

MEMORANDUM

Date	10 July 2017	Title	Wattle Grove Flora, Vegetation, Fauna and Biophysical Assessment
Ref.	PHA17001/01	Distribution	Brian LaFontaine (Peter Hunt Architect)

Background and Scope of Work

An area of Lot 28 Lewis Road, Wattle Grove is proposed for the construction and operation of a building that will serve the purposes of a place of worship, a sanctuary and a community centre.

In order to construct the building and an associated car park, an area of trees is required to be cleared. Additional trees have also been proposed to be removed to reduce fuel loads and therefore bushfire risk.

Peter Hunt Architect were engaged by the project team to design the building and assist with management of the project. Accordingly, Peter Hunt Architect, have, on behalf of the proponent, commissioned Focused Vision Consulting Pty Ltd (FVC) to undertake an assessment of the proposed clearing area, to determine the general flora, vegetation and fauna values, and the requirements for a Native Vegetation Clearing Permit (NVCP).

A perennial stream flows through a section of the site, approximately 80 m from the closest edge of the proposed clearing footprint. Accordingly, a request made by the Department of Water for a Biophysical Assessment to be carried out at the site, to determine the set-back requirements of the development, that would ensure the protection of the stream's foreshore and therefore preservation of the bank and riparian vegetation. This correspondence also addresses a general Biophysical Assessment.

Methodology

An inspection of the study area was conducted by Principal Ecologist, Kellie Bauer-Simpson, on 27 June 2017.

The inspections were made on foot, and included a brief inspection of the stream and foreshore in the location proposed for the later development of a vehicular crossing, and a focused inspection of the proposed clearing area which included individual co-ordinate recordings of all native trees present within the footprint. Other trees previously marked by a Bush Fire Consultant as suggested for removal to reduce field loads were also recorded.

Records of tree location and information including species, size and whether or not they were marked for removal were recorded in an electronic tablet device, equipped with GPS, coupled with mobile mapping software program, Mappt™.

Once uploaded, field data was used to conduct spatial analysis of trees proposed to be cleared.

Field observations and data were then considered in relation to:

- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*
- A Guide to the Exemptions and Regulations for Clearing Native Vegetation Under Part V of the Environmental Protection Act 1986 (Department of Environment Regulation 2014)
- EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii* and Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso* (Department of Sustainability, Environment, Water, Population and Communities 2012)
- Operational policy 4.3: Identifying and establishing waterways foreshore areas (Department of Water 2012)
- Determining River Foreshores (Water and Rivers Commission 2001).

Results and Discussion

Flora and Vegetation

The area proposed to be cleared for a building and car park does not support intact native vegetation. The vegetation in this location comprises only trees over a sparse understorey of introduced grasses and other weeds. There is no intact native understorey present. Many of the trees present are native, *Corymbia calophylla* (Marri), which was the only endemic (locally-native) species that was observed. The site also supports several non-endemic trees, mostly *Eucalyptus citriodora* (Lemon-scented Gum) (**Plates 1 and 2**).



Plate 1: Habitat present at the site, showing non-endemic Lemon-scented gums in the foreground and native Marri trees beyond (photograph taken from the eastern corner of the site, with a west facing view)



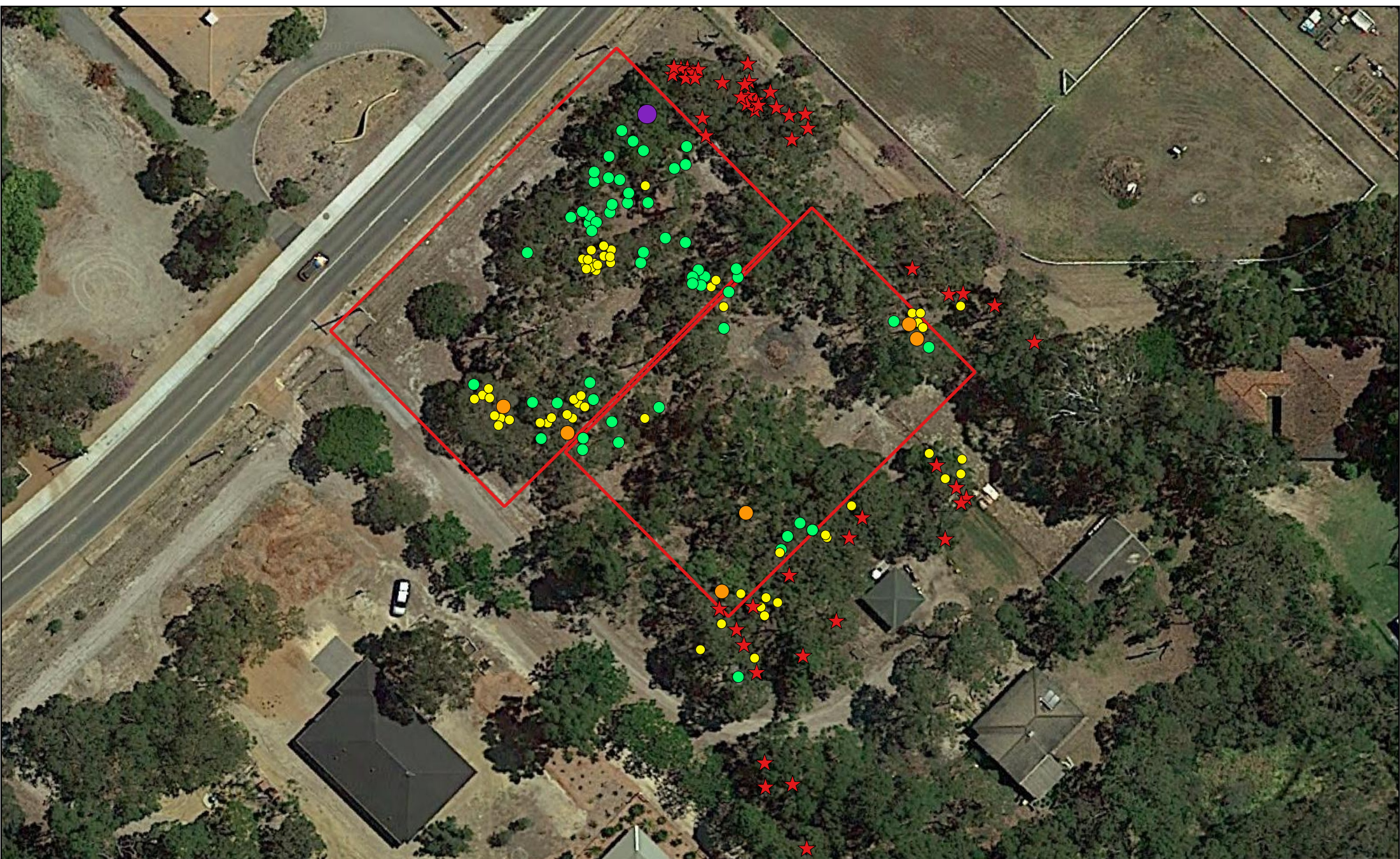
Plate 2: Habitat present at the site, showing native Marri trees (photograph taken from the north-west corner of the site, with an east facing view)

The location of each of the Marri trees present within the proposed clearing footprint is shown in **Figure 1**, which also shows trees outside the proposed clearing footprint that were found to be marked on site, therefore proposed for removal for fire fuel load reduction. Recorded trees that have been proposed to be retained are also shown.

The proposed car park area at the front of the site encompasses 77 Marri trees likely to be cleared within the footprint, or in nearby surrounds to be removed for fuel reduction. Most of these trees are small or medium, with two being large (with a diameter at breast height greater than 500 mm) and one very large tree at the northern edge of the site (**Figure 1**).

The proposed building area encompasses a total of 41 Marri trees within the footprint, or nearby and proposed for removal for field reduction. Most of these trees are medium, and some small, with four measured as large. The centre of this footprint also supports some large, non-endemic Lemon-scented gums, which would be required to be cleared for the building constructions.

The condition of the vegetation within the proposed clearing footprint was assessed in accordance with the currently accepted scale for vegetation condition, as per Environmental Protection Authority (EPA) technical guidance for flora and vegetation assessments (EPA 2016), which is an adaptation of the Keighery (1994) and Trudgen (1988). The scale considers vegetation condition in terms of weed proportions, disturbances and retained structure; the condition of the vegetation present within the. In accordance with the scale, the vegetation within the proposed clearing footprint is considered to be 'Degraded to Completely Degraded'.



0 5 10 15 20 25 metres

GDA 94 / MGA Zone 50

Figure 1 - Marri Tree Locations

N

Trees to be cleared

● Small

● Medium

● Large

● Very Large

★ Trees to be retained

▭ Proposed Clearing Footprint

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Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, clearing of native vegetation for certain purposes is exempt from the need for a clearing permit. Two such purposes that are relevant to the project area are:

1. Clearing for the lawful construction of a building (under Regulation 5, Item 1), provided that:
 - a. Clearing does not exceed 1 hectare in each financial year
 - b. Clearing is done by, or with the prior authority of the owner of the property
 - c. The clearing is only to the extent necessary for the building construction
 - d. The vegetation is not riparian vegetation.
2. Clearing under the *Bush Fires Act 1954* (under Section 1 – Schedule 6), provided that:
 - a. Clearing is conducted by a bush fire control officer to construct fire breaks or to control the spread of fire.

The above clearing exemptions therefore apply to the proposed footprint of the building, and all trees outside this recommended to be cleared by the bush fire consultant (and marked on site as such), for the purposes of fuel load reduction, and therefore to control the spread of fire. This area of proposed clearing (the area that encompasses trees including their dripline) totals approximately 0.20 hectares.

The area proposed to be cleared for the purposes of a carpark, shown directly adjacent to Lewis Road in **Figure 1**, totals approximately 0.25 hectares, where trees including their dripline are considered. A NVCP may be required to enable clearing of this area, given the fact that native species are supported, and no exemption applies to the proposed clearing. However, consultation with the Department of Environment Regulation (DER) may determine that a permit is not required, given the small area and degraded nature of the vegetation.

Fauna

The vegetation within the proposed clearing footprints provides limited, although some habitat for native fauna, including birds, reptiles and potentially small mammals. Mammal occupation of the area is considered unlikely, or limited at best, given the relatively built-up nature of the semi-rural urban surrounds, and proximity to roads, as well as the likely high pressure that domestic animals (predominantly cats) would pose to such species. Small reptiles are likely to utilise the site, although understorey and protective ground cover is limited for reptiles and mammals.

Several bird species were observed to visit the site during the field assessment in June, including Australian Ringneck Parrots, Singing Honeyeaters and Red-tailed Black-cockatoos, the latter being a Threatened species of Commonwealth environmental significance. Two Red-tailed Black-cockatoos were observed foraging on nuts in a Marri tree during the field assessment, and were present for at least 15 minutes, before flying in a northerly direction.

None of the trees present within the clearing footprint were observed to support breeding hollows for Black-cockatoos, although two are considered habitat trees (potential future breeding trees), due to trunk diameter at breast height (DBH) measurements of greater than 500 mm. These two trees are shown as 'very large' trees in **Figure 1**.

The Black-cockatoo night roosting habitat status of the site is not known, however the Great Cocky Count of 2017 (BridLife Australia) recorded a roost site in Wattle Grove for Forest Red-tailed Black-cockatoos, although specifically, the site at Lot 28 Lewis Road in Wattle Grove is not a known night roost site.

Due to the fact that the Marri trees present within the proposed clearing footprint represent one of the main food sources of Threatened Black-cockatoos, combined with sighted feeding birds, the site is certain foraging habitat for Black-cockatoos. Due to this, the fauna habitat value of the site is considered significant, which would be reflected in an assessment against the clearing principles if carried out as part of a NVCP application. However, given the small area proposed to be cleared, referral to the Commonwealth Department of the Environment and Energy is not required. The referral guidelines stipulate that clearing more than one hectare of quality foraging habitat triggers the need for referral to the Commonwealth, but less than one hectare does not. There is no apparent requirement to refer due to the presence of breeding or night roost habitat either, due to a lack of evidence of such habitat being supported by the site.

Foreshore Assessment

In order to confirm that the proposed clearing and development at the sites proposed for the building and carpark construction are situated an adequate distance from the existing creek at the site to avoid impacts on its foreshore, a broad assessment of the biophysical factors was carried out, in order to determine the extent of the creek's foreshore. The assessment was carried out in accordance with the guideline, Determining River Foreshores (Water and Rivers Commission 2001).

In accordance with the guideline (Water and Rivers Commission 2001), the following biophysical factors, with associated criteria, are used to characterize the extent and value of waterway foreshores:

1. Vegetation
2. Hydrology
3. Soil type
4. Erosion
5. Geology
6. Topography
7. Function
8. Habitats
9. Climate
10. Land use
11. Heritage.

In order to carry out the broad assessment of the site that is likely to define the extent of the creek's foreshore, all of the above factors besides 9 and 11 have been considered in broad and general terms. Each is discussed briefly below.

Vegetation

The vegetation across the site is relatively degraded, compared to the original pre-European vegetation that would have existed at the site, including along the creek line. In this location, relatively sparse trees and shrubs occur, including some Marri (*Corymbia calophylla*) and Peppermints (*Agonis flexuosa*), and also planted, non-endemic trees (Lemon-scented Gums, *Eucalyptus citriodora*). Some rush species are growing within the creek, which appear to possible be weed (*Watsonia*). Given the degraded nature of the vegetation at the site, and along the creekline, it is not possible to define a true riparian vegetation zone.

Hydrology/Topography

With respect to hydrology, information that will assist in defining a foreshore is identified flood prone areas and areas vulnerable to waterway channel changes. The depth of the creek was observed to be relatively deep, in comparison to the surrounding upland areas at the site. The creek bed, and water flowing within in, is at least one-metre lower than the surrounding topography. The banks are steep (35-40 degrees), rapidly falling down to the narrow creek bed that supports the small waterway. Surrounding topography is relatively flat. Additionally, the volume of water observed to be flowing in the creek at the time of the June site inspection was relatively low. Therefore, even in large flood events that would cause the creek to swell, it is considered unlikely that flooding would occur outside the existing creek channel. The creek alignment is also relatively straight, with no sharp angles or turns, and therefore, the likelihood of a new channel forming is also considered unlikely within the existing stable channel.

Soil type/Geology/Erosion

The soil type of the creek banks is sandy clayey loam to clay. Surrounding this, soil types appears to be less clayey and more of a sandy loam. The change in soil type was observed within approximately ten metres of the edge of the creek line. Changes in soil type were not observed to be reflected in changes in vegetation, given the lack of intact vegetation present at the site.

The sandy clayey loam to clay soils of the creek bed, bank and foreshore are somewhat vulnerable to erosion, However, in the base of the creek bed, some rocky formations exist, which at shallow water depths, appear to maintain the integrity of the bed and banks.

Function

The foreshore, and more specifically, the steep banks of the creek serve to contain the water flows of the creek itself. Beyond the edges of the banks, the more far reaching land does not serve any immediate function to the creek, besides trees that provide the existing shade, within approximately ten metres of the creek edge.

Habitats

Habitats necessary to assess this factor include river pools, woody debris, riffles and riparian vegetation. Some riffles over a rocky bed and some rocky debris were observed in the creek, although no pools were observed, no true riparian vegetation present. Vegetation immediately surrounding the creek would be considered important to maintain the current habitat (via shade, etc.), which would encompass approximately 10-20 metres either side of the creek line.

Land use

The creek is currently maintained by existing land uses at the site. It is expected that as long as land use pressures are not increased within approximately 20 metres of the creek edge, and as long as no significant alterations to local hydrology result from any development, the creek should not be negatively impacted.

Summary of Conclusions and Recommendations

Requirement for a Clearing Permit

The area proposed for clearing for construction of the building is exempt from the need for a NVCP under Regulation 5, Item 1 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Trees proposed to be removed to reduce fire fuel loads are exempt from the need for a NVCP in accordance with the *Bush Fires Act 1954* (under Section 1 – Schedule 6 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*), provided that clearing is conducted by a bush fire control officer.

The area proposed for clearing for the carpark is likely to require a NVCP. However, given the degrade nature of the vegetation in this location, combined with the small area proposed to be cleared, this may not be required, and consultation with DER is recommended. In the event that a NVCP is required, it is expected that approval would be easily obtained, likely within a rapid turn-around.

Requirement to Refer Due to Impacts of Black-cockatoo Habitat

Although the site supports foraging habitat for Threatened Black-cockatoos, the area of foraging habitat proposed to be cleared is less than one hectare, and therefore referral is not required for this reason. The site does not support a known night roost habitat, nor are any breeding trees present within the areas proposed to be cleared. Therefore, referral to the Commonwealth regarding proposed impacts to Black-cockatoo habitat is not required.

In the interests of retention of as much foraging habitat as possible, it is recommended that as many Marri trees as possible be retained at the site.

Foreshore Extent

The extent of the foreshore surrounding the creek at the site is difficult to define in detail, based on general site observations, using a broad methodology, and also due to the lack on intact riparian vegetation. A foreshore extent of approximately 20 meters has been determined from the broad assessment discussed within this correspondence. The Shire of Kalamunda previously proposed a 30 metre set-back from the creek, for all development and clearing activities on site, which in light of the results of the broad foreshore assessment, is considered more than adequate for the protection of the creek and its foreshore.

Closing

Should you require further information or clarification regarding the information provided in this report, please do not hesitate to contact the undersigned.

Best regards,

Kellie Bauer-Simpson

Director & Principal Ecologist/Environmental Manager
Focused Vision Consulting Pty Ltd