



# ARBORICULTURAL CONSTRUCTION IMPACT ASSESSMENT

## Loreto Mandeville Hall, Toorak

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## Loreto Mandeville Hall, Toorak

### Introduction

Glenn Waters has been engaged to undertake an inspection and impact assessment for the trees adjacent to the site at Loreto Mandeville Hall, Toorak.

This report will provide comment on the individual street trees in question and provide advice regarding the species and condition of the existing site trees and also provide advice regarding the future management of the trees.

### Objectives

- To inspect the site and existing trees located within Clendon Road and adjacent to the proposed site at Loreto Mandeville Hall, Toorak.
- To collect data on the individual trees and provide a tree number plan that corresponds to the report tree data.
- To provide an arboricultural report that provides advice and solutions for the future management of the street trees (as required).

### Observations

The site is the Loreto Mandeville Hall, Toorak and the tree in question are located within the narrow grassed naturestrip in Clendon Road. The site inspection and assessment captured data on five (5) individual street trees and the trees have been numbered from North to South.

#### Tree #1

London Plane                      (*Platanus x acerifolia*)                      **Moderate** arboricultural/retention value

This tree is approximately 17.0 metres in height and has an average canopy spread of 18.0 metres and a trunk diameter of 70cm. It is a mature tree in fair-poor health with some canopy thinning and displays fair-poor structure being misshapen due to the pruning required for the street power lines. The adjacent bluestone kerb and channel is showing some root displacement.

Tree Protection Zone =                      8.4 metres radius

## Tree #2

London Plane (*Platanus x acerifolia*) **Moderate** arboricultural/retention value

This tree is approximately 16.0 metres in height and has an average canopy spread of 18.0 metres and a trunk diameter of 50cm. It is a semi-mature tree in fair-poor health with some canopy thinning and displays fair-poor structure being misshapen due to the pruning required for the street power lines.

Tree Protection Zone = 6.0 metres radius

## Tree #3

London Plane (*Platanus x acerifolia*) **Moderate** arboricultural/retention value

This tree is approximately 17.0 metres in height and has an average canopy spread of 20.0 metres and a trunk diameter of 68cm. It is a mature tree in fair-poor health with some canopy thinning and displays fair-poor structure being misshapen due to the pruning required for the street power lines. The adjacent bluestone kerb and channel is showing some root displacement.

Tree Protection Zone = 8.2 metres radius

## Tree #4

Box Elder (*Acer negundo*) **Low** arboricultural/retention value

This tree is approximately 7.0 metres in height and has an average canopy spread of 9.0 metres and a trunk diameter of 40cm. It is a semi-mature tree in very poor health in considerable decline and displays very poor structure with internal trunk decay.

Tree Protection Zone = 4.8 metres radius

## Tree #5

London Plane (*Platanus x acerifolia*) **Low** arboricultural/retention value

This tree is approximately 16.0 metres in height and has an average canopy spread of 16.0 metres and a trunk diameter of 75cm. It is a mature tree in poor health with significant epicormic growth and dieback and displays fair-poor structure being misshapen due to the pruning required for the street power lines.

Tree Protection Zone = 9.0 metres radius

The street trees have been apportioned Tree Protection Zone (TPZ) distances as per the Australian Standard AS 4970-2009 Protection of trees on development sites which defines a TPZ as being the trunk diameter of the tree multiplied by a factor of 12. (eg: a 30cm dbh X 12 = 3.6m radius TPZ).

## Discussion

### General Tree Retention Discussion:

The Australian Standard AS 4970-2009 Protection of trees on development sites has been used to calculate the TPZ for the subject site and neighbouring property trees.

The TPZ is calculated based on trunk (stem) diameter (DBH), measured at approximately 1.4 metres up from ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses both the stability and growing requirements of a tree. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level.

Encroachment into the TPZ is permissible under certain circumstances though is dependent on both site conditions and tree characteristics. Minor encroachment, up to 10% of the TPZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the TPZ.

With a site such as this, it is important to understand that tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard paved surfaces, roads and buildings may have inhibited the development of a symmetrically radiating root system and this may impact on the size and shape of a TPZ and therefore 'normal' tree protection zone calculations may need to be modified to allow for such anomalies.

**This is clearly the case with all of these street trees with the concrete footpath, high brick fence footing and buildings and paving inside the subject site. All of these factors will be limiting the root zone of the trees in question and making the 'calculated' TPZ distances somewhat irrelevant.**

Appendix 1 lists the standard tree protection works that should be considered as part of the management of trees to be retained during development and these works should be seen as a minimum standard to apply.

### Impact Assessment Discussion:

The current proposal is for a new 3 storey building (with a 3 level basement) to be constructed on the site boundary opposite the existing street trees.

This proposed building will sit well with the 'calculated' TPZs of the street trees and would normally be considered to be a 'major' encroachment under the standard.

However, as discussed above, there are a number of site constraints that significantly impact the amount of root zone likely to actually be present for these trees.

- There is a concrete footpath between the location of the trees and the site boundary.
- There is then the major footing that will have been required for the high brick fence bordering the school.

- There is also the fact of the difference in levels between the street and the inside of the school environs with a level difference of approximately 30-50cm down inside the school grounds.
- There is also the fact that there are other buildings and garden beds sited alongside the boundary within the school site which would also be inside the 'calculated' TPZs.

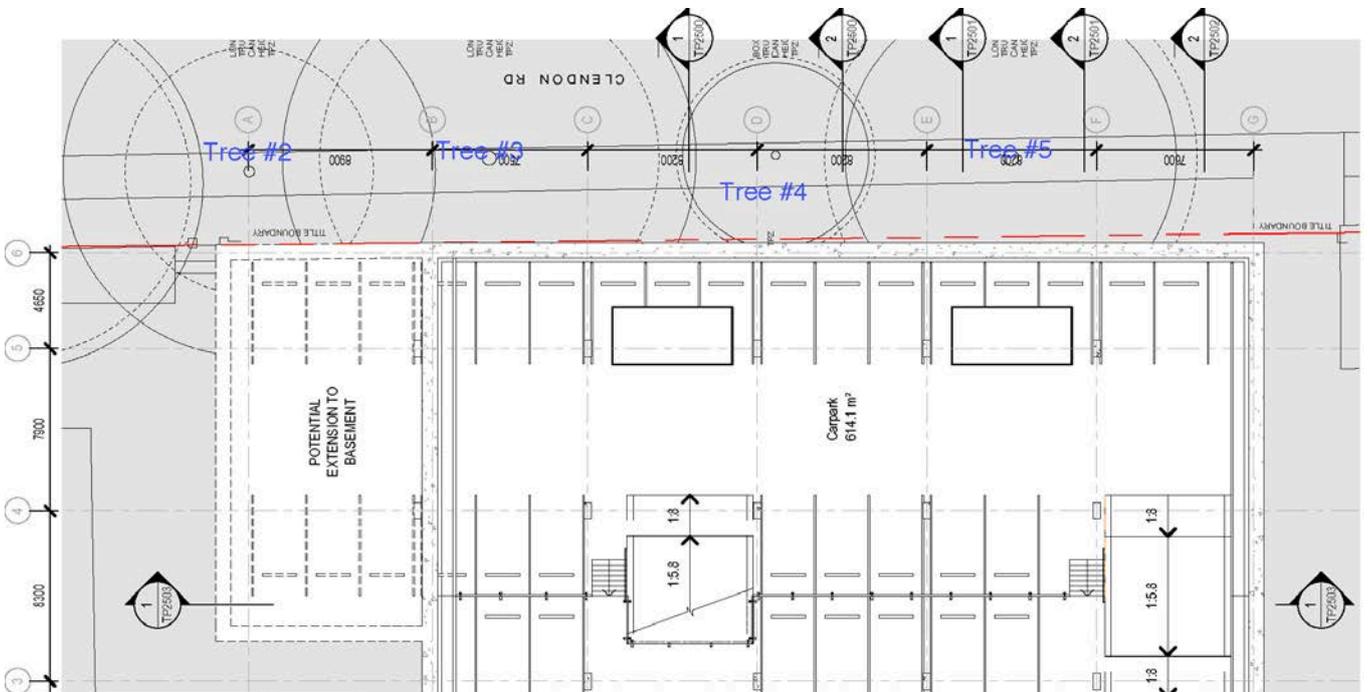
There may be some requirement to prune the canopies of the larger street trees (#1, #2, & #3) that currently overhang the school boundary. This is likely to remove up to 15-20% of the canopy in this area and should certainly not cause a major issue for these this species in general and these trees in particular.

The only real tree protection works that can be carried out during demolition and construction is the installation of protection fencing around the full area of the existing naturestrips for all street trees.

### Conclusions:

It is my clear belief that provided that the demolition of the fence and associated infrastructure within the school grounds and within the 'calculated' TPZs is done under arborist supervision to ensure that there is no damage done to any potential roots existing at the interface of the street and the fence boundary, that there will be no impacts on these adjacent street trees.

### Proposed Basement Plan:



Glenn Waters  
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## Site Photographs:

Trees #1, #2 & #3



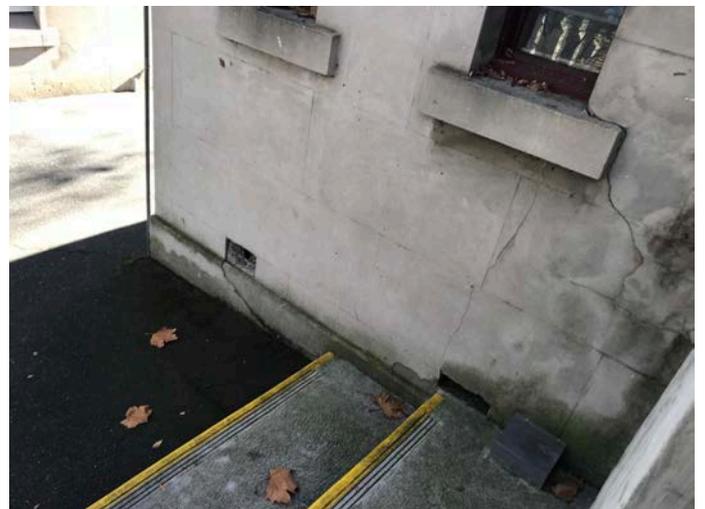
Tree #4 & #5



↑ View of the street services causing the poor structure.

↑ View of the street concrete footpath.

↓ 2 views of the difference in levels from within the subject site. ↓



## Appendix 1: Tree Protection During Development

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

- The Tree Protection Zone (TPZ) is fenced and clearly marked at all times. This fence should deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Australian Standard AS 4687 - 2007 Temporary fencing and hoardings, specifies appropriate fencing requirements. Existing perimeter fencing can be incorporated into the protective fencing. Shade cloth should be attached to reduce the movement of dust and other particulates into the TPZ. Signs identifying the TPZ are to be placed on the fencing.
- If the area within the TPZ is to be accessed during the construction phase then the area will need ground protection. Measures may include a permeable membrane, such as a geotextile, to cover the TPZ area beneath a 100 mm layer of crushed rock below rumble boards.
- Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project. Members of the project team need to interact with each other to minimise the impacts to the trees, either through design decisions or construction practices.
- The consultant arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.
- There is no immediate requirement for mulching within the TPZ. There is benefit to maintaining existing site conditions within the TPZ and is more analogous to proposed completion conditions. Monitoring of the trees in-line with prevailing weather conditions will indicate if mulching will be required. The same approach is to be used in providing supplemental irrigation.
- No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.
- Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing and refuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the root zone of the tree.
- Nothing whatsoever should be attached to the tree including temporary services wires, nails, screws or any other fixing device.
- Any pruning that is required must be carried out by trained and competent arborist who has a thorough knowledge of tree physiology and pruning methods and carry out pruning to the Australian Standard – AS 4373 – 2007 Pruning of Amenity Trees.
- All root excavation should be carried out by hand digging or with the use of 'Air-Excavation' techniques, and roots should be severed by saw cutting or with a sharp axe and not with a Backhoe or any machinery or blunt instrument.

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