

CLOSEBOURNE GARDEN PAVILION

TREE ASSESSMENT REPORT

DECEMBER 2022

CLOSEBOURNE GARDEN PAVILION

TREE ASSESSMENT REPORT

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REV	DESCRIPTION	DATE
A	ISSUE TO CLIENT	2022-12-16
B	DA ISSUE	2022-12-19
C	AMENDED DA ISSUE	2022-12-19

1 INTRODUCTION

Terras Landscape Architects has been engaged by Lendlease to undertake a tree impact assessment relating to the construction of a proposed garden pavilion located to the rear of the heritage listed Morpeth House Group in an area referred to by residents of Closebourne Senior Living as the Calvary Garden and sometimes as "the secret garden".

The engagement included:

- assessing health, vigour and retention value of the subject trees;
- providing advice during the design phase concerning means to retain trees were suitable and appropriate; and
- to determine what impacts the proposed development may have on the trees including assessments regarding tree retention or removal.

The details included in this report are based on observations made during a site inspection undertaken on 13th December 2022 and discussions with the project team including the architect (Elk Architects), and heritage consultant (Placemark Consultants).

2 ASSESSING ARBORIST

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3 CLIENT

CLIENT:	Lendlease Retirement Living
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FIGURE 1: AERIAL VIEW OF THE SITE SHOWING TREE LOCATIONS
(BASE AERIAL NEARMAP - USED UNDER LICENCE)

4 METHODOLOGY

The following is a summary of the approach taken to assess the trees leading to the preparation of this report:

- Visual Tree Inspection (VTA), (Mattheck & Breloer, 1994) was undertaken. All trees likely to be affected by the construction work both on and off the subject site, were inspected and assessed from the ground. The VTA included all visible above ground parts of the tree including; exposed roots; trunk; branches; and, foliage.
- Diameter at breast height (DBH) and diameter at base—above the basal flare (DAB) measurements were taken and used to calculate the tree protection zones (TPZ) and structural root zones (SRZ) of each tree undertaken in accordance with AS 4970 – *Protection of trees on development sites*.
- Useful Life Expectancy (ULE) and retention values were assessed using several factors such as: location; species; age; health; and, structure.

It should be noted that the following, more detailed assessment measures did not form part of the VTA inspection:

- No below ground inspections or analyses were undertaken within the root zone.
- No internal inspections or tissue analyses were undertaken on the subject trees.
- No aerial inspections were undertaken.

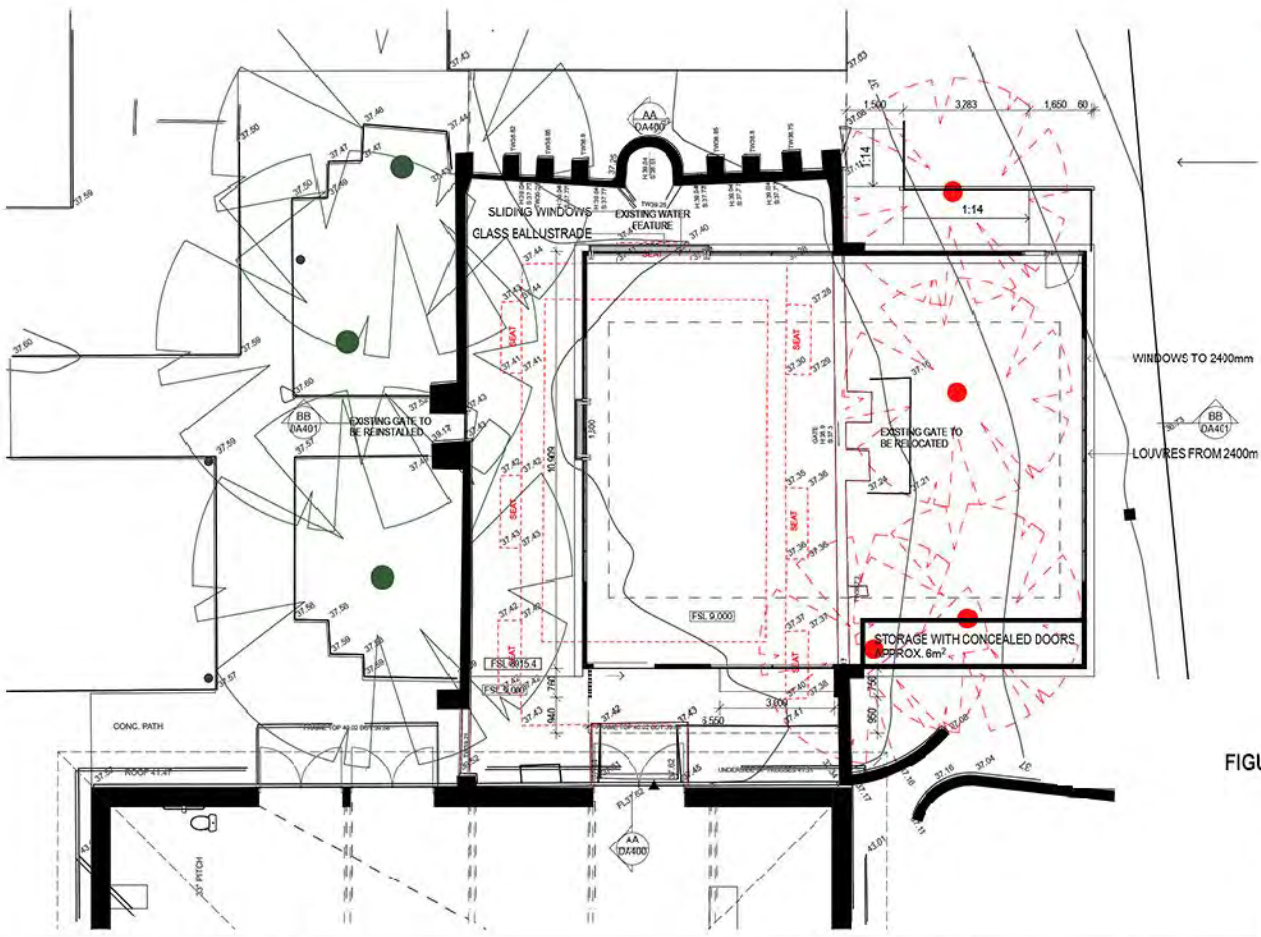
5 THE SITE AND PROPOSAL

The site is located within Closebourne Seniors, 361-367 Morpeth Road, Morpeth. Morpeth House and the associated retirement village sits on part Lot 2 DP 270740.

The specific site for the proposed garden pavilion is situated east of St John’s Chapel. St John’s Chapel is part of the Morpeth House Group; a collection of buildings constructed for Edward Close, the founder of Morpeth, as his second residence on the estate. The proposed building is to be partially constructed within a walled garden and extending to the south. The building is to be used by residents of the retirement village and is to complement other nearby community facilities. (Refer Figure 3.)



FIGURE 2: LOCALITY DIAGRAM OF THE SITE
[SOURCE: NEARMAPS USED UNDER LICENCE]



FLOOR PLAN NOTES

1. FOR WINDOW AND DOOR DETAILS REFER TO GLAZING AND DOOR SCHEDULES. TREE TO BE DEMOLISHED
2. FOR SMALL TYPE DETAILS REFER TO ALL TYPES DRAWING

EXISTING TREE TO BE RETAINED

--- TO BE DEMOLISHED

FIGURE 3: THE PROPOSAL

PRELIMINARY
FOR AUTHORITY APPROVAL ONLY
NOT FOR CONSTRUCTION

<p>PO Box 601 Kaitiaki NGP 2020 Ph: 021 424225 National Architect, Coastal Building 6226 Notes: The information contained in this document is copyright and may not be used or reproduced for any other project or purpose. This information is provided on the basis of the information and drawings provided to us by the client. We do not accept any responsibility for the accuracy of the information provided to us by the client. We warrant that we have prepared the drawings in accordance with the instructions of the client and that we have exercised reasonable care and skill in the preparation of the drawings. The information in this document is not intended to constitute an offer of any financial product or service. The information in this document is not intended to constitute an offer of any financial product or service. The information in this document is not intended to constitute an offer of any financial product or service.</p>	<p>Consent/Approve Surveyor</p>	<p>Client Engineer</p>	<p>Structural Engineer</p>	<p>Landscape Consultant</p>	<p>Issue #01 Issue #02 Issue #03 Issue #04 Issue #05 Preliminary #06 Preliminary #07 Preliminary</p>	<p>Date 3/09/2022 20/09/2022 21/09/2022 19/10/2022 7/12/2022 9/12/2022 14/12/2022</p>	<p>Project Secret Garden Location 363/371 Merspath Rd Morpeth Client Leralease</p>	<p>Drawings GROUND FLOOR PLAN Scale 1:100 @ A3 DRAWN AC</p>	<p>Drawing Number DA102 Issue 07 Project Number 22135</p>	<p>ELK ESTABLISHED 1981</p>
	<p>Task/Phase Energy Assistance</p>	<p>Energy Assistance</p>	<p>Hydraulic Engineer</p>							



6 TREE ASSESSMENT

The assessed trees occur within and in front of the walled garden. In total, 7 trees were assessed a summary of which is given below with a more detailed assessment given in Appendix A.

SUMMARY ASSESSMENT			
TREE No.	FIG No.	Bot. NAME	COMMENTS
484	4A/B	<i>Jacaranda mimosifolia</i>	Tree located in well-tended garden. Occurring close to sandstone block wall with no apparent structural damage to wall. Evidence of prior pruning of branches that once overhanging the chapel building. Now with good callus. Water shoots present associated with pruning sites. Tree contains <i>Dendrobium</i> sp. (Tree Orchid) and <i>Platyserium</i> sp. (Staghorn) within canopy. (Refer Fig No. 4B.)
485	4A/C/D	<i>Liquidambar styraciflua</i>	Tree located in well-tended garden. Located close to sandstone block wall with no apparent structural damage. Some trunk damage in upper canopy. Some prior removal of lower branches now well callused. Co-dominant trunk @ 3m AGL with good branch architecture.
486	4C/D	<i>Jacaranda mimosifolia</i>	Tree located in well-tended garden. Located close to sandstone block wall with no apparent structural damage. Asymmetric canopy favouring the east due to dominance of Tree 485. Tree contains <i>Dendrobium</i> sp. (Tree Orchid) and <i>Platyserium</i> sp. (Staghorn) within canopy.
487	5A	<i>Syzygium paniculatum</i>	Excellent upright tree growing close to sandstone block wall without causing apparent structural damage. Dense, healthy canopy. Some storm damage noted in the upper canopy.
488	5A/B	<i>Gleditsia triacanthos</i>	Co-dominant trunk occurring @ 4m AGL with good union/no included bark although reaction wood present on two sides indicative of possible internal cracking although not significant at this stage.
490	5B/C/D	<i>Jacaranda mimosifolia</i>	Tree with suppressed canopy arising from close proximity of adjoining trees. Asymmetric canopy favouring the north. Previous pruning activity noted, well-callused fruiting bodies noted in upper dead branch stub.
491	5C/D	<i>Jacaranda mimosifolia</i>	Co-dominant trunk with three resultant leaders occurring @ 2.5m AGL. Asymmetric canopy favouring north, east and south. Some water shoots present at pruning sites.

All trees seem to be growing well with suppressed and asymmetrical growth being the main issue for Trees 485, 490 and 491.

There appears to be drill holes in the trees growing on the southern side of the walled garden. When the trees were inspected previously in 2018 by Terras, the trees were showing a loss of vigour and it had been assumed that poisoning had occurred. The current health of the trees would suggest that the trees have fully recovered.

It should be noted that in the 2005 Conservation Management Plan¹ two trees located south of the walled garden have been given a significance rating of 1 – Exceptional Significance. Unfortunately the report does not provide sufficient detail to know precisely what trees are being referenced nor is there justification or assessment criteria provide upon which the determination has been made. From the recent inspection made, all trees south of the walled garden are not sufficiently old to suggest that they were planted any earlier than after the construction of the Calvary Garden and so placing into question the Exceptional Significance rating.

¹ Page 115, Figure 3.1 Significant Landscape elements – Morpeth House and St John's College site (Design-5 Architects, 2005)



4	
A	B
C	D





7 IMPACT ASSESSMENT

The below diagram demonstrates how the development will impact on the site trees (Trees 1-7).

Based on the current design, it will not be possible to retain any of the existing trees south of the Calvary Garden wall (i.e. Trees 487, 488, 490 and 491).

The trees growing to the north of the wall may experience some reduction to their root plates as development occurs with the calculated TPZs (Tree Protection Zone). Encroachment on Trees 484, 485 and 486 are approximately 11%, 6.6% and 6% respectively. Based on the requirements of AS 4970 – *Protection of trees on development sites*, this is not considered to be significant. Other mitigating factors include: the vigour of the trees; and, the presence of the wall and marquee would limit root growth into the Calvary Garden.

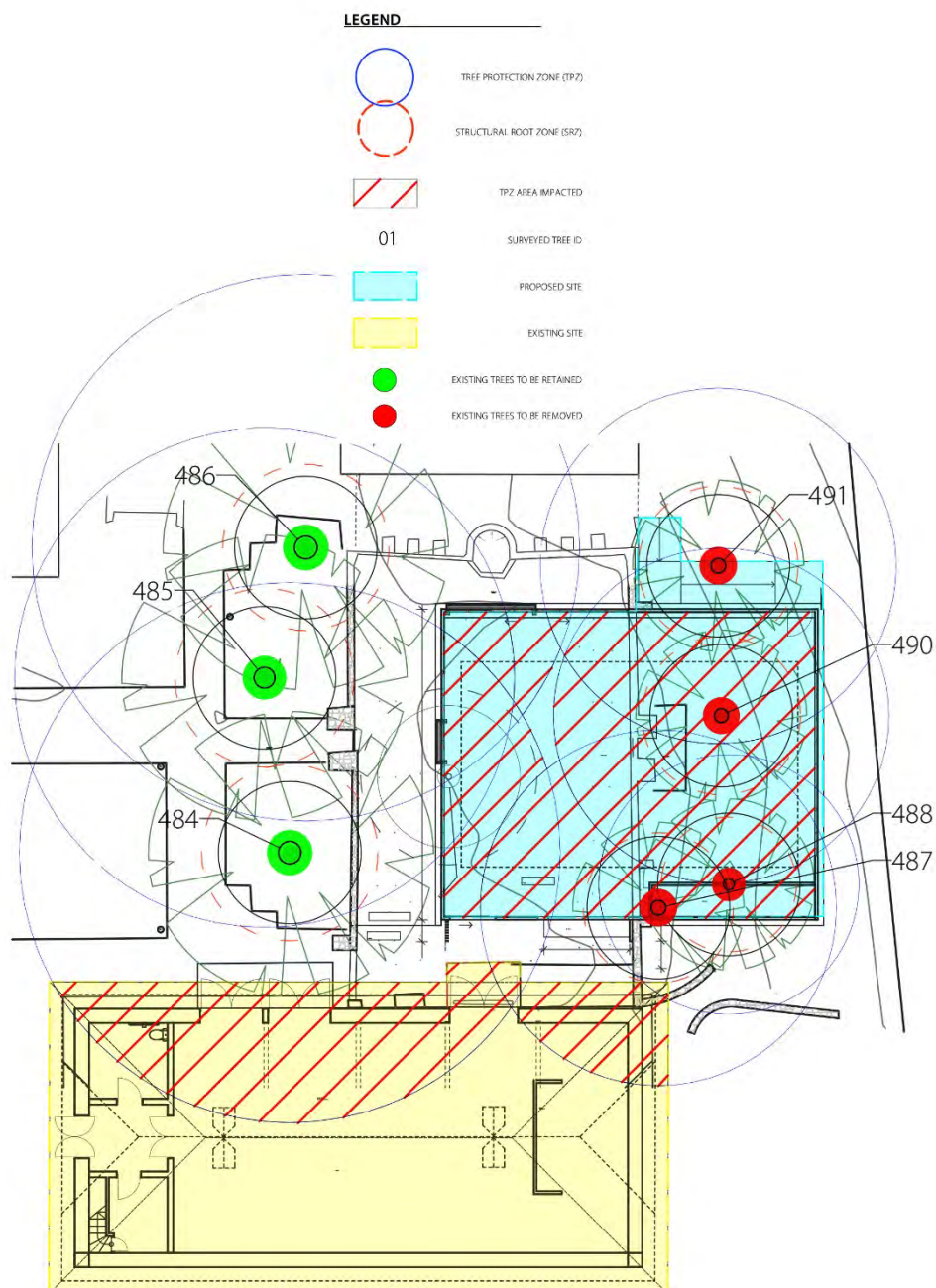


FIGURE 6: TPZ/SRZ/TREE REMOVAL DIAGRAM [BASE SOURCE: CNA DESIGN STUDIO]

8 TREE RETENTION VALUES

The tree retention values were assessed for all trees likely to be affected by the works in accordance with the methodology developed by Andrew Morton (Morton, 2006) The results are as follows:-

TREE RETENTION VALUES ²							
TREE SUSTAINABILITY	LANDSCAPE SIGNIFICANCE READING						
	1	2	3	4	5	6	7
Greater than 40 years		HIGH VALUE					
15 to 40 years			MODERATE VALUE				
5 to 15 years				LOW VALUE			
Less than 5 years					VERY LOW VALUE		
Dead or Hazardous							

ASSESSED RETENTION VALUES					
TREE NO.	SPECIES	SUSTAINABILITY PERIOD (YEARS)	LIVE CROWN SIZE	LANDSCAPE SIGNIFICANCE RATING	RETENTION VALUE
TREES LOCATED WITHIN THE SITE					
484	<i>Jacaranda mimosifolia</i>	+40 years	>100m ² *	3. HIGH	HIGH
485	<i>Liquidambar styraciflua</i>	+40 years	>100m ² *	3. HIGH	HIGH
486	<i>Jacaranda mimosifolia</i>	+40 years	>40m ² *	4. MODERATE	MODERATE
487	<i>Syzygium paniculatum</i>	+40 years	>40m ² *	4. MODERATE	MODERATE
488	<i>Gleditsia triacanthos</i>	+40 years	>40m ² *	4. MODERATE	MODERATE
490	<i>Jacaranda mimosifolia</i>	+40 years	>40m ² *	5. LOW	MODERATE
491	<i>Jacaranda mimosifolia</i>	+40 years	=40m ² *	5. LOW	MODERATE

*Live crown sizes used to assess the landscape significance rating and the crown projection areas have been calculated using current aerial imagery (NearMap – 2022/08/06).

Although there is no specific requirement to provide compensatory planting it is suggested that a one for one replacement be provided for the trees that are required to be removed.

² TABLE ADAPTED FROM NEWCASTLE CITY COUNCIL'S NEWCASTLE URBAN FOREST TECHNICAL MANUAL, 2018 – PAGE 18

9 CONCLUSIONS & RECOMMENDATIONS

Conclusions

Based on the impact of the proposed development works and the location of the trees, the following trees are recommended for removal.

TREES TO BE REMOVED			
NO.	BOTANICAL NAME	NO.	BOTANICAL NAME
487	<i>Syzygium paniculatum</i>	490	<i>Jacaranda mimosifolia</i>
488	<i>Gleditsia triacanthos</i>	491	<i>Jacaranda mimosifolia</i>

Recommendations

- It is recommended that approval be sought to remove Trees 487, 489, 490 and 491. This can be undertaken as part of the DA process.
- As a suggestion, plant **one** standard tree (45 litre) on the site for each tree removed as compensatory planting with suitable trees able to reach a similar size that matches the existing to ensure that the amenity of the site is maintained.
- Ensure tree removal work is carried out by or supervised by a qualified tree worker (AQF Level 3 or equivalent) in accordance with the *Guide to Managing Risks of Tree Trimming and Removal Work* (Safe Work Australia, 2016).
- Tree remains to be mulched. Mulch can be used around remaining trees and within planter beds located elsewhere on site. If not practical to mulch fallen trees on site, the material can be disposed of in a legal manner off site and imported mulch used.

10 REFERENCES

Design 5 Architects	<i>Morpeth House and St John's College Morpeth Conservation Management Plan</i> , prepared for Dobler Consulting and the Anglican Diocese of Newcastle, 2005
Draper, D. & Richards, P.A.	<i>Dictionary for Managing Trees in Urban Environments</i> . CSIRO, Collingwood Vic, 2009.
Matheck, C. & Breloer, H.	<i>The Body Language of Trees: A Handbook for Failure Analysis</i> . TSO, London, England.
Morton, A.	<i>Determining the Retention Values of Trees</i> , The 7 th National Street Tree Symposium, 2006
NSW Government	<i>Morpeth House, Closebourne House, Adjoining Chapels and Diocesan Registry Group</i> , SHR# 00375.
Safe Work Australia	<i>Guide to Managing Risks of Tree Trimming and Removal Work</i> , Australian Government, 2016.
Standards Australia	<i>Australian Standard: AS 4970 Protection of trees on development sites</i> . (August 2009).
Standards Australia	<i>Australian Standard, AS 4373 Pruning of amenity trees</i> . (March 2007)

11 APPENDICES

- APPENDIX A - TREE ASSESSMENT TABLE
- APPENDIX B – TREE ASSESSMENT DIAGRAM
- APPENDIX C - ULE CLASSIFICATIONS

APPENDIX A –TREE ASSESSMENT TABLE

DETAILED TREE ASSESSMENT TABLE															
No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH ¹ [MM]	TPZ [M]	DAB ² [MM]	SRZ [M]	AGE RANGE YEARS	ULE	RETENT. VAUE	STRUCT	HEALTH	COMMENTS	CANOPY [M ²]
484	<i>Jacaranda mimosifolia</i>	Jacaranda	M	17	790	9.48	850	3.09	+40	1A	HIGH	AV	AV	TREE LOCATED IN WELL-TENDED GARDEN. OCCURRING CLOSE TO SANDSTONE BLOCK WALL WITH NO APPARENT STRUCTURAL DAMAGE TO WALL. EVIDENCE OF PRIOR PRUNING OF BRANCHES THAT ONCE OVERHUNG THE CHAPEL BUILDING. NOW WITH GOOD CALLUS. WATER SHOOTS PRESENT ASSOCIATED WITH PRUNING SITES. TREE CONTAINS <i>DENDROBIUM</i> SP. (TREE ORCHID) AND <i>PLATYCERIUM</i> SP. (STAGHORN) WITHIN CANOPY.	175
485	<i>Liquidambar styraciflua</i>	Sweet Gum	M	24	730	8.76	880	3.14	+40	1A	HIGH	AV	AV	TREE LOCATED IN WELL-TENDED GARDEN. LOCATED CLOSE TO SANDSTONE BLOCK WALL WITH NO APPARENT STRUCTURAL DAMAGE. SOME TRUNK DAMAGE IN UPPER CANOPY. SOME PRIOR REMOVAL OF LOWER BRANCHES NOW WELL CALLUSED. CO-DOMINANT TRUNK @ 3m AGL WITH GOOD BRANCH ARCHITECTURE.	195
486	<i>Jacaranda mimosifolia</i>	Jacaranda	M	14	800	9.60	740	2.90	+40	1A	MODERATE	AV	AV	TREE LOCATED IN WELL-TENDED GARDEN. LOCATED CLOSE TO SANDSTONE BLOCK WALL WITH NO APPARENT STRUCTURAL DAMAGE. ASYMMETRIC CANOPY FAVOURING THE EAST DUE TO DOMINANCE OF TREE 485. TREE CONTAINS <i>DENDROBIUM</i> SP. (TREE ORCHID) AND <i>PLATYCERIUM</i> SP. (STAGHORN) WITHIN CANOPY.	90
487	<i>Syzygium paniculatum</i>	Lilly Pilly	M	15	520	6.24	670	2.80	+40	1A	MODERATE	EX	EX	EXCELLENT UPRIGHT TREE GROWING CLOSE TO SANDSTONE BLOCK WALL WITHOUT CAUSING APPARENT STRUCTURAL DAMAGE. DENSE, HEALTHY CANOPY. SOME STORM DAMAGE NOTED IN THE UPPER CANOPY.	45
488	<i>Gleditsia triacanthos</i>	Honey Locust	M	17	490	5.88	660	2.78	+40	1A	MODERATE	EX	EX	CO-DOMINANT TRUNK OCCURRING @ 4m AGL WITH GOOD UNION/NO INCLUDED BARK ALTHOUGH REACTION WOOD PRESENT ON TWO SIDES INDICATIVE OF POSSIBLE INTERNAL CRACKING ALTHOUGH NOT SIGNIFICANT AT THIS STAGE.	55
490	<i>Jacaranda mimosifolia</i>	Jacaranda	M	13	380	4.56	450	2.37	+40	1A	MODERATE	F	F	TREE WITH SUPPRESSED CANOPY ARISING FROM CLOSE PROXIMITY OF ADJOINING TREES. ASYMMETRIC CANOPY FAVOURING THE NORTH. PREVIOUS PRUNING ACTIVITY NOTED, WELL-CALLUSED FRUITING BODIES NOTED UIN UPPER DEAD BRANCH STUB.	45
491	<i>Jacaranda mimosifolia</i>	Jacaranda	M	11	520	6.24	580	2.63	+40	1A	MODERATE	AV	AV	CO-DOMINANT TRUNK WITH THREE RESULTANT LEADERS OCCURRING @ 2.5m AGL. ASYMMETRIC CANOPY FAVOURING NORTH, EAST AND SOUTH. SOME WATER SHOOTS PRESENT AT PRUNING SITES.	40

1. MULTI TRUNKED TREES HAVE AN AVERAGE MEASUREMENT CALCULATED IN ACCORDANCE WITH AS 4970. 2. MINIMUM DISTANCE ALLOWED 2. DAB = DIAMETER ABOVE BUTTRESS USED WHEN CALCULATING SRZ. 3. SPECIES TO BE CONFIRMED © STARS – IACA 2020

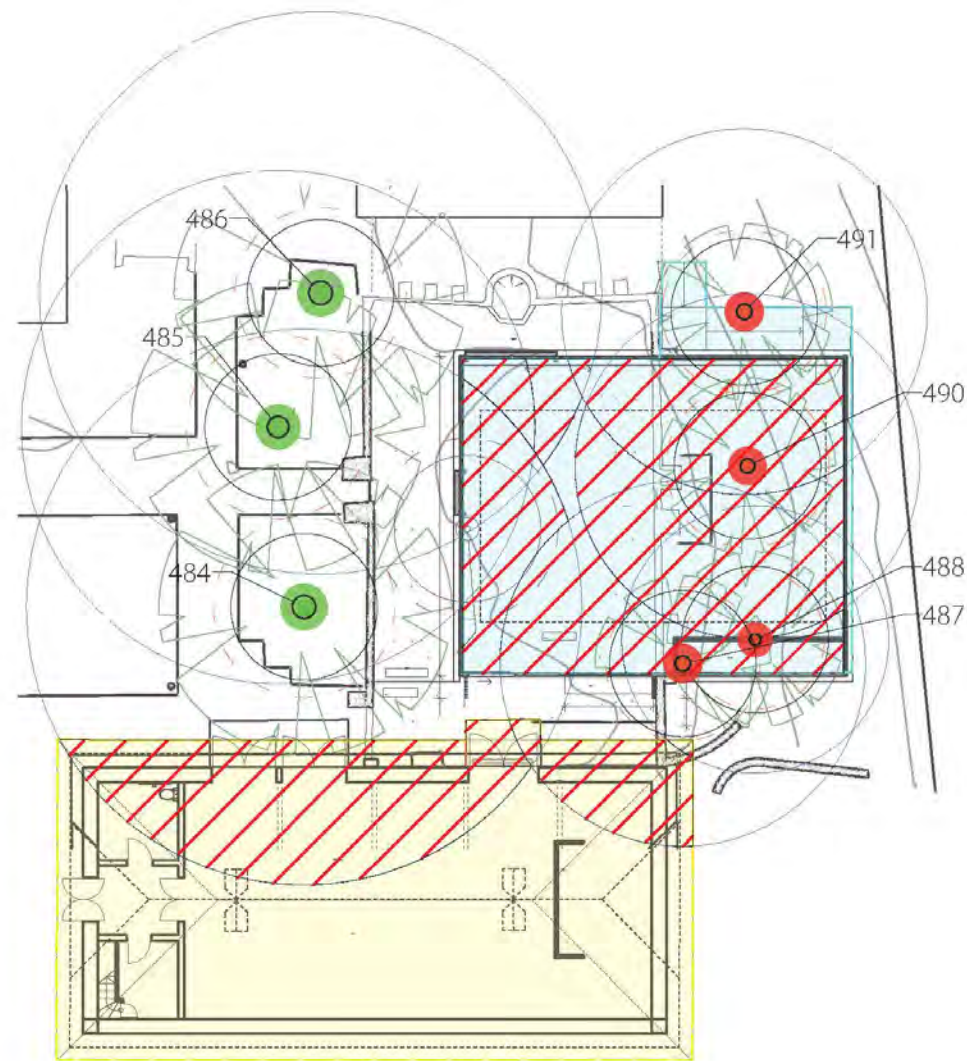
LEGEND

AGE CLASS	Y	YOUNG SAPLING/HAS NOT REACHED 1 ST ADULT FORM	SM	SEMI-MATURE DBH < 300mm/APPROACHING FULL HEIGHT	M	MATURE DBH BET. 300 -700/APPROACH. MAX HT & SPREAD	OM	OVER-MATURE/SENESCENT LGE DBH, LGE BRANCH FAILURES/STRUCT FAILTS
STRUCTURE	P	POOR NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE	F	FAIR STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE	Av	AVERAGE SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE	Ex	EXCELLENT SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES
HEALTH	P	POOR SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY	F	FAIR SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING	Av	AVERAGE LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD	G	GOOD NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD
RETENTION	TREES TO BE RETAINED				TREES TO BE REMOVED		THREATENED TREE	

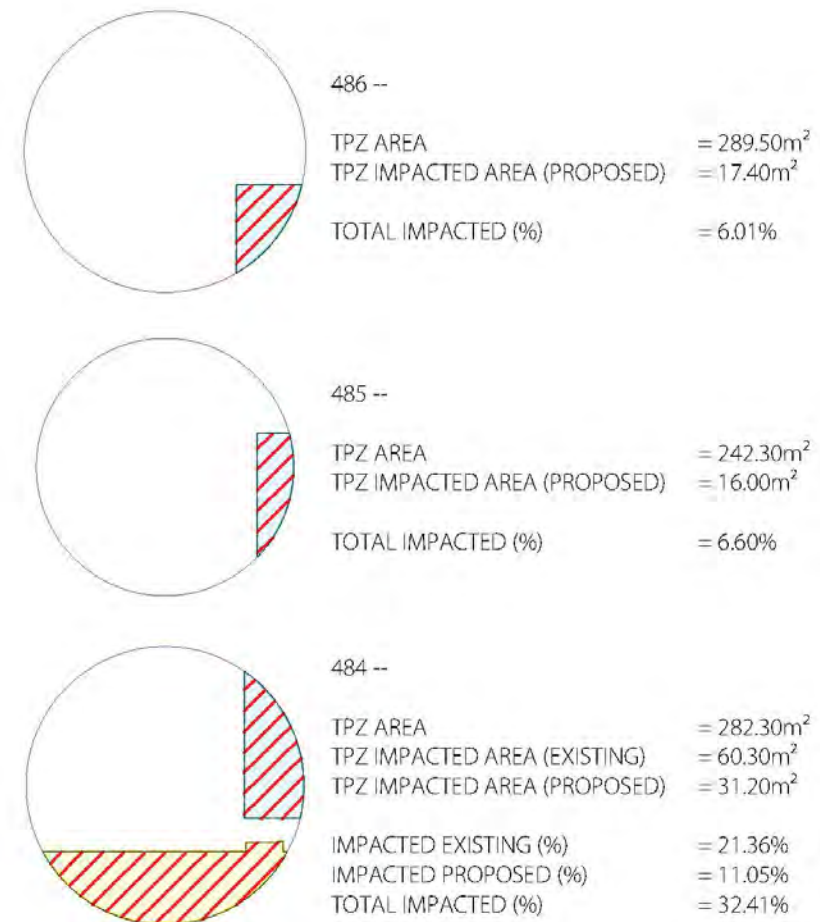
APPENDIX B – TREE ASSESSMENT DIAGRAM

ARBORICULTURAL TREE DIAGRAM | L010

CLOSEBOURNE GARDEN PAVILION



1 ARBORICULTURAL TREE DIAGRAM
L010 Scale: 1:200



2 TPZ IMPACTED DIAGRAM
L010 Scale: 1:400

LEGEND

- TREE PROTECTION ZONE (TPZ)
- STRUCTURAL ROOT ZONE (SRZ)
- TPZ AREA IMPACTED
- SURVIVED TREE ID
- PROPOSED SITE
- EXISTING SITE
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE REMOVED

REV	DATE	COMMENTS
B	15/12/22	ISSUE FOR REVIEW
A	14/12/22	ISSUE FOR REVIEW

PROJECT:
CLOSEBOURNE GARDEN PAVILION

SITE:
365 MORPETH ROAD, MORPETH, 2321

CLIENT:
LENLEASE RETIREMENT LIVING

14561.5 DA L010 B

DRAWN: ER / FW DATE: 14/12/2022 SCALE: @A3
JOB NUMBER: 14561.5 PHASE: DWG NO: REV: 01

APPENDIX C– ULE CLASSIFICATIONS

The following tables provide supplementary information to assist in interpreting the previous tables.

ULE CLASSIFICATIONS	
1	LONG ULE : GREATER THAN 40 YEARS [>40] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR MORE THAN 40 YEARS
A	Structurally sound trees located in positions that can accommodate future growth.
B	Storm damaged or defective trees that could be made suitable for retention by remedial tree surgery.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.
2	MEDIUM ULE : MORE THAN 15 YEARS, LESS THAN 40 YEARS [15 - 40] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 15 TO 40 YEARS
A	Trees that may only live between 15 and 40 more years
B	Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals
C	Trees that may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons
D	Storm damaged or defective trees that can be made suitable for retention by remedial work
3	SHORT ULE : MORE THAN 5 YEARS, LESS THAN 15 YEARS [5 -15] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 5 TO 15 YEARS
A	Trees that may only live between 5 and 15 more years
B	Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals
C	Trees that may live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons
D	Storm damaged or defective trees that require substantial remedial work to make safe, and are only suitable for retention in the short term
4	REMOVE : LESS THAN 5 YEARS [<5] TREES WITH A HIGH LEVEL OF RISK THAT WOULD NEED REMOVING WITHIN THE NEXT 5 YEARS
A	Dead trees
B	Dying or suppressed and declining trees through disease or inhospitable conditions
C	Dangerous trees through instability or recent loss of adjacent trees
D	Dangerous trees through structural defects, including cavities, decay, included bark, wounds or poor form
E	Damaged trees that are considered unsafe to retain
F	Trees that will become dangerous after removal of others for the reasons given in A to E
REFERENCE: LINK TREE SYSTEM LTD. JEREMY BARRELL, ARBORICULTURAL JOURNAL 1993, VOL. 17PP. 33-46, 01/03/98	