

# *Ulmus procera* (English Elm) adjacent to the CIVITAS Stage 3 development site

## Arborist Report



*A Report to;*



*Prepared by;*



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May 2024,  
Ref 24/475A.

# *Ulmus procera* (English Elm) adjacent to the CIVITAS Stage 3 Development Site – corner of Murray and Morgan Streets, Wagga Wagga.

## **1 Introduction**

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Mark D. McCrone, consulting Arborist and Landscape Architect, has been engaged by Mr. Manuel Donebus, Damasa Pty. Ltd., to prepare a report on a tree adjacent to the CIVITAS Stage 3 development site on the corner of Murray and Morgan Streets, Wagga Wagga. Observations and recommendations regarding the subject tree are recorded and discussed in the following report.

## **2 Report Background, Purpose and Scope**

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Design development is currently being undertaken for the CIVITAS Stage 3 project. Adjacent to the development site is a English Elm tree which wasn't considered in the project's DA Tree Assessment, as it was not designated for removal. Manuel Donebus has commissioned, to augment the information available to the project's architect, a written report on the current condition of the tree and an outline of the impact the implementation of the development could have on it.

This tree report will include;

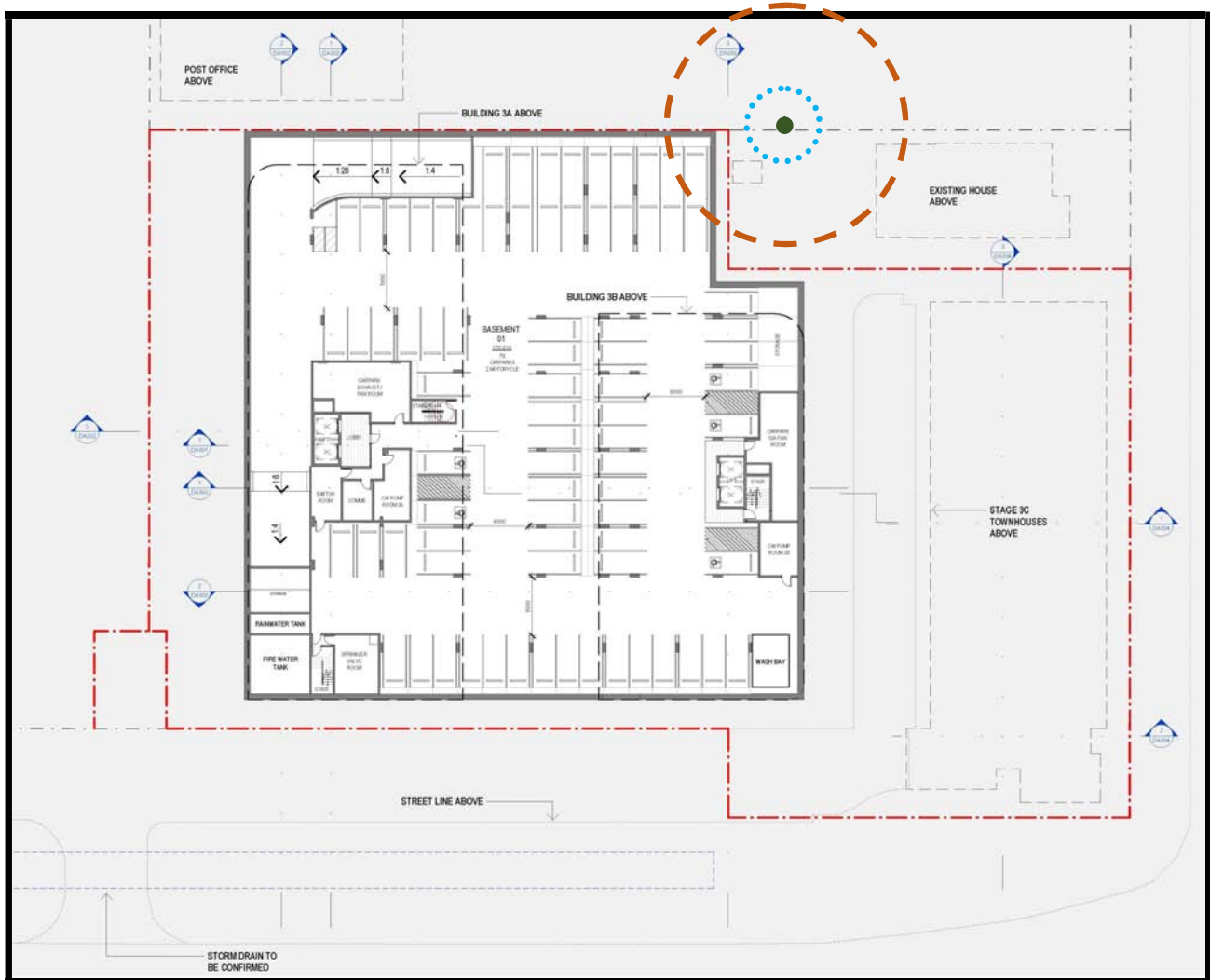
- a recording of the tree's species, diameter at breast height (DBH) and height;
- a description of the tree's current condition & vigour, and its crown & structural viability (identifying any existing hazards) ; and
- a detailed outline of the provisions of AS4970-2009; *Protection of trees on development sites* as they relate to the subject tree.

The project's proponents have provided background information, including DA Building Design Drawings for the development, to assist in this report's preparation. The development site's location is shown in Exhibit 1. An extract from the project's DA Drawings, highlighting the position of the subject tree, is included as Exhibit 2.



**Exhibit 1** – Locality Plan; CIVITAS Stage 3, with the canopy of the subject tree highlighted (in **Yellow**).

Source; <https://maps.wagga.nsw.gov.au/intramaps90>



**Exhibit 2** – An extract of CIVITAS Stage 3 DA Plans (Floor Plan – Basement 01), with the approximate position of the subject tree’s stem shown in **Green**. The tree’s Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) are also shown diagrammatically – the TPZ in **Brown** and the SRZ **Blue**.

Source; Morrison Design Partnership

### 3 Description of the tree's current condition

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The tree is an English Elm (*Ulmus procera*) in its mature age growth phase and of large physical proportions (Exhibit 4). The tree was measured to be of the following dimensions;

<b>Diameter at breast height (DBH);</b>	1,000mm
<b>Diameter above the root buttress (D);</b>	1,100mm
<b>Height;</b>	20m

*Note; The precision of the DBH and D measurements was compromised by the position of the tree in relation to an existing boundary fence. Those provided are accurate to +/- 50mm.*

While it is difficult to be definitive about the age of trees, historical aerial photographs allow an estimation of this, and a chronological record of the development of the urban landscape infrastructure that now surrounds it (see Exhibit 3). Based on this evidence it possible that the tree was in its early mature growth phase (5 to 10 years old) in 1971, and it is therefore estimated to be approximately 55 to 65 years old. A healthy lifespan of 100 to 150 years is considered a realistic expectation for elms in Australia, provided they are well maintained (Spencer, 1991).

The tree has experienced some previous pruning events, with contemporary evidence of weight reduction pruning by shortening some of its leaders to around 6 to 10 metres from the ground (see Exhibit 7). There is also evidence of (minor) storm damage in its crown (see Exhibit 8).

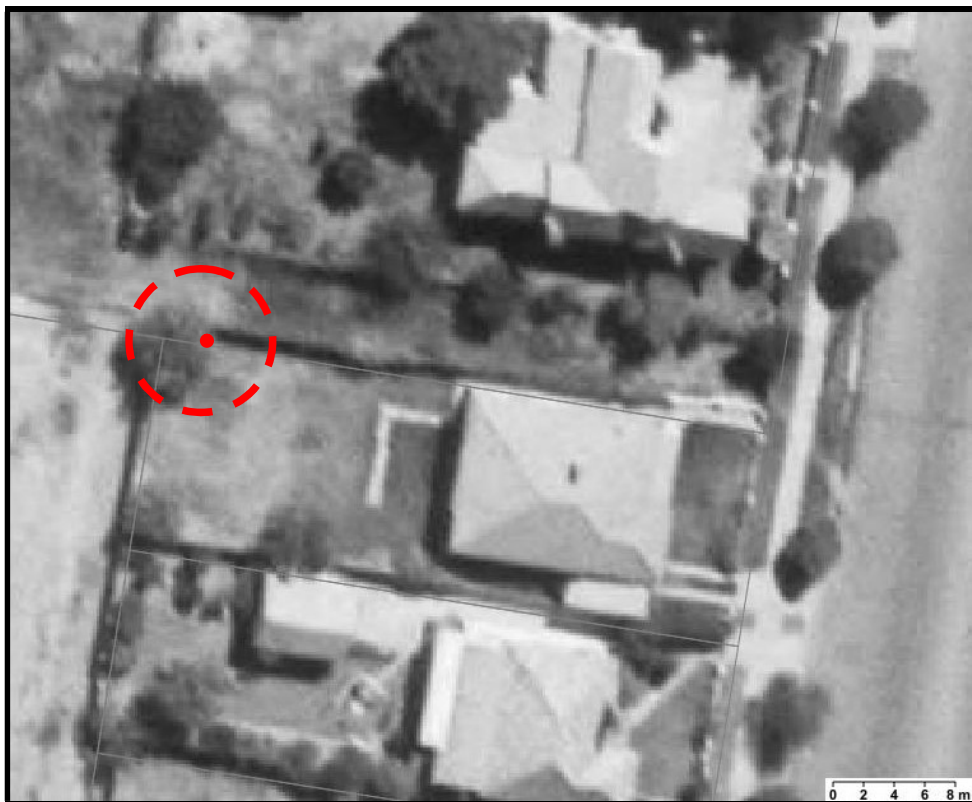
The tree's northern root plate has been "sealed" by the construction of a concrete surfaced car park (see Exhibit 6), and its stem is displacing a boundary fence to its immediate south (see Exhibit 5)

There is also evidence of the recent season foliage's skeletonisation (Exhibit 4), the effect of the emergent larvae of the Elm Leaf Beetle (*Pyrrhalta luteola*). This pest is now naturalised in south-east Australia with its impact on Elm trees varying season to season. The current season's impact would be described as minor.

Overall the tree can be described as being in Good Condition – a tree of good habit, a form not severely restricted for space and light, physically free from the adverse effects of predation by pests or disease, obvious instability or structural weaknesses, and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it do not alter greatly. As noted previously, it can potentially provide amenity to its setting for another sixty to eighty-five years.



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**Exhibit 3** – Contrasting aerial photographs, dated 2020 (**Upper** image) and 1971 (**Lower** image), showing the position of the subject tree. Source; <https://maps.wagga.nsw.gov.au/intramaps90>

## T r e e   A p p r a i s a l   R e p o r t

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**Exhibit 4** – The tree is a large English Elm (*Ulmus procera*) that is a prominent landscape element in its setting (**Main** image). Despite the on-going impact of the Elm Leaf Beetle (**Inset** image) the tree is in Good condition.

## T r e e   A p p r a i s a l   R e p o r t



**Exhibit 5** – Various images of the tree’s lower stem and its positioning in relation to a boundary fence, which is being displaced by the trees’s growth.

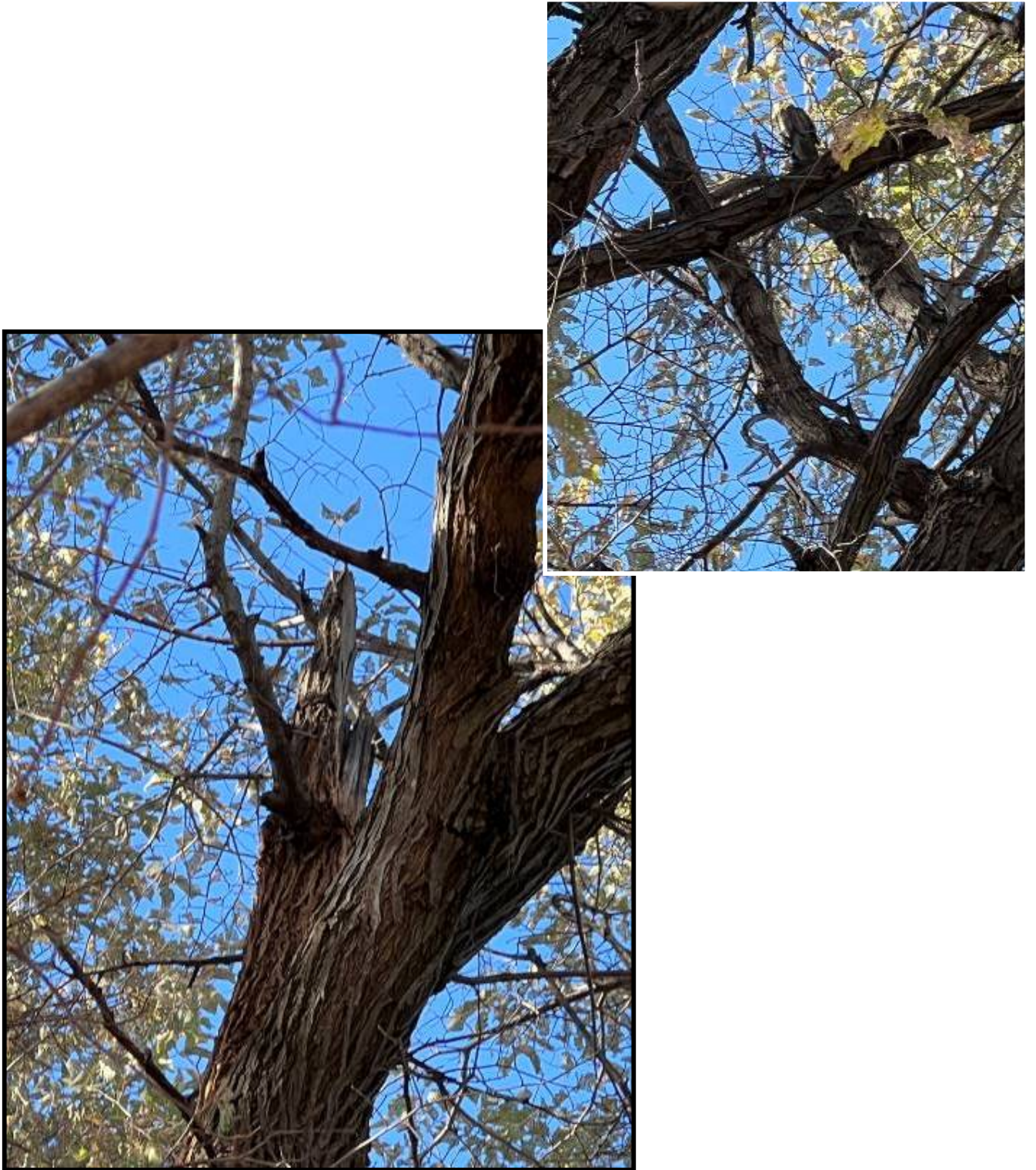
**T r e e   A p p r a i s a l   R e p o r t**



**Exhibit 6** – The tree’s northern root plate has been “sealed” by the construction of a concrete surfaced car park. The cracking and displacement of the concrete surface (and kerb) is probably attributable to the continued growth of the tree’s structural roots.



**Exhibit 7** – Sites of previous weight reduction pruning by shortening some of the tree’s leaders to around 6 to 10 metres from the ground. The pruning cuts show healthy occluding tissue and no signs of decay (**Upper right**)



**Exhibit 8** – Sites of previous (minor) storm damage in the tree’s crown. A (south) central leader (**Left**) and in the upper southern crown (**Upper right**)

**T r e e   A p p r a i s a l   R e p o r t**

## 4 AS4970-2009; *Protection of trees on development sites*

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### 4.1 - Tree Protection Zones (TPZs)

The tree protection zone (TPZ) is the principal means of protecting trees on development sites – the area that is to be isolated from construction disturbance, so that the tree remains viable.

The radius of the TPZ is calculated for a tree by multiplying its trunk diameter at 1.4m above ground (DBH) by twelve, with the radius measured from the centre of the stem at ground level. A TPZ should not be less than two metres nor greater than fifteen metres.

Based on the tree measurements given in Section 3 the radius TPZ for the subject English Elm is 12 metres (1.0m X 12). This TPZ is illustrated diagrammatically in the development plan included as Exhibit 3.

The existing English Elm tree has a TPZ area of approximately 450m<sup>2</sup> and the area of the segment of that (TPZ) area that could be disturbed by the proposed development is approximately 24.3m<sup>2</sup>. This equates to an encroachment of approximately 5.7%. It should be noted that this area of disturbance is currently occupied by a building, the construction of which would have impacted on the tree's root plate which is probably now limited in this area (due to unfavourable ground conditions).

AS4970-2009 allows for minor encroachment (less than 10%) of a tree's TPZ with the area of encroachment lost compensated for elsewhere contiguous with the TPZ, which is possible to the tree's east and south.

### 4.2 - Structural Root Zones (SRZs)

The SRZ is the area required for tree stability and only needs to be calculated when encroachment into a TPZ is proposed. AS4970-2009 determines the SRZ by application of the following formula;

$$\text{SRZ (radius)} = (D \times 50)^{0.42} \times 0.64$$

where *D* = trunk diameter, in metres, measured above the root buttress.

The resultant SRZ for the subject English Elm is 3.64 metres. This SRZ is also illustrated diagrammatically in the development plan included as Exhibit 3. It is expected that it should not be impacted by the proposed development. Again, it is noted that the tree's SRZ may have been encroached by the paving and kerbing of the concrete carpark that now exists to its north (see Exhibits 5 and 6).

### 4.3 - Discussion

The calculations of a tree's TPZ or SRZ are based on the assumption that a tree's root plate is concentric around the tree stem, which isn't always the case, especially in highly man-modified landscapes. In the subject circumstances it is possible that, due to surrounding structures and land use history, the subject English Elm may have a "bias" toward root growth to its east and south. The impact of the proposed building works are to the west of the tree, an area which is currently occupied by a building, the construction of which would have impacted on the tree's root plate, which is probably now limited in this area.

Given all the above, the long term viability of the English Elm could be maintained after the implementation of the proposed works, and its structural stability should not be compromised.



**Exhibit 9**– The tree’s current canopy, viewed from the south-west. Pruning off the lower western lateral, as indicated by the **broken white line**, would remove most canopy encroachment of the existing building and of the proposed construction site.

T r e e   A p p r a i s a l   R e p o r t

#### 4.4 – Requisite pruning of the English Elm

The canopy spread of the subject tree already encroaches on a building to its west. This building will be demolished with new construction work to be undertaken within its footprint. The tree should be pruned to limit this encroachment. An appropriate approach to this work is illustrated in Exhibit 9. Any necessary pruning work should respect and retain the tree's natural form and amenity, and be performed in accordance with AS4373 – 2007 *Pruning of amenity trees*.

### 5 Recommendations

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The size, streetscape amenity value, and current condition warrants that the tree should be retained in the post development landscape, with minor pruning to remove any encroachment of its crown on the construction site of the proposed building (see Exhibit 9).

The subject tree, if retained, should be given full and adequate protection during construction works (in accordance with AS4970-2009; *Protection of trees on development sites*) and all necessary work undertaken on it should be carried out in accordance with AS4373-2007; *Pruning of amenity trees*.

The implementation of a more suitable construction detail, which accommodates the expanding tree stem, for the existing boundary fence that the tree is next to is also recommended.

Finally, it should also be noted that trees cannot be guaranteed 'risk free'. All trees represent some degree of risk. Arboriculture is not an exacting science; rather it is an educated interpretation of the interaction of edaphic and environmental circumstances which are, of course, subject to change over time. This report documents such an interpretation of evidence available at the time of the trees' inspection.



Mark McCrone  
May 2024.

### 6 Further Information

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Further details or clarification with respect to any matter raised by this report may be obtained from **Mark McCrone** on 04 0790 7958 or via email to [larch\\_therock@bigpond.com](mailto:larch_therock@bigpond.com).

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## References

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Spencer, R., 1991. *Elms in Australia*. Royal Botanic Gardens:South Yarra.

Standards Australia, 2007. *Pruning of amenity trees: AS 4373 – 2007*. SA: Sydney.

Standards Australia, 2009. *Protection of trees on development sites: AS4970-2009*. SA: Sydney.

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