



**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

29 November 2021

Mr Dan Pech
Myers Planning Group
[REDACTED]
[REDACTED]

Arboricultural Impact Assessment Report regarding six (6) trees located within the vicinity of the proposed development at St. Patrick's Parish Primary School, Drummond Street South, Ballarat.

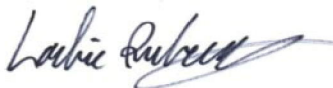
Dear Dan,

We are pleased to provide you with the following Arboricultural Impact Assessment Report for six (6) trees associated with proposed development works at St. Patrick's Parish Primary School.

Complete use of this report is authorised under the conditions limiting its use as stated in Appendix A Item 7 of "Arboricultural Reporting Assumptions and Limiting Conditions".

Should you have any queries relating to this report, its recommendations, or the options considered please do not hesitate to contact me on 0407-50-772.

Regards,



Lachlan Andrews

Consulting Arborist

BA. App. Sci. (Hort.), Dip. App. Sci. (Hort.), Adv. Cert. (Hort.) AQF Level 7

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Table of Contents

1	Executive Summary	1
2	Introduction	2
3	Scope	2
4	Methodology.....	3
4.1	Data Collection.....	3
5	Observations	5
5.1	Location.....	5
5.2	The Subject Trees.....	5
5.3	Tree Retention Values	6
6	Discussion.....	6
6.1	Determining Tree Protection Zones (TPZ) and Permissible Encroachment	6
6.2	Proposed Construction.....	7
6.3	Impact of Proposed Development.....	7
6.4	Determining TPZ Encroachment.....	9
7	Tree Protection and Management Recommendations.....	9
7.1	Tree Removal.....	9
7.2	Tree Retention	9
7.3	Specific Protection Measures.....	10
7.4	Proposed Pruning	10
7.5	Generic Protection and Reporting Measures	10
7.6	Tree Protection Signs.....	12
7.7	Project Arborist.....	12
7.8	Project Milestones.....	13
7.9	Compliance Reporting.....	13
7.10	Offset Tree Planting	13
8	References.....	14
	Appendix A. Arboricultural Reporting Assumptions and Limiting Conditions.....	15
	Appendix B. Explanation of Tree Assessment Terms.....	16
	Appendix C. Tree Retention Values.....	19
	Appendix D. Tree Assessment Data.....	21

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

1 Executive Summary

- 1.1.1 The following Arboricultural Impact Assessment (Report) regards six (6) trees located within the grounds of St. Patrick's Parish Primary School and a neighbouring property to the north east. The subject site was identified by Myers Planning Group (the client) as possessing trees that may be impacted upon by the proposed construction of a multipurpose building at the school.
- 1.1.2 In part, the project scope was to nominate the subject trees that could be retained, or require removal to facilitate the proposed development, as well as identify and reduce potential conflicts between the subject trees and site development. Accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction have been provided.
- 1.1.3 Tree retention values have been determined based upon a modified version of the British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction* (refer to Appendix C) and which have been prescribed into one of the following four (4) categories, A, B, C and U. Refer to Appendix C for further detail. Generally, relevant consent authorities will consider:
- **A** retention value trees as a site constraint and may require alterations to the proposed development design and/or specific protection measures to allow retention, unless the proposed development outweighs the retention value of the tree
 - **B** retention value trees as a site constraint consideration, lesser changes should be considered to retain such trees
 - **C** retention value trees are not considered a site constraint
 - **U** retention value trees are considered a site opportunity, as such trees are recommended for removal regardless of the proposed development.
- 1.1.4 Trees impacted by the proposed development:

Category	Description	Total	Removal		Retain	
			located within development footprint	irrespective of future development	with specific protection	with generic protection
A	High retention value trees	0				
B	Moderate retention value trees	2				4 and 5
C	Low retention value trees	4	6		2 and 3	1
U	Trees to be removed irrespective of proposed development	0				

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

2 Introduction

- 2.1.1 ArborSafe Australia Pty Ltd was engaged by Mr Dan Pech of Myers Planning Group to complete an Arboricultural Impact Assessment and Report on six (6) trees located within or adjacent to St. Patrick's Parish Primary School, 119 Drummond Street South, Ballarat.
- 2.1.2 The area proposed for the construction of a new multipurpose building was located within the school's grounds at the eastern end of the existing playing courts.
- 2.1.3 The report has been requested as part of a Development Application (DA) that involves the demolition of an existing shed and water tanks and the construction of a new multi-purpose building in a similar location.
- 2.1.4 Due to the presence of Heritage (HO168) and Design and Development (DDO20) overlays covering the property under the City of Ballarat Planning scheme, this report has been requested by the Department of Environment, Land, Water and Planning (DELWP) as part of Planning Permit PA2101316.
- 2.1.5 The report was intended to provide information on the subject trees and how they may be impacted upon by the proposed development. Report findings and recommendations provided are based upon guidance provided within Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*.
- 2.1.6 Observations and recommendations provided within this report are based upon information provided by the client and an arborist site visit.

3 Scope

- 3.1.1 Carry out a visual examination of the nominated trees located within the vicinity of the proposed development, including trees located within a neighbouring property.
- 3.1.2 Provide an objective appraisal of the subject trees in relation to their species, estimated age, health, structural condition, useful life expectancy (ULE) and viability within the landscape.
- 3.1.3 Based on the findings of this investigation, provide independent recommendations on the retention value of the trees.
- 3.1.4 Nominate subject trees that can be retained or require removal to facilitate the development.
- 3.1.5 Identify and reduce potential conflicts between subject trees and site development by providing accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction.
- 3.1.6 Provide information on restricted activities within the area nominated for tree protection, as well as suitable construction methods to be adopted during demolition and/or construction.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

4 Methodology

4.1 Data Collection

- 4.1.1 Lachlan Andrews of ArborSafe Australia Pty Ltd carried out a site inspection of the subject trees on 8 November 2021.
- 4.1.2 Trees that are the subject of this report (Figure 1) were identified during discussions with the client and reviewing supplied development documentation. The location of some trees was not marked on the supplied plans and as a result have been included in Figure 1 in their approximate location on the plan by the author.
- 4.1.3 The subject trees (Figure 2) were inspected from the ground using the initial component of Visual Tree Assessment (VTA) (Matthek, 1994). No foliage or soil samples were taken and no aerial, underground or internal investigations were undertaken.
- 4.1.4 Tree height and canopy width were estimated. Trunk diameter at breast height (DBH) and trunk diameter at the root crown (DRC) were measured with a diameter tape and provided to the nearest centimetre for Tree 6. All physical dimensions for trees within the neighbouring property (i.e. Trees 1–5) have been estimated due to not being able to be gain access to the property on the day of assessment.
- 4.1.5 Data collected on site was analysed by Lachlan Andrews, collated into report format, and relevant recommendations were formulated.
- 4.1.6 Tree protection zones (TPZ) and structural root zones (SRZ) were calculated in accordance with the Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*.
- 4.1.7 Retention values have been determined based upon a modified version of the British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction* (refer to Appendix C).
- 4.1.8 All photographs were taken at the time of the site inspections by the author and have not been altered for brightness or contrast, nor have they been cropped.
- 4.1.9 No proposed underground service locations have been reviewed in the preparation of this report.

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any covenant

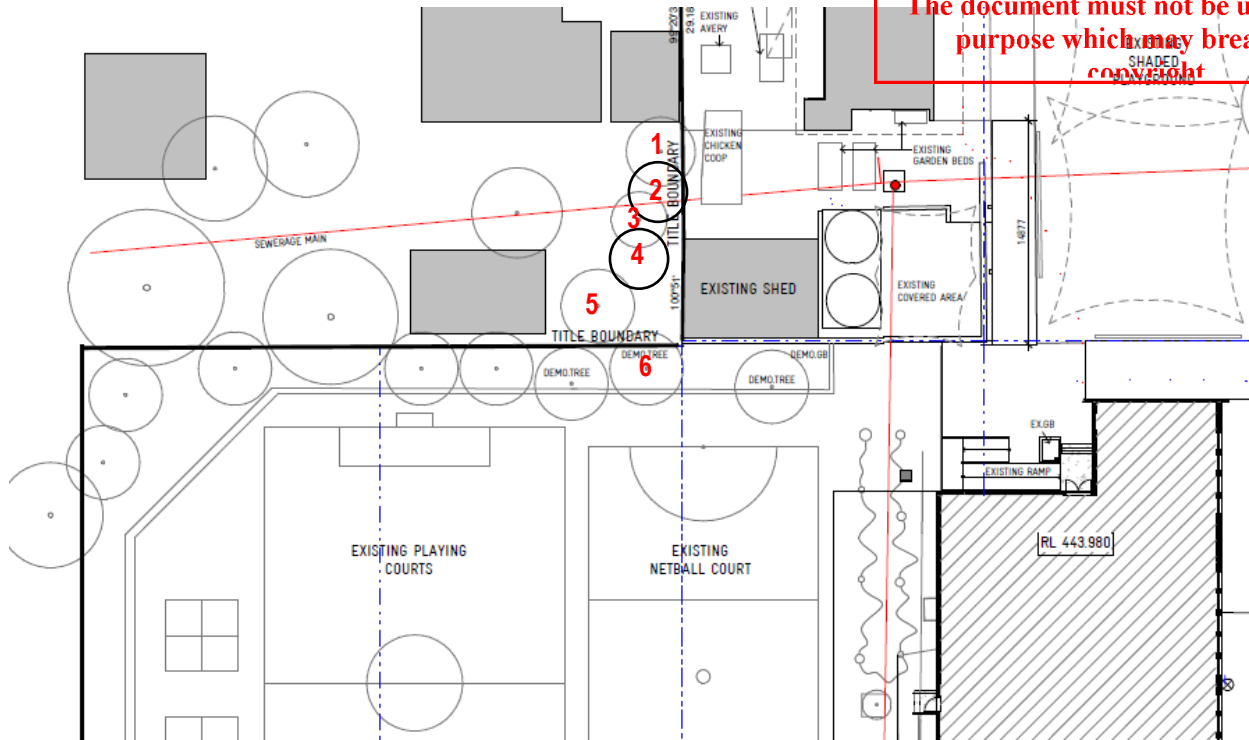


Figure 1. Excerpt from Existing Site Plan, St. Patrick's Parish Primary School (tree numbers added by author). (Y2 Architecture, March, 2021).



Figure 2. Location and number of the subject trees, St. Patrick's Parish Primary School. (Lachlan Andrews, 8 November 2021).

5 Observations

5.1 Location

- 5.1.1 St. Patrick's Parish Primary School was located at 119 Drummond Street South, Ballarat, with the area designated in this report for proposed development being located within the school's grounds at the eastern end of the existing playing courts.
- 5.1.2 The site was located within the City of Ballarat Local Government Area (LGA).

5.2 The Subject Trees

- 5.2.1 The six (6) subject trees were identified as being exotic evergreen or exotic deciduous in their origins. No subject tree was identified as being Australian Native, Victorian Native or Indigenous in their origin.
- 5.2.2 The purple-foliaged tree in the centre of Figure 2 was identified as *Fagus sylvatica* 'Tricolor' (Tricolor Beech), however was not assessed as part of this report due to its distance from the proposed construction works and was therefore not predicted to be impacted upon.
- 5.2.3 Subject Trees 1–5 were located within the neighbouring property to the north-east of the school, i.e. 116 Errard Street, Ballarat.
- 5.2.4 Trees 1–3 consisted of a row of relatively small trees that had been planted in close proximity to the common boundary fence with St. Patrick's Parish Primary School. They were relatively insignificant in regards to their landscape impact, however did provide a level of screening/privacy between the two (2) properties.
- 5.2.5 These trees were observed to be in a good state of health for their respective species on the day of assessment and were of a fair structural condition as a result of their co-dominant to multi-stemmed habits that began at their bases. These trees were allocated useful life expectancies (ULE) of 5–10 years, 10–15 years and 15–25 years respectively, during which time their physical dimensions could be expected to increase slightly, but at a slow rate.
- 5.2.6 Tree 4 was identified as a semi-mature example of the bi-generic hybrid x *Cupressocyparis leylandii* (Leyland Cypress) and was of the golden-foliaged cultivar 'Castlewellan Gold'. The tree was in good health as a result of its full and dense crown that was considered typical of healthy examples of this species under cultivation in Victoria. Its structural condition was rated as fair due to its co-dominant habit approximately 3m from the base. Due to the limitation of access to the tree it could not be determined whether the union of co-dominant leaders contained included bark or not. This would need to be determined from a closer inspection of the tree, for if included bark was observed it may potentially shorten the ULE of the tree.
- 5.2.7 Tree 5 was identified as a semi-mature example of *Tilia cordata* (Small-leaved Linden). As a result of the size, colour and density of its foliage it was assessed as being in good health. All branch extremities were live and the canopy contained minimal canopy deadwood that was less than approximately 30mm in diameter.
- 5.2.8 Like other subject trees, the structural condition of Tree 5 was rated as fair due to its co-dominant habit in close proximity to its base. The tree was consequently allocated a ULE of 15–25 years, during which time its physical dimensions could be expected to increase significantly and at a moderate rate.
- 5.2.9 Tree 6 was located within the grounds of St. Patrick's Parish Primary School and consisted of a row of semi-mature *Pittosporum tenuifolium* (Kohuhu) which had been planted along the eastern boundary of the school. Only the first twelve (12) trees in the row were assessed as part of this report as they were the ones predicted to be potentially impacted upon by the proposed development works.

5.2.10 On the day of assessment, the trees were observed to be in good health and of a fair structural condition due to the co-dominant nature of several specimens. Individually, the trees were insignificant in terms of their physical dimensions, collectively however they provided a strong level of screening and privacy between the school and the neighbouring property. As a result, they were allocated a ULE of 10–15 years, during which time their physical dimensions would be anticipated to increase slightly.

5.3 Tree Retention Values

5.3.1 Retention values were determined based upon a modified version of the British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction*. This standard categorises tree retention value based upon assessment of the tree’s quality (health and structure), and life expectancy. Other criteria such as its physical dimensions, age class, location and its Amenity, Heritage and Environmental significance are also considered. A breakdown of attributes required for each category can be obtained from Appendix C – Tree Retention Values.

Category	Tree numbers
A	
B	4 and 5
C	1, 2, 3 and 6
U	

6 Discussion

6.1 Determining Tree Protection Zones (TPZ) and Permissible Encroachment

- 6.1.1 Invariably, during the planning and design phases of construction projects, tree protection zones (TPZ) are calculated by arborists to guide the planning, design and construction phases in relation to the successful retention of trees. Tree protection zones are designed to provide adequate space for the protection of the above and below ground components of a tree to ensure health and stability. The area allocated for a TPZ is determined by the tree’s species, age, size, tolerance to changes in site conditions and site constraints.
- 6.1.2 The method for determining the TPZ in this report is based on the Australian Standard AS 4970-2009: *Protection of Trees on Development Sites* which states that the TPZ is equal to twelve (12) times the measured DBH. The TPZ is measured radially away from the centre of the tree’s trunk and is measured in metres (m). This standard also states that no tree shall have a TPZ greater than 15m or less than 2m.
- 6.1.3 Within the TPZ, and close to the tree’s base, is an area known as the structural root zone (SRZ). Root damage/severance at, or within the SRZ can not only heavily deplete a tree’s health but can jeopardise its stability within the soil profile. Soil excavations within this distance are therefore strongly discouraged.
- 6.1.4 Limited encroachment/manipulation of the TPZ (~10%) may occur, however this is dependent on the type of the works proposed, the characteristics of the tree and the site. If encroachment into the TPZ is greater than 10%, the Australian Standard states that clear demonstration that the tree will remain viable must be shown, e.g. via non-destructive soil excavations. Modifications to the designated TPZ should only be made under the guidance of a suitably qualified and experienced consulting arborist.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright 6

6.2 Proposed Construction

- 6.2.1 The proposed development has been reviewed and in summary consists of the demolition of the existing shed that is located at the meeting of boundary fencing in the central portion of the school along with two (2) existing water tanks to the south of the shed. The existing chicken coop and bird aviary to the east of the shed is also proposed for demolition. These three (3) structures are proposed for re-construction further east along the northern boundary.
- 6.2.2 The construction of a new, multi-purpose building is proposed to occur at the meeting of boundary fencing and will slightly envelop the area along the fence lines to the north and east (Figure 3).

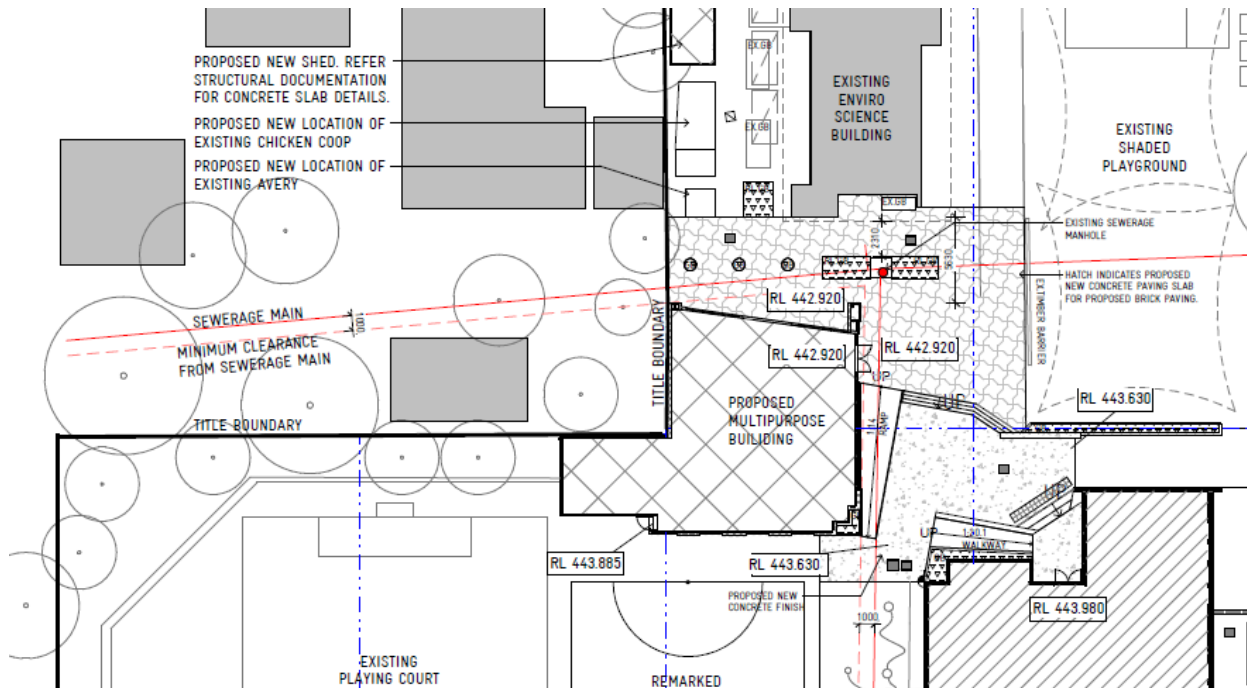


Figure 3. Location of proposed multipurpose building, St. Patrick's Parish Primary School. (Y2 Architecture, March, 2021).

6.3 Impact of Proposed Development

- 6.3.1 Tree 6 will be impacted upon by direct conflict with the proposed construction footprint and as a result would require removal under the current design. Due to their species, relatively small physical dimensions and generally fast rate of growth, these trees could readily be replaced within a short period of time, and as a result a re-design of the proposed building is not seen as necessary in this instance.
- 6.3.2 Due to their distance from the proposed works Trees 4 and 5 are not envisaged to be negatively impacted upon as their estimated TPZ encroachments are 7.2% and 13% respectively.
- 6.3.3 Trees 1 and 2 are not envisaged to be impacted upon by the proposed works as a result of proposed building extending only 1750mm past the eastern extent of the existing shed which will equate to only minor TPZ encroachment for Tree 2. Some minor canopy pruning of Trees 1 and 2 may be required, however is not envisaged to remove quantities of foliage mass that would impact upon their future health.
- 6.3.4 Excavations for the multipurpose building will therefore be required within the TPZ and SRZ of Tree 3, which, as explained in section 6.1.3, is normally discouraged due to the significant impacts this is likely to have on tree health and stability.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

- 6.3.5 In this case however, there is a concrete foundation located along the common boundary adjacent Trees 1–3, and its presence is likely to have limited their lateral root growth and development to the south. Figure 4 is an image of the exposed foundation showing its depth to be approximately 330mm. At this depth it is likely that tree roots close to the soil surface would have been deflected along the fence line within the neighbouring property and have been unlikely to colonise within the school's grounds.
- 6.3.6 Tree 3 will also need to undergo canopy pruning to clear its canopy to the extent which it overhangs the school's grounds to accommodate the proposed building line, which if done in a timely and professional manner, is not envisaged to impact negatively upon the tree's health, particularly given its age and species.



Figure 4. View of concrete footing, St. Patrick's Parish Primary School. (Ashley Wiseman, November, 2021).

**ADVERTISED
PLAN**

6.4 Determining TPZ Encroachment

6.4.1 **Major encroachment.** As per ~~the Australian Standard AS 4970–2009: Protection of Trees on Development Sites~~, a major encroachment into the TPZ of any tree is considered to occur when it is beyond 10% of the total TPZ area. Trees with major encroachment may require removal or, in certain instances, be retained with specific protection requirements throughout the construction stage.

6.4.2 **Minor encroachment.** Under the aforementioned standard, a minor encroachment is determined as being less than 10% of the total TPZ area. Trees with minor encroachment may be retained with specific, generic or no protection requirements throughout the construction stage.

6.4.3 **No encroachment.** Trees with no encroachment may be retained with generic or no protection requirements throughout the construction stage.

6.4.4 For the purposes of this report, trees to be removed or retained have been identified as those:

- Requiring removal due to a level of encroachment into their TPZ that would likely result in a detrimental impact upon their future health and/or stability
- Retainable and requiring specific protection requirements throughout construction (i.e. generic requirements plus arborist supervision and careful construction methods within their TPZ)
- Retainable and requiring generic tree protection measures only (i.e. protective fencing and restriction of activities within the TPZ).

7 Tree Protection and Management Recommendations

7.1 Tree Removal

7.1.1 One (1) tree would require removal as follows, based on the supplied design proposal. This tree would require removal to allow the proposed development to proceed:

Recommendation	Category A High retention value		Category B Moderate retention value		Category C Low Retention value		Category U No retention value	
	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers
Remove for development	0		0		1	6	0	

7.2 Tree Retention

7.2.1 Five (5) trees were recommended for retention and require generic and/or specific protection measures during construction to ensure they remain viable following the completion of works.

Recommendation (Refer Section 7.5–7.9)	Category A High retention value		Category B Moderate retention value		Category C Low Retention value	
	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers
Retain with generic protection requirements	0		2	4 and 5	1	1
Retain with specific protection requirements	0		0		2	2 and 3

7.3 Specific Protection Measures

- 7.3.1 Tree 3 is proposed to have excavation occur with its TPZ and/or SRZ.
- 7.3.2 Excavation for the northern wall of the proposed multipurpose building is therefore recommended to be carried out under arborist supervision for the extent to which it encroaches upon the TPZ and/or SRZ of Tree 3. It is recommended that the proposed excavation commence at the outer extent of the TPZ and move inwards to minimise root damage to the tree.
- 7.3.3 Works should be undertaken using techniques that are sensitive to tree roots to avoid unnecessary damage. Such techniques include:
 - Excavation using a high-pressure water jet and vacuum truck
 - Excavation using an Air Spade with vacuum truck
 - Excavation by hand.
- 7.3.4 Machine excavation is prohibited within the TPZs of retained trees unless undertaken at the direct consent of the project arborist.
- 7.3.5 Roots discovered are to be treated with care and pruned 'square' against the northern edge of the excavation with a sharp, sterile handsaw or secateurs.

7.4 Proposed Pruning

- 7.4.1 Tree 3 will require pruning within the southern portion of its crown to accommodate the proposed building line. It is anticipated that this pruning will be relatively minor and will be required to remove approximately 10–15% of the tree's total crown mass.

Recommendation	Category A High retention value		Category B Moderate retention value		Category C Low Retention value	
	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers
Pruning recommendations	0		0		1	3

- 7.4.2 All pruning is to be completed prior to any and all works commencing on site and must be completed in accordance with the Australian Standard AS 4373–2007: *Pruning of Amenity Trees* (Standards Australia, 2007) and undertaken by a suitably qualified arborist (minimum AQF 3 arborist).
- 7.4.3 Ideally, to minimise any potential impacts upon Tree 3, the pruning of its canopy should occur in the cooler months e.g. approximately May to August when the tree is dormant.
- 7.4.4 Reduction pruning (where required) should focus on the removal of smaller diameter branches where feasible. Branches no greater than 50mm diameter are to be removed unless specifically approved by the project arborist.

7.5 Generic Protection and Reporting Measures

- 7.5.1 If the existing boundary fencing is to remain, then there is no need for tree protection fencing to be erected. However, if it is to be demolished, protection fencing must be erected and located in place of the portions of the boundary fencing that have been removed.

ADVERTISED PLAN

- 7.5.2 Protective fencing is to be a minimum of 1.8m high and mesh or wire between posts must be highly visible. Fence posts and supports should have a diameter greater than 20mm and should ideally be freestanding, otherwise be located clear of the roots. See image below.
- 7.5.3 Tree protection fencing must remain intact throughout all proposed demolition and construction works and must only be dismantled after their conclusion. The temporary dismantling of tree protection fencing must only be done with the authorisation of a consulting arborist and/or the responsible authority.
- 7.5.4 The subject trees themselves must also not to be used as a billboard to support advertising material. Affixing nails or screws into the trunks of trees to display signs of any type is not a recommended practice in the successful retention of trees.
- 7.5.5 All trees to be retained require protection during the construction stage. Tree protection measures include a range of:
- Activities restricted within the TPZ
 - Protective fencing
 - Trunk and ground protection
 - Tree protection signage
 - Involvement from the project arborist
 - Project milestones
 - Compliance reporting
- 7.5.6 Activities prohibited within the TPZ
- Machine excavation including trenching
 - Storage
 - Preparation of chemicals, including cement products
 - Parking of vehicles and plant
 - Refuelling
 - Dumping of waste
 - Wash down and cleaning of equipment
 - Placement of fill
 - Temporary or permanent installation of utilities and signs
 - Physical damage to the tree

**ADVERTISED
PLAN**

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

7.6 Tree Protection Signs

- 7.6.1 Signs identifying the TPZ (Figure 5) should be placed at 10m intervals around the edge of the TPZ and should be visible from within the development site.



Figure 5. Depicts standard fencing techniques. (AS 4970–2009).

7.7 Project Arborist

- 7.7.1 A “Project Arborist” must be commissioned to oversee tree protection, works within the TPZ’s and complete regular monitoring compliance certification.
- 7.7.2 The project arborist must have minimum five (5) years industry experience in the field of arboriculture, horticulture with relevant demonstrated experience in tree management on construction sites, and Diploma level qualifications in arboriculture – AQF Level 5.
- 7.7.3 Inspections are to be conducted by the project arborist at several key points during the construction in order to ensure that protection measures are being adhered to during construction stages and decline in tree health or additional remediation measures can be identified.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

7.8 Project Milestones

7.8.1 The following visits and milestones were recommended as to when on-site tree inspection by the project arborist is required:

Item	Purpose of Visit	Timing of Visit(s)	Prerequisites
1	Pre-start induction	Following sign off from Item 1. Contractor to provide a minimum of five days advance notice for this visit.	Prior to commencement of works. All parties involved in the project to attend.
2	Supervision of works in TPZ's including all regrading and excavations	Whenever there is work planned to be performed within the TPZ's. Contractor to provide a minimum of five days advance notice for such visits.	
3	Regular site inspections	Minimum frequency monthly for the duration of the project.	The checklist must be completed by the Project Arborist at each site inspection and signed by both parties.
4	Final sign off	Following completion of works.	Practical completion of works and prior to tree protection removal.

7.9 Compliance Reporting

- 7.9.1 Following each inspection, the project arborist shall prepare a report detailing the condition of the trees. These reports should certify whether or not the works have been completed in compliance with the consent relating to tree protection.
- 7.9.2 These reports should contain photographic evidence where required to demonstrate that the work has been carried out as specified.
- 7.9.3 Matters to be monitored and included in these reports should include tree condition, tree protection measures and impact of site works which may arise from changes to the approved plans.
- 7.9.4 The reports and Compliance Statements shall be submitted to the Project Manager (as well as the Clients' nominated representative) following each inspection.
- 7.9.5 The reports and any Non-Compliance Statements shall be submitted to the Project Manager (as well as the Clients' nominated representative) if tree protection conditions have been breached. Reports should contain clear remedial action specifications to minimise any adverse impact on any subject tree.

7.10 Offset Tree Planting

- 7.10.1 Offset planting should reflect the number of trees removed and the initial loss of amenity and biomass. New trees should be of long-term potential and sourced from a reputable supplier.
- 7.10.2 Replacement tree species must suit their location on the site in terms of their potential physical size and their tolerance(s) to the surrounding environmental conditions. To avoid unethical or unprofessional tree selection and/or their placement within the landscape, replacement tree species must be selected in consultation with a consulting arborist, who can also assist in implementing successful tree establishment techniques.
- 7.10.3 Replacement tree species must have the genetic potential to reach a mature size potential of those trees removed to facilitate the development. As a guide, mature tree height is recommended to be a minimum of 10m (or more) and produce a spreading canopy so as they may provide amenity value to the property and contribute to the tree canopy of the surrounding area in the future.

- 7.10.4 Newly planted trees will likely require maintenance and after planting care for a period of 2–3 years to ensure successful establishment. Failed plantings during this establishment period are to be removed and replaced like for like.

8 References

- Mattheck, C. a. B. H., 1994. *The Body Language of Trees: A Handbook for Failure Analysis*. H. M. Stationery Office: University of Michigan.
- Myers Planning Group, 2021, *Site Report for St. Patrick's Parish Primary School*, Myers Planning Group, 182B Lava Street, Warrnambool, 3280.
- Sacco. M., 2021, *Application for Planning Permit PA2101316*, Department of Environment, Land, Water and Planning, Level 8, 8 Nicholson Street, East Melbourne, 3002.
- Standards Australia, 2007. *AS 4373–2007 Pruning of Amenity Trees*, GPO Box 476 Sydney NSW 2001: Standards Australia.
- Standards Australia, 2009. *AS4970–2009: Protection of Trees on Development Sites*, Sydney: Standards Australia.
- The British Standards Institution, 2012. *BS5837–2012: Trees in relation to design, demolition and construction*, London: BSI Standards Limited.
- Y2 Architecture, 2021, *St. Patrick's Parish Primary School Refurbishment*, Y2 Architecture, 466 Malvern Road, Prahran, 3181.

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix A. Arboricultural Reporting Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership of any property are assumed to be good. No responsibility is assumed for matters legal in character.
2. It is assumed that any property/project is not in violation of any applicable codes, ordinances, statutes or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible, however, the consultant can neither guarantee nor be responsible for the accuracy of the information provided by others.
4. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
5. Loss or alteration of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the person to whom it is addressed, without the prior written consent of the consultant.
7. Neither all nor any part of the contents of this report, nor any copy thereof, shall be used for any purpose by anyone but the person to whom it is addressed, without the written consent of the consultant. Nor shall it be conveyed by anyone, including the Client, to the public through advertising, public relations, news, sales or other media, without the written consent of the consultant.
8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise.
10. Information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection.
11. Inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee expressed or implied that the problems or deficiencies of the plants or property in question may not arise in the future.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix B. Explanation of Tree Assessment Terms

Tree number: Refers to the individual identification number assigned within the ArborSafe software to each assessed tree on the site and the number which appears of the tree's tag.

Tree location: Refers to the easting and northing coordinates assigned to the location of the tree as obtained from the geo-referenced aerial image within the ArborSafe software.

Tree species: Provides the botanic name (genus, species, sub-species, variety and cultivar where applicable) in accordance with the International Code of Botanical Nomenclature (ICBN), and the accepted common name.

Trees in group: The number of trees encompassing a collective assessment of more than one tree. Typically grouped trees have similar attributes that can be encompassed within one data record.

Height: The estimated range in metres attributed to the tree from its base to the highest point of the canopy. Where required height will be estimated to the nearest metre.

Diameter at Breast Height (DBH): Refers to the tree's estimated trunk diameter measured 1.4m from ground level for a single trunked tree. These estimates increase in 50mm increments. Where required DBH will be measured to give an accurate measurement for single trunked trees, trees with multiple trunks, significant root buttressing, bifurcating close to ground level or trunk defects and will be measured as per the Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*.

Tree Protection Zone (TPZ): A specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown. It is the area required to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. The radius of the TPZ is calculated by multiplying its DBH by 12. TPZ radius = DBH × 12. (Note "Breast Height" is nominally measured as 1.4m from ground level). TPZ is a theoretical calculation and can be influenced by existing physical constraints such as buildings, drainage channels, retaining walls, etc. (Standards Australia, 2009).

Structural Root Zone (SRZ): The area close to the base of a tree required for the tree's anchorage and 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. SRZ radius = $(D \times 50)^{0.42 \times 0.64}$ (Standards Australia, 2009).

Canopy spread: The estimated range in metres attributed to the spread of the tree's canopy on its widest axis. Where required crown spread will be estimated to the nearest metre.

Origin: Refers to the origin of the species and its type.

Category	Description
Indigenous	Occurs naturally in the local area and is native to a given region or ecosystem.
Victorian Native	Occurs naturally within Victoria but is not indigenous.
Australian Native	Occurs naturally within Australia and its territories but is not a Victorian native or indigenous.
Exotic Evergreen	Occurs naturally outside of Australia and its territories and typically retains its leaves throughout the year.
Exotic Deciduous	Occurs naturally outside of Australia and its territories and typically loses its leaves at least once a year.

ADVERTISED
PLAN

Health: Refers to the health and vigour of the tree.

Category	Description
Excellent	Canopy full with even foliage density throughout, leaves are entire and are of an excellent size and colour for the species with no visible pathogen damage. Excellent growth indicators, e.g. seasonal extension growth. Exceptional specimen.
Good	Canopy full with minor variations in foliage density throughout, leaves are entire and are of good size and colour for the species with minimal or no visible pathogen damage. Good growth indicators, none or minimal deadwood.
Fair	Canopy with moderate variations in foliage density throughout, leaves not entire with reduced size and/or atypical in colour, moderate pathogen damage. Reduced growth indicators, visible amounts of deadwood, may contain epicormic growth.
Poor	Canopy density significantly reduced throughout, leaves are not entire, are significantly reduced in size and/or are discoloured, significant pathogen damage. Significant amounts of deadwood and/or epicormic growth, noticeable dieback of branch tips, possibly extensive.
Dead	No live plant material observed throughout the canopy, bark may be visibly delaminating from the trunk and/or branches.

Age: Refers to the life cycle of the tree.

Category	Description
Young	Newly planted small tree not fully established may be capable of being transplanted or easily replaced.
Juvenile	Tree is small in terms of its potential physical size and has not reached its full reproductive ability.
Semi-mature	Tree in active growth phase of life cycle and has not yet attained an expected maximum physical size for its species and/or its location.
Mature	Tree has reached an expected maximum physical size for the species and/or location and is showing a reduction in the rate of seasonal extension growth.
Senescent	Tree is approaching the end of its life cycle and is exhibiting a reduction in vigour often evidenced by natural deterioration in health and structure.

Structure: Refers to the structure of the tree from roots to crown.

Category	Description
Good	Sound branch attachments with no visible structural defects, e.g. included bark or acute angled unions. No visible wounds to the trunk and/or root plate. No fungal pathogens present.
Fair	Minor structural defects present, e.g. apical leaders sharing common union(s). Minor damage to structural roots. Small wounds present where decay could begin. No fungal pathogens present.
Poor	Moderate structural defects present, including bifurcations with included bark with union failure likely within 0–5 years. Wounding evident with cavities and/or decay present. Damage to structural roots.
Hazardous	Significant structural defects with failure imminent (3–6 months). Defects may include active splits and/or partial branch or root plate failures. Tree requires immediate arboricultural works to alleviate the associated risk.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Useful Life Expectancy (ULE): Useful life expectancy refers to an expected period of time the tree can be retained within the landscape before its amenity value declines to a point where it may detract from the appearance of the landscape and/or presents a greater risk and/or more hazards to people and/or property. ULE values consider tree species, current age, health, structure and location. ULE values are based on the tree at the time of assessment and do not consider future changes within the tree's location and environment which may influence the ULE value.

Category
0 Years
<5 Years
5–10 Years
10–15 Years
15–25 Years
25–50 Years
>50 Years

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix C. Tree Retention Values

Based upon a modified version of the British Standard BS 5837–2012: *Trees in relation to design, demolition and construction – recommendations.*

Category and definition	Criteria (including sub-categories where appropriate)		
Category U			
Trees in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than 5 years.	<ul style="list-style-type: none"> Trees that have a severe structural defect that are not remediable such that their failure is expected within 12 months. Trees that will become unviable after removal of other Category U trees (e.g. where for whatever reason the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate and irreversible overall decline. Trees infected with pathogens of significance to the health and or safety of other trees nearby Low quality trees suppressing adjacent trees of better quality. Noxious weeds or species categorised as weeds within the local area. <p>Note: Category U trees can have existing or potential conservation value* which might make it desirable to preserve.</p>		
	1. Arboricultural Qualities	2. Landscape qualities	3. Cultural and environmental values
Category A			
Trees of High Quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years.	Trees that are particularly good examples of their species, especially if rare or unusual (in the wild or under cultivation); or those that are important components of groups or avenues.	Trees or groups of significant visual importance as arboricultural and/or landscape features. (e.g. feature and landmark trees).	Trees, groups or plant communities of significant conservation, historical, commemorative or other value (e.g. remnant trees, aboriginal scar trees, critically endangered plant communities, trees listed specifically within a Heritage statement of significance).
Category B			
Trees of Moderate Quality with an estimated remaining life expectancy of 15–25 years and of dimensions and prominence that cannot be readily replaced within 10 years.	Trees that might be included within Category A but are downgraded because of diminished condition such that they are unlikely to be suitable for retention beyond 25 years.	Trees that are visible from surrounding properties and/or the street but make little visual contribution to the wider locality.	Trees with conservation or other cultural value (trees within conservation areas or landscapes described within a statement of significance, locally indigenous species).
Category C			
Trees of Low Quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable.	Trees of very limited value or such impaired condition that they do not qualify in higher categories.	Trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

*Where trees would otherwise be categorised as U, B or C but have significant identifiable conservation, heritage or landscape value even though only for the short term, they may be upgraded, although they might be suitable for retention only.

Tree Quality

		Health**			
		Excellent/ Good	Fair	Poor	Dead
Structure	Good	A	B	C	U
	Fair	B	B	C	U
	Poor	C	C	U	U
	Hazard*	U	U	U	U

* Structural hazard that cannot be remediated through mitigation works to enable safe retention.

** Trees of short term reduced health that can be remediated via basic, low cost plant health care works (e.g. mulching, irrigation etc.) may be designated in a higher health rating to ensure correct retention value nomination.

Category A	Typically trees in this category are of high quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years. The tree may make significant amenity contributions to the landscape and may make high environmental contributions. In some cases, trees within this category may not meet the above criteria, however possess significant heritage or ecological value. Trees of this retention value warrant design consideration and amendment to ensure their viable retention.
Category B	Typically trees in this category are of moderate quality with an estimated remaining life expectancy of 15–25 years and prominence of size dimensions that cannot be readily replaced within 10 years. They may make moderate amenity contributions to the landscape and make low/moderate environmental contributions. Trees with this retention value warrant lesser design consideration in an attempt to allow for their retention.
Category C	Trees in this category are of low quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable, may have poor health and/or structure, are easily replaceable, or are of undesirable species and do not warrant design consideration.
Category U	Trees in this category are found to be in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than five years. These trees may be dead and/or of a species recognised as a weed that resulted in them being unretainable.

**ADVERTISED
PLAN**

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Appendix D. Tree Assessment Data

Tree no.	Botanical Name	Common Name	Origin	DBH Total (cm)	DRC (cm)	Radial TPZ (m)	TPZ area (m2)	Radial SRZ (m)	Tree Height (m)	Canopy (m)	Health	Structure	Age	TLE (Yrs.)	Arborist comments	Tree Quality Score	Recommendation
1	<i>Nerium oleander</i>	Oleander	Exotic Evergreen	27	35	3.2	32.98	2.1	4	3	Good	Fair	Mature	5-10	Mature tree in slightly reduced health with minor level epicormic growth production observed. Tree positioned ~400mm from fence line.	C	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
2	<i>Olea europea</i>	Common Olive	Exotic Evergreen	30	37	3.6	40.72	2.2	5	6	Good	Fair	Semi-mature	15-25	Tree in good health & is co-dominant in habit at the base. Tree positioned ~700mm from fence line.	C	Retain tree with specific protection requirements (i.e. Generic measures plus supervision of works within the TPZ and/or use of root sensitive construction techniques).
3	<i>Ficus carica</i>	Common Fig	Exotic Deciduous	25	30	3.0	28.27	2.0	3.5	6	Good	Fair	Mature	10-15	Tree co-dominant in habit at the base & has been poorly pruned in some portions of the canopy in the past. Tree positioned ~300mm from fence line.	C	Retain tree with specific protection requirements (i.e. Generic measures plus supervision of works within the TPZ and/or use of root sensitive construction techniques).
4	x <i>Cupressocyparis leylandii</i> 'Castlewella Gold'	Leyland Cypress	Exotic Evergreen	33	40	4.0	49.27	2.3	9	3.5	Good	Fair	Semi-mature	15-25	Semi mature tree in good health. Tree positioned ~3000mm from fence line.	B	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
5	<i>Tilia cordata</i>	Small-leaved Linden	Exotic Deciduous	40	45	4.8	72.38	2.4	9	8	Good	Fair	Semi-mature	15-25	Tree in good health, however its co-dominant habit may ultimately reduce its ULE. Tree positioned ~3000mm from fence line.	B	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
6	<i>Pittosporum tenuifolium</i>	Kohuhu	Exotic Evergreen	15	18	2.0	12.57	1.6	7	1.5	Good	Fair	Semi-mature	10-15	Assessment consisted of 12 trees over a 14m distance (south to north).	C	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

For further information
Telephone 1300 272 671
www.arborsafe.com.au

CIVICA