ARBORICULTURAL INSPECTION REPORT

REDWOOD FOREST: VISITOR FACILITIES IMPROVEMENTS

JANUARY 2024
VERSION 3 (UPDATED 14/3/2024)

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for:
Parks Victoria

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REPORT 10775.122023

Arboricultural Inspection Report

Redwood Forest: Visitor Facilities Improvements

Brief & Background

Redwoods Forest in Warburton is a small visitor node within Yarra Ranges National Park that has grown in popularity over the last 5 years. This increase in visitation is causing congestion and placing pressure on the limited facilities and the natural environment along Cement Creek.

The site contains the highly popular Californian Redwood plantations as well as a highly visited river frontage and open grassed area. The built infrastructure at the site is currently limited to a small car park accommodating up to 80 cars and an informal walking network, partly comprised of animal tracks.

The greater plantation area is approximately 17 hectares and includes 2 Californian Redwood plots (*Sequoia sempervirens*,1.8 and 0.3 hectares approximately) as well as Douglas Fir (*Pseudotsuga menziesii*), Monterey Pine (*Pinus radiata*), Bishop Pine (*Pinus muricata*) and Western Red Cedar (*Thuja plicata*) plots. Much of the 17-hectare site is listed on the Victorian Heritage Register (VHR H2439) and is covered by the Yarra Ranges Planning Scheme.

Arboriculture Pty Ltd has been retained by Parks Victoria to provide expert advice on tree identification, health, protection zones, measures and management for the identified plantations and regrowth areas critical to the design of visitor facilities at the Warburton East Redwood Forest.

In particular, Arboriculture has critically analysed and built on the arborist assessments completed to date (C & R Ryder Consulting Pty Ltd), carried out further assessments as required and provided expert advice and measures to assist Parks Victoria with permit applications and other further approvals.

This report details the impacts of proposed new visitor facilities and established car park upgrades to trees within the project area.

Documents Supplied

The following documents supplied were used in preparing this report and to assist the consultant in gaining an understanding of the project design and preparation to date:

- *Assessment of trees at the Cement Creek Redwood Forest (Yarra Ranges National Park)*, 8/9/2022, C & R Ryder Consulting Pty Ltd (herein referred to as *Ryder report*);
- Set of Plans: *Visitor Facility Upgrades Warburton Redwoods Forest,* Drawings 04 - 321-0681-00-L-01 DR-100 to 04 - 321-0681-00-L-01 DR-50, Revision 06 – Section 57A application (marked 'Preliminary Not for Construction'), various scales, Tract

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Landscape Architects Urban Designers Town Planners;

- Feature and Level Survey, Ref: 7239FL1, Scale: 1:500, Projection: MGA2020 Zone 55, Date of survey: 16, 29-30/11/2021, Version 1 (03/12/2021), CRA Survey Pty Ltd. The feature survey was also supplied in CAD (dwg) format.

Other documents supplied include a planning report, Victorian Heritage database records, a Flora and Fauna Survey (Nature Advisory, May 2023), a Town Planning Report (Tract 15/09/2023) and documents relating to the project background and design.

Method

As the basis for inspection, reporting and further analysis the 2022 arboricultural report of Ryder Consulting and a GIS file (shapefile format, projected as MGA2020 Zone 55) containing tree inspection details and spatial data were provided. Arboriculture was specifically asked to review the report and trees identified for removal providing ULE (useful life expectancy) estimations and health assessments for these trees.

As the proposal has changed since the 2022 Ryder report a construction impact analysis was carried out on all trees identified in the report within the current project area as well as any other trees identified as likely to suffer construction encroachment impacts (based on proximity to proposed construction or disturbance).

Trees within a previously proposed overflow car park area (trees with ID #206 to 234) approximately 250m to the southeast of the project site were removed from the tree inspection data provided and are not reviewed in this report as the area is not part of the current application.

Audit of Ryder tree inspection data

The 2022 Ryder report was concerned with trees in areas where activities related to visitor upgrades were planned but not those in the forestry plots where trails are planned. For example, the report includes the first line of Bishop Pine planted between the existing car parking area and the Redwood and other plantations but not the other rows unless disturbances were planned.

Trees indicated as 'Lost' (significantly impacted such that the future viability of the tree would be unlikely) in the Ryder report were visually inspected[1] from ground level, their heights estimated or measured where practical and sample trunk diameters (DBH[2]) measured. Notes, species identifications, assessments and spatial locations contained in the tree inspection data were reviewed during a site assessment. The review was done to ensure the data provided was accurate and reliable. Other trees previously inspected and plotted in the Ryder tree inspection data were subject to a 'walk-over' inspection and further checks of tree details done only if the trees appeared to be encroached by the proposed works or other issues or conditions were obvious. Tree inspection records made by Ryder were updated as required. Records have been kept of updates and information changes made to the inspection records. Additional trees were added where required.

[1] Visual inspection in the case of tree assessment implies certain limitations. See Appendix 4 *Definitions and Methods*

[2] Diameter at breast height – 1.4m above ground level

Tree descriptions and information

Overall, the data provided by Ryder was found to be acceptable for the intended purpose with only a few minor changes made to tree location, retention value or ULE estimation. It should be noted that ULE estimations rely on the knowledge and experience of the assessor and are likely to vary to some degree between arborists. TPZ (tree protection zone) encroachments and outcomes were updated based on the updated plans provided.

Plotted tree locations

With regard to tree location the Ryder report methodology describes its tree plotting method using GNSS (Global navigation satellite system receiver) and "aligning to match the supplied feature survey or aerial imagery" and notes that only some of the trees were located on the feature survey but the majority were not. It was apparent however that few of the Ryder plotted trees aligned with the trees shown on the feature survey but were often near the survey plotted stems. The expected accuracy of the GNSS device used for the Ryder survey was not stated in their 2022 report. GPS and GNSS devices can vary greatly in their accuracy depending on sources of position correction, satellite constellations used and other technical features or specifications.

Several sample location checks were carried out on site using a GNSS device[3] having an expected accuracy of a few centimetres. The actual device accuracy depends on the time spent averaging satellite data at each plotted point and the device being able to 'fix' an RTK position. Using arboricultural tree survey methods, it is expected that the device is giving positions within approximatly10cm of actual MGA2020 55 positions allowing for the conditions and duration spent at each point. As the method relies on the position of the receiver it cannot plot the centre of a tree in most situations so trees are plotted at the edge of their stems.

The tree location checks found that in most cases the Ryder data was suitable for the purpose of locating trees on-site and carrying out broad impact assessments. Where obvious discrepancies were noticed, the tree location was moved (approximately 3 to 5 trees).

Feature Survey

To check the alignment of GNSS RTK data with the feature survey (and thus the alignment of GNSS plotted trees with designs based on the feature survey) several points in relatively open space situations such as signs and posts marked on the feature survey were checked with against an RTK fixed position by occupying the point for several minutes to result in a position accurate to a few centimetres. With both the GNSS device and the feature survey using MGA2020 Zone 55 coordinate system an alignment mismatch of around 70cm to the southeast was observed.

As the Ryder tree location data appeared to be similar to positions provided by the GNSS checks carried out (allowing that Ryder's arborist may have been standing at a different side of the tree stem being plotted), there appears to be a discrepancy between the trees plotted and the location of features surveyed (including designs based on the feature survey).

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[3] RTK GNSS device using corrections from AusCors CORS (Continuously Operating Reference Stations https://gnss.ga.gov.au/stream). RTK stands for 'Real-time kinematic'.

Due to the discrepancy between the tree locations provided by the arborists and the feature survey there may be a general disagreement of around 1m or less resulting in trees on the north side of the car park being further northeast from the designs shown on the plans and features on the south side of the car park being closer.

It is beyond the scope and expertise of the consultant to investigate or determine the cause of the discrepancy between the GNSS derived tree positions and the feature survey. It is recommended that the accuracy of the feature survey be determined before designs are finalised.

General Inspection Methods

No decay detection or intrusive investigation methods were carried out on the trees or their root systems.

Arboricultural maintenance requirements recommendations were made where appropriate to minimise risk and prolong the aesthetic and landscape life expectancy of trees inspected. See Appendix 3 Definitions & Methods – Priority (action) for suggested minimum time schedules for each priority.

Tree Risk

While risk was considered when making tree works determinations, a systematic tree risk assessment was not carried out and not all trees in the Ryder tree data were inspected for works.

Tree Assessment Method

The inspection fields from the Ryder report were used in the current inspection and report.

Cameron Ryder inspected the trees near the informal car park between 28 June and 1 July 2022. The following data were collected for the trees:

- Unique ID
- Image of tree
- Botanic and common name
- Tree dimensions (Height x Width)
- Diameter at breast height (DBH)
- Diameter at base (DAB)
- Health
- Structure
- Useful life expectancy (ULE)
- Tree significance
- Retention value
- Comments

Comments regarding tree conditions or defects that may be significant to the ongoing health or stability of trees were extracted from the Comments field of the Ryder data and placed in a “Defects/Conditions” field for clarity. Placement of information in this field does not imply that Ryder Consulting considers the tree

features to be *tree defects* or health conditions. A full assessment of tree defects was not undertaken although additional notes were made for some trees in the "Comments" or "Defects/Conditions" column for this report in brackets and with 'Arb' denoting they were added by Arboriculture Pty Ltd and not Ryder Consulting. See Appendix 2 for tree inspection and assessment records.

In addition to the fields above, a field labelled 'Actions' was added to indicate actions such as tree removal (for arboricultural reasons as opposed to tree impact outcomes). While most entries in this field were made by Arboriculture some comments appearing to be recommendations were taken from the Comments field entries in the Ryder report.

Where additional trees were added to the inspection data by Arboriculture a note "Added by Arb" was made in the Comments field (9 trees: id #235 to 243).

General overview Tree Group descriptions were made to describe dense areas of vegetation within the 'pasture' area within the southeast part of the site.

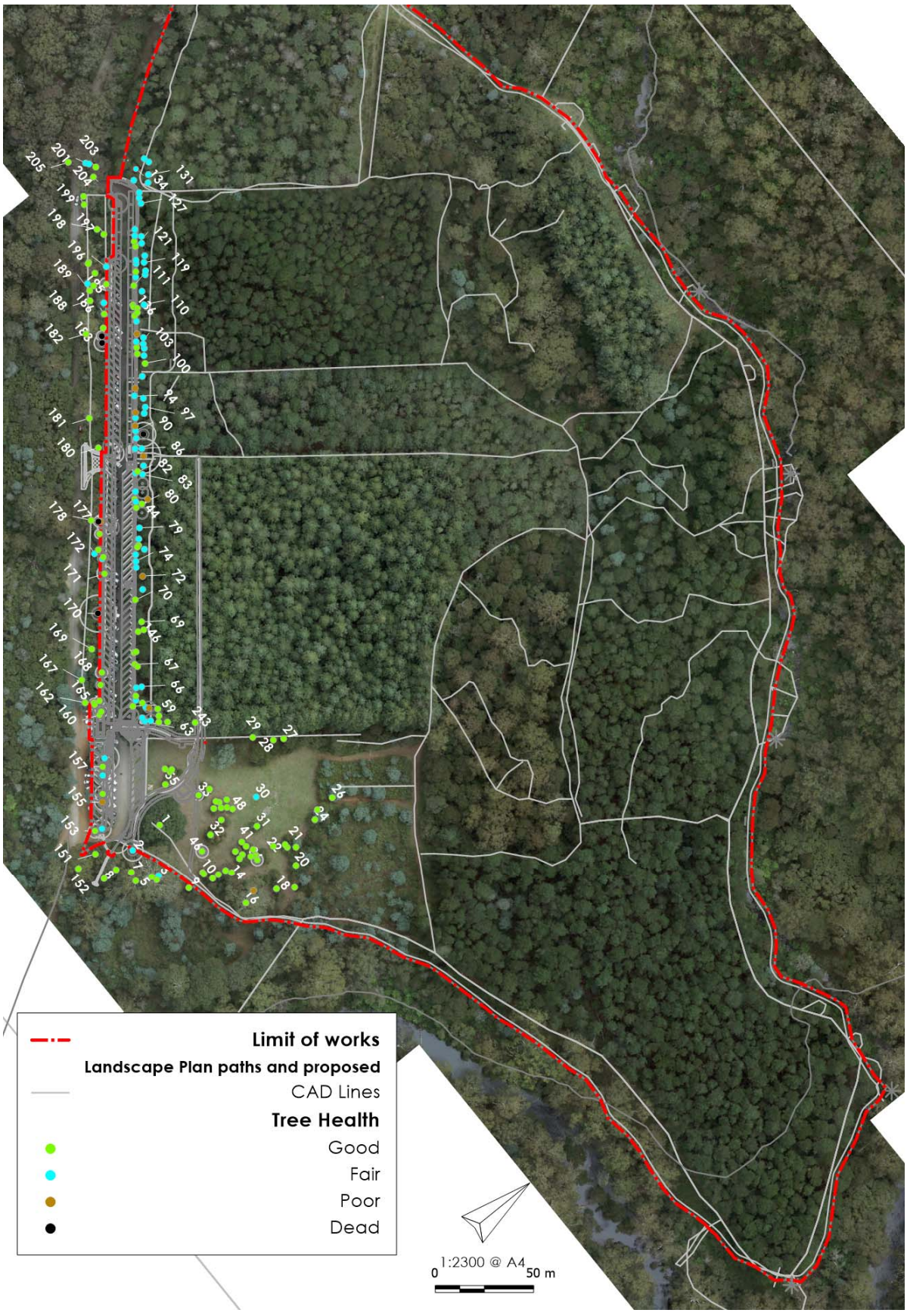
Photos were taken with a Panasonic digital camera and tree photos from the Ryder report included (credited where used). See Appendix 1 for photos.

Project site tree surveys were undertaken on 22/11/2023 and 12/12/2023 and the previous tree inspections done by Ryder were carried out on 28/06/2022.

Summary Tree Details

Table 1 Count of species inspected and recorded

Species	Common Name	Origin	Count of Specimens
Pinus muricata	Bishop Pine	Exotic	82
Eucalyptus viminalis	Manna Gum	Indig	30
Acacia dealbata	Silver Wattle	Indig	27
Kunzea leptospermoides	Yarra Burgan	Indig	19
Acacia melanoxylon	Blackwood	Indig	18
Cyathea australis	Rough Tree-fern	Indig	9
Sequoia sempervirens	Coast Redwood	Exotic	7
Eucalyptus radiata	Narrow-leaved Peppermint	Indig	5
Eucalyptus obliqua	Messmate	Indig	4
Pomaderris aspera	Hazel Pomaderris	Indig	4
Rhododendron cultivar	Rhododendron (cv)	Exotic	2
Acer palmatum	Japanese Maple	Exotic	1
Carya cordiformis	Bitternut Hickory	Exotic	1
Cedrus deodara	Deodar Cedar	Exotic	1
Corylus avellana	Hazelnut	Exotic	1
Cryptomeria japonica	Japanese Cedar	Exotic	1
Quercus robur	English Oak	Exotic	1
Toona sinensis	Chinese Cedar	Exotic	1



Map 1 Trees included in survey on aerial image (Landchecker 2020) overlaid on landscape plan linework. Colour theme is health.

Two-hundred and fourteen (214) individual trees were included in the assessment (205 inspected and assessed by Ryder and 9 additional trees added by Arboriculture).

Most trees (98 specimens, 46%) inspected were exotic (non-Australian origin) specimens with the remaining trees being naturally occurring indigenous specimens (116 trees, 54%).

Tree Health and Structure

The following section concerns the health of trees surveyed but not those in the forestry plots.

Table 2 Tree Health

Health	Tree Count	% Total
Good	128	60%
Fair	70	33%
Poor	11	5%
Dead	5	2%

Most trees were assessed as being in good or fair health.

The most frequent species encountered in the tree survey (38% of trees surveyed) was Bishop Pine (*Pinus muricata*) with 82 specimens included. All but one Bishop Pine included in the inspection exists in what is thought to be a buffer row planted to protect the Redwood and other plantations along the north side of the car park. The additional Bishop Pine is a semimature specimen in the native vegetation strip on the south side of the car park that has most likely self-sown.

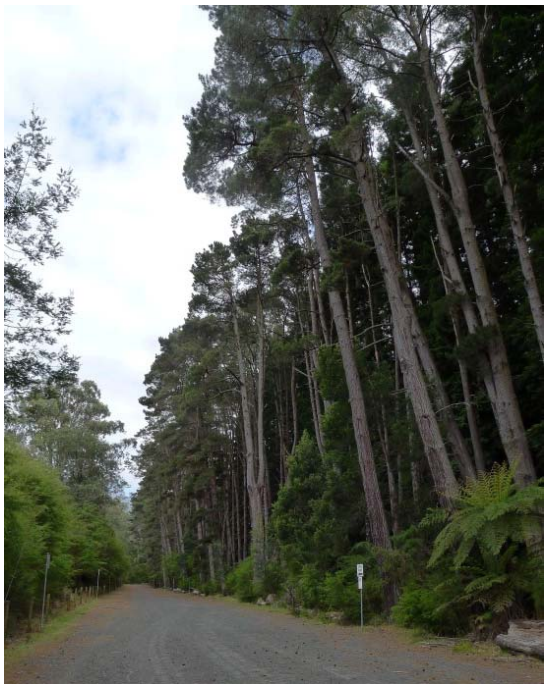


Photo 1 Bishop Pines on north side of car park

A few of the Bishop Pines were noticed to have suffered branch, root or stem failures, some appearing to be recent. Trees #63, 235 and 238 at the east end of

the planting have been recommended for removal due to defects noticed and declining structural conditions. Some trees including many not included in the inspection display poor stem taper (ratio of stem diameter to tree height). Tree #97 is an extreme example of a tree with poor taper (see Appendix 1, Photo 99). A recent stem failure of tree #238 was probably due to a combination of a bifurcation defect and poor stem taper (see Appendix 1, Photo 211). Poor stem taper usually only becomes a problem for trees in groups when they become exposed often after surrounding trees fail or are removed or, when the tree grows higher than surrounding trees allowing its canopy to be exposed to winds.

At least two trees north of tree #125 in the Bishop Pine rows have suffered total root plate failure and fallen to the east (not included in the survey). No obvious root defects were noticed in the exposed root plate with roots growing deep into the soil profile. These trees probably fell in wet and windy conditions.

Despite the poor structure of some of the Bishop Pines most (84%) were assessed as having Fair structure.

Most other exotic trees (16 specimens covering 9 species) were assessed as having Good or Fair health and Good or Fair structure.

A significant English Oak (tree #1) has a large stem failure wound on its north side with a fungal fruiting body on a stem near it. The fungal fruiting body may indicate internal decay and further investigation has been recommended in its tree inspection record.

Most, if not all the indigenous trees and tree ferns (71 specimens covering 6 species) are likely to be naturally occurring specimens having Good or Fair health and Good or Fair structure.

Retention Value

Retention value is a qualitative estimate of the value of a tree for retention in the landscape based on various criteria such as its condition, estimated life expectancy, suitability to the environment, cultural heritage as well as various other values such as rarity or exemplary features or characteristics.

While Ryder does not give a detailed definition in their 2022 report the values given appear to agree with the standard definition used by Arboriculture. See Appendix 3 *Definitions and Methods* for a detailed explanation.

It is important to note that Arboricultural retention value does not necessarily reflect the environmental values of trees and an ecologist should be consulted where such values need to be known.

Table 3 Tree retention value

Retention Value	Count of Specimens	Percent trees inspected
Very High	7	3%
High	88	41%
Medium	63	29%
Low	52	24%
None	4	2%

Very high retention value trees

Seven trees were assessed as having very high retention value.

Tree #1, is a large English Oak thought to be associated with the early European settlement of the site while tree #152 is a large prominent Manna Gum.

Trees #239 to 243 are Redwoods that are at the edge of the larger Redwood plantation. The very high retention value reflects that of the whole plantation and is based on the heritage value of the trees. A statement of significance for these and other trees at the site can be found in VHR H2439 Victorian Heritage Register record.

Table 4 Tree identification numbers of trees in each retention value category.

Retention Value	Tree ID #s
Very High	1, 152, 239, 240, 241, 242, 243
High	5, 6, 8, 16, 27, 28, 29, 32, 59, 60, 61, 62, 64, 65, 66, 67, 68, 69, 70, 71, 77, 78, 79, 80, 81, 82, 83, 84, 86, 88, 89, 90, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 126 127, 128, 129, 132, 133, 134, 135, 143, 151, 179, 180, 181, 182, 189, 191, 192, 193, 194, 200, 201, 203, 204, 205, 236
Medium	2, 3, 4, 7, 10, 11, 12, 13, 14, 15, 17, 21, 24, 26, 31, 33, 34, 35, 36, 37, 72, 73, 74, 75, 76, 85, 91, 103, 125, 130, 131, 136, 137, 138, 139, 140, 147, 149, 150, 153, 154, 156, 157, 159, 161, 162, 167, 168, 169, 171, 172, 173, 176, 185, 186, 187, 188, 190, 195, 196, 197, 198, 202
Low	9, 18, 19, 20, 22, 23, 25, 30, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 63, 141, 142, 144, 145, 146, 148, 158, 160, 163, 164, 165, 166, 170, 174, 175, 177, 178, 199, 235, 237, 238
None	87, 155, 183, 184

High retention value trees

Bishop Pine (66 specimens) are the dominant species assessed as having high retention value. Their high retention value is based on their heritage value as per the Victorian Heritage Register statement of significance.

Other exotic trees considered as having high retention value include a single Deodar (*Cedrus deodara*) and a juvenile foliage cultivar of Japanese Cedar (*Cryptomeria japonica* 'Elegans') in and near the ‘pasture’ area. The Deodar exists in an area that is now colonised by indigenous vegetation near the car park entrance from Cement Creek Road.

Twenty-one (21) indigenous trees were regarded as having high retention value: 3 Narrow-leaved Peppermints, 4 Blackwoods, 4 Messmate Stringybarks and 10 Manna Gums. All are good examples of their species and are thought to provide significant environmental and landscape value to the site.

Medium retention value trees

Of the 63 trees assessed as medium retention value 17 are exotic species that are most likely specimens that have been planted or have arisen in recent decades including single specimens of Japanese Maple, Japanese Walnut, Common Hazel, a younger, possibly self-sown Redwood and 2 Rhododendron cultivars.

Forty-six (46) indigenous specimens were assessed as having medium retention value: 16 Silver Wattles, 11 Manna Gums, 9 Rough Tree Ferns, 5 Blackwoods, 2 Hazel Pomaderris, 2 Narrow-leaved Peppermint and 1 Yarra Burgan.

Low retention value trees

Trees considered low retention value are 1 Chinese Cedar, 1 Coast Redwood (identification to be checked), 2 Hazel Pomaderris, 4 Bishop Pines, 8 Manna Gums, 8 Silver Wattles, 9 Blackwoods and 18 Yarra Burgan. These are all poorer and/or younger specimens.

No retention value trees

A single dead Bishop Pine and 3 dead or dying Silver Wattles were assessed as having low retention value (indicated as retention category 'none').

Impact Assessment

Basis of construction impact assessment to trees

To guide estimation of the extent of impacts of construction activities on tree health and stability Australian Standard AS 4970 – 2009, *Protection of trees on development sites,* specifies a tree protection zone (TPZ) and a structural root zone (SRZ). These zones are based on a tree's stem diameter measured at specified points above ground level.

The TPZ is:

> "*A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development*." (AS 4970 paragraph 1.4.7).

For all trees apart from tree ferns, palms and other monocotyledon trees, the TPZ is calculated as an area with a radius (measured from the tree trunk centre) equivalent to 12 times the tree's DBH (diameter at breast height or 1.4m above ground) with a minimum of 2m and a maximum of 15m.

Similar to the TPZ, an area known as the structural root zone (SRZ) is where roots important to a tree's structural stability theoretically exist. The SRZ is:

> "*The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area* (AS 4970 paragraph 1.4.5)*.*

Construction damage often occurs when excavation is done within the top 1m of soil within the TPZ or SRZ and can cause significant injury to a tree, depending on tree species, soil type and distance from the tree's stem. Significant impacts on long-term tree health can also occur when soil compaction (usually from heavy machinery or vehicles), fill or sealed surfaces prevent free air and moisture movement between the soil and the atmosphere.

Both the TPZ and SRZ areas are hypothetical and tree roots may exist within them to a greater or lesser extent depending on many factors including soil and moisture conditions, past disturbances and the existence of obstacles below and above the soil including sealed surfaces. Where there is any question regarding the actual

existence of tree roots, exploration trenches can be carefully excavated using special low-impact techniques to uncover and assess the size and number of roots that may be impacted. An experienced arborist can assess the significance of the roots likely to be severed or otherwise impacted.

It is important to note that TPZ encroachment alone does not imply the degree of impact on a tree's health or stability and the arborist must determine what impacts the encroachment are likely to have based on factors such as depth of excavation, compaction, fill, surface sealing, existence, size and density of roots in the encroached area, etc.

Impact Assessment for Visitor Upgrades

Construction of paths, toilets and other facilities are planned for within the project area.

To assist in determining the impacts of construction within tree TPZ areas each material and construction type have been reviewed and assumptions have been stated (see Table 5 below).

In general, materials and construction types that do not require significant excavation or compaction are regarded as not having any impact or, having low impact. Such materials, unless used extensively throughout a TPZ area, are expected to allow sufficient air and water movement into and out of the tree's root zone thus allowing the tree to adapt to its presence.

Car Park

In this case, the existing car park, constructed around 2018 has been considered as not having an impact on trees that have survived its placement. The car park encroaches into most of the Bishop Pines' TPZ areas yet the trees are in fair or good health and do not appear to have been significantly impacted (see Map 1 above).

It is expected that the trees encroached by the car park have adapted to any impacts with a few trees perhaps having declined or died in the intervening years.

While tree stumps are remaining where several Bishop Pines have been removed along the north edge of the car park, these are generally smaller in diameter than the remaining trees indicating that they were removed many years before the car park placement or were smaller suppressed specimens that died or failed naturally or, perhaps partially due to the car park establishment works.

It is expected that the topping up of the car park with crushed rock will not have a significant impact on trees beyond any impacts the trees have already acclimatised to. As such the toping up of the existing car park is not being considered an encroachment for the purposes of this impact analysis.

An area of asphalt is to be constructed at the west end of the existing car park. The potential impacts of placing asphalt within tree TPZ areas, especially where no car park or disturbance previously existed have been considered and included in the impact analysis.

The following impact analysis is done according to each proposed construction or upgrade.

Table 5 Assumptions regarding TPZ encroachments

Type	Assumptions	Impact
Paving Type 3 - Car park surface Asphalt with line-marking (P3) Use: 6 DDA car parks/bus & bicycle parking area east end of carpark	Impacts depend on construction detail (thickness, compaction of subgrade, etc.) the depth of excavation required and TPZ coverage. Some porosity	Moderate to high
Paving Type 4 - Grey Concrete (P4) Use: Toilet block	Impacts depend on construction detail (compaction of subgrade) the depth of excavation required and TPZ coverage. Little to no porosity	High
Gravel Paths (P1) Use: Pedestrian gravel paths in forest plantations and meandering paths in 'pasture' area	Gravel will not require significant excavation (<=15cm) or compaction and there will be some flexibility in placing it near and around trees (e.g. to avoid damaging larger roots close to surface, placing gravel against tree stems, etc.)	Low In most cases, P1 is not considered an encroachment, especially if paths have already been established or its near the edge of TPZs
Compacted gravel (P2a) Use: Top-up existing gravel car park	Top-up to level and repair existing surface without excavation beyond careful shallow levelling of existing surfaces where required. Not to be used in areas not previously gravelled	No impact Not considered as a TPZ encroachment at the extents it is being used
Compacted gravel (P2b) Use: To extend car parking spaces into area previously fenced and vegetated on south side of existing car park	Where car park is to be expanded into existing vegetation. Depth will depend on soil tests. 300mm depth is assumed for encroachment analysis	Medium When used towards the outside of the TPZ (not within the SRZ). Roots at depths below excavation are expected to survive
Planting mix 4 – Vegetation Buffer (including other planting mixes) Use: Edge of car park, along edges of some trails/paths	Plantings are assumed to be done by hand with care not to disturb roots where found. Bulk excavation or fill is not expected.	Low Planting is not considered an encroachment if done by hand and with due care
Paving Type 5 (Crushed rock - Coldstream toppings) (P5) Use: Vehicle Maintenance Path	Used for proposed vehicle maintenance access path. Vehicle maintenance tracks are assumed to have low use. Minimal disturbance apart from removal of organic layer from surface.	Low Care must be taken not to scrape large surface roots that occur on track and to carefully build up material around surface roots to protect them from vehicle impacts
Culvert Pipe connecting Rain Garden/Stormwater to outlet	A nominal pipe trench width of up to 0.8m width by 1m depth is assumed	High An open trench is expected to sever most roots in its alignment. The trench only represents a minor encroachment to 2 trees however

Culvert trench

A trench is to be excavated for a culvert joining a proposed Rain Garden drainage feature to an outlet within a vegetated area by the Cement Creek Road.

The trench encroaches within the TPZ areas of trees #8 and 151(see Figure 1 below).

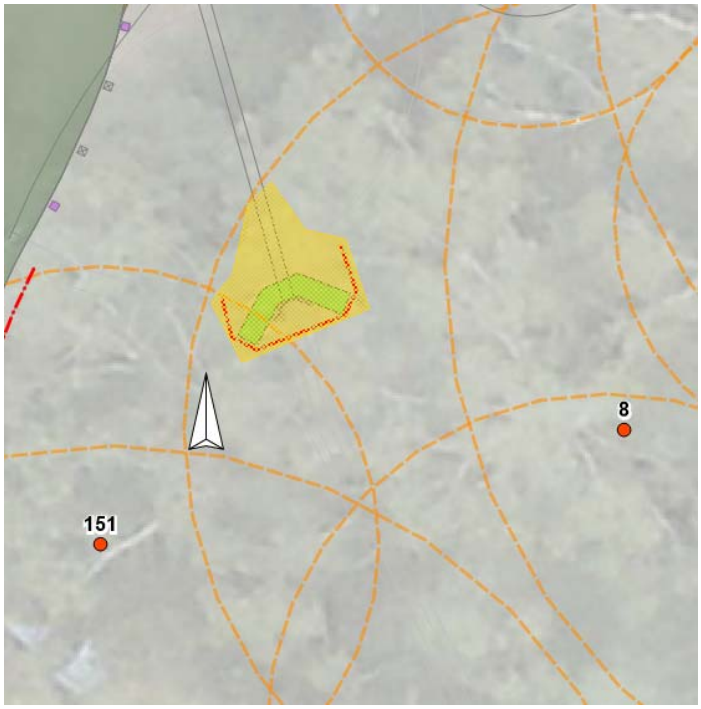


Figure 1 TPZ encroachments from proposed culvert pipe trench to trees #8 and 151 (shaded areas).

Tree #8 and 151 TPZs will be encroached approximately 3% and 1% respectively with the encroachment well outside of their SRZs. The encroachments are minor and unlikely to impact the trees.

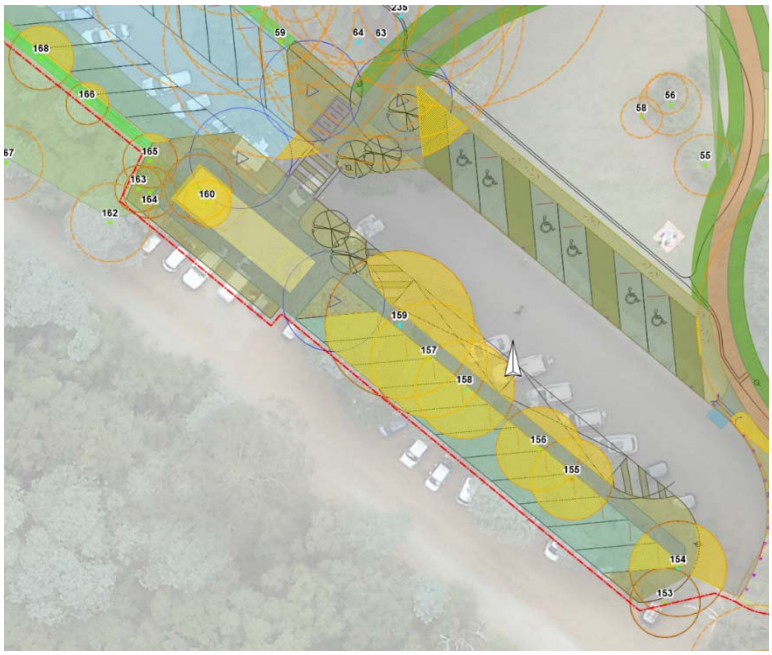


Figure 2 TPZ encroachments from new compacted gravel and asphalt car park, toilet block and extension of car park into vegetated area to south to trees #154, 155, 156, 157, 158, 159, 160, 161, 165, 166 and 168 (shaded areas).

Asphalt car park and visitor toilet

Trees #154, 155, 156, 157, 158, 159, 160, 161, 165, 166 and 168 are within the footprint of a proposed new compacted gravel and asphalt car park. All but tree #165 are proposed to be removed for the car park (see Figure 2 above). Tree #153 is also to be removed for landscape and construction purposes. All trees have been assessed as medium, low and 'none' retention values.

Extension of existing car park and driveway into vegetated area

Trees #134, 135, 170, 171, 173, 176, 177, 179, 180, 181, 183, 187, 195 and 196 have TPZ encroachments. Trees #170, 171, 173 and 176, all medium or low retention value trees are lost due to high-impact major TPZ encroachments. Trees #177 and 183 are recommended for removal for arboricultural reasons (dead, declining structures). See Figures 3 to 6 below for TPZ encroachment diagrams.

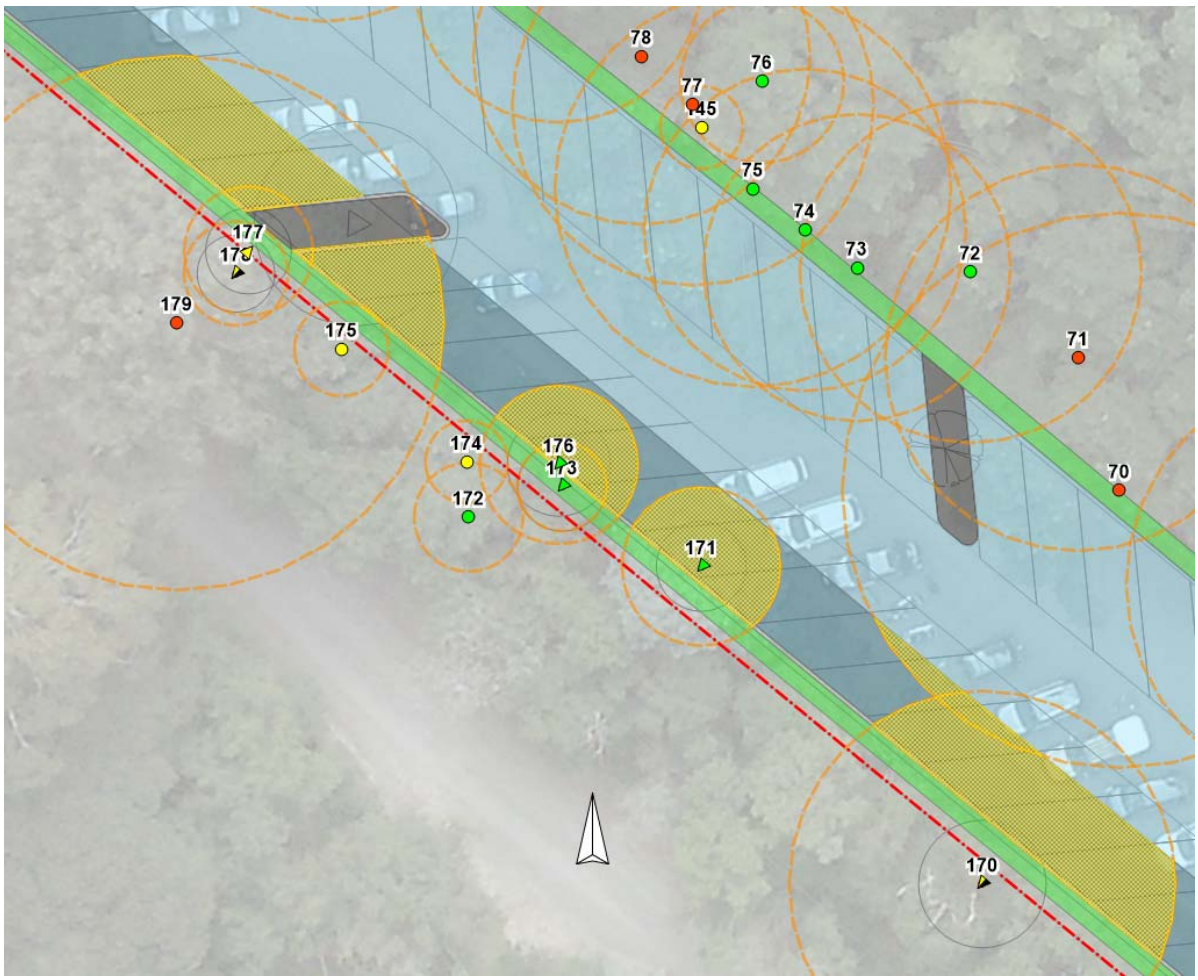


Figure 3 TPZ encroachments from extension of car park into the vegetated area to south to trees #170, 171, 173, 176, 177 and 179 (small encroachment to tree #70 (out of view) on north side of car park also shown near tree #170) (shaded areas). All apart from tree #179 are to be removed.

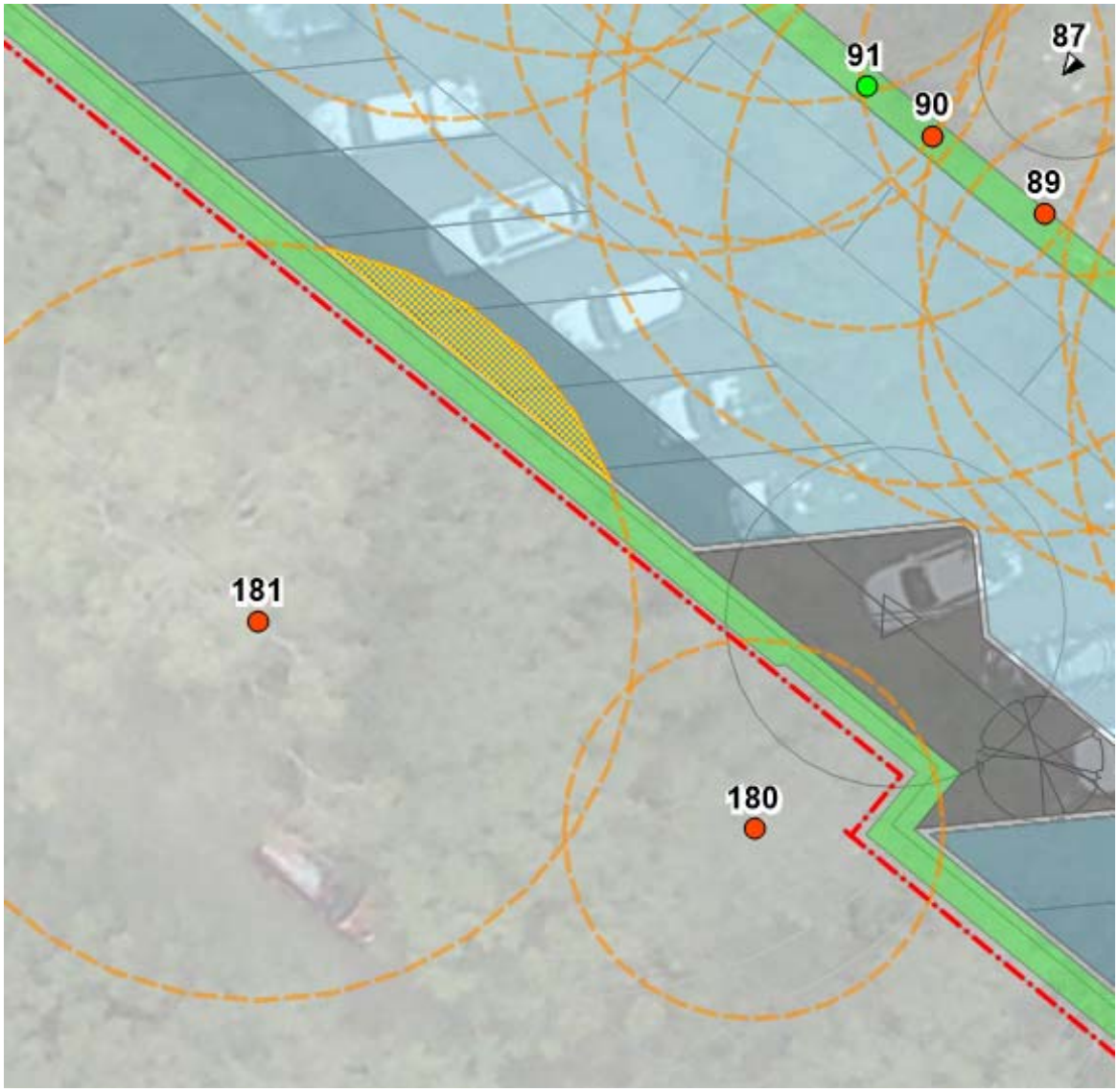


Figure 4 TPZ encroachments from extension of car park into the vegetated area to south to tree #181 (shaded areas).

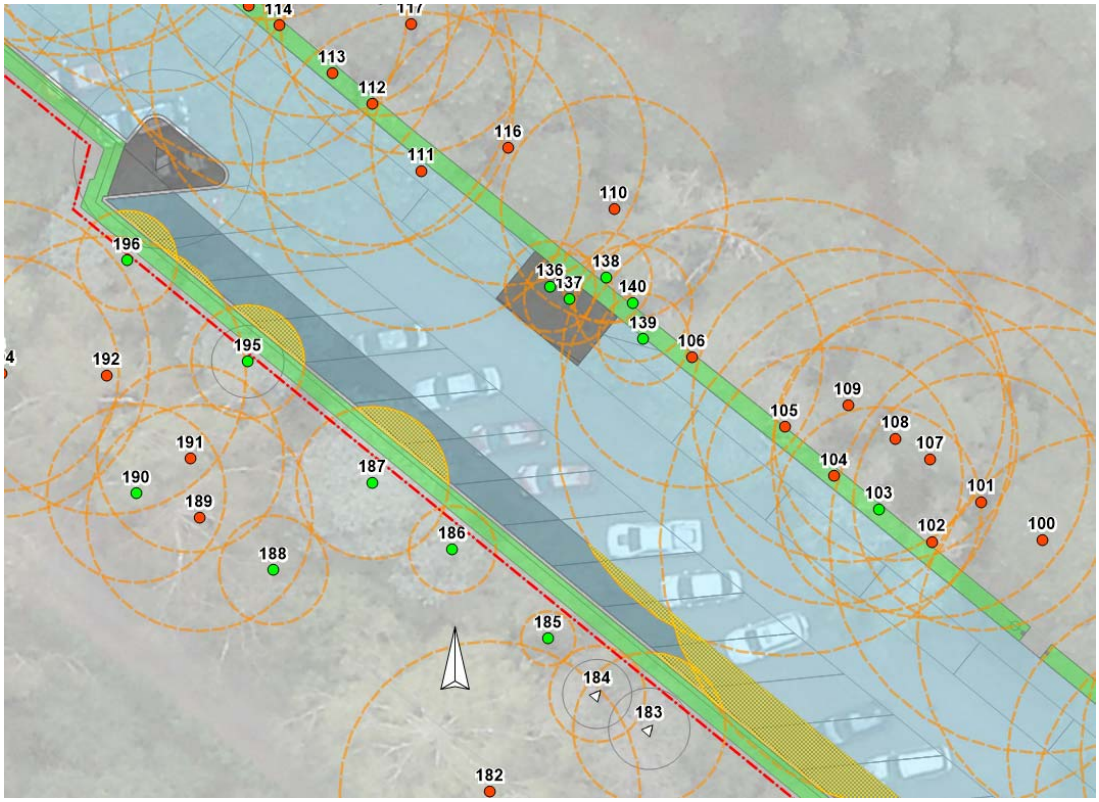


Figure 5 TPZ encroachments from extension of car park into the vegetated area to the south to trees #183, 187, 195 and 196 on south side and trees #102 and 105 on north side of car park (shaded areas). All, apart from trees #183 and 184 are to be retained.

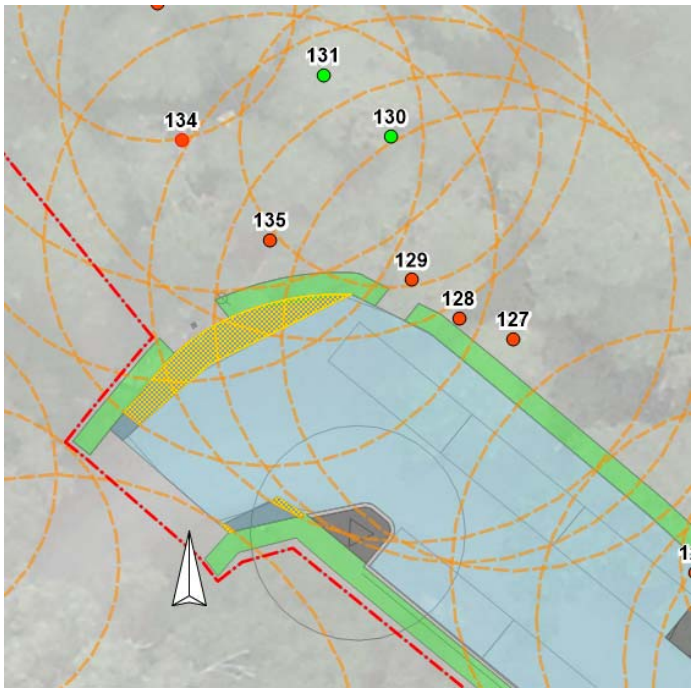


Figure 6 TPZ encroachments from extension of car park into vegetated area to northwest to trees #134 and 135.

Enhanced access path and visitor shelter in grassed area

A 5-metre by 5-metre visitor shelter is proposed for within the grassed area outside the heritage overlay boundary to the east of the plantations. The shelter construction will not have major encroachments on any trees. Trees #33 and 46, a medium retention value Rhododendron and a low retention value young Manna Gum, are within the alignment of a proposed trail in the area however and will need to be removed (considered lost). See Figure 7 below.

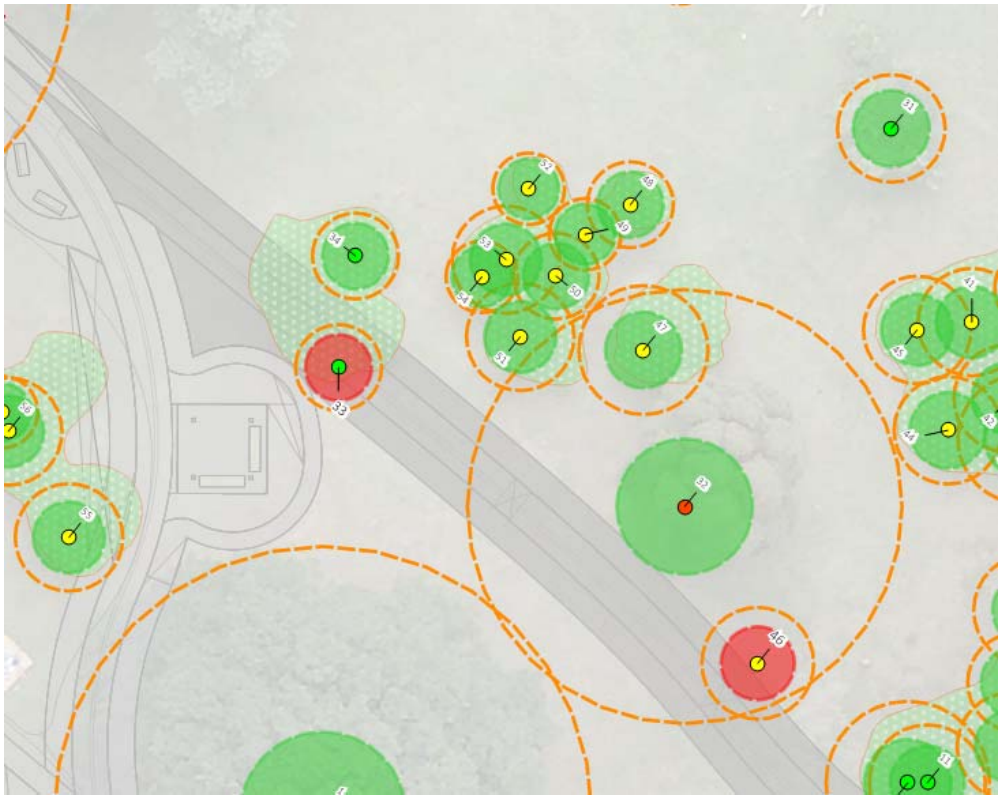


Figure 7 Trees #33 and 46 are within the proposed trail alignment and need to be removed.

The proposed enhanced access path meanders down a sloping area that has a history of clearing but has been allowed to naturally revegetate in the past decade or so with local indigenous species. The area has patches of Burgan with young eucalypts and wattles (mainly Silver Wattle). The Burgan and trees have not been individually assessed most likely due to the density and number of individuals. See Figures 8 to 10 below.

It can be seen in Figures 8 and 9 that regrowth of wattles and eucalypts has proliferated significantly between 2014 and 2023.

Clearing will be required to create the path. Lost vegetation in these densely vegetated patches would need to be assessed as a Habitat Hectare Assessment by a qualified ecologist.

Figure 8 Proposed trail path through existing Burgan, eucalypt and wattle regrowth (2014)

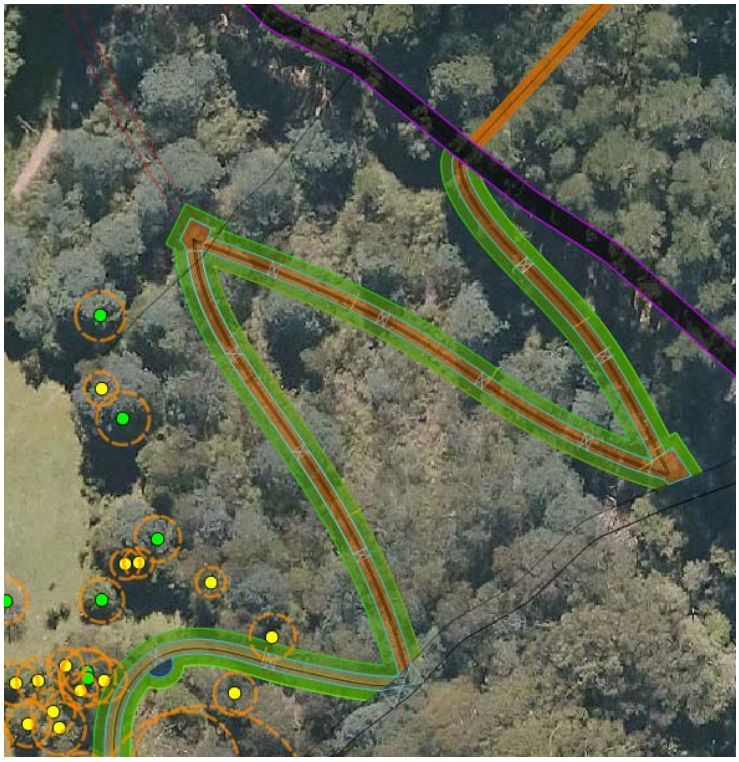


Figure 9 Proposed trail path through existing Burgan, eucalypt and wattle regrowth (2023)

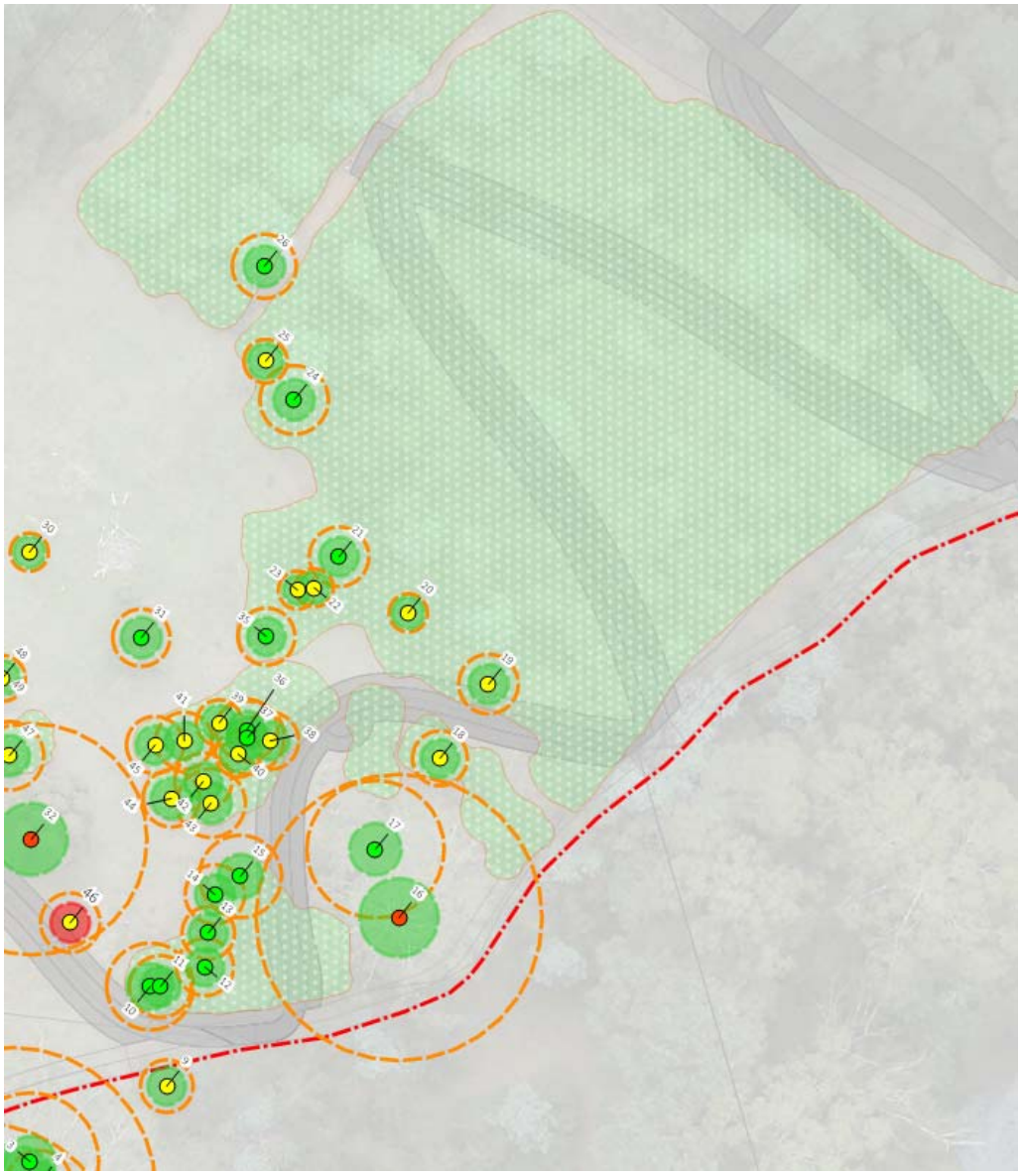


Figure 10 Proposed trail within an area of dense Burgan, Silver Wattles and young eucalypts

Trails, signs and culverts within plantations

The creation of formalised trails, access tracks and installation of signage and culverts within the greater plantation areas is proposed.

The impacts on trees within the plantations are to be subject to further discussion and investigation with Tract Landscape Architects. It is envisaged that the final design layouts and recommended construction methods will be flexible to allow for the protection of plantation trees and surface roots and avoid potential hazards (trees identified with poor structures likely to fail) and other features (fallen logs, landform features, etc.).

Standard construction and trail location methods and specifications will be devised to minimise impacts on trees while meeting track and trail grading requirements.

.

Table 6 Table of trees lost due to construction impacts and/or recommended for removal

Tree ID #	Botanical Name	Common Name	Origin	Ret. Value	TPZ Encroach. %	Outcome	Clause 42.01 ESO1	Clause 52.17 NV
2	*Acacia dealbata*	Silver Wattle	Indigenous	Medium	0	Lost	Yes	No
33	*Rhododendron* cultivar	Rhododendron	Exotic	Medium	100	Lost	No	No
46	*Eucalyptus viminalis*	Manna Gum	Indigenous	Low	100	Lost	Yes	No
63	*Pinus muricata*	Bishop Pine	Exotic	Low	4	Remove	No	No
87	*Pinus muricata*	Bishop Pine	Exotic	None	0	Remove	No	No
153	*Acacia melanoxylon*	Blackwood	Indigenous	Medium	0	Remove	Yes	No
154	*Acer palmatum*	Japanese Maple	Exotic	Medium	34	Lost	No	No
155	*Acacia dealbata*	Silver Wattle	Indigenous	None	100	Lost (Remove)	Yes	No
156	*Acacia melanoxylon*	Blackwood	Indigenous	Medium	100	Lost	No	No
157	*Acacia melanoxylon*	Blackwood	Indigenous	Medium	100	Lost	Yes	No
158	*Acacia melanoxylon*	Blackwood	Indigenous	Low	100	Lost	Yes	No
159	*Acacia dealbata*	Silver Wattle	Indigenous	Medium	100	Lost	Yes	No
160	*Acacia dealbata*	Silver Wattle	Indigenous	Low	100	Lost	Yes	No
161	*Acacia dealbata*	Silver Wattle	Indigenous	Medium	100	Lost	Yes	No
166	*Acacia dealbata*	Silver Wattle	Indigenous	Low	17	Lost	Yes	No
168	*Acacia dealbata*	Silver Wattle	Indigenous	Medium	40	Lost	Yes	No
170	*Acacia melanoxylon*	Blackwood	Indigenous	Low	24	Lost (Remove)	Yes	No
171	*Acacia melanoxylon*	Blackwood	Indigenous	Medium	100	Lost	Yes	No
173	*Pomaderris aspera*	Hazel Pomaderris	Indigenous	Medium	100	Lost	Yes	No
176	*Cyathea australis*	Rough Tree Fern	Indigenous	Medium	100	Lost	Yes	No
177	*Acacia dealbata*	Silver Wattle	Indigenous	Low	10	Remove	Yes	No
178	*Acacia dealbata*	Silver Wattle	Indigenous	Low	0	Remove	Yes	No
183	*Acacia dealbata*	Silver Wattle	Indigenous	None	5	Remove	Yes	No
184	*Acacia dealbata*	Silver Wattle	Indigenous	None	0	Remove	Yes	No
235	*Pinus muricata*	Bishop Pine	Exotic	Low	2	Remove	No	No
237	*Pinus muricata*	Bishop Pine	Exotic	Low	0	Remove (investigate)	No	No
238	*Pinus muricata*	Bishop Pine	Exotic	Low	0	Remove	No	No

Permits Required Under Planning Provisions

Not including trees within dense groups in the area south of the grassed area, 15 trees will be considered lost due to construction impacts.

A permit for native vegetation removal is not required under Clause 52.17 due to the Crown land exemption. The exemption states that the permit requirement does not apply to 'native vegetation that is to be removed, destroyed or lopped to the minimum extent necessary to manage Crown land' by or on behalf of Parks Victoria and in accordance with the *Procedure for the removal, destruction or lopping of native vegetation on Crown land* (DELWP, 2018).

Eight (8) trees are recommended for removal for arboricultural reasons (tree decline, safety, etc.) alone. Two trees are recommended for removal for arboricultural reasons but will also be lost to construction impacts.

See Table 6 above for trees lost to construction impacts or recommended for removal with permit requirements.

Note that permit requirements for tree removal or pruning have not been investigated under the Victorian Heritage Register (VHR H2439) or Yarra Ranges Planning Scheme. It is recommended that a planning consultant be engaged to determine what, if any, permits may be required.

Stephen Fitzgerald
BAppSc (Melb.) AdvCertHort, AdvCertArb. (Burnley)

References

DELWP (2018), *Procedure for the removal, destruction or lopping of native vegetation on Crown land : for use by the Department of Environment, Land, Water and Planning and Parks Victoria.* Melbourne: Department of Environment, Land, Water and Planning.

Please refer to attached tree plans for tree location, TPZs and other details:

1. Tree Location/Encroachment Analysis Plan West Redwood Forest: Visitor Facilities Improvements
2. Tree Location/Encroachment Analysis Plan East Redwood Forest: Visitor Facilities Improvements

Appendix 1 Photos

Photo 1: Tree 1 (photo C&R Ryder Consulting P/L)

Photo 2: Tree 2 (photo C&R Ryder Consulting P/L)

Photo 3: Tree 3 (photo C&R Ryder Consulting P/L)

Photo 4: Tree 4 (photo C&R Ryder Consulting P/L)

Photo 5: Tree 5 (photo C&R Ryder Consulting P/L)

Photo 6: Tree 6 (photo C&R Ryder Consulting P/L)

Photo 7: Tree 7 (photo C&R Ryder Consulting P/L)

Photo 8: Tree 8 (photo C&R Ryder Consulting P/L)

Photo 9: Tree 9 (photo C&R Ryder Consulting P/L)

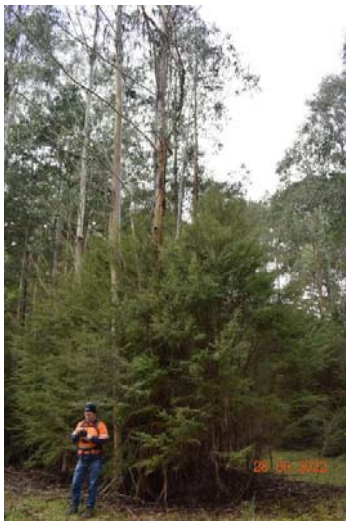


Photo 10: Tree 10 (photo C&R Ryder Consulting P/L)

Photo 11: Tree 11 (photo C&R Ryder Consulting P/L)

Photo 12: Tree 12 (photo C&R Ryder Consulting P/L)

Photo 13: Tree 13 (photo C&R Ryder Consulting P/L)

Photo 14: Tree 14 (photo C&R Ryder Consulting P/L)

Photo 15: Tree 15 (photo C&R Ryder Consulting P/L)

Photo 16: Tree 16 (photo C&R Ryder Consulting P/L)

Photo 17: Tree 17 (photo C&R Ryder Consulting P/L)

Photo 18: Tree 18 (photo C&R Ryder Consulting P/L)

Photo 19: Tree 19 (photo C&R Ryder Consulting P/L)

Photo 20: Tree 20 (photo C&R Ryder Consulting P/L)

Photo 21: Tree 21 (photo C&R Ryder Consulting P/L)

Photo 22: Tree 22 (photo C&R Ryder Consulting P/L)

Photo 23: Tree 23 (photo C&R Ryder Consulting P/L)

Photo 24: Tree 24 (photo C&R Ryder Consulting P/L)

Photo 25: Tree 25 (photo C&R Ryder Consulting P/L)

Photo 26: Tree 26 (photo C&R Ryder Consulting P/L)

Photo 27: Tree 27 (photo C&R Ryder Consulting P/L)

Photo 28: Tree 28 (photo C&R Ryder Consulting P/L)

Photo 29 from south-east: Tree 29

Photo 30: Tree 30 (photo C&R Ryder Consulting P/L)

Photo 31: Tree 31 (photo C&R Ryder Consulting P/L)

Photo 32: Tree 32 (photo C&R Ryder Consulting P/L)

Photo 33: Tree 33 (photo C&R Ryder Consulting P/L)

Photo 34: Tree 34 (photo C&R Ryder Consulting P/L)

Photo 35: Tree 35 (photo C&R Ryder Consulting P/L)

Photo 36: Tree 36 (photo C&R Ryder Consulting P/L)

Photo 37: Tree 37 (photo C&R Ryder Consulting P/L)

Photo 38: Tree 38 (photo C&R Ryder Consulting P/L)

Photo 39: Tree 39 (photo C&R Ryder Consulting P/L)

Photo 40: Tree 40 (photo C&R Ryder Consulting P/L)

Photo 41: Tree 41 (photo C&R Ryder Consulting P/L)

Photo 42: Tree 42 (photo C&R Ryder Consulting P/L)

Photo 43: Tree 43 (photo C&R Ryder Consulting P/L)

Photo 44: Tree 44 (photo C&R Ryder Consulting P/L)

Photo 45: Tree 45 (photo C&R Ryder Consulting P/L)

Photo 46: Tree 46 (photo C&R Ryder Consulting P/L)

Photo 47: Tree 47 (photo C&R Ryder Consulting P/L)

Photo 48: Tree 48 (photo C&R Ryder Consulting P/L)

Photo 49: Tree 49 (photo C&R Ryder Consulting P/L)

Photo 50: Tree 50 (photo C&R Ryder Consulting P/L)

Photo 51: Tree 51 (photo C&R Ryder Consulting P/L)

Photo 52: Tree 52 (photo C&R Ryder Consulting P/L)

Photo 53: Tree 53 (photo C&R Ryder Consulting P/L)

Photo 54: Tree 54 (photo C&R Ryder Consulting P/L)

Photo 55: Tree 55 (photo C&R Ryder Consulting P/L)

Photo 56: Tree 56 (photo C&R Ryder Consulting P/L)

Photo 57: Tree 57 (photo C&R Ryder Consulting P/L)

Photo 58: Tree 58 (photo C&R Ryder Consulting P/L)

Photo 59: Tree 59 (photo C&R Ryder Consulting P/L)

Photo 60: Tree 60 (photo C&R Ryder Consulting P/L)

Photo 61: Tree 61 (photo C&R Ryder Consulting P/L)

Photo 62: Tree 62 (photo C&R Ryder Consulting P/L)

Photo 63 from south-east: Tree 63

Photo 64 from south-east: Tree 63 bifurcation defect of main stem

Photo 65 from south-east: Tree 63 recent bifurcation failure

Photo 66: Tree 64 (photo C&R Ryder Consulting P/L)

Photo 67: Tree 65 (photo C&R Ryder Consulting P/L)

Photo 68: Tree 66 (photo C&R Ryder Consulting P/L)

Photo 69: Tree 67 (photo C&R Ryder Consulting P/L)

Photo 70: Tree 68 (photo C&R Ryder Consulting P/L)

Photo 71: Tree 69 (photo C&R Ryder Consulting P/L)

Photo 72: Tree 70 (photo C&R Ryder Consulting P/L)

Photo 73: Tree 71 (photo C&R Ryder Consulting P/L)

Photo 74: Tree 72 (photo C&R Ryder Consulting P/L)

Photo 75: Tree 73 (photo C&R Ryder Consulting P/L)

Photo 76: Tree 74 (photo C&R Ryder Consulting P/L)

Photo 77: Tree 75 (photo C&R Ryder Consulting P/L)

Photo 78: Tree 76 (photo C&R Ryder Consulting P/L)

Photo 79: Tree 77 (photo C&R Ryder Consulting P/L)

Photo 80: Tree 78 (photo C&R Ryder Consulting P/L)

Photo 81: Tree 79 (photo C&R Ryder Consulting P/L)

Photo 82: Tree 80 (photo C&R Ryder Consulting P/L)

Photo 83: Tree 81 (photo C&R Ryder Consulting P/L)

Photo 84: Tree 82 (photo C&R Ryder Consulting P/L)

Photo 85: Tree 83 (photo C&R Ryder Consulting P/L)

Photo 86: Tree 84 (photo C&R Ryder Consulting P/L)

Photo 87: Tree 85 (photo C&R Ryder Consulting P/L)

Photo 88: Tree 86 (photo C&R Ryder Consulting P/L)

Photo 89: Tree 87 (photo C&R Ryder Consulting P/L)

Photo 90: Tree 88 (photo C&R Ryder Consulting P/L)

Photo 91: Tree 89 (photo C&R Ryder Consulting P/L)

Photo 92: Tree 90 (photo C&R Ryder Consulting P/L)

Photo 93: Tree 91 (photo C&R Ryder Consulting P/L)

Photo 94: Tree 92 (photo C&R Ryder Consulting P/L)

Photo 95: Tree 93 (photo C&R Ryder Consulting P/L)

Photo 96: Tree 94 (photo C&R Ryder Consulting P/L)

Photo 97: Tree 95 (photo C&R Ryder Consulting P/L)

Photo 98: Tree 96 (photo C&R Ryder Consulting P/L)

Photo 99: Tree 97 (photo C&R Ryder Consulting P/L)

Photo 100: Tree 98 (photo C&R Ryder Consulting P/L)

Photo 101: Tree 99 (photo C&R Ryder Consulting P/L)

Photo 102: Tree 100 (photo C&R Ryder Consulting P/L)

Photo 103: Tree 101 (photo C&R Ryder Consulting P/L)

Photo 104: Tree 102 (photo C&R Ryder Consulting P/L)

Photo 105: Tree 103 (photo C&R Ryder Consulting P/L)

Photo 106: Tree 104 (photo C&R Ryder Consulting P/L)

Photo 107: Tree 105 (photo C&R Ryder Consulting P/L)

Photo 108: Tree 106 (photo C&R Ryder Consulting P/L)

Photo 109: Tree 107 (photo C&R Ryder Consulting P/L)

Photo 110: Tree 108 (photo C&R Ryder Consulting P/L)

Photo 111: Tree 109 (photo C&R Ryder Consulting P/L)

Photo 112: Tree 110 (photo C&R Ryder Consulting P/L)

Photo 113: Tree 111 (photo C&R Ryder Consulting P/L)

Photo 114: Tree 112 (photo C&R Ryder Consulting P/L)

Photo 115: Tree 113 (photo C&R Ryder Consulting P/L)

Photo 116: Tree 114 (photo C&R Ryder Consulting P/L)

Photo 117: Tree 115 (photo C&R Ryder Consulting P/L)

Photo 118: Tree 116 (photo C&R Ryder Consulting P/L)

Photo 119: Tree 117 (photo C&R Ryder Consulting P/L)

Photo 120: Tree 118 (photo C&R Ryder Consulting P/L)

Photo 121: Tree 119 (photo C&R Ryder Consulting P/L)

Photo 122: Tree 120 (photo C&R Ryder Consulting P/L)

Photo 123: Tree 121 (photo C&R Ryder Consulting P/L)

Photo 124: Tree 122 (photo C&R Ryder Consulting P/L)

Photo 125: Tree 123 (photo C&R Ryder Consulting P/L)

Photo 126: Tree 124 (photo C&R Ryder Consulting P/L)

Photo 127: Tree 125 (photo C&R Ryder Consulting P/L)

Photo 128: Tree 126 (photo C&R Ryder Consulting P/L)

Photo 129: Tree 127 (photo C&R Ryder Consulting P/L)

Photo 130: Tree 128 (photo C&R Ryder Consulting P/L)

Photo 131: Tree 129 (photo C&R Ryder Consulting P/L)

Photo 132: Tree 130 (photo C&R Ryder Consulting P/L)

Photo 133: Tree 131 (photo C&R Ryder Consulting P/L)

Photo 134: Tree 132 (photo C&R Ryder Consulting P/L)

Photo 135: Tree 133 (photo C&R Ryder Consulting P/L)

Photo 136: Tree 134 (photo C&R Ryder Consulting P/L)

Photo 137: Tree 135 (photo C&R Ryder Consulting P/L)

Photo 138: Tree 136 (photo C&R Ryder Consulting P/L)

Photo 139 from south-east: Tree 137

Photo 140: Tree 138 (photo C&R Ryder Consulting P/L)

Photo 141: Tree 139 (photo C&R Ryder Consulting P/L)

Photo 142: Tree 140 (photo C&R Ryder Consulting P/L)

Photo 143: Tree 141 (photo C&R Ryder Consulting P/L)

Photo 144: Tree 142 (photo C&R Ryder Consulting P/L)

Photo 145: Tree 143 (photo C&R Ryder Consulting P/L)

Photo 146: Tree 144 (photo C&R Ryder Consulting P/L)

Photo 147: Tree 145 (photo C&R Ryder Consulting P/L)

Photo 148: Tree 146 (photo C&R Ryder Consulting P/L)

Photo 149: Tree 147 (photo C&R Ryder Consulting P/L)

Photo 150: Tree 148 (photo C&R Ryder Consulting P/L)

Photo 151: Tree 149 (photo C&R Ryder Consulting P/L)

Photo 152: Tree 150 (photo C&R Ryder Consulting P/L)

Photo 153: Tree 151 (photo C&R Ryder Consulting P/L)

Photo 154: Tree 152 (photo C&R Ryder Consulting P/L)

Photo 155: Tree 153 (photo C&R Ryder Consulting P/L)

Photo 156: Tree 154 (photo C&R Ryder Consulting P/L)

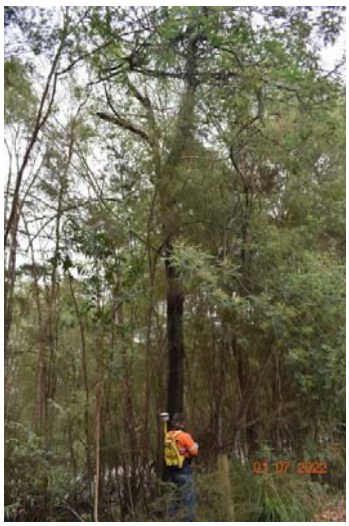


Photo 157: Tree 155 (photo C&R Ryder Consulting P/L)

Photo 158: Tree 156 (photo C&R Ryder Consulting P/L)

Photo 159: Tree 157 (photo C&R Ryder Consulting P/L)

Photo 160: Tree 158 (photo C&R Ryder Consulting P/L)

Photo 161: Tree 159 (photo C&R Ryder Consulting P/L)

Photo 162: Tree 160 (photo C&R Ryder Consulting P/L)

Photo 163: Tree 161 (photo C&R Ryder Consulting P/L)

Photo 164: Tree 162 (photo C&R Ryder Consulting P/L)

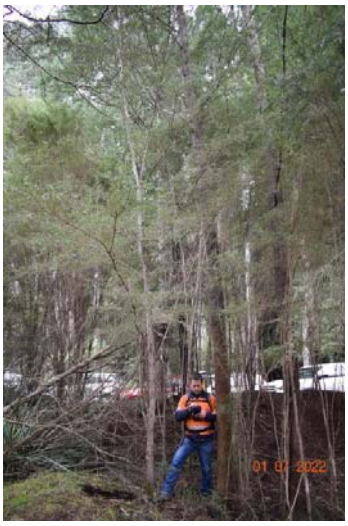


Photo 165: Tree 163 (photo C&R Ryder Consulting P/L)

Photo 166: Tree 164 (photo C&R Ryder Consulting P/L)

Photo 167: Tree 165 (photo C&R Ryder Consulting P/L)

Photo 168: Tree 166 (photo C&R Ryder Consulting P/L)

Photo 169: Tree 167 (photo C&R Ryder Consulting P/L)

Photo 170: Tree 168 (photo C&R Ryder Consulting P/L)

Photo 171: Tree 169 (photo C&R Ryder Consulting P/L)

Photo 172: Tree 170 (photo C&R Ryder Consulting P/L)

Photo 173: Tree 171 (photo C&R Ryder Consulting P/L)

Photo 174: Tree 172 (photo C&R Ryder Consulting P/L)

Photo 175: Tree 173 (photo C&R Ryder Consulting P/L)

Photo 176: Tree 174 (photo C&R Ryder Consulting P/L)

Photo 177: Tree 175 (photo C&R Ryder Consulting P/L)

Photo 178: Tree 176 (photo C&R Ryder Consulting P/L)

Photo 179: Tree 177 (photo C&R Ryder Consulting P/L)

Photo 180: Tree 178 (photo C&R Ryder Consulting P/L)

Photo 181: Tree 179 (photo C&R Ryder Consulting P/L)

Photo 182: Tree 180 (photo C&R Ryder Consulting P/L)

Photo 183: Tree 181 (photo C&R Ryder Consulting P/L)

Photo 184: Tree 182 (photo C&R Ryder Consulting P/L)

Photo 185: Tree 183 (photo C&R Ryder Consulting P/L)

Photo 186: Tree 184 (photo C&R Ryder Consulting P/L)

Photo 187: Tree 185 (photo C&R Ryder Consulting P/L)

Photo 188: Tree 186 (photo C&R Ryder Consulting P/L)

Photo 189: Tree 187 (photo C&R Ryder Consulting P/L)

Photo 190: Tree 188 (photo C&R Ryder Consulting P/L)

Photo 191: Tree 189 (photo C&R Ryder Consulting P/L)

Photo 192: Tree 190 (photo C&R Ryder Consulting P/L)

Photo 193: Tree 191 (photo C&R Ryder Consulting P/L)

Photo 194: Tree 192 (photo C&R Ryder Consulting P/L)

Photo 195: Tree 193 (photo C&R Ryder Consulting P/L)

Photo 196: Tree 194 (photo C&R Ryder Consulting P/L)

Photo 197: Tree 195 (photo C&R Ryder Consulting P/L)

Photo 198: Tree 196 (photo C&R Ryder Consulting P/L)

Photo 199: Tree 197 (photo C&R Ryder Consulting P/L)

Photo 200: Tree 198 (photo C&R Ryder Consulting P/L)

Photo 201: Tree 199 (photo C&R Ryder Consulting P/L)

Photo 202: Tree 200 (photo C&R Ryder Consulting P/L)

Photo 203: Tree 201 (photo C&R Ryder Consulting P/L)

Photo 204: Tree 202 (photo C&R Ryder Consulting P/L)

Photo 205: Tree 203 (photo C&R Ryder Consulting P/L)

Photo 206: Tree 204 (photo C&R Ryder Consulting P/L)

Photo 207: Tree 205 (photo C&R Ryder Consulting P/L)

Photo 208 from south-east: Tree 235 right (tallest tree)

Photo 209 from south-east: Tree 236 centre background (leaning to right)

Photo 210: Tree 237 base of tree showing root heave

Photo 211: Tree 238 centre background

Photo 212 from south-east: Tree 243 taller trees on right are #239 to 243

Appendix 2 - Tree Inspection Records - Warburton Redwoods Forest

TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
1	***Quercus robur*** English Oak	Retained	192cm	31 x 20m	Good Fair	large failure on NW side (fungal fruiting body Arb)	Further investigation of decay in stem (see photo)	Very High	15m 0%	4.6m ☐ Encroached?	Exotic	20+	very large tree, historically lopped, large failure on NW side. (Further investigation of extent of decay due to fungal fruiting body is recommended Arb) See Appendix 1 Tree Photos Photo 1
2	***Acacia dealbata*** Silver Wattle	Lost	44cm	18 x 9m	Fair Fair		Tree Removal	Medium	5.28m 0%	2.5m ☐ Encroached?	Vic Native	11-20	Reason for tree removal: Future Melb Water Works See Appendix 1 Tree Photos Photo 2
3	***Acacia dealbata*** Silver Wattle	Retained	60cm	18 x 10m	Fair Fair		No works recommendations have been made	Medium	7.2m 0%	2.7m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 3
4	***Acacia dealbata*** Silver Wattle	Retained	28cm	17 x 7m	Good Fair		No works recommendations have been made	Medium	3.36m 0%	2m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 4
5	***Eucalyptus viminalis*** Manna Gum	Retained	204cm	48 x 20m	Good Fair	multiple failures, minimal decay, hanging branch	No works recommendations have been made	High	15m 0%	4.8m ☐ Encroached?	Vic Native	20+	multiple failures, minimal decay, hanging branch See Appendix 1 Tree Photos Photo 5
6	***Eucalyptus viminalis*** Manna Gum	Retained	146cm	48 x 15m	Good Fair		No works recommendations have been made	High	15m 2%	4.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 6 Note: Encroach Type: Culvert drain
7	***Eucalyptus viminalis*** Manna Gum	Retained	49cm	20 x 8m	Good Good		No works recommendations have been made	Medium	5.88m 0%	2.7m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 7
8	***Eucalyptus viminalis*** Manna Gum	Retained	92cm	45 x 16m	Good Good		No works recommendations have been made	High	11.04m 3%	3.6m ☑ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 8 Note: Encroach Type: Culvert drain (Culvert - 1m wide excavation assumed.
9	***Eucalyptus viminalis*** Manna Gum	Retained	23cm	14 x 3m	Good Good		No works recommendations have been made	Low	2.76m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 9
10	***Eucalyptus viminalis*** Manna Gum	Retained	38cm	16 x 6m	Good Good		No works recommendations have been made	Medium	4.56m 0%	2.4m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 10
11	***Eucalyptus viminalis*** Manna Gum	Retained	27cm	17 x 6m	Good Good		No works recommendations have been made	Medium	3.24m 0%	2.1m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 11

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6 Landscape life expectancy: ULE (Useful life expectancy) from Ryder report of 2022 recordedd here. Trees indicated for removal or with 'Lost' Outcome were checked and altered in some case by Arboriculture

TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
12	***Eucalyptus viminalis*** Manna Gum	Retained	25cm	17 x 4m	Good Good		No works recommendations have been made	Medium	3m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 12
13	***Eucalyptus viminalis*** Manna Gum	Retained	23cm	18 x 5m	Good Good		No works recommendations have been made	Medium	2.76m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 13
14	***Eucalyptus viminalis*** Manna Gum	Retained	26cm	14 x 6m	Good Good		No works recommendations have been made	Medium	3.12m 0%	2.1m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 14
15	***Eucalyptus viminalis*** Manna Gum	Retained	36cm	20 x 6m	Good Good		No works recommendations have been made	Medium	4.32m 0%	2.3m ☐ Encroached?	Vic Native	20+	several smaller specimens close by See Appendix 1 Tree Photos Photo 15
16	***Eucalyptus viminalis*** Manna Gum	Retained	145cm	45 x 20m	Good Fair		No works recommendations have been made	High	15m 0%	4.1m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 16
17	***Juglans ailantifolia*** Japanese walnut	Retained	60cm	9 x 9m	Poor Very Poor	tree is declining	No works recommendations have been made	Medium	7.2m 0%	2.7m ☐ Encroached?		11-20	tree is declining See Appendix 1 Tree Photos Photo 17
18	***Eucalyptus viminalis*** Manna Gum	Retained	24cm	14 x 6m	Good Good		No works recommendations have been made	Low	2.88m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 18
19	***Eucalyptus viminalis*** Manna Gum	Retained	26cm	17 x 6m	Good Good		No works recommendations have been made	Low	3.12m 0%	2.1m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 19
20	***Eucalyptus viminalis*** Manna Gum	Retained	15cm	12 x 2m	Good Good		No works recommendations have been made	Low	2m 0%	1.7m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 20
21	***Acacia dealbata*** Silver Wattle	Retained	26cm	14 x 8m	Good Good		No works recommendations have been made	Medium	3.12m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 21
22	***Acacia melanoxylon*** Blackwood	Retained	16cm	10 x 4m	Good Good		No works recommendations have been made	Low	2m 0%	1.6m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 22
23	***Eucalyptus viminalis*** Manna Gum	Retained	10cm	10 x 3m	Good Good		No works recommendations have been made	Low	2m 0%	1.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 23

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
24	***Acacia dealbata*** Silver Wattle	Retained	30cm	15 x 9m	Good Good		No works recommendations have been made	Medium	3.6m 0%	2.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 24
25	***Eucalyptus viminalis*** Manna Gum	Retained	19cm	15 x 5m	Good Good		No works recommendations have been made	Low	2.28m 0%	1.8m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 25
26	***Acacia dealbata*** Silver Wattle	Retained	28cm	15 x 8m	Good Good		No works recommendations have been made	Medium	3.36m 0%	2.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 26
27	***Acacia melanoxylon*** Blackwood	Retained	61cm	20 x 8m	Good Fair		No works recommendations have been made	High	7.32m 0%	2.9m ☐ Encroached?	Vic Native	20+	edge tree to redwoods. See Appendix 1 Tree Photos Photo 27
28	***Acacia melanoxylon*** Blackwood	Retained	50cm	16 x 8m	Good Fair		No works recommendations have been made	High	6m 0%	2.6m ☐ Encroached?	Vic Native	20+	edge tree to redwoods. See Appendix 1 Tree Photos Photo 28
29	***Acacia melanoxylon*** Blackwood	Retained	81cm	14 x 12m	Good Fair	significant lean (recent major stem failure wound SE side@ 6m Arb)	No works recommendations have been made	High	9.72m 0%	3.3m ☐ Encroached?	Vic Native	11-20	edge tree to redwoods, significant lean, debris at base. (recent major stem failure wound SE side@ 6m, consider future removal Arb) See Appendix 1 Tree Photos Photo 29
30	***Toona sinensis 'Flamingo'*** Chinese Cedar	Retained	15cm	7 x 2m	Fair Fair	previous failure	No works recommendations have been made	Low	2m 0%	1.6m ☐ Encroached?		11-20	previous failure, weedy species See Appendix 1 Tree Photos Photo 30
31	***Corylus avellana*** Hazelnut	Retained	25cm	6 x 6m	Good Fair		No works recommendations have been made	Medium	3m 0%	2.1m ☐ Encroached?	Exotic	20+	multistemmed. See Appendix 1 Tree Photos Photo 31
32	***Cryptomeria japonica 'Elegans'*** Japanese Cedar	Retained	101cm	20 x 9m	Good Fair		No works recommendations have been made	High	12.12m 0%	3.8m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 32
33	***Rhododendron cultivar*** Rhododendron (cv)	Lost	20cm	4 x 5m	Good Fair		No works recommendations have been made	Medium	2.4m 100%	1.8m ☐ Encroached?		20+	In way of trail See Appendix 1 Tree Photos Photo 33
34	***Rhododendron cultivar*** Rhododendron (cv)	Retained	20cm	4 x 5m	Good Fair		No works recommendations have been made	Medium	2.4m 0%	1.8m ☐ Encroached?		11-20	See Appendix 1 Tree Photos Photo 34
35	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 5m	Good Fair		No works recommendations have been made	Medium	3m 0%	2m ☐ Encroached?	Vic Native	11-20	multistemmed. See Appendix 1 Tree Photos Photo 35

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
36	***Eucalyptus viminalis*** Manna Gum	Retained	27cm	18 x 8m	Good Good		No works recommendations have been made	Medium	3.24m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 36
37	***Eucalyptus viminalis*** Manna Gum	Retained	32cm	19 x 8m	Good Good		No works recommendations have been made	Medium	3.84m 0%	2.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 37
38	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 5m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	cluster of specimens. See Appendix 1 Tree Photos Photo 38
39	***Kunzea leptospermoides*** Yarra Burgan	Retained	20cm	6 x 3m	Good Fair		No works recommendations have been made	Low	2.4m 0%	1.8m ☐ Encroached?	Vic Native	11-20	multistemmed. See Appendix 1 Tree Photos Photo 39
40	***Kunzea leptospermoides*** Yarra Burgan	Retained	20cm	7 x 3m	Good Fair		No works recommendations have been made	Low	2.4m 0%	1.8m ☐ Encroached?	Vic Native	11-20	multistemmed. See Appendix 1 Tree Photos Photo 40
41	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 4m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	multistemmed, 2 specimens See Appendix 1 Tree Photos Photo 41
42	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 4m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	multistemmed See Appendix 1 Tree Photos Photo 42
43	***Kunzea leptospermoides*** Yarra Burgan	Retained	30cm	7 x 6m	Good Fair		No works recommendations have been made	Low	3.6m 0%	2.1m ☐ Encroached?	Vic Native	11-20	multistemmed, several specimens. See Appendix 1 Tree Photos Photo 43
44	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 4m	Good Fair		No works recommendations have been made	Low	3m 0%	2.1m ☐ Encroached?	Vic Native	11-20	multistemmed, 2 specimens See Appendix 1 Tree Photos Photo 44
45	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 3m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	multistemmed. See Appendix 1 Tree Photos Photo 45
46	***Eucalyptus viminalis*** Manna Gum	Lost	26cm	17 x 4m	Good Good		No works recommendations have been made	Low	3.12m 0%	2m ☐ Encroached?	Vic Native	20+	Kunzea at base. In way of trail See Appendix 1 Tree Photos Photo 46
47	***Kunzea leptospermoides*** Yarra Burgan	Retained	30cm	7 x 5m	Good Fair		No works recommendations have been made	Low	3.6m 0%	2.1m ☐ Encroached?	Vic Native	11-20	Multistemmed, several stems in cluster. See Appendix 1 Tree Photos Photo 47

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48	***Kunzea leptospermoides*** Yarra Burgan	Retained	20cm	6 x 2m	Good Fair		No works recommendations have been made	Low	2.4m 0%	1.8m ☐ Encroached?	Vic Native	11-20	Multistemmed See Appendix 1 Tree Photos Photo 48
49	***Kunzea leptospermoides*** Yarra Burgan	Retained	15cm	5 x 2m	Good Fair		No works recommendations have been made	Low	2m 0%	1.7m ☐ Encroached?	Vic Native	11-20	Multistemmed See Appendix 1 Tree Photos Photo 49
50	***Kunzea leptospermoides*** Yarra Burgan	Retained	20cm	7 x 4m	Good Fair		No works recommendations have been made	Low	2.4m 0%	1.8m ☐ Encroached?	Vic Native	11-20	Multistemmed, 2 specimens See Appendix 1 Tree Photos Photo 50
51	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 5m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	Multistemmed, several specimens See Appendix 1 Tree Photos Photo 51
52	***Kunzea leptospermoides*** Yarra Burgan	Retained	15cm	5 x 3m	Good Fair		No works recommendations have been made	Low	2m 0%	1.7m ☐ Encroached?	Vic Native	11-20	Multistemmed See Appendix 1 Tree Photos Photo 52
53	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 3m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	Multistemmed See Appendix 1 Tree Photos Photo 53
54	***Kunzea leptospermoides*** Yarra Burgan	Retained	15cm	7 x 2m	Good Fair		No works recommendations have been made	Low	2m 0%	1.7m ☐ Encroached?	Vic Native	11-20	Multistemmed See Appendix 1 Tree Photos Photo 54
55	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	7 x 4m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	Multistemmed, small cluster See Appendix 1 Tree Photos Photo 55
56	***Kunzea leptospermoides*** Yarra Burgan	Retained	25cm	6 x 4m	Good Fair		No works recommendations have been made	Low	3m 0%	2m ☐ Encroached?	Vic Native	11-20	Multistemmed, small cluster See Appendix 1 Tree Photos Photo 56
57	***Acacia melanoxylon*** Blackwood	Retained	14cm	9 x 3m	Good Good		No works recommendations have been made	Low	2m 0%	1.6m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 57
58	***Acacia melanoxylon*** Blackwood	Retained	8cm	6 x 2m	Good Good		No works recommendations have been made	Low	2m 0%	1.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 58
59	***Pinus muricata*** Bishop Pine	Retained	95cm	28 x 10m	Good Fair		No works recommendations have been made	High	11.4m 0%	3.4m ☐ Encroached?	Exotic	20+	asymmetric, lean over car park. See Appendix 1 Tree Photos Photo 59

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60	***Pinus muricata*** Bishop Pine	Retained	72cm	30 x 8m	Fair Fair		No works recommendations have been made	High	8.64m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 60
61	***Pinus muricata*** Bishop Pine	Retained	68cm	32 x 7m	Good Fair		No works recommendations have been made	High	8.16m 0%	3m ☐ Encroached?	Exotic	11-20	tall, slender See Appendix 1 Tree Photos Photo 61
62	***Pinus muricata*** Bishop Pine	Retained	103cm	35 x 7m	Fair Fair		No works recommendations have been made	High	12.36m 0%	3.5m ☐ Encroached?	Exotic	11-20	pruned up, path under tree. See Appendix 1 Tree Photos Photo 62
63	***Pinus muricata*** Bishop Pine	Remove	99cm	30+ x 10m	Fair Poor	tree is leaning, recent upper canopy failure, codominant. (poor stem taper of laterals, bifurcation defects Arb)	**Tree Removal**	Low	11.88m 4%	3.4m ☐ Encroached?	Exotic	6-10	tree is leaning, recent upper canopy failure, codominant. (signs of structural decline large heavy laterals to east southeast have bifurcated unions one has failed recently Arb) Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photos 63, 64 & 65 Note: Encroach Type: P3 Asphalt with line-marking
64	***Pinus muricata*** Bishop Pine	Retained	79cm	33 x 7m	Fair Poor	possible decay at 2-4m	Further investigation of decay identified by Ryder	Low	9.48m 1%	3.2m ☐ Encroached?	Exotic	11-20	possible decay at 2-4m Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photo 66 Note: Encroach Type: P3 Asphalt with line-marking
65	***Pinus muricata*** Bishop Pine	Retained	76cm	33 x 7m	Fair Fair	codominant at 4m.	No works recommendations have been made	High	9.12m 0%	3.2m ☐ Encroached?	Exotic	11-20	codominant at 4m. See Appendix 1 Tree Photos Photo 67
66	***Pinus muricata*** Bishop Pine	Retained	60cm	35 x 5m	Fair Fair		No works recommendations have been made	High	7.2m 0%	2.9m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 68
67	***Pinus muricata*** Bishop Pine	Retained	83cm	32 x 7m	Good Fair	codominant at 9m	No works recommendations have been made	High	9.96m 0%	3.3m ☐ Encroached?	Exotic	11-20	codominant at 9m See Appendix 1 Tree Photos Photo 69
68	***Pinus muricata*** Bishop Pine	Retained	78cm	37 x 5m	Good Fair		No works recommendations have been made	High	9.36m 0%	3.1m ☐ Encroached?	Exotic	11-20	path at base See Appendix 1 Tree Photos Photo 70
69	***Pinus muricata*** Bishop Pine	Retained	85cm	39 x 6m	Good Fair		No works recommendations have been made	High	10.2m 0%	3.3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 71

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70	***Pinus muricata*** Bishop Pine	Retained	112cm	39 x 10m	Good Fair		No works recommendations have been made	High	13.44m 1%	3.6m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 72 Note: Encroach Type: P2b Compacted gravel
71	***Pinus muricata*** Bishop Pine	Retained	78cm	39 x 8m	Fair Fair	twisted stem	No works recommendations have been made	High	9.36m 0%	3.2m ☐ Encroached?	Exotic	11-20	twisted stem. See Appendix 1 Tree Photos Photo 73
72	***Pinus muricata*** Bishop Pine	Retained	69cm	33 x 4m	Poor Fair	major decline	No works recommendations have been made	Medium	8.28m 0%	3m ☐ Encroached?	Exotic	6-10	major decline See Appendix 1 Tree Photos Photo 74
73	***Pinus muricata*** Bishop Pine	Retained	62cm	33 x 6m	Fair Fair		No works recommendations have been made	Medium	7.44m 0%	2.9m ☐ Encroached?	Exotic	11-20	asymmetric See Appendix 1 Tree Photos Photo 75
74	***Pinus muricata*** Bishop Pine	Retained	65cm	33 x 6m	Fair Fair		No works recommendations have been made	Medium	7.8m 0%	2.9m ☐ Encroached?	Exotic	11-20	asymmetric, leaning towards car park See Appendix 1 Tree Photos Photo 76
75	***Pinus muricata*** Bishop Pine	Retained	80cm	35 x 8m	Fair Fair		No works recommendations have been made	Medium	9.6m 0%	3.2m ☐ Encroached?	Exotic	11-20	asymmetric See Appendix 1 Tree Photos Photo 77
76	***Pinus muricata*** Bishop Pine	Retained	33cm	25 x 3m	Fair Fair		No works recommendations have been made	Medium	3.96m 0%	2.2m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 78
77	***Pinus muricata*** Bishop Pine	Retained	73cm	36 x 9m	Good Fair	codominant at 15m	No works recommendations have been made	High	8.76m 0%	3m ☐ Encroached?	Exotic	20+	codominant at 15m See Appendix 1 Tree Photos Photo 79
78	***Pinus muricata*** Bishop Pine	Retained	68cm	36 x 6m	Fair Fair		No works recommendations have been made	High	8.16m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 80
79	***Pinus muricata*** Bishop Pine	Retained	58cm	35 x 5m	Fair Good		No works recommendations have been made	High	6.96m 0%	2.8m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 81
80	***Pinus muricata*** Bishop Pine	Retained	48cm	36 x 5m	Good Good		No works recommendations have been made	High	5.76m 0%	2.6m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 82
81	***Pinus muricata*** Bishop Pine	Retained	64cm	37 x 5m	Fair Good	canopy is declining	No works recommendations have been made	High	7.68m 0%	3m ☐ Encroached?	Exotic	11-20	canopy is declining See Appendix 1 Tree Photos Photo 83

1 DBH measured as per method outlined in AS4970. Where more than 1 stem is measured an equivalent single stem DBH is calculated based on the area of each stem as per AS4970. Where there is more than 1 stem the individual measurements are given in Comments field

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6 Landscape life expectancy: ULE (Useful life expectancy) from Ryder report of 2022 recordedd here. Trees indicated for removal or with 'Lost' Outcome were checked and altered in some case by Arboriculture

TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
82	***Pinus muricata*** Bishop Pine	Retained	57cm	35 x 4m	Fair Good		No works recommendations have been made	High	6.84m 0%	2.7m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 84
83	***Pinus muricata*** Bishop Pine	Retained	79cm	39 x 8m	Fair Fair		No works recommendations have been made	High	9.48m 4%	3.1m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 85 Note: Encroach Type: P5 crushed rock (access track)
84	***Pinus muricata*** Bishop Pine	Retained	102cm	39 x 10m	Fair Fair		No works recommendations have been made	High	12.24m 8%	3.5m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 86 Note: Encroach Type: P5 crushed rock (access track)
85	***Pinus muricata*** Bishop Pine	Retained	73cm	39 x 6m	Poor Fair	major canopy decline	No works recommendations have been made	Medium	8.76m 0%	3m ☐ Encroached?	Exotic	1-5	major canopy decline See Appendix 1 Tree Photos Photo 87
86	***Pinus muricata*** Bishop Pine	Retained	79cm	39 x 8m	Fair Fair	tree is declining	No works recommendations have been made	High	9.48m 0%	3.1m ☐ Encroached?	Exotic	11-20	tree is declining See Appendix 1 Tree Photos Photo 88 Note: Encroach Type: P5 crushed rock (access track)
87	***Pinus muricata*** Bishop Pine	Remove	51cm	20 x 1m	Dead Poor		Tree Removal	None	6.12m 0%	2.7m ☐ Encroached?	Exotic	0	remove tree Reasons for tree removal: Dead See Appendix 1 Tree Photos Photo 89
88	***Pinus muricata*** Bishop Pine	Retained	61cm	37 x 8m	Fair Fair		No works recommendations have been made	High	7.32m 12%	2.8m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 90 Note: Encroach Type: P5 crushed rock (access track)
89	***Pinus muricata*** Bishop Pine	Retained	78cm	37 x 9m	Fair Fair	canopy is declining	No works recommendations have been made	High	9.36m 3%	3.1m ☐ Encroached?	Exotic	11-20	canopy is declining, tree leans over car park See Appendix 1 Tree Photos Photo 91 Note: Encroach Type: P5 crushed rock (access track)
90	***Pinus muricata*** Bishop Pine	Retained	85cm	37 x 10m	Fair Fair	canopy is declining	No works recommendations have been made	High	10.2m 0%	3.3m ☐ Encroached?	Exotic	11-20	canopy is declining, tree leans over car park See Appendix 1 Tree Photos Photo 92
91	***Pinus muricata*** Bishop Pine	Retained	59cm	31 x 4m	Poor Fair	canopy is declining	No works recommendations have been made	Medium	7.08m 0%	2.7m ☐ Encroached?	Exotic	6-10	canopy is declining See Appendix 1 Tree Photos Photo 93
92	***Pinus muricata*** Bishop Pine	Retained	61cm	39 x 5m	Fair Fair	canopy is declining, on a lean.	No works recommendations have been made	High	7.32m 0%	2.9m ☐ Encroached?	Exotic	11-20	canopy is declining, on a lean. See Appendix 1 Tree Photos Photo 94

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6 Landscape life expectancy: ULE (Useful life expectancy) from Ryder report of 2022 recordedd here. Trees indicated for removal or with 'Lost' Outcome were checked and altered in some case by Arboriculture

TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
93	***Pinus muricata*** Bishop Pine	Retained	78cm	36 x 8m	Poor Fair	canopy is declining	No works recommendations have been made	High	9.36m 0%	3.2m ☐ Encroached?	Exotic	6-10	canopy is declining See Appendix 1 Tree Photos Photo 95
94	***Pinus muricata*** Bishop Pine	Retained	84cm	39 x 7m	Fair Fair		No works recommendations have been made	High	10.08m 0%	3.2m ☐ Encroached?	Exotic	11-20	canopy has been extensively pruned. See Appendix 1 Tree Photos Photo 96
95	***Pinus muricata*** Bishop Pine	Retained	72cm	36 x 8m	Poor Fair	canopy is declining, deadwood present, branch ends dying	No works recommendations have been made	High	8.64m 0%	3.1m ☐ Encroached?	Exotic	6-10	canopy is declining, deadwood present, branch ends dying See Appendix 1 Tree Photos Photo 97
96	***Pinus muricata*** Bishop Pine	Retained	67cm	39 x 6m	Fair Fair		No works recommendations have been made	High	8.04m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 98
97	***Pinus muricata*** Bishop Pine	Retained	37cm	37 x 3m	Fair Poor	very skinny, minimal canopy	No works recommendations have been made	High	4.44m 0%	2.3m ☐ Encroached?	Exotic	11-20	very skinny, minimal canopy. See Appendix 1 Tree Photos Photo 99
98	***Pinus muricata*** Bishop Pine	Retained	94cm	39 x 12m	Fair Good		No works recommendations have been made	High	11.28m 0%	3.4m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 100
99	***Pinus muricata*** Bishop Pine	Retained	93cm	40 x 8m	Fair Good		No works recommendations have been made	High	11.16m 30%	3.3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 101 Note: Encroach Type: P5 crushed rock (access track)
100	***Pinus muricata*** Bishop Pine	Retained	98cm	40 x 9m	Good Fair		No works recommendations have been made	High	11.76m 30%	3.5m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 102 Note: Encroach Type: P5 crushed rock (access track)
101	***Pinus muricata*** Bishop Pine	Retained	59cm	32 x 4m	Fair Fair		No works recommendations have been made	High	7.08m 0%	2.8m ☐ Encroached?	Exotic	11-20	suppressed specimen See Appendix 1 Tree Photos Photo 103
102	***Pinus muricata*** Bishop Pine	Retained	144cm	40 x 10m	Good Fair		No works recommendations have been made	High	15m 4%	3.9m ☐ Encroached?	Exotic	20+	codominant from near base, union is stable. See Appendix 1 Tree Photos Photo 104 Note: Encroach Type: P2b Compacted gravel
103	***Pinus muricata*** Bishop Pine	Retained	47cm	12 x 3m	Good Fair		No works recommendations have been made	Medium	5.64m 0%	2.5m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 105
104	***Pinus muricata*** Bishop Pine	Retained	59cm	30 x 2m	Fair Fair		No works recommendations have been made	High	7.08m 0%	2.8m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 106

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
105	***Pinus muricata*** Bishop Pine	Retained	105cm	40 x 12m	Poor Fair	sparse canopy	No works recommendations have been made	High	12.6m 1%	3.6m ☐ Encroached?	Exotic	6-10	sparse canopy See Appendix 1 Tree Photos Photo 107 Note: Encroach Type: P2b Compacted gravel
106	***Pinus muricata*** Bishop Pine	Retained	60cm	28 x 6m	Fair Fair		No works recommendations have been made	High	7.2m 0%	2.8m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 108
107	***Pinus muricata*** Bishop Pine	Retained	73cm	40 x 7m	Fair Fair		No works recommendations have been made	High	8.76m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 109
108	***Pinus muricata*** Bishop Pine	Retained	56cm	35 x 4m	Fair Fair		No works recommendations have been made	High	6.72m 0%	2.7m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 110
109	***Pinus muricata*** Bishop Pine	Retained	72cm	32 x 6m	Fair Fair		No works recommendations have been made	High	8.64m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 111
110	***Pinus muricata*** Bishop Pine	Retained	52cm	30 x 6m	Fair Fair		No works recommendations have been made	High	6.24m 0%	2.7m ☐ Encroached?	Exotic	6-10	See Appendix 1 Tree Photos Photo 112
111	***Pinus muricata*** Bishop Pine	Retained	73cm	37 x 6m	Good Fair		No works recommendations have been made	High	8.76m 0%	3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 113
112	***Pinus muricata*** Bishop Pine	Retained	65cm	37 x 6m	Fair Fair		No works recommendations have been made	High	7.8m 0%	2.9m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 114
113	***Pinus muricata*** Bishop Pine	Retained	84cm	38 x 10m	Good Fair	codominant over car park	No works recommendations have been made	High	10.08m 0%	3.2m ☐ Encroached?	Exotic	11-20	codominant over car park See Appendix 1 Tree Photos Photo 115
114	***Pinus muricata*** Bishop Pine	Retained	78cm	38 x 8m	Fair Fair		No works recommendations have been made	High	9.36m 0%	3.1m ☐ Encroached?	Exotic	11-20	extensively pruned over car park See Appendix 1 Tree Photos Photo 116
115	***Pinus muricata*** Bishop Pine	Retained	73cm	38 x 9m	Fair Fair		No works recommendations have been made	High	8.76m 0%	3m ☐ Encroached?	Exotic	11-20	extensively pruned over car park See Appendix 1 Tree Photos Photo 117
116	***Pinus muricata*** Bishop Pine	Retained	63cm	38 x 8m	Fair Fair		No works recommendations have been made	High	7.56m 0%	2.9m ☐ Encroached?	Exotic	11-20	extensively pruned over car park See Appendix 1 Tree Photos Photo 118

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117	***Pinus muricata*** Bishop Pine	Retained	60cm	38 x 8m	Fair Fair		No works recommendations have been made	High	7.2m 0%	2.8m ☐ Encroached?	Exotic	11-20	extensively pruned over car park See Appendix 1 Tree Photos Photo 119
118	***Pinus muricata*** Bishop Pine	Retained	54cm	38 x 6m	Fair Fair		No works recommendations have been made	High	6.48m 0%	2.7m ☐ Encroached?	Exotic	11-20	extensively pruned over car park See Appendix 1 Tree Photos Photo 120
119	***Pinus muricata*** Bishop Pine	Retained	72cm	38 x 9m	Fair Fair	codominant at 6m	No works recommendations have been made	High	8.64m 0%	3.1m ☐ Encroached?	Exotic	11-20	codominant at 6m See Appendix 1 Tree Photos Photo 121
120	***Pinus muricata*** Bishop Pine	Retained	46cm	35 x 4m	Fair Fair		No works recommendations have been made	High	5.52m 0%	2.5m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 122
121	***Pinus muricata*** Bishop Pine	Retained	74cm	39 x 8m	Good Fair		No works recommendations have been made	High	8.88m 0%	3.1m ☐ Encroached?	Exotic	11-20	pruned up See Appendix 1 Tree Photos Photo 123
122	***Pinus muricata*** Bishop Pine	Retained	65cm	38 x 6m	Good Fair		No works recommendations have been made	High	7.8m 0%	2.9m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 124
123	***Pinus muricata*** Bishop Pine	Retained	83cm	38 x 10m	Fair Fair	canopy decline	No works recommendations have been made	High	9.96m 0%	3.2m ☐ Encroached?	Exotic	11-20	canopy decline See Appendix 1 Tree Photos Photo 125
124	***Pinus muricata*** Bishop Pine	Retained	94cm	38 x 8m	Fair Fair		No works recommendations have been made	High	11.28m 0%	3.2m ☐ Encroached?	Exotic	11-20	lower stem pruned See Appendix 1 Tree Photos Photo 126
125	***Pinus muricata*** Bishop Pine	Retained	56cm	35 x 12m	Fair Poor	heavy lean	No works recommendations have been made	Medium	6.72m 0%	2.7m ☐ Encroached?	Exotic	6-10	heavy lean See Appendix 1 Tree Photos Photo 127
126	***Pinus muricata*** Bishop Pine	Retained	46cm	30 x 8m	Fair Fair	heavy lean	No works recommendations have been made	High	5.52m 0%	2.5m ☐ Encroached?	Exotic	11-20	heavy lean See Appendix 1 Tree Photos Photo 128
127	***Pinus muricata*** Bishop Pine	Retained	89cm	40 x 8m	Fair Fair		No works recommendations have been made	High	10.68m 1%	3.3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 129 Note: Encroach Type: P2b Compacted gravel
128	***Pinus muricata*** Bishop Pine	Retained	94cm	40 x 8m	Fair Fair		No works recommendations have been made	High	11.28m 2%	3.3m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 130 Note: Encroach Type: P2b Compacted gravel

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129	***Pinus muricata*** Bishop Pine	Retained	101cm	42 x 10m	Fair Fair		No works recommendations have been made	High	12.12m 2%	3.5m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 131 Note: Encroach Type: P2b Compacted gravel
130	***Pinus muricata*** Bishop Pine	Retained	58cm	32 x 6m	Fair Fair	codominant at 3m	No works recommendations have been made	Medium	6.96m 0%	2.7m ☐ Encroached?	Exotic	11-20	codominant at 3m See Appendix 1 Tree Photos Photo 132
131	***Pinus muricata*** Bishop Pine	Retained	102cm	40 x 8m	Fair Fair	codominant at 2m	No works recommendations have been made	Medium	12.24m 1%	3.4m ☐ Encroached?	Exotic	6-10	codominant at 2m See Appendix 1 Tree Photos Photo 133 Note: Encroach Type: P2b Compacted gravel
132	***Pinus muricata*** Bishop Pine	Retained	119cm	42 x 10m	Fair Fair	codominant at 4m	No works recommendations have been made	High	14.28m 0%	3.7m ☐ Encroached?	Exotic	11-20	codominant at 4m See Appendix 1 Tree Photos Photo 134
133	***Pinus muricata*** Bishop Pine	Retained	53cm	36 x 4m	Fair Fair		No works recommendations have been made	High	6.36m 0%	2.7m ☐ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 135
134	***Pinus muricata*** Bishop Pine	Retained	93cm	40 x 10m	Fair Fair	codominant at 7m	No works recommendations have been made	High	11.16m 3%	3.3m ☐ Encroached?	Exotic	11-20	codominant at 7m See Appendix 1 Tree Photos Photo 136 Note: Encroach Type: P2b Compacted gravel
135	***Pinus muricata*** Bishop Pine	Retained	87cm	38 x 8m	Fair Fair		No works recommendations have been made	High	10.44m 4%	3.2m ☑ Encroached?	Exotic	11-20	See Appendix 1 Tree Photos Photo 137 Note: Encroach Type: P2b Compacted gravel
136	***Cyathea australis*** Rough Tree-fern	Retained	26cm	4 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 138
137	***Cyathea australis*** Rough Tree-fern	Retained	25cm	2m x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 139
138	***Cyathea australis*** Rough Tree-fern	Retained	25cm	3 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 140
139	***Cyathea australis*** Rough Tree-fern	Retained	25cm	3 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 141
140	***Acacia dealbata*** Silver Wattle	Retained	27cm	16 x 8m	Good Good		No works recommendations have been made	Medium	3.24m 0%	2.1m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 142

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141	***Acacia melanoxylon*** Blackwood	Retained	16cm	7 x 2m	Good Good		No works recommendations have been made	Low	2m 0%	1.6m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 143
142	***Acacia melanoxylon*** Blackwood	Retained	12cm	5 x 2m	Good Good		No works recommendations have been made	Low	2m 0%	1.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 144
143	***Pinus muricata*** Bishop Pine	Retained	73cm	35 x 8m	Fair Fair		No works recommendations have been made	High	8.76m 0%	3.1m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 145
144	***Acacia dealbata*** Silver Wattle	Retained	14cm	7 x 3m	Good Good		No works recommendations have been made	Low	2m 0%	1.6m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 146
145	***Acacia melanoxylon*** Blackwood	Retained	10cm	5 x 3m	Good Good		No works recommendations have been made	Low	2m 0%	1.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 147
146	***Acacia melanoxylon*** Blackwood	Retained	20cm	8 x 4m	Good Good		No works recommendations have been made	Low	2.4m 0%	1.8m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 148
147	***Sequoia sempervirens*** Coast Redwood	Retained	21cm	10 x 4m	Good Good		No works recommendations have been made	Medium	2.52m 0%	1.9m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 149
148	***Sequoia sempervirens*** Coast Redwood	Retained	22cm	10 x 4m	Good Good		No works recommendations have been made	Low	2.64m 0%	1.8m ☐ Encroached?	Exotic	20+	Check species identification of this tree. Photo appears to be of a Blackwood See Appendix 1 Tree Photos Photo 150
149	***Cyathea australis*** Rough Tree-fern	Retained	27cm	4 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 151
150	***Acacia melanoxylon*** Blackwood	Retained	25cm	10 x 4m	Good Good		No works recommendations have been made	Medium	3m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 152
151	***Acacia melanoxylon*** Blackwood	Retained	58cm	20 x 8m	Good Fair		No works recommendations have been made	High	6.96m 1%	2.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 153 Note: Encroach Type: Culvert drain
152	***Eucalyptus viminalis*** Manna Gum	Retained	117cm	38 x 16m	Good Fair		No works recommendations have been made	Very High	14.04m 6%	3.8m ☐ Encroached?	Vic Native	20+	close to road edge. See Appendix 1 Tree Photos Photo 154 Note: Encroach Type: Culvert drain

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6 Landscape life expectancy: ULE (Useful life expectancy) from Ryder report of 2022 recordedd here. Trees indicated for removal or with 'Lost' Outcome were checked and altered in some case by Arboriculture

TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
153	***Acacia melanoxylon*** Blackwood	Lost	28cm	12 x 4m	Good Good	basal damage	No works recommendations have been made	Medium	3.36m 0%	2.1m ☐ Encroached?	Vic Native	20+	basal damage, shown on landscape plan as removed See Appendix 1 Tree Photos Photo 155
154	***Acer palmatum*** Japanese Maple	Lost	39cm	6 x 6m	Fair Fair		No works recommendations have been made	Medium	4.68m 34%	2.2m ☑ Encroached?	Exotic	20+	Shown on landscape plan as removed See Appendix 1 Tree Photos Photo 156 Note: Encroach Type: P2b Compacted gravel
155	***Acacia dealbata*** Silver Wattle	Lost (Remove)	33cm	14 x 9m	Poor Poor	trunk decay	**Tree Removal**	None	3.96m 100%	2.2m ☑ Encroached?	Vic Native	0	remove tree, trunk decay Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photo 157 Note: Encroach Type: P2b Compacted gravel
156	***Acacia melanoxylon*** Blackwood	Lost	34cm	14 x 8m	Good Fair		No works recommendations have been made	Medium	4.08m 100%	2.2m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 158 Note: Encroach Type: P2b Compacted gravel
157	***Acacia melanoxylon*** Blackwood	Lost	47cm	16 x 12m	Good Fair		No works recommendations have been made	Medium	5.64m 100%	2.6m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 159 Note: Encroach Type: P2b Compacted gravel
158	***Acacia melanoxylon*** Blackwood	Lost	40cm	17 x 10m	Fair Fair	declining	No works recommendations have been made	Low	4.8m 100%	2.4m ☑ Encroached?	Vic Native	6-10	declining See Appendix 1 Tree Photos Photo 160 Note: Encroach Type: P2b Compacted gravel
159	***Acacia dealbata*** Silver Wattle	Lost	60cm	17 x 12m	Fair Fair	codominant at 5m	No works recommendations have been made	Medium	7.2m 100%	2.8m ☑ Encroached?	Vic Native	11-20	codominant at 5m See Appendix 1 Tree Photos Photo 161 Note: Encroach Type: P2b Compacted gravel
160	***Acacia dealbata*** Silver Wattle	Lost	19cm	10-14m x 4m	Good Good		No works recommendations have been made	Low	2.28m 100%	1.8m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 162 Note: Encroach Type: P4 Concrete
161	***Acacia dealbata*** Silver Wattle	Lost	27cm	12 x 5m	Good Good		No works recommendations have been made	Medium	3.24m 100%	2m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 163 Note: Encroach Type: P4 Concrete
162	***Acacia dealbata*** Silver Wattle	Retained	32cm	16 x 8m	Good Fair		No works recommendations have been made	Medium	3.84m 0%	2.2m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 164
163	***Acacia dealbata*** Silver Wattle	Retained	19cm	15 x 3m	Good Good		No works recommendations have been made	Low	2.28m 0%	1.8m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 165

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
164	***Acacia dealbata*** Silver Wattle	Retained	21cm	15 x 4m	Good Good		No works recommendations have been made	Low	2.52m 1%	1.9m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 166 Note: Encroach Type: P4 Concrete (Only gravel path within TPZ (P1
165	***Acacia dealbata*** Silver Wattle	Retained	22cm	13 x 4m	Good Good		No works recommendations have been made	Low	2.64m 5%	1.9m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 167 Note: Encroach Type: P2b Compacted gravel
166	***Acacia dealbata*** Silver Wattle	Lost	17cm	13 x 3m	Good Good		No works recommendations have been made	Low	2.04m 17%	1.7m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 168 Note: Encroach Type: P2b Compacted gravel (Arborist to be present during excavation)
167	***Acacia dealbata*** Silver Wattle	Retained	30cm	17 x 6m	Good Good		No works recommendations have been made	Medium	3.6m 0%	2.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 169
168	***Acacia dealbata*** Silver Wattle	Lost	26cm	16 x 7m	Good Good		No works recommendations have been made	Medium	3.12m 40%	2m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 170 Note: Encroach Type: P2b Compacted gravel (Significant SRZ encroachment)
169	***Cyathea australis*** Rough Tree-fern	Retained	25cm	4 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	patch of several specimens. See Appendix 1 Tree Photos Photo 171
170	***Acacia melanoxylon*** Blackwood	Lost (Remove)	78cm	14 x 8m	Dead Poor	tree is likely to fail	**Tree Removal**	Low	9.36m 24%	3.1m ☑ Encroached?	Vic Native	0	tree is likely to fail Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photo 172 Note: Encroach Type: P2b Compacted gravel (Dead tree stem could be reduced to <=6m and retained for habitat if desired)
171	***Acacia melanoxylon*** Blackwood	Lost	32cm	17 x 8m	Good Good		No works recommendations have been made	Medium	3.84m 100%	2.2m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 173 Note: Encroach Type: P2b Compacted gravel
172	***Pomaderris aspera*** Hazel Pomaderris	Retained	22cm	9 x 6m	Fair Fair		No works recommendations have been made	Medium	2.64m 0%	1.9m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 174
173	***Pomaderris aspera*** Hazel Pomaderris	Lost	18cm	9 x 4m	Fair Poor		No works recommendations have been made	Medium	2.16m 100%	1.7m ☑ Encroached?	Vic Native	6-10	See Appendix 1 Tree Photos Photo 175 Note: Encroach Type: P2b Compacted gravel

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
174	***Pomaderris aspera*** Hazel Pomaderris	Retained	11cm	11 x 3m	Good Fair		No works recommendations have been made	Low	2m 0%	1.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 176
175	***Pomaderris aspera*** Hazel Pomaderris	Retained	19cm	12 x 4m	Good Fair		No works recommendations have been made	Low	2.28m 0%	1.8m ☐ Encroached?	Vic Native	11-20	(Fitz retain) See Appendix 1 Tree Photos Photo 177
176	***Cyathea australis*** Rough Tree-fern	Lost	32cm	4m x 3m	Good Good		No works recommendations have been made	Medium	3.84m 100%	2.1m ☑ Encroached?	Vic Native	20+	A second smaller fern is 1.5m to the NW See Appendix 1 Tree Photos Photo 178 Note: Encroach Type: P2b Compacted gravel
177	***Acacia dealbata*** Silver Wattle	Remove	26cm	13 x 7m	Poor Poor		Tree Removal	Low	3.12m 10%	2.1m ☑ Encroached?	Vic Native	0	leaning towards car park Reasons for tree removal: Poor health and structure See Appendix 1 Tree Photos Photo 179 Note: Encroach Type: P2b Compacted gravel
178	***Acacia dealbata*** Silver Wattle	Remove	21cm	11 x 5m	Dead Poor		Tree Removal	Low	2.52m 0%	1.9m ☐ Encroached?	Vic Native	0	remove tree Reasons for tree removal: Poor health and structure See Appendix 1 Tree Photos Photo 180
179	***Eucalyptus obliqua*** Messmate	Retained	108cm	35 x 18m	Good Good		No works recommendations have been made	High	12.96m 13%	3.7m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 181 Note: Encroach Type: P2b Compacted gravel (Arborist to be present during excavation)
180	***Pinus muricata*** Bishop Pine	Retained	46cm	18 x 7m	Good Good		No works recommendations have been made	High	5.52m 0%	2.5m ☐ Encroached?	Exotic	20+	See Appendix 1 Tree Photos Photo 182
181	***Eucalyptus viminalis*** Manna Gum	Retained	92cm	35 x 18m	Good Good		No works recommendations have been made	High	11.04m 3%	3.4m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 183 Note: Encroach Type: P2b Compacted gravel
182	***Eucalyptus viminalis*** Manna Gum	Retained	69cm	40 x 12m	Good Good		No works recommendations have been made	High	8.28m 0%	3m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 184
183	***Acacia dealbata*** Silver Wattle	Remove	35cm	25 x 8m	Dead Poor		Tree Removal	None	4.2m 5%	2.2m ☐ Encroached?	Vic Native	0	remove tree Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photo 185 Note: Encroach Type: P2b Compacted gravel

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
184	***Acacia dealbata*** Silver Wattle	Remove	22cm	20 x 6m	Dead Poor		Tree Removal	None	2.64m 0%	1.9m ☐ Encroached?	Vic Native	0	remove tree Reasons for tree removal: Decline of Structure See Appendix 1 Tree Photos Photo 186
185	***Cyathea australis*** Rough Tree-fern	Retained	25cm	3 x 2m	Good Good		No works recommendations have been made	Medium	1.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	cluster of specimens. See Appendix 1 Tree Photos Photo 187
186	***Acacia dealbata*** Silver Wattle	Retained	20cm	17 x 6m	Good Fair		No works recommendations have been made	Medium	2.4m 0%	1.9m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 188
187	***Acacia dealbata*** Silver Wattle	Retained	35cm	19 x 8m	Fair Fair		No works recommendations have been made	Medium	4.2m 13%	2.3m ☐ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 189 Note: Encroach Type: P2b Compacted gravel
188	***Eucalyptus viminalis*** Manna Gum	Retained	25cm	25 x 8m	Good Fair		No works recommendations have been made	Medium	3m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 190
189	***Eucalyptus viminalis*** Manna Gum	Retained	52cm	35 x 10m	Good Good		No works recommendations have been made	High	6.24m 0%	2.7m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 191
190	***Eucalyptus viminalis*** Manna Gum	Retained	41cm	22 x 6m	Fair Fair	borers in trunk	No works recommendations have been made	Medium	4.92m 0%	2.5m ☐ Encroached?	Vic Native	11-20	borers in trunk See Appendix 1 Tree Photos Photo 192
191	***Eucalyptus viminalis*** Manna Gum	Retained	43cm	35 x 7m	Good Good		No works recommendations have been made	High	5.16m 0%	2.5m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 193
192	***Eucalyptus viminalis*** Manna Gum	Retained	64cm	40 x 12m	Good Good		No works recommendations have been made	High	7.68m 0%	3m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 194
193	***Eucalyptus viminalis*** Manna Gum	Retained	73cm	40 x 15m	Good Good		No works recommendations have been made	High	8.76m 0%	3.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 195
194	***Eucalyptus obliqua*** Messmate	Retained	54cm	30 x 10m	Good Good		No works recommendations have been made	High	6.48m 0%	2.7m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 196
195	***Acacia dealbata*** Silver Wattle	Retained	26cm	18 x 8m	Good Fair		No works recommendations have been made	Medium	3.12m 15%	2m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 197 Note: Encroach Type: P2b Compacted gravel

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TREE #	SPECIES / COMMON NAME	IMPACT OUTCOME	DBH [1]	HEIGHT x Width	HEALTH STRUCTURE	DEFECTS/ CONDITIONS [2]	ACTIONS [3]	RETENTION VALUE	TPZ [4] Encroach.	SRZ [5] Encroached?	ORIGIN	LIFE Exp. [6]	COMMENTS
196	***Acacia dealbata*** Silver Wattle	Retained	23cm	16 x 8m	Fair Fair		No works recommendations have been made	Medium	2.76m 12%	1.9m ☑ Encroached?	Vic Native	11-20	See Appendix 1 Tree Photos Photo 198 Note: Encroach Type: P2b Compacted gravel
197	***Eucalyptus radiata*** Narrow-leaved Peppermint	Retained	36cm	20 x 9m	Good Good		No works recommendations have been made	Medium	4.32m 0%	2.2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 199
198	***Cyathea australis*** Rough Tree-fern	Retained	25cm	4 x 3m	Good Good		No works recommendations have been made	Medium	2.5m 0%	1.9m ☐ Encroached?	Vic Native	20+	cluster of tree ferns See Appendix 1 Tree Photos Photo 200
199	***Eucalyptus viminalis*** Manna Gum	Retained	26cm	12 x 5m	Good Fair		No works recommendations have been made	Low	3.12m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 201
200	***Eucalyptus obliqua*** Messmate	Retained	119cm	30 x 12m	Good Fair		No works recommendations have been made	High	14.28m 0%	3.6m ☐ Encroached?	Vic Native	20+	codominaant near base, union is sound. See Appendix 1 Tree Photos Photo 202
201	***Eucalyptus obliqua*** Messmate	Retained	73cm	35 x 10m	Fair Fair		No works recommendations have been made	High	8.76m 0%	3m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 203
202	***Eucalyptus radiata*** Narrow-leaved Peppermint	Retained	26cm	18 x 4m	Fair Fair		No works recommendations have been made	Medium	3.12m 0%	2m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 204
203	***Eucalyptus radiata*** Narrow-leaved Peppermint	Retained	64cm	30 x 10m	Good Good		No works recommendations have been made	High	7.68m 0%	2.9m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 205
204	***Eucalyptus radiata*** Narrow-leaved Peppermint	Retained	62cm	35 x 12m	Good Fair		No works recommendations have been made	High	7.44m 0%	3m ☐ Encroached?	Vic Native	20+	See Appendix 1 Tree Photos Photo 206
205	***Eucalyptus radiata*** Narrow-leaved Peppermint	Retained	80cm	35 x 12m	Good Fair		No works recommendations have been made	High	9.6m 0%	3.2m ☐ Encroached?	Vic Native	20+	on road edge See Appendix 1 Tree Photos Photo 207
235	***Pinus muricata*** Bishop Pine	Lost (Remove)	100cm	30+ x 17m	Fair Poor	Heavy lean and crown bias to southeast, Bifurcation defects of stem, poor stem taper	**Tree Removal**	Low	12m 2%	3.4m ☐ Encroached?	Exotic	6-10	Added by Arb Reasons for tree removal: Defective structure See Appendix 1 Tree Photos Photo 208 Note: Encroach Type: P3 Asphalt with line-marking
236	***Cedrus deodara*** Deodar Cedar	Retained	71cm	20-24m x 10m	Good Good		No works recommendations have been made	High	8.52m	3m ☐ Encroached?	Exotic	20+	Added by Arb See Appendix 1 Tree Photos Photo 209

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237	***Pinus muricata*** Bishop Pine	Investigage fu	66cm	30+ x N/Am	Poor Poor	Historic rootplate heave combined with heavy lean	Test for stability and retain or remove based on outcome	Low	7.92m 0%	2.9m ☐ Encroached?	Exotic	6-10	Other examples of trees having failed due to similar rootplate failure nearby. Added by Arb Reasons for tree removal: Defective structure & poor form See Appendix 1 Tree Photos Photo 210
238	***Pinus muricata*** Bishop Pine	Remove	68cm	30+ x N/Am	Poor Poor	Major stem failure wound (recent) only a smaller stem remains, poor taper (remaining stem)	**Tree Removal**	Low	8.16m 0%	2.9m ☐ Encroached?	Exotic	0	Recently major failure of dominant stem. Remove remaining stem or whole tree. Remaining stem will fail on to track to south east. Added by Arb Reasons for tree removal: Defective structure & poor form See Appendix 1 Tree Photos Photo 211
239	***Sequoia sempervirens*** Coast Redwood	Retained	63cm	50+ x N/Am	Good Good		No works recommendations have been made	Very High	7.56m 0%	2.8m ☐ Encroached?	Exotic	20+	Added by Arb
240	***Sequoia sempervirens*** Coast Redwood	Retained	97cm	50+ x N/Am	Good Good		No works recommendations have been made	Very High	11.64m 0%	3.4m ☐ Encroached?	Exotic	20+	Added by Arb
241	***Sequoia sempervirens*** Coast Redwood	Retained	140cm	60 x N/Am	Good Good		No works recommendations have been made	Very High	15m 0%	4m ☐ Encroached?	Exotic	20+	Added by Arb
242	***Sequoia sempervirens*** Coast Redwood	Retained	94cm	53 x N/Am	Good Good		No works recommendations have been made	Very High	11.28m 0%	3.4m ☐ Encroached?	Exotic	20+	Added by Arb
243	***Sequoia sempervirens*** Coast Redwood	Retained	169cm	60 x N/Am	Good Good		No works recommendations have been made	Very High	15m 0%	4.3m ☐ Encroached?	Exotic	20+	Added by Arb See Appendix 1 Tree Photos Photo 212

1 DBH measured as per method outlined in AS4970. Where more than 1 stem is measured an equivalent single stem DBH is calculated based on the area of each stem as per AS4970. Where there is more than 1 stem the individual measurements are given in Comments field

2 Defects: Structural conditions or decline comments listed in Ryder report of 2022 were included where included here as well as defects noticed by Arboriculture (noted in brackets with 'Arb'). Note that a full structural inspection was not done of all trees.

3 Recommended Actions based on arboricultural considerations not including outcomes of impact analysis (see Outcomes column)

4 TPZ (tree protection zone) calculated according to Australian Standard 4970-2009. TPZ measurement is radius from centre of main stem(s). TPZs have been reduced for dead trees as only stability would be required if retained. TPZ encroachment is percent of TPZ encroached by construction or other impacts

5 SRZ (structural root zone) calculated according to Australian Standard 4970-2009. SRZ measurement is radius from centre of main stem(s). SRZ encroachment: Is SRZ encroached by construction or other impacts

6 Landscape life expectancy: ULE (Useful life expectancy) from Ryder report of 2022 recordedd here. Trees indicated for removal or with 'Lost' Outcome were checked and altered in some case by Arboriculture

Appendix 3 Definitions and Methods

<table>
<tr><td>Tree Number</td><td>A number referencing a tree location record to the tree location plans.</td></tr>
<tr><td>Species</td><td>Botanical Name (field identified)</td></tr>
<tr><td>Common Name</td><td>Common name for species (Horticultural Flora of South-Eastern Australia (R. Spencer, volumes 1-5, 1995-2005) are referenced wherever possible)</td></tr>
<tr><td>Age (class)</td><td>This field describes the stage of maturity of the tree or dominant specimens in a tree group as indicated by its form.

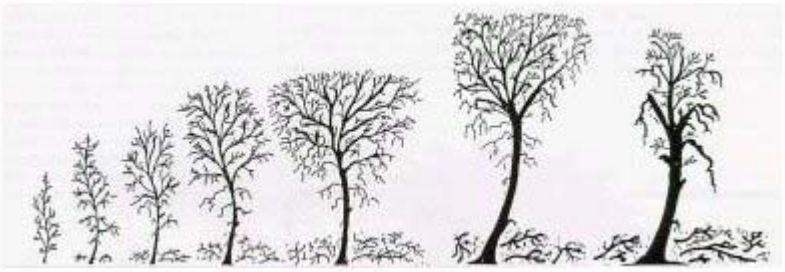
Young — Seedling or sapling stage

Semi-mature — Approaching its expected form and size

Mature — Expected ultimate form and size of tree before decline

Over-mature — Mature tree exhibiting signs of age related structural decline

Occasionally stunted or atypical specimens were found that, despite being old in years, appeared semi-mature.

<table><tr><td>Young</td><td>Semi-mature</td><td>Mature</td><td>Over-mature</td></tr></table></td></tr>
<tr><td>Health</td><td>Health of a tree as determined by factors such as leaf colour and size, shoot growth extension and percentage of living canopy:

Dead — < 10% of canopy living (shoots & stems dead)

Poor — Determined by any single or combination of factors above. Tree health is declining or has declined usually due to pest, disease, senescence, unsuitable site conditions or physiological damage such as root severance or root death due to soil cut, fill or compaction.

Fair — Tree is in ‘normal’ health. Some pests, diseases, deadwood, minor crown dieback may be present but not considered to be severely affecting the tree’s health.

Good — Tree is largely unaffected by pests, diseases and has no significant deadwood or crown dieback.</td></tr>
<tr><td>Landscape Life Expectancy</td><td>Landscape life expectancy is the estimated number of years (or range) a tree could be expected to live in a reasonably healthy and safe condition given moderate weather conditions and reasonable maintenance.</td></tr>
</table>

Structure	Determined by both the existence of defects in the tree's structure. Hazard — Tree structures that are highly likely to fail in the near future causing a hazard threat to people or property in its vicinity. Poor — Trees with structural defects such as bifurcated trunks, significant wounds or cavities, noticeable girdling roots. Poor tree structures are common and not necessarily a cause for concern. Remedy with pruning or cable bracing may be an option. Fair — Indicates trees with some minor structural defects. Good — Trees with few if any significant form or structural defects
DBH	Trunk diameter measured at breast height (1.4m above ground). If the trunk divides into branches or stems at or below 1.4 metres then an equivalent single stem diameter is calculated from the DBH measurements of the individual stems using the formula: $Total\ DBH = \sqrt{(DBH_1)^2 + (DBH_2)^2 + (DBH_3)^2}$ If a buttress or deformity exists at 1.4m then the DBH is measured immediately above this point. See Australian Standard AS 4970, *Protection of Trees on Development Sites*, Appendix A for details of procedure used. DBH measurement is useful for categorising the size of trees for analysis and is also used in calculations: e.g. calculating the nominal TPZ.
DAB	Diameter above buttress. The trunk diameter measured immediately above the root buttress. The DAB is used to calculate the SRZ.
Works / Actions	List of recommended works. Works are specified as required to mitigate hazard or improve the landscape life expectancy of the tree. Where possible, terms specified in Australian Standard AS 4373-2007 *Pruning of Amenity Trees* are used.
Priority (action)	**Action Priorities** are categorised as *Low, Medium, High* or *Urgent*. ***Low*** work priorities are those that are not concerned with conditions that affect the immediate health and safety of trees (or people and property) and/or trees that are not considered valuable enough to warrant immediate attention. These works are mostly removal of small branches lodged in the tree crown or removal of branch stubs. It is recommended that these works be carried out optionally and when convenient over the next **24 months**. Tree work priorities may be increased to Medium on subsequent inspections if required. ***Medium*** work priorities are specified if the work will improve the tree's health, safety and/or aesthetics or the safety of the area (people or property) if carried out in the short term. These works are often specified for trees with larger broken lodged branches and occupying a high-profile position or frequently used area within the landscape. Tree removals in this category are those that do not pose high-risk danger to persons or property. It is recommended that these works be carried out within the next **6 to 12 months**. ***High*** work priorities are specified where a tree condition poses a significant safety hazard to people or property or the tree and works are considered significant enough to warrant immediate attention. Trees requiring high priority work will include those with large broken lodged branches, flawed or damaged structures (crown, trunk or roots) that are likely to lead to failure causing property damage, injury or death. Works in this classification should be carried out within **3 months** or sooner if budgets and

	convenience allow. ***Urgent*** work priorities are usually specified where a tree condition causes an imminent safety hazard to people or property. Works in this classification should be carried out **as soon as possible**.
Retention Value	All trees surveyed were assigned a 'retention value'. Retention value can aid in decision making regarding cost vs. benefit as well as prioritisation of resources and planning. Factors contributing to retention value include: • tree origin; • age; • significance; • habitat value (hollows being used by fauna, etc); • species suitability to the urban residential/naturalistic parkland situation, and • condition (health and structure). Self-sown, remnant indigenous and planted indigenous trees of known local seed source were generally rated higher than trees from non-indigenous or unknown seed sources. Trees considered as being in a potentially dangerous condition rated lowest regardless of their significance or origins. Other tree species that rated low were weedy species, tree species regarded as being inappropriate to the urban residential situation and specimens with low life expectancy. **No Retention Value** trees are those that would usually be best removed if landscape renovation or development were to take place in their vicinity. Trees should be removed if recommended specifically or if they are dead or have poor structure/health. Retention value for trees outside the subject property may be indicated as 'N/A' as these trees are presumed to be outside the control of the property owner or developer. **Low Retention** trees should have low priority compared to development considerations. Trees considered to have low retention value should be eventually removed or replaced whether or not development goes ahead. **Medium Retention** trees could be retained if desired but could be removed to allow for development at the discretion of the developer or planner. They are trees that are considered to be appropriate to their planting situation but not necessarily of high cultural, historical or landscape value. They range from young specimens with fair to good health with no significant structural defects, to mature trees in fair to good health with defects that may be managed by arboricultural or landscape planning techniques. Trees may contribute to the immediate landscape but would not contribute greatly to the wider landscape. **High Retention** trees are those assessed as being of significant environmental, cultural or other significance and in suitable condition to be safely retained (remedial arboricultural works or landscape planning may be required for their retention). These trees should be preserved wherever possible and may justify some alterations of design. **Very High Retention** trees are similar to High Retention trees but are considered to be remnant indigenous specimens or trees with other significance that may be of or eligible for State or National recognition. These trees should be preserved wherever possible and would usually justify alterations of development design to allow for their preservation.

SRZ	The structural root zone (SRZ) is the area around the base of a tree required for its stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area (AS 4970, *Protection of trees on development sites*). An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress (DAB or diameter above buttress) according to AS 4970, *Protection of trees on development sites*.
TPZ	The tree protection zone (TPZ) is a specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development (AS 4970, *Protection of trees on development sites*). The nominal TPZ is calculated from the DBH according to AS 4970, *Protection of trees on development sites*.
Comments	General comments regarding individual trees or conditions.

Visual Inspection

Visual tree inspection is part of a process of assessing trees for conditions that may affect safety. An inspection is made of a tree for signs or symptoms of defects. Only when indications of defects are found which are considered serious enough, is further investigation recommended or undertaken. Further investigation may be a closer visual examination (such as accessing the tree canopy via climbing techniques or by way of an Elevated Platform Vehicle) or a rigorous, detailed technical examination using mechanical or electronic instruments (eg. sound or stress-wave timer device or devices that measure the force needed to drill test holes into the tree).

Visual Tree Assessment (VTA) is a method described by biomechanical engineer Dr Claus Mattheck in his book *The Body Language of Trees* (Mattheck & Breloer 1994). It involves visual inspection of the tree and provides guidelines for identifying symptoms of stress in trees caused by defects. It is based on the *Axiom of uniform stress* in which trees grow in such a way that all stresses on their surfaces are distributed evenly (Mattheck & Breloer 1994). Where this state is disturbed the tree repairs its structure by forming locally thicker annual rings. These reparative structures are recognised as symptoms of internal defects in the tree.

References

Mattheck, C., and Breloer, H. 1994, *The Body Language of Trees: A Handbook for Failure Analysis.*, HMSO Publications. London

Tree ID #	Botanical Name	Encroach TPZ %	Impact Outcome
86	Pinus muricata	13%	Retained
87	Pinus muricata		Remove
88	Pinus muricata	12%	Retained
89	Pinus muricata	3%	Retained
90	Pinus muricata		Retained
91	Pinus muricata		Retained
92	Pinus muricata		Retained
93	Pinus muricata		Retained
94	Pinus muricata		Retained
95	Pinus muricata		Retained
96	Pinus muricata		Retained
97	Pinus muricata		Retained
98	Pinus muricata		Retained
99	Pinus muricata		Retained
100	Pinus muricata		Retained
101	Pinus muricata		Retained
102	Pinus muricata	4%	Retained
103	Pinus muricata		Retained
104	Pinus muricata		Retained
105	Pinus muricata	1%	Retained
106	Pinus muricata		Retained
107	Pinus muricata		Retained
108	Pinus muricata		Retained
109	Pinus muricata		Retained
110	Pinus muricata		Retained
111	Pinus muricata		Retained
112	Pinus muricata		Retained
113	Pinus muricata		Retained
114	Pinus muricata		Retained
115	Pinus muricata		Retained
116	Pinus muricata		Retained
117	Pinus muricata		Retained
118	Pinus muricata		Retained
119	Pinus muricata		Retained
120	Pinus muricata		Retained
121	Pinus muricata		Retained
122	Pinus muricata		Retained
123	Pinus muricata		Retained
124	Pinus muricata		Retained
125	Pinus muricata		Retained
126	Pinus muricata		Retained
127	Pinus muricata	1%	Retained
128	Pinus muricata	2%	Retained
129	Pinus muricata	2%	Retained
130	Pinus muricata		Retained
131	Pinus muricata	1%	Retained
132	Pinus muricata		Retained
133	Pinus muricata		Retained
134	Pinus muricata	3%	Retained
135	Pinus muricata	4%	Retained
136	Cyathea australis		Retained
137	Cyathea australis		Retained
138	Cyathea australis		Retained
139	Cyathea australis		Retained
140	Acacia dealbata		Retained
180	Pinus muricata	18%	Retained
181	Eucalyptus viminalis	3%	Retained
182	Eucalyptus viminalis		Retained
183	Acacia dealbata	5%	Remove
184	Acacia dealbata		Remove
185	Cyathea australis		Retained
186	Acacia dealbata		Retained
187	Acacia dealbata	13%	Retained
188	Eucalyptus viminalis		Retained
189	Eucalyptus viminalis		Retained
190	Eucalyptus viminalis		Retained
191	Eucalyptus viminalis		Retained
192	Eucalyptus viminalis		Retained
193	Eucalyptus viminalis		Retained
194	Eucalyptus obliqua		Retained
195	Acacia dealbata	15%	Retained
196	Acacia dealbata	12%	Retained
197	Eucalyptus radiata		Retained
198	Cyathea australis		Retained
199	Eucalyptus viminalis		Retained
200	Eucalyptus obliqua		Retained
201	Eucalyptus obliqua		Retained

Tree ID #	Botanical Name	Encroach TPZ %	Impact Outcome
202	Eucalyptus radiata		Retained
203	Eucalyptus radiata		Retained
204	Eucalyptus radiata		Retained
205	Eucalyptus radiata		Retained

Legend

Trees

Retention Value

- Very High (Redwoods)
- High
- Medium
- Low
- None

Tree removal (impacts/arboricultural)

- Retain or not assessed
- Lost due to encroachment impacts
- Remove: arboricultural reasons
- Lost due to encroachment impacts and remove for arboricultural reasons

Impact Assessment Outcome (SRZ area)

- Lost (or Remove)
- Remove (arboricultural)
- Retained

TPZ to AS4970-2009

- TPZ

Landscape Plan Limit of Works

- From Trails Network Plan 04 - 321-0681-00-L-01 DR-303

See Map East

A	12/12/2023	Draft for client approval	SF
B	16/1/2024	Final	SF
C	19/1/2024	Vehicle Access Track added	SF
D	14/3/2024	Changes following Revision 06 – Section 57A application	SF

Notes

Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) calculated as per AS4970-2009, Protection of Trees on Development Sites.
Tree locations plotted using DGNSS and Feature Surveys provided by the client

WARNING

Any services shown or not shown on this map are part of the base plan supplied. The exact location of services should be proven on site. This plan is not intended to identify services and should not be used as such.

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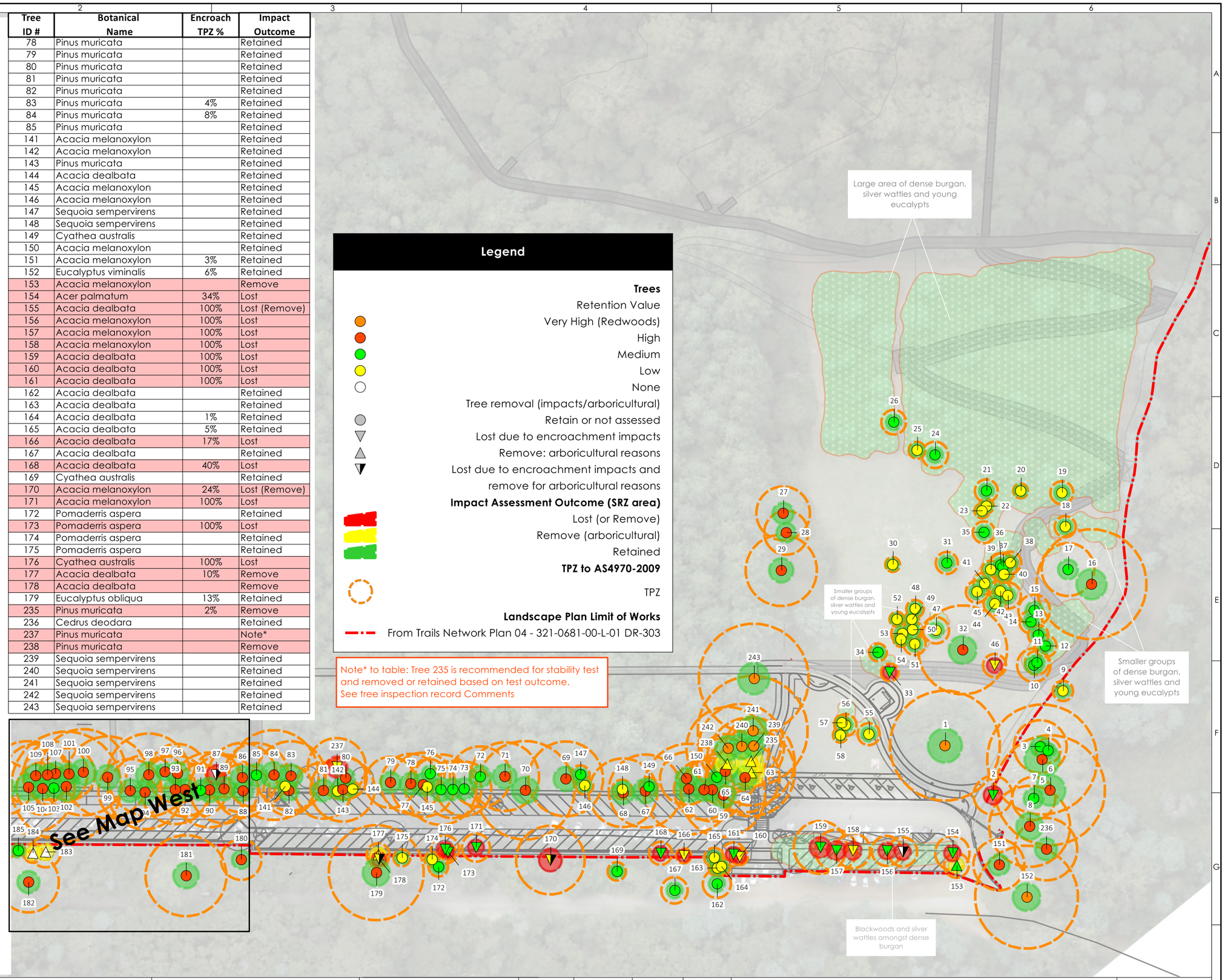
DESIGNED	S. FITZ	MELWAYS	291 E1
DRAFT	S. FITZ	CONSULTANT REF	10775.122023
CHECKED		SURVEY REF	Supplied Feature Survey
DWG NO.	ARB-01 B	CAD FILE REF:	GIS only

Tree Location/Encroachment Analysis Plan West
Redwood Forest: Visitor Facilities Improvements

0 15 m
1:1000 @ A3

Tree ID #	Botanical Name	Encroach TPZ %	Impact Outcome
1	Quercus robur		Retained
2	Acacia dealbata		Lost
3	Acacia dealbata		Retained
4	Acacia dealbata		Retained
5	Eucalyptus viminalis		Retained
6	Eucalyptus viminalis	2%	Retained
7	Eucalyptus viminalis		Retained
8	Eucalyptus viminalis	17%	Retained
9	Eucalyptus viminalis		Retained
10	Eucalyptus viminalis		Retained
11	Eucalyptus viminalis		Retained
12	Eucalyptus viminalis		Retained
13	Eucalyptus viminalis		Retained
14	Eucalyptus viminalis		Retained
15	Eucalyptus viminalis		Retained
16	Eucalyptus viminalis		Retained
17	Juglans ailantifolia		Retained
18	Eucalyptus viminalis		Retained
19	Eucalyptus viminalis		Retained
20	Eucalyptus viminalis		Retained
21	Acacia dealbata		Retained
22	Acacia melanoxylon		Retained
23	Eucalyptus viminalis		Retained
24	Acacia dealbata		Retained
25	Eucalyptus viminalis		Retained
26	Acacia dealbata		Retained
27	Acacia melanoxylon		Retained
28	Acacia melanoxylon		Retained
29	Acacia melanoxylon		Retained
30	Toona sinensis 'Flamingo		Retained
31	Corylus avellana		Retained
32	Cryptomeria japonica		Retained
33	Rhododendron cultivar		Lost
34	Rhododendron cultivar		Retained
35	Kunzea leptospermoides		Retained
36	Eucalyptus viminalis		Retained
37	Eucalyptus viminalis		Retained
38	Kunzea leptospermoides		Retained
39	Kunzea leptospermoides		Retained
40	Kunzea leptospermoides		Retained
41	Kunzea leptospermoides		Retained
42	Kunzea leptospermoides		Retained
43	Kunzea leptospermoides		Retained
44	Kunzea leptospermoides		Retained
45	Kunzea leptospermoides		Retained
46	Eucalyptus viminalis		Lost
47	Kunzea leptospermoides		Retained
48	Kunzea leptospermoides		Retained
49	Kunzea leptospermoides		Retained
50	Kunzea leptospermoides		Retained
51	Kunzea leptospermoides		Retained
52	Kunzea leptospermoides		Retained
53	Kunzea leptospermoides		Retained
54	Kunzea leptospermoides		Retained
55	Kunzea leptospermoides		Retained
56	Kunzea leptospermoides		Retained
57	Acacia melanoxylon		Retained
58	Acacia melanoxylon		Retained
59	Pinus muricata		Retained
60	Pinus muricata		Retained
61	Pinus muricata		Retained
62	Pinus muricata		Retained
63	Pinus muricata	4%	Remove
64	Pinus muricata	1%	Retained
65	Pinus muricata		Retained
66	Pinus muricata		Retained
67	Pinus muricata		Retained
68	Pinus muricata		Retained
69	Pinus muricata		Retained
70	Pinus muricata	1%	Retained
71	Pinus muricata		Retained
72	Pinus muricata		Retained
73	Pinus muricata		Retained
74	Pinus muricata		Retained
75	Pinus muricata		Retained
76	Pinus muricata		Retained
77	Pinus muricata		Retained
78	Pinus muricata		Retained
79	Pinus muricata		Retained
80	Pinus muricata		Retained
81	Pinus muricata		Retained
82	Pinus muricata		Retained
83	Pinus muricata	4%	Retained
84	Pinus muricata	8%	Retained
85	Pinus muricata		Retained
141	Acacia melanoxylon		Retained
142	Acacia melanoxylon		Retained
143	Pinus muricata		Retained
144	Acacia dealbata		Retained
145	Acacia melanoxylon		Retained
146	Acacia melanoxylon		Retained
147	Sequoia sempervirens		Retained
148	Sequoia sempervirens		Retained
149	Cyathea australis		Retained
150	Acacia melanoxylon		Retained
151	Acacia melanoxylon	3%	Retained
152	Eucalyptus viminalis	6%	Retained
153	Acacia melanoxylon		Remove
154	Acer palmatum	34%	Lost
155	Acacia dealbata	100%	Lost (Remove)
156	Acacia melanoxylon	100%	Lost
157	Acacia melanoxylon	100%	Lost
158	Acacia melanoxylon	100%	Lost
159	Acacia dealbata	100%	Lost
160	Acacia dealbata	100%	Lost
161	Acacia dealbata	100%	Lost
162	Acacia dealbata		Retained
163	Acacia dealbata		Retained
164	Acacia dealbata	1%	Retained
165	Acacia dealbata	5%	Retained
166	Acacia dealbata	17%	Lost
167	Acacia dealbata		Retained
168	Acacia dealbata	40%	Lost
169	Cyathea australis		Retained
170	Acacia melanoxylon	24%	Lost (Remove)
171	Acacia melanoxylon	100%	Lost
172	Pomaderris aspera		Retained
173	Pomaderris aspera	100%	Lost
174	Pomaderris aspera		Retained
175	Pomaderris aspera		Retained
176	Cyathea australis	100%	Lost
177	Acacia dealbata	10%	Remove
178	Acacia dealbata		Remove
179	Eucalyptus obliqua	13%	Retained
235	Pinus muricata	2%	Remove
236	Cedrus deodara		Retained
237	Pinus muricata		Note*
238	Pinus muricata		Remove
239	Sequoia sempervirens		Retained
240	Sequoia sempervirens		Retained
241	Sequoia sempervirens		Retained
242	Sequoia sempervirens		Retained
243	Sequoia sempervirens		Retained



Note* to table: Tree 235 is recommended for stability test and removed or retained based on test outcome. See tree inspection record Comments

A	12/12/2023	Draft for client approval	SF
B	16/1/2024	Final	SF
C	19/1/2024	Vehicle Access Track added	SF
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Tree Location/Encroachment Analysis Plan East Redwood Forest: Visitor Facilities Improvements

1:1000 @ A3