Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10513/1
Permit type:	Area permit
Applicant name:	City of Gosnells
Application received:	7 February 2024
Application area:	0.02 hectares of native vegetation
Purpose of clearing:	Drainage maintenance
Method of clearing:	Mechanical
Property:	Lot 709 on Deposited Plan 45464 (Crown Reserve 48497)
Location (LGA area/s):	City of Gosnells
Localities (suburb/s):	Southern River

1.2. Description of clearing activities

The vegetation proposed to be cleared is within an isolated patch of native vegetation in a dampland basin surrounded by an urban residential area (see Figure 1, Section 1.5). The application is to selectively clear *Typha orientalis* and other sedges and rushes. No trees are proposed to be impacted (City of Gosnells, 2024a, b).

1.3. Decision on application

Decision:	Granted
Decision date:	28 March 2024
Decision area:	0.02 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing was to improve water drainage within the basin.

The assessment identified that the proposed clearing will result in:

- the loss of native vegetation that may provide suitable habitat for the Blue billed duck (*Oxyura australis*); and
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation or have significant impacts to conservation significant flora and fauna.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- pre-clearing site inspections prior to works commencing and ongoing during works for any fauna that may be present. If found and not able to escape to adjacent habitat, the City of Gosnells is to cease works until the identified fauna has been translocated; and
- scheduling works when the area is dry to reduce the impact on native fauna that may be using the area at the time of clearing

1.5. Site map

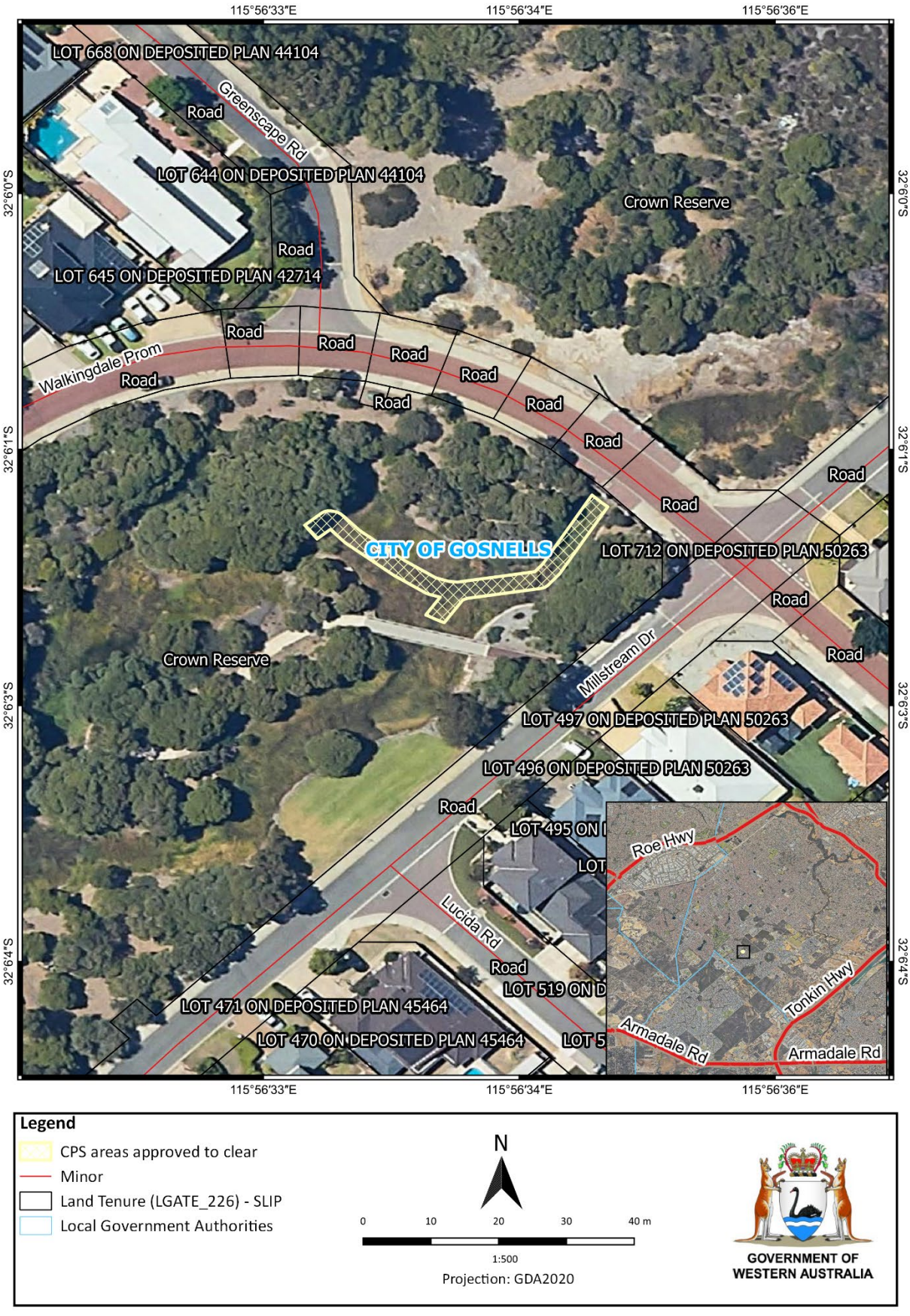

Figure 1 Map of the application area

The area crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that only sedges and rushes would be cleared. The applicant advised that the clearing area would be clearly marked to avoid clearing outside the area, clearing the area will occur while the area is dry to avoid impacts to native fauna and cleaning will be with an excavator to avoid spreading weeds and pathogens (City of Gosnells, 2024b).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna, adjacent flora and vegetation) and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (fauna) - Clearing Principles (a) and (b)

Assessment

According to available databases, 51 conservation significant fauna are recorded in the local area (10 km radius). The application area may provide suitable habitat for 16 conservation significant fauna species which tend to occupy riparian habitats.

The application area may provide habitat for the following 14 migratory or wetland bird species. These species are:

- *Apus pacificus* (fork-tailed swift)
- *Calidris acuminata* (sharp-tailed sandpiper)
- *Calidris ferruginea* (curlew sandpiper)
- *Calidris melanotos* (pectoral sandpiper)
- *Calidris ruficollis* (red-necked stint)
- *Calidris subminuta* (long-toed stint)
- *Charadrius leschenaultia* (greater sand plover)
- *Limosa limosa* (black-tailed godwit)
- *Plegadis falcinellus* (glossy ibis)
- *Pluvialis fulva* (Pacific golden plover)
- *Pluvialis squatarola* (grey plover)

- *Tringa glareola* (wood sandpiper)
- *Tringa nebularia* (common greenshank)
- *Tringa stagnatilis* (marsh sandpiper)

The abovementioned migratory or wetland bird species do not depend exclusively on foraging in habitats prone to Typha infestation, however, may be present at the time of clearing. The application area is not likely to provide significant habitat for these species, therefore impacts on these species are likely to be minimal.

Botaurus poiciloptilus (Australasian bittern) is an endangered species with 11 records in the local area. This species favours permanent freshwater wetlands with tall, dense vegetation, particularly *Eleocharis* spp. (Spike rushes) and Typha (DBCA, 2018). The species is known to breed in Spring-Summer, with egg laying known to occur in September to December (DBCA, 2021). As the application area is a dampland, and is only periodically wet, this species is not expected to be significantly impacted by the proposed clearing, especially if clearing occurs when the area is dry.

Oxyura australis (Blue-billed duck) is a Priority 4 species with 154 records in the local area. This species can breed from August to March, mostly between October to January (DBCA, 2021). Breeding habitat is typically secluded densely vegetated situations, with the nest constructed in Typha beds or other vegetation, in permanent water. Nests are usually constructed from dead Typha leaves and sometimes thinly lined with down (Australian Museum, 2020). As the application area is a dampland, and is only periodically wet, this species is not expected to be significantly impacted by the proposed clearing, especially if clearing occurs when the area is dry.

Conclusion

Based on the above assessment, stands of Typha will not provide breeding habitat for the or Blue billed duck however may be a source of nest building material. There is a low probability that Australasian bittern may temporarily use the application area as foraging habitat. It is considered that the impacts of the proposed clearing can be managed by conducting slow directional clearing to reduce the impacts of fauna being present at the time of clearing. Scheduling works when the asset is dry will also decrease the likelihood of fauna being present at the time of clearing.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- undertake slow, progressive one directional clearing to allow fauna to move into adjacent habitat ahead of the clearing activity; and
- scheduling works when the area is dry to reduce the impact on native fauna that may be using the area at the time of clearing

3.2.2. Biological values (flora) - Clearing Principles (a) and (c)

Assessment

According to available databases, 95 conservation significant flora are recorded in the local area (10 km radius). The application area may provide suitable habitat for three conservation significant flora species which tend to occupy riparian habitats.

Aponogeton hexatepalus is a Priority 4 species with 14 records in the local area, with the closest 680 metres from the application area. It is an aquatic perennial herb associated with freshwater ponds, rivers or claypans with riparian vegetation (Western Australian Herbarium, 2024).

Diuris purdiei is a threatened species with 27 records in the local area, with the closest 830 metres from the application area. It is a perennial herb (donkey orchid) associated with sedges and dense heath in areas subject to winter inundation (Western Australian Herbarium, 2024).

Verticordia lindleyi subsp. *lindleyi* is a Priority 4 species with 24 records in the local area, with the closest 2.13 km from the application area. It is an erect shrub up to 0.75 metres high associated with low woodland or heath with *Banksia* and *Melaleuca* species in a swamp or wetland vegetation (Western Australian Herbarium, 2024).

As the proposed clearing is targeted for only Typha, sedges and rushes and the area is a manmade basin that was previously cleared in 2014 for drainage maintenance works, these species are unlikely to be present within the application area and are unlikely to be significantly impacted by the proposed clearing.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in a significant loss in biodiversity or impact significant populations of threatened and priority flora. However the proposed clearing has the potential to introduce weeds and pathogens into the area, which could impact on the quality of the adjacent vegetation and its habitat values.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid and minimise clearing, to minimise the direct impacts to native vegetation
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

3.2.3. Biological values (significant ecological community) - Clearing Principles (a) and (d)

Assessment

According to available databases, the Banksia woodlands of the Swan Coastal Plain (Banksia woodlands) Threatened Ecological Community is mapped as occurring within the application area, with 13 conservation significant ecological communities recorded in the local area. The applicant was requested to provide further details about potential impacts to the Banksia Woodlands TEC, as the photos provided were not of sufficient quality to determine the presence of the TEC. The applicant stated the shrubs identified in the photos were a non-native species *Callistemon* and the vegetation was not representative of the Banksia Woodlands TEC and confirmed that no *Melaleuca preissiana* will be cleared (City of Gosnells, 2024c).

Conclusion

As no Banksia Woodland TEC is proposed to be impacted, no management conditions are required in relation to this environmental value.

3.2.4. Land and water resources - Clearing Principles (f), (g), (i) and (j)

Assessment

The proposed clearing is for the purpose of improving drainage in the man-made basin through controlling Typha due to its invasive nature and adverse impacts on wetlands in the absence of management. Given the proposed clearing will target Typha and other sedges and rushes, the proposed clearing is not likely to result in any long-term impact to the ecological values of the riparian vegetation community within the application area.

The soil units mapped within the application area indicated a high risk of water erosion and subsurface acidification. Given the selective clearing and that Typha has been found to assist in neutralising acidity on re-wetting in areas that are prone to acid sulphate soils, the proposed clearing is unlikely to cause an appreciable increase to the existing risks of subsurface acidification (DBCA, 2019).

The removal of Typha and other sedges and rushes has the potential to increase sedimentation and turbidity of the water within the application area, thereby possibly impacting surface water quality. However, due to the small scale of the clearing, it is not likely to cause long-term deterioration in the quality of surface water. Given the invasiveness of Typha, the proposed clearing may improve drainage of water and reduce the incidence or intensity of flooding.

Conclusion

The proposed clearing will not significantly impact the riparian vegetation and is expected to enhance the habitat within the application area through the improved drainage. The removal of Typha will increase water drainage which will reduce the risk of flooding. The selective clearing of Typha and other sedges and rushes within the application area is not likely to lead to appreciable land degradation in the form of subsurface acidification or water erosion. No management conditions are required in relation to this environmental value.

3.3. Relevant planning instruments and other matters

The application area falls within the Perth Groundwater Area, as proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act). DWER's Water Licencing branch advised that a water licence or permit may be required to undertake the clearing proposed (DWER, 2024). The applicant confirmed that no groundwater would be removed during the proposed clearing (City of Gosnells, 2024c).

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a 1.4-hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is surrounded by residential development. The proposed clearing area is a small isolated remnant in a highly cleared landscape. Aerial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains 18.49 per cent of the original native vegetation cover. As it is within the Perth and Peel region, the native vegetation extent is above the revised 10 percent threshold recommended for constrained areas.
Ecological linkage	Application area is mapped as a part a Perth regional ecological linkage, however the small area of proposed clearing is not going to significantly impact the ecological linkage.
Conservation areas	The application area is 164 metres from Bush Forever site 125.
Vegetation description	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of *Typha orientalis* and other sedges and rushes. Representative photos are available in Appendix D. This is partially consistent with the mapped vegetation type: • Southern River Complex, which is described as open woodland of Corymbia calophylla (Marri) - Eucalyptus marginata (Jarrah) - Banksia species with fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca rhaphiophylla (Swamp Paperbark) along creek beds (Shepherd et al, 2001) The mapped vegetation type retains approximately 18.43 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.
Climate and landform	The closest BOM weather station is located at Gosnells city, which is 6.6 kilometres from Southern River (BOM, 2024). The highest mean maximum temperature is in January and February at 33°C, the lowest is in July at 18.6°C. The highest mean minimum temperature is in February at 18.9°C and the lowest is in July at 8.9°C. The average annual rainfall is 776.9 mm.
Soil description	The soil is mapped as Pinjarra P1b Phase, which is described as flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplexs) soils. Moderately deep pale sand to loamy sand over clay: imperfectly drained and moderately susceptible to salinity in limited areas.
Land degradation risk	The application area is mapped as having a high water erosion and subsurface acidification risk.
Waterbodies	The desktop assessment and aerial imagery indicated that the application area is within a multiple use dampland.

Characteristic	Details
Hydrogeography	The application area is within the Perth groundwater area.
Flora	The desktop assessment identified 95 conservation significant flora species in the local area (10 km radius), with the closest, *Aponogeton hexatepalus*, 680 metres from the application area. There are 30 species in the same vegetation type and four in the same soil type as the application area.
Ecological communities	The application area is within a mapped the Banksia woodland of the swan coastal plain ecological community, a Priority 3 Priority Ecological Community and Endangered commonwealth TEC.
Fauna	The desktop assessment identified 51 conservation significant fauna species in the local area (10 km radius), with the closest, *Apus pacificus*, 6.5 kilometres from the application area.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.84903499
Vegetation complex					
Southern River Complex*	58,781.48	10,832.18	18.43	940.36	1.59974879
Local area					
10km radius	31,065.25	5,742.63	18.49	-	-

*Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Aponogeton hexatepalus	4	Y	Y	Y	0.68	14	N/A
Diuris purdiei	T	Y	Y	Y	0.83	27	N/A
Verticordia lindleyi subsp. *lindleyi*	4	Y	Y	Y	2.13	24	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), impacts to the following conservation significant fauna required further consideration.

Species name (Common name)	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Apus pacificus (fork-tailed swift)	MI	Y	Y	6.52	1	N/A
Botaurus poiciloptilus (Australasian bittern)	EN	Y	Y	3.08	11	N/A
Calidris acuminata (sharp-tailed sandpiper)	MI	Y	Y	3.08	53	N/A
Calidris ferruginea (curlew sandpiper)	CR	Y	Y	3.08	42	N/A
Calidris melanotos (pectoral sandpiper)	MI	Y	Y	3.08	7	N/A
Calidris ruficollis (red-necked stint)	MI	Y	Y	3.08	73	N/A
Calidris subminuta (long-toed stint)	MI	Y	Y	3.08	19	N/A
Charadrius leschenaultia (greater sand plover)	VU	Y	Y	3.08	4	N/A
Limosa limosa (black-tailed godwit)	MI	Y	Y	3.08	6	N/A
Oxyura australis (blue-billed duck)	P4	Y	Y	2.22	154	N/A
Plegadis falcinellus (glossy ibis)	MI	Y	Y	2.22	26	N/A
Pluvialis fulva (Pacific golden plover)	MI	Y	Y	3.08	4	N/A
Pluvialis squatarola (grey plover)	MI	Y	Y	3.08	5	N/A
Tringa glareola (wood sandpiper)	MI	Y	Y	3.08	17	N/A
Tringa nebularia (common greenshank)	MI	Y	Y	3.08	100	N/A
Tringa stagnatilis (marsh sandpiper)	MI	Y	Y	3.08	4	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.5. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Banksia Woodlands of the Swan Coastal Plain ecological community	Priority 3	Y	Y	Y	0	1	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared is not likely to contain significant flora, fauna, habitats or unique assemblages of plants. However, the application area is mapped as the 'Banksia woodlands of the Swan Coastal Plain ecological community' PEC.	Not likely to be at variance	Yes *(Refer to Section 3.2.1, above.)*
Principle (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."* Assessment: The area proposed to be cleared may contain habitat for conservation significant fauna.	May be at variance	Yes *(Refer to Section 3.2.1, above.)*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is not likely to contain habitat for threatened flora species.	Not likely to be at variance	Yes *(Refer to Section 3.2.2, above.)*
Principle (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."* Assessment: The area proposed to be cleared is mapped as the 'Banksia woodlands of the Swan Coastal Plain ecological community' TEC.	Not likely to be at variance	Yes *(Refer to Section 3.2.3, above.)*
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The extent of native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. However, in constrained areas, the EPA has a revised target of native vegetation and communities retaining more than 10 percent. The local area and mapped vegetation complex are above the 10 percent threshold. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (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."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The proposed clearing is in an environment associated with a wetland.	At variance	Yes *(Refer to Section 3.2.4, above.)*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils highly susceptible to water erosion and subsurface acidification. Noting the extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	Yes *(Refer to Section 3.2.4, above.)*
Principle (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."* Assessment: Given the application area is within a wetland, the proposed clearing may impact surface or ground water quality. However impacts are likely to only be short term.	May be at variance	Yes *(Refer to Section 3.2.4, above.)*
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Given the application area is within a wetland, the proposed clearing may contribute to waterlogging.	May be at variance	Yes *(Refer to Section 3.2.4, above.)*

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.

Condition	Description
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Photographs of the vegetation

Figure 2: Representative photos of the application area (City of Gosnells, 2024a).

Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

Australian Museum (2020) Blue-billed duck. Available from: https://australian.museum/learn/animals/birds/blue-billed-duck/. Accessed 13 March 2024.

Bureau of Meterology (BOM) (2024) Climate Statistics for Australian locations, summary statistics for Gosnells City. Available from: http://www.bom.gov.au/climate/averages/tables/cw_009106.shtml. Accessed 12 March 2024.

City of Gosnells (2024a) *Clearing permit application CPS 10513/1*, received 7 February 2024 (DWER Ref: DWERDT908935).

City of Gosnells (2024b) *CPS 10513/1 applicant supplied mitigation measures,* received 14 February 2024 (DWER Ref: DWERDT905068).

City of Gosnells (2024c) *CPS 10513/1 additional photos and area not representative of Banksia TEC,* received 20 March 2024 (DWER Ref: DWERDT925190).

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

Department of Biodiversity, Conservation and Attractions (2018) Australasian bittern (Botaurus poiciloptilus) western Australian Recovery Plane. Wildlife management Program No.64.

Department of Biodiversity, Conservation and Attractions (2019) DBCA Wetlands advice in relation to CPS 8394/1. DWER ref: A1808046.

Department of Biodiversity, Conservation and Attractions (DBCA) (2021) Species and Communities Branch Fauna advice for clearing permit application CPS 9071/1, received 15 April 2021. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A1997386).

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 12 March 2024).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Department of Water and Environmental Regulation (DWER) (Regulatory Services – Water) (2024) *Rights in Water and Irrigation Act 1914 advice for clearing permit application CPS 10513/1*, received 22 February 2024 (DWER Ref: DWERDT919580).

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia.* Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

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.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

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.

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 12 March 2024)