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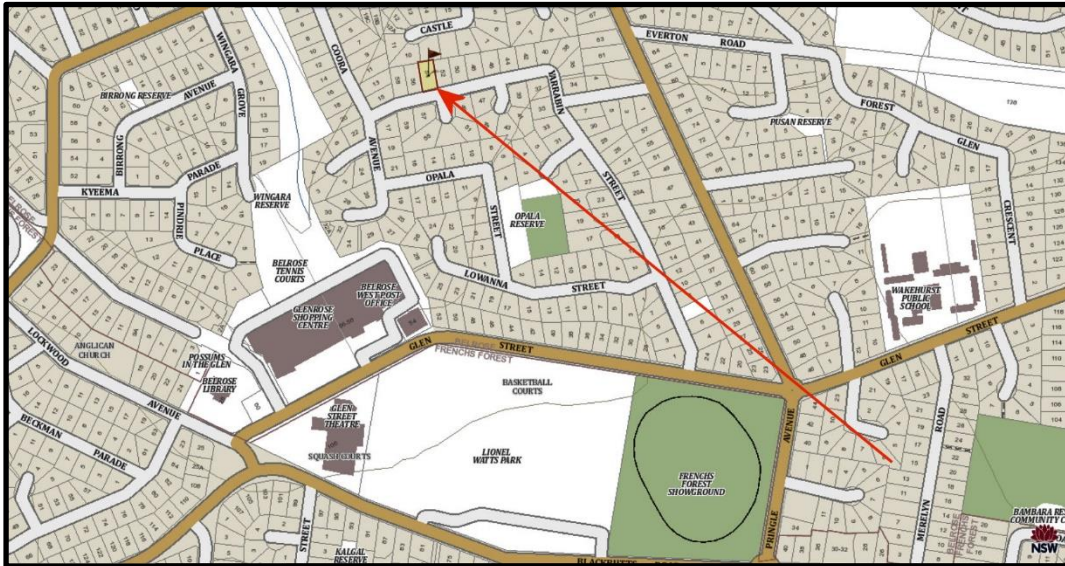
Inspection of a  
mature  
Corymbia  
citriodora  
located on 52  
Yarrabin  
Street, Belrose

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## 1 Issue

1.1 I have been asked to inspect a mature *Corymbia citriodora* (Lemon-scent Gum), located on front of 52 Yarrabin Street, Belrose, closely adjoining 52 Yarrabin Street, Belrose. (See Figure 1).



**Figure 1: Showing the location of the subject site (from Sixmaps 2020)**

1.2 Health of the trunk, branches and exposed roots were assessed by examination for insect and pathogen invasion, scarring, bark splitting and excess shedding, death of major branches, known structural weakness indicators and physical or mechanical damage, using the Visual Tree Assessment Method (VTA) to Stage 1, which includes use of a sounding (acoustic) hammer. (Mattheck & Breloer 1994, pp. 12–13, 145). No internal examination of any trees was conducted;

1.3 The Crown Width was measured, by a laser distance measuring instrument, from the centre of the tree out to the edge of the crown along the four points of the compass, North, South, East and West;

1.4 The height was calculated by multiplying the percentage angle, measured by a Suunto Inclinometer, by a distance from the tree, measured by a laser distance measuring instrument;

1.5 The lean of the tree was measured using a Suunto clinometer;

1.6 The allotment was inspected on 29<sup>th</sup> September 2020;

1.7 This report has been prepared for Debra Kasmar.

## 2 Background

2.1 The tree is a mature *Corymbia citriodora* (Lemon-scented Gum). The tree is located in the front of 52 Yarrabin Street partially within the road reserve and closely adjoining 54 Yarrabin Street. (See Figure 2) The tree is present in the 1990s Aerial Photograph series as a large mature tree (DCS 2020);

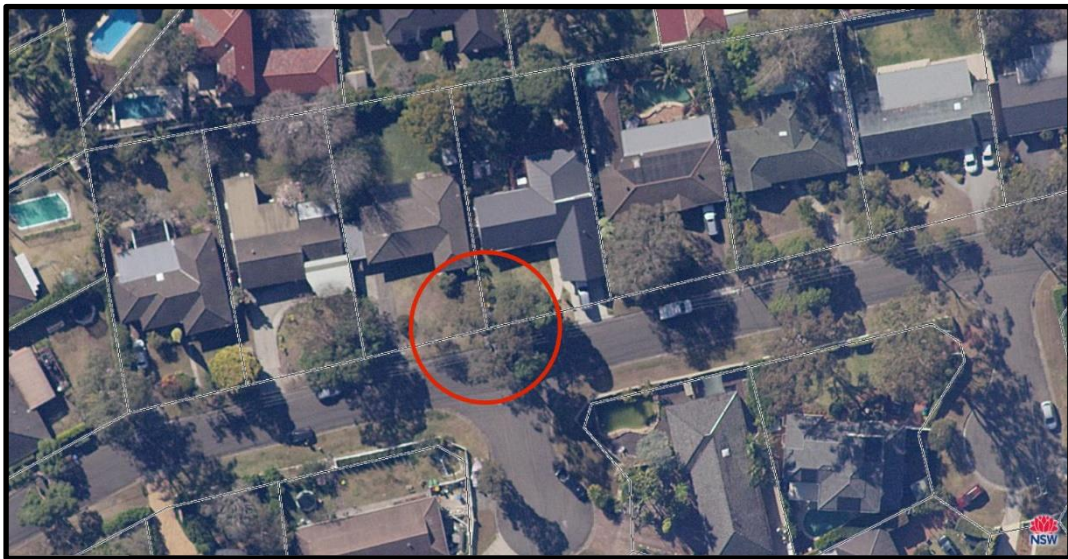


Figure 2: Showing the location of the tree on 52 Yarrabin Street

2.2 The lemon-scented Gum is 22.2 metres high with a north south crown spread of 13.7 metres and an east west crown spread of 15.6 metres (See Table 1).

Table 1: Tree Data

Scientific Name	Common Name	Estimate Age(years)	Crown Width (Metres)				Tree Height (metres)
			N	S	E	W	
<i>Corymbia citriodora</i>	Lemon-scented Gum	40 plus years	5.68	8.07	6.20	9.41	22.2

## 3 Current Situation

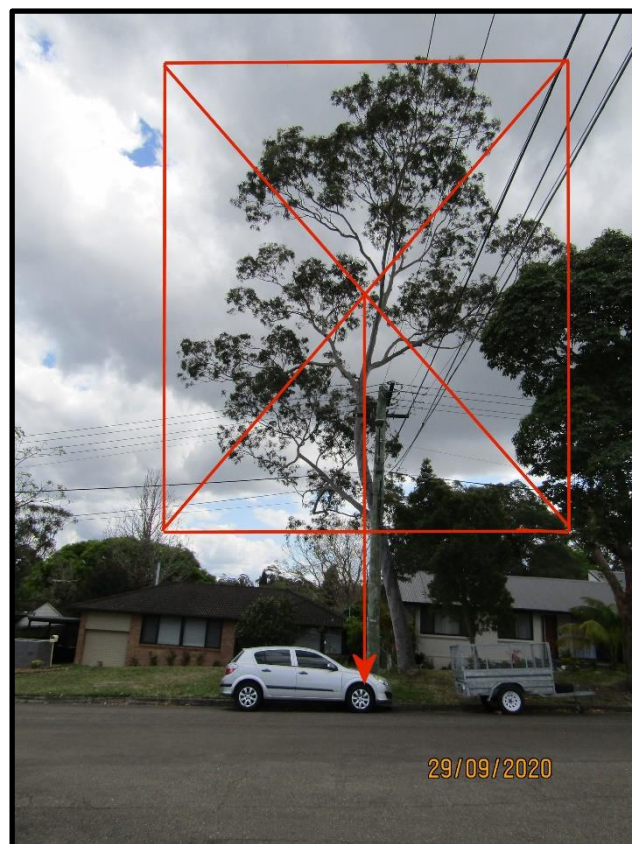
3.1 The Lemon-scented Gum is displaying a long-term lean with the trunk curving upwards in attempt to straighten the trunk. This has resulted in the lower trunk leaning to 32% to the vertical. (See Figure 3) Further, the tree's attempt to straighten the trunk has resulted in an exaggerated curve (See Figure 3);





**Figure 3: Showing lean on the trunk of the Lemon-scented Gum and apex of the Lemon-scented Gum's trunk's curve**

- 3.2 The Lemon-scented Gum's crown is unbalanced and off-centre, which is placing further loading on the curved hazard beam trunk. (See Figure 4) There are reaction wood ribs forming at the base of the trunk.



**Figure 4: Showing the position of the centre of gravity of the crown. The load passes across the apex of the trunks curve, placing addition loading on the curves' apex.**



**Figure 5: Showing the developing reaction wood ribbing at the base of the trunk, indicating excessive movement**

#### **4 Comment**

- 4.1 In regards to the trunks lean of 32% to the vertical, Williams (2015) states that: - *“Leaning trees are more of a hazard than those growing vertically. A sudden lean indicates breakage or weakening of roots and tree should probably be removed immediately. A tree leaning more than 15% from vertical probably should be removed.”* The Lemon-scented Gum’s greatly exceeds the suggested limit by Williams (2015);
- 4.2 In an attempt to grow straighter, the trunk has developed into a hazard beam at the curve apex. (See Figure 6) Draper and Richards (2009) P. 73 define a hazard beam as *“Occurs where a stem that curves upwards is bent in the opposite direction to the curve as a result of excessive loading forces causing a longitudinal split along the stem (Mattheck 1999, p. 30).”*. This trunk has the potential to fail under excessive loading at the apex of the curve on the trunk;





**Figure 6: Showing the curve apex**

- 4.3 The unbalanced crown has the potential cause failure, Kuser (2013) P.247 states that *"Trees with unbalanced, asymmetrical crowns have weight distribution poorly over the stem. These trees are more prone to failure when combined with other defects, such as decay or root disease."* There is load caused movement in the trunk of the Lemon-scented Gum, which is being displayed by the development of reaction wood ribbing at the base of the trunk of the tree. The reaction wood is forming under the weight of the unbalanced crown. If the tree is showing physical signs of movement in the trunk, the movement is excessive;
- 4.4 This tree is displaying several different but related issues that indicate that the tree has the potential to fail under extreme weather conditions, either fall or structurally fail at the curve apex. Mattheck (2007) P 17 suggest that the development of hazard-beam cracks can be dangerous when they develop in stems (trunks). There is a very high possibility of a hazard-beam cack developing at the curve apex. Further, the compression reaction ribs, at the base, suggest that the tension side of the tree is under increased load, which can lead to a shear root ball (Mattheck 2009 P.34). Overall this tree must be regarded as potentially dangerous ;

## 5 Recommendations

The Lemon-scented Gum should be removed.

A handwritten signature in black ink that reads "Malcolm Bruce". The signature is written in a cursive style with a small flourish at the end.

Malcolm Bruce

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