



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1913/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Shire of Wyndham-East Kimberley

### 1.3. Property details

Property: ROAD RESERVE ( KUNUNURRA 6743)  
LOT 2371 ON PLAN 189289 ( KUNUNURRA 6743)  
UNALLOCATED CROWN LAND ( KUNUNURRA 6743)  
ROAD RESERVE ( KUNUNURRA 6743)  
WATER FEATURE ( KUNUNURRA 6743)  
LOT 3000 ON PLAN 46759 ( KUNUNURRA 6743)  
UNALLOCATED CROWN LAND ( KUNUNURRA 6743)  
WATER FEATURE ( KUNUNURRA 6743)  
LOT 711 ON PLAN 220360 ( KUNUNURRA 6743)  
LOT 711 ON PLAN 220360 ( KUNUNURRA 6743)  
Local Government Area: Shire Of Wyndham-East Kimberley  
Colloquial name: Lily Creek Lagoon and part Lake Kununurra

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1		Mechanical Removal	Miscellaneous

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The area under application consists of aquatic and terrestrial environments. The aquatic environment consists of a variety of plants including <i>Nymphoides indica</i> (Water snowflake), <i>Cyperus difformis</i> (Rice sedge), <i>Typha</i> spp. (Cumbungi), <i>Chara</i> spp. (Stonewort), <i>Najas graminea</i> and <i>Sesbania formosa</i> (white dragon tree), Kimberley fern and an unidentified algae (Kenneally et al, 1996; Sainty and Jacobs, 1988). The terrestrial environment at the jetty consists of <i>Sesbania formosa</i>, <i>Eucalypt</i> spp and <i>Pandanus spiralis</i> (<i>Pandanus</i> palm).</p> <p>Weeds identified throughout the application area include introduced grass at the parkland area, <i>Passiflora foetida</i> (Wild passionfruit), <i>Azadirachta indica</i> (Neem tree), <i>Tribulus cistoides</i> (<i>Caltrop</i>)</p>	<p>The proposed area to be cleared is 1 hectare for the purpose of maintaining access to the water body at Celebrity Tree Park on Lily Creek Lagoon, and to maintain the jetty infrastructure. The area has previously been disturbed by historical removal of aquatic vegetation from the riparian zone and parkland clearing of the foreshore area.</p> <p>The aquatic environment retains a structure that is generally in good condition. The removal of cumbungi (<i>Typha</i> sp.) from the foreshore area has resulted in the significant alteration of the vegetation structure, however since clearing activities have been restricted over approximately the last 18 months, cumbungi and other aquatic vegetation have regenerated in the area.</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>The description of the vegetation to be cleared was obtained during a site visit by DEC staff on 16 October 2007 (DEC TRIM Ref: DOC39257).</p>

and *Cyperus involucratus* (sedge) (Kenneally et al, 1996; Sainty and Jacobs, 1988).

The terrestrial environment along the entire foreshore is completely degraded and no longer contains a riparian zone.

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

**Comments**      **Proposal may be at variance to this Principle**

This proposal involves the clearing of 1 hectare of aquatic native vegetation for the purposes of maintaining access to the water body.

The proposed clearing is within Lily Creek Lagoon which forms part of the Ramsar wetland system of Lakes Kununurra and Argyle. This classification has been afforded to the lakes due to their outstanding biodiversity values within the Victoria Bonaparte bioregion.

The vegetation within the proposal area is comprised of aquatic and riparian species. These include *Nymphoides indica* (Water snowflake), *Cyperus difformis* (Rice sedge) *Typha* spp. (Cumbungi), *Chara* spp. (Stonewort), *Najas graminea* and *Sesbania formosa* (white dragon tree), Kimberley fern and an unidentified algae (Kenneally et al, 1996; Sainty and Jacobs, 1988). The terrestrial vegetation at the jetty consists of *Sesbania formosa*, *Eucalyptus* spp and *Pandanus spiralis* (*Pandanus* palm) (DEC, 2007). No priority flora are known to occur in the local area, however a number of priority fauna are known to occur in the area and the lagoon and lake support numerous bird, mammal and reptile species.

There are six recorded occurrences of priority flora within the local area (10km radius). These are *Echinochloa kimmerleyensis* (P1), *Typhonium* sp. Kununurra (P1), *Platysace saxatilis* (P2), *Acacia richardsii* (P3), *Brachychiton tuberculatus* (P3) and *Ficus lilliputiana* (P4). The area proposed to be cleared does not contain habitat suitable for these species (FloraBase, 2007), therefore they are not likely to be located within the area proposed to be cleared.

Given the condition of the vegetation under application and the biodiversity values of the Ramsar wetland the vegetation under application may be considered to hold high biodiversity values.

**Methodology**      Kenneally et al (1996);  
Sainty and Jacobs (1988);  
DEC (2007);  
SAC Biodatasets (090707);  
GIS Databases:  
- Kununurra 50cm Orthomosaic  
- RAMSAR, Wetlands  
- ANCA, Wetlands

#### (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 indigenous to Western Australia.

**Comments**      **Proposal is not likely to be at variance to this Principle**

There are no recorded occurrences of threatened or priority fauna within the area proposed to be cleared, however a number occur within the local area (10km radius).

The declared threatened Orange Leaf-nosed Bat (*Rhinonicteris aurantius*) (Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)) is known to roost in caves located 2.3km north of the area proposed to be cleared (Strahan, 1995). Due to the distance to this roost and the dissimilarity between habitats with the proposal area, the bats are not likely to be effected by the proposed clearing.

The priority 4 listed Water Rat (Rakali) (*Hydromys chrysogaster*) (Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)) has been located 2.2km north of the area proposed to be cleared. The water rat is a nocturnal, territorial rodent preferring permanent fresh or brackish water, which forages close to the shoreline and nests in burrows in banks (Menkhorst and Knight 2004). The area within which the clearing is proposed contains similar habitat (DEC, 2007), majority of that to be cleared being within the shoreline area.

The Northern Brown Bandicoot (*Isodon macrourus*) has been sighted in the immediate area. Its preferred dry season habitat is low ground cover (Menkhorst and Knight 2004), and it has been observed by locals to move throughout the adjacent caravan park. As the bandicoot is a territorial animal, clearing may have the potential to impact upon its habitat retention.

The Burdekin Duck or Radjah Shelduck (*Tadorna radjah*) is classified as 'other specially protected fauna' (Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)) and has been located 2.5km north of the area proposed to be cleared. It inhabits tropical coastal wetlands, rivers and flooded areas (Simpson and Day, 2004) the proposed clearing will disturb aquatic areas that could be potential feeding areas of the duck.

The priority 4 listed Little Bittern (*Ixobrychus minutus*) (Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)) has been located 5.3km south of the proposal area. The Little Bittern inhabits dense reeds and rushes bordering swamps and creeks (Simpson and Day, 2004), the same habitat present within the application area.

The aquatic vegetation was seen to provide a feeding habitat for numerous bird and fish species, and crocodiles (*Crocodylus johnstoni*), turtles (*Chelodina rugosa* and *Elseya dentata*) and bandicoots are known to occur in the immediate area. Crocodile nesting holes were not observed during a site visit, however the area is known to be the territory of freshwater crocodiles (DEC, 2007).

Turtles tend to nest between February and May (Greer, 2006), however extensive areas of aquatic habitat exist outside the application area that would also serve as turtle nesting areas.

Portions of the proposal area have been subject to previous clearing. Those areas that remain vegetated are valuable remnant vegetation in a landscape that has been extensively cleared, therefore the vegetation is significant habitat for native fauna. The proponent has excluded areas from the application to clear, to increase habitat retention in the local area. Therefore, the potential impact of the clearing upon the Water Rat, the Burdekin Duck, and the Little Bittern, as well as other locally found fauna species, is reduced.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Wildlife Conservation (Specially Protected Fauna) Notice 2006(2);  
Strahan (1995);  
Menkhorst and Knight (2004);  
DEC (2007);  
Simpson and Day (2004);  
Greer (2006);  
SAC Biodatasets (090707)

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
There are no known records of rare flora within the local area (10km radius).  
  
Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** FloraBase (2007);  
SAC Biodatasets (090707)  
GIS Database:  
- Soils, Statewide

**(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.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
There are no recorded occurrences of threatened or priority ecological communities within the local area (10km radius).  
  
Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** SAC Biodatasets (090707)

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
The aquatic and riparian vegetation of Lake Kununurra has not been mapped to determine measurable extents. Aerial imagery of Lily Creek Lagoon shows extensive areas on the southern and western sides are intact and undisturbed.

However the northern side, where the current clearing is proposed, has been extensively cleared by past land management and recreational activities. This has resulted in the destruction of the riparian zone along the foreshore (DEC 2007), thereby placing a greater ecological importance on the remaining aquatic vegetation. Portions of the proposal area have been subject to previous clearing. Those areas that remain vegetated are valuable remnant vegetation in a landscape that has been extensively cleared.

The proponent has excluded areas from the application to clear, to increase the retention of vegetation within the local area. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** DEC (2007);  
GIS Databases:  
- Pre-European Vegetation  
- Kununurra 50cm Orthomosaic

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments Proposal is at variance to this Principle**

The proposed clearing is located within the water body and along the banks of Lily Creek Lagoon.

Lily Creek Lagoon is part of a wetland system that is classified under the Ramsar Convention and listed on the Directory of Important Wetlands in Australia.

Therefore, the proposal is at variance to this principle.

**Methodology** GIS Databases:  
- RAMSAR, Wetlands  
- ANCA, Wetlands  
- Hydrography, linear  
- Hydrography, linear (hierarchy)

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments Proposal is not likely to be at variance to this Principle**

The foreshore area shows signs of minor land degradation as a result of water action and from previous excavation of the water body (DEC, 2007). The removal of further vegetation from within this already disturbed area is not likely to increase land degradation.

Additionally, the proponent has excluded areas from the application to clear, to increase the retention of vegetation in the local area. The placement of the retained vegetation provides protection to the banks and will reduce erosion from wind and water action.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Boulton and Brock (1999);  
GIS databases:  
- Hydrography, linear  
- Kununurra 50cm Orthomosaic

**(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.**

**Comments Proposal is not likely to be at variance to this Principle**

The proposed clearing is located within the water body and along the banks of Lily Creek Lagoon, part of a wetland system that is classified under the Ramsar Convention and listed on the Directory of Important Wetlands in Australia.

Lake Argyle and Lake Kununurra cover 150,000 hectares (Environment Australia, 2001). Given the small size of the application area in comparison, the clearing of 1 hectare of aquatic vegetation is not likely to impact upon the Ramsar values of the lake system.

Mirima National Park is located 1.7km north-east of the proposed clearing. The park is upstream of the lagoon therefore the proposed clearing is not likely to impact on the conservation reserve.

Given the above the proposed clearing is not likely to be at variance to this clearing principle.

**Methodology** Environment Australia (2001);  
DEC (2007);  
GIS Databases:  
- CALM Managed Lands and Waters  
- RAMSAR, Wetlands  
- ANCA, Wetlands  
- Cadastre

**(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.**

**Comments**

**Proposal is not likely to be at variance to this Principle**

The area that is proposed to be cleared is located within the Canning-Kimberley groundwater sub-area, proclaimed under the Rights in Water and Irrigation Act 1914. The Public Drinking Water Source (PDWS) area, consisting of a P1 protection zone, is located 0.4km west of Celebrity Tree Park. However, the direction of groundwater flow into the PDWS area is from Lake Kununurra in the south, moving northwards (Department of Environment, 2003), therefore the proposed clearing will be 'downstream' of the PDWS area and is not likely to impact upon the quality of the groundwater.

The areas proposed to be cleared have experienced historical disturbance from previous clearing methods, and the proposed works have the potential to cause deterioration in the quality of surface water via localised sedimentation and turbidity due to the disturbance of soils (Boulton and Brock, 1999).

However, the proponent proposes to clear five areas of the lagoon foreshore, whilst retaining strips of vegetation between the cleared areas. The retained vegetation will protect the foreshore and minimise water movement, thereby ensuring any sedimentation remains in the local area and quickly settles out of suspension.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology**

Department of Environment (2003);  
Boulton and Brock (1999);  
GIS Database:  
- Kununurra 50cm Orthomosaic  
- Hydrology  
- Public Drinking Water Source Protection Area

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Comments**

**Proposal is not likely to be at variance to this Principle**

The proposed clearing of 1 hectare is not likely to influence the incidence or intensity of any flooding in the lake.

Therefore, the proposal is not likely to be at variance to this principle.

Additionally, the water levels of the lake are regulated and managed by the Water Corporation. Such regulation of the water flow in and out of the lagoon ensures that flooding is minimal.

**Methodology**

GIS Databases:  
- Hydrography, linear  
- Hydrography, linear (hierarchy)

**Planning instrument, Native Title, Previous EPA decision or other matter.**

**Comments**

The proposal is to perform clearing for the purpose of maintaining access to the water body and the jetty. The area proposed to be cleared is located on unallocated Crown land (PIN 638581) vested with the Water Corporation and managed by the Department for Planning and Infrastructure, and on Reserve 41812 jointly managed by the Department of Water and the Shire of Wyndham East Kimberley.

The proponent has obtained an undertaking from the Department of Water that a Bed and Banks permit will be issued, subject to obtaining a clearing permit from DEC.

The Department for Planning and Infrastructure does not object to the proposed clearing, provided that the proponent has obtained all other approvals.

The Water Corporation has not commented on the proposed clearing.

Main Roads WA gives permission for the proponent to apply for a clearing permit within their road reserve, however the road alignment has been altered so the water body of the lagoon is totally enclosed in Reserve 41812. Therefore, the Shire does not need further approvals from Main Roads to perform the works

The area under assessment falls under the jurisdiction of a Vegetation Management Plan adopted by the Shire of Wyndham East Kimberley. Consultation and negotiation has occurred between the Shire and the Department of Environment and Conservation (DEC), Department of Water (DoW), Department for Planning and Infrastructure and Ord Land and Water plus extensive public consultation to determine the scope of the plan. The plan is an approved, funded project of the National Action Plan for Salinity and Water Quality. DEC has provided comments on the draft plan, which includes the retention and regrowth of aquatic vegetation in certain areas along the northern foreshore of Lily Creek Lagoon to increase habitat extent and variation for native

animals in the immediate area. The proponent has provided for this requirement in the application to clear, by excluding areas of vegetation from the application for their retention.

Reserve 41812 lies adjacent to the length of the proposal area. The purpose of this reserve is 'foreshore protection and recreation', however it has been subject to historical extensive clearing and development (DEC, 2007) and no longer ensures foreshore protection. The lack of a riparian zone within Reserve 41812 increases the significance of the remaining vegetation within the water body, and provides a level of protection to the foreshore area. The proponent has excluded areas from the application to clear, to increase the retention of vegetation in the local area. The retained vegetation will provide additional protection to the foreshore area, therefore the proposed clearing is not likely to impact on the foreshore reserve.

The area under assessment has been subject to four previous referrals to the Environmental Protection Authority (EPA). None of these referrals are related to the proposal under assessment, however two are in relation to the Kununurra-Wyndham Area Development Strategy (CRN 145595, CRN 136082). The proposal is not at variance to this strategy. The Vegetation Management Plan adopted by the Shire of Wyndham East Kimberley has not been referred to the EPA, nor assessed.

The proposed works fall within a Ramsar classified wetland. The proponent has not provided any information as to whether the proposal requires assessment under the Environment Protection and Biodiversity Conservation Act 1999 by the federal Department of Environment and Water Resources.

The proposed works are not listed as Prescribed Premises under the Environmental Protection Regulations 1987, therefore no licences or works approvals are required.

Native title has been resolved for the Miriung Gajerrong peoples during negotiations for the Ord Stage II horticultural initiative.

The proposed clearing occurs in an area that is covered by the following Registered Indigenous Heritage Sites: Gunanurreng - Ord River (ID 15153), Lily Creek 8 (ID 14897), Mirima-Dumun.Gum (ID 12982). It is the proponent's responsibility to comply with the Aboriginal Heritage Act 1972 and ensure that no Sites of Aboriginal Significance are damaged through the proposed works.

**Methodology** GIS Databases:  
- Native Title Claims  
- Aboriginal Sites of Significance  
- Environmental Impact Assessments

#### 4. Assessor's comments

##### Comment

The proposed clearing was found to be at variance to principle f, may be at variance to principle a, and not likely to be at variance to principles b, c, d e, g, h, i and j.

#### 5. References

- Boulton, A.J. and Brock, M.A. (1999) Australian Freshwater Ecology: Processes and Management. Cooperative Research Centre for Freshwater Ecology. Gleneagles Publishing, Australia.
- Department of Environment (2003) Kununurra Water Reserve - Drinking Water Source Protection Plan. Kununurra Town Water Supply. Water Resource Protection Series No WRP 51.
- Department of Environment and Conservation (2007) Site Inspection Report. Native Vegetation Conservation CPS 1913/1. DEC TRIM Ref: DOC39257
- Environment Australia (2001) A Directory of Important Wetlands in Australia. Third Edition. Environment Australia, Canberra.
- FloraBase (2007) FloraBase the Western Australian Flora 06/11/2007 <http://florabase.calm.wa.gov.au/browse/profile/> DEC TRIM Ref: DOC39020
- Greer, A.E. (2006) Encyclopedia of Australian Reptiles. Australian Museum Online 06/11/2007 <http://www.amonline.net.au/herpetology/research/encyclopedia.pdf> Version date 7 August 2006. DEC TRIM Ref: DOC39017
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kenneally K.F., Edinger D.C. and Willing T. (1996) Broome and Beyond: Plants and People of the Dampier Peninsula, Kimberley, Western Australia. Department of Conservation and Land Management.
- Menkhorst, P. and Knight, F. (2004) A Field Guide to the Mammals of Australia. 2nd Edition. Oxford University Press.
- Sainty, G.R. and Jacobs S.W.L. (1988) Waterplants in Australia. Royal Botanic Gardens Sydney, Australian Water Resources Council, National Coordinating Committee on Aquatic Weeds.
- Simpson, K. and Day, N (2004) Field Guide to the Birds of Australia. 7th Edition. Penguin Books Ltd.
- Strahan, R. (1995) The Mammals of Australia. Australian Museum. The National Photographic Index of Australian Wildlife.
- Wildlife Conservation (Specially Protected Fauna) Notice 2006(2)

## 6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)

