GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS
Area Permit Number: 7528/1
File Number: 2016/001762-1
Duration of Permit: From 14 January 2017 to 14 January 2019

PERMIT HOLDER
Murdoch University.

LAND ON WHICH CLEARING IS TO BE DONE
Lot 610 on Deposited Plan 75377, Murdoch.

AUTHORISED ACTIVITY
The Permit Holder shall not clear more than 2.2 hectares of native vegetation within the area cross hatched yellow on attached Plan 7528/1.

CONDITIONS
Dieback and weed control
(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:
  (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
  (ii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared;
  (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;

Definitions
The following meanings are given to terms used in this Permit:
dieback means the effect of *Phytophthora* species on native vegetation;
fill means material used to increase the ground level, or fill a hollow;
mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;
weed/s means any plant -
  (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
  (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
  (c) not indigenous to the area concerned.

James Widenbar
MANAGER
CLEARING REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

15 December 2016

Plan 7258/1

Legend

- Roads
- Imagery
- Clearing Instruments Activities
- Local Government Authority
- Cadastre

N

0 50m

1:1,445

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 15/12/16

James Widenbar

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

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Environment Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7258/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Murdoch University

1.3. Property details

Property: LOT 610 ON PLAN 75377, MURDOCH
Colloquial name: Murdoch University
Local Government Authority: MELVILLE, CITY OF
DER Region: Greater Swan
DPaW District: SWAN COASTAL
Localities: MURDOCH

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 15 December 2016

Reasons for Decision:
The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and has concluded that the proposed clearing is not likely to be at variance to the clearing principles.

Through the assessment it has been determined that the proposed clearing has the potential to spread weeds or dieback into surrounding vegetation in similar or better condition. The Delegate Officer considers that the adoption of weed and dieback management measures will assist in minimising this potential impact.

The Delegated Officer determined that the proposed clearing is unlikely to have any significant environmental impacts. Relevant State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

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
Broad scale vegetation mapping classifies the application area as: **Beard vegetation association 6:** Medium woodland; tuart & jarrah (Shepherd et al., 2001). **Beard vegetation association 1001:** Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (Shepherd et al., 2001).	The application is to clear 2.2 hectares of native vegetation, within a footprint of 3.2 hectares within Lot 610 on Deposited Plan 75377, Murdoch, for the purpose of constructing a synthetic turf sporting precinct.	Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). To; Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The applicant has engaged external consultants, Strategen Environmental Consultants Pty Ltd (Strategen) to complete: • Proposed Murdoch University Sports Precinct and Aquatic Centre. Level 1 Flora and Vegetation Survey (Strategen, 2016 a); • Native Vegetation clearing permit application (Area Permit) – supporting documentation, sports precinct (Strategen, 2016 b). A Level 1 vegetation assessment of flora and vegetation was undertaken on 22 July 2015 and 16 September 2015. Further site inspections occurred on 24 August 2015 and 17 September 2015. Vegetation within the application area is considered to be in a good to degraded

Heddle vegetation complex: Karrakatta complex-central and\south: open forest and woodland (Heddle et al., 1980).	(Keighery, 1994) condition, consisting of Eucalyptus species and exotic Pines (*Pinus pinaster*), over shrubs and exotic grasses (Strategen, 2016a). Department of Environment Regulation (DER) Environmental Officer's conducted a site inspection of the application area on 7 October 2016.
Heddle vegetation complex: Bassendean complex-central and\south: woodland to low woodland and sedge lands (Heddle et al., 1980).	

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposed clearing not likely to be at variance to this Principle

The application is to clear 2.2 hectares of native vegetation, within a footprint of 3.2 hectares within Lot 610 on Deposited Plan 75377, Murdoch, for the purpose of constructing a synthetic turf sporting precinct.

A Level 1 Flora and Vegetation Survey was conducted by Strategen to determine the nature and condition of native vegetation within the application area. The survey and application area share the same footprint. The survey scope was limited to a desktop assessment to identify flora and vegetation values present in or around the application area, collection and identification of vascular plant species, define and map native vegetation communities and determine vegetation condition. A total of eight native vascular plant species and seven exotic species were identified within the assessment area (Strategen, 2016a).

Strategen conducted a site assessment on 22 July 2015 with a further site inspection to survey for conservation significant flora species on 16 September 2015. Additional site inspections were completed on 24 August and 17 September 2015.

Two native vegetation types were defined and mapped within the survey area, being:

- **VT1:** Woodland of *Eucalyptus marginata* and *E. gomphocephala* over *Kunzea glabrescens* and mixed native/non-native shrubs and grasses, covering an area of approximately 0.7 hectares; and
- **VT2:** Scattered *Corymbia calophylla* and exotic *Pinus pinaster* trees over mostly non-native shrubs and grasses, covering an area of approximately 1.5 hectares

Strategen desktop assessment identified the potential for one rare and seven priority listed flora species to be found within the assessment area. No conservation significant species were identified during the flora survey (Strategen, 2016a).

Based upon suitable habitat and nearby surrounding occurrences, the application area may include the following priority macro fungi species:

- *Amanita quenda* (P1) (1.3 kilometres away);
- *Amanita carneiphylla* (P2) (274 metres away);
- *Amanita griseibrunnea* (P2) (770 metres away);
- *Amanita wadulawitu* (P2) (670 metres away); and
- *Amanita wadjukiorum* (P3) (279 metres away).

Department of Parks and Wildlife (Parks and Wildlife) species and communities branch advised 'all species have been identified within the Murdoch University campus, within similar habitat to the application area, however were not identified during Strategen's Level 1 Flora Survey (Parks and Wildlife, 2016). Furthermore, all of these species, except *A. griseibrunnea* have also been recorded within vegetation described as degraded' (Parks and Wildlife, 2016).

Recorded populations of these species are provided below (Parks and Wildlife, 2007 -):

- *A. quenda* – seven known populations of which eight populations have been recorded in the Melville area.
- *A. carneiphylla* – 28 known populations of which 19 have been recorded in the Murdoch University campus.
- *A. griseibrunnea* – two known populations, recorded in the Murdoch University campus and Kings Park.
- *A. wadulawitu* – 20 known populations of which 18 populations have been recorded in the Murdoch University campus.
- *A. wadjukiorum* – 24 known populations of which four have been recorded in the Murdoch University

campus.

Parks and Wildlife advised that these species are typified by low numbers of fruiting bodies and as such impacts to populations have the potential to be of conservation significance. Parks and Wildlife consider there is a high likelihood for *A. carneiphylla, A. griseibrunnea*, *A. wadulawitu* and *A. wadjukiorum* to be found within the assessment area (Parks and Wildlife, 2016).

Parks and Wildlife advise 'it is unlikely that *A. quenda* (P1) would be present in the application area as it has previously been recorded within wetland habitat associated with species that are not present in the application area' (Parks and Wildlife, 2016).

Known collections indicate that the fungi are associated with particular vegetation communities (Parks and Wildlife, 2007 -):

- *A. carneiphylla* - species is associated with *E. marginata / E. Wandoo / C. calophylla* and banksia sp. woodland. Four records reported in the vicinity of Pinus plantation.
- *A. wadulawitu* - species is associated with *E. marginata* / C. *calophylla* and banksia sp. woodland. No records reported in the vicinity of Pinus plantation.
- *A. wadjukiorum* - *Allocasuarina fraseriana*, *Jacksonia furcellata* and eucalypt and banksia woodland. No records reported in the vicinity of Pinus plantation.

Strategen identified *E. marginata*, *C. calophylla* and *J. furcellata* in VT1, which is associated with *A. carneiphylla*, *A. wadulawitui and A. wadjukiorum*. This habitat is estimated to cover 0.7 hectares of the application area (21.8 per cent), considered in a good (Keighery, 1994) to degraded (Keighery, 1994) condition. Noting that the proposed clearing contains a relatively small area of associated habitat and noting the high number of recorded populations, it is unlikely that the proposed clearing will impact upon these species.

A. griseibrunnea is known from two populations, recorded within the Murdoch University forest and Kings Park in 1989. Populations have been associated with *Eucalyptus marginate* and *Pinus pinaster* (Murdoch forest) and *E. marginate* and Casuarina sp. (Kings Park). Noting the application area's predominately degraded (Keighery, 1994) condition, small area of suitable habitat and age of vouchering, significant impacts to population are considered unlikely.

The term black cockatoos collectively refers to Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhyncus latirostris*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests (Commonwealth of Australia, 2012). A black cockatoo assessment completed by Strategen (2016b) and a site inspection by DER did not identify suitable trees with hollows within the application area (DER, 2016). The application area is considered to offer suitable foraging and roosting habitat, however does not provide suitable breeding habitat for black cockatoos.

Broad scale vegetation mapping and DER site inspection classifies vegetation complexes within the application area as a mixture of medium woodland of jarrah and marri (Shepherd et al., 2001). The application area has the potential to provide suitable habitat for conservation significant fauna species, including black cockatoos, Perth slider (*Lerista kuneata*), black striped snake (*Neelaps calonotos*) and quenda (*Isodon obesulus subsp. fusciventer*), however given the degraded (Keighery, 1994) condition and proximity of vegetation in similar or better condition, the application area is considered unlikely to provide significant habitat for these species.

No TECs or PECs have been identified within the application area.

The application area is bordered by native vegetation to the north and east and University development to the west and south. Given the proximity to remnant vegetation in good or better condition, the proposed clearing has the potential to spread weeds or dieback. Weed and dieback management measures will assist in minimising this potential impact.

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

Methodology

References:
Commonwealth of Australia (2012)
DER (2016)
Keighery (1994)
Strategen (2016a)
Strategen (2016b)
Parks and Wildlife (2016)
Parks and Wildlife (2007-)

GIS Databases:
SAC Bio Datasets (accessed November 2016)

(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

Proposed clearing not likely to be at variance to this Principle

Within the local area (surrounding 10 kilometre radius) there are records of 121 conservation significant fauna

species (Parks and Wildlife 2007-). Broad scale vegetation mapping of the application area classifies vegetation complexes as a mixture of medium woodland of tuart and jarrah (Shepherd et al., 2001). A site inspection identified that the application area is in a degraded (Keighery, 1994) to good (Keighery, 1994) condition (DER, 2016).

Habitat suitable for Perth slider, black striped snake and quenda have the potential to be impacted by the proposed clearing. However, given the good (Keighery, 1994) to degraded (Keighery, 1994) condition and proximity of vegetation in similar or better condition, the application area is considered unlikely to provide significant habitat for these species.

Strategen conducted a black cockatoo habitat assessment, limited to a foraging assessment and identification of significant trees with the potential to be utilised for roosting or breeding. Both VT1 and VT2 vegetation types contain potential foraging habitat and are considered to be in poor to good quality, with evidence of foraging Carnaby's black cockatoo on pine cones identified (Strategen, 2016b). VT2 which covers the majority of the application area (1.5 hectares) consists of scattered potential habitat and is highly impacted by introduced pines.

A total of eight potential habitat trees (diameter at breast height (DBH) greater than 50 centimetres) were identified within the application area, however no hollows were identified (Strategen, 2016b). This was confirmed during DER's site inspection (DER, 2016). Therefore, the application area is not considered to provide significant breeding habitat for black cockatoos.

Surrounding the application area is a number of recorded foraging and habitat areas. This includes a black cockatoo breeding box which has been reported as being utilised once in 2012, located within a pine tree adjacent to the application areas northern boundary (Strategen, 2016b).

Based upon the nearby conservation reserves (Beeliar Regional Park and adjacent areas (148 metres away), bush forever site 244 (272 metres away), system 6 conservation reserve site 197 (279 metres away) and bush forever nominated area DPI66 (148 metres away), retention of vegetation within Murdoch University Campus and availability of habitat in similar or better condition within the local area, the application area is not likely to constitute significant habitat for the abovementioned fauna.

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

Methodology

References:
DER (2016)
Keighery (1994)
Parks and Wildlife (2007-)
Strategen (2016b)

GIS Databases:
SAC Bio Datasets (accessed November 2016)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposed clearing not likely to be at variance to this Principle

According to available datasets there are no declared rare flora recorded within the application area (Western Australian Herbarium, 1998-). There are 64 declared rare flora species within the local area.

A Level 1 Flora and Vegetation Survey undertaken by Strategen did not identify any rare flora species (Strategen, 2016a) and due to the limited understorey, weed presence and historical disturbance, the presence of rare flora species within the application area is considered unlikely.

The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology

References:
Strategen (2016a)
Western Australian Herbarium (1998-)

GIS Databases:
SAC Bio Datasets (accessed November 2016)

(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

Proposed clearing not likely to be at variance to this Principle

According to available datasets the closest mapped TEC is located approximately four kilometres north east of the application area and is known as *banksia ilicifolia* woodlands. A total of six TEC's have been mapped within the local area.

The application area is not consistent with the description of any of the mapped TEC's, and given the distance to the closest TEC, the proposed clearing is not considered necessary for the maintenance of this community.

The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology GIS Databases:
SAC Bio Datasets (accessed November 2016)

(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

Proposed clearing is not likely to be at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). However, the Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region as a constrained area, which provides for the reduction of vegetation complexes to a minimum of 10 per cent of the pre-European extent (EPA, 2006).

The application area is located within the Swan Coastal Plain Interm Biogeographic Regionalisation for Australia (IBRA) Bioregion and mapped as Beard vegetation association 6 and 1001 (Sheppard et al., 2001). Heddle mapping classifies the application area as vegetation complex Karrakatta complex – central and south and Bassendean complex – central and south (Heddle et al, 1980). The Swan Coastal Plain IBRA, Beard vegetation associations and Heddle vegetation complex's are above the minimum 10 per cent threshold (Government of Western Australia, 2015).

However, the application area is located within the City of Melville, which retails approximately 5 per cent of pre-European vegetation. Within the local area, there is approximately 9.5 per cent native vegetation remaining, this includes remnants within conservation areas (78 conservation reserves - 42 Bushforever Reserves, two nominated Bushforever Reserves and 36 System 6 Conservation Reserves). Therefore, the application area may be considered to be within an extensively cleared landscape.

The vegetation under application is considered to be in degraded (Keighery, 1994) to good (Keighery, 1994) condition and is not considered to be a significant remnant. The application area is a small area and is part of a larger remnant and as such is not likely to fragment ecological linkages. The proposed clearing is not likely to be at variance to this clearing Principle.

	Pre-European (ha)	**Current Extent** (ha)	**Remaining** (%)	**Extent in Parks and Wildlife Managed Lands** (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,221.93	579,161.92	38	37
Shire*				
City of Melville	5,246.15	309.75	5	2
Beard Vegetation Association in Bioregion*				
6	56,343.00	13,411.19	23	37
1001	57,410.23	12,879.81	22	13
Heddle Vegetation Association in Bioregion*				
Karrakatta Complex - central and\south: open forest and woodland	49,912.31	11,374.33	22	5
Bassendean Complex-central and\south: woodland to low woodland and sedgelands	87,476.23	22,869.35	26	4

Methodology References:
Commonwealth of Australia (2001)
EPA (2006)
Government of Western Australia (2015)*
Heddle et al (1980)
Keighery (1994)
Shepherd et al (2001)

GIS Databases:
NLWRA, Current Extent of Native 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

Proposed clearing not likely to be at variance to this Principle

No mapped watercourses are located within the application area and the application area is not considered to be growing with an environment associated with a watercourse or wetland. The closest mapped surface water body is Chelodina Wetland, a conservation category Sumpland (UFI: 6513), located 250 metres to the east of the application area.

A site inspection of the application area did not identify any riparian vegetation (DER, 2016).

The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology

References:
DER (2016)

GIS Database:
DPaW Tenure

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

Comments

Proposed clearing not likely to be at variance to this Principle

Based on land system mapping by the Department of Agriculture and Food Western Australia (DAFWA) the application area occurs within the EnvGeol S8 Phase subsystem, with soils categorised as very light grey at the surface and yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin. This subsystem is classified as having a high to extreme risk (greater than 70 per cent) of wind erosion and less than three per cent of high to extreme risk of water erosion. A site inspection of the application area confirmed the presence of sandy soils (DER, 2016).

As the clearing is limited to a section of Murdoch University campus, with a grassed sports field located adjacent to the west, remnant vegetation and Murdoch University car parks to the east and north and no watercourses within close proximity to the application area, the proposed clearing is not likely to result in appreciable land degradation

The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology

References:
DER (2016)

GIS Databases:
SAC Bio Datasets (accessed November 2016)

(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

Proposed clearing not likely to be at variance to this Principle

There are four conservation areas mapped with 500 metres of the application area, including Beeliar Regional Park and adjacent areas (148 metres away), Bush Forever site 244 (272 metres away), system 6 conservation reserve site 197 (279 metres away) and Bush Forever nominated area DPI66 (148 metres away).

The proposed clearing is limited to a specific area of Murdoch University Campus, and vegetation within the application area is considered to be in a degraded (Keighery, 1994) to good (Keighery, 1994) condition, given this, the proposed clearing is not likely to impact upon the environmental values of the nearby conservation areas and the proposed clearing is not likely to be at variance to this clearing Principle.

Methodology

GIS Databases:
Geomorphic Wetlands, Swan Coastal Plain

(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

Proposed clearing not likely to be at variance to this Principle

There are no mapped surface water bodies within the application area and groundwater salinity is mapped as less than 500 milligrams per litre. The closest mapped surface water body is Chelodina Wetland, a conservation category Sumpland (UFI: 6513), located 250 metres to the east of the application area. The application area is considered as a low to moderate risk of generating acid sulfate soils, however the mapped land unit is classified as less than three per cent subsurface acidification risk.

Given the distance to the nearest surface water body, marginal salinity and extent of proposed clearing, it is not likely to impact upon ground or surface water quality. The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology GIS Databases:
Hydrography, linear
Geomorphic Wetlands, Swan Coastal Plain

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposed clearing not likely to be at variance to this Principle

The soil within the application area was identified as sandyd during the site inspection (DER, 2016). This soil type is typified by high permeability and mapped as less than three per cent risk of moderate to high flooding potential and 3 to 10 per cent moderate to very high waterlogging risk. The removal of native vegetation on this soil type is not considered to increase the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance to this clearing Principle.

Methodology GIS Databases:
DAFWA Subsystems V5 (Accessed November 2016)
SAC Bio Datasets (Accessed November 2016)

Planning instruments and other relevant matters.

Comments The application was advertised in *The West Australian* newspaper on 26 September 2016 by the Department of Environment Regulation inviting submissions from the public within a 7 day period. No submissions were received in relation to this application.

The City of Melville received a referral for the construction of the sporting facility and provided the following comments (City of Melville, 2016):

- 'As the land is zoned under the Metropolitan Regional Scheme, the City of Melville is not the determining authority. The subject area is reserved for Public Purposes (University) and is not flagged for conservation under the structure plan. Generally the proposal is acceptable as per LPS6 and the clearing does not require a Planning Approval from City of Melville.
- Banksia Woodlands have now been listed federally as an Endangered Ecological Community so referral under the EPBC Act may be required; the minimum patch size that needs to be considered is 2 ha for Good condition Banksia Woodland and this application is for 3 ha. The key reason for it being listed relates to clearing in the urban area and promotes, as the highest priority, its protection from being cleared.
- The native vegetation in the vicinity of the Fiona Stanley Hospital site has undergone major clearing in the past few years and has significantly reduced the amount of bushland in this region. Further clearing in the area will impact on nearby City of Melville reserves by concentrating native plant and animal populations into remaining bushlands; including Quenda Wetlands, Piney Lakes and Robert Weir Park. The clearing will also increase fragmentation of the landscape and impact on pollination networks in City reserves.
- Given Murdoch University is the site of a Carnaby's cockatoo super-roost, the City recommends seeking comment from BirdLife Australia on the impacts this may have on the large population of Black Cockatoos that reside here. BirdLife Australia undertake an annual survey of Black Cockatoo numbers across Perth and would be in the best position to comment on this'.

The Department of Water (DoW) reviewed the application and declined to comment.

Methodology References:
City of Melville (2016)

4. References

City of Melville (2016) Response to direct interest email, CPS 7258/1 - Murdoch University - Lot 610 on Plan 75377, Murdoch - Direct Interest Email - Clearing of Native Vegetation (DER Ref: A1181206).

Department of Environment Regulation (DER) (2016) CPS 7258/1 – Site Inspection Report. (DER Ref: A1194194).

Department of Parks and Wildlife (Parks and Wildlife) (2016) CPS 7258-1 – Species and Communities proforma. (DER Ref: A1190850).

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

Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species, Canberra.

Environmental Protection Authority (EPA) (2016) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.

Department of Parks and Wildlife (Parks and Wildlife) (2007-) NatureMap: Mapping Western Australia's Biodiversity. URL: http://naturemap.dpaw.wa.gov.au/. Accessed September 2016.

Government of Western Australia (2015) 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. WA Department of Parks and Wildlife, Perth.

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.

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.
Strategen (2016a) Proposed Murdoch University Sports Precinct and Aquatic Centre. Level 1 Flora and Vegetation Survey. (DER Ref: A1178453).
Strategen (2016b) Native Vegetation clearing permit application (Area Permit) – supporting documentation, sports precinct. (DER Ref: A1158056).
Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. http://florabase.dpaw.wa.gov.au/ (Accessed October 2016).