GALBRAITH & Associates

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re: 23-47 Villiers St, North Melbourne

Introduction

I am informed that re-development of the above property is being considered. Galbraith and Associates has been requested by Sentinel Real Estate to report on the trees which are on or close to the site. Each of these trees, or tree groups where relatively homogeneous, has been assessed and described in this report terms of species type, origin, size, condition and, in the case of the site trees, worth for retention estimates from 1-10 have been applied. Tree protection zones according to the Australian Standard approach are provided.

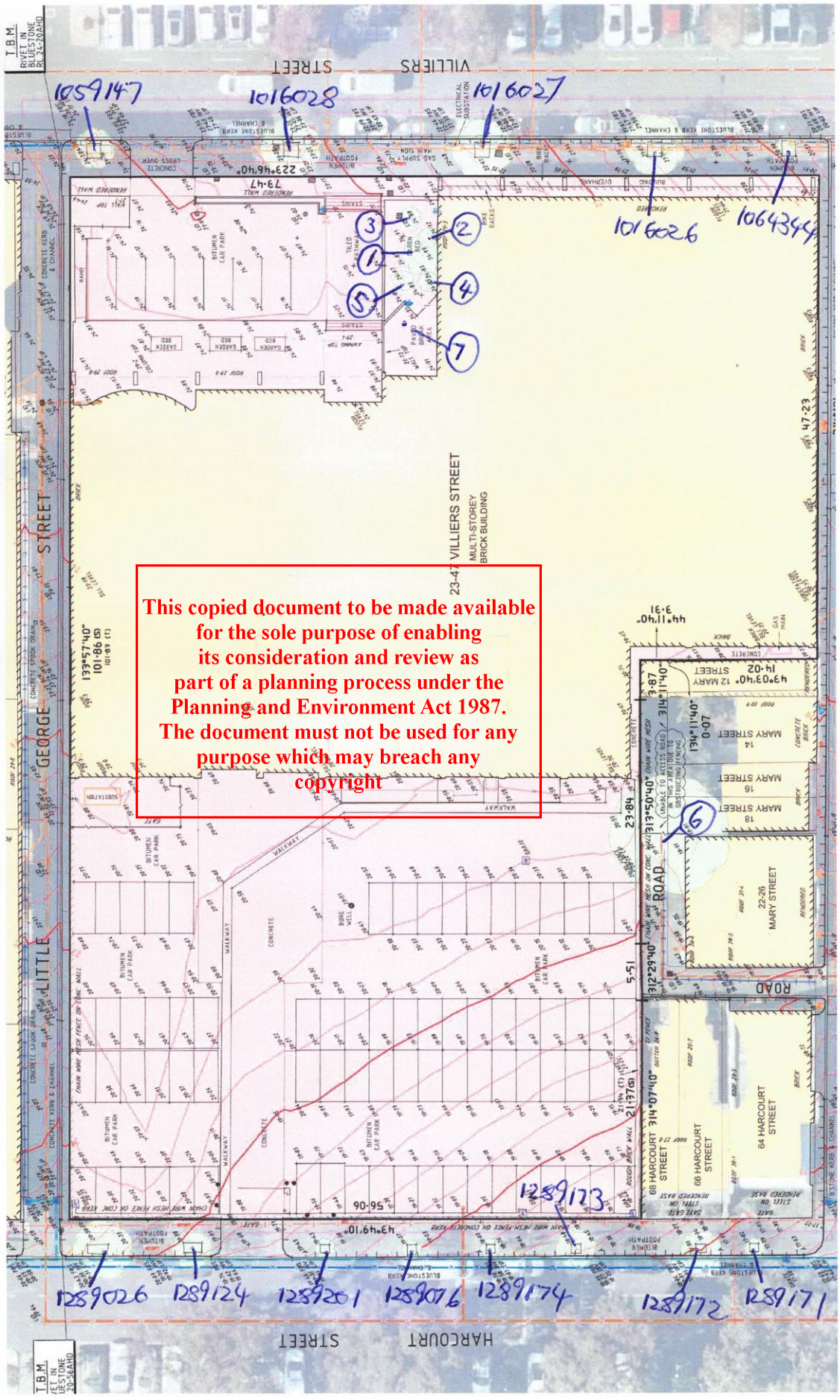
Each tree/tree group is located and numbered on the accompanying copy of the existing site conditions drawing on page 2 and described on page 3. The street trees have been numbered according to the City of Melbourne`s Urban Forest numbering system. A number of photos are provided.

The Trees – General

The trees within the site are young and small and of little significance. They consist of a young clump of planted trees, the largest of which is a Weeping Lillypilly of 6m height.

The street trees in Villiers and Harcourt Streets adjacent to the site consist of young mature European Nettle Trees, mainly in good condition of the order of 30 years of age.

ADVERTISED
PLAN



TREE SURVEY

Tree No.	Species Indigenous (I) Victorian (V) Australian (A) Exotic (E)	DBH (cm)	HxS (m)	Comments, WOR, TPZ(m), SRZ(m)
1	Waterhousea floribunda A Weeping Lillypilly	17, 13	6x6	Young small tree in moderate condition. WOR 3 TPZ 2.6 SRZ 1.8
2	Duranta erecta E Golden Dew Drop		2x2	Shrub in poor condition. WOR 1
3	Callistemon sp A Bottle brush	3, 4	3x3	Small young shrub of little note. WOR 2
4	Michelia figo E Port Wine Magnolia		3x2	Small young shrub of little note. WOR 2
5	Callistemon sp A Bottle brush	4	3x2	Small young shrub of little note. WOR 2
6	Stump			A stump remains of a recently removed tree.
7	Pittosporum undulatum VW	10	4x2	Small self-sown weed. WOR 1

The following are the street trees, each of which is of the introduced species Celtis australis (European Nettle Tree)

1064344	14	6x6	Small street tree in good condition. TPZ 2 SRZ 1.5
1016026	27	8x7	Good condition – lifting asphalt near the lamp post. TPZ 3.2 SRZ 2.1
1016027	28	6x7	Good condition. TPZ 3.4 SRZ 2.1
1016028	33	7x9	Good condition. TPZ 4 SRZ 2.3
1059147	18, 12	6x5	Fair-poor condition with dead lesions and sunscorch. TPZ 2.6 SRZ 1.8
1289026	30	8x8	Good condition but roots are lifting the blue stone kerb. TPZ 3.6 SRZ 2.2
1289124	29	7x8	Good condition but roots are causing minor lifting and cracking of the path. TPZ 3.5 SRZ 2.1
1289201	16	6x5	Good condition. TPZ 2 SRZ 1.5
1289076	16	6x5	Good condition. TPZ 2 SRZ 1.5
1289174	16	6x5	Good condition. TPZ 2 SRZ 1.5
1289173	29	8x8	Good condition TPZ 3.5 SRZ 2.1

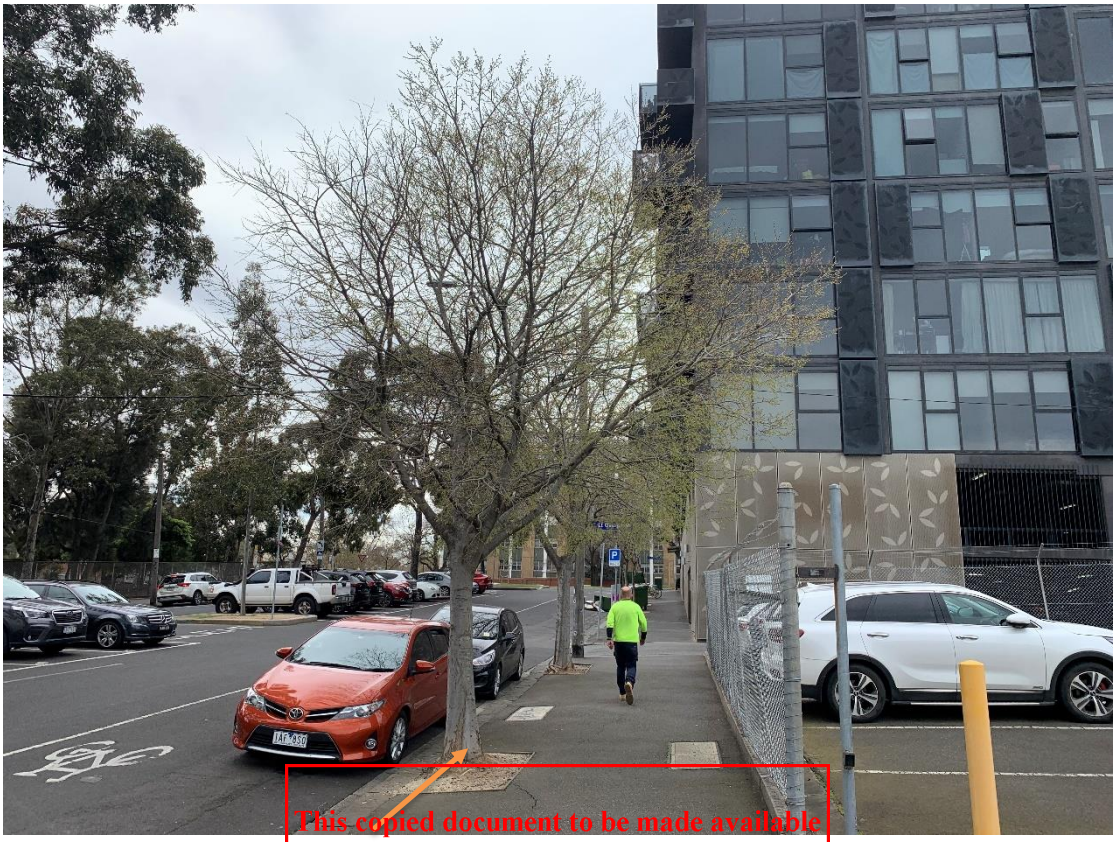
Tree No.	Species Indigenous (I) Victorian (V) Australian (A) Exotic (E)	DBH (cm)	HxS (m)	Comments, WOR, TPZ(m), SRZ(m)
1289172		30	8x8	Good condition but likely to cause cracking to the terrace house opposite. TPZ 3.6 SRZ 2.2
1289171		11	5x4	Small recently planted healthy tree. TPZ 2 SRZ 1.5

Permits

There are no trees within the site listed as Significant on the Council Register. Furthermore there is no self-sown native vegetation greater than 10 years of age. Thus no permit is required to remove any trees within the subject site.

Tree 6 – Stump only (Picture taken March 2024)

1289173 1289076



1289124

1289026

1059147 1016028

1016027

Notes on Terminology
In order to understand the column headings of the tables of data, I have provided the following explanations:

DBH diameter of trunk over bark at breast height In a number of cases where the tree has forked into multiple trunks below breast height (1.3-1.5m) the diameter is measured below the fork and an estimate is made for the single trunk equivalent at breast height, or else figures for each of the individual stems can be given.

HxS This is the estimated height (H) of the tree and its average crown spread (S).

SULE Safe useful life expectancy in years. Taken in the context that the area is to be developed for residential use, and that sensible distances are maintained between the buildings and the trees, this is the estimate of time that the tree will continue to provide useful amenity without imposing an onerous financial burden in order to maintain relative safety, and avoid excessive nuisance.

Worthiness of Retention (WOR):
The worth for retention of a tree is based on the assumption that the site is to be re-developed, and that there is the opportunity for new tree planting. It is based on a number of factors. These factors are:

1. structure, health, form and safe useful life expectancy,
2. size, prominence in the landscape,
3. species rarity,
4. whether indigenous,
5. whether an environmental weed.
6. importance for habitat of native wildlife,
7. whether of historical or cultural interest.

Any tree with a WOR rating of 3 or less should be seriously considered for removal before development begins because it is dead, nearly dead or dangerous, a weed, is causing or is likely to cause a severe nuisance in the near future, or just of very little significance and readily replaceable with new plantings. Trees rated 4-6 are of some significance. Some of these trees may respond to treatments such as formative pruning, removal of dead wood, weight reduction pruning etc. Trees rated 7 or higher are of high significance (the higher the ranking the more so), primarily because of their good health, structure, form, prominence in the landscape and SULE, although all they still may need substantial works done on them as already detailed, if they are to be retained.

Tree Protection Zone (TPZ) According to the Australian Standard AS 4970-2009 'Protection of Trees on Building Sites', the TPZ is the principal means of protecting trees on development sites. It is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.' The radius of the TPZ is calculated by multiplying the DBH by 12. The radius is measured from the centre of the stem at ground level. An area of 10% of the TPZ is deemed acceptable to violate if 10% of the *area* of the TPZ is made up in other directions. *Thus if encroachment is from one side only, encroachment to as close as approximately 8.3 times the DBH (~ 69% the listed TPZ radius) is permissible according to the Standard.*

Where the tree has more than one trunk, the TPZ is deduced by taking the square root of the sum of the squares of each of the DBHs, and multiplying this figure by 12

The TPZs as determined by the AS 4970-2009 approach should be construed as a rough guide. Many factors such as the type of encroachment on the TPZ, species tolerance, age, tree height, presence of spiral grain, soil type, soil depth, tree lean, the existence of onsite structures or root directional impediments, level of wind exposure, irrigation and ongoing tree care and maintenance are each highly influential on the size and success of the TPZ estimation.

Structural Root Zone

According to the Aus Std. AS 4970:2009, the structural root zone is the area of the root plate required for a tree`s stability. In order to calculate the indicative radius of such a zone from the trunk centre, according to the Aus Std., one uses the following formula: SRZ radius is $(D \times 50)^{0.42} \times 0.64$, where D is the trunk diameter in metres taken from just above the root buttress. The minimum indicative SRZ radius is 1.5m for any tree, irrespective of how small. A graph is provided in the Aust Std, with a curve depicted relating the SRZ to trunk diameter. Unfortunately, the calculated figures do not match those derived from the graph. The Aust Std. does not mention from where this formula is taken although acknowledges the publication 'Mattheck, C. & Breloer, H. (1994) *The Body Language of Trees* HMSO Publications' in the preface and bibliography. The figures derived from the graph for the indicative SRZs are far greater than those implied from the curve of 95% fit for the results from studies of upturned root plates of windblown and winched over German trees (see Mattheck, C. & Breloer, H. (1994). Furthermore the figures derived from the graph for the indicative SRZs are far greater than what one calculates them to be, using the formula provided by the Standard i.e. $(D \times 50)^{0.42} \times 0.64$. The calculated figures according to the Aust Std. are considerably greater for small and large trunks than those of Mattheck & Breloer.

In reality, the radii calculated whether by graph or using the formula, are much larger than necessary, except in cases such as where the soils are very shallow or where the structural root development is unidirectional or highly asymmetric for some reason, and the excavation is to be within the zone of the roots. **The structural stability generally depends far more on what proportion of the circumference of the tree is to be excavated than the actual distance of excavation from a tree, and this is often not taken into account quite when using the SRZ.**

Tree Origin Categories

Each tree has been classified as to whether it is indigenous (**I**), native to Victoria (**V**), native to Australia (**A**), exotic (**E**) or an environmental weed (**W**).

An indigenous species (**I**) is one that is known to grow naturally in the local area, even if the individual tree has been planted and is from a seed source or provenance foreign to the area.

A species classified **V** is one which has a part or all, even if very small, of its natural range within Victoria, although it may occur outside the state as well. It does not however occur naturally in the local area.

A species classified **A** is native elsewhere in Australia than Victoria. It does not occur naturally in the local area.

A species classified **E** has its natural range occurring outside Australia.

A species classified **W** is a seriously invasive environmental weed.

GALBRAITH & ASSOCIATES

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