



Level 5 and 8 Arboriculturist

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Reference: **3355A**  
18<sup>th</sup> October 2019

Urbis Pty Ltd.

## Arborist Addendum

**Re: Royal Hall of Industries**  
**Lot 3, (D.P.861843) and Lot 52 (D.P.1041134)**  
**No. 1 Driver Avenue, MOORE PARK**

### 1.1A Introduction

The following addendum has been requested by *Urbis Pty Ltd.*, based upon a response from the City of Sydney Council, via a request for additional information. This addendum is based on the data provided in the Arboricultural Impact Assessment issued with the initial application and referenced D3355, dated May 2019. Section numbers are consistent with this report and will either replace or be additions to those included in the report. The addendum addresses the following areas;

- Trees No. 1-5; works proposed for this area and protection methodology required.
- Trees No. 8-9; pruning schedule and potential impact by pruning on the trees.
- Trees No. 18 and 56-61; proposed tree removal and impact on surrounding trees
- Response to the location of subsurface utilities and potential impact on surrounding trees
- Amendments to the report based on design modifications not included as part of the requested additional information

### 4.0 Methodology

**4.3** The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

**4.3.5** Follow up site assessments on the 23<sup>rd</sup> September and 22<sup>nd</sup> October 2019 using the method of the Visual Tree Assessment<sup>1</sup>. This has included a Level 2 risk assessment, being a *Basic Assessment*<sup>2</sup>, and exploratory excavation of the area containing trees No. 56-60. The assessment has been conducted by Warwick Varley<sup>3</sup> on behalf of *Allied Tree Consultancy*.

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<sup>1</sup> Mattheck, C. Breloer, H., 1994, The Body Language of Trees – A handbook for failure analysis  
The Stationary Office, London

<sup>2</sup> Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA

<sup>3</sup> Consulting Arborist, Graduate Certificate and Diploma of Arboriculture (level 8 and 5)

#### 4.4 Additional/amended documentation provided

The following amended documentation has been provided to Allied Tree Consultancy and utilised within the addendum.

##### 4.4.2 Design

###### Drawings

Drawn by *Populous P/L*

Date: 3 May 2019

Reference: 15.7401.00

Drawing No: SK.01.0001 (B), SK.02.0B10 (C), SK.02.0010 (Q), SK.02.01101 (O)  
SK.02.0210 (A), SK.02.0310 (C), SK.05.0001 (A), SK.03.0010 (A),  
SK.03.0011 (A), SK.03.0012 (A), SK.03.0013 (A), SK.03.0014 (A),  
SK.08.0B10 (A), SK.08.0010 (A), SK.08.0110 (A), SK.08.0310 (A).

##### 4.4.3 Engineering

###### Drawings; Subsurface utilities

Drawn by: *Aurecon P/L*

Date: 27 September 2019

Reference: 505355

Drawing: Hydraulic Services; Drainage Layout; HY-20.0B00, Revision C

Drawing: Electrical Services; Containment Layout; EL-22.0000, Revision C

Drawing: Fire Services; Site Plan; FP-10.0001, Revision C

Title: Decommission S.6283 and established Kiosk.....  
(Substation/High Voltage lines)

Drawn by: *Pomelo Consulting P/L*

Date: 4 September 2019

Reference: XCZ021387

Drawing: 1-3, Revision A

##### 4.4.4 Landscape

Drawn by *Arcadia Landscape Architecture P/L*

Date: October 2019

Reference: not referenced, Issue E

Sheets: 1-9

#### 7.1 Proposed development

Observation 3: Notes relating to the tree species; Trees No. 10-63

The species *Corymbia maculata* has been utilised as a dense kerbside planting on Errol Flynn Boulevard, see Site Assessment, Section 7.0 for data relating to this planting. The species is deemed a robust and common urban planting<sup>4</sup> and very tolerant of

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<sup>4</sup> University of Melbourne, 2013, Burnley Plant Guide; Data Sheet; *Corymbia maculata*, Australia

waterlogging, compaction, as well as moderately tolerant to drought, salinity, and varying soil types<sup>1</sup>. Observation of the planted area indicates few trees with an apparent root flare (14 trees exhibit root flare of the 56 trees), which is atypical for the species. In addition, few trees exhibit any surface roots, and of the 56 trees, only surface roots from 9 trees are evident and are predominately related to small (<10mm in diameter) roots girdling or flush with the stem. This root type is often associated with adventitious growth, a result of grade increases. No surface roots were apparent within the footprint of the proposed crossover. This supports the trees have been subject to a grade increase, likely to remove trip hazards, and may be attributed to the pea-gravel crust described in the following Section; Observation 4. Such action appears to have been tolerated by the planting and is related to the species tolerance.

Although some uplift of the asphalt area exists and the symptoms appear consistent with root ingress through the existing car park. Research of the planting did not divulge any management relating to the planting for these trees; therefore, any methods (example root vaults, structural soils, root barriers) to retain roots to a specific area does not seem to exist. This has been supported by the test pits excavated in the area of the proposed crossover. Therefore the future management for these trees is unknown based on the potential mature size relative to damage to the surrounding structures via root extension. That is, the existing car park and kerb/footpath/roadway of Errol Flynn Boulevard are considered susceptible to damage with tree maturity. This has been the precursor to the SULE rating applied in Table 1, Section 6.0. The species is referenced to cater for a deep root system<sup>5</sup> and widely planted as a street tree<sup>1</sup>. This may offer sufficient cause for a longer useful life expectancy within this location and limiting the impact on trees subject to a major encroachment by the proposed works.

**Observation 4:** results of the test pits excavated adjacent to trees No. 56-61.

Based on the excavation works proposed for the crossover, two test pits have been excavated in this area (see Photo 1, Appendix E for location, additional photos available on request). The intention is to determine any specific media that had been introduced for the planting and the soil texture/profile to estimate potential root extension and density, therefore impact on trees that contain an encroachment. The test pits have been excavated<sup>6</sup> adjacent to the edge of the proposed crossover and 1000mm from the hob/fence separating the car park. Each test pit was excavated to 400mm depth and approximately 250mm square (across the face). The depth has been based on a combination of the excavation required for the crossover, estimated root depth and limited due to known subsurface utilities (electricity servicing the lamp posts) that occur. The limited assessment of soil depth based on electrical utilities removed the use of a soil probe/profile sampler.

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<sup>5</sup> Nicolle D., 2016, Taller Eucalypts for planting in Australia, Lane, Print and Post, Australia

<sup>6</sup> Excavation via hand tools, no root greater than 10mm in diameter has been severed.

## Results

**Soil type/texture:** The soil appears to be consistent with the soil naturally occurring in the area, and this has been based on comparison to soil unearthed in the courtyard adjacent to Lang Road, which was under excavation at the time of assessment and feedback from the contractors regarding the depth and soil unearthed. That is, the area containing these trees does not appear to contain any introduced media and is assumed to extend throughout the adjacent areas. The soil texture has been classed as 'loamy sand'<sup>7</sup>, and is considered to allow normal root extension and a deep root system based on available gas exchange and water percolation, assuming the same soil texture to extend deeper.

**Soil profile;** The soil profile was consistent up to 400mm depth, although a gravel surface including a high concentration of pea gravel compacted into a crust with a mean depth of 60mm occurs over the surface of the planting.

**Root mass;** the root mass is evident within the test pit, although restricted to the soil only and had not migrated into the pea gravel crust. The root density was apparent in the top 150-200mm of soil beneath the crust, although did not provide any root mass greater than 2mm in diameter. The remaining depth, in excess of 250mm below-grade, exhibited larger woody roots up to 35mm in diameter in each test pit. The root density (number of roots) increased with depth.

Based on the results, and within the area of the proposed crossover, the root system is contained to the grade initiating 60mm below the existing grade, where the predominant and larger root system is at 200mm below grade.

**Assumption 2:** The surface is described as 'Exposed Agg concrete' and is considered to be referring to exposed aggregate (Page 3 of the Landscape Plan). Allowing for the surface to employ a 100mm thickness of concrete and 100mm depth of road base as the foundation. The excavation for the drive/crossover footprint will be approximately 200mm below the finished surface. The finished grade has assumed the existing grade of the asphalt car park to be retained. The existing asphalt car park area will require removal to accommodate the new surface, and based on the foundation required for asphalt, the grade depth of the new surface is considered to require a similar foundation depth.

### **7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design**

Trees No. 1-16, 20, 21, 23-35, 37-49, 51, 53-55 and 62-79

None of the proposed works conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

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<sup>7</sup> Based on the 'Kneading test'; Handreck K., Black N., 1991, Growing media for ornamental plants and turf, NSW University Press, Australia

### Trees No. 1-5

The initial design had not clarified the impact on these trees. The proposed design has confirmed the retention of these trees and the masonry planter containing the trees. The wall at the rear of the planter box is proposed for demolition, although the lower portion of this wall, which acts as one of the four walls supporting the planter box is to be retained. Therefore, no impact will occur to the root zone or crown structure. Although protection measures have been included for the demolition and works during construction and assumed that a root system could extend to the surrounding area. That is, the planter box does not contain a bottom. See Section 7.3.2.

### Trees No. 10-56 and 61-79

The proposed design has provided for the removal of the existing asphalt car parking area, and replacement with a combination of lawn and garden described as 'Indigenous planting matrix', 'Turf', and a 'Native grass matrix' within the landscape drawings (Section 4.4.4). This replaces the asphalt surface that is not complimentary with root growth with one that improves the rhizosphere, therefore tree vitality. Although potentially considered to be an encroachment this has been retained to be minimal impact on the premise that the conditions within the protection measures included for the demolition and works during construction, see Section 7.3 are adhered to.

### Trees No. 8 and 9, Crown conflict

Based on the architectural (Section 4.4.2) drawings, the proposed two-story mixed-use building will conflict with the portion of dripline from trees No. 8 and 9. The height of these proposed structures exceeds the height of the dripline. Therefore pruning would be required to the proportion of the dripline that extends over the boundary wall to avoid conflict. The pruning of these trees has been based on the pruning classes provided in the AS 4373<sup>8</sup>, and described in the Table 3; Pruning schedule, Appendix D. The proportion of pruning has been nominated to exceed the preferred proportion by the *City of Sydney Council*, although the specific proportion has not been nominated, the amount of 5%<sup>9</sup> (of the crown mass) is referenced to require an application. The following discussion refers to the pruning schedule adopted based on conflicting branches and justification for this pruning relative to each tree.

- Tree No. 8; *Jacaranda mimosifolia*, (Jacaranda)

The proportion of pruning has been estimated to consist of 20% of the crown mass and constitute selective pruning (Code S, AS 4373), although potentially also crown lifting (Code S, AS 4373). The pruning will modify the habit, although is not considered to impact the structural dynamics or amenity value based on

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<sup>8</sup> Australian Standard, AS 4373, 2007, Pruning of amenity trees, Australia.

<sup>9</sup> City of Sydney Council, 2012, Sydney Development Control Plan, Section 3-General Provisions, Part 5b

views from the streetscape. The pruning is limited to four branches (see Photo 2, Appendix E), although one of these is an epicormic shoot (branch B), and another (branch D) has a structural crack; hazard beam type (see Photo 3, Appendix E) which would likely be removed based on the related risk and target zone of the footpath. The species is widely planted throughout the international urban environment<sup>10,11</sup> and is testament to the species adaptability and resilience. It is documented to be tolerant to pruning<sup>12</sup> and coppicing<sup>13,14</sup> as well referenced to be 'advisable to prune older trees, especially those that function as street trees'<sup>15</sup>. The proportion of pruning is supported by the International Society of Arboriculture<sup>16,17</sup> which nominates no more than 25% of the crown should be removed for any single pruning event. The species is referenced to be tolerant of the pruning and is further supported by the international pruning standard. The pruning will conform to the Australian Standard and is not considered to adversely impact on the amenity value. Part of this pruning is considered necessary to remove existing risks. Condition 17, Section 7.3.2 is required as part of these works.

- Tree No. 9; *Liquidambar styraciflua*, (Sweet Gum)

The proportion of pruning has been estimated to consist of 13% of the crown mass and constitute selective pruning (Code S, AS 4373), although potentially also crown lifting (Code S, AS 4373). The pruning will modify the habit, although is not considered to impact the structural dynamics or amenity value based on views from the streetscape. The pruning is limited to two branches (see Photo 4, Appendix E), and selection of twiggy material less than 20mm in diameter. The species is a common tree in the urban environment<sup>11</sup> and is testament to the species adaptability and resilience. The proportion of pruning is not excessive and will conform to the Australian Standard and is not considered to adversely impact on the amenity value. Condition 17, Section 7.3.2 is required as part of these works.

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<sup>10</sup> Global Biodiversity Information System, cited at <https://www.gbif.org/pt/species/144104301>

<sup>11</sup> O'Brien, D., 1993, *Street Trees for Cities and Towns*, Imago Press, Sydney

<sup>12</sup> Royal Horticultural Society, cited at <https://www.rhs.org.uk/advice/profile?PID=959>

<sup>13</sup> Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony. 2009, Agroforestry Database: a tree reference and selection guide; version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)

<sup>14</sup> CABI, 2019, ; *Jacaranda mimosifolia*. In: *Invasive Species Compendium*. Wallingford, UK: CAB International. [www.cabi.org/isc](http://www.cabi.org/isc).

<sup>15</sup> University of Arizona, cited at <https://apps.cals.arizona.edu/arboretum/taxon.aspx?id=141>

<sup>16</sup> ANSI A300 (Part 1)-2001, Pruning: Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices (revision and redesignation of ANSI A300-1995, includes supplements). American National Standards Institute, Washington, DC.

<sup>17</sup> Gilman, E., Lilly S. 2002, *Best Management Practices: Tree Pruning*. 2002. International Society of Arboriculture. Champaign, IL.

### **7.1.2 Trees providing a limited useful life expectancy**

#### Trees No. 57, 62 and 67

These trees provide low significance and a SULE rating of A4, based on the habit and ailing condition and could be removed due to the low amenity value and limited useful life expectancy.

### **7.1.3 Trees directly conflicting with the design**

#### Trees No. 57, 58 and 59

These trees are located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is summarised as follows;

Trees No. 57, 58, and 59; based on the landscape drawing (Drawing 6, see Section 4.4.4) within the footprint of the crossover servicing the direct exit from the proposed car parking. The crossover has been retained in a similar footprint as the initial design.

### **7.1.4 Trees subject to a minor encroachment**

#### Trees No. 22 and 36

These trees are not directly located in the footprint of the proposed design, however, are subject to a *minor encroachment*. That is, the proportion (<10%) of encroachment provided by design will not adversely impact on these trees. These trees could be retained relative to the design.

### **7.1.5 Trees subject to a major encroachment**

#### Trees No. 56, 60 and 61

These trees are not directly located in the footprint of the proposed design; however, are located close and adjacent to the design footprint and subject to a *major encroachment*, that is, in excess of 10% of the TPZ. The extent and type of encroachment for each tree are discussed and the relative implications.

Tree No. 56: Encroachment: 22%; based on the landscape drawing (Sheet 5, see Section 4.4.4), the encroachment consists of a proposed crossover servicing the direct entry drive to the RHI building (see Photo 1, Appendix E). The area likely contains a communal type (grafted) root system<sup>18</sup>. This is relevant regarding the beneficial support offered to individual trees that have succumbed to stress<sup>19</sup>, where trees of higher vitality will share assimilates and nurse trees that succumbed to stress. That is, trees that have succumbed to stress from development are aided with support via this communal root system.

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<sup>18</sup> Graham B.F., Borman F.H., 1966, Natural Root Grafts, Botanical Review, Volume 32, pp 255-292

<sup>19</sup> Tarroux E., DesRochers A., Krause C., 2010, Effect of natural root grafting on growth response of jack pine (*Pinus banksiana*) after commercial thinning, Forest Ecology and Management 260: pp 526-535

Based on the construction required for this crossover (see Assumption 2), the results of the soil testing (see Assumption 3) and tolerance related to this species to compaction coupled with the benefit of the communal root system, the crossover is considered to offer minimal impact to the tree.

Although concern exists regarding the root system that will be retained and below the surface of the crossover, where secondary growth will likely compromise the rigid nature of a concrete crossover. For this reason, a surface that employs a flexible surface and complimentary towards root growth are recommended. The conditions No. 1 and 2 provided for tree No. 61 are recommended for the crossover construction.

Tree No. 60: Encroachment: 42%; based on the landscape drawing (Sheet 5, see Section 4.4.4), the encroachment consists of a proposed crossover servicing the direct entry drive to the RHI building (see Photo 1, Appendix E).. The tree is located 250mm from the edge of the crossover, which infers a structure that will be near flush with the root flare. Based on Assumption 2, the related excavation will remove a significant proportion of root zone, and this will not support viable tree retention. Based on the premise, the root system was deeper and formed less impact; the vicinity would limit mature growth and result with damage to the crossover. This tree is unable to be retained based on the proposed design.

Tree No. 61: Encroachment: 14%; based on the landscape drawing (Sheet 5, see Section 4.4.4), the encroachment is divided between the crossover (8 percentage points), and the remaining 6 percentage points are the replacement of the existing asphalt with the 'Exposed Agg concrete' (see Photo 1, Appendix E). The overall encroachment is four percentage points in excess of a minor encroachment.

Based on the construction required for this crossover (see Assumption 2), the results of the soil testing (see Assumption 3) and tolerance related to this species to compaction coupled with the benefit of the communal root system, the crossover is considered to offer minimal impact to the root system contained in this area.

Although concern exists regarding the root system that will be retained and below the surface of the crossover, where secondary growth will likely compromise the rigid nature of a concrete crossover. For this reason, a surface that employs a flexible surface and complimentary towards root growth are recommended. Based on this premise, the following condition is proposed;

1. A surface that is flexible and porous with the minimal foundation is utilised, for example *FiltaPave*<sup>TM,20</sup>.

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<sup>20</sup> <http://www.filtapave.com.au/>

2. The excavation of the crossover is conducted with an air spade, in association with the project arborist. Any significant roots (greater than 20mm in diameter) that conflict with the structure are cleanly cut.

## 7.2 Sub-surface utilities

Based on the drawings referenced as Engineering, subsurface utilities, the proposed electrical, fire, and substation/high voltage service are outside of the zones of protection for all trees. Although the drawing, hydraulic service, illustrates the route for these lines to extend between the tree group (Trees No. 10-31) and substation/RH1 Fire Services Plant, where a potential for encroachment exists. This can be limited to form a minor encroachment for some trees, although is pending on the specific route undertaken because the drawing provides only an arbitrary route only. Based on this premise, the following condition shall be required for the installation of this line;

3. The trench excavation shall not be any closer than 2500mm from trees No. 10-31.

## 7.3 Protection measures

Protection measures and methods are required to be implemented for the following trees before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified. The location of these protective structures is illustrated in Plan 7 and 8, Appendix B.

### 7.3.1 Protective fence: Trees No. 1-5, 10-56 and 61-79

A protective fence is required to be installed to protect the TPZ from all site-related work and are recommended to be located in accordance with the requirements of the AS 4970, illustrated in Appendix C. The fence is required to be secured to the ground with pegs to avoid movement during construction. This must be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phase of the development, and until landscaping works and installation of the drive/cross-over is required.

### 7.3.2 Conditions of demolition: Trees No. 10-56 and 61-79

The following conditions are required during the demolition stages for the zones of protection.

#### **Proposed crossover: Trees No. 56 and 61**

1. Removal of the ground areas fronting Errol Flynn Boulevard for the proposed crossover to the site must have the project arborist on-site during the excavation. As part of this, the project arborist will ensure any root system that is unearthed is cleanly cut.
2. The edges of the proposed crossover must be surveyed, and paint marked. A trench is required to be cut to the depth of the excavation by either hand tools or air spade, and any root crossing the trench can be cut by the project arborist. This

allows machine removal of the portion of ground between the trenches that forms the footprint of the crossover.

3. If an irrigation system is currently in use for these trees, then this must be modified for use for the duration of the works as well as continued use after completion. This will require irrigation lines to be installed beneath the crossover.

**Conditions of demolition: Trees No. 1-5**

The following conditions are required during the demolition stages for the brick wall that forms the back of the planter box containing these trees.

4. Each tree will require a structure to protect the stem from works. The specific method will require confirmation at the time of demolition based on constraints associated with the demolition method and weather, specifically wind. The protection methods shall employ;
  - o Stem protection in accordance with the AS 4970 illustrated in Appendix C and up to 4m height, or
  - o A single timber wall (builders board) extending between the trees and wall proposed for demolition and supported by braces, or
  - o Alternative measures confirmed by the project arborist.
5. The wall demolition will be conditioned and staged. This consists of cuts extending across the length of the wall in pre-nominated sections and based on instruction from the demolition contractor. These will form the points of fracture and dictate the sectioned sizes of the wall that are removed for each stage. Each cut section will be removed by machine located on the western side of the wall.
6. Immediately after the wall removal, a fence, in accordance with Section 7.3.1 will be placed around these trees and preferably (based on stability and risk) be placed on top of the existing wall, otherwise beside the wall.
7. If an irrigation system is currently in use for these trees, then this must be retained in use for the duration of the works.

**Removal of asphalt surfaces: Trees No. 1-5, 10-56 and 61-79**

8. The demolition process must remove all other site structures before the removal of the asphalt surfaces (including the portion of the drive and carpark) that are within the TPZ (3.0m radius). These will be the final structures removed from the site. This will require the project arborist on-site during removal works.
9. Machinery can be used for part of this removal; however, they must always be retained to a hard surface (asphalt). No machine should, on any occasion, work on a soil-based surface within the area of the TPZ.
10. That part of the asphalt surface that falls within the area of 1.5m radius from the girth of any tree must be removed via hand tools, e.g., Jackhammers, etc. removal of the remaining asphalt must disturb as little area beneath the surface as possible. That is, the removal of this area should not carry any soil with it.

11. If machinery is required to enter the TPZ where no hard surface exists, then ground protection methods are required to be employed. Any machinery used within this process must provide for a minimum height of 2500mm, and that sufficient clearance is offered beneath the branch structure and machine to avoid injury. No pruning can occur for access to machinery.
12. Immediately after removal of the asphalt surface, the following requirements are implemented.
13. A mulch layer is required to be installed in the area of the TPZ. The mulch must be composted coarse wood chips to 75-100 mm depth (and no deeper) over the area of the TPZ illustrated within Plan 2, Appendix B. The mulch is required to extend over all areas of exposed ground. The mulch must be maintained at a minimum depth of 75 mm for the duration of the project.
14. A computerised irrigation system is required to be installed over the TPZ and includes a drip type irrigation. The watering schedule must be implemented by the project arborist.
15. A management program utilising the application of a root stimulant is recommended to be initiated. The first application is recommended to initiate immediately after removal of the asphalt seal and continue during Spring and Summer only. The application is recommended to occur once every two months. A non synthetic type is recommended, such as 'Seasol', 'Tri-Kelp', and applied as a diluted root drench via a hose applicator, appropriate to the manufacturers' recommendations. In addition to the soil drench, a carbohydrate treatment includes the addition of 25-50 gms of caster sugar per litre of water. These ingredients can be combined and applied via a single application.

**Removal of the existing fence: Trees No. 10-56 and 61-79**

16. The footings for the posts should be retained in the ground to avoid root disturbance. If these require removal, then a separate Arboricultural Method Statement is required to be drafted by the project arborist, and this will likely require the project arborist on-site during removal works.

**Pruning: Trees No. 8 and 9**

17. The project arborist is required on-site before pruning starts and includes a discussion with the utility arborist to determine the strategy and proportion of pruning to reduce the impact on the trees. The arborist must be in attendance during the pruning and until completion.

**7.3.3 Conditions for compliance**

The following conditions are required before any works proceed on site.

Site induction; All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation

of work. This is required as part of the site induction process.

Project Arborist; A project arborist who conforms to the requirements of the AS 4970 is required to be nominated immediately after a *Notice of Determination* is issued, and they are to be provided with all related site documents.

## 7.4 Compliance Documentation

The following stages will require assessment and documentation (report, letter, certification) by the project arborist or person responsible for the specific work type, and the related documentation is to be issued to the principal certifying agent.

### 7.4.1 Table 2; Assessment/Certification stages

Hold Points	Work type	Document required
Pre-demolition	Installation of the protection measures, Section 7.3	Certificate*
During demolition	See Section 7.3.2, Condition 1 and 2	-
During demolition	See Section 7.3.2, Condition 4-6	Certificate*
During demolition	See Section 7.3.2, Condition 8-15	-
During demolition	See Section 7.3.2, Condition 16	Arboricultural Method Statement, pending works
During demolition	See Section 7.3.2, Condition 17	Certificate*
During construction	Any <u>further works</u> required within the area of the TPZ or decline related to the trees that have not been covered by this report.	Report Brief
During construction	Any crown modification, including pruning or root disturbance.	Report Brief

**Construction** refers to the time between the initiation of demolition and until an occupation certificate is issued.

**\*Mandatory**

## 9.0 Summary of tree impact

Based on the design supplied, the following summary provides the impacts imposed on the trees included in this report.

### 9.1 Trees No. 1-56 and 61-79

These trees can be retained relative to the nominated zones of protection (TPZ, SRZ) and based on the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees. The following conditions are required for specific trees;

#### 9.1.1 Tree No. 8 and 9

Based on the architectural (Section 4.4.2) drawings, the proposed two-story mixed-use building (containing a netball court, rehabilitation areas, office areas, and a wet recovery area) will conflict, and the predominant proportion of the dripline that extends over the wall will require pruning. The estimated crown mass in conflict is not considered to pose a detriment to the tree and is capable to be pruned in accordance with the AS 4373.

#### 9.1.2 Tree No. 56 and 61

The following conditions are recommended for the crossover construction;

1. A surface that is flexible and porous with a minimal foundation is utilised, for example *FiltaPave*<sup>TM,21</sup>.
2. The excavation of the crossover is conducted with an air spade, in association with the project arborist. Any significant roots (greater than 20mm in diameter) that conflict with the structure are cleanly cut.

#### 9.1.3 Trees No. 10-31

The following condition shall be required for the installation of the hydraulic service

3. The trench excavation shall not be any closer than 2500mm from trees No. 10-31.

### 9.2 Trees No. 57, 58, 59 and 60

The proposed design will require the removal of these trees.

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<sup>21</sup> <http://www.filtapave.com.au/>

### 9.3 Trees No. 57, 62 and 67

These trees provide low significance and a SULE rating of A4, based on the habit and ailing condition and could be removed due to the low amenity value and limited useful life expectancy.

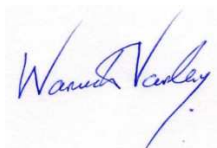
### 9.4 Protection measures

Protection measures (outlined in Section 7.3 and 7.4) are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

A project arborist is required to be nominated, and the stages and related certification or similar documentation is to be issued to the principal certifying agent.

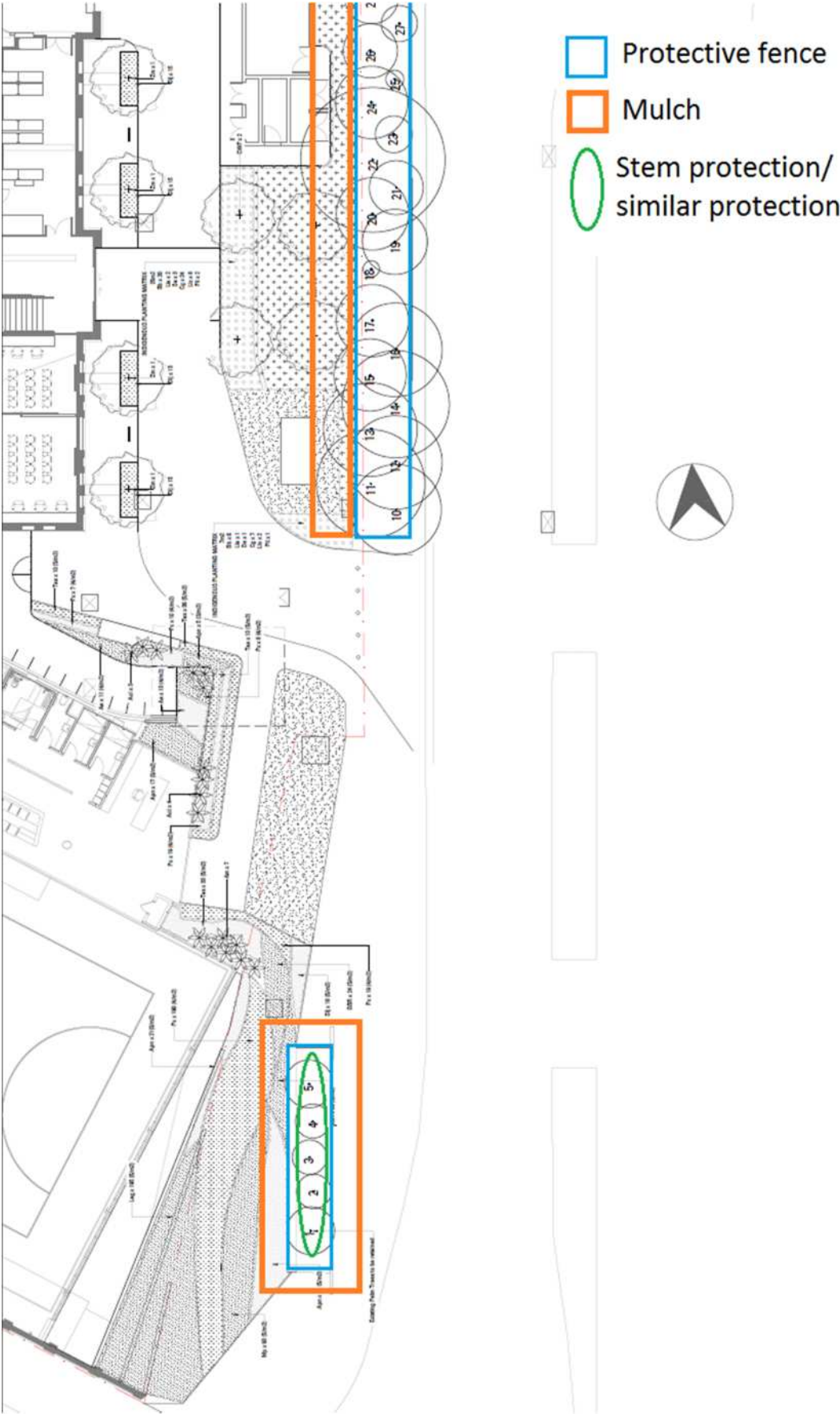
**The opinions expressed in this brief by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.**



Warwick Varley  
Consulting Arborist  
Level 5 and 8; Arboriculturist  
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Appendix B- Plan 7; Location of Protection measures, trees No. 1-5 and 10-28



Not to scale  
Source: Adapted from *Arcadia P/L*, Drawing 4 (E), see Section 4.4.4



**Appendix D- Pruning schedule**

Branches nominated for removal based on conflict with the proposed design

See Photos 2 and 4, Appendix E

**Table 3. Tree No. 8; *Jacaranda mimosifolia*, (Jacaranda)**

ID	Tree part	Dia; collar	Length	% of crown mass	Cardinal direction/ degrees	Notes
A	2 <sup>nd</sup> order	30mm	1m	3%	North	-
B	epicormic	40mm	2m	1%	North	Epicormic shoot
C	1 <sup>st</sup> order	120mm	5m	8%	North	-
D	1 <sup>st</sup> order	130mm	5m	8%	North	Hazard beam crack

**Table 4. Tree No. 9; *Liquidambar styraciflua*, (Sweet Gum)**

ID	Tree part	Dia; collar	Length	% of crown mass	Cardinal direction/ degrees	Notes
A	1 <sup>st</sup> order	100mm	6m	5%	North	Lowest branch extending from eastern leader
B	2 <sup>nd</sup> order	70mm	4m	3%	North	extending from central leader
C	2 <sup>nd</sup> order	40mm	3m	2%	North	extending from eastern leader
D	Twiggy material	<20mm	<1.5m	3%	North	Predominately extending from western leader

**Key**

ID; Letter assigned to the tree part, labeled in regard to attached photos

Tree part; specific part of the tree in regard to the crown structure/branch order

Dia. collar; estimated diameter (measured in millimetres) of the tree part measured at the collar/base

Length; estimated length of the tree part (measured in metres) measured as a horizontal distance from where the tree part initiates to the distal end.

% of crown mass; estimated percentage of the tree part that the foliage consumes as a proportion of the entire crown mass.

Cardinal direction; the cardinal direction that the branch extends towards.

Notes; comments relative to the tree part

## Appendix E- Photos



**Photo 1; Area of proposed crossover relative to numbered trees No. 56-61. The yellow lines indicate the edge of the proposed crossover. The location of the test pits are indicated by TP1 and TP2. Facing west.**

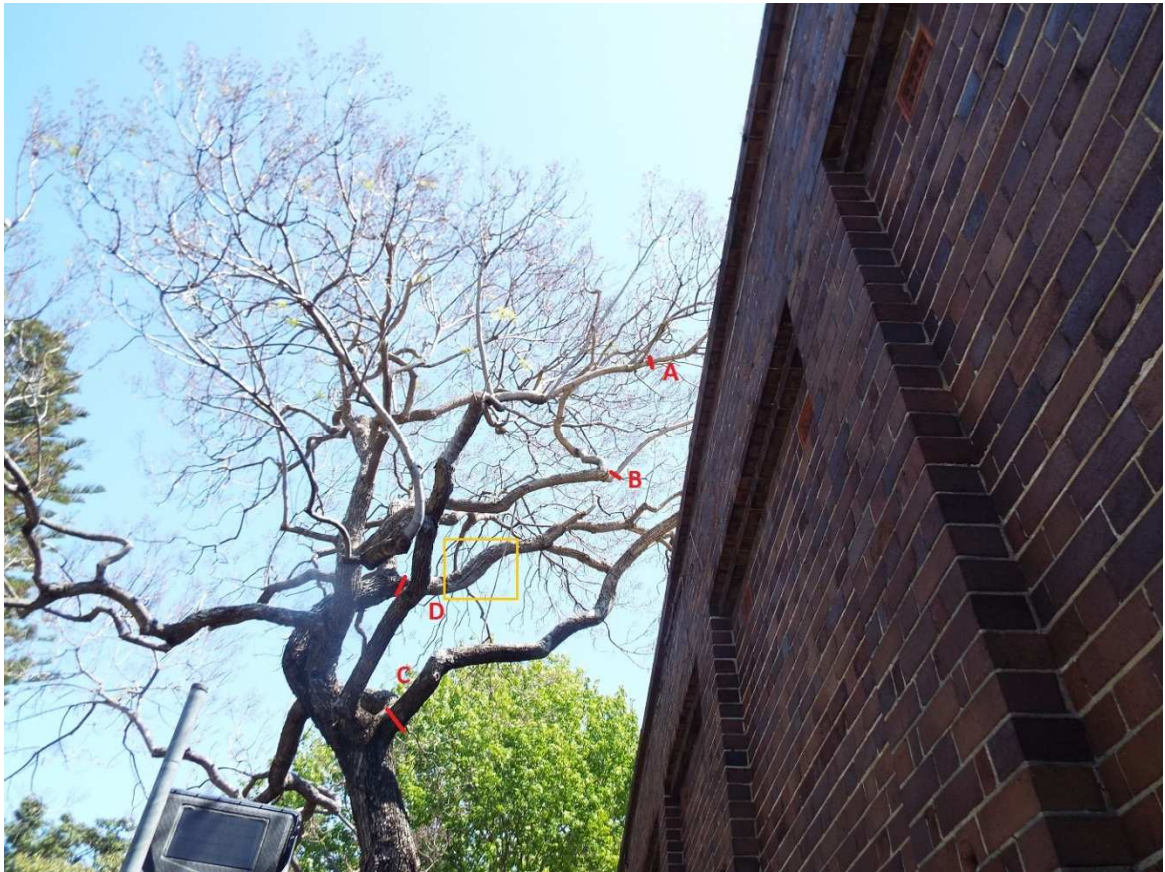


Photo 2; Tree No. 8; Jacaranda, labelled branches nominated for removal based on the pruning schedule (Appendix D), yellow insert; see Photo 3,. Facing west.

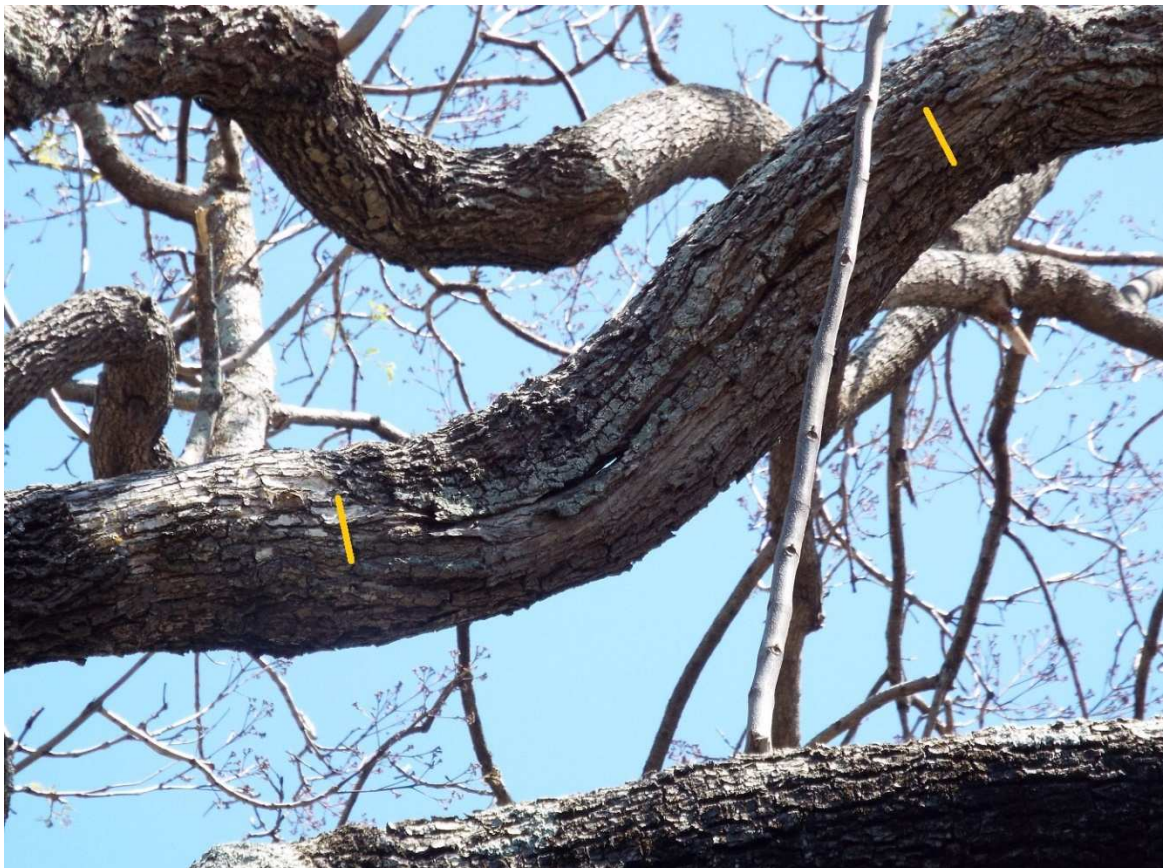
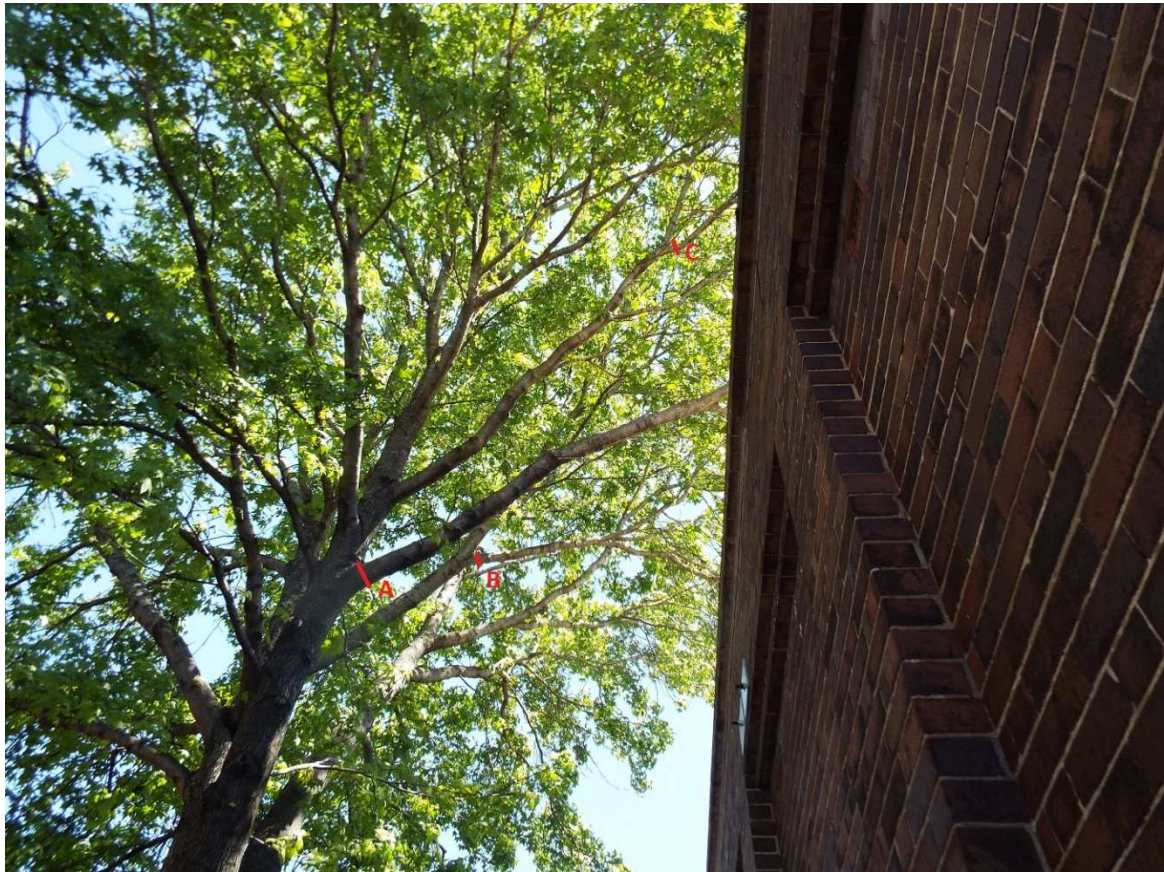


Photo 3; crack within branch labelled D, extremity of the crack illustrated with yellow lines, Facing west.



**Photo 4; Tree No. 9, Sweet Gum, labelled branches nominated for removal based on the pruning schedule, Appendix D. Facing west.**



**ALLIED TREE**  
CONSULTANCY

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Reference: **3355A**

28<sup>th</sup> October 2018

Urbis Pty Ltd.

**Arborist Note: Royal Hall of Industries; CROSSOVER OPTIONS**

**Re: Royal Hall of Industries**

**Lot 3, (D.P.861843) and Lot 52 (D.P.1041134)**

**No. 1 Driver Avenue, MOORE PARK**

**Existing**

Conflict: Trees No. 57, 58, 59, 60 and 61 (where No. 57 provides poor form)

Tree No. 56 subject to a major encroachment (22%) although supported for retention.

Tree No. 61 subject to a major encroachment (14%) although supported for retention.

**SUMMARY:**

- Four trees (one poor form) require removal,
- Two trees subject to major encroachment

**Alternative** (move crossover towards north)

The intent is to take advantage of two trees in this area that provide poor form (Trees No. 62 and 63)

Conflict: Trees No. 59, 60, 61, 62 and 63 (where No. 62 and 63 provides poor form)

Trees No. 58 and 64 subject to a minor encroachment (10%) adjacent to either side of crossover

**SUMMARY:**

- Five trees (two poor form) require removal,
- Two trees subject to minor encroachment