



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 4673/1

File Number: 2011/006804-1

Duration of Permit: From 27 February 2012 – 27 February 2014

PERMIT HOLDER

Shire of Ashburton

LAND ON WHICH CLEARING IS TO BE DONE

LOT 16 ON PLAN 161140 (ONSLOW 6710)

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 92 hectares of native vegetation within the area cross hatched yellow on attached Plan 4673/1.

CONDITIONS

1. Avoid, minimise etc 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:

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

2. Weed control

(a) 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*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

3. Wind erosion management

The Permit Holder shall not clear native vegetation within the areas proposed for airstrip redevelopment and workers camp unless airstrip redevelopment and workers camp construction begins within 3 months of the clearing being undertaken.

4. Vegetation management

The Permit Holder shall not clear native vegetation within 30 metres of any *wetland* within and/or adjacent to the area cross hatched red on Plan 4673/1.

5. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil.
- (b) within 12 months following clearing authorised under this Permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
 - (ii) ripping the ground on the contour to remove soil compaction; and
 - (iii) laying the vegetative material and topsoil retained under condition 5(a).
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 5(b) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 5(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 5(c)(ii) of this Permit, the Permit Holder shall repeat condition 5(c)(i) and 5(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 5(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 5(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 5(c)(ii).

6. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) 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;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 5 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, 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;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation* and
 - (v) a copy of the *environmental specialist's* report.

7. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
- (i) of records required under condition 6 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 27 November 2013, the Permit Holder must provide to the CEO a written report of records required under condition 6 of this Permit where these records have not already been provided under condition 7(a) of this Permit.

DEFINITIONS

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

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

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

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared;

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;

optimal time means the period from November to December; for undertaking *direct seeding*;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*;

wetland/s means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

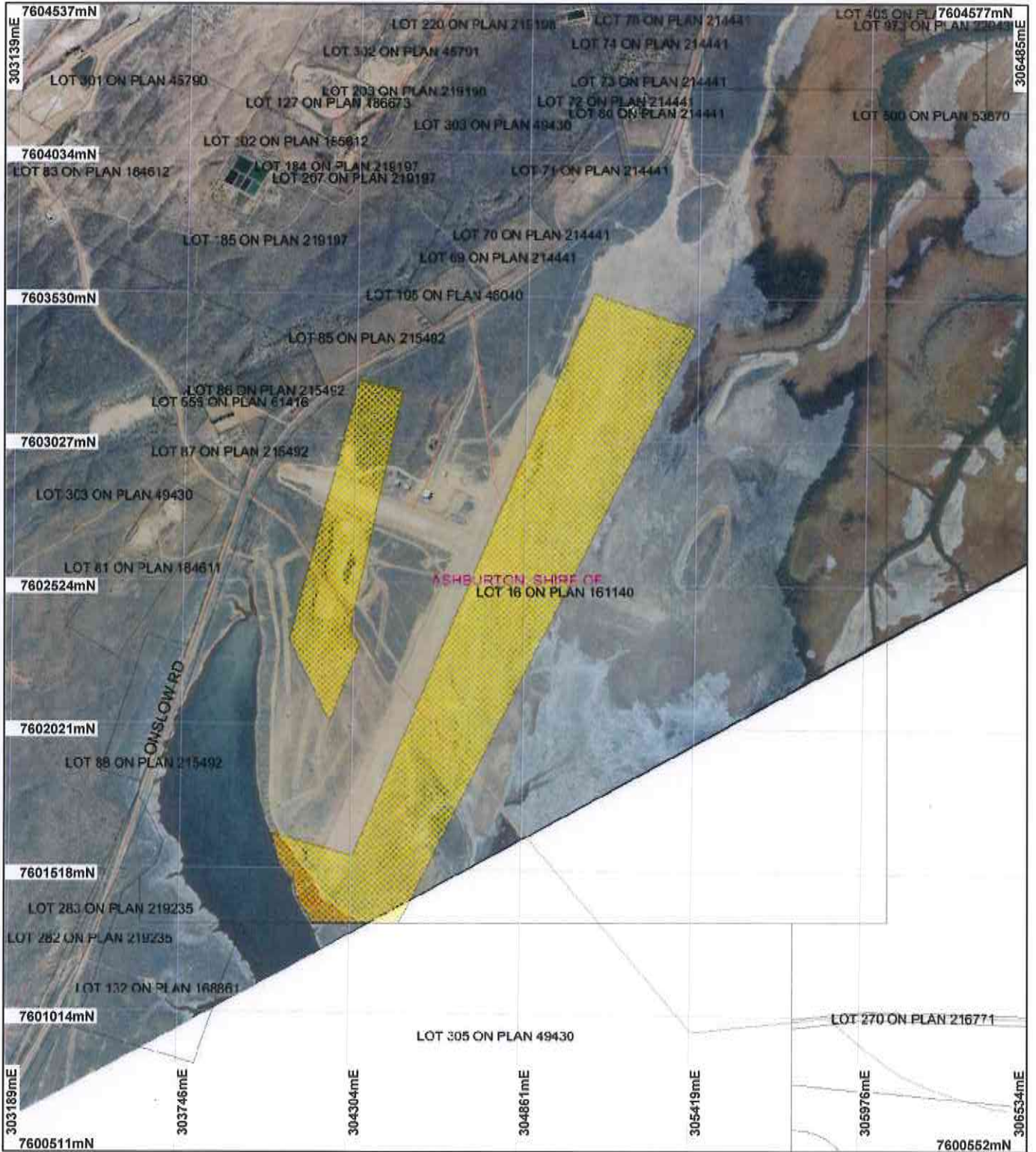


Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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

2 February 2012

Plan 4673/1



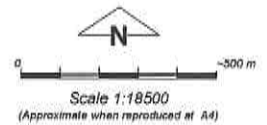
LEGEND

Cadastral for labelling Clearing Instruments

- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Local Government Authorities

Towns

- A
 - B
 - C
- Pilbara Coastline Exmouth
Cape Preston 50cm
Orthomosaic - Landgate
2004



Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion of measurement inaccuracies.

[Signature] 2/2/12
D818

K Faulkner

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of Environment and Conservation

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1. Application details

1.1. Permit application details

Permit application No.: 4673/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Shire of Ashburton

1.3. Property details

Property: LOT 16 ON PLAN 161140 (House No. 16 ONSLOW ONSLOW 6710)
Local Government Area: SHIRE OF ASHBURTON
Colloquial name: ONSLOW AIRPORT

1.4. Application

Clearing Area (ha)	Method of Clearing	For the purpose of:
92	Mechanical Removal	Airstrip redevelopment, construction of workers camp, realignment of access track, fill and borrow pit rehabilitation.

1.5. Decision on application

Decision on Permit Application: GRANT
Decision Date: 2 FEBRUARY 2012

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
Beard vegetation associations - 127: Bare areas; mud flats (Hopkins et al, 2001)	The applied clearing area comprises areas of unvegetated intertidal mudflats with undulating sandplain to the west (Shire of Ashburton, 2011a).	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	The condition of the vegetation has been confirmed through a vegetation survey undertaken by ENV Australia in May 2011 and through aerial imagery (Onslow 1.4m Orthomosaic - Landgate 2011, Pilbara Coastline Exmouth Cape Preston 50cm Orthomosaic - Landgate 2004 and Ortho Image - Landgate September 2010).
	The sandplains and dunes to the west are not consistent with the mapped vegetation type and have been described as hummock and mixed grasslands of <i>Triodia pungens</i> and the weed species <i>Cenchrus ciliaris</i> (Buffel grass) with scattered shrubs including <i>Acacia bivenosa</i> and <i>A. translucens</i> (ATA, 2000). The northern portion of the western proposed clearing area has been described by ENV Australia (2011) as open shrubland of <i>Acacia coriacea</i> subsp. <i>coriacea</i> , <i>Acacia bivenosa</i> , <i>Acacia tetragonophylla</i> over low open shrubland of <i>Acacia stellaticeps</i> , <i>Indigofera monophylla</i> and <i>Scaevola spinescens</i> over open hummock grassland of <i>Triodia epactia</i> over very open tussock grassland of <i>Cenchrus ciliaris</i> and <i>Aristida holathera</i> var. <i>holathera</i> on sand dunes.	To	
	The vegetation ranges from 'excellent' to 'completely degraded' (Keighery, 1994) condition, with the majority of the survey site being 'good' to 'very good' (ENV Australia, 2011). The vegetation has been impacted through introduced species, rubbish dumping and historic clearing for tracks, roads and existing airport infrastructure (ENV Australia, 2011) with other areas within the applied clearing area having previously been disturbed with evidence of old golf course and previous airstrip alignment (Shire of Ashburton, 2011b).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	
	The areas comprising tidal flats are mostly bare of vegetation but are likely to support areas of samphire on the tidal and fringing clay soils (Commissioner of Soil and Land Conservation, 2011). A mixture of buffel grass, spinifex (<i>Triodia pungens</i>) and other perennial grasses are likely to be present in areas comprising deep red sands and sandy duplex soils (Commissioner of Soil and Land Conservation, 2011).		

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 is at variance to this Principle

The applied clearing area comprises an area of 92ha within Lot 16 on Deposited Plan 161140, Onslow and is proposed to be cleared for the purposes of airstrip redevelopment, construction of workers camp (to support the construction and development of the Onslow airstrip), road/access track realignment (Shire of Ashburton, 2012) and borrow pit rehabilitation.

The vegetation under application that was surveyed by ENV Australia (2011) in the north west of Lot 16, ranges from 'excellent' to 'completely degraded' (Keighery, 1994) condition, with the majority of the applied area in the survey area being 'good' to 'excellent' (Keighery, 1994) condition. The site crosses a number of different ecosystems from areas of sand dunes with open Acacia shrublands over open hummock and very open tussock grasslands (ENV Australia, 2011) in the west of the site, to intertidal and estuarine mud flats towards the east. The proposed clearing area therefore comprises a range of diverse habitats for indigenous flora and fauna known to occur in the local area.

From aerial imagery, approximately 30ha of native vegetation within the 92ha area appears to be in at least 'good' (Keighery, 1994) or better condition. Aerial imagery and the results and photographs from the ENV vegetation survey undertaken in 2011, show that the area north of the east-west airstrip and west of the north-south airstrip, encompasses approximately 4ha in 'good' to 'excellent' (Keighery, 1994) condition. This area is proposed to be cleared to obtain fill for the rehabilitation of the existing borrow pit that is susceptible to flooding. Revegetation and rehabilitation of this site post extraction will assist in mitigating impacts to the remnant of native vegetation within Lot 16 and reduce long term exposure that may result in wind erosion.

Approximately one third of the eastern applied clearing area is also part of the Coastal Region Exmouth Gulf to Mary Anne Islands System 9 conservation reserve. Although much of the area under application within the conservation reserve boundary has been impacted through historic clearing, the proposed clearing may still impact the conservation area through some additional clearing and indirectly through the potential introduction and/or spread of weeds, particularly Mesquite which has been recognised as a serious weed in the area. The implementation of weed hygiene and control measures will help to reduce the introduction and/or spread of weeds through machinery entering and exiting the site.

A total of 67 taxa were recorded within the north western portion of the applied clearing area, which was surveyed in May 2011, with the average plant species richness of the site being 36.2 taxa per quadrat +/- 4.9, which is considered to be high in comparison to two other recent surveys undertaken within the Onslow town site which had 17.7 taxa per quadrat +/- 6.8 and 25.3 taxa per quadrat +/- 6.1 (ENV Australia, 2011). Therefore, the area under application, particularly in reference to north of the east-west airstrip and west of the north-south airstrip, may comprise a higher level of biological diversity than surrounding areas.

Six priority flora species have been recorded within a 40km radius of the applied clearing area, with two of these species, *Vigna* sp. central (priority 2) and *Triumfetta echinata* (priority 3), being recorded on the same mapped vegetation and soil types as the applied area. A survey of the north west portion of the applied area found no records of priority flora however, suitable habitat for *Abutilon uncinatum* (P1), *Triumfetta echinata* (P3) and *Vigna* sp. central (P2) were noted as occurring within the surveyed area and were therefore considered to possibly occur within the study area (ENV Australia, 2011). Although these species were not observed it is possible that suitable habitat may be present in the areas that were not surveyed. Even though the other areas under application have had previous disturbance, this survey can not conclude that the priority flora do not occur within the applied area.

The survey however did identify *Maireana lobiflora* which is considered to be of local significance as the closest existing records were approximately 240km south east of the survey area and would therefore be an extension of the species known distribution (ENV Australia, 2011). The two locations of this species were either side of the northern portion of the western area currently under application and therefore the area under application is still likely to provide habitat for this species.

One priority ecological community (PEC) was recorded within the local area (40km radius) of the applied clearing area - Peedamulla (Cane River) Swamp Community (priority 1) approximately 23km east of the applied area. Although this PEC occurs within the same mapped vegetation types, the same non-perennial swamps have not been mapped within the applied area. Therefore given the lack of affinities with, and the distance to the PEC, the proposed clearing is not likely to contain or impact upon the mapped PEC.

Given that the proposed clearing of the native vegetation from this site will result in the clearing of vegetation in 'very good' to 'excellent' (Keighery, 1994) condition; extend through areas of sand dunes, estuarine flats and associated riparian vegetation; and may impact upon the environmental values of a conservation reserve and potential habitat for flora of conservation significance, the clearing will impact upon ecosystem health and subsequently the biological diversity in this area. The clearing as currently proposed is therefore considered to be at variance to this principle.

- Methodology** References:
- ENV Australia (2011)
 - Keighery (1994)
 - Shire of Ashburton (2011a)
- GIS Databases:
- Hydrography, linear - DoW
 - Hydrography, linear (hierarchy) - DoW
 - Onslow 1.4m Orthomosaic - Landgate 2001
 - Ortho Image - Landgate September 2010
 - Pilbara Coastline Exmouth Cape Preston 50cm Orthomosaic - Landgate 2004
 - SAC Biodatasets - Accessed 16 November 2011

(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**

Eighteen threatened and priority fauna species have been recorded within a 40km radius of the applied clearing area, with the closest records being Eastern Curlew (*Numenius madagascariensis*, Priority 4), Australian Bustard (*Ardeotis australis*, Priority 4) and *Lerista planiventralis* subsp. *maryani* (Priority 1).

A level 1 fauna assessment was undertaken by ENV Australia in May 2011 of the north-west portion of the applied clearing area. Although the vegetation was in good condition, it was considered to have low habitat value due to lack of vegetation structure, trees and microhabitats such as hollows, logs, bark, litter and branches (ENV Australia, 2011). The *Triodia* (*spinifex*) grasslands present on site, provide good habitat for reptiles, however, no reptiles were recorded during opportunistic surveying which could be attributed to the cool weather during the search (ENV Australia, 2011).

Lerista planiventralis subsp. *maryani* is known only from a few records and is restricted to an area between Onslow and Barridale in near-coastal sands (Bamford, 2009). As only a level 1 assessment and opportunistic fauna survey of a portion of the applied area was undertaken, it is possible that this priority 1 species may occur within the applied clearing area. The applied clearing area has been modified from the original application down to vegetation within a 92ha area. Although the applied area covers 92ha, much of this area has been cleared historically for the original airstrip, airport infrastructure, borrow pits, golf course, tracks and roads. From aerial imagery and the vegetation survey undertaken by ENV Australia (2011), approximately 30ha is considered to be in overall 'good' (Keighery, 1994) condition or better.

Rainbow Bee-eater (*Merops ornatus*, listed as migratory under the EPBC Act 1999) was recorded flying over and foraging within the applied clearing area and there may be a combination of migratory and resident populations associated with this site (ENV Australia, 2011). This species however, is widespread throughout Australia (Morcombe, 2004) and therefore this site may not be considered significant habitat for this species. A number of other migratory and priority avian fauna were also noted as possible or likely to occur periodically within the study area (ENV Australia, 2011). Short-tailed Mouse (*Leggadina lakedownensis*, Priority 4) was also noted as likely to occur within the applied area (ENV Australia, 2011) with their preferred habitat in WA comprising sandy soils and cracking clays and on Thevenard Island inhabits *Acacia* shrublands on deep sandy soils (DEC, 2006).

The applied clearing area comprises a diverse range of habitats from estuarine and tidal flat areas to *Acacia* and *Triodia* dominated shrub and grasslands. Based on this and the overall 'good' (Keighery, 1994) or better condition vegetation found in approximately 30ha of the applied area, it is likely that the site provides habitat for indigenous fauna species and as the whole site was not surveyed, it is not certain whether other threatened and priority fauna would be found within the applied area.

Although priority fauna may be present at this site, given the amount of vegetation to be impacted by the proposed activities in context with the local area to be retained, including areas not under application within Lot 16, it is unlikely that the vegetation under application would be considered significant habitat for these species. The proposed clearing is therefore considered not likely to be at variance.

- Methodology** References:
- Bamford (2009)
 - DEC (2006)
 - ENV Australia (2011)
 - Keighery (1994)
 - NatureMap (2011)
 - Morcombe (2004)
- GIS Databases:
- Onslow 1.4m Orthomosaic - Landgate 2001
 - Ortho Image - Landgate September 2010
 - Pilbara Coastline Exmouth Cape Preston 50cm Orthomosaic - Landgate 2004

(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

No rare flora species have been recorded within a 40km radius of the applied clearing area with the closest rare flora being *Lepidium catapycnon*, approximately 250km south east of the applied area.

No rare flora were recorded in the north west subject area surveyed by ENV Australia (2011). The proposed clearing is therefore not likely to be at variance to this principle.

Methodology

References:

- ENV Australia (2011)

GIS Databases:

- SAC Biodatasets - Accessed 16/11/2011

(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

No threatened ecological communities (TEC) have been recorded within a 40km radius of the applied clearing area, with the closest TEC being Cameron's Cave Troglotic Community approximately 106km south west of the applied area. There are no records or habitat suitable for the presence of trogloauna or stygofauna within the applied area.

The vegetation type identified in a portion of the applied area that was surveyed is not consistent with any TEC known from the Pilbara Region. Given the distance of the applied area to TEC records and that the vegetation under application shows no affinities with TEC's, the proposed clearing is not considered likely to comprise, or is necessary for the existence, of a threatened ecological community.

Methodology

References:

- ENV Australia (2011)

GIS Databases:

- Pre-European Vegetation - DA

- SAC Biodatasets - Accessed 16/11/2011

(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 area under application lies within the Carnarvon Bioregion within the Shire of Ashburton of which there is 99.6% of pre-European vegetation extents remaining within these areas (Shepherd, 2009).

The vegetation under application has been mapped as Beard Vegetation Association 127 - Bare areas; mud flats, which has over 99% of its pre-European extent remaining within the Carnarvon bioregion (Shepherd, 2009).

The vegetation within the portion of the proposed clearing area north of the existing west-east airstrip and west of the existing main runway, surveyed in May 2011, has been described by ENV Australia (2011) as open shrubland of *Acacia coriacea* subsp. *coriacea*, *Acacia bivenosa*, *Acacia tetragonophylla* over low open shrubland of *Acacia stellaticeps*, *Indigofera monophylla* and *Scaevola spinescens* over open hummock grassland of *Triodia epactia* over very open tussock grassland of *Cenchrus ciliaris* and *Aristida holathera* var. *holathera* on sand dunes. This vegetation community is not consistent with the mapped vegetation association of the site which also cover much of the local area, therefore it is uncertain as to what association this vegetation would belong to and therefore how much of this association remains.

Despite the lack of correlation of some of the vegetation on site with the mapped vegetation association it is likely, based on soil mapping of the area, that the vegetation present within the area surveyed will also be present nearby. In addition to this, given the high percentages of vegetation remaining within the Carnarvon Bioregion, the Shire of Ashburton, and the local area, the vegetation under application is not likely to be considered significant as a remnant in an extensively cleared area.

Methodology

References:

- ENV Australia (2011)

- Shepherd (2009)

GIS Databases:

- IBRA Australia - DEH

- Local Government Authority Boundaries - Landgate

- Onslow 1.4m Orthomosaic - Landgate 2001

- Ortho Image - Landgate September 2010

- Pilbara Coastline Exmouth Cape Preston 50cm Orthomosaic - Landgate 2004

- Pre-European Vegetation - DA

(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 applied clearing area contains estuarine tidal and saline coastal flat environments, with areas subject to inundation. The south-western end of the eastern applied clearing area runs adjacent to an estuarine tidal flat which requires clearing of riparian vegetation for the realignment of an existing access track subject to low vehicle usage (Shire of Ashburton, 2012).

The closest watercourse is a minor, non-perennial watercourse and tributary of Beadon Creek, approximately 100m west of the applied clearing area. The closest mapped nationally recognised wetland is the Exmouth Gulf East, approximately 35.5km away.

The applied area has been modified in order to minimise clearing along watercourses and estuarine flats occurring within Lot 16 (Shire of Ashburton, 2012). Given that vegetation under application is growing in association with estuarine tidal flats, the proposal is considered to be at variance to this principle. Measures to avoid and minimise clearing along the estuary and saline coastal flats will be required to ensure that impact to these sensitive environments does not occur as a result of clearing. The Shire of Ashburton have confirmed that a buffer of 30m can be retained from clearing along the estuary south west of the applied clearing area, which will also assist in protecting the estuarine environment.

Methodology References:

- Shire of Ashburton (2012)
- GIS Databases:
 - ANCA, wetlands - DEWHA
 - Hydrography, linear - DoW
 - Hydrography, linear (hierarchy) - DoW

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

Comments Proposal may be at variance to this Principle

The applied clearing area consists of salt flats, tidal swamps and coastal dune sands with chief soils being saline loams and shelly sands and small areas of calcareous earths and shallow loams associated with marls (Northcote et al., 1960-68).

Advice from the Commissioner of Soil and Land Conservation (2011) states that the site has been mapped by Department of Agriculture and Food Western Australia as being part of the Littoral land system; "described as bare coastal mud flats with mangroves on seaward fringes, samphire flats, sandy plains, islands, coastal dunes and beaches." The Commissioner has advised that wind erosion is the main land degradation hazard that is likely to occur post clearing but this is likely to be a transient problem prior to the works being consolidated (Commissioner of Soil and Land Conservation, 2011).

The Shire has advised that a majority of the land that is intended to be cleared will be developed immediately for the purpose of construction camp and airstrip (Shire of Ashburton, 2012). The small area that will not be developed immediately consists mainly of ridge which is surrounded on all sides by vegetation reducing exposure to erosion (Shire of Ashburton, 2012). It has been confirmed that this is mainly the area north of the proposed workers camp in the western applied clearing area that will be required to be cleared to obtain fill to rehabilitate the existing borrow pit that is susceptible to flooding and requires stabilising due to the proximity to the proposed workers camp site.

This area is particularly susceptible to cyclones and high levels of rainfall in the wet season. Some rilling (removal of soil as a result of water concentrating into small, closely-spaced channels (DAFWA, 2011)) could occur as a result of water movement in the intertidal zone and there is a chance of erosion on the margins due to water flows through the applied area, however, as the site is of a low relief and if water and rainfall is kept spread across the site, erosion risk would be low. The soils at the site however, are not likely to stand up to significant volumes of water and therefore good surface drainage systems will be required. The Shire have confirmed that "appropriate drainage designs will be implemented to reduce potential erosion impacts throughout the site" (Shire of Ashburton, 2012).

Given the risk of wind erosion to cause land degradation, if areas are left exposed post clearing, the proposed clearing may be at variance to this principle. The development of cleared areas for the airstrip and workers camp within 3 months of clearing and the revegetation and rehabilitation of the site north of the east-west airstrip that is for temporary use to obtain fill for the borrow pit rehabilitation, will ensure that areas are not left exposed, minimising the susceptibility to wind erosion.

Methodology References:

- Commissioner of Soil and Land Conservation (2011)
- DAFWA (2011)
- Northcote et al. (1960-68)
- Shire of Ashburton (2012)

- GIS Databases:
- Hydrography, linear - DoW
 - Hydrography, linear (hierarchy) - DoW
 - Soils, statewide - DA
 - Topographic Contours, Statewide - DOLA and ARMY

(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 may be at variance to this Principle

Approximately one third of the eastern applied clearing area lies within a System 9 conservation reserve - Coastal Region Exmouth Gulf to Mary Anne Islands.

A former leasehold area (uCI) proposed for conservation (ex Mt Minnie) which adjoins Cane River Conservation Park is approximately 16.8km south of the applied area.

A significant amount of the area under application within the conservation reserve has already been impacted through the construction of the original airstrip and access tracks, however, given that there will still be some clearing required within the conservation reserve that supports the estuarine environment and the proposed clearing may impact indirectly through the spread and/or introduction of weeds into the reserve, the proposed clearing may impact upon the environmental values of the conservation reserve. The implementation of appropriate weed hygiene measures will assist in reducing the risk of introduction and/or spread of weeds across the area.

- Methodology** GIS Databases:
- DEC Tenure - DEC
 - Onslow 1.4m Orthomosaic - Landgate 2001
 - Ortho Image - Landgate September 2010
 - Pilbara Coastline Exmouth Cape Preston 50cm Orthomosaic - Landgate 2004
 - System 1-5 and 7-12 Conservation Reserves - EPA

(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 may be at variance to this Principle

The applied clearing area lies within the Coastal Catchment of the Ashburton River and Onslow Coast Basins.

Areas of the applied area are mapped as saline coastal flat and a large portion of the eastern applied area is subject to inundation, with the southern end of this portion being within an estuarine tidal flat. The applied area is approximately 100m west of the nearest minor, non-perennial watercourse, a tributary of Beadon Creek, which adjoins the coastal waterline. A non-perennial lake occurs approximately 1.6km west.

The groundwater salinity is mapped as ranging from 7000 - 14000 mg/L total dissolved solids. The Department of Water (DoW) have advised that they do not have any objections to the proposed clearing of native vegetation for the purpose of upgrades to the aerodrome as the application is unlikely to have an impact to the quantity or quality of groundwater (DoW, 2011).

The clearing process may result in erosion within the site as a result of water flows and inundation into the area if left unmanaged and appropriate surface drainage is not put in place. Subsequently nutrient loss and sedimentation of the estuary may occur. Therefore, the proposal may be at variance to this principle.

- Methodology** References:
- DoW (2011)
- GIS Databases:
- Geodata, Lakes - AUSLIG
 - Groundwater salinity - DoW
 - Hydrographic Catchments - Catchments - DoW
 - Hydrography, linear - DoW
 - Hydrography, linear (hierarchy) - DoW

(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 area under application has a topography of approximately 10m AHD and is of a low relief. The area is already prone to flooding and subject to inundation and is also highly susceptible to cyclones and heavy rainfall in the wet season.

The area under application is 92ha however, the majority of the two areas have already had significant amounts of historic clearing for a previous airstrip alignment, golf course, borrow pits, access tracks/roads (Shire of Ashburton (2012)). Therefore, it is unlikely that the proposed clearing will exacerbate the incidence or intensity of flooding across the local area and is therefore not likely to be at variance to this principle.

- Methodology** References:
- Shire of Ashburton (2012)
- GIS Databases:
- Hydrography, linear - DoW
 - Hydrography, linear (hierarchy) - DoW
 - Topographic Contours, Statewide - DOLA and ARMY

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

Comments

The area under application lies within Lot 16 on Deposited Plan 161140, Onslow which is zoned for 'Public Purposes - 'Airport' under the Shire of Ashburton Local Planning Scheme No. 7 (Shire of Ashburton, 2011c). A Water Corporation easement and water mains run through the applied clearing area.

The applied clearing area lies within the Pilbara River and Tributaries RIWI Area and the Pilbara Ground and Surface Water Areas proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act) administered by the Department of Water (DoW) . DoW has advised that they do not have any objections to the clearing of native vegetation for the purpose of upgrading the aerodrome however, any groundwater abstraction would require a licence from DoW (DoW, 2011). The Shire of Ashburton have been advised of the need to contact DoW to determine whether approvals are required for the project and to assess whether sustainable groundwater allocations have already been reached and if so, alternative water sources will need to be sought. DoW also advised that as the proposal area intersects with estuarine and tidal watercourses the surface water is not regulated under the RIWI Act (DoW, 2011).

Approximately half of the eastern area under application is mapped as having a high to medium risk of acid sulfate soils occurring within 3 metres of the natural soil surface.. The Shire has advised that "no dewatering is proposed for the clearance site and a large component has a topography of 7-10m AHD. This offers a low risk of disturbing acid sulfate soils and the airstrip construction will require stabilisation of acid sulfate soils" (Shire of Ashburton (2012)). Further investigation of acid sulfate soils should be conducted prior to undertaking clearing or works associated with any future proposed developments that may result in the disturbance of acid sulfate soils through any proposed dewatering or soil disturbance.

One Aboriginal Site of Significance, being a water source area, has been recorded within the applied clearing area. The applicant is aware of the site as it is mentioned within the supporting documentation to the clearing application submitted by the Shire. The Shire has been advised that they should seek advice from the Department of Indigenous Affairs prior to undertaking any clearing or works. The Shire of Ashburton have confirmed that a Heritage Survey will be conducted and clearance obtained before commencing any works (Shire of Ashburton, 2012).

The Department of Environment and Conservation (DEC) received a submission on the 14th December 2011 objecting to the clearing of 430ha for an aerodrome as it is excessive and "not necessary to clear so much remnant vegetation for an airstrip or two" (Submission (2011)). In addition, the submission highlighted that "the Onslow area is rich in flora" with "FloraBase listing 1312 collections from the Onslow area, which probably consists of 300 different native species" and that the site contains wetlands, rivers and dunes; habitats that are inappropriate to clear (Submission, 2011). DEC recognises the importance of protecting wetland, coastal and riparian environments and has identified these environmental considerations within the assessment of this proposal. The concerns raised in the submission have been addressed in the relevant clearing principles - (a) and (f).

The original area under application comprised 430ha within the whole of Lot 16 on Plan 161140, Onslow. In order to reduce environmental impact associated with the proposed clearing identified in the preliminary assessment of the application, and due to outstanding planning matters, the areas within which clearing is required has been reduced by the Shire of Ashburton to 92ha, restricted to the areas required for the purposes of airstrip redevelopment, construction of workers camp (to support the construction and development of the Onslow airstrip), access track/road realignment (Shire of Ashburton, 2012) and borrow pit rehabilitation.

- Methodology** References:
- DoW (2011)
 - Shire of Ashburton (2011a)
 - Shire of Ashburton (2011b)
 - Shire of Ashburton (2012)
 - Submission (2011)
- GIS Databases:
- Aboriginal Sites of Significance - DIA
 - Acid Sulfate Soil Risk Map, Pilbara Coastline - DEC
 - RIWI Act, Areas - DoW

- RiWI Act, Groundwater Areas - DoW
- RiWI Act, Surface Water Areas and Irrigation Districts - DoW
- Town Planning Scheme Zones - MFP

4. References

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- Shire of Ashburton (2011a) Application for a clearing permit (area permit) - Lot 16 on Deposited Plan 161140 Mt Stuart Road, Onslow. Shire of Ashburton, Onslow, Western Australia. DEC ref A442784.
- Shire of Ashburton (2011b) Email correspondence from Shire of Ashburton, Planning and Survey Information. Shire of Ashburton, Onslow, Western Australia. DEC ref A459401.
- Shire of Ashburton (2012) Email correspondence 11 January 2012 from Shire of Ashburton, Response to preliminary assessment of CPS 4673/1 - Application to Clear Native Vegetation. Shire of Ashburton, Onslow, Western Australia. DEC ref A465561.

5. Glossary

Term	Meaning
DA	Department of Agriculture (now DAFWA)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DEWHA	Department of Environment, Water, Heritage and the Arts (now DSEWPC)
DIA	Department of Indigenous Affairs
DoE	Department of Environment
DoIR	Department of Industry and Resources
DoLA	Department of Land Administration (now Landgate (WA Land Information Authority))
DoW	Department of Water
DRF	Declared Rare Flora
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities
EPA	Environmental Protection Authority
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
MFP	Ministry for Planning
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoW)