



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1871/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: City of Wanneroo

### 1.3. Property details

Property:  
 ROAD RESERVE ( DARCH 6065)  
 ROAD RESERVE ( DARCH 6065)  
 LOT 300 ON PLAN 48805 ( DARCH 6065)  
 LOT 19 ON DIAGRAM 18075 (House No. 32 TONY MARTIN DARCH 6065)  
 ROAD RESERVE ( DARCH 6065)  
 ROAD RESERVE ( LANDSDALE 6065)  
 ROAD RESERVE ( LANDSDALE 6065)  
 ROAD RESERVE ( DARCH 6065)  
 LOT 8 ON PLAN 36178 (House No. 18 JENKYN LANDSDALE 6065)  
 ROAD RESERVE ( DARCH 6065)  
 ROAD RESERVE ( LANDSDALE 6065)  
 ROAD RESERVE ( LANDSDALE 6065)  
 Local Government Area: City Of Wanneroo  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.4		Mechanical Removal	Road construction or maintenance

## 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 and Jarrah (Shepherd 2006).	Vegetation clearing is proposed for the construction of Mirrabooka Avenue through road, between Hepburn Avenue and Furniss Road.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation clearing description based on information obtained from the Site Inspection (2007) (TRIM Ref: DOC27522). As some vegetation is 'degraded' - 'completely degraded' and other areas 'very good' to 'excellent' an average condition rating of the vegetation under application is deemed to be 'very good'.
Heddle Vegetation Complex: - Karrakatta Complex - Central: and South: Predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species (Hedde et al. 1980).	Vegetation under application varied along the length of the application site, with vegetation south of Landsdale Road and north of Kingsway Road having a highly disturbed community structure, extensive weed invasion and a condition ratings of 'degraded' and 'completely degraded'.		
	Vegetation under application between Landsdale Road and Kingsway Road ranges in condition from 'degraded' to 'excellent'. Areas along the fire break on the western side are in 'degraded' condition while areas to		

the east are in 'very good' to 'excellent' condition. Areas to the east comprise diverse *Banksia* woodland on the sandy rises, which transitioned to *Eucalyptus marginata* woodland on areas lower in the landscape.

Within the area under application the upper storey consists of *Eucalyptus marginata* with a middle storey of *Banksia menziesii*, *B. attenuata* and *Nuytsia floribunda*, and a lower storey and ground cover of *Xanthorrhoea preisii*, *Allocasuarina humilis*, *Conostephium pendulum*, *Hibbertia hypericoides*, *Petrophile macrostachya*, *Anigozanthos menziesii*, *Calothamnus quadrifidus*, *Gompholobium tomentosum*, *Thysanotus dichotomus*, *Macrozamia riedlei*, *Acacia pulchella*, *Conostephium preisii*, *Stirlingia latifolia*, *Leucopogon racemosus*, *Daviesia triflora*, *Hovea trisperma*, *Mesomelaena tetragona*, *Calectasia* sp., *Juncus* sp. and *Conostylis* sp.

The most common weed species recorded is Perennial Veldtgrass (*Ehrharta calycina*) although this species is absent from some areas whilst having aggressively invaded others. Less common weed species recorded include Coast Teatree (*Leptospermum laevigatum*), Garden nasturtium (*Tropaeolum majus*) and Blue Morning Glory (*Ipomoea indica*).

### 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 proposed vegetation clearing is to enable the extension of Mirrabooka Avenue from Hepburn Avenue to Furniss Road. Vegetation within some areas of the unconstructed road reserve has been highly modified from its original structure, and is not expected to comprise a high level of biological diversity.

Notwithstanding, vegetation contained within the eastern portion of the unconstructed Mirrabooka Road reserve, between Landsdale Road and Kingsway Road, transitions from a relatively diverse *Banksia* woodland on the sandy rises to *Eucalyptus marginata* woodland on areas lower in the landscape, and has an average vegetation condition of 'very good' (Site inspection 2007). Given the proximity and similar vegetation structure to many occurrences of a known Threatened Ecological Community that occur within a 10 km radius of the subject area, it is considered that vegetation in these areas may comprise a high level of biological diversity.

To mitigate the loss of vegetation that comprises of high biological diversity, a condition has been imposed to minimise weed and dieback.

##### Methodology

##### Reference:

- Site Inspection (2007) (TRIM Ref. DOC 27522)  
GIS Databases:

**(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**  
Thirteen indigenous fauna taxa of significance have been recorded within a 10km radius of the area under application.

Vegetation within the applied area is observed to consist primarily of Jarrah and Banksia woodland (Site inspection 2007). Given this floristic composition, it is considered that, of the thirteen identified species of significance, only three species may utilise the area under application. These being the Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Quenda (*Isodon obesulus fusciventer*), and the native bee (*Hylaeus globuliferus*).

However given the isolation, size and linearity of the vegetation under application, it is not likely to be part of or is necessary for the maintenance of significant habitat for indigenous fauna.

**Methodology**      **References:**  
- Site Inspection (2007) (TRIM Ref. DOC 27522)

**GIS Databases:**  
- SAC Bio datasets 02/07/2007  
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

**(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**  
Three taxa of Declared Rare Flora (DRF), one species of Priority 1, one species of Priority 3, and three taxa of Priority 4 occur within a 10 km radius of the area under application, with the closest DRF *Epiblema grandiflorum* var. *cyaneum* being 7.9 km south east of the application site. Habitat for this species is described as winter-wet swamps. The closest Priority species *Cyathochaeta teretifolia* is mapped 3.1 km north of the area under application; the habitat description for this species is swamps and creek edges in grey sand and sandy clay.

Vegetation within the area applied area was observed to consist primarily of Jarrah and Banksia woodland, over yellow sands, and lacking winter wet or permanently inundated areas. Considering this and the habitat requirements of the identified DRF and Priority flora, it is considered unlikely that the area under application includes, or is representative of habitat for these identified taxa (Western Australian Herbarium 1998-).

**Methodology**      **References:**  
- Western Australian Herbarium (1998-)  
- Site Inspection (2007) (TRIM Ref. DOC 27522)

**GIS Databases:**  
- SAC Bio datasets 02/07/2007

**(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 may be at variance to this Principle**  
There are 37 known occurrences of one Threatened Ecological Community (TEC) within a 10km radius of the vegetation under application, the closest being approximately 120m from the vegetation under application.

These occurrences are of Floristic Community Type (FCT) 20a, known as 'Banksia attenuata woodlands over species rich dense shrublands' (Gibson et al. 1994). Given the close proximity to these known TEC, and a similar soil type and vegetation structure (Site inspection 2007), the vegetation under application may be representative of this TEC (Swan Coastal District).

A condition will be imposed to manage the possible occurrence of TECs within the areas under application and offsets.

**Methodology**      **References:**  
- Site Inspection (2007) (TRIM Ref. DOC 27522)  
- Gibson et al (1994)

**GIS Databases:**  
- SAC Bio datasets 02/07/2007

**(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**

Vegetation within the areas under application is identified as a component of Heddle Vegetation Complex 'Karrakatta Complex - Central and South' and Beard Vegetation Association 6, which have current representation levels of 29.5% and 26.6% respectively.

reserves/DEC-	Pre-European area (ha)	Current extent (ha)	Remaining %	Conservation status****	% in managed land
Swan Coastal Plain	1,501,456	571,758	38.1 **	Depleted	-
City of Wanneroo	78,809	45,361	57.6 *	Least concern	-
Heddle vegetation complex					
- Karrakatta Complex - Central and South	49,912	14,729	29.5 **	Vulnerable	2.5
Beard vegetation associations					
- 6	56,345	15,013	26.6 ***	Vulnerable	21.1

\* (Shepherd et al. 2001)

\*\* (Shepherd, 2006)

\*\*\* (EPA, 2006)

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

The State government is committed to the National Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Department of National Resources and Environment 2002; EPA 2000). However, EPA (2006) recognises that vegetation representation within constrained urban environments, such as the subject area, may be varied to a minimum representation level of 10%.

EPA (2006) recommends the protection of 10% of any vegetation community with greater than 10% pre-European extent currently remaining and the protection of all vegetation representative of communities with less than 10% pre-European extent remaining on the Swan Coastal Plain (based on Heddle et al. 1980). Heddle's Karrakatta Complex - Central and South is under the recommended representation, currently with 2.5 % in secure tenure (EPA 2006).

As the area under application covers approximately 1.5 ha of native vegetation, is thin and linear and is within a Local Government with 57.6% remaining vegetation, the area is not considered to be a significant remnant in an extensively cleared area.

**Methodology**

**References:**

- Department of Natural Resources and Environment (2002)
- EPA (2000)
- EPA (2006)
- Heddle et al. (2001)
- Shepherd et al. (2001)
- Shepherd (2006)

**GIS Databases:**

- Pre-European Vegetation - DA 01/01
- Heddle Vegetation Complexes - DEP 21/06/95
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

**(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**

Wetland and watercourse mapping identifies the nearest wetland to the area under application as a Conservation Category Wetland (CCW) approximately 520 m east of the area under application. Other nearby wetlands include Resource Enhancement Wetlands located approximately 570 m north and 730 m east and a Multiple Use Wetland located 1000 m north of the area under application.

Water and Rivers Commission (2001) provides recommended buffer distances for the protection and maintenance of wetland values, with generally a recommended 200 metre buffer from the wetland of interest. Given the distances to these identified wetlands, the proposed clearing is considered unlikely to impact on these waterbodies.

The areas under application observed during the site inspection consisted predominately of Banksia woodland

over sandy soils, and did not contain wetland or wetland dependent vegetation (Site inspection 2007).

**Methodology** References:  
- Site Inspection (2007) (TRIM Ref. DOC27522)  
- Water and Rivers Commission (2001)

GIS Databases:  
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain - DOE 15/09/04  
- Topographic Contours, Statewide - DOLA 12/09/02  
- EPP, Lakes - DEP 1/12/92

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

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

The area under application lies within a Class 3 Acid Sulphate Soil (ASS) Risk area. This Class is defined as having no known risk of ASS or potential ASS occurring within three metres of the soil surface.

The vegetation under application lies within soil unit Cb39. Soils of unit Cb39 are associated with subdued dune-swale terrain, with the chief soils being leached sands on the low dunes (Northcote et al. 1960-68). Soils on site were observed to primarily consist of fine yellow sand (Site inspection 2007).

The proposal may cause some short term land degradation issues in terms of soil erosion during works, however these issues should be minimal.

Given the small and linear nature of each application area, it is unlikely that the proposed clearing of native vegetation would cause appreciable land degradation.

**Methodology** References:  
- Site Inspection (2007) (TRIM Ref. DOC 27522)  
- Northcote et al. (1960-68)

GIS Databases:  
- Soils, Statewide - DA 11/99  
- Acid Sulphate Soil risk map, Swan Coastal Plain, DEC

**(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 numerous conservation areas within the local area, defined as a 5km radius surrounding the application site, the closest of which include Bush Forever Sites 199 (~140m west), 493 (~640m south), 328 (~1.7km west), 201 (~1.7km south), and 196 (~1.9km east). In addition, the DEC managed State Forest 65 (Gnangara Moore River State Forest) is located approximately 2.5 km to the east of the applied area.

Given the heavy level of urban development surrounding the application site, and the size, isolation and linearity of the area applied to be cleared, the clearing is unlikely to impact on the values of these conservation areas.

**Methodology** GIS Database:  
- CALM Managed Lands and Waters - CALM 01/07/05  
- BushForever - MFP 07/01  
- 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**

Soil mapping of the area under application identifies the landscape as comprising subdued dune-swale terrain, with the chief soils being leached sands on the low dunes (Northcote et al. 1960-68). Soils on site were observed to primarily consist of fine yellow sand (Site inspection 2007).

There are no wetlands or watercourses recognised within the areas under application, with the depth to groundwater estimated to range between 10m to 37m from the soil surface (Department of Environment 2004). In addition, the area under application is identified as having a nil to low risk of salinity and having no known risk of ASS or potential ASS occurring within three metres of the soil surface.

Given the small area of vegetation under application (~1.5 ha) it is considered unlikely that the proposed clearing would lead to a deterioration in the quality of surface or groundwater.

- Methodology** Reference:
- Department of Environment (2004)
- GIS Databases:
- Acid Sulphate Soil risk map, Swan Coastal Plain, DEC
  - Groundwater Salinity, Statewide - DOW
  - Hydrography, linear - DOE 1/2/04
  - Public Drinking Water Source Areas (PDWSAs) - DOW
  - Salinity Risk LM 25m - DOLA 00
  - Soils, Statewide - DA 11/99

**(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 or watercourses recognised within the areas under application, and depth to groundwater is estimated to range between 10m and 37m from the soil surface (Department of Environment 2004). Given the linear nature of the proposed clearing, and that there are no areas prone to inundation, it is considered unlikely that the proposed clearing would cause or exacerbate the incidence or intensity of flooding, on-site or off-site.

- Methodology** Reference:
- Department of Environment (2004)
- GIS Databases:
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain - DOE 15/09/04
  - Hydrography, linear - DOE 1/2/04

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

**Comments**  
 The City of Wanneroo submitted an application to clear 5.5 ha native vegetation immediately south-west of the area under application for the Hepburn Avenue Extension between Mirrabooka Ave and The Avenue, Landsdale (CPS 122/1). The proposal was referred to the EPA as 2.3 ha of TEC SCP20a was proposed to be cleared. LOA was ARI with a Ministerial Statement (0672) outlining an Environmental offset area of 2 ha in Middleton Park, in which native vegetation is required to be restored and preserved.

For this application, the City of Wanneroo (2007) have proposed to salvage local fauna and some native vegetation from the site prior to the commencement of construction works, including:

- Trapping and translocation of native animals (predominantly reptiles) to an appropriate nature conservation reserve within the vicinity;
- Removal and relocation of grass trees (*Xanthorrhoea preissii*), by an experienced contractor, for use in landscape in nearby areas, and;
- Collection of seed/cuttings and salvage of various understorey plants by local bushcare volunteers and local bush regeneration contractors and volunteers for use in bushland rehabilitation projects within local City-managed nature conservation reserves.

The City of Wanneroo (2007) also proposes:

- A temporary construction fence be erected prior to clearing, in order to delineate the construction site;
- Suitable top soil will be stripped and stockpiled on site for respreading on the batters; and
- Cleared vegetation will be mulched and spread on the batters, upon completion of earthworks.

Wind erosion can be reduced through appropriate management with the construction of wind break fencing during works. Once established the road and revegetated batters will act to control wind erosion of soils.

There are no Registered Sites of Aboriginal Significance recorded within the area under application.

There is no required RIWI Act Licence, Works Approval or EPA Act Licence that affects the areas under application.

- Methodology** References:
- Department of Indigenous Affairs (2007) (TRIM Ref. DOC27575)
  - City of Wanneroo (2007) (TRIM Ref. DOC27590)

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	2.4	The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing may be at variance to Principles (a) and (d).

## 5. References

- Atkins, K. (2006). Declared Rare and Priority Flora List. Department of Conservation and Land Management, Western Australia.
- City of Wanneroo. (2007). Mirrabooka Avenue extension Hepburn Avenue to Heathfield Drive, Landsdale: Native Vegetation Clearing Permit Application (Proposal). Perth, western Australia. TRIM Ref. 27590.
- Department of Indigenous Affairs. (2007). Aboriginal Heritage Inquiry System. Perth, Western Australia. <http://www.dia.wa.gov.au/Heritage/Inquiry/>. Accessed 03 July 2007. TRIM Ref. DOC27575.
- 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.
- 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.
- EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. (1994). A Floristic Survey of the southern Swan Coastal Plain. Department of Conservation and Land Management. Perth, Western Australia. Unpublished report for the Australian Heritage Commission.
- Heddle, 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shepherd, D.P. (2006). 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.
- Site Inspection. (2007). Site Inspection Report, Department of Environment and Conservation (DEC). Perth, Western Australia. TRIM Ref. DOC27522.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 02 July 2007).

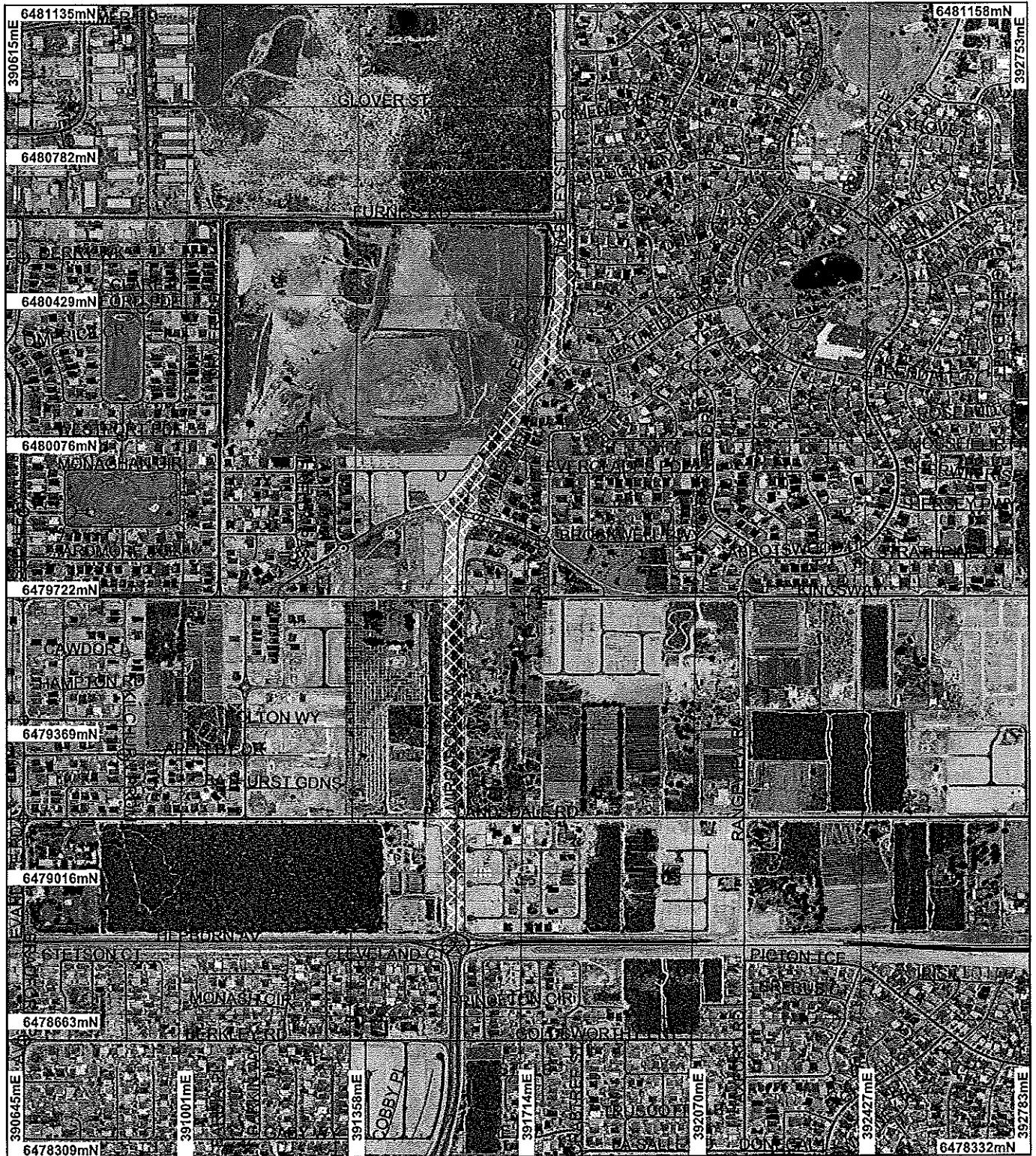
## 6. Glossary

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)





# Plan 1871/1



## LEGEND

- Clearing Instruments
- Areas Approved to Clear
- ✓ Road Centrelines - DLI 1/5/04
- Sywan Coastal Plain North  
20cm Orthomosaic - DLI08



Scale 1:12510  
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

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

*Keith Claymore* Date 18/10/07  
K Claymore

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.



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