



1. Application details

1.1. Permit application details

Permit application No.: 1601/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Connell Wagner

1.3. Property details

Property: LOT 12708 ON PLAN 193103 (House No. 60 SHENTON JOONDALUP 6027)
 Local Government Area: City Of Joondalup
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.1		Mechanical Removal	Building or Structure

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: 998 - Medium woodland tuart (Shepherd 2006).	The vegetation under application comprises of six vegetated areas, totalling ~4.1ha within the eastern portion of Crown Reserve, Lot 12708. The purpose of the proposed clearing is the extension of the Joondalup Health Campus. The vegetation under application is surrounded to the west by existing campus buildings and is located within an area zoned as the 'Central City Area'. Established residential areas are located to the west, with a large conservation area (Lake Joondalup Nature Reserve) located ~300m to the east.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation clearing description was determined from information obtained during the site inspection (2007) (TRIM Ref. DOC30141) and an Environmental Impact Assessment Report (Connell Wagner Pty Ltd 2006a).
Hedde Vegetation Complex: Cottesloe Central and South - Mosaic of woodland of E. gomphocephala and open forest of E. gomphocephala - E. marginata - E. calophylla; closed heath on the Limestone outcrops (Hedde et al. 1980).	Area 1 (~2.3ha), located directly adjacent to Lakeside Drive in the northern portion of Lot 12708, comprises of a Eucalyptus over storey (Tuart, Jarrah and Marri) over an understorey of Xanthorrhoea preissii and Macrozamia riedlei. A portion of the vegetation (~1.8ha) within this area had been impacted by a wild fire the night before the site inspection (2007). Therefore, a complete assessment and description of this area could not be completed.		
	Area 2 (~1.0ha) is located		

adjacent to Lakeside Drive within the southern portion of the property. The vegetation within this section comprises of a Eucalyptus (Tuart and Marri) with occasional Banksia over storey, over Xanthorrhoea preissii, Macrozamia riedlei, Jacksonia sternbergiana and Hardenbergia comptoniana. The vegetation within this area was considered to be in a degraded condition with a low level of floral diversity.

The vegetation within areas 3 (~0.3ha) and 4 (~0.2ha), located in the south western portion of the areas to be cleared, comprise a Eucalyptus (Tuart) over storey, with an understory of Xanthorrhoea preissii and Macrozamia riedlei. Area 3 is currently utilised as a stormwater drainage management area, whilst Area 4 had been impacted by fire in December 2006.

Areas 5 (~0.12ha) and 6 (~0.06ha) are located adjacent to the existing main building and car park areas. Both of these areas are currently used as stormwater drainage management areas, with the vegetation comprising of dense thickets of Acacia saligna and Melaleuca sp. with occasional Eucalyptus marginata and Jacksonia sternbergiana in a degraded condition.

Overall the vegetation within the areas under application is considered to be in a degraded condition with a low level of floral diversity. Across the sites the ground cover consisted mostly of weed species. This is possibly due to previous disturbance from historic grazing and the dumping of rubbish and waste into the area (Connell Wagner Pty Ltd 2006a).

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 vegetation under application comprises of six vegetated areas, totalling ~4.1ha within the eastern portion of Crown Reserve, Lot 12708. The vegetation under application is surrounded to the west by existing campus buildings and is located within an area zoned as 'Central City Area'. Established residential areas are located to the west, with a large conservation area (Lake Joondalup Nature Reserve) located ~300m to the east.

Across the majority of the sites the over storey comprises Eucalyptus sp. and occasional Banksia sp. with an understory predominantly consisting of Xanthorrhoea preissii and Macrozamia riedlei. Weed invasion was

evident in all of the areas under application (Site inspection 2007).

Overall the vegetation within the areas under application is considered to be in a degraded condition with a low level of biological diversity (Site inspection 2007). Therefore the proposed clearing is not likely to be at variance to this Principle.

Methodology Reference:
- Site inspection (2007)
GIS Databases:
- Cadastre - DLI
- CALM Managed Lands and Waters
- Metropolitan Regional Scheme
- 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 may be at variance to this Principle**

Six conservation significant fauna have been recorded within a 5km radius of the vegetation under application, with fauna surveys within the adjacent Yellagonga Regional Park (Bush Forever Site 299) identifying numerous bird, mammal and reptile species (Government of Western Australia 2000).

Of these species, the Quenda (*Isoodon obesulus fusciventer*) (Priority 5), Carpet Python (*Morelia spilota imbricata*) (Priority 4 and Schedule 4) and Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (Endangered) are the most likely to be impacted by the proposed clearing as they have been recorded within the adjacent Bush Forever reserve (Government of Western Australia 2000) and inhabit similar areas of vegetation to the areas under application. A fauna survey of the vegetation under application also identified these species as potentially inhabiting the areas under application (Connell Wagner Pty Ltd 2006b). Carnaby's Black Cockatoo and the Motor Bike Frog (*Littoria moorei*) have both been identified within the vegetation under application (Connell Wagner 2006a and 2006b).

Whilst the vegetation under application is considered to be in a degraded condition with a low level of floral diversity, the vegetation may provide important habitat for fauna dispersing from the adjacent Regional Park. The vegetation under application also contains several large Tuart, Jarrah and Marri trees with suitable nesting hollows, seen to be utilised by Galahs and Lorikeets during a fauna inspection (Connell Wagner 2006b).

Given the close proximity of the areas under application to the Regional Park, presence of mature trees with suitable hollows and low vegetation extent within the local area (only 15.5% Pre-European vegetation extent remaining within the City of Joondalup (Shepherd 2006)), the vegetation under application may provide significant habitat to local fauna and fauna utilising and dispersing from nearby conservation areas.

If a permit is granted, a condition addressing the relocation of indigenous fauna is recommended.

Methodology References:
- Connell Wagner Pty Ltd (2006a)
- Connell Wagner Pty Ltd (2006b)
- DEC Fauna Habitat Notes.xls - February 2007
- Government of Western Australia (2000)
- Shepherd (2006)
- Site inspection (2007)
GIS Databases:
- Bushforever
- Cadastre
- CALM Managed Lands and Waters
- DEC SAC Bio Datasets, Date accessed 02/08/2007
- Metropolitan Regional Scheme
- 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**

There are no known occurrences of Declared Rare Flora (DRF) within a 5km radius of the vegetation under application. The closest DRF is *Eucalyptus argutifolia*, located ~7.5km from the vegetation under application. Given that this species is known to occur within a different soil type and vegetation association to the vegetation under application, the area under application is unlikely to comprise this species.

A vegetation and flora survey undertaken in Area 1 in August 2006 did not identify any Declared Rare Flora species (Connell Wagner Pty Ltd 2006a).

Given the above, the vegetation under application is not considered likely to include, or be necessary for the continued existence of rare flora.

Thirteen known populations of three Priority Flora species are also known to occur within a 5km radius of the vegetation under application, the closest being a population of *Jacksonia sericea* (Priority 4) ~2km west of the vegetation under application. Of the three species present nearby, *Jacksonia sericea* (Priority 4) is known to occur within the same Beard and Heddle vegetation communities as the vegetation under application. A vegetation and flora survey undertaken within Area 1 in August 2006 did not identify any Priority Flora taxa (Connell Wagner Pty Ltd 2006).

- Methodology** References:
- Connell Wagner Pty Ltd (2006)
 - Connell Wagner Pty Ltd (2006a)
- GIS Databases:
- DEC SAC Bio Datasets, Date accessed 24/4/2007
 - Heddle Vegetation Complexes
 - Pre-European Vegetation
 - Soils, Statewide

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

- Comments** **Proposal is not likely to be at variance to this Principle**
- There are no known occurrences of Threatened Ecological Communities (TEC) within the areas of vegetation under application. The closest known occurrence of a TEC is Floristic Community Type (FCT) 26a, known as *Melaleuca huegelii*- *Melaleuca systema* shrublands on limestone ridges (Gibson et al. 1994), located ~8.5km from the vegetation under application. Given the distance to the closest known occurrence, the vegetation under application is not considered to be necessary for the maintenance of nearby occurrences of TEC.
- No TEC were identified during a vegetation and flora survey undertaken in August 2006 (Connell Wagner Pty Ltd 2006a). Given this and the description of the vegetation (Site inspection 2007), the areas under application are not considered likely to comprise the whole or part of a TEC.

- Methodology** References:
- Connell Wagner Pty Ltd (2006a)
 - Gibson et al. (1994)
 - Site inspection (2007)
- GIS Database:
- DEC SAC Bio Datasets, Date accessed 24/4/2007

(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**
- The vegetation under application is mapped as a component of Beard Vegetation Association 998 (Hopkins et al. 2001), and Heddle Vegetation Complex - Cottesloe Central and South (Heddle et al. 1980), of which 41.5% and 41.1% remains respectively (Shepherd 2006, Heddle et al. 1980).
- The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents a clearance of ecological communities with an extent below 30% of that present pre-European settlement (Commonwealth of Australia 2001).

	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	In reserves/CALM managed land
IBRA Bioregion:				
Swan Coastal Plain**	1,501,456	571,758	38.1	
City of Joondalup*	10,332	1,605	15.5	
Beard Vegetation Association: 998**	51,017	21,178	41.5	17.3
Heddle Vegetation Complex:				
Cottesloe Central & South	44,995	18,474	41.1	8.8

* (Shepherd et al. 2001)
 ** (Shepherd et al. 2006)

Both vegetation communities associated with the vegetation under application are above the State Government's 30% biodiversity conservation target. In addition, the EPA (2006) recognises that vegetation representation within constrained urban environments, such as this subject area, may be varied to a minimum representation level of 10%. The EPA (2006) also recommends the protection of 10% of any vegetation community with greater than 10% pre-European extent currently remaining on the Swan Coastal Plain (based on Heddle et al. 1980).

Whilst Heddle Complex Cottesloe Central and South is under the recommended representation with only 8.8% in secure tenure, and the City of Joondalup has only 15.5% Pre-European vegetation extent remaining, given the degraded condition of the vegetation under application (Site inspection 2007) the vegetation is not considered to be significant as a remnant of native vegetation.

- Methodology** **References:**
- Commonwealth of Australia (2001)
 - EPA (2006)
 - Heddle et al. (1980)
 - Hopkins et al (2001)
 - Shepherd et al. (2001)
 - Shepherd (2006)
 - Site inspection (2007)
- GIS Databases:**
- Heddle Vegetation Complexes
 - Interim Biogeographic Regionalisation of Australia
 - 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 likely to be at variance to this Principle

There are no wetlands or watercourses mapped within the vegetation under application. The closest wetland is a Conservation Category Wetland (CCW), Lake Joondalup, located ~270m from the vegetation under application.

Lake Joondalup is protected under the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (EPA 1992) as well as being listed as an Australian Nature Conservation Agency (ANCA) wetland. ANCA wetlands are defined as wetlands of national importance, listed in A Directory of Important Wetlands in Australia (Australian Nature Conservation Agency (1996).

The Water and Rivers Commission (2001) recommends a 200m buffer for wetlands to protect wetland values and functions. Given the distance to this wetland (~270m), the proposed clearing is outside the recommended buffer area and is therefore not considered likely to impact on the wetland.

The vegetation observed during the site inspection (2007) was considered to be more representative of an upland vegetation community, and is elevated 20-30m higher in the landscape. Therefore the vegetation under application is not considered to be growing in, or in association with, an environment associated with a watercourse or wetland.

- Methodology** **References:**
- Australian Nature Conservation Agency (1996)
 - EPA (1992)
 - Site inspection (2007)
 - Water and Rivers Commission (2001)
- GIS Databases:**
- ANCA, Wetlands
 - EPP, Lakes
 - Geomorphic Wetlands (Classification), Swan Coastal Plain
 - Hydrography, linear
 - Topographic Contours, Statewide

(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 vegetation under application is predominantly associated with an undulating dune landscape with some steep dune slopes, underlain by aeolianite at depth with chief soils of brown sands (Northcote et al. 1960-68). Swamps, with chief soils of neutral to alkaline marly peats (Northcote et al. 1960) are mapped on the eastern edge of the applied area, however are considered most likely to be limited to the extent of the adjacent Lake Joondalup Nature Reserve.

The areas of vegetation under application are associated with a Class 3 risk of Acid Sulphate Soils (ASS) or Potential ASS (PASS) occurring. This classification is defined as having no known risk of ASS or PASS.

Given the overall degraded condition of the majority of the vegetation under application (Site inspection 2007) and the applied area's location within and adjacent to established buildings and a well vegetated nature reserve, the proposed clearing is not considered likely to lead to appreciable land degradation.

- Methodology** **References:**
- Northcote et al. (1960)
 - Site inspection (2007)
- GIS Databases:**
- Acid Sulphate Soils Risk, Swan Coastal Plain
 - CALM Managed Lands and Waters
 - Soils, Statewide
 - Swan Coastal Plain North 20cm Orthomosaic - DLI06

(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 vegetation under application is located adjacent to the Lake Joondalup Nature Reserve, which is also listed as Bush Forever Site 299 (Yellagonga Regional Park)(1253ha)(Government of Western Australia 2000). Lake Joondalup is also listed as an Australian Nature Conservation Agency (ANCA) wetland. ANCA wetlands are defined as wetlands of national importance, listed in A Directory of Important Wetlands in Australia (Australian Nature Conservation Agency (1996).

The vegetation under application is considered likely to provide a buffer for these areas of conservation significance, and habitat for fauna dispersing from this adjacent reserve. Given the relatively large areas under application (4.1ha) and their close proximity to the reserve, the loss of these vegetated areas may impact on the environmental values of the adjacent area registered as a Bush Forever site, nature reserve and ANCA wetland.

- Methodology** **References:**
- Australian Nature Conservation Agency (1996)
 - Government of Western Australia (2000)
 - Site inspection (2007)
- GIS Databases:**
- ANCA, Wetlands
 - Bushforever
 - CALM Managed Lands and Waters
 - Clearing Regulations - Environmentally Sensitive Areas

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

The vegetation under application is located within a Priority 3 Public Drinking Water Source Area (PDWSA). Hospitals are a compatible land use within P3 areas where deep sewerage is connected (Department of Environment 2004).

Given the overall degraded condition of the vegetation under application (Site inspection 2007) the proposed clearing is not considered likely to cause deterioration in the quality of surface or underground water.

A Future Drainage Strategy for the Joondalup Health Campus has been devised to accommodate changes to hydrology and drainage with the proposed expansion. The strategy incorporates detention basins, bioretention swales and car park detention (Connell Wagner Pty Ltd 2006).

- Methodology** **Reference:**
- Department of Environment (2004)
 - Connell Wagner Pty Ltd (2006)
 - Site inspection (2007)
- GIS Databases:**
- Geomorphic Wetlands (Classification), Swan Coastal Plain
 - Groundwater Salinity, Statewide
 - Hydrography, Linear
 - Public Drinking Water Source Areas (PDWSAs)

(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

An assessment of current drainage determined that it is unlikely that rainfall events would result in surface ponding within the areas of vegetation under application due to the slope of the land, the high infiltration capacity of the sandy surface soil and the large depth to groundwater (Connell Wagner Pty Ltd, 2006). Therefore, the proposed clearing is not likely to be at variance to this Principle.

A Future Drainage Strategy for the Joondalup Health Campus has been devised to accommodate changes to hydrology and drainage with the proposed expansion. The strategy incorporates detention basins, bioretention swales and car park detention (Connell Wagner Pty Ltd 2006).

Methodology Reference:
- Connell Wagner Pty Ltd (2006)

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

Comments

Conditional Planning Approval (DA) has been issued from the City of Joondalup and covers the areas proposed to be cleared within this clearing permit application (Joondalup Health Centre 2008).

The Bush Forever Office (2006) recommends that consideration be given to the area proposed for development to avoid the fragmentation of the bushland. This would provide a larger consolidated bushland area which would be less likely to be affected by edge effects, such as weed invasion, and would provide a fauna habitat and could provide wildlife linkage through to the Bush Forever Site.

Recommendations from the Environmental Impact Assessment (Connell Wagner Pty Ltd 2006) and Vegetation and Flora Survey (Connell Wagner Pty Ltd 2006a) include the retention where possible of mature Tuart trees given their value as nesting sites, and weed management to prevent the spread of weeds.

There are no Aboriginal Sites of Significance or Native Title Claims associated with the areas of vegetation under application.

Methodology There are no other RIWI Act Licence or EPA Act Licenses associated with the proposed development.
References:
- Bush Forever (2006)
- Connell Wagner Pty Ltd (2006a)
- Department of Environment (2004)
- Joondalup Health Centre (2008)
GIS Databases:
- Aboriginal Sites of Significance
- DEC SAC Bio Datasets, Date accessed 24/4/2007
- Native Title Claims

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Building or Structure	Mechanical Removal	4.1	The assessable criteria have been addressed and the clearing as proposed may be at variance to Principles (b) and (h).

5. References

Australian Nature Conservation Agency (1996). "A Directory of Important Wetlands in Australia." Second Edition, ANCA, Canberra. ISBN 0 642 21378.

Bush Forever (2006) Direct Interest Submission for clearing permit application CPS 1601/1. Received 13/12/2006. Bush Forever Office, Department for Planning and Infrastructure, Western Australia (TRIM Ref. DOC12213).

Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.

Connell Wagner Pty Ltd (2006) Environmental Impact Assessment - Joondalup Health Campus, City of Joondalup, Prepared for the Joondalup Health Centre Pty Ltd (TRIM Ref. DOC7634).

Connell Wagner Pty Ltd (2006a) Environmental Impact Assessment - Joondalup Health Campus, City of Joondalup. Appendix B - ecologia Environment Vegetation and Flora Survey (TRIM Ref. DOC17833).

Connell Wagner Pty Ltd (2006b) Environmental Impact Assessment - Joondalup Health Campus, City of Joondalup. Appendix C - ecologia Environment Fauna Report (TRIM Ref. DOC17833).

DEC Fauna Habitat Notes.xls - February 2007.

Department of Environment (2004) Water Quality Protection Note: Land use compatibility in Public Drinking Water Source Areas.

- EPA (1992) Environmental Protection (Swan Coastal Plain Lakes) Policy 1992. Western Australian Government Gazette, 24 December, 1992, pp 6287-93
- 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 et al. (1994) A Floristic Survey of the Southern Swan Coastal Plain. Western Australian Department of Conservation and Land Management.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- 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.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- Joondalup Health Centre (2008) Copy of Conditional Planning Approval from the City of Joondalup. Received 18/03/2008 (TRIM Ref. DOC49176).
- 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)(TRIM Ref. DOC30141)
- Water and Rivers Commission (2001) Position Statement: Wetlands

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)