



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8275/1
Permit Holder:	Shire of Wyndham – East Kimberley
Duration of Permit:	12 July 2019 – 12 July 2024

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of weed control and recreation.

2. Land on which clearing is to be done

Lot 501 on Plan 57127, Kununurra
Water Feature (PIN 1318636), Kununurra
Old Darwin Road Reserve (PIN 1315329), Kununurra
Unallocated Crown Land (PIN 638581)

3. Area of Clearing

The Permit Holder must not clear more than 38.66 hectares of native vegetation within the area hatched yellow on attached Plan 8275/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

6. Weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- clean earth-moving and any other machinery used to undertake the clearing of soil and vegetation prior to entering and leaving the area to be cleared;
- ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- restrict the movement of machines and other vehicles to the limits of the area to be cleared.

PART III - RECORD KEEPING AND REPORTING

7. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and the extent of clearing in accordance with condition 5 of this Permit; and
- (e) actions taken to minimise the introduction and spread of *weeds* in accordance with condition 6 of this Permit.

8. Reporting

The Permit Holder must provide to the *CEO* the records required under Condition 7 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

12 June 2019

Plan 8275/1

128°44'6.000"E

128°44'24.000"E

128°44'42.000"E

15°46'48.000"S

15°47'6.000"S

15°47'24.000"S

15°47'42.000"S

15°46'48.000"S

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128°44'6.000"E

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Legend

-  CPS areas approved to clear
-  Cadastre



0 0.25 0.5 km



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Gannaway
2019.06.12
10:28:17 +08'00'

Officer delegated under section 20 of the
Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 8275/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Wyndham – East Kimberley
Application received date: 29 November 2018

1.3. Property details

Property: Lot 501 on Plan 57127
Water Feature (PIN 1318636)
Old Darwin Road Reserve (PIN 1315329)
Unallocated Crown Land (PIN 638581)
Local Government Authority: Shire of Wyndham - East Kimberley
Localities: Kununurra

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
38.66 hectares within a 45.8 hectare footprint		Mechanical Removal	Weed control and recreation

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 12 June 2019

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principle's (f) and (h), may be at variance to principles (g) and (i) and is not likely to be at variance to any of the remaining clearing principles.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds into the surrounding wetland environment. To minimise this risk, a condition has been placed on the permit requiring the implementation of weed management measures.

2. Site Information

Clearing Description This application is for the clearing of up to 38.66 hectares of native vegetation within a 45.8 hectare footprint within Lot 501 on Plan 57127, Water Feature (PIN 1318636), Old Darwin Road Reserve (PIN 1315329) and Unallocated Crown Land (PIN 638581), Kununurra. The proposed clearing will be undertaken on an annual basis within Lake Kununurra and the Lily Creek Lagoon, for the purposes of controlling *Typha* sp. occurrences within the above wetlands. This clearing will enhance the aesthetic values of the above wetlands and promote their recreational use.

Vegetation Description The application area is situated within the following mapped vegetation complexes (Shepherd et al 2001):

- 909: Bloodwood, Darwin Stringybark (*Eucalyptus tetradonta*) over Curly Spinifex and Annual Sorghum (*Sorghum stipoideum*), *Corymbia dichromophloia*, *Eucalyptus tetradonta* over *Triodia bitextura*, *Sorghum* sp; and
- 59: Grasslands, tall bunch-grass savanna.

Vegetation Condition The *Lake Kununurra and Lily Creek Lagoon Vegetation Management Plan* (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008) describes the vegetation condition in the application area as meeting the following condition rankings:

- Good (Trudgen 1988): More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds; to
- Poor (Trudgen 1988): Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.

Soil type

The application area is mapped as occurring within the following land systems (Department of Primary Industries and Regional Development 2017):

- Cockatoo Land System: Gently undulating timbered sandy country in the north-western part of the area. Sandplains with *Eucalypt* sp. woodlands and spinifex / tussock grasses; and
- Ivanhoe Land System: Many small to medium areas of gently sloping alluvial "black soil" plains with some timbered "red" soil in the central and northern parts of the area. Alluvial plains with tussock grasslands.

Comments

The local area referred to in the below assessment is defined as the area within a 20 kilometre radius of the application area.

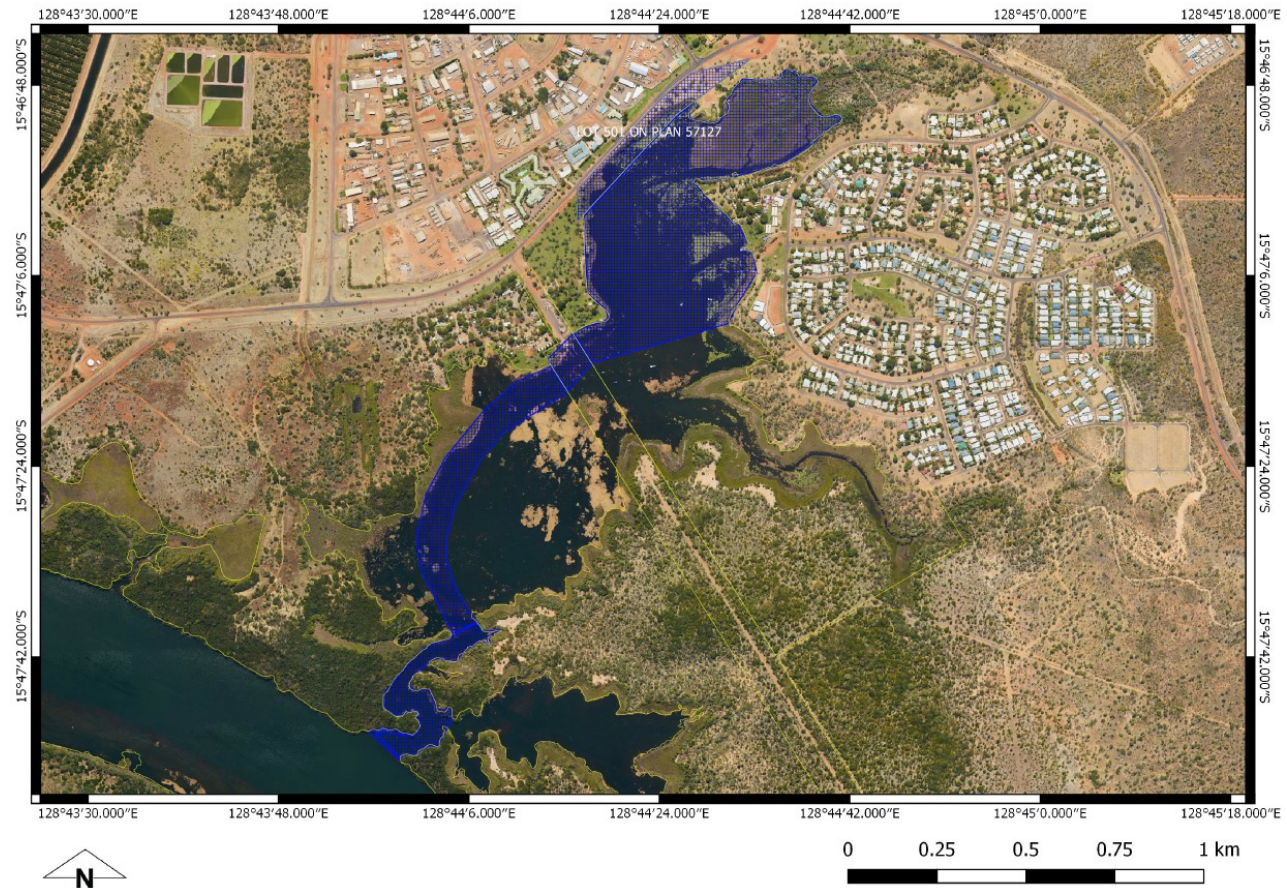


Figure 1: The application area (shown in blue), in the context of the lot boundaries (shown in yellow).

3. Minimisation and mitigation measures

Lake Kununurra and the Lily Creek Lagoon are permanent waterbodies formed by the damming of the Ord River in 1963 to supply water to the Ord River Irrigation Area and water levels within Lake Kununurra are regulated and managed primarily for this purpose by the Water Corporation (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). Biophysical conditions within these waterbodies are comprised of high water temperatures, intense sunlight, high water clarity, relatively elevated concentrations of total nitrogen and phosphorous and fertile sediments (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). These conditions are ideal for the growth of aquatic plants and both waterbodies become eutrophic at various times of the year (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008).

While Bulrush (*Typha sp.*) (also known commonly as 'Cumbungi', which it is referred to as hereafter) is native to the Ord River, the damming of the Ord River provided optimum conditions for the rapid colonisation of Lake Kununurra and the Lily Creek Lagoon by Cumbungi (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). Cumbungi is known to form dense monocultures with subsequent impacts to habitat heterogeneity and the elimination of other flora species, a reduction in the holding capacity of dams and waterways, adverse impacts to waterway access and a restriction to almost total blockage of water flow in rivers, creeks and irrigation and drainage channels (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). The dense stands created by this species comprise a fire hazard, with a number of unplanned fires occurring around Lake Kununurra and the Lily Creek Lagoon over the years, with these fires potentially resulting in detrimental impacts to riparian vegetation communities (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008).

Beginning in February 2019, the Water Corporation intends to lower the water levels within the above water bodies for essential maintenance works. The applicant intends to take advantage of this opportunity to chemically treat exposed Cumbungi and to use a long reach excavator to mechanically remove all visible Cumbungi within reach of the riverbanks within the application

area. The proposed clearing will enhance water flow through the waterbodies and clear a vegetation free area for boats to utilise while creating a more aesthetically appealing environment for visitors. The clearing activities will target only approximately 38.66 hectares of the overall 798 hectare area of the wetlands, with all other areas of Lake Kununurra and the Lily Creek lagoon remaining unaffected by the proposed clearing.

4. Assessment of application against clearing principles

A review of available databases determined that 39 flora species of conservation significance have been recorded in the local area, comprising 21 Priority 1 flora species, four Priority 2 flora species, 10 Priority 3 flora species, three Priority 4 flora species and one Threatened species (Western Australian Herbarium 1998-). No occurrences of the above species have been recorded within the application area. When consideration is given to the habitats available in the application area and the preferred habitats of the above species, five flora species of conservation significance, comprising three Priority 1 flora species and two Priority 3 flora species could occur in the application area (Western Australian Herbarium 1998-). As discussed in Section 3 of this report, while Cumbungi is native to Western Australia, it is capable of aggressive colonisations that can transform wetland ecosystems and is also capable of forming dense monocultures which negatively impact habitat heterogeneity and eliminate other flora species unless it is actively managed (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008, Western Australian Herbarium 2019). In addition and as discussed earlier in this report, the dense monocultures formed by this species have the potential to adversely impact waterway holding capacities and water flows. Given the impact of Cumbungi colonisations on the ecological values of waterways, it is not anticipated that the application area comprises suitable habitat for any flora species of conservation significance.

A review of available databases determined that 37 fauna species of conservation significance have been recorded in the local area (Department of Biodiversity, Conservation and Attractions 2007-). When the habitats found in the application area were considered alongside the habitats preferred by these species, 30 fauna species of conservation significance have the potential to utilise the habitats found in the application area. It should be noted that of the 30 fauna species of conservation significance identified as potentially occurring within the application area, 19 of these species were marine and migratory listed avian species. In addition, six species are unlikely to be dependant on the habitats found in the application area, but may utilise the application area for foraging purposes. The application area likely provides suitable habitat for the following fauna species of conservation significance:

- *Calidris ferruginea* (Curlw Sandpiper) (listed as 'Critically Endangered' under both the *Biodiversity Conservation Act 2016* (BC Act) and under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act));
- *Crocodylus johnstoni* (Australian Freshwater Crocodile) (listed as 'Other specially protected fauna' under the BC Act and listed as 'Marine' under the EPBC Act);
- *Erythrura gouldiae* (Gouldian Finch) (Priority 4);
- *Hydromys chrysogaster* (Water-rat) (Priority 4); and
- *Ixobrychus dubius* (Australian Little Bittern) (Priority 4).

Advice received from the Department of Biodiversity, Conservation and Attractions (DBCA) (2019) advises that Lily Creek Lagoon is mapped as a vegetated, permanently inundated freshwater basin within the Lake Argyle and Lake Kununurra Ramsar site. This Ramsar site supports large populations of waterbirds with up to 200,000 individuals recorded at this site, comprising up to 74 waterbird species, including 22 species listed under international conservation treaties (DBCA 2019, Department of the Environment and Energy 2019). This Ramsar site has been identified as one of the most significant inland waterbodies for shorebirds in northern Australia, with the permanent freshwaters of Lake Argyle and Lake Kununurra providing valuable habitat for waterbirds and other native species in northern Australia during drought conditions (DBCA 2019). The DBCA (2019) advise that the Cumbungi is providing habitat for resident waterbirds that are part of the recognised biodiversity of this Ramsar site. The DBCA (2019) also advise that this Ramsar site supports over one percent of the global population of the Australian Freshwater Crocodile. A total of 29 fish species have been recorded from limited surveys within the Ramsar site, with six of these species endemic to the region (DBCA 2019). Of note is the high diversity of *Terapontidae* species recorded within the Ramsar site (DBCA 2019). The Water-rat has also been recorded from this area and would likely use the Cumbungi for habitat (DBCA 2019).

The DBCA (2019) acknowledge that it is likely significant stands of Cumbungi will remain unaffected in other parts of Lake Kununurra and the Lily Creek Lagoon, providing habitat for the resident waterbird population. The remaining stands of Cumbungi not impacted by the proposed clearing are also likely to maintain suitable habitat requirements for the Water-rat population in Lake Kununurra and the Lily Creek Lagoon (DBCA 2019). The Australian Freshwater Crocodile inhabits various freshwater environments including rivers, creeks, billabongs, lagoons and swamps (Australian Museum 2019). During the wet season these habitats are inundated with flood waters, allowing this species to move throughout the flood plains (Australian Museum 2019). As the water levels recede, individuals of this species congregate in the larger and deeper water bodies where they prefer to inhabit the shallower waters at the edges of these water features (Australian Museum 2019). The *Lake Kununurra and Lily Creek Lagoon Vegetation Management Plan* clarifies its intention is to control Cumbungi occurrences within the wetland environment, not eradicate this species from the wetland (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). This clearing will also be required on an annual basis as the cleared Cumbungi monocultures are anticipated to recover readily from the proposed clearing. In addition to only impacting a portion of Lake Kununurra and the Lily Creek Lagoon, the proposed clearing will only result in the disturbance of approximately 0.03 per cent of the Ramsar site and will leave the Ord River and Lake Argyle components of this Ramsar site completely unaffected. Given the above, while the proposed clearing may result in the loss of suitable habitat for fauna species of conservation significance, the proposed clearing is not anticipated to result in the loss of significant habitat for fauna species of conservation significance.

The proposed clearing has the potential to introduce weed species into Lake Kununurra and the Lily Creek Lagoon, potentially degrading the ecological values of these wetlands. Weed management measures should mitigate this risk.

A review of available databases determined that no threatened ecological communities exist within the local area. The application area is situated approximately 19.5 kilometres west of the 'Tanmurra Land System' Priority 3 priority ecological community (PEC). When consideration is given to the separation distance between the application area and the above PEC, no adverse impacts to this PEC are expected to result from the proposed clearing. Noting that the 'Victoria Bonaparte' Interim Biogeographic Regionalisation of Australia (IBRA) Region maintains over 98 per cent of its pre-European clearing extent, the proposed clearing is unlikely to adversely impact any ecological linkages promoting species diversity and recruitment within the above PEC.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The application area forms part of the 'Victoria Bonaparte' IBRA region. This IBRA region retains over 98 per cent of its pre-European clearing extent (Government of Western Australia 2019). Vegetation associations 909 and 59 also retain over 99 and 87 per cent of their respective pre-European clearing extents (Government of Western Australia 2019). Given the above, the application area does not represent a remnant of native vegetation within an extensively cleared area.

The proposed clearing activities comprise the removal of Cumbungi growing in association with Lake Kununurra and the Lily Creek Lagoon. As this vegetation comprises part of the riparian vegetation community growing in association with these wetlands, the proposed clearing activities are at variance to principle (f). As discussed previously in this report, the proposed clearing activities are being undertaken to control the occurrence of Cumbungi due to its adverse impact on the aesthetic values and recreational uses of Lake Kununurra and the Lily Creek Lagoon. Given the application area comprises monocultures of Cumbungi, which are anticipated to regrow and require long-term management to control, the proposed clearing is not anticipated to result in any long-term impact to the ecological values of the riparian vegetation communities associated with Lake Kununurra and the Lily Creek Lagoon.

Given the nature of the proposed clearing activities, the most likely land degradation impacts anticipated to result from the proposed clearing would be wind and surface water erosion of the exposed wetland embankments. The proposed clearing may be at variance to principle (g). However, the Cumbungi regrowth which necessitates the control of Cumbungi stands on a long-term basis would be expected to stabilise the cleared embankments. This regrowth is expected to ensure any erosion impacts resulting from the proposed clearing will not cause long-term impacts to the integrity of the banks of the wetland environments. Advice received from the DBCA (2019) advises that the proposed clearing is not anticipated to present an increased acid sulphate soils risk for Lake Kununurra and the Lily Creek Lagoon.

As discussed earlier in this report, the application area is situated within Lake Kununurra and the Lily Creek Lagoon, which comprises part of the Lake Argyle and Lake Kununurra Ramsar site. The proposed clearing activities are therefore at variance to principle (h). This Ramsar site was formed by the damming of the Ord River between 1963 and 1972 (Department of the Environment and Energy 2019). Lake Argyle is the largest freshwater body in Northern Australia, with the major rivers draining into it comprising the Ord River, Bow river and Behn River (Department of the Environment and Energy 2019). Lake Kununurra extends from the diversion dam to the base of the Argyle dam and comprises about 15 kilometres of flowing water, 40 kilometres of flooded river bed and several adjoining swamps (Department of the Environment and Energy 2019). Lake Kununurra and its associated wetlands experience a consistent water level, whereas Lake Argyle fluctuates in response to rainfall, evaporation and irrigation water requirements (Department of the Environment and Energy 2019). Water quality is fresh throughout the Ramsar site (Department of the Environment and Energy 2019). As discussed earlier in this report, this Ramsar site is known for providing habitat to a wide range of fauna species (Department of the Environment and Energy 2019). This Ramsar site meets four of the nine criteria nominated to describe a wetland environments suitability to become a Ramsar site (Department of the Environment and Energy 2019).

A review of available databases determined that Lake Argyle is situated approximately 36 kilometres south of the application area. Given the nature of the proposed clearing activities and the knowledge that these activities are confined to a portion of Lake Kununurra and the Lily Creek Lagoon, no adverse impacts to the ecological values of Lake Argyle are anticipated to result from the proposed clearing activities. As discussed earlier in this report, the proposed clearing activities may result in moderate short-term impacts to the ecological values of Lake Kununurra and the Lily Creek Lagoon, but are unlikely to adversely impact the ecological values of the wider Ramsar site on a long-term basis.

In addition to the aforementioned Ramsar site, there are several conservation reserves situated within the local area, the nearest of which is Darram Conservation Park situated approximately 470 metres south of the application area. Given the separation distances between the application area and conservation reserves, no impacts to any conservation reserves are anticipated to result from the proposed clearing. As the Victoria Bonaparte IBRA region maintains over 98 per cent of its pre-European clearing extent, the proposed clearing is unlikely to adversely impact any ecological linkages promoting species diversity and recruitment within conservation reserves.

The removal of Cumbungi occurrences has the potential to increase sedimentation and turbidity within Lake Kununurra and the Lily Creek Lagoon, with potential impacts to surface water quality (DBCA 2019). Therefore the proposed clearing activities may be at variance to principle (i). As stated under principle (g), the regrowth of Cumbungi in the cleared areas is anticipated to stabilise the cleared areas and consequently any impacts to surface quality through sedimentation are expected to be short term in nature. As discussed previously in this report, the proposed clearing is not anticipated to present an increased acid sulphate soils risk for Lake Kununurra and the Lily Creek Lagoon and therefore the proposed clearing is not anticipated to lead to the acidification of these wetlands (DBCA 2019). A review of available databases determined the groundwater resources underlying the application area have been mapped with a total dissolved solids content of 500 – 1,000 milligrams per litre. Given the knowledge that the Victoria Bonaparte IBRA Region maintains over 98 per cent of its pre-European clearing extent, the proposed clearing activities are not anticipated to adversely impact the quality of groundwater resources. No adverse impacts to the flooding regime of the local area are anticipated to result from the proposed clearing.

Given the above, the proposed clearing is at variance to principle's (f) and (h), may be at variance to principles (g) and (i) and is not likely to be at variance to any of the remaining clearing principles.

Planning instruments and other relevant matters.

The clearing permit application was advertised on the DWER website on 3 January 2019 with a 21 day submission period. No public submissions were received regarding this application.

A review of available databases determined the application area is situated within the Gunanurreng – Ord River registered Aboriginal Heritage Site (Registration ID 15153). This site is known for its value as an artefact scatter, use for ceremonial purposes, the presence of engravings, ochre, grinding patches, paintings, grooves and modified trees, as well as its value as a mythological site, a quarry, and the presence of skeletal material and burial grounds. The applicant is advised to consult with the Department of Planning, Lands and Heritage to ensure they understand their obligations under the *Aboriginal Heritage Act 1972* prior to undertaking the proposed clearing.

On 21 January 2019 the Department's North West Region advised that they held no objections to the sustainable and targeted removal of aquatic vegetation from Lake Kununurra and the Lily Creek Lagoon, provided clearing activities align with the *Lake Kununurra and Lily Creek Lagoon Vegetation Management Plan*. Lily Creek Lagoon is adjacent to the Kununurra Water Reserve, however is situated outside this reserve's defined Priority 1 boundary and clearing activities are unlikely to impact the water reserve's production bores. Recreational activities within Lake Kununurra and the Lily Creek Lagoon should be guided in accordance with *Recreation within public drinking water source areas on Crown Land (Operational Policy Series Report 13)*, published by the Department of Water in 2012. Provided land use activities are consistent with Department guidance, risks to water quality are deemed to be unlikely (Department of Water and Environmental Regulation 2019).

The North West Region also stated that the proposed clearing is situated within the Canning – Kimberley groundwater area, the Ord River and Tributaries Surface Water Area and the Ord Irrigation District, which are proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). A licence under Section 5C of the RIWI Act is required to take water in this area and a licence under Section 26D of the RIWI Act is required to construct or alter a well for water supply purposes. The North West Region advises that the applicant currently holds a permit under Section 17 of the RIWI Act for the modification of the bed and banks of the Ord River to remove Cumbungi, on Unallocated Crown Land (PIN 638581). If the proposed clearing will result in disturbance to the bed and banks of surface water features on other land parcels, the above Section 17 permit will require amendment to incorporate these land parcels (Department of Water and Environmental Regulation 2019).

The advice received from the DBCA (2019) articulated that given the sensitive environmental values of Lake Kununurra and the Lily Creek Lagoon, that the implementation of monitoring and evaluation programs are considered prior to the clearing campaign beginning. Monitoring programs which could be considered include weed mapping, water quality monitoring and fauna monitoring (DBCA 2019). This could facilitate future detection of trends in condition parameters and allow for reporting on the effectiveness of weed control methodologies, as well as providing for contingency actions to be undertaken if results indicate a need for such actions (DBCA 2019).

The DBCA (2019) advised that the use of Glyphosate can be contentious near human populations and that the short term and long term impact on aquatic wildlife from Glyphosate use is not entirely clear. The *Lake Kununurra and Lily Creek Lagoon Vegetation Management Plan* discusses the use of pesticides diluted with diesel (Kimberley TAFE and Shire of Wyndham – East Kimberley 2008). Within Australia, the regulation of pesticides is undertaken by the Australian Pesticides and Veterinary Medicine Authority. There are legal penalties in place for using pesticides outside of label directions. The applicant is advised to ensure their use of Glyphosate and any other pesticides during this clearing campaign complies with all legal requirements concerning the use of these pesticides.

5. References

- Australian Museum (2019) Freshwater Crocodile, Scientific Name: *Crocodylus johnstoni*. Available from: <https://australianmuseum.net.au/learn/animals/reptiles/freshwater-crocodile/>.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Biodiversity, Conservation and Attractions (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed March 2019.
- Department of Biodiversity, Conservation and Attractions (2019) Department of Biodiversity, Conservation and Attractions advice request proforma – Wetlands. Maintained on DWER's achieve system (A1789419).
- Department of the Environment and Energy (2019) Australian Wetlands Database, Ramsar Wetlands. Lakes and Argyle and Kununurra. Available from: <https://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=32>.
- Department of Water and Environmental Regulation (2019) North West Region – Water Planning Advice in relation CPS 8275/1. Maintained on DWER's achieve system (A1793230).
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis): Full Report. Remote Sensing and Spatial Analysis Program. Biodiversity and Conservation Science. Department of Biodiversity, Conservation and Attractions. Published March 2019.
- Kimberley TAFE and Shire of Wyndham – East Kimberley (2008) Lake Kununurra and Lily Creek Lagoon, Vegetation Management Plan, January 2008. Prepared for the Shire of Wyndham - East Kimberley (SWEK), through funding from the National Action Plan for Salinity and Water Quality. Prepared by Kimberley TAFE, Kununurra Campus and Shire of Wyndham – East Kimberley.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Trudgen, M.E. (1988). A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <http://florabase.dpaw.wa.gov.au/> (accessed June 2019).

Western Australian Herbarium (2019) Florabase – The Western Australian Flora. *Typha orientalis*, Bulrush. Available from:
<https://florabase.dpaw.wa.gov.au/browse/profile/99>.

GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Managed Tenure
- Geomorphic Wetlands Management Category
- Hydrography Linear – Linear
- Hydrography WA 250K – Surface Water Lines
- SAC bio datasets
- TPFL March 2019
- Vegetation Complexes; pre – European Vegetation
- WA Herb Data March 2019
- WA TEC PEC Boundaries