



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2666/1

Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Alvito Pty Ltd

### 1.3. Property details

Property: LOT 5 ON DIAGRAM 91435 (House No. 190 FLYNN NEERABUP 6031)

Local Government Area: City Of Wanneroo

Colloquial name:

### 1.4. Application

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

## 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 association: 6 - Medium woodland; tuart & jarrah. (SAC Bio Datasets accessed 09/10/2008, Shepherd, 2007)	The area under application (5.61ha) is located within Lot 5 (20.2 ha property) (zoned Industrial). The proposed clearing is to extend the current hardstand area for industrial development.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The condition of the native vegetation under application was sourced from the Consultant's report (ATA Environmental, 2007) and site inspection conducted 16 September 2008 (DEC, 2008a). The condition of the vegetation ranges from degraded to very good.
Heddlle Vegetation Complex: Karrakatta complex - Central and south. Predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species. (Heddlle et al. 1980).	The areas under application have been identified as two vegetation habitat types: - Eucalyptus marginata tall open woodland over low open heath, which covers an area of approximately 1.8 ha in the north-east section; and - Eucalyptus marginata woodland to tall woodland over low closed heath to shrubland, which covers an area of approximately 3.8 ha in the west and south section (ATA Environmental, 2007).		

## 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

The vegetation under application was identified as being in degraded to very good condition with areas of disturbance from tracks, weeds and the existing adjacent workshop and hardstand (DEC, 2008a). This vegetation comprises two vegetation types, both Eucalyptus marginata dominated woodlands over diverse heath to shrubland (ATA Environmental, 2007).

A flora survey conducted in October 2006 and November 2006 by ATA Environmental (2007) identified 127 species of native flora and 12 species of introduced flora within the Neerabup Industrial Area, which included Lot 5. A flora quadrat situated within the western area under application identified 36 species of native flora; however, DEC (2008) considers that the number of flora species recorded seems very low. In addition, fauna

surveys conducted in November 2006 by ATA Environmental (2007) trapped a total of 25 vertebrate fauna species comprising 615 individual reptiles and mammals and observed 42 species of birds and 2096 individual birds.

Given the number of flora and fauna species identified and areas of structurally intact native vegetation, the vegetation applied to be cleared may comprise a high biological diversity.

**Methodology**    **References:**  
- ATA Environmental (2007)  
- DEC (2008)  
- DEC (2008a)  
**GIS Database:**  
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

**(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 at variance to this Principle**

The vegetation under application was identified as being in degraded to very good condition (DEC, 2008a). This vegetation comprises two vegetation types, both *Eucalyptus marginata* dominated woodlands over diverse heath to shrubland (ATA Environmental, 2007).

The Graceful Sunmoth (*Synemon gratiosa*) has been recorded within the area under application and within the local area. Therefore, it is considered likely the vegetation under application provides habitat for the conservation significant Graceful Sunmoth. This species requires *Lomandra* spp. as host plants and shows some preference for high quality vegetation (DEC 2008b, Williams 2009).

ATA Environmental (2007) advises that fauna surveys were conducted in November 2006 within the Neerabup Industrial Area, which included Lot 5. A total of 25 vertebrate fauna species comprising 615 individual reptiles and mammals were trapped within Lot 5 (ATA Environmental, 2007). In addition, 42 species of birds and 2096 individual birds were observed (ATA Environmental, 2007). Of these, two of the bird species observed are protected under Commonwealth legislation (i.e. EPBC Act 1999), being Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) and Rainbow Bee-eater (*Merops ornatus*) (ATA Environmental (2007).

Surveys of Carnaby's populations and their feeding and roosting habits show that the Northern Region of the Swan Coastal Plain appears to be an important area throughout the season (Shah, 2006). Native species such as *Banksia* and *Eucalypts* play a significant role in the ecology of the Carnaby's Cockatoos on the Swan Coastal Plain (Shah, 2006).

The cumulative impacts from the reduction of Carnaby's foraging habitat on the Swan Coastal Plain has resulted in vegetation that provides a food source for Carnaby's cockatoos being considered as significant habitat; the continual net loss of critical habitat will result in additional pressure on the current population of Carnaby's cockatoos (DEC, 2009). The vegetation under application has been identified as feeding habitat for Carnaby's Black Cockatoo and potential habitat for the Graceful Sunmoth (DEC, 2009a).

Given the occurrence of 5.61ha of jarrah-banksia woodland in predominantly very good condition that provides a foraging site for Carnaby's Black-Cockatoo and habitat for the Rainbow Bee Eater and the Graceful Sunmoth; the clearing as proposed is at variance to this Principle.

**Methodology**    **References:**  
- ATA Environmental (2007)  
- DEC (2008a)  
- DEC (2008b)  
- DEC (2009)  
- (DEC 2009a)  
- Shah (2006)  
- Williams (2009)  
**GIS Database:**  
-SAC Bio Datasets accessed 7/09/2009

**(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 four known records rare flora, *Eucalyptus argutifolia* within the local area (5km radius). The nearest record of *Eucalyptus argutifolia* is located approximately 3.7km north-west of the area under application.

*Eucalyptus argutifolia* typically occurs in shallow sand on limestone ridges and slopes, where it emerges from heath and thicket of parrot bush (*Dryandra sessilis*) and chenille honey-myrtle (*Melaleuca huegellii*) (Brown et al., 1998). The habitat types identified within the area under application is jarrah (*Eucalyptus marginata*)

Woodland over diverse heath to shrubland (ATA Environmental, 2007), which is not typical habitat for *Eucalyptus argutifolia*.

A flora survey conducted in October and November 2006 by ATA Environmental (2007) identified 127 species of native flora and 12 species of introduced flora within the Neerabup Industrial Area, which included Lot 5. No rare flora was identified during the flora survey (ATA Environmental, 2007).

Given the above, it is not considered likely that the vegetation to be cleared includes, or is necessary for the continued existence of, rare flora. Therefore, the clearing as proposed is not likely to be at variance to this Principle.

**Methodology**    **References:**  
 - ATA Environmental (2008)  
 -Brown et al. (1998)  
**GIS Database:**  
 -SAC Bio Datasets accessed 12/03/2009

**(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**  
 The vegetation under application comprises two vegetation types; both types are *Eucalyptus marginata* dominated woodlands over diverse heath to shrubland (ATA Environmental, 2007). ATA Environmental (2007) considers that the vegetation in the western section under application most resembles FCT 21a (*Banksia attenuata*-*Eucalyptus marginata* woodlands).

There is a known occurrence of Floristic Community Type (FCT) 20a - *Banksia attenuata* woodland over species rich dense shrublands, which is a Threatened Ecological Community (TEC), located immediately adjacent (west) of Lot 5 with the area under application located 100 m from this occurrence.

DEC (2008) considers that the area of vegetation to the north, which was omitted from the clearing proposal, may represent a TEC. In addition, a buffer such as 50-100m may be sufficient to protect TEC from such impacts as edge effects of weed invasion, increased wind speed and increased drying of surface soils (DEC, 2008).

Given the vegetation under application is located outside the recommended TEC buffer, the clearing of the vegetation within the area under application is not considered likely to impact this TEC. Therefore, the clearing as proposed is not likely to be at variance to this Principle.

**Methodology**    **References:**  
 - ATA Environmental (2007)  
 - DEC (2008)  
**GIS Databases:**  
 -SAC Bio Datasets accessed 12/03/2009

**(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 vegetation under application is identified as a component of Beard Vegetation Association 6 and Heddle Karrakatta Complex -Central and South, of which there is 26.2% and 29.5% of pre-European vegetation extent remaining respectively (Shepherd 2007, EPA 2006).

The Environmental Protection Authority (EPA) supports a 30% threshold level as recommended in the National Objectives Targets for Biodiversity Conservation; below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). Both of the mapped vegetation complexes associated within the area under application retain more than this 30% threshold level. However, the EPA (2006) recognises the Perth Metropolitan Region as a constrained area, providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent.

Given the current representation levels of the Heddle complex and Beard vegetation associations, and the degraded to very good condition of the vegetation with areas of disturbance from tracks and weeds (DEC, 2008a); it is not considered likely that the vegetation under application is significant as a remnant in an area that has been extensively cleared.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion*				
Swan Coastal Plain^	1,501,208	583,140	38.8	

City of Wanneroo*	67,697	33,637	49.7	
Beard vegetation type*				
6	56,343	14,749	26.2	34.2
Heddle vegetation complex**				
Karrakatta Complex-Central And\South	49,912	14,729	29.5	2.5

\* (Shepherd, 2007)

\*\* (EPA, 2006)

^ Area within Intensive Land Use Zone

**Methodology** References:  
- DEC (2008a)  
- EPA (2000)  
- EPA (2006)  
- Shepherd (2007)  
GIS Databases:  
- Heddle Vegetation Complexes  
- Interim Biogeographic regionalisation of Australia  
- SAC Bio Datasets accessed 09/10/2008

**(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 not likely to be at variance to this Principle**

There are three Conservation Category Wetlands (CCWs) and one Resource Enhancement Wetland (REW) located within the local area (3km radius). The closest wetlands are a CCW - Lake Pinjar (also mapped as an EPP Lake) located 1.3 km north-east and a CCW - Lake Adams (also mapped as an EPP lake) located 2.3km south-east of the area under application. Further, there are no watercourses within the local area.

Given the distance to the nearest wetlands it is not considered likely that the vegetation under application is growing in, or associated with, an environment associated with a watercourse or wetland.

**Methodology** GIS Databases:  
- EPP, Lakes  
- Geodata, Lakes  
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain  
- Hydrology, linear

**(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 landscape of the area under application and surrounds can be described as undulating dune landscape underlain by aeolianite which is frequently exposed and small swales of estuarine deposits (Northcote et al., 1960-68). The chief soils are siliceous sands with smaller areas of brown sands and leached sands in the wetter sites (Northcote et al., 1960-68).

There is a potential risk for land degradation through wind erosion, as the sandy soils within the area under application are considered to be highly erodible. DAFWA (2007) advice for an adjacent application confirms that the sandy soils are potentially erodible and that the clearing is likely to cause wind erosion.

Given the sandy soils present on site, it is considered that there is the potential for the proposed clearing to result in wind erosion, and without appropriate management of the exposed surfaces the proposal may cause appreciable land degradation. Therefore, it is considered that clearing as proposed may cause appreciable land degradation. However, this is likely to be managed under development approval.

**Methodology** References:  
- DAFWA (2007)  
- Northcote et al. (1960-68)  
GIS Database:  
- Soils, Statewide

**(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**

There are two conservation reserves in the local area (5km radius) including State Forest 65 (Gnangara-Moore River State Forest) (which also includes Bush Forever Sites 139, 140, 293, 446 and 455) located 1.9 km north and 1.9 km east; Neerabup National Park (also identified as Bush Forever Site 383 and a System 6 Conservation Reserve) located 4.1 km south-west; and Lake Joondalup Nature Reserve (also identified as an ANCA wetland, Conservation Category Wetland and System 6 Conservation Reserve) located 4.4 km south.

Bush Forever Site 295 (Flynn Drive Bushland, 112.6 ha area) is located 20 m south and Site 494 (West Flynn Drive Bushland, 7.0 ha area) is located 500 m south-west of the area under application. In addition, Bush Forever Site 382 (also identified as Lake Pinjar and a System 6 Conservation Reserve) is located 1.3 km north-east of one of the area under application.

Strategic Biodiversity Planning (DPI, 2008), Incorporating Bush Forever, has advised that the proposed clearing is not likely to have a direct or indirect impact on Bush Forever site 295. Therefore, the clearing as proposed is not considered likely to be at variance to this Principle.

**Methodology**

Reference:

- DPI (2008)

GIS databases:

- ANCA, Wetlands

- Bushforever

- DEC Managed Lands and Waters

- Geomorphic wetlands (Mgt Categories)- Swan Coastal Plain

- System 6 Conservation Reserves

- Swan Coastal Plain North 20cm Orthomosaic - DLI06

**(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**

There are three Conservation Category Wetlands (CCWs) and one Resource Enhancement Wetland (REW) within the local area (3km radius). The closest wetlands are a CCW - Lake Pinjar (also mapped as an EPP Lake) located 1.3 km north-east and a CCW - Lake Adams (also mapped as an EPP lake) located 2.3km south-east of the area under application. Further, there are no watercourses within the local area.

The area under application is not located in a Public Drinking Water Source Area and has a low salinity risk.

There is a risk of eutrophication occurring, due to sandy soils contained within the applied area having low phosphorus retention ability, and the removal of deep-rooted perennials will increase the potential for nutrients to leach from the soil and draining into nearby waterbodies. The Perth Groundwater Atlas (Department of Environment, 2004) shows groundwater flow in the local area to be from east (Lake Pinjar) to west (Neerabup Lake). DAFWA (2007) advised for an adjacent application that given the length of flow path and depth to groundwater the risk to Neerabup Lake (located 3.3km west of the area under application) is low.

Topographic contours identify Lake Pinjar as being down-gradient of the area under application. The clearing as proposed may increase the risk of eutrophication from surface water run off. However, DAFWA (2007) have advised for an adjacent application that as there are no clearly defined drainage lines running from the area under application and Lake Pinjar, the risk from eutrophication is low.

Given the distance to the nearest wetlands and the low eutrophication risk, the clearing as proposed is not considered likely to cause deterioration in the quality of surface and ground water.

**Methodology**

References:

- Department of Environment (2004)

- DAFWA (2007)

GIS Databases:

- EPP, Areas

- EPP, Lakes

- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC

- Public Drinking Water Source Areas (PDWSAs)

- Salinity Risk LM 25m - DOLA 00

**(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**

There are no wetlands mapped within the area under application with the nearest wetland, being a conservation

category wetland, located approximately 1.3 km north-east of the area under application. Further, there are no watercourses mapped within the local area (3km radius). Given the distance to the nearest wetland from the area under application, the clearing as proposed is not considered likely to cause or increase the incidence or intensity of localised flooding.

**Methodology** GIS Databases:  
- Geomorphic Wetlands (Mgt Categories) Swan Coastal Plain  
- Hydroraphy, Linear

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

##### **Comments**

Complex Land Solutions (2009) sent an email and an amended map in response to correspondence, which the Department sent on 13 November 2008. This correspondence requested the area under application to be amended from 18 ha to 5.61 ha.

The assessment of the clearing principles has been undertaken against the amended area.

The Department sent a letter dated 10 September 2009 to the applicant requesting a copy of the outstanding planning approval from the City of Wanneroo. To date no correspondence has been received from the applicant.

Strategic Biodiversity Planning (SBP) (DPI, 2008), Incorporating Bush Forever, has no objections to the proposed clearing as the area under application is outside of Bush Forever site 295, and is not likely to have a direct or indirect impact on this site.

The area proposed to be cleared is part of the proposed Neerabup Industrial Area within the City of Wanneroo. The City of Wanneroo (2008) provided a copy of the Structure Plan (Structure Plan No. 17) for the new industrial subdivision was adopted by the Western Australian Planning Commission (WAPC) in January 2005.

The City of Wanneroo (2008) advised that information received from the Federal Government indicated that clearing over 1 hectare of banksia vegetation used for foraging by the Carnaby's Cockatoo requires referral to the Federal Minister for the Environment.

Carnaby's Black-Cockatoo is classified as Endangered under Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999. Given that the clearing as proposed will result in a loss of habitat and foraging sites for this species (ATA Environmental, 2007), the proposed Neerabup Industrial Area (NIA) [in which the area under application is a part of] is likely to require referral to the Commonwealth Department of Environment and Heritage (DEH) under the EPBC Act 1999 for Carnaby's Black Cockatoo.

Lot 5 on Diagram 91435 is freehold land and is zoned Industrial under the Metropolitan Regional Scheme.

**Methodology** References:  
- ATA Environmental (2007)  
- City of Wanneroo (2008)  
- Complex Land Solutions (2009)  
- DPI (2008)  
GIS databases:  
- Cadastre  
- Metropolitan Regional Scheme

#### **4. Assessor's comments**

##### **Comment**

The assessable criteria have been addressed and the clearing as proposed is at variance to Principle (b) and may be at variance to Principles (a) and (g).

#### **5. References**

- ATA Environmental (2007) Consultant's Report: Flora, Vegetation and Vertebrate Fauna Assessment; Lot 5, Neerabup. ATA Environmental. TRIM Ref DOC60092
- Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- City of Wanneroo (2008) Direct Interest Submission for CPS 2666/1. TRIM Ref DOC64189
- Complex Land Solutions (2009) Response to 30 Day letter, Complex Land Solutions Pty Ltd, Western Australia. TRIM Ref DOC78644
- DAFWA (2007) Land degradation advice. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia. TRIM Ref ED1913
- DEC (2008) DEC Species and Communities Branch - Threatened Ecological Community advice. Department of Environment and Conservation (DEC), Western Australia. TRIM Ref DOC67555
- DEC (2008a) Site Inspection 16 September 2008 on Lot 5 Flynn Drive, Neerabup; Department of Environment and

- Conservation (DEC), Western Australia. TRIM Ref DOC64611
- DEC (2008b), Science Division, Science Research Centre, Advice on the Graceful Sunmoth. TRIM Ref DOC27059
- DEC (2009) Fauna advice for CPS 3074/1; Species and Communities Branch, Department of Environment and Conservation. TRIM Ref DOC92367
- DEC (2009a) Fauna advice for CPS 2666/1; Species and Communities Branch, Department of Environment and Conservation. TRIM Ref DOC97167
- Department of Agriculture (2005) AgMaps Land Manager CD-rom for the Shires of Serpentine-Jarrahdale, Kwinana, Rockingham, Mandurah, Murray, Boddington, Waroona and Harvey. Department of Agriculture, Western Australia. ISSN: 1448-235X.
- Department of Environment (2004) Perth Groundwater Atlas, Second Edition 2004, Department of Environment, Western Australia.
- DPI (2008) Strategic Biodiversity Planning -advice for Lot 5 on Diagram 91435 Flynn Drive, Neerabup, Department of Planning and Infrastructure (DPI), Western Australia. TRIM Ref DOC64194
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
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- Gibson N., Keighery B., Keighery G., Burbidge A. and Lyons M. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Western Australian Department of Conservation and Land Management and the Western Australian Conservation Council.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- 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.
- Water and Rivers Commission (2001). Position Statement: Wetlands, Water and Rivers Commission, Perth.
- Williams M.R (2009) Butterflies and Day-flying Moths in a Fragmented Urban Landscape, South-west Western Australia: Patterns of Species Richness. Pacific Conservation Biology V15,p 32-46. TRIM Ref DOC88237

## 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)