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ARBORICULTURAL IMPACT ASSESSMENT REPORT

At

88 – 92 Botany Street, Carlton

Prepared for

Nasscon Pty Ltd

11th December 2019

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DISCLAIMER

The Client acknowledges that this Report, and any opinions, advice or recommendations expressed or given in it, are the information supplied by the Client and on the data inspections, measurements and analysis carried out or obtained by Jacksons Nature Works (JNW) and referred to in the Report. The Client should rely on The Report, and on its contents, only to that extent.

Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible. However, Ross Jackson – Consulting Arborist 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 examined and reflects the health and structure of the trees at the time of inspection. The documented, observations, results, recommendations and conclusions given may vary after the site visit due to environmental conditions.
- The inspection was limited to visual examination from the base of the subject tree without dissection, 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;
- Unauthorised use of this report in any form is prohibited and remains the intellectual property of Jacksons Nature Works until all costs are settled.

Ross Jackson.

Consulting Arborist

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1. BACKGROUND and METHODODOLGY

1.1 The purpose of this Tree Report is to inform and accompany the development application works at 88 - 92 Botany Street, Carlton – The Site.

1.2 The report was commissioned by Nasscon Pty Ltd to respond to Council's requirements to consider the development impacts on trees located on and around the Site.

1.3 This report outlines the health and condition of the subject trees, the remaining life expectancy of the trees, identifies any visible defects or other problems, describes which trees require pruning, removal, retention or represent a potential hazard and comments on the impact on these trees in relation to the works proposed. The report also provides recommended tree protection measures (Tree Management Plan) to ensure the long-term preservation of the trees to be retained where appropriate.

1.4 The Site is an closed aged care facility and a residential site with gardens at Carlton.

1.5 The trees were identified by ground level Visual Tree Assessment (VTA) [1] only in the data collection, taken on 9.12.2019. No aerial (climbing) was undertaken.

1.6 All site photographs were taken by the author at the site. All photographs were taken using a digital camera (Canon 7D) with no image enhancement either within the camera or on computer.

1.7 The subject trees were located on plans supplied. The trees have been plotted and can be found on Annexure B – Tree Location Plan.

1.8 The trees were identified and their genus species and common name used. The trees were identified by the use of data collected and compared to G Burnie, S Forrester et al (1997) **Botanica** Random House, Milsons Point, NSW, Australia.

1.9 DBH. The Trunk Diameter at Breast Height (1.4 metres above ground level) in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.

1.10 DRB. The trunk Diameter above Root Buttress in centimetres was measured over bark using a metal tape which automatically converts to diameter and assumes a circular trunk cross section.

1.11 Height. Estimated overall height in metres.

1.12 Spread. Measured with a metal tape measure and shown in metres.

1.13 Useful Life Expectancy (ULE)[2].

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[1] Mattheck, Dr. Clause & Breloer, Helge (1994) – Sixth Edition (2001) **The Body Language of Trees – A Handbook for Failure Analysis** The Stationery Office, London, England

[2] Barrell, Jeremy (1996, 2001) **Pre-development Tree Assessment** Proceedings of the International Conference on Trees and Building Sites (Chicago) International Society of Arboriculture, Illinois, USA

A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more with an acceptable level of risk), Medium, (retainable for 16 – 39 years), Short (retainable for 5 – 15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

1.14 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been calculated in terms of AS 4970 – 2009 Protection of trees on development site Section 3.

1.15 To prepare this report we have reviewed the following documents:

- Detail survey by W. Buxton Pty Ltd, dated 31.7.2019;
- Architectural plans by FUSE Architects, dated 12.4.2019;
- Clause 5.9 Hurstville LEP 2012 Tree Management & Hurstville DCP 13.7.2016 (DCP); &
- Australian Standard AS 4970 – 2009 Protection of trees on development sites.

2. OBSERVATIONS as seen on the days of inspection (9.12.2019)

2.1 Our tree observations can be found in Annexure A.

3. DISCUSSIONS

3.1 We have been commissioned by Nasscon Pty Ltd, to examine the health and condition of the trees on and around this development site.

It is proposed to refurbish the existing and the construction of a mosque on Site (development works).

3.2 We have examined the trees on site and can suggest the following considerations for the development works:

1. Tree 1 *Magnolia soulangiana* shows good vitality and is located in the adjoining neighbour's property to the south-east. No development works are proposed within this tree's TPZ that will affect its retention and stability. Note for retention in the Tree Management Plan (TMP);

2. Tree 2 & 10 *Lophostemon confertus* are street trees in Council's nature strip in front of the site. The developments on site will not affect the stability and viability of these street trees as the works is outside their TPZ, thus ensuring retention. Note for retention and protection in the TMP;

3. The following trees are classified as Exempt trees in Council's DCP and can be removed without consent: Tree 3 *Schefflera actinophylla*, tree 8 *Phoenix canariensis* and tree 12 *Syagrus romanzoffiana*. As these trees are calassified as Exempt trees, it is appropriate that they are not considered to fall under Council's tree replacement policy of 2:1. Note these trees for removal in the TMP;

4. Tree 4, 5, 6 & 7 x*Cupressocyparis leylandii* are four trees located in the rear right of the site. Trees 4 & 7 show good vitality, but tree 5 shows canopy suppression and tree 6 has lost the top ½ of the trunk – refer plate 1. Tree 5 should be pruned to encourage regrowth. Note these trees for retention & pruning in the TMP;

Plate 1 – trees 4 – 6

5. Tree 9 *Triadica sebifera* shows good vitality with an elevated form – refer plate 2. The new building will be constructed over the existing building footprint therefore the construction activity won't affect this trees stability and viability. No canopy pruning is required to undertake the development works. The walkway to the front door can be laid at grade to minimise potential root disturbance with a 50 – 80mm layer of aggregate to allow moisture and gaseous exchange with the root system. By employing these design considerations, the retention of this tree will be achieved. Note for retention and protection in the TMP;

Plate 2 – tree 9

6. Tree 11 *Lagerstroemia indica* shows good vitality with an elevated form – refer plate 3. This tree is within the driveway to the car parking area along Ethel Street – refer Annexure C. While it is in good vitality it should not be considered to be an impediment to constructing the driveway to the car parking as it can be easily replaced in the landscape works, maybe with a more appropriate species that is endemic to this area. Note for removal in the TMP;

Plate 3 – trees 13, 12 & 11

7. Tree 13 *Cyathea australis*, tree 14 *Dypsis lutescens*, tree 15 x*Cupressocyparis leylandii* and tree 16 *Triadica sebifera* are all within the proposed car park along Ethel Street – refer Annexure C & plate 4. To construct and excavate the car parking area, these trees will need to be removed. Neither of these trees are considered to be of high retention value and can be easily replaced in the landscape works with an endemic tree from this area. Note these trees for removal in the TMP.

Plate 4 – trees 14, 15 & 16

8. Tree 17 *Melia azedarach* shows fair vitality with a small canopy. This tree is growing beside the existing building wall in a small garden bed – it is fair to conclude this tree was not intentionally planted in this location, rather the result of an aerial deposit by a bird or dropped by a possum. Due to its position and its potential mature growth and the potential damage to the building, removal is recommended. Note for removal in the TMP.

3.3 The landscape plan is supported.

4. RECOMMENDATIONS

The following recommendations are advised:

a) Retain the following council street trees: Tree 2 & 10;
b) Retain the following neighbour's tree: Tree 1;
c) Remove the following exempt trees on site: Tree 3, 8 &12;
d) Retain the following trees on site: Tree 4, 5, 6, 7, 9;
e) Remove the following trees on site: Tree 11, 13, 14, 15, 16 & 17;
f) Tree removal work shall be carried out by an experienced tree surgeon in accordance with *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal (2016);*
g) Prune Tree 5 to remove dead branches in compliance with AS 4373 – 2007 Pruning of amenity trees Section 3.17 & 7.2.2 Deadwooding;
h) Install the following Tree Protection Measures around the retained street tree: Tree 2 & 10, tree protection measures shall be a temporary fence of chain wire panels 1.8 metres in height (or equivalent), supported by steel stakes or concrete blocks as required and fastened together and supported to prevent sideways movement. Existing boundary fences or walls are to be retained shall constitute part of the tree protection fence where appropriate. A sign is to be erected on the tree protection fences of the trees to be retained that the trees are covered by Council's tree preservation orders and that "No Access" is permitted into the tree protection zone;
i) Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Timber planks (50mm x 100mm or similar) shall be placed over the padding and around the trunk of the tree at 150mm centres. The planks shall be secured with 8-gauge wire or hoop steel at 300mm spacing. Trunk protection shall extend a minimum height of 2 metres: Trees 2, 9 & 10 – refer Annexure D;
j) Install the following Tree Protection Measures around the retained trees on site: Tree 9, tree protection measures shall be a temporary fence of chain wire panels 1.8 metres in height (or equivalent), supported by steel stakes or concrete blocks as required and fastened together and supported to prevent sideways movement. A sign is to be erected on the tree protection fences of the trees to be retained that the trees are covered by Council's tree preservation orders and that "No Access" is permitted into the tree protection zone;
k) That a Tree Management Plan be prepared as part of the Construction Certificate by a consulting arborist who holds the Diploma in Horticulture (Arboriculture), Level 5 or above under the Australian Qualification Framework;
l) An AQF Level 5 Project Arborist shall be engaged to supervise the building works and certify compliance with all Tree Protection Measures;

m) Our tree location can be found on Annexure B;
n) The tree impact plan can be found on Annexure C.

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Certificate in Horticulture (Landscape – Honours)

Annexure A: Observations as seen on the day of inspection of trees

Tree No	Botanical Name	Age Class	Height (m)	Spread (m)	D.B.H. (cm)	D.R.B. (cm)	TPZ (radius m)	SRZ (radius m)	Condition comments as seen on site	ULE
1	*Magnolia soulangiana*	M	7	8	30, 24	50	4.6	2.5	G vitality, ND	2a
2	*Lophostemon confertus*	M	9	9	62	65	7.4	2.8	G vitality, ST	2a
3	*Schefflera actinophylla*	M	7	4	3 x 15	40	3.1	2.3	Exempt tree	-
4	*xCupressocyparis leylandii*	M	9	6	28	32	3.4	2.1	G vitality	2b
5	*xCupressocyparis leylandii*	M	8	5	26	30	3.1	2.0	G vitality	2b
6	*xCupressocyparis leylandii*	M	2	4	24	30	2.9	2.0	P vitality, top snapped @ 2m	3b
7	*xCupressocyparis leylandii*	M	9	6	32	34	3.8	2.1	G vitality	2b
8	*Phoenix canariensis*	M	1.5	4	60	70	7.2	2.9	Exempt tree	-
9	*Triadica sebifera*	M	10	10	54	60	6.5	2.7	G vitality, surface roots	2b
10	*Lophostemon confertus*	M	9	8	56	68	6.7	2.8	G vitality, ST	2a
11	*Lagerstroemia indica*	M	8	8	6 x 15	80	4.0	3.0	G vitality	2b
12	*Syagrus romanzoffiana*	M	8	-	-	-	-	-	Exempt tree	-
13	*Cyathea australis*	M	5	2	16	18	1.9	1.6	G vitality	2b
14	*Dypsis lutescens*	M	5	2	3 x 8	20	2.0	1.7	G vitality	2b
15	x*Cupressocyparis leylandii*	M	8	5	28	30	3.4	2.0	G vitality	2b
16	*Triadica sebifera*	M	7	4	18	20	2.2	1.7	G vitality	2b
17	*Melia azedarach*	M	5	2	12	16	2.0	1.5	F vitality. Growing against existing building. A form	2b

Terms used in Tree Survey & Report:

Age Class

(Y) – Young refers to a well-established but juvenile tree. Less than 1/3 life expectancy

(SM) – Semi-mature refers to a tree at growth stages between immaturity and full size. A tree has reached First Adult Form i.e. displays adult characteristics. 1/3 to 2/3 life expectancy

(M)- Mature refers to a full size tree with some capacity for future growth. Older than 2/3 life expectancy

(OM) – Over-mature refers to a tree approaching decline or already declining. Older than 2/3 life expectancy and showing signs of irreversible decline.

Health refers to a tree's vigour, growth rate, disease and/or insects.
Vitality summarises observations about the health and structure of the tree on a scale of: **(G) Good, (F) Fair, (P) Poor & (D) Dead.**
Good: Tree is generally healthy and free from obvious signs of structural weaknesses or significant effects of pests and diseases or infection;
Fair: Tree is generally vigorous although has some indication of being adversely affected by the early effects of disease or infection or environmental or mechanical damage. Appropriate tree maintenance can usually improve overall health and halt decline;
Poor: Tree in decline and is not likely to improve with reasonable maintenance practices or has a structural fault such as bark inclusion;
Dead: Tree no longer capable of sustained growth.
Deadwood (DW) – deadwood found in canopy as a percentage.
Over Head Power Lines (OHPL) – upper canopy pruned to accommodate power lines at a given height.

Height expressed in metres refers to estimated overall height of tree.

Next Door tree (ND) – tree located in the neighbour's property.

Street Tree (ST) – tree located in Councils footpath reserve.

Spread expressed in metres refers to estimated spread of crown at the drip line.

(DBH) Diameter at Breast Height expressed in millimetres refers to the trunk diameter at 1.4 metres above ground level. Where there are multiple trunks the combined diameter has been calculated in terms of Appendix A – AS 4970 – 2009, shown in brackets.

(DRB) Diameter above Root Buttress expressed in millimetres refers to the trunk diameter above root buttress.

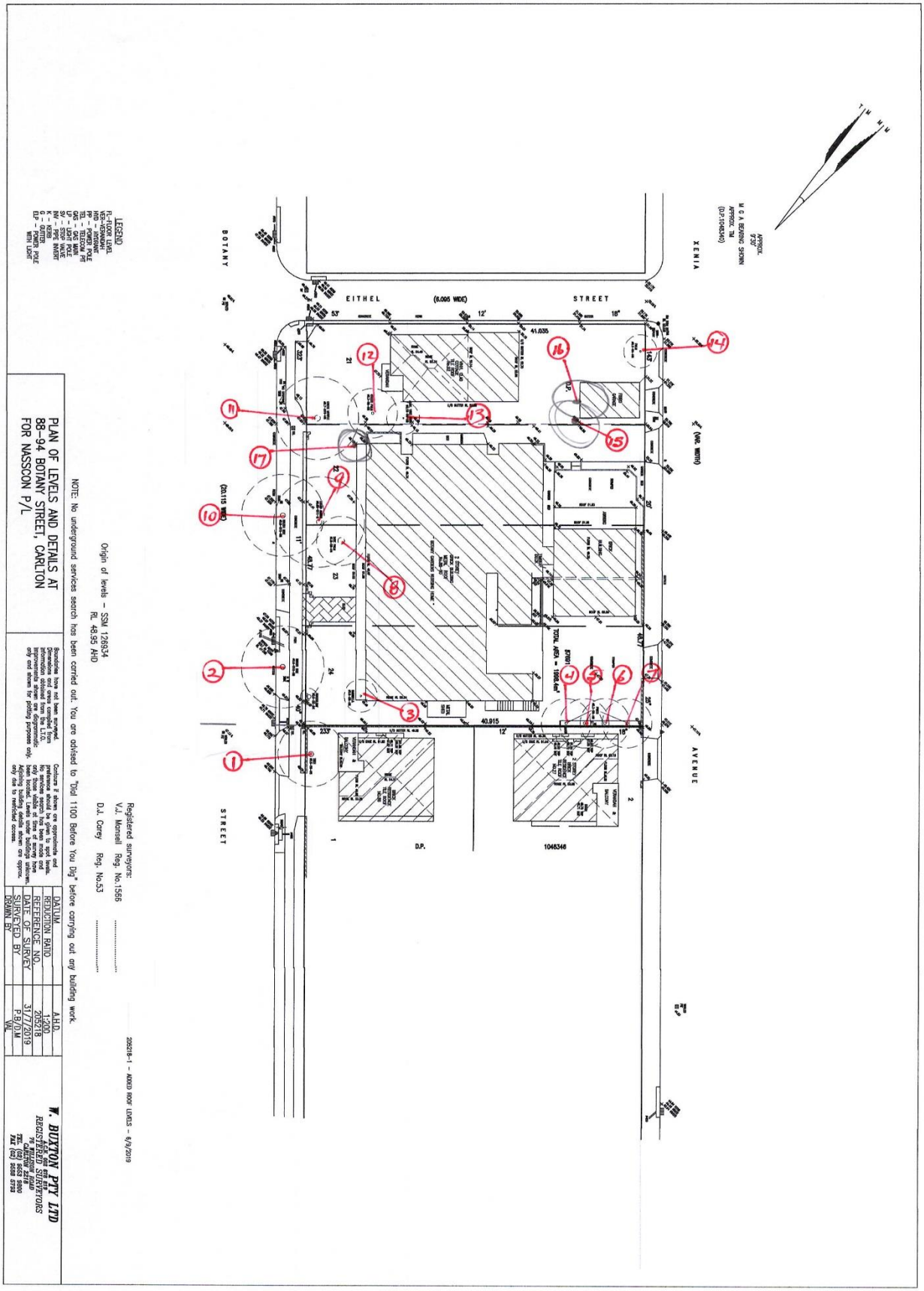
(TPZ) Tree Protection Zone & Structural Root Zone (SRZ) as defined by AS 4970 – 2009 Section 3

(ULE) The various ULE categories indicate the useful life anticipated for an individual tree or trees assessed as a group. Factors such as the location, age, condition and vitality of the tree are significant to the determination of this rating. Other influences such as the tree's effect on better specimens and the economics of managing the tree successfully in its location are also relevant to ULE (Barrell 1993, 1995, 2001).

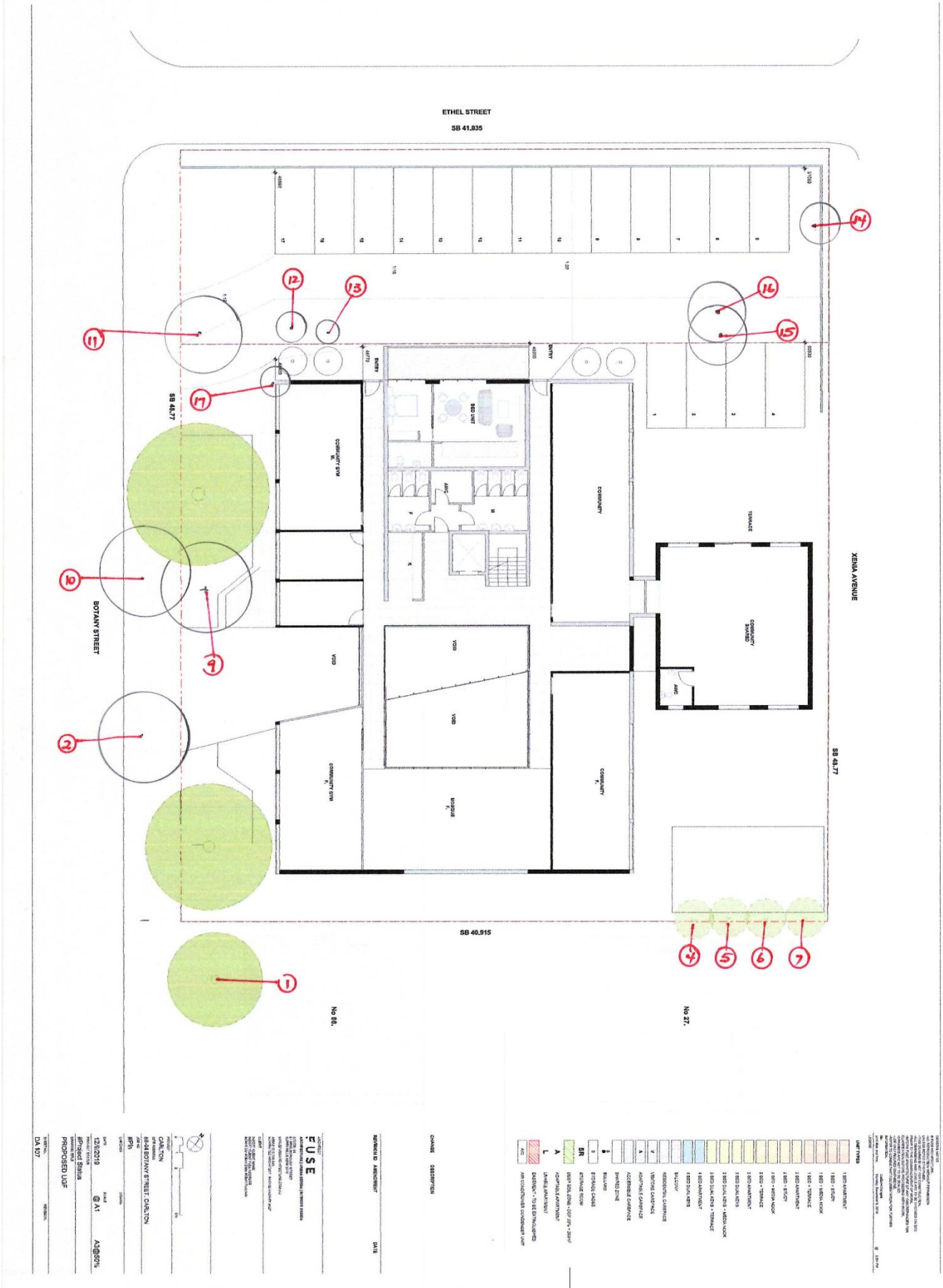
ULE RATING (UPDATED 1/4/01) BARRELL

1.Long ULE: Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	**2.Medium ULE:** Trees that appear to be retainable at the time of assessment for more than 15-40 years with an acceptable level of risk.	**3.Short ULE:** Trees that appear to be retainable at the time of assessment for more than 5-15 years with an acceptable level of risk.	**4.Remove:** Trees that should be removed within the next 5 years.	**5.Small, young or regularly pruned:** Trees that can be reliably moved or replaced.
(A) Structurally sound trees located in positions that can accommodate future growth	**(A)** Trees that may only live between 15 and 40 more years.	**(A)** Trees that may only live between 5 and 15 more years.	**(A)** Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.	**(A)** Small trees less than 5 Metres in height.
(B) Trees that could be made suitable for retention in the long term by remedial tree care.	**(B)** Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.	**(B)** Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.	**(B)** Dangerous trees because of instability or recent loss of adjacent trees.	**(B)** Young trees less than 15 years old but over 5 metres in height.
(C) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	**(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.	**(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.	**(C)** Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.	**(C)** Formal hedges and trees intended for regular pruning to artificially control growth.
	(D) Trees that could be made suitable for retention in the medium term by remedial tree care.	**(D)** Trees that require substantial remedial tree care and are only suitable for retention in the short term.	**(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.	

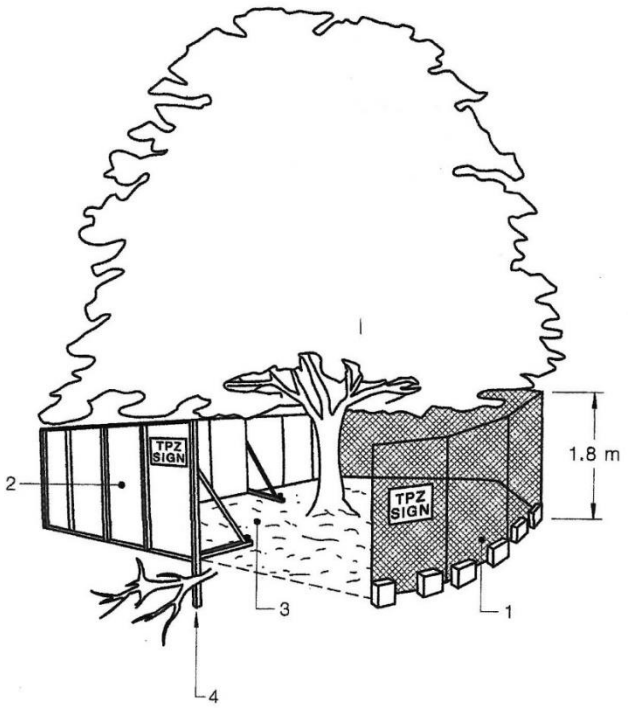
Annexure B: Tree location plan



Annexure C: Tree impact plan



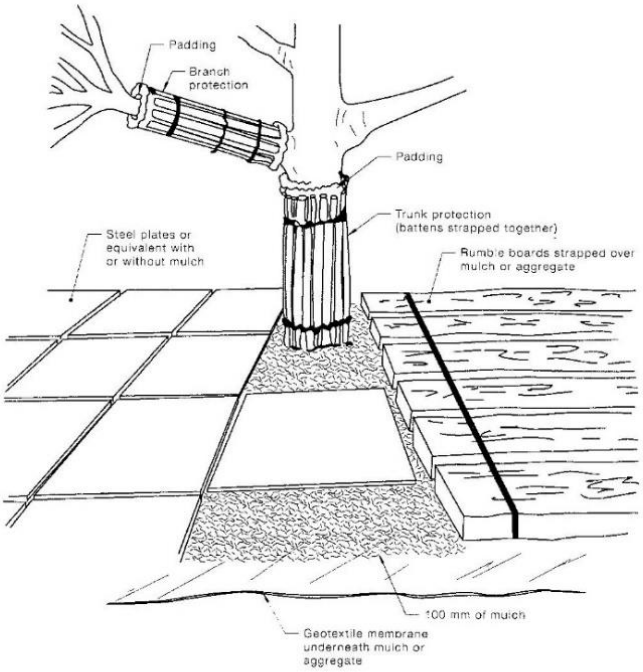
Annexure D: Tree protection details



LEGEND:

1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION


ROBBOS