TREE WISE MEN®
AUSTRALIA PTY LTD

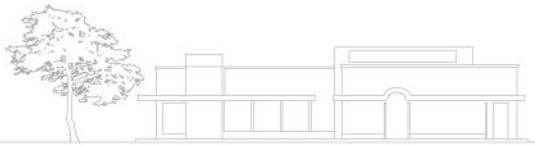
Arboricultural Impact Assessment
For
Proposed Residential Aged Care Facility (Seniors Housing)
At
43-47 Murray Farm Rd and 13 & 19 Watton Rd
CARLINGFORD

Prepared for:

HB + B Property Pty Ltd
Building 1, Level 3, 75-85 O'Riordan St
ALEXANDRIA NSW 2015

Ref: 2578AIARev

October 2021



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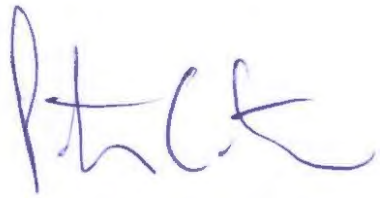

Peter Castor
Director

BSc (For.)
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25 October 2021

TABLE OF CONTENTS

ATTACHMENTS

1. EXECUTIVE SUMMARY

1.1 THE PROPOSED DEVELOPMENT

1.1.1 This Revised Arboricultural Impact Assessment (AIA) was prepared for HB + B Property Pty Ltd in relation to the proposed residential aged care (Seniors Housing) development at 43-47 Murray Farm Road and 13 and 19 Watton Road, Carlingford (the subject site). An earlier Application for development was Refused in L&E Court Proceedings *HB & B Property Pty Ltd v City of Parramatta Council [2021] NSWLEC 1393*.

1.1.2 The revised development layout addresses the particular reasons for refusal of the earlier scheme.

1.1.3 The proposed development is for the demolition of existing structures, removal of trees and the construction of a 110 bed Residential Aged Care Facility (Seniors Housing) on the subject site. The Lower Ground Floor level consists of 24 Carparking places, waste storage and Loading Bay. Earthworks will be required for the Lower Ground Floor level.

1.2 TREE IMPACTS

1.2.1 Of the fifty two (52) assessed trees, twenty nine (29) can be retained and twenty three (23) require removal to allow for the proposed development as indicated on the *Architectural Plans, TA#18.0119.12* dated 05.10.21 prepared by Thomson Adsett. Trees 27 and 28, located on the adjoining property to the north-east, previously to be retained, have died and are now to be removed by the tree owner for safety reasons.

1.2.2 Of the twenty nine (29) retained trees, eleven (11) have TPZ encroachments which have been assessed and deemed to be acceptable following review of existing growing conditions and proposed levels of disturbance. All encroachments are beyond SRZ offsets and there is opportunity for compensatory new root growth post-development for all retained trees. The remaining eighteen (18) retained trees are clear of construction with no TPZ cut or fill proposed.

1.2.3 Most of the significant trees are to be retained. Eight of the nine (9) ©Retention Value *A* trees, thirteen (13) of the twenty seven (27) ©Retention Value *B* trees and eight (8) of the nine (9) ©Retention Value *C* trees are to be retained.

1.2.4 These tree retention numbers reflect a development layout that responds positively to the vegetative constraints of the site. The revised proposal is supported as it allows for long-term retention of the most significant trees on and adjoining the site.

1.2.5 We are of the opinion that the *Aims and Objectives* listed at *1.2* of *Part C Section 3 Landscaping of the HDCP 2012* have been satisfied.

2. BACKGROUND

2.1 INTRODUCTION

2.1.1 This Revised Arboricultural Impact Assessment (AIA) was prepared for HB + B Property Pty Ltd in relation to the proposed residential aged care (Seniors Housing) development at 43 - 47 Murray Farm Road and 13 and 19 Watton Road, Carlingford (the subject site). An earlier development layout was Refused in *HB & B Property Pty Ltd v City of Parramatta Council [2021] NSWLEC 1393*.

2.1.2 The purpose of this Revised AIA is to describe and categorise the existing trees on and adjacent to the subject site and to assess the impact of the revised development layout on these trees.

2.1.3 This AIA will assist in the preparation of the Statement of Environmental Effects forming part of the Development Application (DA) to Parramatta City Council.

2.1.4 The Hills Shire Council LEP 2012 (*HLEP 2012*) and *DCP 2012* (*HDCP 2012*) are applicable to the site. In particular *Part C Section 3 Landscaping* of the DCP applies and has been acknowledged in the assessment of existing trees.

2.1.5 Australian Standard *AS4970-2009 Protection of trees on development sites* has been used as a benchmark in the preparation of this report.

2.2 THE SUBJECT SITE

2.2.1 The subject site is located within R2 Low Density Residential zoning under the *HLEP 2012*. The site currently comprises a brick residence, swimming pool and garage, metal shed, shelter area over concrete and extensive areas of vehicle parking previously used as a bus depot. There is a cluster of remnant bushland trees located in the northern section of the site and adjacent to the Murray Farm Road frontage. There were other native and exotic trees and shrubs scattered across the site. The existing development adjacent to the site is comprised of free-standing, low-density residential buildings.

2.2.2 Refer to the *Plan of Detail and Levels over Lot 1 in DP 210512, Lot 6 in DP 259726 and Lot 16 in DP 238510 known as 45-47 Murray Farm Road and 13 & 19 Watton Road, Carlingford, Revision A* (the Detail Survey) prepared by LTS Lockley Surveyors for further detail of existing features.

2.2.3 The subject site has a northerly aspect characterised by a change in a grade from a high point of 97.43m in the southern corner on Murray Farm Road frontage to a low point of 88.50m in the northern corner.

2.2.4 The pre-development Soil Landscape[1] for the site is indicated as Gymea (*9130gy*) characterised by undulating to rolling rises on Hawkesbury Sandstone. Tree 19, Sydney Red Gum, *Angophora costata* is the only species listed as typical on Gymea (9130gy). The Sydney Blue Gums, *Eucalypts saligna* located on the site are typically found on the Glenorie (*9130gn*) Soil Landscape which is located to the south of the site.

[1] **Chapman, G.A. and Murphy, C.L.** (1989). *Soil Landscapes of the Sydney 1:100000 Sheet. Soil Conservation Service of NSW, Sydney.*

2.3 THE SUBJECT TREES

2.3.1 The general findings and data collected for each of the subject trees are contained in Tree Schedule (Attachment A). The trees are numbered and located on the Tree Protection Plan (Attachment D).

2.3.2 The existing trees comprised planted exotics and indigenous and non-indigenous Australian natives. The exotics were predominant located on 13 Watton Road associated with the existing residential building. There were indigenous Sydney Blue Gums, *Eucalyptus saligna* located predominantly on 19 Watton Road and on the Murray Farm Road boundary. There were various non-indigenous native tree species located on the embankment in the north-eastern corner of 45-47 Murray Farm Road.

2.3.3 Trees located on adjoining properties have been indicated on the TPP. There is a row of unnumbered, dead and dangerous trees located at Lot 1001 DP 877077 adjoining the eastern boundary (adjacent to Tree 29). These trees should be removed for safety reasons.

2.3.4 Trees 27 and 28, located on the adjoining property to the north-east, previously to be retained, have died and are now to be removed by the tree owner for safety reasons.

2.3.5 Trees assessed were those indicated on the Detail Survey. Trees protected under *Clause 5.9* of the HELP 2012 and *2.4 Tree Management Provisions* of the HDCP 2012 have been assessed. At *2.4* a "tree" is defined a perennial plant with a spread of more than 3 metres or a height of more than 6 metres or with a trunk diameter of more than 300mm measured at the base.

2.3.6 The native understorey and ground cover vegetation were absent on the site due to the existing development and land use. Formal plantings, lawn and terraces replace former natural vegetation on the site.

2.4 THE PROPOSAL

2.4.1 The proposed development is for the demolition of existing structures, removal of trees and the construction of a 110 bed Residential Aged Care Facility (Seniors Housing) with Lower Ground Floor parking for 24 cars on the subject site. Earthworks will also be required for the Lower Ground Floor Level. Refer to 3.3 below for the project Plans and documents reviewed.

2.4.2 The recommendations and comments in this Report assume the following:

- A high quality, shady, outdoor environment is desired.
- The amenity of the adjoining neighbours needs to be considered.
- Existing landscape character should be retained where possible through the retention of existing significant trees.
- The Landscaping Aim and Objectives (1.2) of Part C Section 3 of the Hills DCP 2012 are satisfied.

3. METHODOLOGY

3.1 DATA COLLECTION

3.1.1 In preparation of this Report a ground level, visual tree assessments (VTA)[2] were undertaken on 24 October, 2018 and 3 May, 2021. No aerial (climbing) inspections, woody tissue testing or tree root mapping were undertaken as part of these assessments

3.1.2 Attachment B provides definition of terms used in this Report. Tree heights were estimated. Trunk diameter at breast height (DBH) was measured at 1.4 metres above ground level (unless otherwise stated) and rounded to the nearest 0.1 metre. Structural Root Zones (SRZ) and Tree Protection Zones (TPZ) were rounded to the nearest 0.5 metre.

3.1.3 All tree offsets mentioned in this Report are to centre of trunk unless otherwise stated.

3.1.4 The *Revision A Detail Survey* located additional, protected trees including trees on neighbouring properties.

3.2 IDENTIFICATION OF SUBJECT TREES

3.2.1 The fifty two (52) subject trees are those indicated on the Detail Survey and Tree Protection Plan (TPP).

3.2.2 Trees 1, 2 and 19 were located on adjacent road reserves.

3.2.3 Trees 17, 23-28 were located on neighbouring properties.

3.2.4 The subject trees were numbered and labelled on site with white plastic tags as per the Tree Schedule (Attachment A) and Tree Protection Plan (Attachment E). The circles on the TPP are notional Tree Protection Zones (TPZ) and not crown spread.

3.3 DOCUMENTS AND PLANS REFERENCED

3.3.1 The conclusions and recommendations in this Report are based on the findings from the site inspection, discussions with the client, Project Architect and Landscape Architect and analysis of the following Plans and documents:

- *Plan of Detail and Levels over Lot 1 in DP 210512, Lot 6 in DP 259726 and Lot 16 in DP 238510 known as 45-47 Murray Farm Road and 13 & 19 Watton Road, Carlingford, Revision A* (the Detail Survey) prepared by LTS Lockley Surveyors
- *Architectural Plans TA#18.0119.12* dated 05.10.21 prepared by Thomson Adsett
- *Landscape Plans* dated 15.10.21, prepared by Taylor Brammer
- *Civil Engineer Plans* 16833 dated 15.09.21, prepared by Henry & Hymas.
- *AS4970-2009: Protection of Trees on Development Sites*
- *AS4373-2007: Pruning of Amenity Trees*
- *Part C Section 3 of the Hills DCP 2012.*

[2]VTA – Visual Tree Assessment, undertaken by tree professionals, is a recognised (International Society of Arboriculture, Journal of Arboriculture, Vol. 22 No. 6, Nov. 1996) systematic method of identifying tree characteristics and hazard potential. VTA is also an assessment method described by Claus Mattheck in *The Body Language of Trees – A handbook for failure analysis*. The Stationery Office, London (1994)

3.4 AUSTRALIAN STANDARD AS4970-2009

3.4.1 The Australian Standard *AS4970–2009 Protection of trees on development sites* has been used as a benchmark in the preparation of this report and the terminology and impact assessment methodology have been adopted from this document. This AIA complies with *2.3.5 Arboricultural Impact Assessment* of *AS4970-2009.*

3.4.2 Recommendations have been based on tree ©Retention Value, Vigour, Condition, ULE and construction offsets (refer to Attachment B). Trees with ©Retention Value "A" should be given greater priority for retention than trees with ©Retention Value "B" or "C". Trees with *Long* (40 years +) ULE should be given greater priority for retention than trees with *Short* (5-15 years) ULE (refer to Attachment B).

3.4.3 Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) are as per *Section 3* of *AS4970-2009* and are defined at Attachment B of this report.

3.4.4 "Construction" for the purpose of this AIA means excavation (greater than 100mm), compacted fill or machine trenching[3]. "Excavation" includes cut batters, boxing–out for the various pavement types, trenching for utilities and footings for retaining walls.

3.4.5 Trees within proposed construction footprints are recommended for removal (**Rm**).

3.4.6 Where construction is proposed within Structural Root Zone (SRZ) offsets, those trees have been similarly recommended for removal (**Rm**). Fully elevated, pier and beam type construction or hand dug services trenches (or horizontal boring) is however possible within a SRZ.

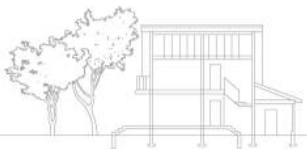
3.4.7 Trees with greater than 25% of the Tree Protection Zone (TPZ) impacted by construction are generally recommended for removal (**Rm**). There are however different types of construction incursions proposed (e.g. fill, cut, services, pavement type, retaining walls) with varying tree impacts likely which are considered. Existing constraints to root development also vary the TPZ. Compacted fill can be equally as damaging to tree longevity: root development is restricted within heavily compacted soils.

3.4.8 Trees to be retained with construction impacting less than 25% of the TPZ area were rated as Retain Plus (**R+**). Specific construction monitoring will be required for the Retain (**R+**) trees (refer to Recommendations).

3.4.9 TPZ encroachments of >10% are defined (3.3.3 of *AS4970*) as '*major'*. This does not mean that the tree will be fatally injured, but that '*the project arborist must demonstrate that the tree(s) would remain viable'.* Refer to Section 5.3 of this Report for explanation of tree retention recommendations.

3.4.10 Where construction is proposed beyond the TPZ, those trees are rated as Retain (**R**) with no specific tree protection design or tree protection monitoring required (refer to Attachment C).

[3]"Construction" is equivalent to "works" as defined at 1.4.9 of AS4970-2009.



4. TREE IMPACTS

4.1 SUMMARY

4.1.1 Of the fifty two (52) assessed trees, twenty nine (29) can be retained and twenty three (23) require removal to allow for the proposed development as indicated on the *Architecturals* dated 05.10.2021.

4.1.2 Of the twenty nine (29) retained trees, eleven (11) have TPZ encroachments which have been assessed and deemed to be acceptable. All encroachments are beyond SRZ offsets and there is opportunity for compensatory root growth, post-development to ensure long-term tree retention. The remaining eighteen (18) retained trees are clear of construction with no TPZ cut or fill proposed.

4.1.3 Most of the significant trees are to be retained. Eight of the nine (9) ©Retention Value *A* trees, thirteen (13) of the twenty seven (27) ©Retention Value *B* trees and eight (8) of the nine (9) ©Retention Value *C* trees are to be retained. The retention of the most significant trees demonstrates a layout that responds to the tree constraints of the site.

4.1.4 Refer to the Summary Data at page 6 of the Tree Schedule which indicates the numbers of trees to be retained or removed categorised by ©Retention Value.

4.1.5 Arborist supervision of the implementation of tree protection measures (see Section 5 below) will be required during works to ensure protection of those trees recommended for retention.

4.2 LANDSCAPE PLANS

4.2.1 *Landscape Plans LA00 - LA08 and LD01 - LD05,*dated 15.10.2021 prepared by Taylor Brammer have been reviewed. The *Tree Retention and Removal Plan LA07* coordinates with the TPP in terms of trees retained and removed. A substantial number of replacement trees are proposed on the *Landscape Masterplan LA01*.

4.2.2 The elevated timber decking at RL94.00 within the TPZ of Tree 18 is a major amendment from the earlier DA. The elevated construction in this area is confirmed in the *Bulk Earthworks Cut and Fill Plan 16833_DA_BE01/04* by Henry & Hymas.

4.3 CIVIL ENGINEERING PLANS

4.3.1 *Civil Engineering Plans 16833* dated 15.09.21 *(Cover Sheet, DA_C000/07) prepared by Henry & Hymas* have been reviewed. *Ground Floor (Drainage) Plan DA_C100/13* and *Basement Floor (Drainage) Plan DA_C101/11* show the proposed drainage layout.. No trees require removal solely for stormwater drainage installation works. Refer to Recommendations at 5.3 below for tree protection in relation to stormwater installation.

5. RECOMMENDATIONS FOR TREE MANAGEMENT

5.1 ARBORIST INVOLVEMENT

5.1.1 An Arborist (the Project Arborist) experienced in tree protection on construction sites should be engaged prior to the commencement of construction work on the site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained trees during the construction works. The Project Arborist is to monitor any excavation, machine trenching or compacted fill placed within the TPZ of all retained trees.

5.1.2 The schedule of works for the development must acknowledge the role of the Project Arborist and the need to protect the retained trees. Sufficient notice must be given to the Arborist where his/her attendance is required. Should the proposed design change from that reviewed, additional arboricultural assessment will be required.

5.1.3 The Project Arborist should certify tree protection measures at the following key stages of the construction:

- Prior to demolition and bulk earthworks.
- Prior to Basement slab construction.
- Prior to completion of Building construction.
- Prior to Occupation Certificate.

5.1.4 Copies of the tree protection certifications should be sent to PCA.

5.2 TREE RETENTION

5.2.1 The following twenty nine (29) trees are to be retained: Trees 1, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 30, 31, 32, 34, 37, 38, 40, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51 and Tree 52.

5.3 TREE RETENTION RECOMMENDATIONS

5.3.1 Bulk Earthworks

The bulk earthworks indicated in *DA_BE01/04* are to shored vertically within the TPZs of Trees 17, 18, , 21, 22, 30, 34, 47, 50 and Tree 51. There is to be no benching or grading of existing soils towards these trees from the Basement footprint.

There is to be no topsoil stripping within the TPZs of retained trees undertaken as part of the early works. The notation on *DA_BE01 /04* stating: *"Assumed 100mm of topsoil = 47m³ to be removed from site (not included in above calculations)"* is to be amended to exclude topsoil within TPZs as indicated on the Tree Protection Plan.

5.3.2 Decking, Paths and Pavilion

The proposed timber decking (RL94.00 and RL93.54) within the TPZ of Tree 18 is to be constructed above existing ground lines. Support posts are to be hand dug to avoid cutting roots greater than 50mmØ.

The Lower Ground Floor fire egress path at RL92.50 - R 91.99 indicated on *Lower Ground Floor Plan DA2.00* within the TPZ of Trees 30 and 34 is to be constructed above existing ground lines (beyond the Lower Ground Floor (Basement) footprint. This paving should be open timber decking or otherwise vented to the atmosphere. Support posts are to be hand dug to avoid cutting roots greater than 50mmØ.

5.3.3 Stormwater

The proposed pipe between pit A-6 and pit A-7 is to be horizontally bored within the TPZ of Trees 30, 31, 32 and 34. Stormwater Pits A-6 and A-7 are to be dug by hand. Project Arborist is to certify that no roots greater than 50mmØ are cut.

5.3.4 Tree Protection Fencing

Tree protection fencing as indicated on the TPP (Attachment D) should be erected prior to commencement of demolition. Where this is not feasible due to construction access issues, the trunks are to be battened (as per Figure 04, Sheet 2 of 2 of the TPP) to avoid bark wounding and ground protection provided with placement of mulch or additional boarding. Any amendments to the indicated alignment of the tree protection fencing is to approved by the Project Arborist.

The following activities are prohibited within tree protection fencing areas unless authorised by the Project Arborist:

- Stockpiling of soil or building materials.
- Topsoil stripping
- Parking of heavy machinery
- Placement of site sheds, amenities block without approved installed ground protection
- Depositing of any potentially phytotoxic substances including liquids, paints, concrete tailings.

5.3.5 Mulching

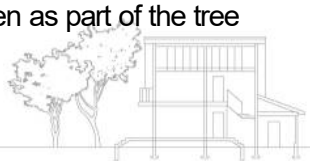
The area within the tree protection fencing is to mulched with 100mm layer of aged wood chip. This mulched area is to be maintained weed-free for the entire construction period.

5.3.6 Crown Pruning

Crown pruning if required is to comply with Australian Standard *AS4373-2007 Pruning of amenity trees.*

Crown pruning is to be undertaken by Arborists with a minimum AQF Level 3 qualification.

Pruning may be required to allow for piling and scaffold erection adjacent to trees on the eastern building facade adjacent Trees 30, 31, 32 and 34. Pruning of overhanging branches from Tree 34 to allow for the ridgeline of RL101.77 may be required. Short, staged piling machinery may need to be used to avoid extensive crown pruning. The full extent of crown pruning required should be confirmed as part of Construction Certificate documentation. If the full extent of pruning has been determined at commencement of works, the crown pruning should be undertaken as part of the tree removal contract.



5.3.7 Other Tree Protection Measures

Other tree protection measures (Attachment C) including additional mulching, temporary irrigation during drought period, correct scaffolding installation, prevention of soil compaction and prevention of soil profile inversion should be implemented as required and as directed by the Project Arborist.

5.3.8 Tree Protection Plan

The Tree Protection Plan (TPP) is to be updated to a Tree Management Plan for Construction Certificate documentation. The TMP should be in a drawing format to assist the Builder in understanding the tree protection requirements. The TMP (Attachment D) should be kept in the site office during the construction period to guide tree protection procedures. The recommendations contained in the TPP should be incorporated into other Construction Plans including the Construction Management Plan, Bulk Earthworks Plan and Sediment Control Plan.

5.4 TREE REMOVAL

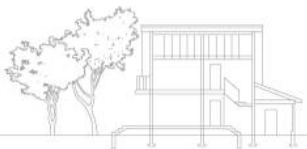
5.4.1 The following twenty three (23) trees require removal: Trees 2-16, 27, 28, 29, 33, 35, 36, 39 and 46.

5.4.2 The reasons for removal are as follows:

- ©**Retention Value *D*** being in Dead (Trees 4, 27, 28, 29, 36, 39) or with a Short ULE and Low Significance (Tree 46). Tree 29 is adjacent to a row of unnumbered, dangerous dead trees located on the adjoining property to the east, which should be removed for safety reasons.
- A **result of construction impacts** (Trees 2-16, 33 and Tree 35)

5.4.3 All tree removal works must comply with the *Safe Work Australia "Guide to Managing Risks of Tree Trimming and Removal Work" July, 2016*.

5.4.4 All possible care is to be taken to avoid damage to adjacent retained trees. Stump grinding rather than grubbing of rootballs is to be undertaken where those stumps are located within the TPZs of retained trees.



Attachment A: Tree Schedule

47 Murray Farm Road and 13 and 19 Watton Road, CARLINGFORD

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m)	TPZ RADIUS (m)	% TPZ ENCROACHMENT	SPOT LEVEL (m)	ULE	©SIG RATING	©RETENTION INDEX	RECOMMENDATION	COMMENTS
1	Chinese Tallow Tree, *Triadica sebifera (* syn. *Sapium sebiferum)*	0.3	6	3	SM	G	F	2.1	3.6	0%	89.57	M	3	B	R	*Retain. Located on verge. Recent branch damage on road.*
2	Chinese Tallow Tree, *Triadica sebifera (* syn. *Sapium sebiferum)*	0.3	5	3	SM	F	F	2.1	3.6	100%	89.72	M	3	B	Rm	*Remove. Located on verge. Recent branch damage on Driveway.*
3	Chinese Windmill Palm, *Trachycarpus fortunei*	0.2	5	1	SM	G	G	1.0	2.0	100%	NI	M	3	B	Rm	*Remove. SRZ encroachment for Loading Bay Driveway.*
4	Japanese Cedar, *Cryptomeria japonica*	0.2, 0.3								100%	NI	Rm	3	D	Rm	*Remove. Tree dead. Within proposed landscape area. Within existing terraced embankment.*
5	Arborvitae, *Thuya* sp.	0.2, 0.2	8	2	M	G	G	2.1	3.6	100%	NI	M	3	B	Rm	*Remove. Within proposed landscape area.*
6	Italian Cypress, *Cupressus sempervirens*	0.3	9	1	M	G	G	2.1	3.6	100%	94.89	M	3	B	Rm	*Remove. Within proposed Building footprint. Adjacent existing Swimming Pool.*
7	Saucer Magnolia, *Magnolia x soulangeana*	0.4 @g	5	4	M	G	G	2.3	4.8	100%	94.40	M	3	B	Rm	*Remove. Within proposed Building footprint.*
8	Cypress, *Cupressus* sp.	0.3 @g	8	3	SM	G	F	2.0	3.6	100%	96.23	M	3	B	Rm	*Remove. SRZ encroachment by proposed Building footprint.*
9	Cypress, *Cupressus* sp.	0.3 @g	8	3	SM	G	F	2.1	3.6	100%	NI	M	3	B	Rm	*Remove. SRZ encroachment by proposed Building footprint.*
10	Cypress, *Cupressus* sp.	0.3 @g	8	3	SM	G	F	2.1	3.6	100%	96.07	M	3	B	Rm	*Remove. SRZ encroachment by proposed Building footprint.*
11	Cypress, *Cupressus* sp.	0.3 @g	8	3	SM	G	F	2.1	3.6	100%	95.74	M	3	B	Rm	*Remove. SRZ encroachment by proposed Building footprint.*
12	Cypress, *Cupressus* sp.	0.4 @g	10	3	SM	G	F	2.3	4.8	100%	95.06	M	3	B	Rm	*Remove. SRZ encroachment by proposed Building footprint.*
13	Arborvitae, *Thuya* sp.	0.3 @g	8	2	SM	F	F	2.1	3.6	100%	94.97	M	3	B	Rm	*Remove. Within proposed Building footprint.*
14	Arborvitae, *Thuya* sp.	0.3 @g	8	2	SM	F	F	2.1	3.6	100%	NI	M	3	B	Rm	*Remove. Within proposed Building footprint.*
15	Arborvitae, *Thuya* sp.	0.2 @g	7	1	SM	F	F	1.7	2.4	100%	NI	M	3	B	Rm	*Remove. Within proposed Building footprint.*

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m)	TPZ RADIUS (m)	% TPZ ENCROACHMENT	SPOT LEVEL (m)	ULE	©SIG RATING	©RETENTION INDEX	RECOMMENDATION	COMMENTS
16	Arborvitae, *Thuya* sp.	0.4 @g	7	3	SM	G	F	2.3	4.8	100%	94.94	M	3	B	Rm	*Remove. Within proposed Building footprint.*
17	Weeping Bottlebrush, *Callistemon viminalis*	0.5 @g	6	5	M	G	G	2.6	6.0	8%	NI	M	3	B	R+	*Retain. Retaining wall within TPZs. Located on adjoining property. Canopy skew over.*
18	Sydney Blue Gum, *Eucalyptus saligna*	0.9	20	7	M	G	G	3.3	10.8	13%	94.43	L	2	A	R+	*Retain. TPZ encroachment by proposed Building and elevated timber Deck at RL 94.00. Encroachment is acceptable given the deck is elevated and most of the roots are at the top of the existing embankment.*
19	Sydney Red Gum, *Angophora costata*	0.5	16	N5, S5, E0, W10	M	G	F	2.6	6.0	0%	95.45	M	3	B	R	*Retain. Located on verge.*
20	Sydney Blue Gum, *Eucalyptus saligna*	0.7	14	N10, S0, E6, W5	M	F	F	3.0	8.4	10%	94.50	S	3	C	R+	*Retain. TPZ encroachment by proposed Building footprint. Borer workings on lower trunk. Rubbing branches.*
21	Sydney Blue Gum, *Eucalyptus saligna*	0.2, 0.7	23	8	M	G	F	3.1	8.4	5%	94.49	L	2	A	R+	*Retain. TPZ encroachment by proposed Building footprint. Borer activity on lower trunk.*
22	Brushbox, *Lophostemon confertus*	0.9	23	N8, S8, E3, W4	M	G	F	3.3	10.8	9%	94.49	L	2	A	R+	*Retain. TPZ encroachment by proposed Building footprint. Previous pruning over wires.*
23	Brushbox, *Lophostemon confertus*	0.4	16	4	SM	G	F	2.3	4.8	0%	NI	L	3	B	R	*Retain. Located on adjoining property. Previously lopped near electrical wires. Overhanging branches.*
24	Brushbox, *Lophostemon confertus*	0.3	18	4	SM	F	F	2.1	3.6	0%	NI	L	3	B	R	*Retain. Located on adjoining property.*
25	Brushbox, *Lophostemon confertus*	0.3	18	4	SM	F	F	2.1	3.6	0%	NI	L	3	B	R	*Retain. Located on adjoining property.*
26	Brushbox, *Lophostemon confertus*	0.2, 0.3	18	4	SM	F	F	2.3	4.8	0%	NI	L	3	B	R	*Retain. Located on adjoining property.*
27	Brushbox, *Lophostemon confertus*	0.1, 0.2								0%	NI	Rm	4	D	Rm	*Remove. Located on adjoining property. Tree owner to remove for safety reasons.*

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m)	TPZ RADIUS (m)	% TPZ ENCROACHMENT	SPOT LEVEL (m)	ULE	©SIG RATING	©RETENTION INDEX	RECOMMENDATION	COMMENTS
28	Narrow-leaved Peppermint, *Eucalyptus nicholii*	0.6		5						0%	NI	Rm	4	D	Rm	*Remove. Located on adjoining property. Ivy on trunk. Tree owner to remove for safety reasons. TPZ encroachment by proposed Driveway to Carpark.*
29	Dead Tree, *Dead*									0%	NI	Rm	4	D	Rm	*Remove. Dead. X8 dead trees on neighbouring property not on Survey. Under High Voltage Easement.*
30	Sydney Blue Gum, *Eucalyptus saligna*	0.9 @1.0	24	10	M	G	G	3.2	10.8	6%	92.26	M	2	A	R+	*Retain. TPZ encroachment by proposed Building and Courtyard. Banksia to S. Ivy on trunk. Fire egress path (RL 92.20) is above existing grade. Courtyard (RL 90.00) is at existing grade.*
31	Tallowwood, *Eucalyptus microcorys*	0.3	14	N2, S2, E1, W7	SM	G	F	2.1	3.6	0%	92.09	M	3	B	R	*Retain. Planted into recent mound construction adjoining northern boundary.*
32	Swamp Sheoak, *Casuarina glauca*	0.3	18	2	SM	G	F	2.1	3.6	0%	91.57	M	3	B	R	*Retain. Planted into recent mound construction adjoining northern boundary. Several additional saplings on embankment - x1 to N 4m, x1 E 3m, x1 NW 2m.*
33	Sydney Blue Gum, *Eucalyptus saligna*	0.5	23	8	M	G	G	2.6	6.0	100%	92.12	M	2	A	Rm	*Remove. SRZ encroachment by proposed Building footprint. Planted into recent mound construction adjoining northern boundary. Trunk wound 5m on S side.*
34	Tallowwood, *Eucalyptus microcorys*	0.5	20	N8, S3, E4, W5	M	G	F	2.6	6.0	10%	NI	M	3	B	R+	*Retain. TPZ encroachment by proposed Building footprint. Planted into recent mound construction adjoining northern boundary. Ivy in canopy. Lean to N (trunk and canopy). Fire egress path is above existing grade.*
35	Swamp Sheoak, *Casuarina glauca*	0.3	19	2	SM	G	P	2.1	3.6	100%	NI	S	3	C	Rm	*Remove. Within fire egress path. Planted into recent mound construction adjoining northern boundary. Twin trunk @ 3m.*
36	Cedar Wattle, *Acacia elata*	0.3, 0.3	19							0%	91.96	Rm	4	D	Rm	*Remove. Dead. Planted into recent mound construction adjoining northern boundary.*
37	Tallowwood, *Eucalyptus microcorys*	0.3	17	3	SM	G	P	2.1	3.6	0%	90.65	S	3	C	R	*Retain. Twin trunk @ 3m. Bark inclusion.*

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m)	TPZ RADIUS (m)	% TPZ ENCROACHMENT	SPOT LEVEL (m)	ULE	©SIG RATING	©RETENTION INDEX	RECOMMENDATION	COMMENTS
38	Sydney Blue Gum, *Eucalyptus saligna*	0.2, 0.3	16	8	SM	F	F	2.3	4.8	0%	89.30	S	3	C	R	*Retain. Branch rubbing with Tree 49.*
39	Cedar Wattle, *Acacia elata*	0.5	17							0%	91.32	Rm	4	D	Rm	*Remove. Dead. Survey marker on trunk.*
40	Swamp Sheoak, *Casuarina glauca*	0.3	15	N0, S6, E0, W2	SM	G	P	2.1	3.6	0%	91.98	S	3	C	R	*Retain.*
41	Swamp Sheoak, *Casuarina glauca*	0.3	17	2	SM	F	P	2.1	3.6	0%	90.50	S	3	C	R	*Retain. Suppressed.*
42	Swamp Sheoak, *Casuarina glauca*	0.3	15	N0, S6, E0, W2	SM	G	P	2.1	3.6	0%	92.01	S	3	C	R	*Retain.*
43	Sydney Blue Gum, *Eucalyptus saligna*	0.4	18	3	SM	F	F	2.3	4.8	0%	90.31	M	3	B	R	*Retain. Ivy on trunk. Trunk lean to N.*
44	Sydney Blue Gum, *Eucalyptus saligna*	0.2	8	3	IM	G	F	1.8	2.4	0%	NI	M	4	C	R	*Retain.*
45	Tallowwood, *Eucalyptus microcorys*	0.3	15	N3, S1, E1, W1	SM	F	P	2.1	3.6	0%	90.52	S	3	C	R	*Retain. Dead cedar Wattle to S. Ivy on trunk. Suppressed by large Sydney Blue Gum to W.*
46	Sydney Blue Gum, *Eucalyptus saligna*	0.2	8	2	IM	F	F	1.8	2.4	0%	91.06	S	4	D	Rm	*Remove. Remove for Landscaping purposes. Suppressed by adjacent tree.*
47	Tallowwood, *Eucalyptus microcorys*	0.5	18	7	M	G	G	2.6	6.0	0%	91.18	L	3	B	R+	*Retain. Bark inclusion @ 4m. Casuarina x8m tall 1m to S.*
48	Sydney Blue Gum, *Eucalyptus saligna*	1.0	26	10	M	G	G	3.4	12.0	8%	NI	L	1	A	R	*Retain. Canopy overhanging adjacent property. Minor TPZ encroachment from proposed OSD basin.*
49	Sydney Blue Gum, *Eucalyptus saligna*	0.9	26	10	M	G	G	3.3	10.8	5%	88.85	L	2	A	R	*Retain. Branch rubbing on Tree 38. Minor TPZ encroachment from proposed OSD basin.*
50	Sydney Blue Gum, *Eucalyptus saligna*	8.0	17	N6, S1, E10, W0	M	G	P	8.2	15.0	4%	89.93	M	3	B	R+	*Retain. TPZ encroachment by proposed Building footprint. Skewed to the E.*

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m)	TPZ RADIUS (m)	% TPZ ENCROACHMENT	SPOT LEVEL (m)	ULE	©SIG RATING	©RETENTION INDEX	RECOMMENDATION	COMMENTS
51	Sydney Blue Gum, *Eucalyptus saligna*	0.5, 0.9, 0.9	28	12	M	F	F	4.0	15.0	2%	89.72	M	1	A	R+	*Retain. TPZ encroachment by proposed Building footprint. Bracket @ 5m on E side. X3 trunks. Deadwood to 300mmØ. Major bark wound W side northern trunk and N side eastern trunk. Northern-most trunk dead and is to be removed as part of early works.*
52	Sydney Blue Gum, *Eucalyptus saligna*	7.0	25	7	M	G	F	7.8	15.0	2%	90.22	L	2	A	R+	*Retain. TPZ encroachment by proposed Building footprint. Several previous storm damage failures.*
52																

Summary Data

©RETENTION INDEX	NO. OF TREES
A	9
B	27
C	9
D	7
Total	**52**

RECOMMENDATION	NO. OF TREES
R	18
R+	11
T	0
Rm	23
Total	**52**

©RETENTION INDEX	RECOMMENDATION			
	R	R+	T	Rm
A	2	6	0	1
B	9	4	0	14
C	7	1	0	1
D	0	0	0	7

Attachment B: Definition of Terms

COMMON NAME/GENUS SPECIES CULTIVAR – Common names can vary with selected texts. Where species is unknown, "*sp.*" indicated after genus. Where cultivar is unknown "*cv*" indicated after species.

DBH – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level). Fabric diameter tape is used which assumes a circular cross section. Multiple measurements indicate multiple trunks. Where DBH measurement cannot be taken at 1.4m the height at which it has been taken is indicated.

CANOPY SPREAD RADIUS – Average canopy radius (widest + narrowest ÷ 2). Circular canopy depictions on Tree Plan/Survey are indicative only. Where canopy spread was significantly skewed, all four cardinal point measurements were recorded.

AGE CLASS – Immature (IM), Semi-mature (SM), Mature (M), Over-mature (OM). Assessment of the tree's current Age. A **Mature (M)** tree has reached a near stable size (biomass) above and below ground. Trees can have a *Mature* age class for >90% of life span. **Over-mature (OM)** trees show symptoms of irreversible decline and decreasing biomass.

VIGOUR – Good (G), Fair (F) or Poor (P). The general appearance of the canopy/foliage of the tree at the time of inspection. Vigour can vary with the season and rainfall frequency. A tree can have *Good* vigour but be hazardous due to *Poor* condition. A tree in *Good* vigour has the ability to sustain its life processes. Vigour is synonymous with health.

CONDITION – Good (G), Fair (F) or Poor (P). The general form and structure of the trunk/s and branching. Trunk lean, trunk/branch structural defects, canopy skewness or other hazard features are considered.

SRZ RADIUS – Structural Root Zone. The area around a tree required for tree stability. Earthworks should be prohibited within the SRZ. The area is calculated from the formula and graph at Figure 1 of *AS4970-2009.* The SRZ graph has been adapted from the work of Claus Mattheck (1994). DBH + 10% has been used for the calculation of SRZ. Where DBH is measured at grade or at a height other than 1.4m above grade, 10% has not been added.

TPZ RADIUS – Tree Protection Zone. Radial offset (m) of twelve times (12x) trunk DBH measured from centre of trunk (for trees less than 0.3 metre DBH minimum TPZ is 2.0 metres). To satisfactorily retain the tree, construction activity (both soil cut and fill) must be restricted within this offset. TPZ offsets are rounded to the nearest 0.1 metre. Existing constraints to root spread can vary. Generally an area equivalent to the TPZ should be available to the tree post development. Encroachment occupying up to 10% of the TPZ area is acceptable without detailed rootzone assessment. Encroachments greater than 10% require specific arboricultural assessment.

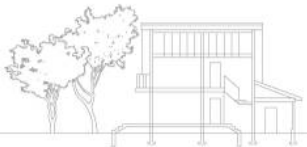
ULE – Useful Life Expectancy. The length of time from the date of inspection that the Arborist estimates the tree will live and provide a useful positive contribution to the landscape amenity of the site. ULE ratings are **Long** (retainable for 40 years or more), **Medium** (retainable for 16-39 years), **Short** (retainable for 5-15 years) and **Removal** (tree requiring immediate removal due to imminent risk or absolute unsuitability).

©SIG. RATING – ©Significance Rating Scale (see notes over)

©RETENTION INDEX (see notes over)

RECOMMENDATIONS – ***Retain (R) No TPZ encroachments***; ***Retain Plus (R+) Acceptable levels of TPZ encroachment***; ***Transplant (T)*** or ***Remove (Rm)***.

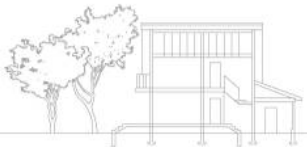
COMMENTS – Comments relating to the location, surroundings and hazard potential of the trees at the time of inspection and where applicable the reason for removal.



©SIG. RATING – ©Significance Rating Scale. A site specific qualitative evaluation of a tree relative to the existing land use developed by Tree Wise Men® Australia Pty Ltd. Takes into consideration the impact of the tree on the surrounding landscape, streetscape and bushland. Rarity, habitat value, historical/cultural value and structural form of the tree are considered in this rating system. It is possible for a tree to have a *Short* ULE and a ©Significance Rating of 1. Likewise it is possible for a tree to be given a *Long* ULE and a ©Significance Rating of 4 (e.g. weed species). The ©Significance Ratings used in this Report are as outlined in Table 1.

Table 1: ©Significance Rating Characteristics

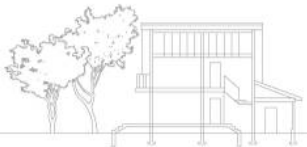
Rating	Significance	Characteristics (some or all)
©Sig. Rating 1	**Exceptional**	▪ Major contribution to site amenity ▪ Remnant specimen ▪ Heritage Listed ▪ Listed on Significant Tree Register ▪ Threatened Species ▪ *Good* vigour and condition ▪ Cultural significance ▪ Possible habitat tree for threatened fauna ▪ Excellent, well formed specimen ▪ Rare or unusual species ▪ Large above ground biomass ▪ Unique within the site and surrounds
©Sig. Rating 2	**High**	▪ Considerable contribution to site amenity ▪ Remnant specimen ▪ *Good* vigour and condition ▪ Threatened Species ▪ Cultural significance ▪ Possible habitat tree for threatened fauna ▪ Well formed specimen ▪ Rare or unusual species ▪ Large or moderate above ground biomass ▪ Other specimens with similar characteristics within the site and surrounds
©Sig. Rating 3	**Moderate**	▪ Minor contribution to site amenity ▪ Remnant or planted ▪ *Fair* or *Poor* vigour and condition ▪ Potential for growth ▪ Well formed or asymmetrical form ▪ Other specimens with similar characteristics within the site and surrounds
©Sig. Rating 4	**Low**	▪ Small/poor specimen ▪ *Poor* vigour and condition ▪ Inappropriate for the location ▪ Minor contribution to landscape amenity ▪ Easily replaced ▪ Weed species or TPO Exempt ▪ Hazardous ▪ Previously ©Sig. Rating 5 tree



©RETENTION INDEX. A site specific assessment of an individual tree's retention value developed by Tree Wise Men® Australia Pty Ltd. Incorporating ULE and ©Significance Rating each tree is allocated a ©Retention Value of A, B, C or D. The ©Retention Index values can be described as follows:

©Retention Value A	**Should be retained**	▪ Major redesign may be required (e.g. movement of building footprint, re-alignment of roadway).
©Retention Value B	**Could be retained**	▪ Minor redesign may be required (e.g. level changes, pavement detail).
©Retention Value C	**Could be removed**	▪ Should not constrain proposed development.
©Retention Value D	**Should be removed (irrespective of development layout**.)	▪ Should not constrain proposed development. ▪ **Remove ULE** should be removed irrespective of development layout.
	Should be removed or permanently fenced off	▪ Should not constrain proposed development ▪ **Short ULE** could be retained pending landscape proposal.

©Retention Index		**©Significance Rating**			
		1	**2**	**3**	**4**
ULE Rating	**Long (40+ years)**	**A**		**B**	**C**
	Medium (15-40 years)				
	Short (5-15 years)	**B**		**C**	**D**
	Remove (< 5 years)	**D**			



Attachment C: Tree Protection Requirements (Generic)

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TREE PROTECTION REQUIREMENTS (GENERIC)

The following generic tree protection requirements (1-12) should be implemented to minimise the impact of the proposed development on the retained trees. These requirements shall be implemented during the construction period in the event that no site-specific requirements are detailed in this document. Tree Protection Requirements should comply with *Section 4 Tree Protection Measures* of *AS4970-2009 Protection of trees on development sites* and the Tree Protection Plan (TPP) attached to this document.

1. Arborist Involvement – An Arborist (the project Arborist) with minimum AQF Level 5 qualifications, experienced in tree protection on construction sites shall be engaged prior to the commencement of work on the site. The Arborist's tasks will be to monitor and report regularly to the PCA and the Applicant on the condition of the retained trees for the duration of works on site. The Project Arborist shall be present to certify tree protection measures and to supervise any excavation, trenching or tunnelling within the TPZ of any retained trees.

The schedule of works for the development shall acknowledge the role of the Project Arborist and the need to protect the retained trees. Sufficient notice shall be given to the Project Arborist where his/her attendance is required. Should the proposed design change from that reviewed, additional arboricultural assessment will be required.

2. Tree Pruning and Removal – All tree pruning (including root pruning) and tree removal shall be carried out by a qualified and experienced Arborist (minimum AQF Level 3 qualification) to Australian Standard *AS4373-2007 Pruning of amenity trees* and the Safe Work Australia "*Guide to Managing Risks of Tree Trimming and Removal Work*" July, 2016.

When tree stumps are within the TPZ of retained trees, stump grinding of rootballs shall be performed rather than complete "grubbing". This will minimise unnecessary root damage to the retained trees. Unnecessary damage often occurs to retained trees when undertaken by earthmoving machinery.

3. Mulching – If construction activity is proposed within TPZ offsets mulching is required. Mulch to a depth of 100 millimetres using partially composted green waste mulch. The mulch should be free of weed seeds and other contaminants. Should constant access be required within the trees' TPZs, outside the protective fencing, heavier mulch should be spread to a depth no greater than 100 millimetres to reduce soil compaction.

4. Temporary Irrigation – Where construction related activity or root cutting is proposed within the TPZ of retained trees, temporary irrigation or water cart access may need to be provided to the remaining unimpacted TPZ areas to maintain adequate soil moisture levels. Delivery volumes are to allow for mulch layer and recent rainfall. The Project Arborist is to monitor soil moisture levels.

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5. Tree Protection Fencing – The retained trees shall be protected by means of fencing as per Figure 3 of *AS4970-2009* or as detailed in the TPP prior to commencement of demolition or bulk earthworks.

It should be constructed from 1.8 metre high chain link wire or welded mesh suspended by galvanised steel pipe or equivalent and enclose as much of the TPZ as practicable allowing for building alignments.

The location of the fence may need to be altered from that indicated on the Tree Protection Plan at a project meeting between the Civil Contractor and the Project Arborist. The area enclosed shall be mulched (**3**) and irrigated (**4**) and kept free from all building materials, contaminants and other debris and shall not be used for storage of any building materials or parking of vehicles or plant. If scaffolding (**8**) is required within a tree protection zone, the ground is to be mulched prior to erection of scaffolding.

6. Trunk Protection – Trunk and branch protection is to comply with *Figure 4* of *AS4970-2009* or as detailed in the TPP. Lengths of timber (75mm x 50mm x 2000mm) shall be used to protect a tree's trunk if construction or traffic is proposed within its SRZ and the tree cannot be fenced. The lengths of timber should be fastened around the trunk at 200 millimetre centres with hoop iron strapping or similar.

7. Signs – Signs complying with *Figure C1* of *AS4970-2009* should be placed at regular intervals (min. 1 per 15 metres) on tree protection fencing.

8. Scaffolding – If scaffolding or hoarding is required within the TPZ, install as per *Figure 5* of *AS4970-2009* or as detailed in the TPP. Installation is to be prior to demolition or bulk earthworks.

9. Bulk Earthworks – To prevent unnecessary root damage, walk machinery within defined haul routes beyond TPZs wherever possible. The excavation shall be carried out under the supervision of the Project Arborist. All roots within TPZ of retained trees are to be hand cut prior to machine cutting. Immediately following excavation, the face of the cut within the TPZ shall be draped and maintained moist until backfilled. This should be done using a 10mm thick jute matting or equivalent, pinned at ground level and allowed to cover the full depth of the rootzone excavation.

There is to be no soil battering or unnecessary over excavation within TPZ offsets. Topsoil stripping should be prohibited within TPZ offsets unless approved by the Project Arborist.

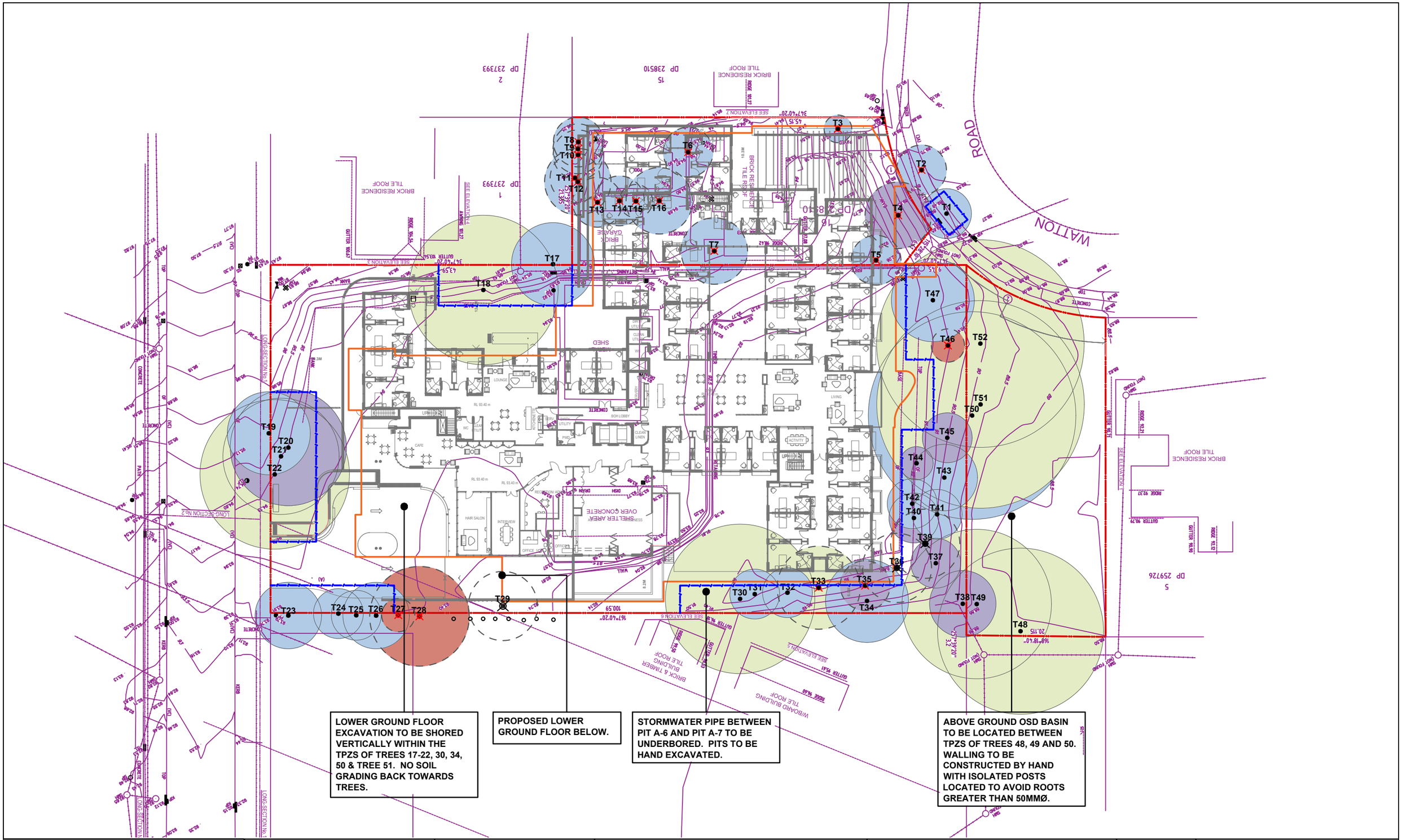
10. Prevention of Soil Compaction – During the construction period there may be considerable traffic movement associated with general building activities. The resultant soil compaction and possible contamination of the soil can have an equally detrimental impact on the tree as the severing of roots during excavation.

Specific machinery access tracks should be determined through consultation between the Civil Contractor and the project Arborist. Should heavy vehicle movement be required within a retained tree's TPZ, a track should be formed at grade using large diameter (up to 100mm) aggregate over geofabric or a corduroy of heavy timbers.

11. Prevention of Soil Inversion – Care shall be taken to avoid inversion of the soil layers on the site and particularly within TPZs. Clays placed over coarse textured soils reduces water infiltration, creating a perched water table, resulting in decline and/or death of underlying tree roots due to moisture stress.

12. Services – Trenching for services is to be regarded as "construction". Trenching within TPZ offsets should be avoided wherever possible to ensure <25% root loss (of TPZ) occurs on retained trees. Directional ("trenchless") boring or suspension of services should be used wherever possible. Where trenching is to occur within TPZ offsets, it is to be undertaken by hand to rock with no roots >50mm to be cut, under supervision of the Project Arborist.

Attachment D: Tree Protection Plan



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ARBORICULTURAL CONSULTANCY

SITE BOUNDARY:

TREE NUMBER WITH TRUNK AS PLOTTED ON SITE SURVEY: T23

TREE NUMBER WITH TRUNK NOT PLOTTED ON SITE SURVEY (APPROXIMATE LOCATION SHOWN): T29

EXISTING FEATURES: ERET

©RETENTION INDEX X TREE PROTECTION ZONE (TPZ):

©Retention Value A TPZ:

©Retention Value B TPZ:

©Retention Value C TPZ:

©Retention Value D TPZ:

Dead, dying or dangerous trees or noxious weeds to be removed irrespective of proposed development: TPZ

Trees requiring removal to facilitate development: TPZ

Protective fencing:

DATE: 20/10/2021 **REV:** A

SCALE: 1:500@A3

0 5 10 25 meters

TITLE: ©TREE PROTECTION PLAN

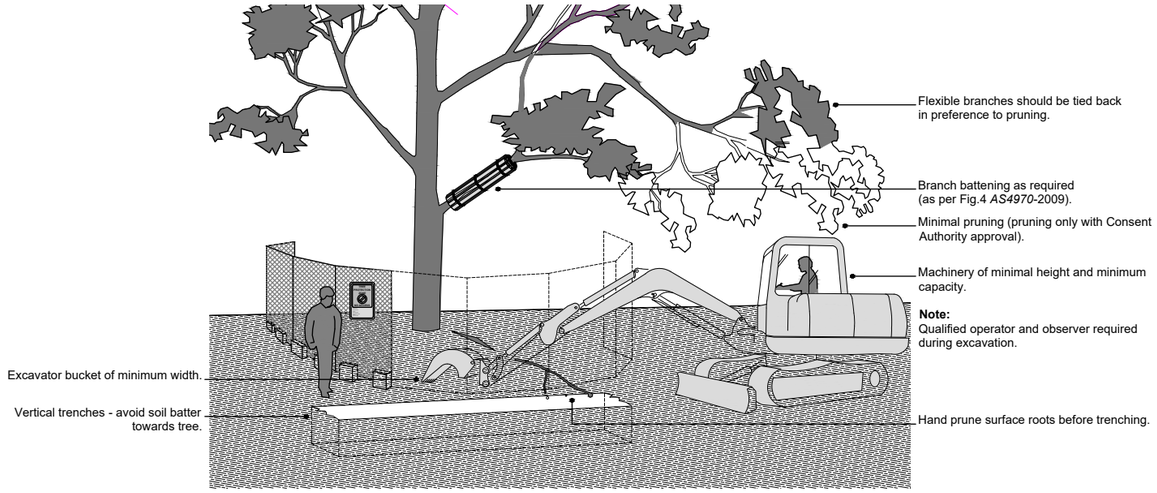
CLIENT: HB + B Property Pty Ltd

PROJECT: PROPOSED AGED CARE DEVELOPMENT
47 MURRAY FARM ROAD, CARLINGFORD

DRAWING NO: 2578RevTPP SHT 1 OF 2

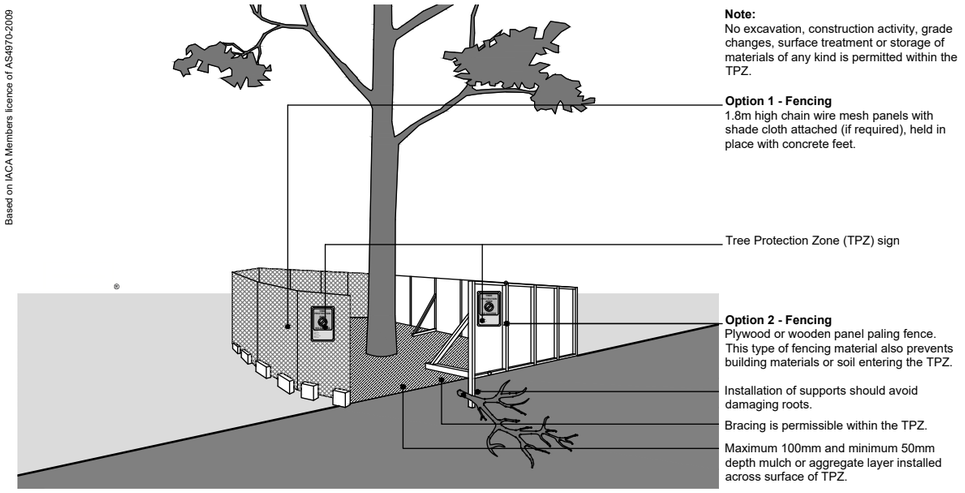
DRAWN BY: MH

BASED ON: SURVEY REF:NO. 50311 001DT DATED 6.11.2018, BY LTS LOCKLEY AND GROUND FLOOR PLAN, DWG. NO. DA-2.01/J AND LOWER GROUND FLOOR PLAN DA-2.00/I BY THOMSON ADSETT.



06 Machinery Use Within Tree Protection Zone (TPZ)

Not to Scale



03 Tree Protection Fencing

Not to Scale

04 Examples of Branch, Trunk and Ground Protection

Not to Scale

05 Indicative Scaffolding within a Tree Protection Zone (TPZ)

Not to Scale

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ARBORICULTURAL CONSULTANCY

Notes:

1. Tree impact assessment has been considered in relation to ***AS4970-2009 Protection of trees on development sites***.

2. This ***Tree Protection Plan*** is equivalent to the Development Submission Plan identified in Table 1, ***AS4970-2009***.

3. This ***Tree Protection Plan*** should be incorporated into the site Construction Management Plan and the Sediment Control Plan.

4. Tree impact assessment includes likely impacts from development including: building platforms, driveways/ accessways, services/infrastructure installation and cut/fill batters.

5. The extent of TPZ shown on this plan does not reflect any confinement of roots by existing structures, buildings, walls, topography, etc.

6. A ***Project Arborist*** with minimum AQF Level 5 qualifications is to be engaged to supervise works within TPZ areas and monitor and report regularly on the condition of trees.

7. ***Tree Protection Fencing*** as indicated, should be installed prior to demolition of existing structures and other site preparation works. Tree Protection Fencing should comprise of

chainlink wire or wire mesh panels as per Figure 03 of the TPP. If the location of the fencing needs to be altered, this shall be determined at a project meeting between the Civil Contractor and the Project Arborist. The following activities are to be prohibited within tree protection fencing: topsoil stripping, excavation, placement of soil fill, storage of any materials, placement of site sheds/offices, parking of heavy machinery, placement of machinery haul roads.

8. If ***scaffolding*** is required within TPZ, install as shown in Figure 05 of the TPP.

9. Services installation should be supervised by the ***Project Arborist***, using directional boring wherever possible or manual excavation where trenching is to occur. No roots greater than 50mm diameter are to be cut or damaged. Services should be routed beyond TPZ wherever possible.

10. ***Trunk battening*** and ***ground protection*** to be installed to trees where works are required within Tree Protection Fencing. Battening to comply with Figure 04 of the TPP.

11. All ***tree pruning*** is to comply with ***AS4373-2007, Pruning of amenity trees***. All approved tree removal is to comply with WorkCover Code of Practice for the Amenity Tree Industry. All tree pruning and removal shall be carried out by a qualified and experienced Arborist (minimum AQF Level 3 qualification).

12. ***Mulch*** is to be spread to a depth of 100mm within the TPZs if construction activity is proposed within TPZ offsets. Where TPZs are greater than 5 metres or where native seedling regeneration would be prohibited by the mulch, seek advice from the Project Arborist and Ecologist.

13. ***Over-excavation*** or battering towards trees is to be avoided unless indicated on Approved earthworks or services drawings and approved by the Project Arborist.

14. Contiguous ***strip footings*** are to be avoided wherever possible. Use discontinuous pier and beam type footings or other lightweight construction for walling and fencing within TPZs.

15. ***Temporary irrigation***, hand watering or water cart may be required to maintain adequate soil moisture levels. The Project Arborist is to monitor soil moisture levels and advise on delivery volumes and frequency.

16. Temporary ***haul roads*** may be required to be installed where heavy machinery movements are proposed within TPZs of trees to minimise compaction. Woodchip mulch should be used as a minimum. Recycled concrete or other aggregate placed over a geofabric may be required for heavy use areas.

TITLE:

CLIENT:

PROJECT:

DRAWING NO:

DRAWN BY:

BASED ON:

©TREE PROTECTION PLAN

HB + B Property Pty Ltd

PROPOSED AGED CARE DEVELOPMENT
47 MURRAY FARM ROAD, CARLINGFORD

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REV: A DATE: 20/10/2021