TREE INSPECTION REPORT.

On: Tree Specimen
Location: 76 Hobart Street Saint Marys NSW 2760

TREEHAVEN ENVIRONSCAPES.
128 Showground Road Castle Hill. NSW 2154
[redacted]

For GPG Constructions Pty Ltd
On. 3/5/2021

CONTENTS

DISCLAIMER

Whilst every attempt is made to be accurate and factual with regard to references used in this document no liability is assumed for the work done by others.

Please note that trees are living organisms which are subject to natural growth, change and also to 'Acts of God' such as storms and lightning strikes. This report contains empirical data gathered on the day for the purpose of tree assessment in terms of their health and long term viability. Given the transitory nature of living things such data only gives a 'snapshot' of the organism on the day and cannot be applied to future events, 'Acts of God', mechanical, pathogen attack or chemical damage to the organism after that time.

The information supplied herein is given in good faith and to the best available scientific and industry standards which apply to the Author's level of education and experience.

1 INTRODUCTION

1.1 The property at 76 Hobart Street Saint Marys NSW is being considered for development by GPG Constructions where the existing house is to be demolished and replaced by a Boarding House. In the process all trees on the Site will need to be removed (See Site plan Appendix 2b and 2c).

1.2 The property is within the jurisdiction of Penrith City Council, (PCC), which has in place Tree Preservation Order (TPO) which prohibit the pruning, removal, ringbarking, topping, lopping, injury or wilful destruction of trees over 3m without Council's written consent.
For the removal or major pruning of trees covered by the TMC, HCC requires an arborist report whose purpose is to examine and appraise them prior to, and post any development of the site.
Consequently Idraft Plans, on behalf of GPG Constructions, have engaged Mr. Stephen McLoughlin of Treehaven Environscapes, to visit the site examine 15 specimen growing on or near the Site and prepare this report.

1.3 This report details my site visit on 14/3/2019 and the examination of 15 trees that will be affected by the development.

1.4 This report contains empirical data collected regarding the tree specimens supported by digital photos, a Discussion regarding the relevance of the specimen and presents Conclusions and Recommendations as to the future treatment of the tree.
Tables and plans relating to this report are included as Appendix 1 & 2 at the end of the document.
This document pays heed to PCC's TMO and utilizes the Australian Standards 4790-2009 *Trees on development sites* and 4373-2007 *Pruning of Amenity Trees* as a set of guiding principles.

2. SITE DESCRIPTION

2.1 The land on which the tree is sited is on a rectangular shaped block on a North Easterly facing slope with a slight gradient heading towards Spence Park and is within the Ropes Creek Catchment.

2.2 A single storey dwelling is on the Site at present (see Fig 1).

2.3 There are 15 tree specimens growing on or near the Site including 1 street tree on the nature strip to the North of the property. The subject trees are designated **T1** to **T15** inclusive as depicted in Figure 1.

2.4 There are no street trees noted to be growing on the nature strip to the North of the Site.

Fig1. Aerial photo of the site from Six Viewer.

3. METHODOLOGY.

3.1 The tree specimens were visually assessed using non-destructive means by employing the Visual Tree Assessment (VTA) as developed by Matteck and Broeler (2006).

The information gathered was used to

i) Calculate Tree protection Zones (TPZ) and Structural Root Zones (SRZ) with reference to the Australian Standard (AS) 4970-2009 and

ii) Provide a qualitative assessment of the tree utilizing Jeremy Barrell's Safe Usable Life Expectancy (SULE) of which a table outlining the different categories appears in Appendix 3 of this document.

3.2 No invasive procedures, such as coring or drilling, were used in the examination of the specimen.

3.3 Structural Root Zone (SRZ) calculations provided in section **3.3.5** of Australian Standard 4970 -2010 are given as

$$SRZ = (D \times 50)^{0.42} \times 0.64$$

Where D is the diameter of the tree as measured just above the root buttress and the result is the radius of a circle enclosing the tree. This is referred to as the tree's Diameter at Ground Level (DGH) in the table in Appendix 1.

Also section **3.2** Tree Protection Zones (TPZ) is given as,

$$TPZ = DBH \times 12$$

Where DBH is the diameter of the trunk of the trunk measured at 1.4m from the ground.

In the case of trees which have multiple stems at 1.4m from the ground, DBH was determined by using the following formula as advised in AS4970-2009

$$\text{Total DBH} = \sqrt{(DBH1)^2 + (DBH2)^2 + (DBH3)^2}$$

3.4 The position of the trees has been determined by survey plans as forwarded from Idraft Plans.

3.5 Minor & Major Encroachments are defined in AS 4970-2009 as being up to 10%, for the former, and greater than 10% for the latter of a tree's TPZ.

4. DESCRIPTION OF THE TREES' (See Appendix 1).

4.1 Tree **T1** is a *Melaleuca saligna* or 'Willow Leaved Paperbark' which is a native species common to Northern Queensland. It has been planted in the nature strip to the North East of the Site (see Fig. 2).
The tree was in good health and vigour at the time of inspection with some sooty mould in the lower stem and branches.
Impact of the development;
The tree will experience a zero impact from the development and is of such a distance from the Site as to not warrant tree protection (See Appendix 2b).

4.2 Trees **T2 & T6** are both *Phoenix sylvestris* or 'Indian Date Palm' which is an exotic species that have been planted in the property in the Western portion of the site (See Figs. 3 & 7). Both trees were in good health and condition at the time of my inspection.
Impact from the development:
Tree **T2** will experience a Major encroachment from stormwater pipes to be placed within its TPZ and to be replaced with new tree plantings in the landscaping for the Development (See Appendix 2d).
Tree **T6** will experience a Major Encroachment from the excavation for an Onsite Stormwater Detention (OSD) tank to be placed below the new carpark (See Appendix 2d).

4.3 Tree **T3** is a *Ligustrum lucidum* or 'Large Leaved Privet' which is an exotic tree which has growing in the neighbouring land to the East of the Site (See Fig. 7). The tree has weed properties and is listed as such in NSW Department of Primary Industries (DPI) as a significant weed species (Weedwise)
Impact from the development:
The specimen won't be affected by the development but is proposed for removal to make way for more desirable plantings in the new landscaping for the Site. (See Appendix 2b and 2c).

4.4 Trees **T4** & **T5** are both *Araucaria heterophylla* or 'or 'Norfolk Island Pine' which are native trees which has been planted in the property to the South of the site (See Fig. 3). The trees were in good health and condition at the time of my inspection.
Impact from the development:
These trees will experience Major Encroachments from development to the degree where it is unviable to retain them (See Appendix 2b).
Tree **T4** will be engulfed by the new driveway entrance and deep excavation for the Onsite Stormwater Detention tank (See Appendix 2d)
Tree **T5** is located where the from entrance path for the new building is proposed (See Appendix 2c).

4.5 Tree **T7** is a *Liquidamber styraciflua* or 'Liquidamber' which is a exotic tree which has growing in the Site to the West of the existing dwelling (See Fig. 7). The tree was in good health and condition at the time of my inspection.

Impact from the development:

The specimen will be engulfed by the new driveway entrance and deep excavation for the Onsite Stormwater Detention tank (See Appendix 2d) (See Appendix 2b and 2c).

4.6 Trees **T8 & T9** are dead.

Impact from the development:

Both trees are to be removed for the development to proceed as planned.

4.7 Trees **T10, T11 & T12** are all *Syagrus romanzoffianum* or 'Cocos Palms' which is listed as an exempt species in the TPO.

Impact from the development:

All of these trees are to be removed for the development to proceed as planned.

4.8 Trees **T13, T14 & T15** are all *Platycladus orientalis* or 'Oriental Arbor vitae' which are all less than 3m in height and not subject to the TPO the TPO.

Impact from the development:

All of these trees are to be removed for the development to proceed as planned.

5. DISCUSSION

5.1 There were no endemic nor heritage listed trees noted on the Site (See Appendix 1). All the specimens examined were either planted specimens or self set exotic species with weedy properties.

5.2 Twelve trees are proposed for removal as they are a constraint to the development. Fourteen trees are proposed to be planted as compensatory tree plantings (See Appendix 2c). These are as follows:

- 2 x *Callistemon viminalis* (Weeping Bottlebrush) in 45L
- 3 x *Eliocarpus reticulatus* (Blueberry Ash) in 45 Litre pot.
- 3 x *Tristainiopsus laurina 'Luscious'* (Water Gum) in 45 Litre pot
- 3 x *Lagerstroemia indica* (Crepe Myrtle) in 45 Litre pot.
- 1 x *Magnolia grandiflora* 'Teddy Bear' (Magnolia) in 45 Litre pot.
- 2 x *Melaleuca decora* (White Feather honey Myrtle) in 45 Litre pot.

5.3 One specimen designated **T1** is a Council Asset to be retained and protected. Additionally 2 more street trees, both *Callistemon viminalis*, are proposed to be planted in the nature strip to the North of the Site.

5.4 I note that stormwater pipes and the construction of the Onsite Stormwater Detention Basin (OSD) will not affect any trees that are proposed for retention. Further that trees within the vicinity of the proposed stormwater services are all proposed for removal (See Appendix 2d).

6. CONCLUSIONS & RECOMENDATIONS

6.1. It is recommended that, for the development to proceed as planned trees **T2, T3, T4, T5, T6, T7, T8, T9, T12, T13, T14, T15** will need to be removed.

6.2 In compensation for the removal of 12 trees from the Site the development is proposing 12 trees, including 2 street trees, to be planted in the new landscaping for the Site.

6.2 **T1,** Council's street tree, is to be retained and protected. Two additional street trees are proposed to be planted in the nature strip to the North of the Site (See Appendix 2c).

Yours sincerely

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Australian Arborist Member # 2158
Australian Association of Bush Regenerators Member
QTRA assessor

7. THE AUTHOR'S QUALIFICATIONS AND EXPERIENCE.

Stephen McLoughlin obtained a Horticultural Certificate (1982) with Arboriculture as the third year elective whilst an employee of 10 years service with Baulkham Hills Shire Council (BHSC) now The Hills Council. Most of this time employed in the Council's Parks and Gardens and street tree plantings and, later, managing the Council's Nursery. This was augmented with a Bush Regeneration Certificate (1987) where he studied native plant communities, the means necessary to protect and restore them and the identification and eradication of weed species. Additional to this he obtained a Bachelor of Environmental Science Degree (1997) involving the study of natural environments, Ecology, data collection, analysis and documentation, report writing as well studies in relevant Common Law, current Environmental and Heritage Legislation. Since obtaining his degree Stephen writes reports on a regular basis covering Environmental, Heritage and Horticultural / Arboricultural subjects.

Further to this he upgraded his qualifications to that of Arborist Qualification 5 (AQF5) having completed the Associate Diploma of Horticulture / Arboriculture, a standard of qualification which is currently expected by many Local Government and statutory bodies.

Stephen also has a current NSW Structural Landscaper's Licence and has been involved in regular landscape construction works as both Principle and Sub Contractor on many Public, Private and Commercial ventures since commencing his contracting business in 1989. He has many garden and estate maintenance contracts, and Bush Regeneration projects involving large scale properties with many trees under his care, including the providing of advice and practical solutions to the issues of Bush Fire Asset Protection Zones.

Consequently Stephen has well grounded experience in both Public and Private tree plantings, the care and maintenance of them as well as hands on experience of what occurs on construction sites and the results of mechanical disturbance to trees on such sites.

The Author is also an accredited Root Barrier Australia ® installer and has been involved with many excavations involving tree roots.

In 2014 Stephen completed his Diploma of Environmental Management at the Ryde campus of North Sydney TAFE involving studies with regard to Bushfire Management, Global Information Systems (GIS), Mapping, Managing Native Fauna (for which he obtained a distinction) and River Restorations.

Also he has recently completed the Quantified Tree Risk Assessment Course (QTRA)

Yours sincerely

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REFERENCES

Australian Standard 4373 1996 *Pruning of amenity trees.*

Australian Standard 4790 2009 *Trees on development sites.*

Barrell, J. 1996. '*Predevelopment tree assessment'*

Jones D. L 1995 *Palms in Australia*

Matteck C and Breloer H. 2006 'The Body Language of Trees'

Penrith City Council 2012 Tree Management Order

Six Maps. Aerial view of site (fig 1).

APPENDIX 1A. Schedule of trees identified on the site listing condition and physical dimensions of trees on the site.

Specimen name	Est. Height	Diameter DBH* DGH**	Crown	Comments	SULE ***	TPZ	SRZ
T1 *Melaleuca saligna* Common name 'Willow bottlebrush' Age class. 30 years See Fig. 2	4m	Multiple Stems 25cm at the base	N 2m E 3m S 3m W 2m	A native tree endemic to coastal rivers and estuaries in Northern Queensland. The tree has been planted in the nature strip to the South West of the Site. At the time of inspection the specimen was in good health and condition with no significant pathogens or signs of mechanical damage. The tree has a bias in its crown to the East and has been pruned substantially to accommodate overhead powerlines	A5	2m Min TPZ	1.5m Min SRZ
T2 *Phoenix sylvestris* Common name 'Indian date palm' Age class. 30 years See Fig. 3	5m	1 x 8cm 1 x 9cm 2 x10cm 26cm at the base	N 1.5m E 1.5m S 1.5m W 1.5m	An exotic species endemic to India and Sri Lanka where it is used to make a date sugar. At the time of my inspection the specimen was healthy with multiple stems and suckers. There were no signs of pathogens nor mechanical damage.	A2	2 m Min TPZ	N/A
T3 *Ligustrum lucidum* Common name 'Large Leaved Privet' Age class. 20 years See Fig. 4	4m	28cm 32cm at the base	N 1m E 1m S 1m W 1m	An exotic tree endemic to China. The tree is listed as exempt tin the Tree Preservation Policy	B3	N/A	N/A
T4 *Araucaria heterophylla* Common name 'Norfolk Island Pine' Age class. 30 years See Fig. 5	12m	35cm 45cm at the base	N 3m E 3m S 3m W 3m	A native tree endemic to Norfolk Island. The tree has been planted in the property to the North East of the Site. At the time of inspection the specimen was in good health condition with no significant pathogens.	A5	3.96m	2.22m

T5 *Araucaria heterophylla* Common name 'Norfolk Island Pine' Age class. 30 years See Fig.	6m	29cm 36cm at the base	N 3m E 4m S 4m W 3m	A native tree endemic to Norfolk Island. The tree has been planted in the property to the North East of the Site. At the time of inspection the specimen was in good health condition with no significant pathogens. The tree has suffered formative damage where the main stem has been snapped and a side stem has taken over.	A3	3.05m	2.12m
T6 *Phoenix sylvestris* 'Indian Date Palm Age class. 30 years See Fig. 7	4m	Multiple Stems	N 2m E 2m S 2m W 2m	An exotic species endemic to India and Sri Lanka where it is used to make a date sugar. At the time of my inspection the specimen was healthy with multiple stems and suckers. There were no signs of pathogens nor mechanical damage.	A2	2m Min TPZ	N/A
T7 *Liquidamber styraciflua* Common name 'Liquidamber' Age class. 20 years See Fig. 8	4m	28cm 32cm at the base	N 1m E 1m S 1m W 1m	An exotic tree endemic to North America. At the time of inspection the specimen was in good health condition with no significant pathogens or signs of mechanical damage. The species is listed as exempt in the Tree Preservation Policy if within 3m underground services, such as sewer lines, water pipes and stormwater lines, where there is documented evidence (e.g. reports by suitably qualified persons) of ongoing damage to services that cannot feasibly be repaired without tree removal.	A1	N/A	N/A
Tree T8 a dead tree. See Fig. 9.	N/A	N/A	N/A	This tree is dead	A4	N/A	N/A
Fig. 10. Photo of Tree T9 a dead tree.	N/A	N/A	N/A	This tree is dead	A4	N/A	N/A
T10 *Syagrus romanzoffianum*. Common name 'Cocos Palm' Age Class 20yrs Fig. 11.	N/A	N/A	N/A	An exotic palm tree endemic to South America. The species is listed as exempt in the TPO	B3	N/A	N/A

Tree T11 *Syagrus romanzoffianum*. Common name 'Cocos Palm' Age Class 20yrs Fig. 11.	N/A	N/A	N/A	An exotic palm tree endemic to South America. The species is listed as exempt in the TPO	B3	N/A	N/A
Tree T12 *Syagrus romanzoffianum*. Common name 'Cocos Palm' Age Class 20yrs Fig. 12.	N/A	N/A	N/A	An exotic palm tree endemic to South America. The species is listed as exempt in the TPO	B3	N/A	N/A
Tree T13 a *Platycladus orientalis*. Fig. 13.	2m	N/A	N/A	An exotic tree endemic to China. The tree is less than 3m in height and not subject to the TPO	A5	N/A	N/A
Tree T14 a *Platycladus orientalis* Fig. 14.	2m	N/A	N/A	An exotic tree endemic to China. The tree is less than 3m in height and not subject to the TPO	A5	N/A	N/A
Tree T15 *Platycladus orientalis*. See Fig. 15.	2.5m	N/A	N/A	An exotic tree endemic to China. The tree is less than 3m in height and not subject to the TPO	A5	N/A	N/A

Table describing trees growing on the development site. Tree numbers correspond with numbers on site plan appendix. 2.
***DBH Diameter at Breast Height. **DGH Diameter at Ground Height. ***SULE ratings are included as Appendix 3 of this report.**

APPENDIX 1B. Figures 2 to 15**.** Photos of the trees on the Site.

Fig. 2. Photo of tree T1 a *Melaleuca saligna*

Fig. 3. Photo of tree T2 a *Phoenix sylvestris*

Fig. 4. Photo of tree T3 a *Ligustrum lucidum*.

Fig. 5. Photo of Tree T4 an *Araucaria heterophylla*

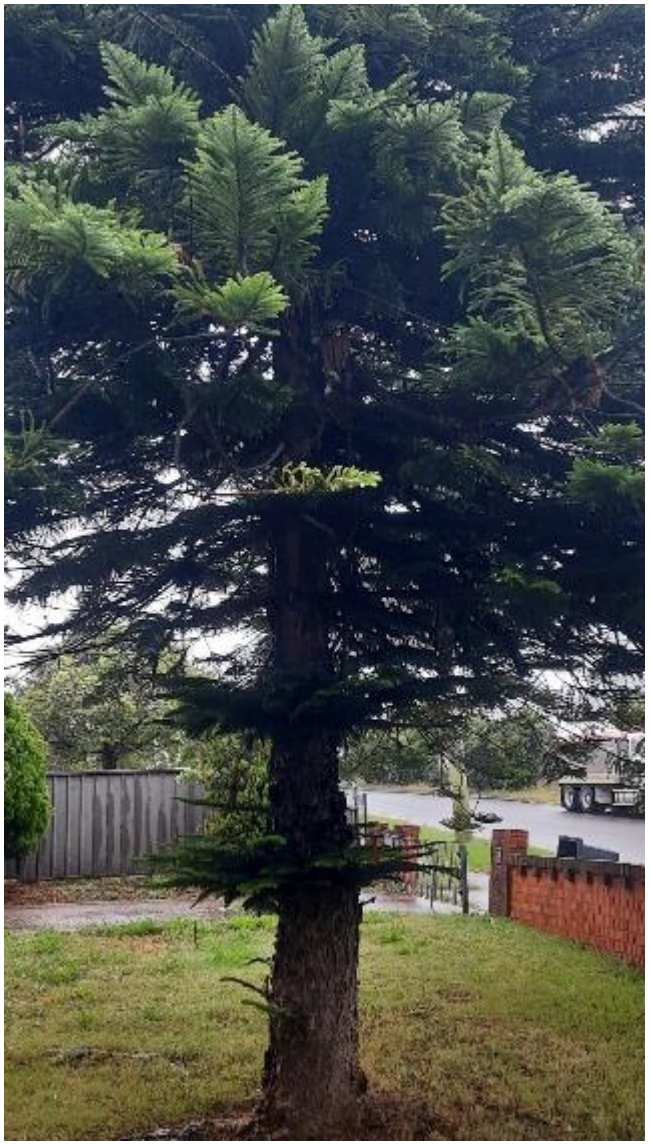


Fig. 6. Photo of Tree T5 an *Araucaria heterophylla*

Fig. 7. Photo of Trees T6 a *Phoenix sylvestris*

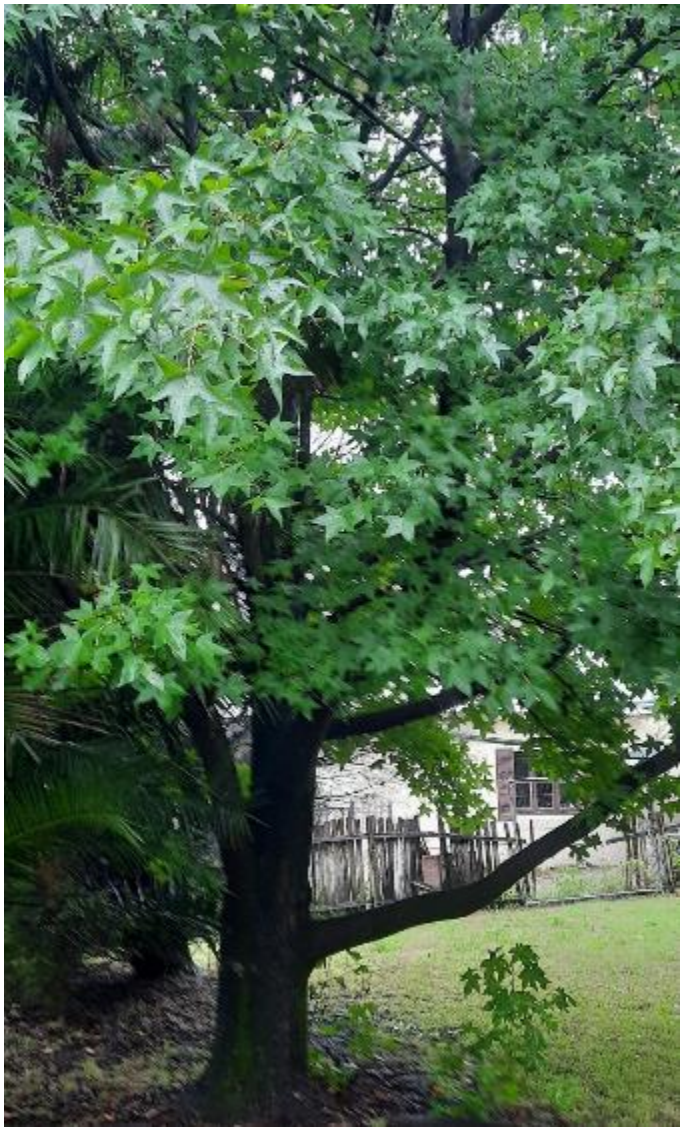


Fig. 8. Photo of Tree T7 a *Liquidamber styrraciflua*

Fig. 9. Photo of Tree T8 a dead tree.

Fig. 10. Photo of Tree T9 a dead tree.

Fig. 11. Photo of Trees T10 & T11 both *Syagrus romanzoffianum*.

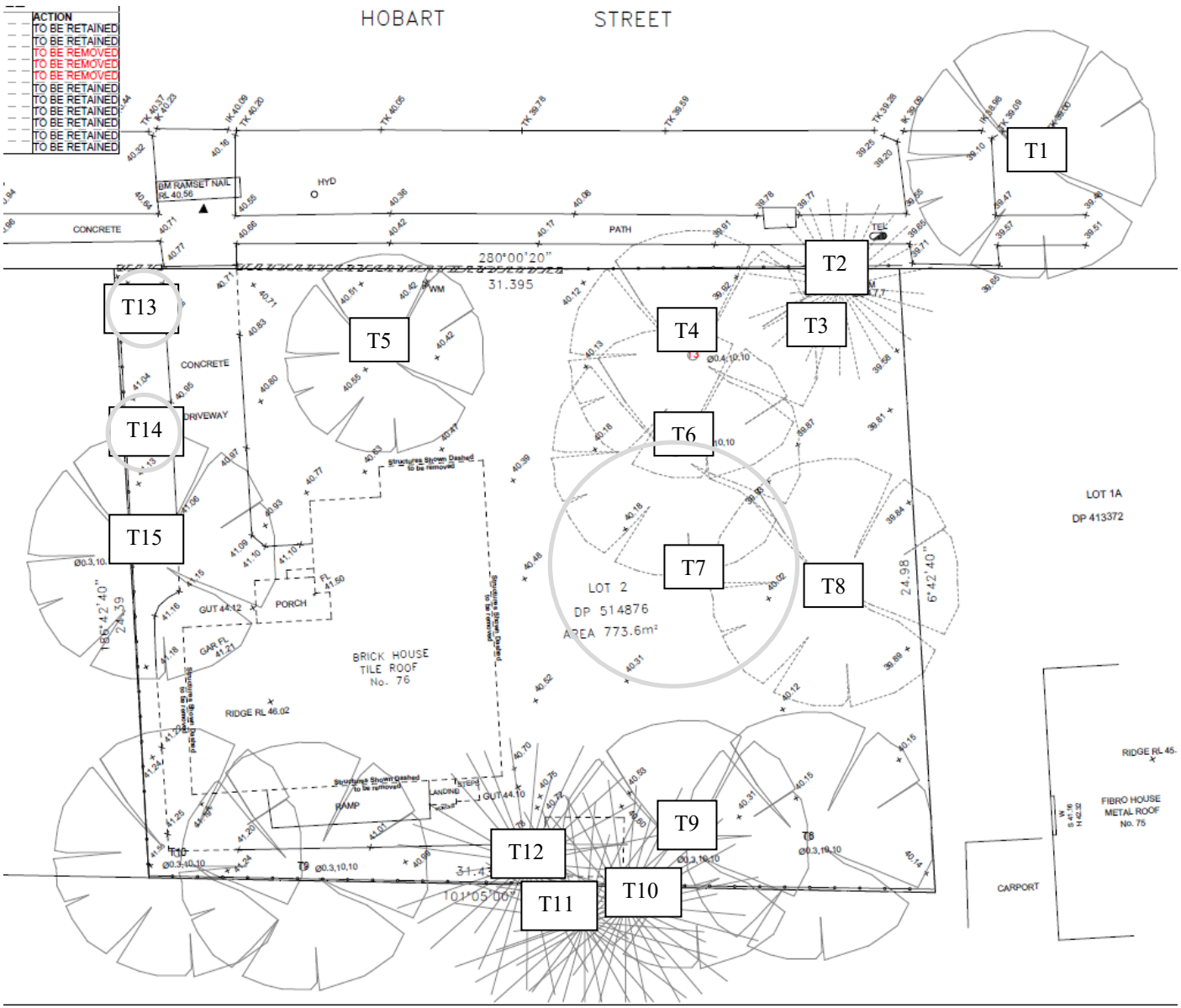
Fig. 12. Photo of Tree T12 a *Syagrus romanzoffianum*.

Fig. 13. Photo of Trees T13 a *Platycladus orientalis*.

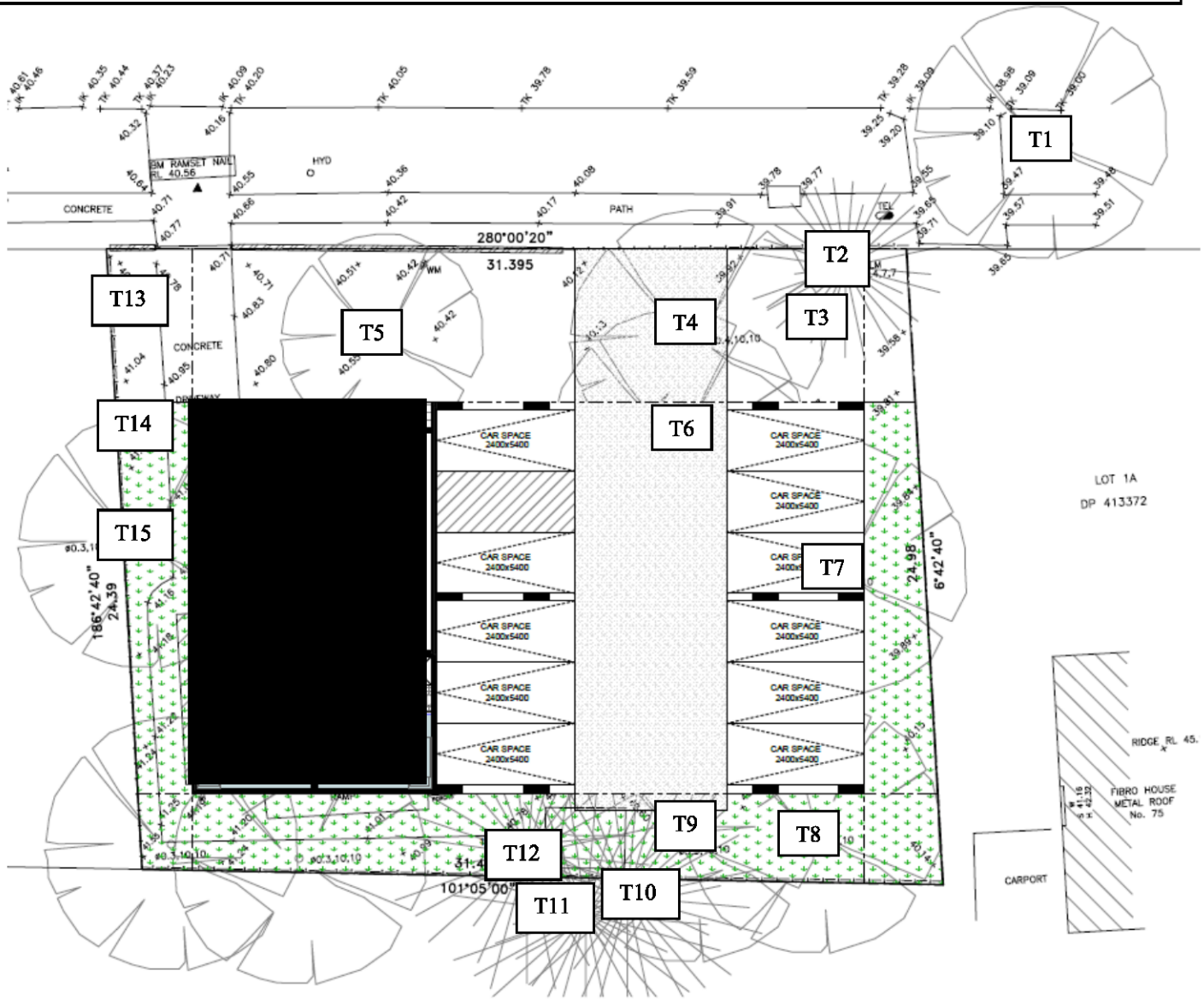
Fig. 14. Photo of Tree T14 a *Platycladus orientalis*.

Fig. 15. Photo of Tree T15 a *Platycladus orientalis*.

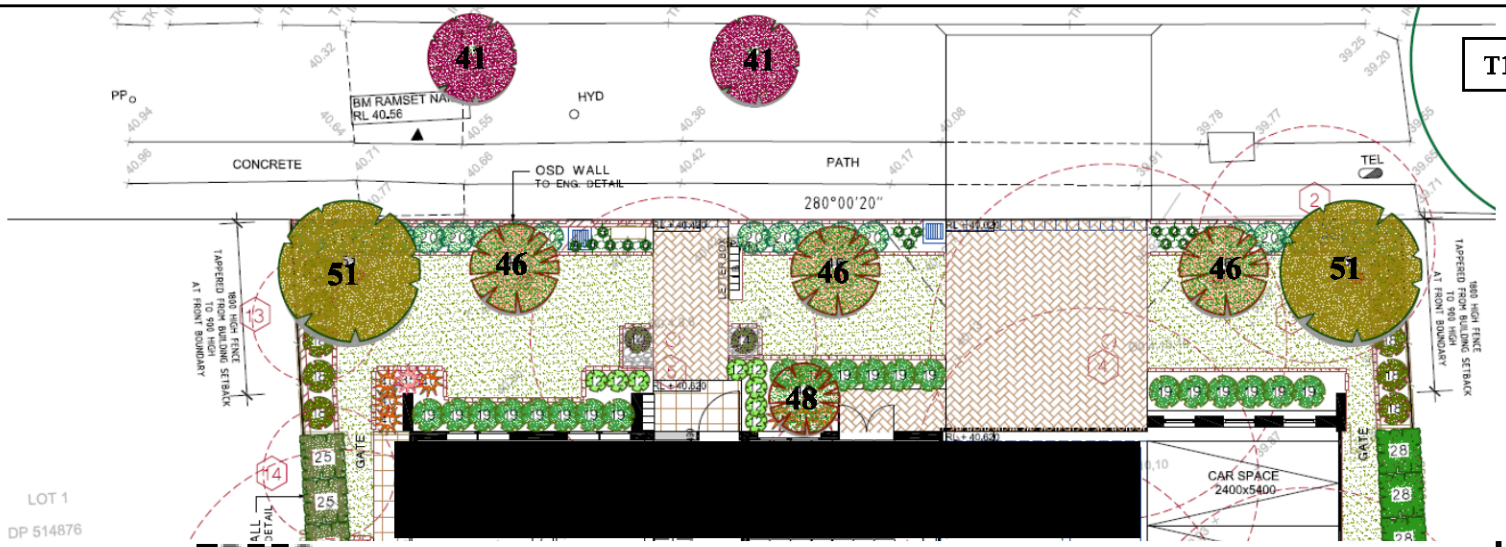
APPENDIX 2a. Excerpt from site survey showing the location of the trees on the Site.



APPENDIX 2b. Excerpt from site plan showing the location of the trees in relation to the car park and new building footprint.

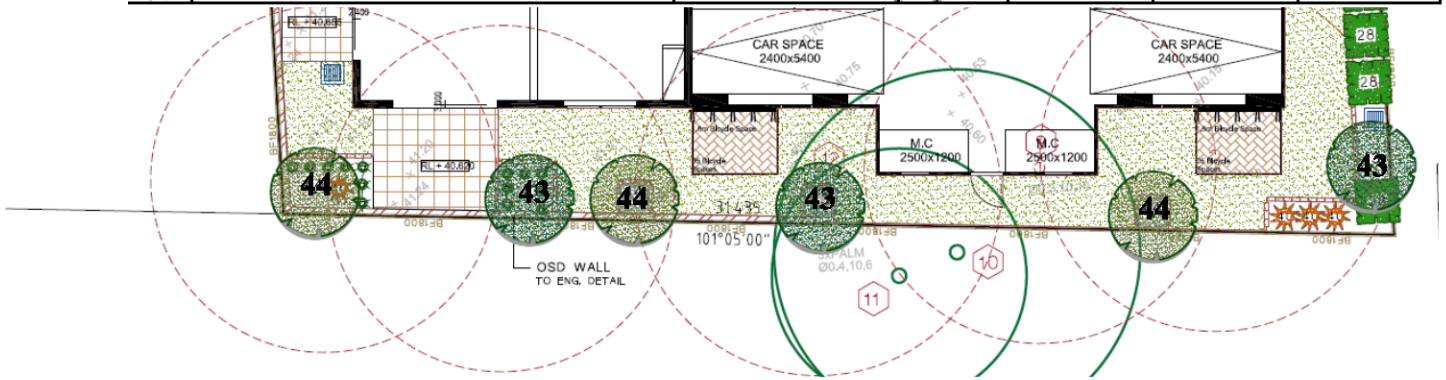


APPENDIX 2c. Excerpt from Landscaping plan showing the location compensatory tree plantings.

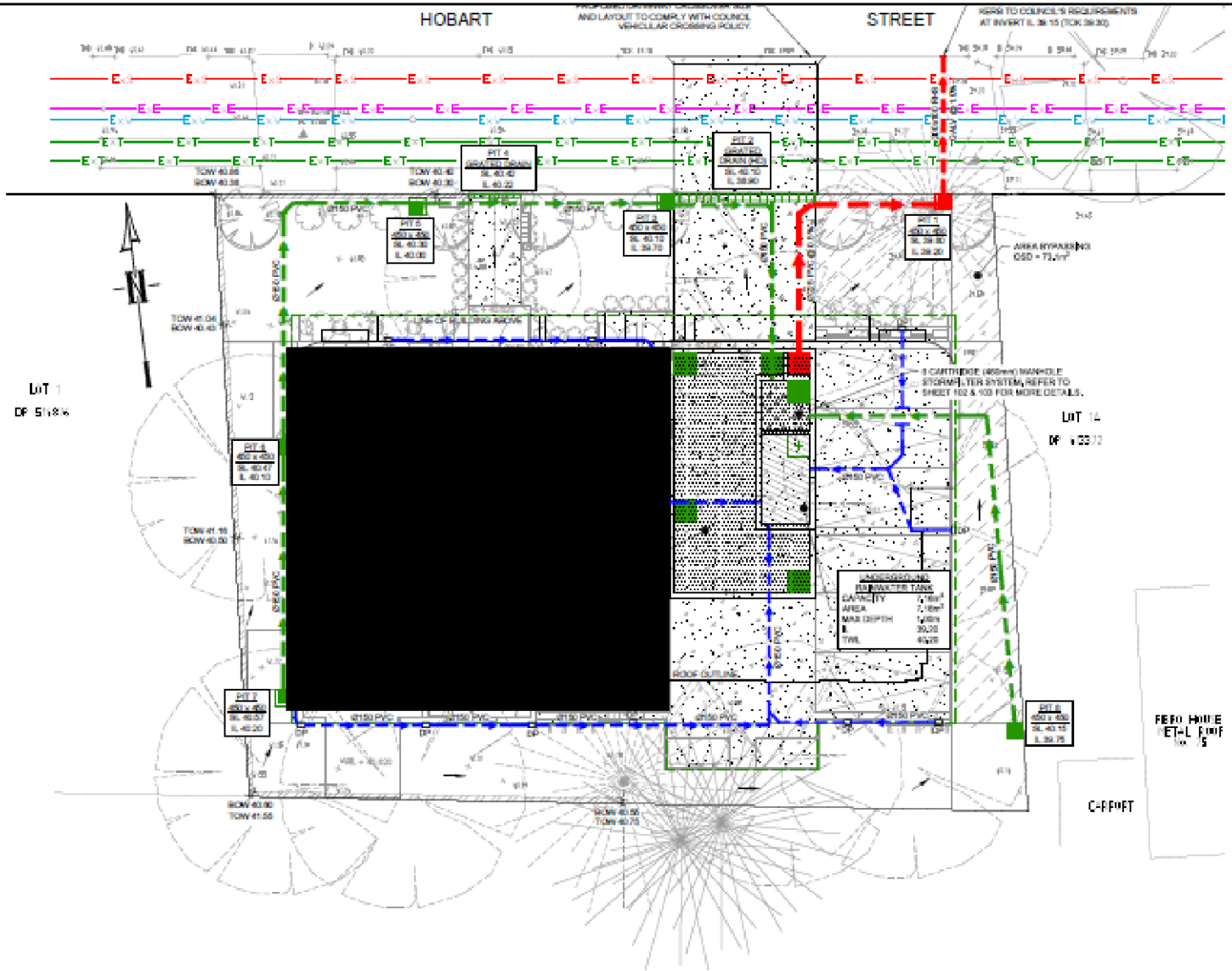


TREES

41	Callistemon viminalis	Weeping bottlebrush	6	45 L	2
43	Elaeocarpus reticulatus	Blueberry Ash	8	45 L	3
44	Tristaniopsis laurina 'Luscious'	Water gum	8	45 L	3
46	Lagerstroemia Indica 'Indian Summer'	Crepe Myrtle	5	45 L	3
48	Magnolia Teddy Bear	Magnolia	5	45 L	1
51	Melaleuca decora	White Feather Honeymyrtle	5-7	45 L	2



APPENDIX 2d. Excerpt from Landscaping plan showing the location tree in relation to proposed stormwater pipes and Onsite Stormwater Detention (OSD) basin.



APPENDIX 3. TABLE 2. SULE CATAGORIES AND SUB - CATEGORIES.

	1	2	3	4	5
	Long SULE: Appeared to be retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Medium SULE: Appeared to be retainable at the time of assessment for 15 to 40 years with and acceptable degree of risk assuming reasonable maintenance.	Short SULE: Appeared to be retainable at the time of assessment for 5 to 15 years with and acceptable degree of risk assuming reasonable maintenance.	Remove: Trees which should be removed within the next 5 years.	Small young or regularly clipped: Trees that can be reliably transplanted or replaced.
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for 15 and 40 more years.	Trees that may only live for between 5 and 15 more years	Dead, Dying suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5 m in height.
B	Trees that could be made suitable for retention in the long term by remedial care.	Trees that may live for than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings	Trees that may live for more than 15years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control their growth

D		Trees that could be made suitable for retention in the medium term by remedial care	Trees that require substantial remedial care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other surrounding trees	

Table 2 Ref Barrell, Jeremy (1996). Predevelopment tree assessment. Proceedings of the International Conference on Trees and Building Sites (Chicago)