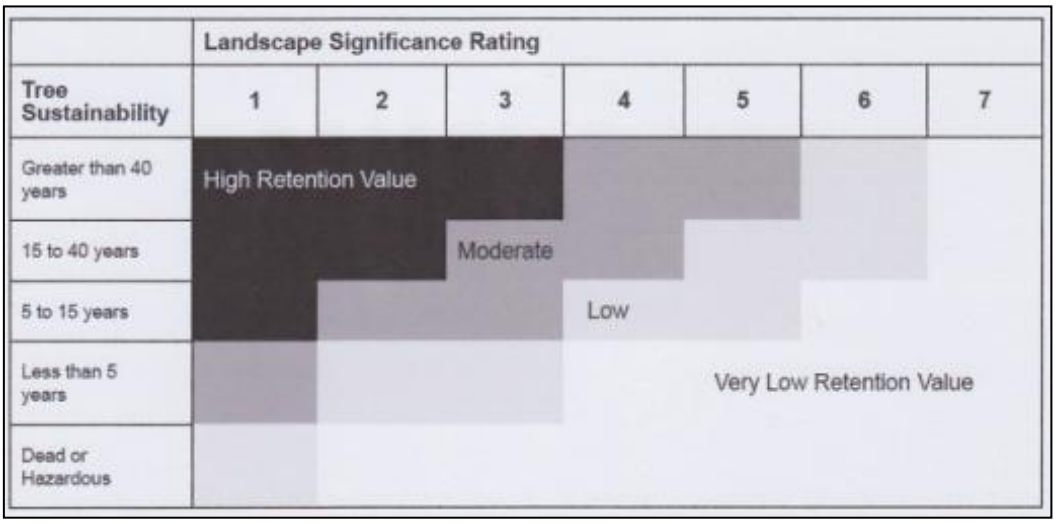


A. TPZ Fencing



B. Trunk and Branch protection

11.6 Calculating Tree retention Value



(Source NUFTM) Modified by A Morton from Couston and Howden (2001) Tree retention values table Footprint Green Pty Ltd Australia)

11.7 References

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11.8 Qualifications – Ian Hills

Associate Diploma Horticulture	Ryde TAFE 1984
AQF3 Horticulture (Arboriculture)	Ourimbah TAFE 1998
AQF5 Diploma Horticulture (Arboriculture)	Kurri Kurri TAFE 2009 (Dux) Cert No. 5934155
QTRA Registered User 2083	December 2013
QTRA Advanced User 4469	March 2018
Working with Children Check Number	WWC1780469E
National Coordinated Criminal History Check Certificate	CAD5579CB8
QTRA Advanced User 4469	March 2020
QTRA Advanced User 4469	April 2023