



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 4187/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Tuma Holdings Pty Ltd

### 1.3. Property details

Property: Mining Lease 70/836  
 Local Government Authority: Shire of Northam  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5		Mechanical Removal	Sand Extraction

### 1.5. Decision on application

Decision on Permit Application: Grant  
 Decision Date: 14 April 2011

## 2. Background

### 2.1. Existing environment and information

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

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard vegetations associations: (Shepherd et al., 2001; GIS Database):</p> <p><b>4:</b> Medium woodland; marri &amp; wandoo; and</p> <p><b>3003:</b> Medium forest; jarrah &amp; marri on laterite with wandoo in valleys, sandy swamps with teatree and Banksia.</p> <p>A vegetation assessment was undertaken on Mining Lease 70/836 to record the species richness and diversity of the vegetation prior to mining (Landform Research, 1998). The vegetation that was surveyed is located immediately west of the application area (Landform Research, 1998). The vegetation community has been described as:</p> <p>- Open Low Jarrah Woodland: Species comprised of scattered regrowth of <i>Eucalyptus marginata</i> with isolated <i>Banksia grandis</i> over an understorey dominated by <i>Stirlingia latifolia</i>, <i>Bossiaea eriocarpa</i>, <i>Dryandra lindleyana</i> with <i>Hibbertia huegelii</i>.</p>	<p>Tuma Holdings Pty Ltd has applied to clear up to 5 hectares of native vegetation for the purpose of sand extraction. Vegetation will be cleared using a front end loader.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994)</p>	<p>The application area is located adjacent to an existing sand mining operation to the northwest and farmland to the south. The application area is bordered by native vegetation to the northeast. The vegetation is located within the Mundaring Weir Catchment Area.</p>

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

The application area is located within the Northern Jarrah Forest subregion of the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The vegetation of the subregion comprises of Jarrah-Marri forest in the west with Bullich and Blackbutt in the valleys, grading to Wandoo and Marri woodlands in the east with Powderbark on breakaways (CALM, 2002).

The vegetation within the application area has been described as 'Open Low Jarrah Woodland' (Landform

Research, 1998). A site inspection by the Department of Environment and Conservation on 14 April 2005 of the vegetation adjacent to the application area determined the vegetation to be regrowth jarrah forest (Department of Environment and Conservation, 2007). Landform Research (2006) has recorded a total of 60 flora species from 39 genera within an area of Jarrah woodland on Mining Lease 70/836 adjacent to the application area. Given the similarity of vegetation types on Mining Lease 70/836, it is likely that the number and type of flora taxa recorded adjacent to the application area would be comparable to the vegetation within the application area.

The application area is located within the Mundaring Weir Catchment Area which covers an area of approximately 150,000 hectares (GIS Database). Only 3% of this catchment has been cleared (Smith et al., 2007) and the vegetation communities and flora taxa within the application area are well represented throughout the adjoining catchment area which remains largely uncleared.

The area applied to be cleared is located adjacent to an existing sand quarry. There are no records of Declared Rare Flora, Priority Flora or Threatened Ecological Communities located within the local area (10 kilometre radius) and given that the 'Open Low Jarrah Woodland' vegetation community is common throughout the Mundaring Weir Catchment Area, the vegetation proposed to be cleared is unlikely to represent an area of increased biological diversity.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** CALM (2002)  
Department of Environment and Conservation (2007)  
Landform Research (2006)  
Smith et al. (2007)  
GIS Database:  
- Declared Rare and Priority Flora List  
- CAWSA Part IIA Clearing Control Catchments  
- Interim Biogeographic Regionalisation of Australia  
- Interim Biogeographic Regionalisation of Australia (subregions)  
- Mundaring 1m Orthomosaic - Landgate 2000  
- Threatened Ecological Communities

**(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**

A search of the Department of Environment and Conservation's (DEC) NatureMap database identified the following species of conservation significance which may have the potential to occur within the application area (NatureMap, 2011):

- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Schedule 1;
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Schedule 1, Endangered;
- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*), Schedule 1, Vulnerable;
- Brush-tailed Phascogale (*Phascogale tapoatafa* ssp.), Schedule 1;
- Numbat (*Myrmecobius fasciatus*), Schedule 1, Vulnerable;
- Chuditch (*Dasyurus geoffroii*), Schedule 1, Vulnerable;
- Western Brush Wallaby (*Macropus irma*), Priority 4.

A site inspection of Mining Lease 70/836 was undertaken by the Department of Environment and Conservation on 8 June 2007 of an area located immediately west of the application area (Department of Environment and Conservation, 2007). The vegetation was considered to be in 'very good' condition and dominated by regrowth open *Eucalyptus marginata* forest with sparse understorey (Department of Environment and Conservation, 2007). The application area is located within the Mundaring Weir Catchment Area, and Smith et al. (2007) confirm that virtually all the native forest within the catchment has been previously logged. Given the absence of any old growth timber which may support suitable sized hollows, the vegetation within the application area is unlikely to provide any suitable nesting habitat for the Forest Red-tailed Black Cockatoo, Carnaby's Black Cockatoo and Baudin's Black Cockatoo. However, the presence of *Eucalyptus marginata* and *Banksia grandis* within and adjoining the application area indicates that the vegetation may provide suitable foraging habitat for these species.

The application is located directly adjacent to an existing sand mining operation. The vegetation within the application area forms part of a large expanse of native vegetation that is located within the Mundaring State Forest covering an area in excess of 50,000 hectares (GIS Database) and is unlikely to provide an important ecological link or corridor for native fauna movements.

Given that the application area is contiguous with large tracts of native vegetation which form part of the Mundaring State Forest and considering the disturbance associated with the existing sand mining operation it is not likely that the vegetation applied to be cleared comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Department of Environment and Conservation (2007)  
 Smith et al. (2007)  
 Naturemap (2011)  
 GIS Database:  
 - Mundaring 1m Orthomosaic - Landgate 2000

**(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 Declared Rare Flora (DRF) located within the local area (10 kilometre radius) (GIS database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** GIS Database:  
 - Declared Rare and Priority Flora List

**(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 records of Threatened Ecological Communities (TEC's) within the local area (10 kilometre radius) (GIS database). The nearest known TEC is located approximately 32 kilometres west of the application area (GIS database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** GIS Database:  
 - Threatened Ecological Communities

**(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 clearing application area is located within the Jarrah Forest bioregion and the Northern Jarrah Forest sub bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA). Approximately 54.2% and 37.68% of the pre-European vegetation remains within these bioregions respectively (GIS database; Shepherd, 2009).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Pre-european % in IUCN Class I-IV Reserves (and post clearing %)
IBRA bioregion – Jarrah Forest	4,506,657	2,514,550	~55.80	4.7 (14.2)
IBRA Sub bioregion – Northern Jarrah Forest	680,652	256,474	~37.68	11.6 (17.5)
<b>Beard veg assoc. – State</b>				
4	1,054,280	254,657	~30.15	4.4 (14.3)
3003	66,452	40,721	~61.08	7.9 (12.9)
<b>Beard veg assoc. – Bioregion</b>				
4	1,022,713	310,603	~30.37	4.4 (14.3)
3003	66,452	40,721	~61.3	7.9 (12.9)
<b>Beard veg assoc. – Sub Bioregion</b>				
4	614,201	215,888	~35.15	6.5 (18.4)
3003	66,451	40,586	~61.08	7.9 (12.9)
<b>Shire</b>				
Northam	143,054	35,720	~24%	4.67 (18.4)

\* Shepherd (2009)

\*\* Department of Natural Resources and Environment (2002)

The vegetation of the clearing application area has been mapped as Beard vegetation association 4: Medium woodland; marri & wandoo, and 3003: Medium forest; jarrah & marri on laterite with wandoo in valleys, sandy

swamps with teatree and Banksia (GIS Database). According to Shepherd (2009), approximately 35% and 61% of Beard vegetation associations 4 and 3003 remains within the Northern Jarrah Forest sub bioregion which is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000).

The application area is located in the Shire of Northam which only retains approximately 24% of its pre-European vegetation extent however the vegetation within the application area forms part of a large expanse of native vegetation that is located within the Mundaring State Forest in the west of the Shire.

Given that the vegetation applied to be cleared is well represented in the local area and throughout the Mundaring State Forest it is not considered likely to be significant as a remnant in a highly cleared landscape.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Department of Natural Resources and Environment (2002)  
EPA (2000)  
Shepherd (2009)  
GIS Database:  
- Interim Biogeographic Regionalisation of Australia (subregions)  
- Interim Biogeographic Regionalisation of Australia  
- Mundaring 1m Orthomosaic - Landgate 2000  
- Pre-European Vegetation

**(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 at variance to this Principle**

There are no permanent watercourses, wetlands or drainage systems within the application area (GIS Database). Wariin Brook is located approximately 210 metres north and Helena River is located approximately 3.4 kilometres south of the application area (GIS Database). The vegetation within the application area is not considered to be growing in association with a wetland or watercourse.

Based on the above, the proposed clearing is not at variance to this Principle.

**Methodology** GIS Database:  
- Hydrography, linear

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

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

The application area is located in the north of the Mundaring Weir Catchment Area on the Darling Plateau (GIS Database; Smith et al., 2007). The soils on Mining Lease 70/836, within which the application area lies, consist of quartz sands with small but variable amounts of duricrust (Landform Research, 1998). The sand is very porous, with no surface water runoff and low levels of water retention through summer (Landform Research, 1998). The high porosity of the sandy soils is likely to minimise the risk of water erosion, however, due to the sandy nature of the soils there is a potential for wind erosion to occur should native vegetation be removed. The implementation of a staged clearing condition will minimise this risk.

Given the high porosity of the soils within the application area it is likely that a high proportion of rainfall that occurs on site will infiltrate to groundwater. Groundwater recharge and discharge influence the quality and flow of surface water that enters into the nearby Wariin Brook (situated approximately 210 metres north of the application) which is ultimately held by Mundaring Weir on the Helena River (Smith et al., 2007).

A seepage area is located approximately 1.2 kilometres west of the application area and this area is situated immediately adjacent to a previously mined area on Mining Lease 70/233. Topographic contour information demonstrates that the seepage area is located down slope from the application area (GIS Database). This area is clearly evident in aerial imagery and located approximately 80 metres from Wariin Brook (GIS Database). The salinity of the water at the seep has been measured at 950 milligrams per litre Total Dissolved Solids (MWES, 2009).

The proposed clearing of 5 hectares of native vegetation and mining of the underlying soils will increase groundwater recharge which will subsequently continue or increase brackish to saline groundwater discharge into Wariin Brook. With an increase in the volume of water discharged at the seep it is probable that there will be an increased risk of waterlogging to a larger area at this seepage site, and this may make the area prone to increased salinisation during summer due to increased capillary evaporation and resultant salt deposition (MWES, 2009). Advice provided by the Department of Agriculture and Food (2009) identified that clearing on Mining Lease 70/836 was liable to incrementally increase salinity in the sub-catchment.

However advice provided by the Department of Water (2011) identifies that any clearing salinity impact could be mitigated by pit rehabilitation (which is required under conditions placed upon the mining tenement in accordance with the *Mining Act 1978*) and the establishment of a 12 hectare vegetation offset. Tuma holdings

Pty Ltd have committed to the establishment of a 12 hectare vegetation offset area which lies within the very high salinity risk part of the Mundaring Weir Catchment. The Department of Water have identified that the siting of the revegetation area along a stream line degraded by clearing induced salinisation meets the Department of Water requirements (Department of Water, 2011).

The proposed clearing of 5 hectares of native vegetation is likely to increase recharge and continue or increase waterlogging and salinisation to land down gradient from the application area, and in Wariin Brook however these land degradation impacts may be mitigated through the implementation of a revegetation condition requiring the development of a 12 hectare vegetation offset within the very high salinity risk part of the Mundaring Weir Catchment and pit rehabilitation which is required under conditions placed upon the mining tenement in accordance with the *Mining Act 1978*.

Based on the above, the proposed clearing is at variance to this Principle.

**Methodology** Department of Agriculture and Food (2009)  
Department of Water (2011)  
Landform Research (1998)  
MWES (2009)  
Smith et al. (2007)  
GIS Database:  
- CAWSA Part IIA Clearing Control Catchments  
- Hydrography, linear  
- Mundaring 1m Orthomosaic - Landgate 2000  
- Topographic Contours, 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 may be at variance to this Principle**

The application area is located within the Mundaring State Forest which is vested by the Conservation Commission for the purpose of State Forest (GIS Database). Wandoo National Park is located approximately 3 kilometres east of the application area (GIS Database), and Woottating Nature Reserve, Beechina Nature Reserve, Beechina North Nature Reserve and Inkpen Road Nature Reserve are located within 10 kilometres of the application area (GIS Database).

The proposed clearing is located approximately 2 kilometres from a Phytophthora risk area to the east, approximately 3 kilometres from a risk area to the south and between 3 and 5 kilometres from a risk area to the west (Department of Environment and Conservation, 2007). Given the location of the application area within the Mundaring State Forest and considering the proximity of nearby conservation areas there is potential for the spread of dieback and weeds into these areas. However the implementation of a weed and dieback management condition will minimise the potential for the spread of weeds and dieback into uninfested areas.

Based on the above, the proposed clearing may be at variance to this Principle.

**Methodology** Department of Environment and Conservation (2007)  
GIS Database:  
- CALM Managed Lands and Waters

**(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 at variance to this Principle**

The application area is located within the Mundaring Weir Catchment Area. This catchment has been subject to *Country Areas Water Supply Act 1947* (CAWS Act) native vegetation clearing controls since December 1978. The application area is located in Zone A, a very high salinity risk part of the catchment (Department of Water, 2011).

The Mundaring Weir is located approximately 17 kilometres south-west of the application area (GIS Database). The Mundaring Reservoir supplies the Goldfields and Agricultural areas. The reservoir has a desired potable saline limit of 500 milligrams per litre (Total Dissolved Solids) (Smith et al., 2007), and this resource has always been sensitive to even small areas of clearing. The small residual clearings within the catchment total only 3% but remain a significant concern for the salinity of inflow to the reservoir (Smith et al., 2007).

The application area is located within the Helena River sub-catchment of the Mundaring Weir Catchment. This sub-catchment is known to contribute 63% of the reservoirs salt load and only 30% of the inflow. The salinity of water entering the Mundaring Reservoir from the Helena River sub-catchment alone has been measured at approximately 1,500 milligrams per litre (Total Dissolved Solids). The Mundaring Reservoir inflow salinity, with a mean of 510 milligrams per litre (Total Dissolved Solids), is above the desired potable limit (Smith et al. 2007).

Rain and surface water readily infiltrate the soil over much of the Mundaring Weir Catchment and recharge the various aquifers. Increased recharge is known to follow land clearing which alters the water level and salinity

according to the landscape setting (Smith et al., 2007). A significant threat to the quality of groundwater within the Mundaring Weir Catchment is the 'mixing' of saline groundwater with relatively fresh surface water (Smith et al., 2007). Given the high permeability of soils within the application area this is most likely to occur at, or down gradient of sand mining operations where the removal of deep rooted perennial native vegetation and removal of significant resources of sand create conditions that bring ground and surface water resources closer together. Groundwater recharge and discharge influence the quality and flow of surface water that flows into the nearby Wariin Brook which is ultimately held by Mundaring Weir on the Helena River (Department of Environment and Conservation, 2007).

Tuma Holdings Pty Ltd commissioned Meyer Water Environmental Solutions (MWES) Consulting to supervise the installation of two groundwater monitoring bores on 22 and 23 September 2009, and to measure the water level and salinity content of each bore. Both groundwater monitoring bores are located west and down gradient of the application area. Bore ACT MB1 is located at the entry to the quarry on Mining Lease 70/836, and bore ACT MB2 is located in the mid-eastern section of the existing quarry (MWES, 2009). Surface water samples were also taken from an existing bore and sump within the quarry, as well as from a seepage area that is located approximately 700 metres west of the quarry on Mining Lease 70/836.

Groundwater salinities for ACT MB1 (26.5 metre depth) and ACT MB2 (29.5 metre depth) were measured at 2,030 milligrams per litre (Total Dissolved Solids), and 2,980 milligrams per litre (Total Dissolved Solids) respectively (MWES, 2009). Groundwater salinities of the existing bore ACT EXIST (17.3 metre depth) and ACT SEEP (surface) were measured at 770 milligram per litre (Total Dissolved Solids), and 950 milligrams per litre (Total Dissolved Solids) respectively (MWES, 2009).

MWES (2009) have acknowledged in their report that the Total Dissolved Solid content of the newly installed monitoring bores, the existing monitor bore and the seep were higher than the Australian Water Quality Guideline for human drinking.

MWES (2009) found the source of salinity in the sand aquifer to be the saline groundwater and brackish surface water runoff from properties to the south of the sand quarry. Monitoring bores 08AB01D, 08AB02D and 08AB03D located on land owned by the Water Corporation had progressively higher salinities from north closest to the paleochannel to the south, closest to the shallow basement (MWES, 2009). The groundwater salinity in these bores was measured at 4,500 milligrams per litre (Total Dissolved Solids), 10,000 milligrams per litre (Total Dissolved Solids) and 15,000 milligrams per litre (Total Dissolved Solids) (bore logs provided to MWES by Department of Water (MWES, 2009). This aquifer is saline due to historical land clearing and the subsequent rise in the water table mobilising salt from the laterite soil profile on the farmland to the south (MWES, 2009).

Department of Water (2011) identify that the application area is located in Zone A of the Mundaring Weir Catchment which has a very high salinity risk in which the Department of Water would normally oppose any proposed clearing because there would be increased salinisation of water resources following the removal of native vegetation (Department of Water, 2011). The proposed clearing of native vegetation has the potential to have an adverse salinity impact as a high proportion of rainfall that occurs on the site will end up as groundwater recharge. However in this instance the Department of Water (2011) has identified that any clearing salinity impact could be mitigated by pit rehabilitation (which is required under conditions placed upon the mining tenement in accordance with the *Mining Act 1978*) and the establishment of a 12 hectare vegetation offset. Tuma holdings Pty Ltd have committed to the establishment of a 12 hectare vegetation offset area which lies within the very high salinity risk part of the Mundaring Weir Catchment. The Department of Water have identified that the siting of the revegetation area along a stream line degraded by clearing induced salinisation meets Department of Water requirements (Department of Water 2011).

The salinity impacts associated with the proposed clearing of native vegetation may be mitigated through the implementation of a revegetation condition requiring the development of a 12 hectare vegetation offset within the very high salinity risk part of the Mundaring Weir Catchment and pit rehabilitation which is required under conditions placed upon the mining tenement in accordance with the *Mining Act 1978*.

Based on the above, the proposed clearing is at variance to this Principle.

**Methodology** Department of Environment and Conservation (2007)  
Department of Water (2011)  
MWES (2009)  
Smith et al. (2007)  
GIS Database:  
- CAWSA Part IIA Clearing Control Catchments

**(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 application area experiences mean annual rainfall of approximately 800 millimetres and mean annual evaporation of approximately 2,000 millimetres (GIS Database). Topographic contour information indicates that the application area is not associated within any low-lying drainage area (GIS Database). The soils within the application area are characterised by deep, coarse quartz yellow or red sands which are considered to be well drained (Landform Research, 1998) and the proposed clearing is not considered likely to cause, or

exacerbate, the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

- Methodology** Landform Research (1998)  
GIS Database:
- Evaporation Isoleths
  - Hydrography, linear
  - Rainfall, Mean Annual
  - Topographic Contours, Statewide

### **Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.**

#### **Comments**

Tuma Holdings Pty Ltd have applied on two previous occasions to clear native vegetation on Mining Lease 70/836. Under clearing permit application CPS 365/1 Tuma Holdings Pty Ltd applied to clear up to 2 hectares of native vegetation within an area immediately west of the application area (GIS Database). CPS 365/1 was refused by the Department of Environment and Conservation (DEC) on 5 July 2007 as the proposal was considered to be 'seriously at variance' to Principle (i) (GIS Database). The refusal of CPS 365/1 was appealed by Tuma Holdings Pty Ltd, however the appeal was subsequently dismissed by the Minister for Environment (Appeal Number C027 of 2007). Tuma Holdings Pty Ltd then applied to clear 6.5 hectares (subsequently amended to 9.3 hectares) of native vegetation for sand extraction (CPS 2962/1) however the application was refused on 3 December 2009 with the proposal being seriously at variance to Principle (i). CPS 2962/1 received an appeal against the refusal of the permit. The Minister's decision dated 3 December 2010 dismissed the appeal. The Minister suggested that the appellant first demonstrate that the potential salinity impacts can be mitigated and offset to the requirements of the Department of Water, prior to submitting a new application.

The applied area falls within Zone A of the Mundaring Weir Catchment, which is subject to clearing controls under the *Country Areas Water Supply Act 1947*. The Department of Water (2011) have advised that the proposed works lie within Zone A, a very high salinity risk part of the Mundaring Weir Catchment Area. However in this instance the Department of Water (2011) has identified that any clearing salinity impact could be mitigated by pit rehabilitation (which is required under conditions placed upon the mining tenement in accordance with the *Mining Act 1978*) and the establishment of a 12 hectare vegetation offset. Tuma Holdings Pty Ltd have committed to the establishment of a 12 hectare vegetation offset which lies within the very high salinity risk part of the Mundaring Weir Catchment. The Department of Water have identified that the siting of the revegetation area along a stream line degraded by clearing induced salinisation meets the Department of Water requirements (Department of Water 2011).

There are no Native Title Claims over the area under application (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is one registered Site of Aboriginal Significance within the area applied to clear (GIS Database). 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 clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

- Methodology** GIS Database
- Clearing Instruments
  - Native Title Claims
  - Sites of Aboriginal Significance

#### **4. References**

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- Department of Agriculture and Food (2009) Land Degradation Advice and Assessment Report for Clearing Permit Application CPS 2962/1 Tuma Holdings Pty Ltd, Received 2 December 2009, Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia.
- Department of Environment and Conservation (2007) Native vegetation clearing permit assessment information and advice for CPS 365/1, Department of Environment and Conservation, Perth, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
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- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Landform Research (1998) Vegetation Study and Rehabilitation Plan, ML 70/836, The Lakes, Prepared for Action Sand Supplies, Prepared by Landform Research, 21 July 1998.
- Landform Research (2006) Annual Report 2005 -2006 for M70/233 and M70/836 – Goods Road Sand Pit, Prepared by Landform Research, Prepared for Tuma Holdings Limited, 25 June 2006.
- MWES (2009) Action Sand Supply, Salinity Risk Assessment, Action Sand Quarry, prepared for Action Sand Supply, prepared by Meyer Water Environmental Solutions, 12 October 2009.
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- Shepherd, D.P. (2009) 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.
- Smith, R. A., Bari, M. A., Dixon, R. N. M. & Rowlands, D. W. (2007) Helena River Salinity Situation Statement, Western Australia Department of Water, Water Resource Technical Series, no WRT 34, 190p.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), Western Australia
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DoE</b>	Department of Environment (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental Protection Act 1986, Western Australia
<b>EPBC Act</b>	Environmental Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI Act</b>	Rights in Water and Irrigation Act 1914, Western Australia
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia
<b>TEC</b>	Threatened Ecological Community

### Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1**      **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2**      **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3**      **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4**      **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.



- R**      **Declared Rare Flora – Extant taxa** (= *Threatened Flora = Endangered + Vulnerable*): taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X**      **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1**    **Schedule 1 – Fauna that is rare or likely to become extinct**: being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2**    **Schedule 2 – Fauna that is presumed to be extinct**: being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3**    **Schedule 3 – Birds protected under an international agreement**: being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4**    **Schedule 4 – Other specially protected fauna**: being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1**      **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2**      **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3**      **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4**      **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5**      **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

**Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)**

- EX**      **Extinct**: A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)**    **Extinct in the wild**: A native species which:  
 (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or  
 (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR**      **Critically Endangered**: A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN**      **Endangered**: A native species which:  
 (a) is not critically endangered; and  
 (b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU**      **Vulnerable**: A native species which:  
 (a) is not critically endangered or endangered; and  
 (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD**      **Conservation Dependent**: A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.