Proposed Installation of Joondalup Lake Lookout (Option B), Lake Joondalup WANNEROO

Native vegetation clearing permit application.
Supporting documentation

January 2024

City of Wanneroo

Contents

1. Introduction

The City of Wanneroo (hereinafter referred to as the City) is proposing to undertake the clearing of Typha and remnant vegetation on the eastern edge of Lake Joondalup (City of Wanneroo side), to facilitate the installation of a Lake Lookout, referred to as Option B. The City has received requests from the community over a number of years to provide bird viewing facilities within the Yellagonga Regional Park (YRP). The proposed area will remain cleared of vegetation after construction to maintain the Lake Lookout structure and mitigate fire risk to the structure. The City is submitting this supporting document to assist the Department of Water and Environmental Regulations (DWER) in its assessment of this clearing application.

2. Background

The City received a community request to provide a bird viewing facility within the YRP to cater to bird enthusiasts and the general public and to sustainably and safely manage access to Lake Joondalup. YRP is a 1400 hectares (ha) conservation category wetland chain (consisting of Lake Joondalup, Beenyup Swamp, Walluburnup Swamp and Lake Goollelal). The YRP serves as a summer sanctuary and offers a breeding environment for numerous bird species, both resident and trans-equatorial migratory species.

To address the requests for the installation of a bird viewing facility, the City commissioned a feasibility study in 2020 to look at five (5) locations within the YRP to determine suitable locations (see Section 6 of this EIA for further details). The feasibility study, conducted by Ecoscape, included an environmental assessment (list some attributes), a landscape assessment (list some attributes) and consultation with key stakeholders identified by the City (list stakeholders). It was therefore, proposed to install the Lake Lookout and associated footpath infrastructure that connects to Scenic Drive, Wanneroo and Rotary Park (Site 2). Site 2 (shown in Figure.1 below) was chosen due to its ability to allow viewing of wetland bird species in their natural environment. The site was the most accessible and had the lowest environmental impact as it required the least clearing for construction.

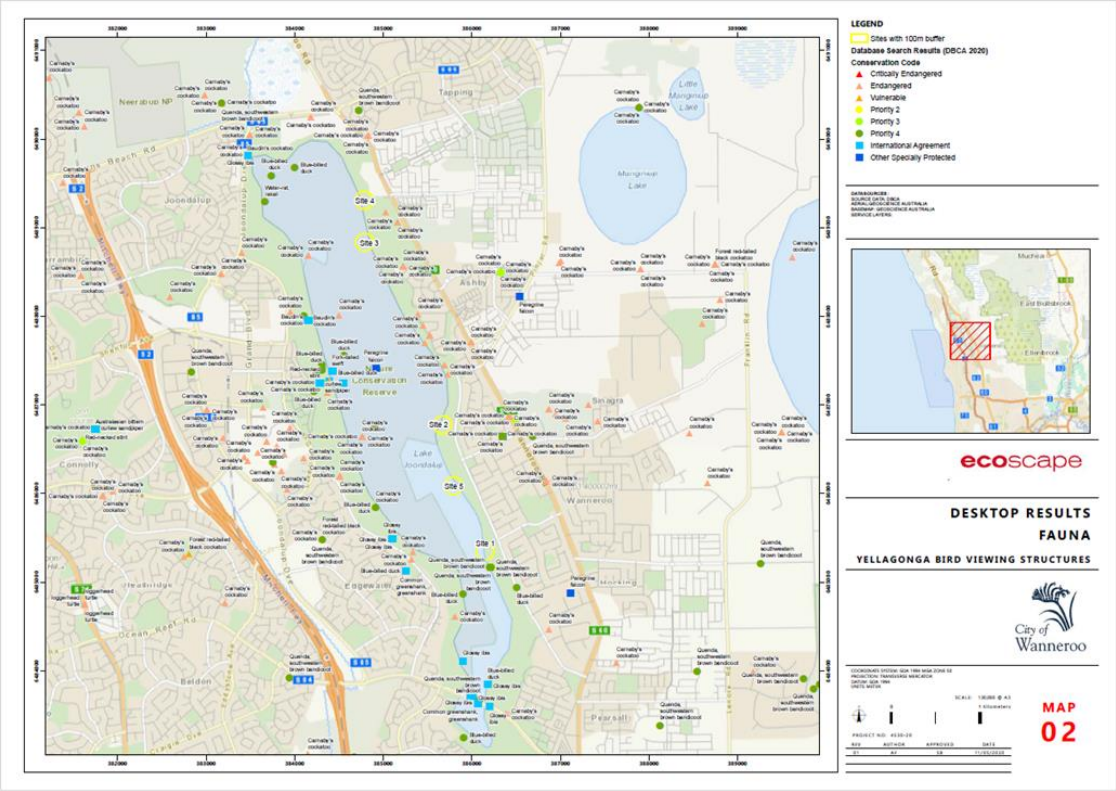

Figure 1: Yellagonga Site Locations (Feasibility Study, Yellagonga Regional Park Ecoscape, 2020)

A Multi Criteria Analysis (MCA) was developed using information from the feasibility report. The MCA identified Site 2 as the most feasible site for development resulting in the development of two conceptual models: Option A (Boardwalk and Bird Hide) and Option B (Lake Lookout) (Figure 1 below). Option B - The Lookout was identified as the better option as it would have less environmental impact (reduced clearing footprint) and financially feasible. The City is therefore proposing the construction of a Lake Lookout (Option B) within boundaries of Lot 501 DP: 73317 on the eastern side of Lake Joondalup (Figure 2 below).

Figure 2: Conceptual Model - Option A and Option B (Feasibility Study, Yellagonga Regional Park Ecoscape, 2020)

Figure 3: Proposed Clearing Area (Option B)

3. Aboriginal Heritage Site 3740

The location of Option B - Lake Lookout intercepts Aboriginal Heritage Site number 3740. In 2020, Dave Lanfear Consulting conducted a feasibility study on behalf of the City. In their study they engaged several stakeholders which include but are not limited to Aboriginal Elders Representatives. From their consultation Dr Noel Nannup (an elder representative) was in support of the construction of the bird watch and the board walk as it creates a positive energy to the lake.

The City is aware that the proposed works intercept Aboriginal Heritage Site number 3740 and as such, the City is committed to completing the requirements of the (Aboriginal Heritage Act 1972).
The City is currently in the process of applying for a Section 18 with Department of Planning, Lands, and Heritage (DPLH). However, due to recent changes to Western Australia's Aboriginal Cultural Heritage legislation the City acknowledges there is the potential for project delays due to backlog at the DPLH, particularly concerning Aboriginal Cultural Heritage (ACH) management approvals Therefore, the City anticipates the project will likely be finalized between December 2025 and December 2026. Please find Attachment J for the Feasibility Study and Master Plan.

4. Scope

The purpose of this document is to provide an assessment against the *Environmental Protection Act 1986* – Ten Clearing Principles to determine whether the proposed clearing is likely to have a significant impact on the environment.

The proposed clearing area of 0.092 hectares (920 m^2) is depicted in Figure 3 below (Attachment A – Clearing Plan, Attachment B – Clearing Area Shapefiles).

Figure 4: Proposed Clearing Plan (Drawing No. 4220-1-0)

4.1 Project Time Frame

The City has secured a grant of $1.936 million from the State Government to facilitate the construction of the bird lake lookout: the grant timeframe is October 2021 to August 2025. Noting this, the project is slated to span from February 2025, with construction completed by August 2025.
As noted in section 3 above the proposed works intercept Aboriginal Heritage Site number 3740.

As a result, the City is required to commit to the requirements of the *Aboriginal Heritage Act 1972*, which require the City to apply for a Section 18 with Department of Planning, Lands, and Heritage (DPLH). As mentioned earlier application process and approval process of Section 18 may be delayed due to the backlog DPLH is currently facing. t's worth noting that the application and approval process for Section 18 may experience delays due to the existing backlog faced by DPLH.

Due to these anticipated delays in approval process by the DPLH, the City expects to finalize construction and any associated clearing by 31 December 2024. It should be noted that no works will be undertaken with Aboriginal Heritage Site number 3740 Yellagonga without all the necessary approvals obtained from the respective departments.

5. Flora and Vegetation

A vegetation survey was conducted in 2020 by Ecoscape as part of the Bird Viewing Structures Feasibility Study (Attachment D – Bird Viewing Structures Final ECOScape Feasibility Study). The regional vegetation complex according to Heddle *et al* 1980 at the Option B location is

Herdsman complex (*Machaerina articulata*, *Typha orientalis* rushland). This area of the lake was reported to be in a degraded condition. In addition, there are no Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) in the selected area as indicated by the City's Environmental Planning Considerations Report (EPCR) (Attachment C and the City's 'Desktop Assessment Report for Native Vegetation Clearing (NVC) Application' (Attachment B).

An additional vegetation assessment of Option B (Lake Lookout) area was conducted by an Environmental Asset Planner on the 11 November 2021. A total of 7 flora species were recorded, 3 were identified as native and 4 were weeds/planted species identified in Table 1 below. Majority of the species was *Typha orientalis and Machaerina articulata* correlating with Ecoscape 2020 vegetation survey (reference attachment #).

Table 1: Species List

NATIVE SPECIES	WEED/PLANTED SPECIES
Eucalyputs rudis	*Avena barbata*
Machaerina articulata	*Cenchrus clandestinus,*
*Typha orientalis**	*Cyperus papyrus*
	Malva parviflora L.
	Medicago polymorpha L.

**Previously classified as a naturalised weed species (Florabase, 2023)*

The City's Environmental Planning Considerations Report (EPCR) (Attachment C) and the City's 'Desktop Assessment Report for Native Vegetation Clearing (NVC) Application' (Attachment B) found
Beard (1979) mapped vegetation in the Study area as comprising of pre- European vegetation associated with 126 Swan Coastal Plain/ Perth (SWA02).

6. Fauna

The biological survey conducted by Ecoscape in 2020 revealed a dense sedge and rushland characterized by a substantial volume of Kikuyu and Couch grass. The area is predominantly inundated and features scattered Melaleucas and Flooded Gums. This habitat type serves as a support system for wading and reed bird species, frogs, Tiger Snake, and potentially Rakali.
While the narrow section of Sedges and Rushes habitat situated between Open Water and Parkland does not offer high habitat value for priority species, it does present some opportunity for Rakali.

7. Avoidance and Mitigation Measures

The purpose of the Ecoscape 2020 study was to ascertain the need for bird viewing facilities at YRP and the feasibility of such installations at five (5) sites selected by the City in conjunction with stakeholders, including the Department of Biodiversity Conservation and Attractions (DBCA) and Birdlife Australia utilising information from the DBCA's historical YRP Management Plan and stakeholder knowledge of bird viewing locations within the YRP.

Five (5) potential sites on the eastern side of Lake Joondalup were provided and assessed using a 100m study area radius at each location (Ecoscape, 2020). The following locations were investigated:

Site 1: Ariti Avenue
Site 2: Lake Joondalup Park
Site 3: South West Pine Seed Orchard
Site 4: Ashley Road
Site 5: Rotary Park

A Multi Criteria Analysis (MCA) was undertaken using the information gathered and input from key stakeholders. A total of 20 different criteria were assessed. Stakeholders involved at this early stage included DBCA, Birdlife WA, Friends of Yellagonga Regional Park and two local bird photographers (Ecoscape, 2020).

Site 2 (Option B), Lake Joondalup Park, was identified as the most feasible site for the development of a bird viewing structure due to the lower environmental impacts (degraded sedges and rushes), as there will be no clearing of major vegetation (Attachment I.

The City further reduced the amount of clearing by limiting development to the 'Option B Lake Lookout' instead of pursuing 'Option A Boardwalk and Bird Hide'. Choosing 'Option A' would have required (0.2727 ha) 2727 m^2 of clearing compared to (0.0920 ha) 920 m^2 required for 'Option B' (Attachment I).

It was not possible to further reduce the clearing by using low impact construction methods within the Option B location. This is due to the inherent fire risk of the *Typha/Machaerina articulata* vegetation type in the location of the proposed Lake Lookout. The City's Fire Protection Officer requested vegetation clearance of 3 metres is maintained around the Lake Lookout structure to reduce the fire risk in perpetuity (Attachment I).

During construction, the clearing area will be flagged to ensure that clearing does not occur outside the clearing area boundary.

8. Clearing Principles

The City of Wanneroo generated a 'Desktop Assessment Report for Native Vegetation Clearing' tool (NVC) (Attachment B), the impacts listed in the report are categorised in Table 2, below.

The following table summarises the identified environmental impacts and the level of variance against the clearing principles.

Table 2: Identified Impacts against Clearing Principles

Clearing Principle	Proposed Project Impacts
Principle (a) – Native vegetation should not be cleared if it comprises a high level of biodiversity **Orange Flag**	The proposed clearing area is a mapped Environmentally Sensitive Area (ESA). The City's EPCR and NVC (Attachment C and B) identifies the following flora and fauna attributes for the proposed clearing site: • No records of Federal or State listed TECs, PECs, Threatened and Priority Flora records or Threatened and Priority Fauna records within the proposed clearing site. • The proposed clearing site is within an important birding area (Northern Swan Coastal Plain IBA) and potential Quenda habitat. The City's EPCR and NVC (Attachment C and B) identifies the following flora and fauna attributes within 5kms of the proposed clearing site: • Federal and State listed TECs and PECs (or their buffers) located within a 5km radius of the proposed clearing site • Federal and State listed Threatened and Priority Flora records located within a 5km radius of the proposed clearing site. • Federal and State listed Threatened and Priority Fauna and Fauna Habitat records located within a 5km radius of the proposed clearing site. • Confirmed Carnaby's Black Cockatoos roosting habitat buffer within 6km's of the proposed clearing site. The Feasibility survey did not identify any threatened or priority flora (Ecoscape, 2020). Due to the degraded nature of the areas surveyed and the low observed flora diversity it is considered unlikely that the areas support priority flora (Ecoscape, 2020). In addition, the proposed clearing site does not have high habitat value for priority species. The area of Sedges and Rushes may be habitat for Quenda, Rakali and migratory bird species (Ecoscape, 2020). Given the lack of biodiversity within the proposed clearing areas, and the mono species in comparison to surrounding areas, **the proposed clearing area may be at variance with principle (a).**
Principle (b) – Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna	The City's EPCR and NVC (Attachment C and B) identified the proposed clearing site is within an important birding area (Northern Swan Coastal Plain IBA), Quenda or Southern Brown Bandicoot listed as Priority 4 species by the State Government and within a Carnaby's Black Cockatoo Confirmed 'breeding area buffered 6km'. Sedge and Rush habitat may provide some opportunity for Rakali, while the open water area provides habitat for wading, migratory bird species and Carnaby's Black Cockatoo.

Red Flag	Given that the proposed clearing area may have presence of Quenda (P4), the proposed clearing **is likely be at variance with principle (b).**
Principle (c) – Native vegetation should not be cleared if it includes or is necessary for the continued existence of, threatened flora. **Green Flag**	The City's EPCR, NVC and the Feasibility Study (Attachment C, B and D) identified Threatened and Priority Flora species within a 5km radius of the application area, however no Federal or State Threatened or Priority Flora species were identified within the application area. The majority of the vegetation in the proposed clearing site is *Typha orientalis.* As no threatened or conservation significant flora were recorded during the vegetation assessment, and noting the site was reported to be mostly degraded by the Ecoscape, 2020 feasibility study it is unlikely that the City's proposed clearing would include vegetation that is necessary for the continued existence of threatened flora. Therefore**, the proposed clearing is not likely to be at variance with Principle (c).**
Principle (d) - Native vegetation should not be cleared if it comprises the whole or a part of or is necessary for the maintenance of a Threatened Ecological Community. **Green Flag**	The City's EPCR and NVC (Attachment C and B) identified both Federal and State Threatened Ecological Communities (and buffers) within a 5km radius of the application area, however no Threatened or Priority Communities are present within the proposed application area. Given the proposed clearing areas is generally degraded, the vegetation it is not considered to represent a TEC. **The proposed clearing is not likely to be at variance to principle (d).**
Principle (e) - Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been significantly cleared. **Green Flag**	The proposed clearing area mainly consists of degraded *Machaerina articulata and Typha orientalis* rushland. The clearing area also includes *Eucalyputs rudis* that will not likely be impacted by the works. Therefore, **the clearing is not likely to be at variance to principle (e).**
Principle (f) - Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or a wetland **Red Flag**	The City's EPCR, NVC and the Feasibility Study indicated that the proposed clearing intersects with a conservation wetland, chain (Lake Joondalup, Beenyup Swamp, Walluburnup Swamp and Lake Goollelal). The proposed clearing will affect riparian vegetation however, the wetland area is heavily dominated by invasive or overabundant native weedy species, mainly *Typha orientalis*. The clearing of this vegetation will only have a temporary impact of the selected area due to the invasive nature of the species. Given the above, **the proposed clearing is likely to be at variance with Principle (f).**

Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation. **Green**	The proposed area of works is in a wetland area mapped in a high to moderate risk for Acid Sulfate Soil (ASS). Dewatering for construction purpose may lead to soil acidification, dying of native vegetation and degrading of surface and groundwater quality. No dewatering is required for the instalment of the platform as the City proposes to use a continuous flight auger to screw in the proposed 8 piles into the ground and hold up the Lake Lookout structure. The piles are bored in using a hollow auger, once the pile is at the required depth concrete is pumped down the hollow centre of the auger, while the auger is gradually withdrawn. This will mean that there is limited impact on the interface zone between air and water were the issue of ASS is to be considered. However, to mitigate future risk, the City proposes to use a hydrophobic concrete admixture such as Cementaid Caltite in the piles to limit the effects of acid soils or water. **Therefore, the proposed clearing area is unlikely to be at variance with Principle (g).**
Principle (h) - Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area. **Orange**	The City's EPCR and NVC indicate that the proposed area is within Yellagonga Regional Park (YRP). In addition, the area is within Bush forever site 229. Yellagonga Regional Park is important as a summer refuge and provides breeding habitat for many resident and trans-equatorial migratory water bird species. The proposed clearing is only 0.92ha of the 1400ha (that is 0.069%) of conservation category wetland chain (Lake Joondalup, Beenyup Swamp, Walluburnup Swamp and Lake Goollelal). Thus, clearing is insignificant in comparison to the whole area. In addition, 0.73ha of the proposed clearing area is degraded and consist mainly of *Typha orientalis.* Given the above, **the proposed clearing is may likely to be at variance with Principle (h).**
Principle (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water. **Orange**	The City's EPCR and NVC indicate application area intersects with a mapped wetland, Perth coastal underground water pollution control area Priority 3 (P3) and within the Perth Groundwater Area RIWI Act area. Perth groundwater map (accessed 04/10/2023) indicates the groundwater salinity of the site is between 250- 500 mg/L, with a high Iron staining risk (due to the presence of acid sulfate soils) (DWER, 2023). **The proposed clearing is therefore may likely to be at variance with Principle (i).**
Principle (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause or exacerbate the incidence or intensity of flooding. **Red**	The proposed clearing area is within an area associated with flood hazard (DPIRP, 2023). >70% of the map unit has a moderate to high flood risk. The clearing is likely to cause, or exacerbate the incidence, or intensity of flooding. **The proposed clearing is not likely to be at variance to principle (j).**

***Red** – Likely to be at variance, **Orange** – May be at variance, **Green** – Not likely to be or not at variance

9. Conclusion

The City of Wanneroo has assessed the proposed clearing against the 10 clearing principles and has found that the clearing of 0.092 hectares (920 m^2) at YRP, is likely to be at variance with the clearing principles (b), (f) and (j).

10. References

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