PLANNING PANELS HEARING

Amendment C205 to the Hume Planning Scheme
Lindum Vale Precinct Structure Plan

Expert Landscape Evidence Statement

1960-2040 MICKLEHAM ROAD, MICKLEHAM

PREPARED FOR SATTERLEY PROPERTY GROUP
INSTRUCTED BY NORTON ROSE FULBRIGHT
SITE INSPECTION 31 JANUARY 2018

PREPARED BY
John Patrick
John Patrick Landscape Architects Pty Ltd

February 2018

1 NAME AND ADDRESS OF THE EXPERT

1.1 John William Patrick
324 Victoria Street
Richmond, Victoria 3121

2 QUALIFICATIONS AND EXPERIENCE

2.1 M.Sc. Ecology (University of Durham).

2.2 M.Sc. Landscape Ecology, Design and Management (Wye College, University of London).

2.3 Associate Member of the Australian Institute of Landscape Architects.

2.4 John Patrick has worked in the discipline of Landscape Design since 1976. He established his practice in Australia in 1980 becoming full-time in 1988. From 1980-1988 he was Senior Lecturer in Amenity Horticulture at VCAH-Burnley.

2.5 In his practice John Patrick has undertaken an extended range of Landscape Architectural projects including:

- studies of Old Parliament House and Government House, Canberra;
- studies of Fitzroy, Flagstaff, Treasury, Alexandra and Carlton Gardens, Melbourne;
- provision of Landscape Architectural services to hospitals, schools, residential sub-divisions, private residences and parks etc;
- design services for the City of Sydney 'Living Colour' Committee including street design for the Olympic and Paralympic Games 2000, and;
- heritage studies and conservation management plans for numerous sites including Government House, Melbourne, The Domain, Eureka Stockade Parklands and Central Park, Caulfield.

2.6 He is a past presenter of Burke's Backyard and ABC's Gardening Australia, a past Board Member of the Royal Botanic Gardens, Melbourne, the Garden State Advisory Committee and Parks Victoria Dandenong Gardens Advisory Board and has written or contributed to 11 books.

3 AREA OF EXPERTISE

3.1 John Patrick has experience in Landscape Architecture, Landscape Heritage and Landscape Horticulture.

4 EXPERTISE TO PREPARE THIS REPORT

4.1 John Patrick is regularly involved with the preparation of Landscape Architectural schemes for residential and commercial developments and has provided expert evidence to the Tribunal's Planning Division on many occasions. He has also appeared at numerous Planning Panels in Victoria most recently involving department of Housing and Social Services projects, Metrolink and 1 Henry street, Belmont.

5 INSTRUCTIONS THAT DEFINE THE SCOPE OF THIS REPORT

5.1 This report has been prepared following verbal instruction from Norton Rose Fulbright. I have no business or private relationship with the permit applicant or Norton Rose Fulbright other than being instructed to prepare this statement.

5.2 In the preparation of this report I have been assisted by Patrick Kipping, a Landscape Architect, and Fiona Webber a Horticulturist and Arborist, both of whom work within this practice.

6 THE FACTS, MATTERS AND ASSUMPTIONS ON WHICH THE REPORT PROCEEDS

6.1 The report assumes that the levels, dimensions and drawings provided by Norton Rose Fulbright are correct as these have been used as the basis for this report and associated plans.

7 DOCUMENTS VIEWED IN PREPARING THIS REPORT

7.1 In the preparation of this report I have viewed and reviewed the following items:

- Hume City Council. Ordinary Council Meeting, 9 October 2017. Report No. SU50 Submission to Amendment C205 – Lindum Vale Precinct Structure Plan (PSP);
- Victorian Planning Authority. PSP 1202 Lindum Vale. Part A Submission, Amendment C205 to the Hume Planning Scheme;
- Victorian Planning Authority. Lindum Vale – Native Vegetation Precinct Plan. August 2017.
- Victorian Planning Authority. Lindum Vale Precinct Structure Plan. Plan 3 – Future Urban Structure (Draft for Discussion, 16/01/2018, VPA's Part A, Submission Appendix 3a).
- ENSPEC. 1960-2040 Mickleham Road, Mickleham. Overview Showing Retention Value. Drawing No: 201-032015. 16 March, 2015
- Biosis. Tree Assessment and Arboricultural Report Lindum Vale, Mickleham (December 2014)
- Biosis. Review of Draft Lindum Vale Precinct Structure Plan Area, Project No 23453. 2 October 2017.
- Tree Logic Pty Ltd. Arboricultural Report. 1960 & 2040 Mickleham Road, Mickleham. 5 April, 2017 (Appendix 1).

8 A SUMMARY OF THE OPINIONS OF THE EXPERT

Background

8.1 The site that is subject to this Hearing comprises 144 hectares of land at the junction of Mt Ridley Road that extends along an east/west axis to the south and Mickleham Road following a north/south alignment to the west. Beyond Mickleham Road to the west is land included in a Green Wedge.

8.2 To the east of the site there has already been residential development, the Mount Ridley rural-residential community comprising dwellings of varied architectural forms but predominantly single storey on large rural lifestyle plots.

8.3 The northern site boundary is encumbered with a wide easement containing power lines and pylons. Beyond this is the Merrifield West PSP and Outer Metropolitan Ring alignment.

8.4 The site is currently zoned Farming Zone and is affected by the Development Plan Overlay-Schedule 8 which extends to the entire site, Environmental Significance Overlay-Schedule 11 to 1960 Mickleham Road and ESO-Schedule 5 to 2040 Mickleham Road.

8.5 Within the south-west corner of the site is a single storey bluestone building with associated outbuildings, the Parnell's Inn which is subject to Heritage Overlay Schedule-36.

8.6 Other overlays on the site include Public Acquisition Overlay-Schedule 2 which relates to future widening of Mount Ridley Road and applies to 1960 Mickleham Road and Public Acquisition Overlay-Schedule 3 which is planned for the Outer Metropolitan Ring (E6).

8.7 The site is subject of Amendment C205 which seeks to facilitate the use of the site for residential development by introducing a new Urban Growth Zone Schedule 9 to the Planning Scheme and the Land.

8.8 This amendment has a number of objectives of which the main objective is to insert Schedule 9 to Clause 37.07 Urban Growth Zone and rezone part of the Land from Farming Zone to Urban Growth Zone 9. The Schedule requires development to be generally in accordance with the PSP.

8.9 Council's concerns focus upon the retention of trees outside of open space areas and expresses their strong support for the retention of scattered trees through the site since the level of retention they envisage will result in "the provision of an open space network that achieves a high level of retention of native vegetation across the site and provides connectivity to the ecological and landscape values of the wider area"[1].

8.10 Council wishes to have as many trees as practical retained, not only within conservation reserves and areas set aside for landscape values but within the residential areas.

8.11 Previous work undertaken on the site, primarily of ecological focus, identified the most valuable groups of trees from a habitat stand point. These have now been grouped into Conservation Reserves.

Brief

8.12 I have been asked to review issues pertaining to Landscape in the proposed amendment.

8.13 My review focusses on trees located outside areas designated as conservation reserves, local parks or 'landscape values'. The only additional trees assessed in detail are two trees within Satterley's proposed water retarding basins.

8.14 I also address issues raised by Hume City Council in their response to Hume Planning Scheme Amendment C205 as described in Council's Submission dated 2 October 2017.

8.15 I have assumed that vegetation within the Heritage Overlay will not ultimately be part of the development area but relate to the ultimate management of that site. This vegetation has not been considered in this evidence.

Tree Surveys

8.16 I inspected the site and reviewed two Arboricultural Reports prepared for the site, prepared by Biosis and Tree Logic. Table 1 allows comparison of the inclusions and scope of these two reports.

Table 1. Details of arboricultural reports prepared for the site.

	Biosis	Tree Logic
Report date	12 Dec 2014	5 April 2017
Total trees/tree groups surveyed	285	174
Trees included	Dead and alive	Live trees only
Area surveyed		
Development area	✓	✓
Parnell's Inn site at 1920 Mickleham Rd	✓	×
Cocking property at 1990 Mickleham Rd	✓	×
2040 Mickleham Rd	✓10 trees + 2 tree groups	✓ 1 tree
Data provided		
DBH (diameter @ breast height)	✓	✓
Crown height and width	✓	✓
Basal diameter	×	✓
Health, Structure, Age, Useful life expectancy (ULE)	✓	✓
Origin	✓	✓
Tree Protection Zone	✓	✓
Overall assessment	Retention value	Arboricultural rating

8.17 To allow comparison with other documents I have used the Biosis identification numbers for trees in this evidence (tree locations shown in Appendix 1). Shown in brackets following are the numbers ascribed to

[1] Hume City Council. Ordinary Council Meeting, 9 October 2017. Report No. SU50 Submission to Amendment C205 – Lindum Vale Precinct Structure Plan (PSP), pp 73.

the same tree in the Tree Logic report. I have presumed that these are the number utilised by the VPA in the exhibited PSP and NVPP as well as the Part A.

8.18 My review found that 32 trees are located outside designated conservation areas, local parks or landscape values areas. These trees and their corresponding identification numbers in the two arboricultural reports are shown below in Table 2. I have assumed that trees located within conservation or park areas will be retained, including dead trees. The 32 trees that I am considering excludes those trees that were identified in the Biosis report as dead.

8.19 Table 2 also shows the retention or removal of these trees indicated on Plan 3 – Future Urban Structure of the Lindum Vale Precinct Structure Plan, 16/01/2018. This retention/removal incorporates the Changes to the amendment (Section 8.1) of the Native Vegetation Precinct Plan of the PSP 1202 Lindum Vale Part A Submission document by the Victorian Planning Authority dated February 2018.

8.20 The final column of Table 2 shows my recommendation and summarises the reasoning behind this.

Table 2. Trees located outside conservation reserves, local parks or landscape values areas, their indicated retention in the Future Urban Structure Plan 3 of the Lindum Vale Precinct Structure Plan, and my retention recommendation.

Biosis Tree #	Tree Logic #	Retention/removal as per Lindum Vale Precinct Structure Plan	Retention Recommendation (JP)
20	6	Retain	Remove – Poor or fair-poor health & structure, limb failure
25	1	Retain	Agree
27	21	Retain	Agree
47	90	Retain	Remove – Poor health & structure, senescent, major limb failure.
55	119	Retain	Agree
68	146	Retain	Agree
73	160	Retain	Agree
74	167	Retain	Agree
76	169	Retain	Agree
77	170	Remove	Agree
86	27	Retain	Remove – Low arboricultural value, trunk decay, cavities, low ULE.
89	30	Remove	Agree
90	61	Retain	Agree
91	55	Retain	Remove – Fair-poor health & structure, low retention value (Biosis), low arboricultural value (Tree Logic).
92	62	Retain	Remove – Low retention value, past branch failure, large dead stems, low ULE, severe decline.
96	49	Remove	Agree
98	54	Retain	Agree
109	59	Retain	Agree
110	32	Retain	Agree
111	31	Retain	Agree
114	38	Retain	Agree
203	56	Retain	Agree
204	58	Retain	Agree
205	67	Remove	Agree
209	63	Remove	Agree
216	72	Remove	Agree
217	71	Remove	Agree
219	70	Retain	Agree

220	69	Remove	Retain – semi-mature, moderate retention and arboricultural value, ULE of 60+ years.
221	57	Remove	Agree
243	115	Retain	Agree
257	154	Remove	Agree

Table 3: Additional trees reviewed located within Satterley's proposed water retarding basins.

Biosis Tree #	Tree Logic #	Enspec #	Retention/removal as per Lindum Vale Precinct Structure Plan	Retention Recommendation (JP)
36	99	73	No recommendation	Remove – Low retention value, extensive previous limb loss.
75	168	120	No recommendation	Retain – Poor health but high landscape contribution.

Response to Proposed Removal or Retention

8.21 Of the 32 trees located outside the designated reserves (Table 2), 10 (Trees 77, 89, 96, 205, 209, 216, 217, 220, 221 and 257) have been identified in the Future Urban Structure plan 3 of the Lindum Vale Precinct Structure Plan (incorporating tree retention/removals in 8.1 Changes to the amendment in the PSP 1202 Lindum Vale Part A Submission document) as being trees that warrant removal (as indicated on VPA plan provided 24th January 2018).

8.22 On reviewing the Biosis and Tree Logic report data for these 10 trees I note there is general agreement that these trees do not warrant retention. In each case the trees have been given a limited Useful Life Expectancy by Biosis and a "Low" arboricultural rating by Treelogic.

8.23 Having reviewed these reports I believe there is an argument for the removal of five additional trees for the reasons described below.

8.24 Tree 20 (6) has been identified by Biosis as having poor health and structure and fair-poor health and structure by Tree Logic. My review of the tree suggested that with its limb failure and sparse epicormics its removal could be supported.

8.25 Tree 47 (90) a River Red Gum, has been identified by Biosis as having poor health and structure and being senescent. They suggest it has a low retention value. My review suggested that it had major limb failure and sparse canopy typical of a senescing tree and that it could be removed.

8.26 Tree 86 (27), a Grey Box (*Eucalyptus microcarpa*) is given a low retention value by Treelogic who note the presence of trunk decay and cavities along with a dead stem to the south. Biosis give it a very short life expectancy.

8.27 Tree 92 (62) is similar with low retention value from Treelogic because of past branch failure and dead branches of large size and a 1-5 year ULE from Biosis and a description of "severe decline". I would support removal of both of these trees.

8.28 Tree 91 (55), a Grey Box (*Eucalyptus microcarpa*), is assessed as being in fair-poor health and structure with a low retention value, codominant stems, past branch failure, deadwood greater than 50mm stems, over-extended limbs and decorticating bark (not to be expected on Grey Box). Treelogic give it a low retention value, Biosis recognising their description of very poor health and poor structure and their description of severe decline give it a Useful Life Expectancy of a year. My inspection supported these views that this tree should be removed.

8.29 There are additionally 2 trees located within Satterley's proposed water retarding basins, Trees 36 (99) and 75 (168) which I have been asked to review. Tree 36 is a poor tree with a low retention value. It has had extensive limb loss in the past and epicormic growth. I am of the opinion that this tree could be removed. By contrast, Tree 75, while of poor health has a form that would contribute positively to open space, especially close to water. If possible, this tree should be retained.

8.30 Reviewing the site broadly it is apparent that grazing has negatively impacted on tree regeneration. My review of the site identified only a single tree of a relatively juvenile age, Tree 220 (69), a River Red Gum. This tree has been identified for removal on the Future Urban Structure plan, however It is my opinion that this tree should be retained.

8.31 Tree 220 (69) was identified as a semi-mature tree in both the Biosis and Treelogic reports, in contrast to the maturity of the majority of trees. The Biosis report gives the tree a moderate retention value with a Useful Life Expectancy of 60+ years. Tree Logic reports a moderate arboricultural value. Its retention seems appropriate.

Conclusions from Tree Review

8.32 Apart from introduced Monterey Cypress, a weedy Hawthorn (*Crataegus monogyna*) and the Sugar Gums (*Eucalyptus cladocalyx*) all vegetation on the subject site is mature remnant indigenous vegetation and is therefore subject to Native Vegetation Clause 52.07 and the removal of these trees will trigger permit requirements and offset provisions.

8.33 Schedule 5 to the Environmental Significance Overlay (ESO5) applies to 2040 Mickleham Road. This requires the issue of a permit to remove native vegetation and this will apply to all trees except the Monterey Cypresses and Hawthorn.

8.34 Schedule 11 to the Environmental Significance Overlay (ESO11) applies to 1960 and 2040 Mickleham Road and this states that a permit is not required to remove, destroy or lop vegetation where the vegetation is non-native. Under ESO11 all assessed trees with the exception of the Monterey Cypresses and the Hawthorn will require a permit for removal.

8.35 I have reviewed the proposed tree retention plan (attached as Appendix 3) as provided by VPA 24th January 2018, against two Arboricultural reports, prepared by Biosis and Tree Logic.

8.36 Appropriately there has been a desire to retain as many trees on the site as possible. My review suggests that the greater part of the site's trees can and should be retained. Where trees are to be retained in groups then there is an opportunity to retain trees which might be assessed as having a 'low' retention value since they are within a tree community where they are sheltered to some degree from climate impacts, for example wind.

8.37 Individual trees by contrast do not enjoy such protection and are therefore subject to greater stresses especially when within areas of urban development with reflected heat, increased drainage and wind exposure.

8.38 On that basis I have suggested that five scattered trees outside protected areas/reserve that are currently shown to be retained might appropriately be removed and a single tree proposed for removal should be retained. The trees that I recommend for removal are Trees 20 (6) and 47 (90) both River Red Gums (*Eucalyptus camaldulensis)* and Tree 86 (27), Tree 91 (55) and Tree 92 (62) all Grey Box (*Eucalyptus microcarpa*). The single tree I recommend for retention is Tree 220 (69), a River Red Gum (*Eucalyptus camaldulensis*).

8.39 Council seeks a maximum removal of trees across the site of 15%. While this might be an appropriate vision in terms of a planning aspiration it is my view that removals should not reflect an arbitrary number but reflect the health, potential future contribution and safety of the trees. If all trees were in serious decline it would be absurd to retain them to meet an arbitrary planning aspiration.

8.40 My review of the site suggests that it contains 172 remnant indigenous trees of which 140 are proposed to be within reserves and 32 within the broader landscape. Of these 160 are proposed for retention on the site, 15 are proposed for removal (allowing for the removals and retention which I have nominated). This represents a retention of 91% and 9% removals. Amongst the 32 scattered trees, the 15 proposed for removal have all been identified as having low retention values.

8.41 The removals proposed over the whole site is well below the 15% aspiration identified by Council.

8.42 As observations within my report indicate many of the individual scattered trees proposed for retention have modest life expectancy of in the order of 11-20 years. It is my opinion that the most essential aspect of this site is providing opportunity for the recruitment of the next generation of cover. There are significant signs of stress and decline throughout this tree population and this has been widely commented on in the Treelogic Report.

8.43 It is my opinion that the tree removals proposed are reasonable, that trees proposed to be removed are warranted and that, if included amongst the removals then the removal of nominated trees should need no further permit application. In this my view conforms to those of the Lindum Vale Native Vegetation Precinct Plan with the addition of those trees I have nominated for retention or removal.

8.44 It is my opinion that this approach provides Satterley Property Group with certainty with which to progress on this development.

Landscape Issues

8.45 I have been asked to address Landscape issues relevant to the project as raised as concerns by Hume City Council in their submission dated 2 October 2017. My review of this document suggests that concerns fall into four discrete areas

1. The inability to provide an appropriate interface treatment to the development site's eastern boundary and the rural residential dwellings that it contains
2. The ability of the developer to provide an appropriate landscape treatment to the Mt Ridley Road alignment to the southern boundary of the site
3. The ability to provide an appropriate landscape response to the site on lots with a minimum area of 800 square metres or less.

8.46 The issue of the interface to the east appears to have been largely resolved on the Revised Draft Future Urban Structure Plan (VPA Part A Submission-Amendment C205 to the Hume Planning scheme, p8). A review of the boundary interface shows that a combination of the Conservation Reserve that extends to the south-east corner of the site, the water collection that Satterley's have proposed to locate to the eastern boundary, areas identified as having landscape values and where existing vegetation is to be retained and local parks provide a buffer within the site boundary to the greater part of the eastern interface with the rural residential zoned land.

8.47 A review of the interface indicates that only three properties within the rural residential zone will share an unprotected interface to the development site, the dwelling at 35 Cooinda Avenue separated from the site boundary by 66 metres, 60 Cooinda Avenue to the north side of the road and the property at 105 Calloway Drive.

8.48 There is an entirely appropriate separation and interface to the most public view of the planning zone boundary from Mt Ridley Road.

8.49 In the length of boundary where there is no interface treatment proposed as reserve there would be an opportunity to provide an appropriately scaled screening interface that would protect neighbouring property owners and secure separation between zones by establishing an indigenous vegetation belt of maximum width 5 metres.

8.50 Such a treatment would secure privacy and separation and within the subject site would establish a boundary corridor contributing a final link between the areas of reserve to the eastern site boundary.

8.51 A similar review of the southern, Mt Ridley Road boundary indicates that the present proposal as illustrated graphically in Figure 8, page 20, Revised Draft Future Urban Structure Plan of Part A Submission – Amendment C205 to the Hume Planning Scheme (attached as Appendix 4) resolves many of Council's concerns in respect to this interface.

8.52 Land to the east of the proposed north/south connector road is to be located within a Conservation Reserve which will retain a number of large mature remnant trees. This effectively provides a 10 metre setback as sought by Council. On that basis I would find it difficult to support a need for larger blocks to this frontage especially if it is designed in part to protect the rural residential zone interface. The existing proposed outcome would appear to meet Council's expectations.

8.53 To the west of the connector road the need to protect the rural/residential zone interface is greatly reduced. The widening of Mt Ridley Road, the construction of a signalised intersection at the Mt Ridley Road/Mickelham road intersection and widening of Mickleham Road will create a more urban outcome. While the establishment of a landscaped interface with appropriate planting would be advantageous this does not, to my mind imply a need for a larger lot or greatly increased setback. A need for a landscape plan in conjunction with any development proposal would satisfactorily resolve issues connected with this setting.

8.54 In my opinion the intensity of development sought with a minimum average dwelling density of 16.5 dwellings per Net Developable Hectare is a reflection of the very generous landscape spaces that are being provided within the site.

8.55 Council's vision for the site has recognised the particular ecological and habitat values that the site provides and this brings with it high visual amenity and the potential to exploit these resources for the benefit of the community, most notably the future residential community that will occupy the site.

8.56 My review of the Summary Land Use Budget 16 January 2018 reveals that between service open space and credited open space a total of 35.58 hectares, 24.6% of the total is to be dedicated to open space.

8.57 This space not only extends through the site introducing corridors of greenery that are readily accessible by future residents and generally breaking up the continuous built form that might otherwise occur it also extends as an inverted Y so that the site is effectively sub-divided into modestly scaled development precincts.

8.58 Council has sought a unique development character to this site and in this generous contribution of open space it has achieved it. The focus tends to be on the continuous areas of open space yet if the TPZ of the scattered trees are identified as areas and combined it is apparent that there is an area greater than 1 hectare in extent that derives from this scattered contribution.

8.59 The space provided is not active space in the form of playing fields and recreational facilities, rather it is passive space most likely to be used by and attract local residents. This space is less likely to attract external visitation than might be expected at sports facilities where external groups come to compete.

8.60 The density of development proposed to some degree is a reflection of this facility. So long as spaces within the design are appropriately apportioned to permit recruitment of canopy vegetation amongst the dwellings, and this is not likely to be either River Red Gum or Grey Box given their growth form, then the reduction in lot size is compensated for by valuable contiguous open space corridors. Corridors that have value for wildlife can also offer valuable corridors for residents.

8.61 It is worth commenting too on the breakdown of the open space. Service Open space is identified as 20.81% of the site. By contrast Credited open space is identified as 5.36% of the net developable area of the site.

8.62 My review of the site indicated that the reserve areas open protected for "landscape values" are open in character with an opportunity for passive community use. That the dominant trees are River Red Gums places some constraint on community use; picnic tables or seats would not be sensibly located beneath them but I do not believe that public access should entirely be excluded or needs to be entirely excluded from the areas.

8.63 No doubt there will need to be measures taken to protect sensitive areas with high Ecological value, measures too to reduce soil compaction from specific trees or ensure areas are protected for plant regeneration, but the fact that the on-site open spaces provide corridors through the site suggests that they will provide an attractive area for passive recreation.

8.64 Appropriate design outcomes will be essential and might include controlled entry/exit points, the use of raised walkways and the provision of interpretative signage that enhances community understanding of the importance of these spaces and the role that the community can play in protecting them.

8.65 In addition, I note that a local park network links the precinct with Mount Ridley Conservation Area via the transmission easement. This offers further opportunity for public recreational use of reserve spaces so that this service area could be seen as having a dual role.

8.66 On that basis it might be argued that the 20.8% of the site currently seen as service open space might be appropriately reapportioned so that its value to the community for recreation is identified by its being credited, at least to some degree, as Credited Open Space.

9 CONCLUSION

9.1 I have reviewed arboricultural reports prepared for the site by Biosis and Tree Logic and note that there are differences in assessment of health, structure and retention value. I have attempted to balance the varying observations and as a result have recommended the retention of one tree currently identified for removal, Tree 220 (69, 22), a River Red Gum. I have additionally recommended five further trees for removal, Trees 20 (6, 53) and 47 (90,83) both River Red Gums (*Eucalyptus camaldulensis)* and Tree 86 (27, 155), Tree 91 (55, 160) and Tree 92 (62, 161) all Grey Box (*Eucalyptus microcarpa*).

9.2 My review of the interface treatment of the site with the Rural-Residential Zone to the east suggests that by the establishment of a 5m wide buffer zone in the northern portion of the site an appropriate separation can be achieved. The provision of a Conservation Reserve to the south-east of the subject site provides an appropriate interface to the Mount Ridley Road frontage.

9.3 I have also recognised the significant contribution to open space that is being made to this site by land located within conservation reserves, local parks and areas retained for landscape values and have made the suggestion that at least a proportion of this should be considered as Credited Open Space.

10 PROVISIONAL OPINIONS

10.1 None.

11 INACCURACIES AND ADDITIONAL MATTERS

11.1 None.

John Patrick
John Patrick Landscape Architects Pty Ltd

APPENDIX 1 – Biosis Tree Location Plans

(Biosis. Tree Assessment and Arboricultural Report Lindum Vale, Mickleham, December 2014, pp. 22-25)

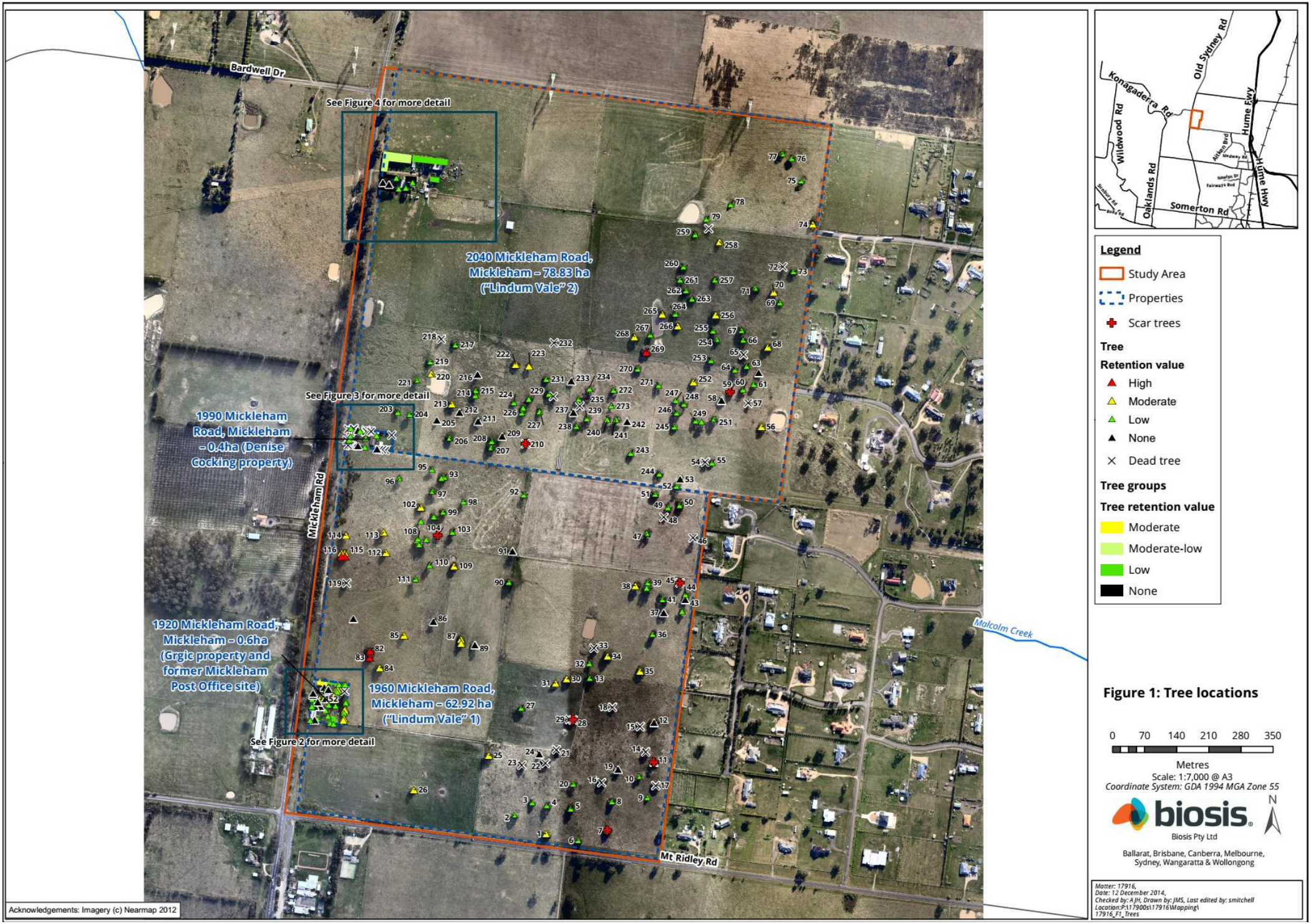

Bardwell Dr
See Figure 4 for more detail
2040 Mickleham Road, Mickleham – 78.83 ha ("Lindum Vale" 2)
See Figure 3 for more detail
1990 Mickleham Road, Mickleham – 0.4ha (Denise Cocking property)
Mickleham Rd
1920 Mickleham Road, Mickleham – 0.6ha (Grgic property and former Mickleham Post Office site)
1960 Mickleham Road, Mickleham – 62.92 ha ("Lindum Vale" 1)
See Figure 2 for more detail
Malcolm Creek
Mt Ridley Rd
Old Sydney Rd
Konagaderra Rd
Wildwood Rd
Hume Fwy
Oaklands Rd
Somerton Rd
Hume Hwy
Legend
Study Area
Properties
Scar trees
Tree
Retention value
High
Moderate
Low
None
Dead tree
Tree groups
Tree retention value
Moderate
Moderate-low
Low
None
Figure 1: Tree locations
0 70 140 210 280 350
Metres
Scale: 1:7,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55
N
biosis
Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Melbourne, Sydney, Wangaratta & Wollongong
Matter: 17916,
Date: 12 December 2014,
Checked by: AJH, Drawn by: JMS, Last edited by: smitchell
Location:P:\17900s\17916\Mapping\
17916_F1_Trees
Acknowledgements: Imagery (c) Nearmap 2012

Figure 2: Tree locations - 1920 Mickleham Road, Mickleham – 0.6ha (Grgic property and former Mickleham Post Office site)

Matter: 17916,
Date: 12 December 2014,
Checked by: AJH, Drawn by: JMS, Last edited by: smitchell
Location:P:\17900s\17916\Mapping\
17916_F2_Trees_Detail1

Figure 3: Tree locations, 1990 Mickleham Road, Mickleham – 0.4ha (Denise Cocking property)

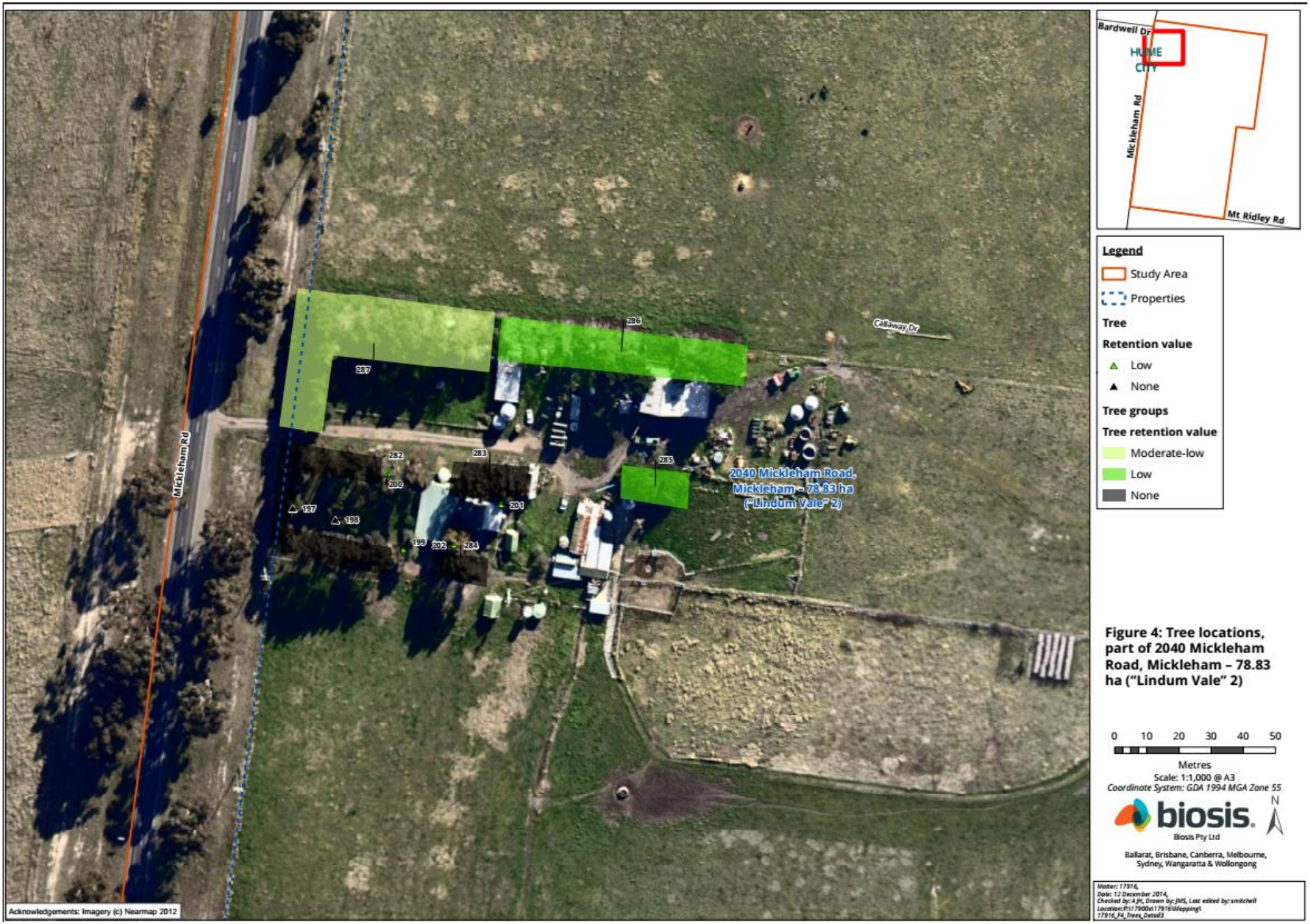


Figure 4: Tree locations, part of 2040 Mickleham Road, Mickleham – 78.83 ha ("Lindum Vale" 2)

APPENDIX 2 – Tree Logic Pty Ltd Arboricultural Report

Arboricultural Report

1960 & 2040 Mickleham Road, Mickleham

5th April 2017

Satterley Property Group

Tree Logic Pty. Ltd.

Unit 4 21 Eugene Terrace

Ringwood, VIC 3134

T 03 98707700 **F** 03 9870 8177

Tree Logic Ref: 008047

1. Objectives

1.1 To provide an arboricultural assessment and report for trees located within and adjacent to 1960 and 2040 Mickleham Road, Mickleham (subject site), in relation to proposed development of the site.

1.2 To provide information on the species, dimensions, health and the structure of the trees and their appropriateness for retention.

1.3 To review a design proposal, carry out a design impact review and make recommendations based on retention suitability.

1.4 To offer recommendations regarding the management of the trees, including any tree protection requirements.

2. Method

2.1 The tree assessment was carried out on the 27th of February, 2017. The trees were inspected from the ground and observations made of the growing environment and surrounding area. The assessment was undertaken with regard to contemporary arboricultural practices and consisted of a visual inspection of external and above-ground tree parts. The trees were not climbed and no samples of the tree or site soil were taken. Trees on adjoining property boundaries were observed only from within the subject site with measurements estimated where required.

2.2 Assessment details of individual trees are listed in the Tree Assessment Table in Appendix 1. A copy of the tree plan can be seen in Appendix 2.

2.3 Observations were made of the assessed trees to determine age category, and condition with measurements taken to establish tree crown height (measured with a height meter) and width (paced) and trunk dimensions (measured 1.4m up the trunk with a diameter tape unless otherwise stated). The basal trunk diameter was also captured, which will allow the establishment of a structural root zone (SRZ) (this distance was estimated for trees located on adjoining properties). Descriptors used in the tree assessment can be seen in Appendix 3.

2.4 The Australian Standard AS 4970-2009 Protection of trees on development sites, has been used as a guide in the allocation of tree protection zones (TPZ) for the assessed trees. The TPZ methodology is explained in detail in Section 4 and the specific measurements are included in the tree assessment data in Appendix 1 and noted on the tree plan in Appendix 2.

2.5 The site falls within the City of Hume Planning Scheme. Trees within the subject site are covered under Schedule 5 and Schedule 11 to the Environmental Significance Overlay (ESO5 and ESO11) and under the state-wide Clause 52.17 ‘Native vegetation’.

2.6 Only trees were assessed and data collected. A tree was generally a plant with a height greater than 5 metres on a single trunk or with a single trunk diameter of 150 mm or greater at a height of 1.4 metre above ground level. There were other smaller or newly planted trees, as well as large shrubs which are commented on in the report.

2.7 The site is proposed for redevelopment, which has the potential to impact some of the assessed trees and would also require the removal of other trees. The proposed development of the site was in design development stage and an aim of the tree report is to assist with that process. The preliminary

arboricultural assessment report provides planners and designers with information on the measures required to protect trees suitable for retention.

2.8 The health and structural characteristics of each tree were assessed and each tree was attributed an 'Arboricultural Rating'. The arboricultural rating correlates the combination of tree condition factors (health, structure and form) with tree amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics within a built environment. The arboricultural rating in combination with other factors can assist the project team and planners in nominating trees suitable for retention.

3. Observations

3.1 The tree study area comprised of two properties east of Mickleham Road, Mickleham. The subject site had a history of farming use for grazing and crop raising and comprised of a dwelling, sheds, multiple dams and cyclone fences.

Tree population

3.2 One-hundred and seventy-two (172) trees and two (2) tree groups were assessed and included in this report. The trees were generally individually scattered throughout the site with the tree groups concentrated adjacent the dwelling of 2040 Mickleham Road.

3.3 The prevalent species and origins observed within the site are as per Table 1.

Table 1. Prevalent species

Common Name (*Botanic name*)	Origin	No. of trees
River Red Gum (*Eucalyptus camaldulensis*)	Indigenous	151
Grey Box (*Eucalyptus microcarpa*)	Indigenous	19
Blackwood (*Acacia melanoxylon*)	Indigenous	1
Sugar Gum (*Eucalyptus cladocalyx*)	Australian native	1 group
Monterey Cypress (*Hesperocyparis macrocarpa*)	Exotic conifer	1 tree and 1 group

Tree health

3.4 Tree health was assessed based on foliage colour, size and density as well as shoot initiation and elongation.

- The assessed trees generally displayed typical or above typical health with 70% of the trees displaying Fair health and 12% of trees displaying Good health.
- Trees in Fair-poor health displayed deficiencies such as minor dieback and reduced foliage density. These deficiencies were generally associated with conditions including:
    - Age related decline.
    - Drought stress.
    - Wounds associated with past limb failures or mechanical impacts.

Tree structure

3.5 The structure of the trees was assessed for structural defects and deficiencies, likelihood of failures and presence of targets.

- 65% of the trees displayed Fair structure exhibiting structural condition considered to be typical for the species and within acceptable thresholds for trees of the species and age.
- 25% of assessed trees displayed Fair-poor structure exhibiting defects that were within an acceptable threshold and could be managed with general arboricultural maintenance if required.
- Trees with Poor or Very poor structural quality comprised approximately 10% of the assessed trees.

Defects included

- Trees that had been subject to past limb/stem failure with sections of missing or decayed structural wood
- Over-extended limbs,
- Excessive dieback and deadwood,
- Asymmetric and suppressed form,
- Trunks and limbs with excessive lean, generally with end weight.

Arboricultural rating

3.6 The assessed trees were given an arboricultural rating. This rating relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics within an urban landscape context. Risk potential is also considered, particularly in the context of the intended site usage and proposed development.

Table 2: Arboricultural rating

Arboricultural rating	No. of Trees	Tree feature numbers
High	19	3, 10, 23, 28, 29, 39, 46, 83, 102, 120, 136, 146, 149, 155, 156, 159, 161, 162, 165
Moderate	125	1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 45, 47, 48, 51, 54, 56, 57, 58, 59, 60, 61, 64, 65, 68, 69, 70, 71, 73, 74, 76, 77, 78, 79, 80, 81, 82, 84, 85, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 99, 101, 104, 105, 106, 108, 109, 110, 112, 113, 115, 116, 117, 119, 121, 122, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 137, 138, 139, 140, 141, 142, 143, 145, 147, 148, 150, 151, 152, 153, 154, 157, 158, 160, 163, 164, 166, 167, 168, 169, 172
Low	19	14, 27, 44, 49, 50, 52, 53, 55, 62, 66, 67, 72, 75, 98, 103, 111, 129, 144, 170, Groups 1 and 2
None	9	13, 30, 63, 86, 100, 107, 114, 118, 171
Total	**172 trees and 2 groups**	

- ***High***: Trees of high quality in good to fair condition with long useful life expectancy (ULE). Generally a prominent arboricultural feature. Retention of such trees is highly desirable.
- ***Moderate***: Trees with a Moderate arboricultural rating were generally suitable for retention and design should attempt to incorporate these trees and provide adequate clearances during development stages where reasonable design intent is not unduly hampered.
- ***Low***: Trees with a Low arboricultural rating generally had low retention values. They were either fair specimens of relatively small size, inappropriate species, such as weed species, or displayed general health or structural deficiencies and were not worthy of being a constraint on reasonable design intent. Retention of Low rated trees may be considered in some instances if not requiring a disproportionate expenditure of resources to successfully incorporate into the design or manage ongoing condition.
- ***None***: Trees attributed an arboricultural rating of None had health or structural characteristics that were beyond arboricultural maintenance or were environmental weed species or self-sewn trees spreading through the site to the exclusion of other plants.
  Full tree descriptors are included at Appendix 3.

4. Tree permit requirements

4.1. Schedule 5 to the Environmental Significance Overlay (ESO5) applies to no. 2040 Mickleham Road which states that a permit is required to remove native vegetation.

- Under ESO5, all assessed trees with the exception of Tree 172 and Groups 1 and 2, triggers permit requirements.

4.2. Schedule 11 to the Environmental Significance Overlay (ESO11) applies to no. 1960 and no. 2040 Mickleham Road which states that a permit is not required remove, destroy or lop vegetation where the vegetation is non-native.

- Under ESO11, all assessed trees with the exception of Tree 172 and Groups 1 and 2, triggers permit requirements.

4.3. Considering the age and condition of the trees within the subject, it is concluded that the majority of the trees were naturally occurring specimens and therefore indigenous to the area. On this basis;

- All assessed trees with the exception of Tree 172 and Groups 1 and 2, will trigger a permit and offset requirement under Native Vegetation Clause 52.07.

5. Design recommendations & tree management

Tree retention and suitability

5.1 The preliminary arboricultural inspection report provides planners and designers with information on whether trees are worthy of retention.

5.2 In the absence of specific site design plans, it is not appropriate to speculate on which trees are most appropriate for retention, beyond the general guide provided by the arboricultural ratings attributed to each tree feature. Retention suitability will be dependent on the proposed landscape setting in which trees are intended to be retained. The following recommendations are provided for consideration in the design process.

5.2.1 On the basis of future site safety and potential amenity, preference should be given to retaining trees of High and Moderate arboricultural value in built areas, or areas of increased target potential. The majority of the assessed trees were maturing specimens which displayed some minor health deficiencies and structural defects and can be managed with arboricultural works such as pruning.

5.2.2 Trees of Low arboricultural value generally should not compromise reasonable design intent. However, trees rated as having Low arboricultural value were indigenous specimens and could be considered for retention on the basis of future site safety and decreasing the target potential.

5.2.3 Trees attributed an arboricultural rating of 'None' displayed severe structural defects or were in a state of irreversible decline. The loss of the tree is expected in the short term and should not compromise a reasonable design intent. These trees however could still be considered for retention where the trees are reduced to a stump and made safe for habitat purposes.

5.2.4 Remnant vegetation should be considered along with the proposed redevelopment as the trees' contain many recognised biodiversity, economic and aesthetic values that cannot easily be replaced.

5.3 Several groupings of trees of the same species, similar size, age and condition growing in close proximity to one another existed on the site. The close grown nature of the trees influences the growth habit of each tree and as such the trees are best managed as a group. Fragmentation of the group can expose the individual trees to potential damage from newly exposed forces such as altered wind patterns, sun exposure and soil disturbance.

5.4 All trees on neighbouring properties, regardless of Arboricultural Rating, must be afforded appropriate protection to sustain the tree within any proposed redevelopment of the site, unless otherwise negotiated with their respective owners.

5.5 All trees nominated for retention will require Tree Protection Zones to be established prior to commencing any works onsite including demolition, bulk earthworks, construction, landscaping activity, delivery and storage of materials or placement of site sheds.

5.6 No form of excavation for footings or trenching for installation of underground services is permitted within the nominated TPZ areas for any retained trees without prior consultation with the site arborist, as the risk of severing roots vital to the stability and continued sustainability of the trees can occur.

Tree management

5.7 The majority of assessed trees were observed to be solitary indigenous River Red Gums (*Eucalyptus camaldulensis*) and were generally specimens of large size with the majority being possibly more than 100 to 150 years old. A small population of maturing indigenous Grey Box (*Eucalyptus microcarpa*) were observed and should also be subject to the following discussion and recommendations. While the trees displayed varying structural defects, the majority of trees were worthy of retention as features of the landscape with various arboricultural and ecological values.

5.8 All tree species have the potential to shed branches or limbs, however maturing River Red Gums have a much greater propensity for this than most common urban trees. At the time of the assessment, evidence was observed of repeated and ongoing limb failures by the more mature trees within the subject site, ranging from twigs to large stems. The majority of mature River Red Gums on the site had existing defects and were developing form and branch attachments, which could ultimately lead to further branch failure.

5.9 River Red Gums, however, are generally desirable species due to its variable form and its high tolerance to drought and waterlogging. These abilities highlight the resilience of the species and reflect the essence of its rugged and desirable landscape character. Therefore, when considering these trees for retention, structural defects of the assessed subject trees must be acknowledged and addressed if trees were to be preserved in the vicinity of people or property.

5.10 When considering trees for retention, the following is recommended:

- All trees nominated for retention should be mulched within the TPZ which may promote soil biota and extend the Useful Life Expectancy of the trees. Considering the resilience of the species, trees that displayed health deficiencies such as minor canopy dieback have the potential to recover especially with arboricultural treatment such as soil amelioration or mulching within the TPZ.
- Considering the propensity of the assessed trees to shed limbs as aforementioned, it is recommended that exclusion zones are implemented within the vicinity of the trees. This can be achieved by planting garden beds within the TPZ with lower storey plants, preferably of indigenous species to achieve landscape character. Prolonged time spent underneath the canopy of mature trees should be discouraged, therefore public amenities such as outdoor seating should not be placed underneath the canopies or TPZ of any tree for safety purposes.
- All of the assessed indigenous trees nominated for retention will require a type of pruning called ‘Crown Maintenance – General’, as specified in the Australian Standard (AS 4373 – 2007) Pruning of Amenity Trees. A number of trees should also have major weight reduction pruning, if retained. A more detailed pruning program can be develop during fine design stages.

DESCRIPTION AS PER STANDARD	NOTES
General – indicating the removal of dead, dying, diseased, defective or conflicting branches. • Deadwooding – removal of dead wood	To be performed on all retained trees. To be performed on all retained trees. The maximum size of deadwood permitted after completion should be 25mm diameter.
Thinning – relates to selective removal of branches to lessen or reduce weight, increase light and air or to restore views.	Weight reduction pruning to be performed on trees identified by consultant and climbing arborist as requiring this treatment.

Tree protection zones

5.11 The most important consideration for the successful retention of trees is to allow appropriate above and below ground space for the trees to continue to grow. This requires the allocation of tree protection zones (TPZ) for all retained trees.

5.12 AS4970 has been used as the method for calculating a TPZ. The TPZ defines an area in which construction activity is either avoided, or at least controlled, in order to successfully sustain a tree. The TPZ measurements are provided in the tree assessment data in Appendix 1.

5.13 Minor encroachment, up to 10% of the TPZ, is permissible provided encroachment is compensated for by recruitment and protection of an equivalent area contiguous with the TPZ. No construction should be proposed in the Reduced TPZ unless based on non-destructive root investigation and root sensitive design & construction methods.

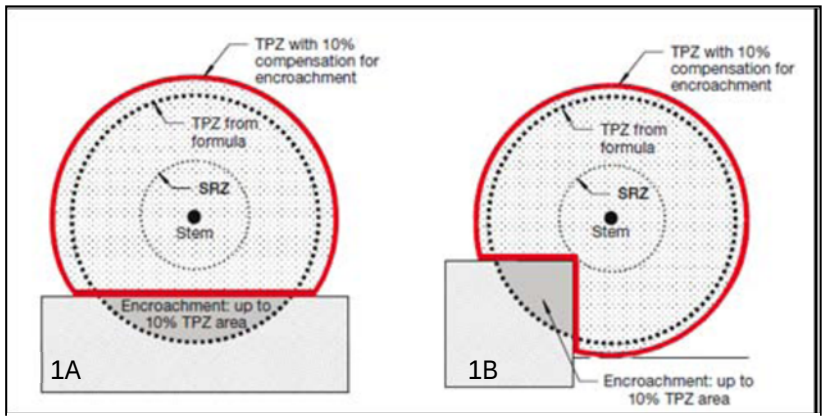


Figure 1: *1A & 1B - Examples of minor encroachment into a TPZ.*

Extract from: AS4970-2009, Appendix D, pg. 30 of 32

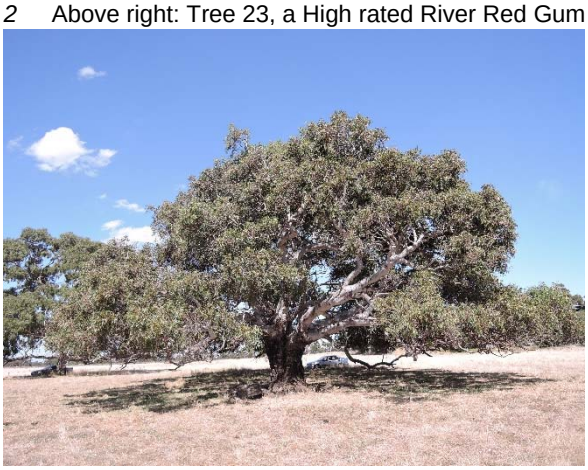
5.14 The Structural Root Zone (SRZ) represents the minimum area required to maintain tree stability without consideration of tree health. No works should occur within the SRZ.

5.15 All TPZ measurements are provided in the tree assessment data in Appendix 1.

6. Photographic examples

1 Above left: Tree 3, a High rated River Red Gum located south within the subject site.

2 Above right: Tree 23, a High rated River Red Gum located south within the subject site



3 Above left: Tree 25, a Moderate rated River Red Gum located south-west within the subject site.

4 Above right: (from left to right) Trees 34, 37, 36 and 35, River Red Gums located south-west within the subject site.

5 Above left: (from left to right) Trees 40, 41, 42 and 43, Grey Boxes, located west within the subject site.

6 Above right: Tree 86, a 'None' rated River Red Gum located north-centre within the subject site. This tree could be considered for retention for habitat purposes.


7 Above left: Tree 90, a Moderate rated River Red Gum located east within the subject site.

8 Above right: Trees 95 and 96, Moderate rated River Red Gums located east within the subject site.


9 Above left: Tree 149, a High rated River Red Gum located north-east within the subject site.

10 Above right: Tree 146, a High rated River Red Gum located east within the subject site.


11 Above left: Tree 159 (left) a High rated River Red Gum and Tree 158 (right) a Moderate rated River Red Gum within neighbouring property 105 Callaway Drive, Mickleham.

12 Above right: (from left to right) Trees 162, 161 and 163, High and Moderate rated River Red Gums within neighbouring property 105 Callaway Drive, Mickleham.

7. Conclusion

One hundred and seventy-two (172) individual trees and two (2) tree groups were assessed and included in the report.

The majority of the tree population were identified as locally indigenous River Red Gums (*Eucalyptus camaldulensis*) and locally indigenous Grey Box (*Eucalyptus microcarpa*) which comprised of 88% and 11% of the tree population respectively.

All trees were attributed an arboricultural rating which reflects the retention value of each tree:

- Twenty (20) trees were attributed a High arboricultural rating.
- One-hundred and twenty-five (125) trees were attributed a Moderate arboricultural rating.
- Eighteen (18) trees and two (2) tree groups were attributed a Low arboricultural rating, due to health and/or structural deficiencies/defects.
- Nine (9) trees were attributed an arboricultural rating of 'None'.

All trees within the subject site, with the exception of Tree 172 and Groups 1 and 2, were expected to trigger a permit requirement for tree works under overlays Schedule 5 to the Environmental Significance Overlay (ESO5) and Schedule 11 to the Environmental Significance Overlay (ESO11). Locally indigenous species will trigger a permit and offset requirement for removal under Native Vegetation Clause 52.07 .

Indigenous trees within the subject site were generally maturing specimens and regarded worthy of retention as features of the landscape with various arboricultural and ecological values. High and Moderate rated trees represent the best opportunity to retain established trees of Fair or better quality and would be suitable to consider for retention within any proposed redevelopment of the site. In general, Low rated trees should not be a constraint on any design intent within the site, however Low rated trees of indigenous origin could be considered for retention where made safe and in areas of reduced target potential.

The majority of the indigenous specimens displayed structural defects of varying degrees and generally had a propensity to shed limbs from small twigs to large branches. Therefore, crown maintenance, including works as recommended by the consultant, should be undertaken for all trees considered for retention. Exclusion zones to within the TPZ and canopy of mature indigenous specimens should be implemented to decrease target potential.

The implementation of tree protection zones and the tree management techniques outlined in section 5 and Appendix 4 will aid design and reduce impacts to retained trees.

If trees are retained additional tree impact assessments may be required during the design phase of the development.

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Kelvin Lui

Consultant Arborist (Grad Cert Arb, M'LscapeArch)

ID	Species	Common name	Origin	Age	DBH	Basal	TPZ (m radius)	SRZ (m radius)	Height x Width	Health	Structure	Arb Rating	Comments	Recommended works
1	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	106	138	12.7	3.4	18 x 21	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm	Deadwood removal
2	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	106	116	12.7	3.4	18 x 18	Fair	Fair-poor	Moderate	past branch failure;reduced crown density	Deadwood removal
3	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	143	165	15.0	3.8	18 x 24	Good	Fair	High	deadwood >50mm ;Bee hive	Crown maintenance
4	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	72,47	103	14.3	3.6	14 x 13	Fair	Fair	Moderate	Leaning trunk	
5	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	109	123	13.1	3.4	18 x 20	Fair-poor	Fair	Moderate	tip dieback	
6	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	117	147	14.0	3.5	16 x 16	Fair-poor	Fair-poor	Moderate	past branch failure;minor dieback;reduced crown density	
7	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	120@1m	122	14.4	3.6	13 x 21	Fair	Fair-poor	Moderate	deadwood >50mm ;tip dieback	
8	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	124	150	14.9	3.6	17 x 16	Fair-poor	Fair-poor	Moderate	past branch failure;deadwood >50mm ;minor tip dieback	
9	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	130	150	15.0	3.7	13 x 15	Fair	Fair	Moderate	past branch failure;deadwood >50mm, trunk cavities	
10	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	86	95	10.3	3.1	14 x 16	Good	Fair	High	past branch failure;deadwood >50mm, neighbouring tree, 10 m canopy extension into subject site	Crown maintenance
11	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Semi mature	38	50	4.6	2.2	8 x 8	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
12	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	108	122	13.0	3.4	13 x 16	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;minimal dieback	
13	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	50	50	2.0	1.5	3 x 8	Dead	Very poor	None		
14	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	126	152	15.0	3.6	13 x 18	Fair	Poor	Low	multiple past branch failures;past scaffold failure;deadwood >50mm ;over-extended limbs; epicormic growth	
15	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	113	136	13.6	3.5	16 x 15	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;reduced crown density	
16	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	141	162	15.0	3.8	15 x 13	Fair	Fair-poor	Moderate	past branch failure;past scaffold failure;deadwood >50mm	
17	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	135	170	15.0	3.8	13 x 15	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;over-extended limbs, trunk cavity	
18	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	132@1m	150	15.0	3.7	14 x 22	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs	Crown maintenance, weight reduction on over-extended limbs.
19	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	115	11.3	3.2	13 x 20	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs	
20	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	88	104	10.6	3.1	12 x 14	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
21	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	119	134	14.3	3.6	15 x 24	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm	Crown maintenance,
22	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	106	128	12.7	3.4	15 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
23	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	101	129	12.1	3.3	13 x 18	Good	Fair	High	past branch failure;deadwood >50mm	Crown maintenance
24	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	98, 87	184	15.0	4.3	13 x 25	Fair	Fair	Moderate	deadwood <50mm;over-extended limbs	Crown maintenance, deadwood removal
25	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	146	164	17.5	3.9	13 x 24	Fair	Fair	Moderate	deadwood <50mm;over-extended limbs	Crown maintenance

ID	Species	Common name	Origin	Age	DBH	Basal	TPZ (m radius)	SRZ (m radius)	Height x Width	Health	Structure	Arb Rating	Comments	Recommended works
26	*Eucalyptus microcarpa*	Grey Box	Indigenous	Early mature	69	75	8.3	2.8	15 x 11	Fair	Fair	Moderate	past branch failure;deadwood <50mm, fire damage	
27	*Eucalyptus microcarpa*	Grey Box	Indigenous	Early mature	105	113	12.6	3.4	15 x 11	Fair	Poor	Low	Trunk decay and cavities; dead stem southern side	
28	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	95	108	11.4	3.2	15 x 18	Good	Fair	High	deadwood >50mm ;deadwood <50mm;suppressed canopy bias with southerly lean	Crown maintenance
29	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	81	91	9.7	3.0	14 x 19	Good	Fair	High	deadwood >50mm ;deadwood <50mm;suppressed canopy bias with a southerly lean	Crown maintenance
30	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	144	164	15.0	3.9	14 x 19	Fair-poor	Very poor	None	past branch failure;deadwood >50mm ;over-extended limbs; large trunk and basal cavities and hollows	
31	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	103	138	12.4	3.4	19 x 23	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs;trunk decay;Basal decay	Crown maintenance
32	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	91	99	10.9	3.2	17 x 12	Fair-poor	Fair	Moderate	deadwood >50mm ;tip dieback	
33	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	91	96	10.9	3.2	15 x 13	Fair	Fair	Moderate	deadwood <50mm	
34	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	82@1m	96	9.8	3.0	18 x 18	Fair	Fair	Moderate	deadwood <50mm, southerly canopy bias	Souterly canopy bias
35	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	77,72	158	15.0	3.9	19 x 17	Fair	Fair	Moderate	Codominant stems;deadwood <50mm	
36	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Semi mature	31	42	3.7	2.0	10 x 5	Fair	Fair-poor	Moderate	suppressed canopy bias	
37	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	64	70	7.7	2.7	12 x 10	Fair	Fair	Moderate	past branch failure;suppressed canopy bias	
38	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	114	128	13.7	3.5	17 x 14	Fair	Fair	Moderate	past branch failure	
39	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	149@1m	159	15.0	3.9	16 x 23	Good	Fair	High	past branch failure;deadwood >50mm ;deadwood <50mm;over-extended limbs	Crown maintenance
40	*Eucalyptus microcarpa*	Grey Box	Indigenous	Semi mature	49	52	5.9	2.5	12 x 10	Fair	Fair	Moderate	suppressed canopy bias	
41	*Eucalyptus microcarpa*	Grey Box	Indigenous	Early mature	75	88	9.0	2.9	16 x 13	Fair	Fair	Moderate	suppressed canopy bias	
42	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	89	114	10.7	3.2	17 x 15	Fair	Fair	Moderate	deadwood >50mm ;suppressed canopy bias	
43	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	122	135	14.6	3.6	19 x 22	Fair	Fair	Moderate	Codominant stems;past branch failure;deadwood >50mm	
44	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	80	88	9.6	3.0	14 x 12	Fair-poor	Fair-poor	Low	Codominant stems;past branch failure;Lost main leader;deadwood >50mm ;minor dieback	
45	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	102	115	12.2	3.3	19 x 17	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;tip dieback	
46	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	121	139	14.5	3.6	13 x 19	Good	Fair	High	deadwood >50mm ;over-extended limbs	Crown maintenance
47	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	117	130	14.0	3.5	16 x 19	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs	Crown maintenance, deadwood renoval
48	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	80	95	9.6	3.0	15 x 16	Fair-poor	Fair-poor	Moderate	past scaffold failure;deadwood >50mm ;over-extended limbs	
49	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	79	92	9.5	3.0	17 x 15	Fair-poor	Fair-poor	Low	past branch failure;tip dieback;minor dieback;reduced crown density	

ID	Species	Common name	Origin	Age	DBH	Basal	TPZ (m radius)	SRZ (m radius)	Height x Width	Health	Structure	Arb Rating	Comments	Recommended works
50	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	94	109	11.3	3.2	15 x 12	Fair-poor	Fair-poor	Low	past branch failure;tip dieback;minor dieback;reduced crown density	
51	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	79	93	9.5	3.0	13 x 12	Fair	Fair-poor	Moderate	deadwood >50mm ;suppressed canopy bias	
52	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	93	105	11.2	3.2	13 x 16	Fair-poor	Fair-poor	Low	deadwood >50mm ;suppressed canopy bias;reduced crown density	Deadwood removal
53	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	100	113	12.0	3.3	17 x 14	Fair-poor	Fair-poor	Low	deadwood >50mm ;minor dieback;reduced crown density	
54	*Eucalyptus microcarpa*	Grey Box	Indigenous	Early mature	69	84	8.3	2.8	17 x 12	Fair	Fair-poor	Moderate	Codominant stems;deadwood <50mm	
55	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	117	134	14.0	3.5	18 x 12	Fair-poor	Fair-poor	Low	Codominant stems;past branch failure;deadwood <50mm;over-extended limbs, decorcitating bark	
56	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	84	105	10.1	3.1	15 x 17	Fair	Fair	Moderate	past branch failure;deadwood <50mm;over-extended limbs	
57	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	77	94	9.2	3.0	14 x 17	Fair	Fair	Moderate	past branch failure;deadwood <50mm;over-extended limbs	
58	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	107	118	12.8	3.4	15 x 20	Fair	Fair	Moderate	past branch failure;deadwood <50mm;over-extended limbs;minor dieback	
59	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	108	131	13.0	3.4	15 x 18	Fair	Fair	Moderate	deadwood <50mm;minor dieback	Crown maintenance
60	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	95	109	11.4	3.2	18 x 16	Fair	Fair-poor	Moderate	past scaffold failure;deadwood >50mm, broken hanger	Remove hanger and deadwood
61	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	140	145	16.8	3.8	15 x 13	Fair	Fair-poor	Moderate	past scaffold failure	Crown maintenance
62	*Eucalyptus microcarpa*	Grey Box	Indigenous	Early mature	54	65	6.5	2.6	14 x 13	Fair-poor	Fair-poor	Low	past branch failure;deadwood >50mm	
63	*Eucalyptus microcarpa*	Grey Box	Indigenous	Maturing	101	115	12.1	3.3	14 x 14	Very poor	Poor	None	Near-death;In irreversible decline	Reduce to habitat stump
64	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	117	134	14.0	3.5	14 x 13	Fair	Fair-poor	Moderate	deadwood >50mm ;over-extended limbs	Deadwood removal
65	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	102	117	12.2	3.3	14 x 14	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs	
66	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	116	120	13.9	3.5	14 x 16	Fair	Poor	Low	Tree collapsed and propped by dead scaffold. Canopy generally balanced.	
67	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	92	96	11.0	3.2	13 x 10	Fair	Poor	Low	past scaffold failure;deadwood >50mm; large trunk wound	
68	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	107	114	12.8	3.4	15 x 22	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs, southerly lean and canopy bias. Interesting form	Weight reduction on over-extended limbs.
69	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Semi mature	28	37	3.4	1.9	7 x 6	Fair	Fair	Moderate		Crown maintenance
70	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	88	90	10.6	3.1	10 x 18	Fair	Fair	Moderate	past stem failure;deadwood <50mm;over-extended limbs	Deadwood removal and crown maintenance
71	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	119	140	14.3	3.6	12 x 18	Fair	Fair-poor	Moderate	deadwood >50mm ;over-extended limbs;Basal cavity tension side	

ID	Species	Common name	Origin	Age	DBH	Basal	TPZ (m radius)	SRZ (m radius)	Height x Width	Health	Structure	Arb Rating	Comments	Recommended works
72	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Early mature	78	94	9.4	3.0	12 x 10	Fair-poor	Poor	Low	deadwood >50mm ;over-extended limbs; large turnk wound (tension side); fire damage	
73	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	121	143	14.5	3.6	13 x 22	Fair	Fair	Moderate	deadwood >50mm ;suppressed canopy bias	
74	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	104	115	12.5	3.4	13 x 19	Fair-poor	Fair	Moderate	deadwood >50mm ; southerly suppressed canopy bias;minor dieback;reduced crown density	
75	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	115	125	13.8	3.5	13 x 19	Poor	Fair-poor	Low	deadwood >50mm ;minor dieback;reduced crown density; epicormic crown	
76	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	79	87	9.5	3.0	14 x 18	Fair	Fair	Moderate	deadwood >50mm	
77	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	75	85	9.0	2.9	14 x 19	Fair	Fair-poor	Moderate	past scaffold failure;deadwood >50mm	
78	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	75	85	9.0	2.9	14 x 19	Fair	Fair-poor	Moderate	past scaffold failure;deadwood >50mm	
79	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	119	122	14.3	3.6	15 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;suppressed canopy bias	
80	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	95	106	11.4	3.2	15 x 18	Fair-poor	Fair	Moderate	past branch failure;deadwood >50mm ;reduced crown density	
81	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	104	113	12.5	3.4	15 x 18	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs, trunk cavity	Crown maintenance
82	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	100	102	12.0	3.3	13 x 20	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs;Leaning trunk	
83	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	125	12.4	3.4	13 x 18	Good	Fair	High	deadwood >50mm ;over-extended limbs, trunk wounds	Crown maintenance and weight reduction
84	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	109	120	13.1	3.4	15 x 17	Fair	Fair-poor	Moderate	Codominant stems;past branch failure;deadwood >50mm ;over-extended limbs	
85	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	106	115	12.7	3.4	15 x 21	Fair	Fair	Moderate	deadwood >50mm	Crown maintenance
86	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	150 @base	150	15.0	3.9	12 x 14	Fair	Very poor	None	Entire trunk decayed and damaged by fire. Remaining live scaffold in good health.	Reduce to habitat stump
87	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	101	112	12.1	3.3	12 x 18	Fair	Fair	Moderate	deadwood >50mm	Deadwood removal and crown maintenance
88	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	110	126	13.2	3.4	13 x 20	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;over-extended limbs, large dead hanger	Deadwood removal
89	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	95	132	11.4	3.2	13 x 19	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;Northerly leaning trunk	
90	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	187	196	15.0	4.3	16 x 20	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm, trunk burl; basal cavity	Deadwood removal
91	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	108	125	13.0	3.4	16 x 21	Fair	Fair	Moderate	deadwood >50mm	
92	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	120	149	14.4	3.6	16 x 20	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
93	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	86	110	10.3	3.1	15 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;suppressed canopy bias	

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94	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	128	150	15.0	3.7	14 x 20	Fair	Fair-poor	Moderate	past branch failure;past scaffold failure;deadwood >50mm	
95	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	129	160	15.0	3.7	16 x 20	Fair	Fair	Moderate	past branch failure;deadwood >50mm	Crown maintenance and deadwood removal.
96	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	110	127	13.2	3.4	15 x 18	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;suppressed canopy bias	
97	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	116	155	13.9	3.5	14 x 17	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;over-extended limbs, basal cavity	
98	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	137	140	15.0	3.8	13 x 15	Fair	Poor	Low	past branch failure;Lost main leader;deadwood >50mm ;over-extended limbs; basal cavity; fire damage	
99	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	112	133	13.4	3.5	14 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
100	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	90	110	10.8	3.2	6 x 2	Dead	Very poor	None		Reduce to habitat stump
101	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	116	135	13.9	3.5	13 x 18	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs	
102	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	126	163	15.0	3.6	15 x 22	Good	Fair	High	deadwood >50mm	Crown maintenance
103	*Acacia melanoxylon*	Blackwood	Indigenous	Semi mature	15	20	2.0	1.5	4 x 4	Fair	Fair	Low		
104	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	120	12.4	3.4	14 x 16	Fair-poor	Fair	Moderate	deadwood >50mm ;reduced crown density	
105	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	113	120	13.6	3.5	14 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
106	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	115	135	13.8	3.5	13 x 17	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
107	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	116	116	13.9	3.5	12 x 15	Fair-poor	Very poor	None		Reduce to habitat stump
108	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	98	104	11.8	3.3	14 x 13	Fair	Fair	Moderate	past scaffold failure;deadwood >50mm	
109	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	109	115	13.1	3.4	15 x 18	Fair	Fair	Moderate	deadwood >50mm	
110	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	120	130	14.4	3.6	16 x 19	Fair	Fair	Moderate	deadwood >50mm ;tip dieback	Slight limb overextension
111	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	83	96	10.0	3.1	13 x 9	Fair-poor	Fair-poor	Low	past branch failure;deadwood >50mm ;trunk decay;tip dieback	
112	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	93	115	11.2	3.2	14 x 14	Fair	Fair	Moderate	past branch failure;past scaffold failure;deadwood >50mm	
113	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	119	140	14.3	3.6	15 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs	
114	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	115	125	13.8	3.5	14 x 18	Poor	Very poor	None	deadwood >50mm ;over-extended limbs;In decline;reduced crown density; fire damage	Reduce to habitat stump
115	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	123	143	14.8	3.6	14 x 20	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs; basal cavity	
116	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	113	132	13.6	3.5	13 x 21	Fair	Fair	Moderate	deadwood >50mm ;over-extended limbs	Deadwood removal and crown maintenance

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117	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	135	147	15.0	3.8	14 x 21	Fair	Fair-poor	Moderate	deadwood >50mm ;over-extended limbs	
118	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	120	130	14.4	3.6	8 x 10	Fair-poor	Very poor	None		Reduce to habitat stump
119	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	84	96	10.1	3.1	10 x 15	Fair	Fair	Moderate	Minor tip dieback within lower branches	
120	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	130	11.3	3.2	14 x 19	Good	Fair	High	deadwood <50mm, trunk wound	Crown maintenance
121	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	123	142	14.8	3.6	15 x 20	Fair	Fair	Moderate	past branch failure;deadwood <50mm	
122	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	108	11.3	3.2	16 x 18	Fair-poor	Fair	Moderate	past branch failure;deadwood <50mm;reduced crown density	
123	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	97	111	11.6	3.3	14 x 17	Fair	Fair-poor	Moderate	past branch failure;deadwood <50mm;suppressed canopy bias	
124	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	95	106	11.4	3.2	10 x 16	Fair	Fair	Moderate	past branch failure;deadwood <50mm;Leaning trunk	
125	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	119	128	14.3	3.6	15 x 20	Fair	Fair	Moderate	past branch failure;deadwood <50mm	
126	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	97	108	11.6	3.3	14 x 19	Fair	Fair	Moderate	past branch failure;deadwood <50mm	
127	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	122	143	14.6	3.6	14 x 20	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
128	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	105	118	12.6	3.4	14 x 20	Fair	Fair	Moderate	past branch failure;deadwood <50mm	
129	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	134	166	15.0	3.7	14 x 20	Fair	Poor	Low	past branch failure;past stem failure;Lost main leader;deadwood <50mm; basal cavity	
130	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	100	11.3	3.2	16 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
131	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	92	100	11.0	3.2	14 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
132	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	125	12.4	3.4	15 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs; trunk cavities	
133	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	120	130	14.4	3.6	15 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs	
134	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	140	140	15.0	3.8	14 x 19	Fair	Fair-poor	Moderate	past branch failure;deadwood >50mm ;Basal decay (tension side); trunk cavity	
135	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	128	141	15.0	3.7	16 x 20	Fair	Fair	Moderate	past branch failure;deadwood >50mm	
136	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	140	12.4	3.4	13 x 22	Good	Fair	High	past branch failure;deadwood >50mm ;Leaning trunk	Crown maintenance
137	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	128	148	15.0	3.7	15 x 19	Good	Fair-poor	Moderate	past branch failure;past scaffold failure;deadwood >50mm ;Leaning trunk	
138	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	102	108	12.2	3.3	14 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;Leaning trunk	
139	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	114	132	13.7	3.5	14 x 18	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs; trunk cavity	

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140	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	84,70	135	15.0	4.0	13 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs; trunk cavity	
141	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	154	154	15.0	4.0	15 x 20	Fair	Fair	Moderate	past scaffold failure;deadwood >50mm	
142	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	86	116	10.3	3.1	15 x 17	Fair	Fair	Moderate	past scaffold failure;deadwood >50mm ;deadwood <50mm	
143	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	125	129	15.0	3.6	13 x 18	Fair-poor	Fair	Moderate	past branch failure;deadwood >50mm ;reduced crown density	
144	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	124	142	14.9	3.6	13 x 18	Fair-poor	Poor	Low	past branch failure;past scaffold failure;deadwood >50mm; fire damage	
145	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	93	104	11.2	3.2	13 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm, past loss of main leader	
146	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	123	133	14.8	3.6	13 x 19	Good	Fair	High	deadwood >50mm ;over-extended limbs	Crown maintenance
147	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	97	112	11.6	3.3	13 x 16	Fair	Fair-poor	Moderate	past branch failure;past scaffold failure;deadwood >50mm	
148	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	133	144	16.0	3.7	14 x 20	Fair	Fair-poor	Moderate	past scaffold failure;deadwood >50mm; mistletoe infestation	Remove mistletoe infestation
149	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	113, 133	205	15.0	4.8	16 x 21	Fair	Fair	High	past branch failure;deadwood >50mm	Unique form
150	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	115	12.4	3.4	10 x 15	Fair-poor	Fair	Moderate	past branch failure;deadwood >50mm ;Northerly leaning trunk	
151	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	130	145	15.0	3.7	13 x 19	Fair	Fair	Moderate	past branch failure;past stem failure;Lost main leader;deadwood >50mm ;Northerly leaning trunk	
152	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	111	115	13.3	3.5	13 x 10	Fair	Fair-poor	Moderate	past branch failure;past scaffold failure;deadwood >50mm ;Leaning trunk;reduced crown density	Fire damage
153	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	118	125	14.2	3.5	14 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;deadwood <50mm	Crown maintenance
154	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	129	148	15.0	3.7	13 x 18	Fair	Fair	Moderate	past branch failure;past stem failure;Lost main leader;deadwood >50mm	Crown maintenance
155	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	106	129	12.7	3.4	13 x 19	Good	Fair	High	past branch failure;deadwood >50mm	Crown maintenance
156	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	111	127	13.3	3.5	13 x 18	Good	Fair	High	past branch failure;deadwood >50mm	Crown maintenance
157	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	87	104	10.4	3.1	13 x 19	Fair	Fair	Moderate	past branch failure;deadwood >50mm	crown maintenance
158	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Semi mature	25	40	3.0	1.8	7 x 4	Fair	Fair	Moderate		crown maintenance
159	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	90	110	10.8	3.2	13 x 16	Good	Fair	High	Neighbouring tree	Crown maintenance
160	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	102	11.3	3.2	13 x 18	Fair	Fair	Moderate	deadwood <50mm;Westerly leaning trunk	
161	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	90	95	10.8	3.2	14 x 18	Good	Fair	High	Neighbouring tree, past branch failure;deadwood <50mm	Crown maintenance
162	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	70	76	8.4	2.8	12 x 15	Good	Fair	High	Neighbouring tree, past branch failure;deadwood <50mm	Crown maintenance

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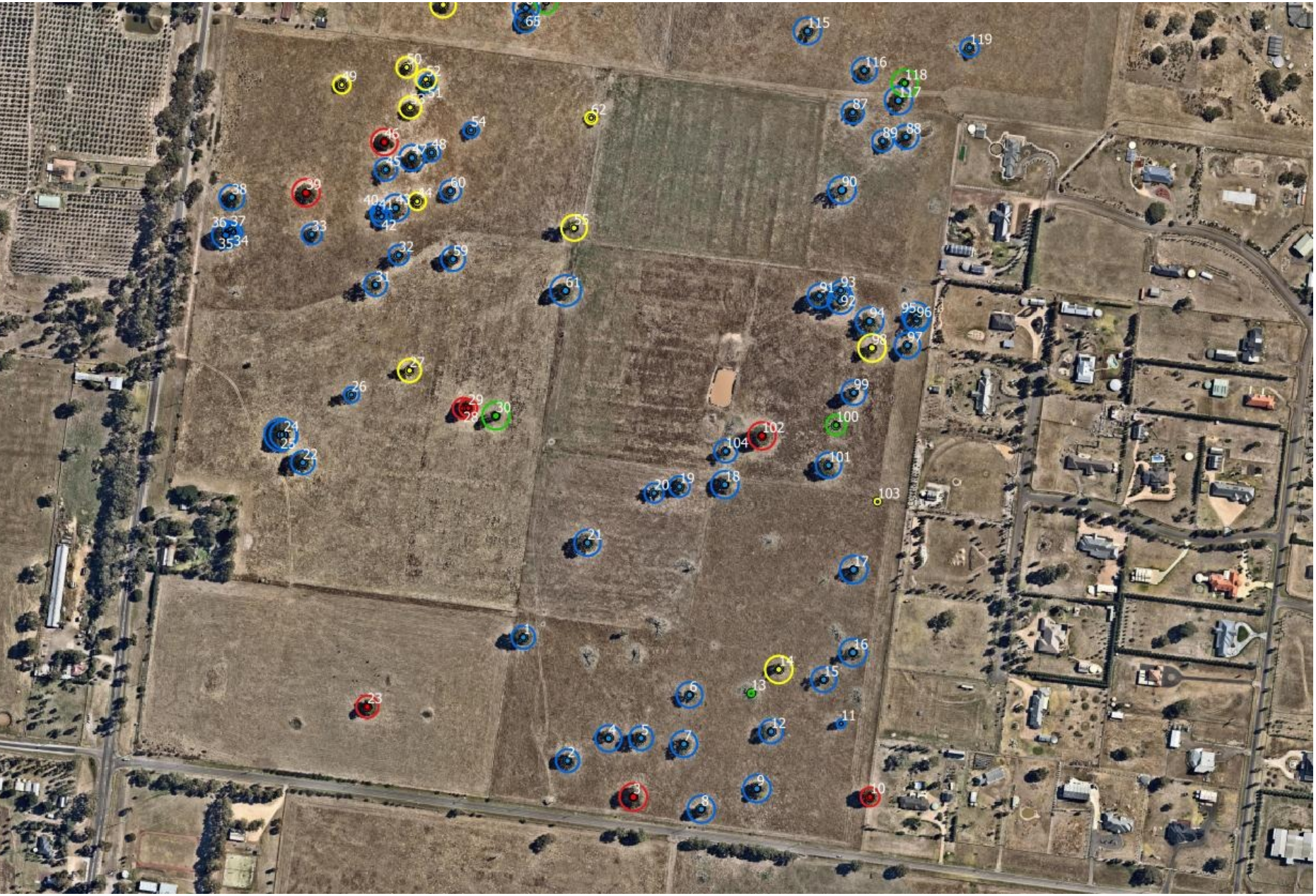
163	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Semi mature	40	45	4.8	2.3	11 x 12	Fair	Fair	Moderate	Neighbouring tree; past branch failure;deadwood <50mm	
164	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	78	100	9.4	3.0	12 x 16	Fair	Fair	Moderate	past branch failure;deadwood <50mm	
165	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	103	123	12.4	3.4	12 x 16	Good	Fair	High	past branch failure;past scaffold failure;deadwood >50mm, trunk wound	Crown maintenance
166	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	93	99	11.2	3.2	12 x 14	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;deadwood <50mm;over-extended limbs	Crown maintenance
167	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	93	107	11.2	3.2	13 x 15	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;over-extended limbs;Leaning trunk	Crown maintenance, weight reduction on over-extended limbs.
168	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	128	140	15.0	3.7	13 x 15	Fair	Fair	Moderate	past branch failure;deadwood >50mm ;Leaning trunk; trunk cavity	
169	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	86	92	10.3	3.1	12 x 13	Fair	Fair	Moderate	past branch failure;deadwood >50mm; basal cavity; fire damage	
170	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	94	107	11.3	3.2	12 x 13	Fair-poor	Fair-poor	Low	past branch failure;past scaffold failure;past stem failure;Lost main leader;deadwood >50mm	Crown maintenance
171	*Eucalyptus camaldulensis*	River Red Gum	Indigenous	Maturing	82	105	9.8	3.0	8 x 5	Very poor	Very poor	None	past scaffold failure;Lost main leader;In decline; epicormic growth	Reduce to habitat stump
172	*Hesperocyparis macrocarpa*	Monterey Cypress	Exotic conifer	Maturing	90	97	10.8	3.2	10 x 6	Fair	Fair	Moderate		
Group 1	*Hesperocyparis macrocarpa*	Monterey Cypress	Exotic conifer	Early mature	40	50	4.8	2.4	12 x 10	Fair	Fair-poor	Low	Group 10 trees. Suppressed canopy bias	
Group 2	*Eucalyptus cladocalyx; Hesperocyparis macrocarpa*	Sugar Gum, Monterey Cypress	Australian native; exotic conifer	Semi mature	35	40	4.2	2.2	14 x 7	Fair	Fair-poor	Low	Group 15 trees. Suppressed canopy bias with over-extended limbs	

Appendix 2 - Tree Numbers and Location

1960 & 2040 Mickleham Road, Mickleham



Legend

Arboricultural rating

- High
- Moderate
- Low
- None

Tree Protection Zones

- High
- Moderate
- Low
- None
- Tree groups

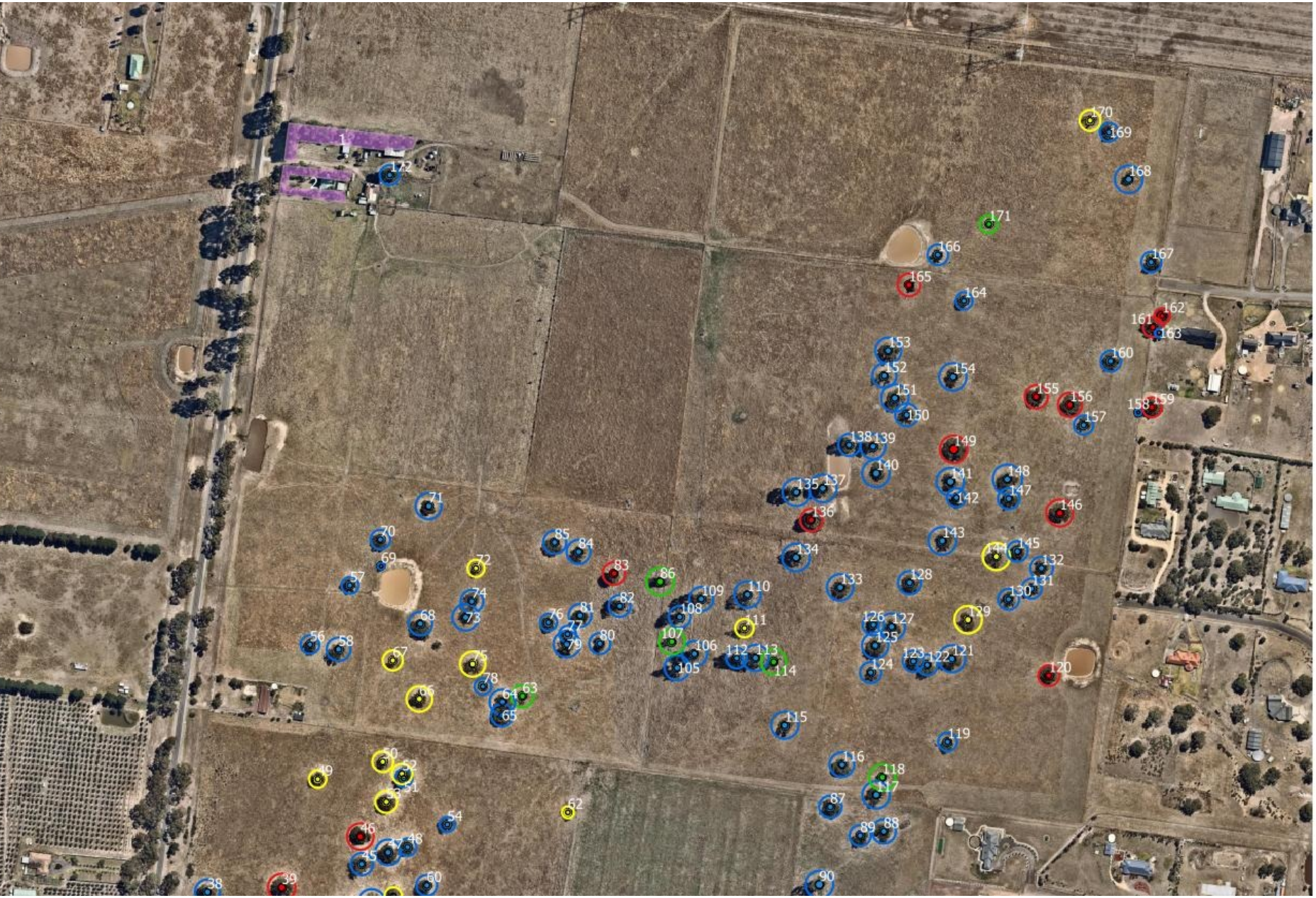
Client: Satterley Property Group
Map Source: Near Maps
Author: Tree Logic
Date: 04/04/2016

Map 1 of 2

N

Appendix 2 - Tree Numbers and Location

1960 & 2040 Mickleham Road, Mickleham



Legend

Arboricultural rating

- High
- Moderate
- Low
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Tree Protection Zones

- High
- Moderate
- Low
- None
- Tree groups

Client: Satterley Property Group
Map Source: Near Maps
Author: Tree Logic
Date: 04/04/2016

Map 2 of 2

N

Appendix 3 - Arboricultural Descriptors (April 2015)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.

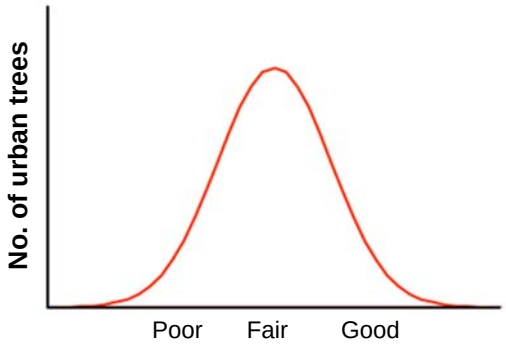


Diagram 1: Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon

Exotic Palm	Occurs outside of Australia. Woody monocotyledon

4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard AS 4970-2009 Protection of trees on development sites. Measurements undertaken using foresters tape or builders tape.

Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

6. Health

Assesses various attributes to describe the overall health and vigour of the tree.

Category	Vigour, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical. 90-100% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vigour	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds

Category	Vigour, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Poor	Minimal - declining	Excessive, large and/or prominent amount & size of dead wood	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline
Dead	N/A	N/A	N/A	N/A

7. Structure

Assesses principal components of tree structure (Figure 2).

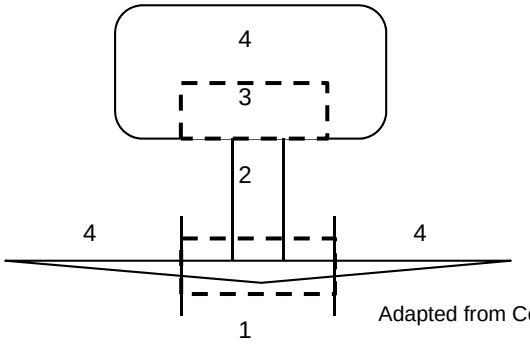
Descriptor	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
Good	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
Fair	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
Fair to Poor	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
Poor	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
Very Poor	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will take into account the combination of likelihood of failure and impact, including the perceived importance of the targets).

Diagram 2: Tree structure zones



Adapted from Coder (1996)

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots

8. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

9. Arboricultural Rating

Relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are taken into account.

Category	Description
High	Tree of high quality in good to fair condition. Generally a prominent arboricultural/landscape feature. These trees have the potential to be a medium- to long-term component of the landscape if managed appropriately. Retention of these trees is highly desirable.
Moderate	Tree of moderate quality, in fair or better condition. Tree may have a condition, and or structural problem that will respond to arboricultural treatment. These trees have the potential to be a medium- to long-term component of the landscape if managed appropriately. Retention of these trees is generally desirable.
Low	Unremarkable tree of low quality or little amenity value. Tree in either poor health or with poor structure or a combination. Tree is not significant because of either its size or age, such as young trees with a stem diameter below 15 cm. These trees are easily replaceable. Tree (species) is functionally inappropriate to specific location and would be expected to be problematic if retained. Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.
None	Trees of low quality with an estimated remaining life expectancy of less than 5 years. Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree would be expected in the short term. Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. Tree infected with pathogens of significance to either the health or safety of the tree or other adjacent trees. Tree whose retention would not be viable after the removal of adjacent trees (includes trees that have developed in close spaced groups and would not be expected to acclimatise to severe alterations to surrounding environment – removal of adjacent shelter trees). Tree has a detrimental effect on the environment, for example, the tree is a recognised environmental woody weed with potential to spread into waterways or natural areas. Unremarkable tree of no material landscape, conservation or other cultural value.

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criterion is designed to highlight other considerations that may influence the future management of such trees.

Significance	Description
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.

Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees. Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.
Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve. Remnant Indigenous vegetation that contribute to biological diversity

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Pollard, A. H. (1974) Introductory statistics: a service course, Pergamon Press Australia, Australia.

Standards Australia (2009) Australian Standard AS 4970-2009 Protection of trees on development sites.

Appendix 4: Protection of retained trees

The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the retained trees.

The Tree Preservation Zone (TPZ) is fenced and clearly marked at all times. This fence should deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Australian Standard AS 4687 - 2007 Temporary fencing and hoardings, specifies appropriate fencing requirements. Existing perimeter fencing can be incorporated into the protective fencing. Shade cloth should be attached to reduce the movement of dust and other particulates into the TPZ. Signs identifying the TPZ are to be placed on the fencing.

If the area within the TPZ is to be accessed during the construction phase then the area will need ground protection. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area beneath a 100 mm layer of crushed rock below rumble boards.

Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project. Members of the project team need to interact with each other to minimise the impacts to the trees, either through design decisions or construction practices.

The consultant arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.

Apply mulch within the TPZ (fenced area) with a 50 to 75 mm layer of approved woodchip mulch. The mulch particles should be no less than 15 mm in size with no fines. If the area within the TPZ is to be accessed during the construction phase then the area will need ground protection. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area beneath a 100 mm layer of crushed rock below rumble boards. Monitoring of the trees in-line with prevailing weather conditions will indicate if supplemental irrigation will be required.

No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.

Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.

No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.

No storage of material, equipment or temporary building should take place over the root zone of any tree.

Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.

Any pruning that is required must be carried out by trained and competent arborist who has a thorough knowledge of tree physiology and pruning methods and carry out pruning to the Australian Standard – AS 4373 – 2007 Pruning of amenity trees.

All root excavation should be carried out by hand digging or with the use of ‘Air-Excavation’ techniques, and roots should be severed by saw cutting or with a sharp axe and not with a Backhoe or any machinery or blunt instrument.a

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12. To the writer's knowledge all facts, matter and all assumptions upon which the Report proceeds have been stated within the body of the report and all opinion contained within the report will be fully researched and referenced and any such opinion not duly researched is based upon the writer's experience and observations.

APPENDIX 3 – Plan 3 – Future Urban Structure

Plan 3 - Future Urban Structure

Lindum Vale Precinct Structure Plan

1:10,000 @ A4

0 100 200 300 400 500

N

DRAFT FOR DISCUSSION

- precinct boundary
- existing urban area
- local convenience centre
- connector street - boulevard
- local access street
- pedestrian/cycle link
- heritage overlay interface area
- heritage overlay
- arterial road - widening/intersection flaring
- arterial road - existing road reserve
- public acquisition overlay
- conservation reserve
- electricity transmission easement
- local park
- landscape values
- residential area
- waterway & drainage reserve
- Trees to be retained
- Planted Indigenous Trees
- Remove
- Retain (Landscape)

APPENDIX 4 – Figure 8 – Future Urban Structure

Plan 3 - Future Urban Structure

Lindum Vale Precinct Structure Plan

1:10,000 @ A4

0 100 200 300 400 500

N

DRAFT FOR DISCUSSION 16/01/2018

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- connector street - boulevard
- local access street
- heritage overlay
- heritage overlay interface area
- heritage reserve - aboriginal
- arterial road - widening/intersection flaring
- arterial road - existing road reserve
- public acquisition overlay
- conservation reserve
- electricity transmission easement
- local park
- landscape values
- residential area
- waterway & drainage reserve