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 11529/1	
Permit type:	Purpose permit	
Applicant name:	City of Swan	
Application received:	30 March 2026	
Application area:	18 hectares of native vegetation	
Purpose of clearing:	Drainage maintenance and infrastructure protection works	
Method of clearing:	Mechanical removal	
Property:	Lot 9329 on Plan 412578	Lot 12977 on Plan 22514
	Lot 6477 on Plan 412134	Lot 12487 on Plan 20497
	Lot 9326 on Plan 412128	Lot 12224 on Plan 20182
	Lot 9212 on Plan 411227	Lot 12028 on Plan 19445
	Lot 9040 on Plan 409802	Lot 11871 on Plan 18470
	Lot 501 on Plan 409791	Lot 12964 on Plan 18098
	Lot 2396 on Plan 409055	Lot 11821 on Plan 17270
	Lot 1932 on Plan 408268	Lot 11221 on Plan 16281
	Lot 8016 on Plan 406518	Lot 11137 on Plan 15926
	Lot 8262 on Plan 406071	Lot 10984 on Plan 15762
	Lot 9299 on Plan 405210	Lot 23 on Plan 2235
	Lot 8914 on Plan 405210	Lot 12820 on Diagram 93424
	Lot 8912 on Plan 405210	Lot 12659 on Diagram 88984
	Lot 1405 on Plan 405198	Lot 27 on Diagram 46680
	Lot 8007 on Plan 405129	Road Reserve - 11618030
	Lot 545 on Plan 403192	Road Reserve – 11727302
	Lot 100 on Plan 402530	Road Reserve – 11330678
	Lot 8053 on Plan 402371	Road Reserve – 11840719
	Lot 1121 on Plan 401057	Road Reserve – 12156910
	Lot 1241 on Plan 401056	Road Reserve - 12156912
	Lot 8004 on Plan 400986	Road Reserve – 12128453
	Lot 7431 on Plan 77095	Road Reserve – 12119975
	Lot 1060 on Plan 74175	Road Reserve – 12108563
	Lot 9020 on Plan 71427	Road Reserve – 1335671
	Lot 3668 on Plan 61923	Road Reserve – 1335672

	Lot 500 on Plan 52653	Road Reserve – 12196656
	Lot 184 on Plan 52653	Road Reserve – 11981574
	Lot 8006 on Plan 47034	Road Reserve – 1335805
	Lot 503 on Plan 43802	Road Reserve – 1214281
	Lot 95 on Plan 40521	Road Reserve – 12235102
	Lot 14340 on Plan 28955	Road Reserve – 1155684
	Lot 98 on Plan 26404	Road Reserve – 12209867
	Lot 15159 on Plan 23129	Road Reserve – 12209869
	Lot 13657 on Plan 22862	Road Reserve - 11014256
Location (LGA area/s):	City of Swan	
Localities (suburb/s):	The Vines, Ellenbrook, Brabham, Dayton, Caversham, Aveley, Malaga, Jane Brook, South Guildford, Woodbridge, Kiara, Ballajura, West Swan, Stratton, Hazelmere	

1.2. Description of clearing activities

This application is for the targeted removal and ongoing maintenance of the native herbaceous species *Typha orientalis* (hereafter referred to as *Typha*) within drainage systems across the City of Swan.

The proposed clearing and maintenance activities are intended to reduce dense *Typha* regrowth that has restricted drainage flows and contributed to ongoing waterlogging. The vegetation proposed to be cleared occurs across 64 separate areas, with a total clearing footprint of approximately 18 hectares within drainage systems throughout the City of Swan (see Figures 1-23, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	31 July 2026
Decision area:	18 hectares of native vegetation consisting of *Typha*, as depicted in Section 1.5.

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), photographs supplied by the applicant (see Appendix D), 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, being to specifically remove dense *Typha* growth, to undertake drainage maintenance and infrastructure protection works to restore hydraulic capacity and reduce waterlogging within constructed and modified drainage systems.

The assessment identified that the proposed clearing will result in:

- the removal of up to 18 hectares of *Typha* dominated vegetation within 64 discrete, highly modified drainage areas;
- temporary disturbance to *Typha*-dominated fauna habitat and a minor, localised reduction in associated foraging and refuge resources;
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on vegetation quality and habitat values; and
- short-term impacts to land and water resources, including increased turbidity, sediment mobilisation and minor disturbance to bank stability within drainage systems.

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 result in significant long-term adverse impacts on environmental values, given the highly modified nature of the drainage systems, targeted clearing methods and proposed mitigation measures.

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

- undertake avoidance and minimisation measures 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 directional clearing to allow fauna to move into adjacent habitat ahead of the clearing activity;
- undertake spraying of chemical solution during the driest period of the year when the water level is at its lowest, and during calm wind conditions;
- inspect clearing areas for native vertebrate fauna prior to clearing, and cease clearing where native vertebrate fauna are identified in the clearing area, until they naturally disperse or are relocated; and
- inspect clearing areas nearby the known distribution of western swamp tortoise (see Figures 22 and 23) for individuals and suitable habitat, and:
    - avoid any suitable habitat identified; and
    - avoid clearing within 30 metres of any individuals identified.

1.5. Site maps



Figure 1 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 2 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

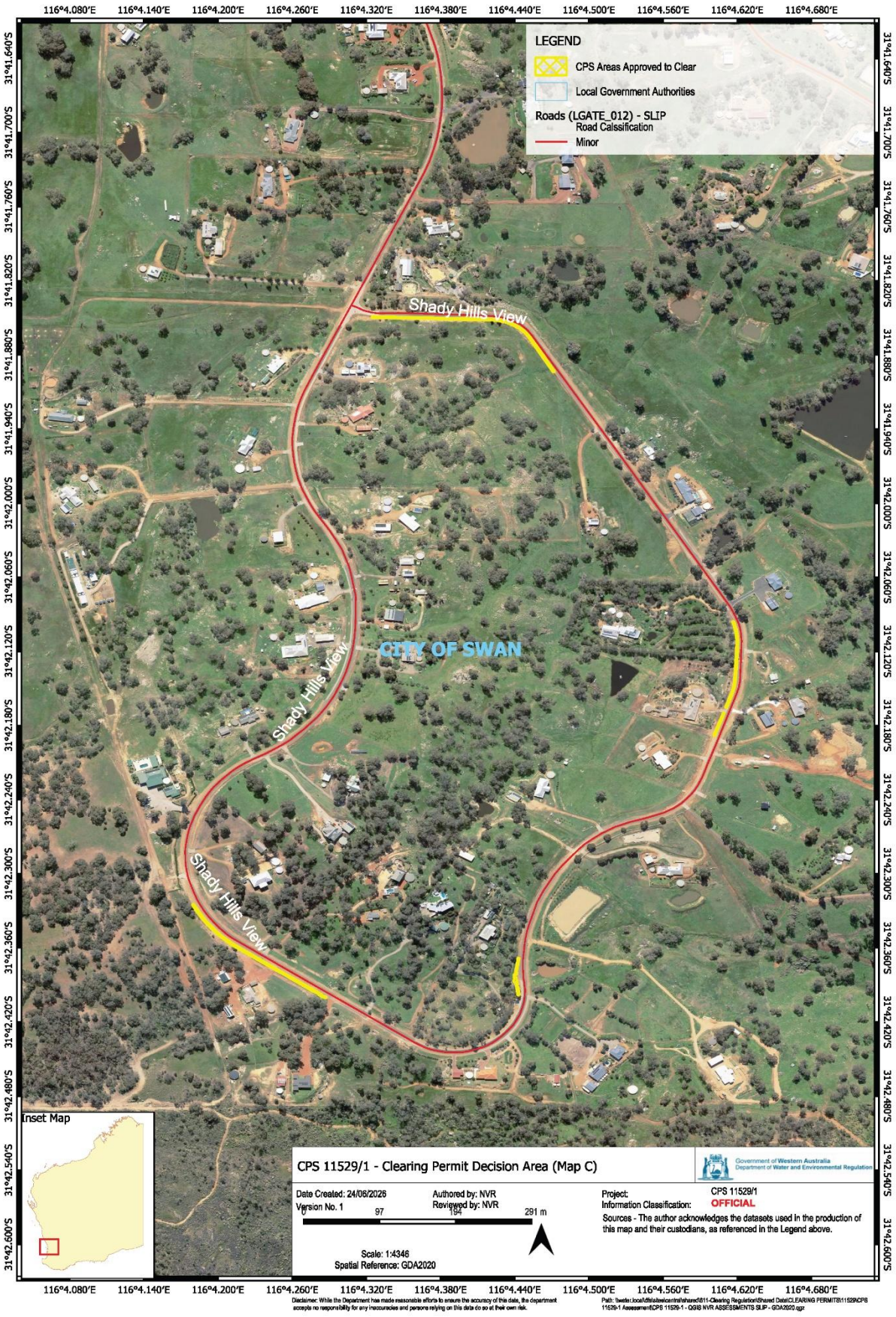


Figure 3 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

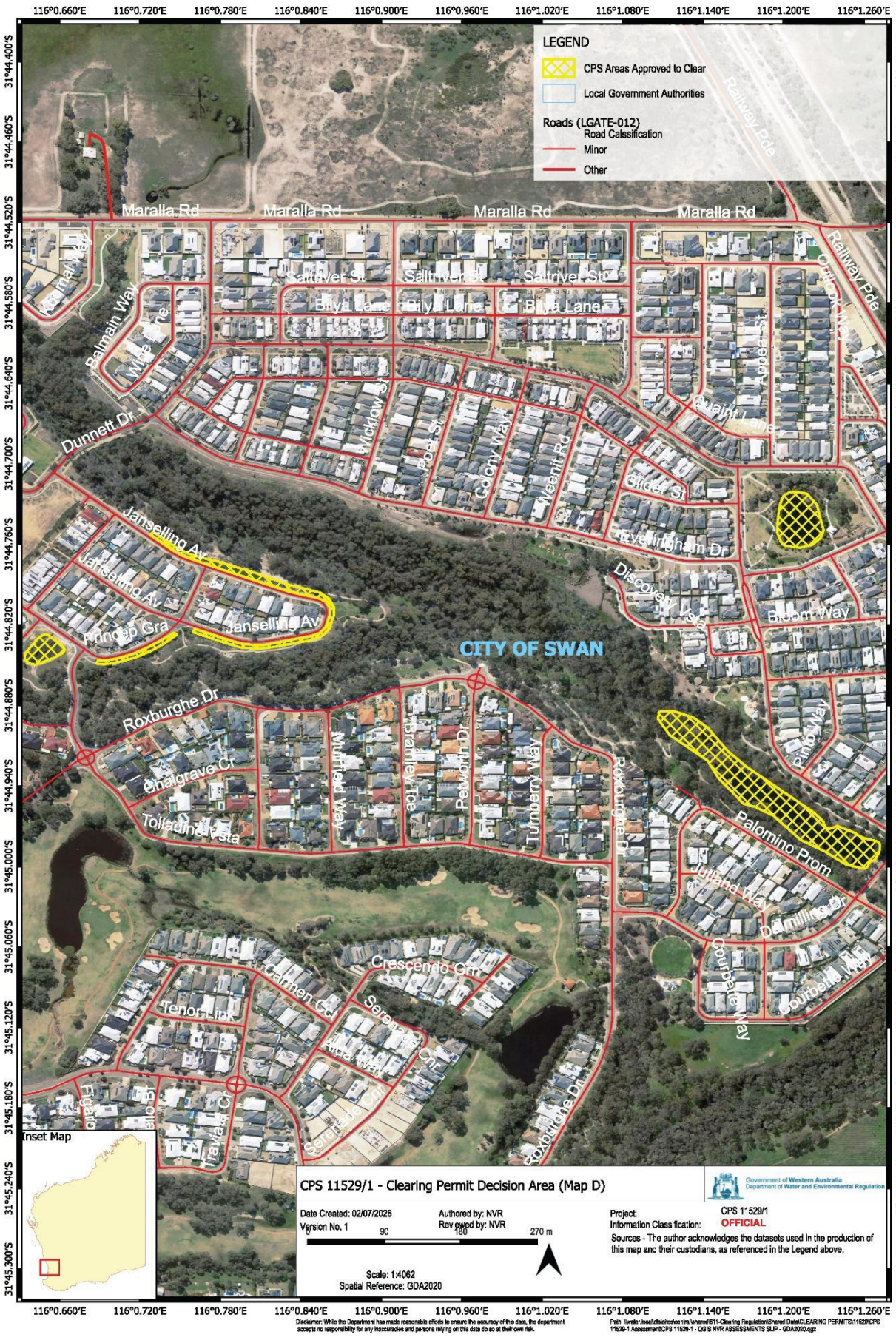


Figure 4 Map of the application area

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Figure 5 Map of the application area

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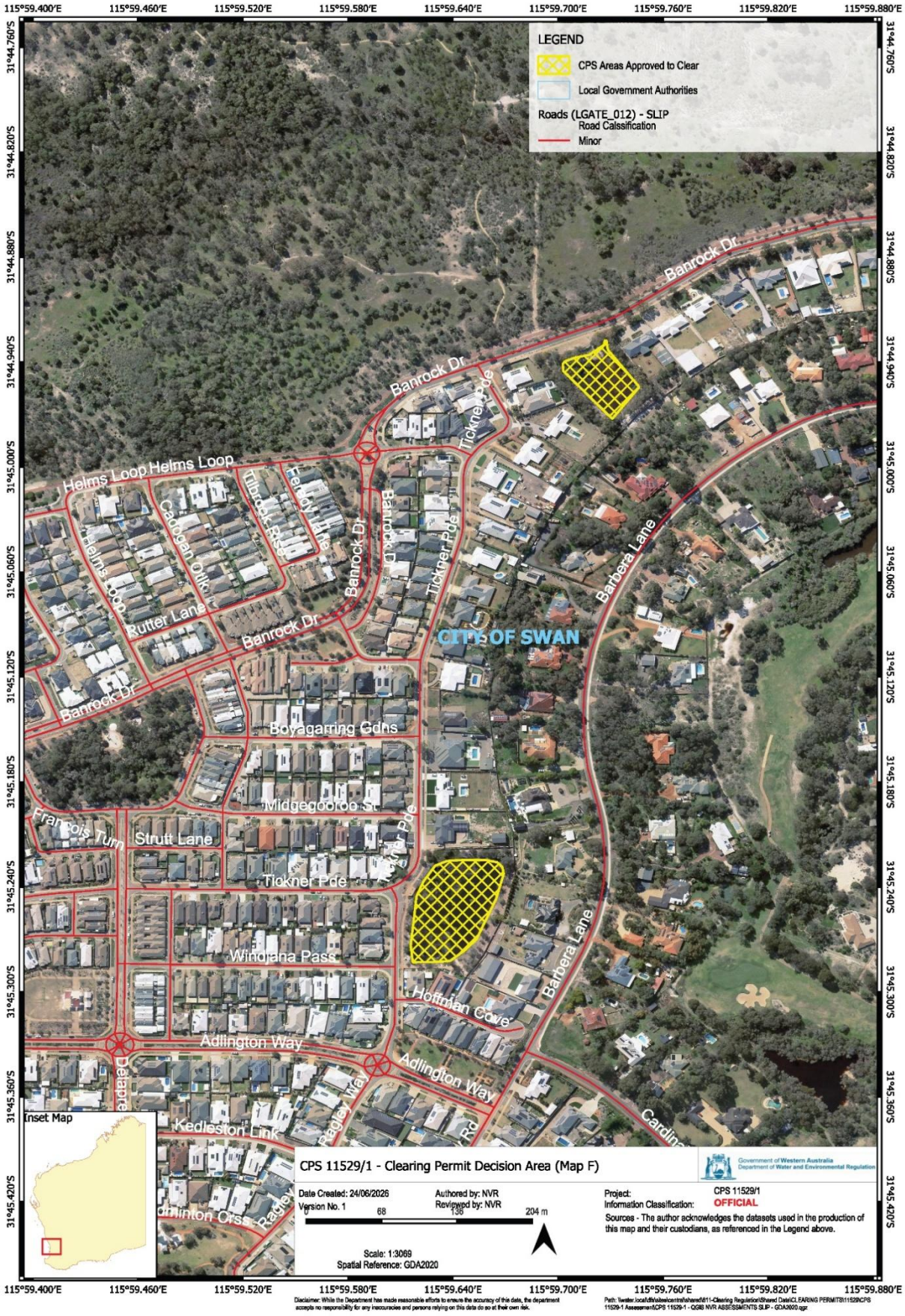


Figure 6 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

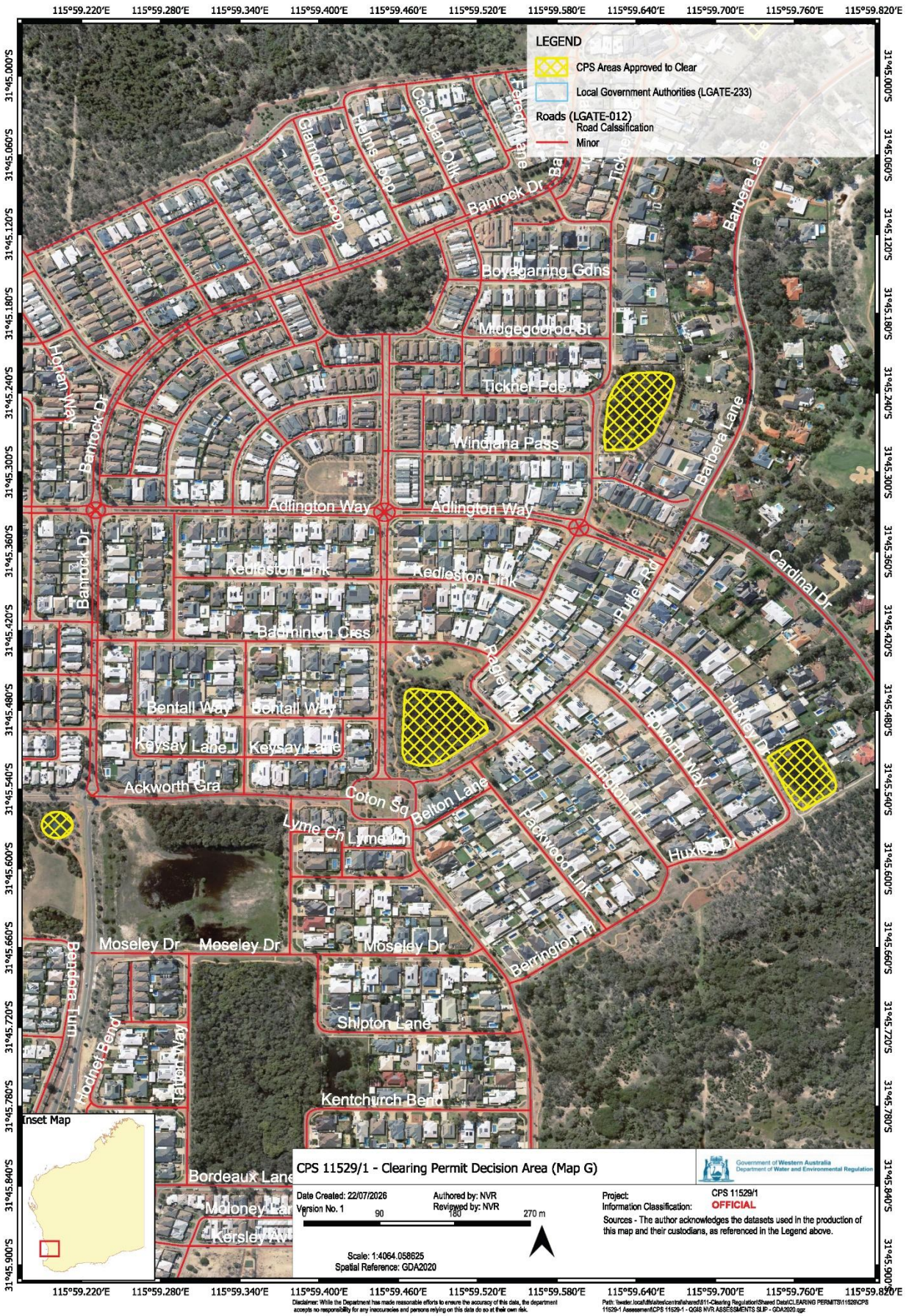


Figure 7 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

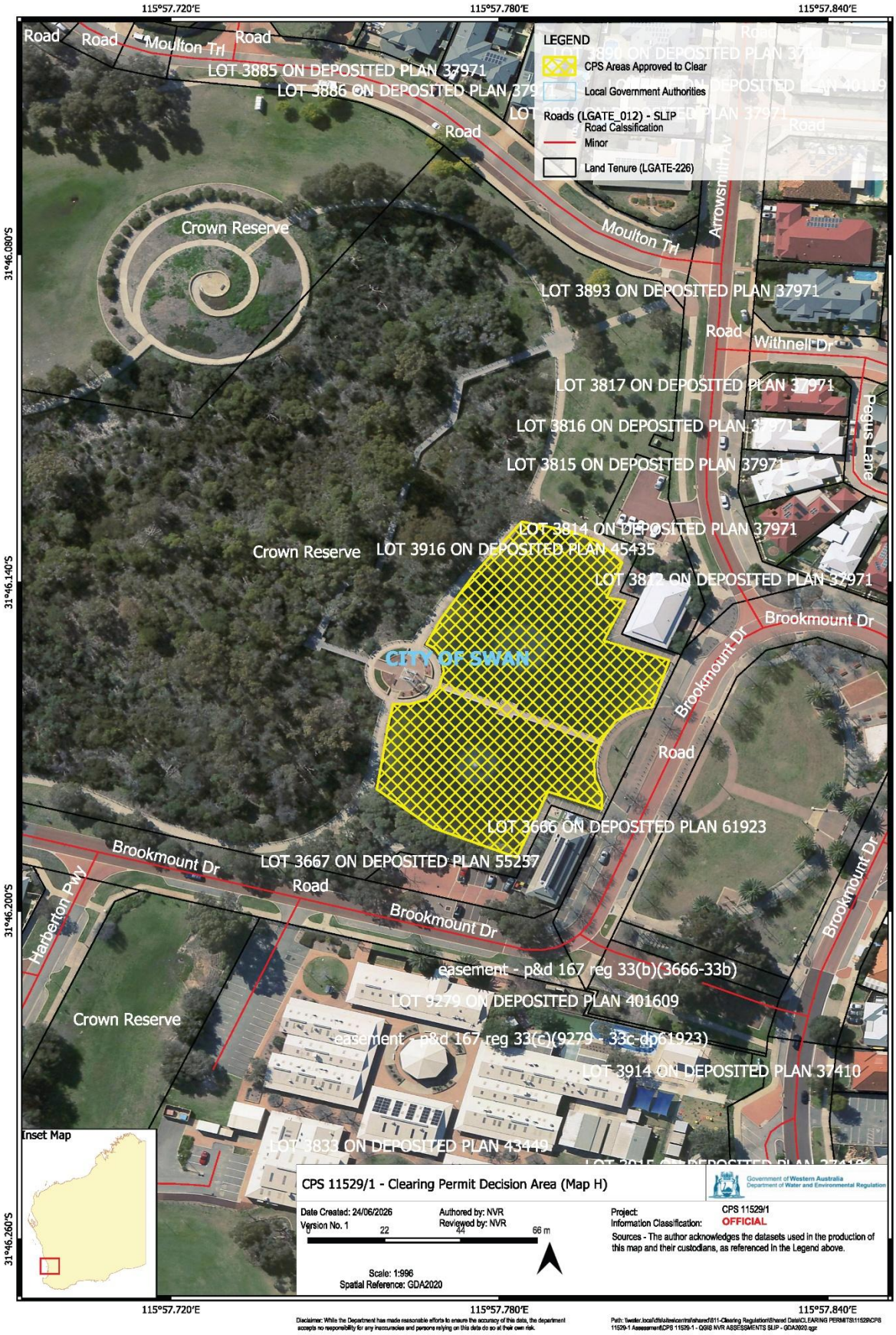


Figure 8 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

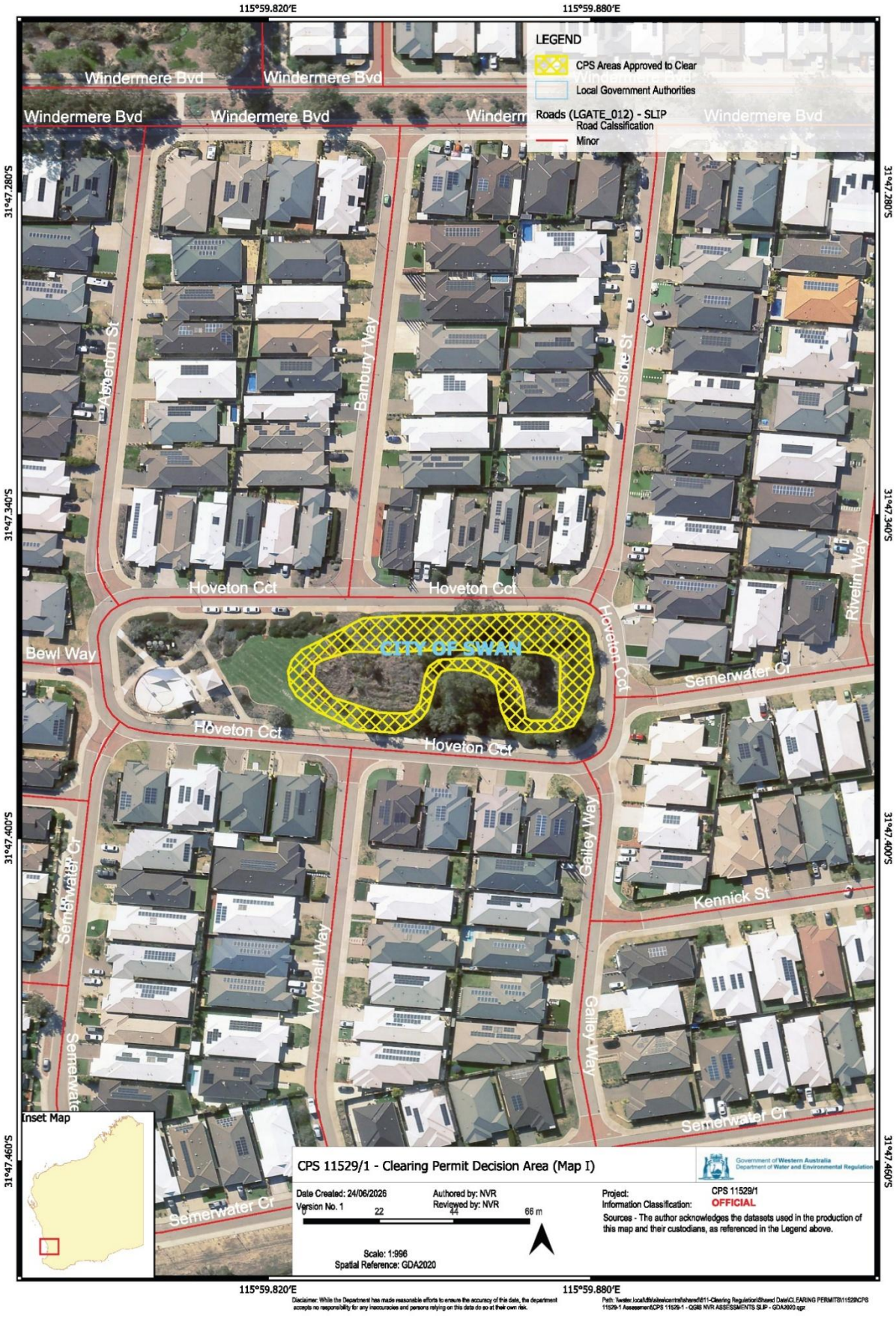


Figure 9 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

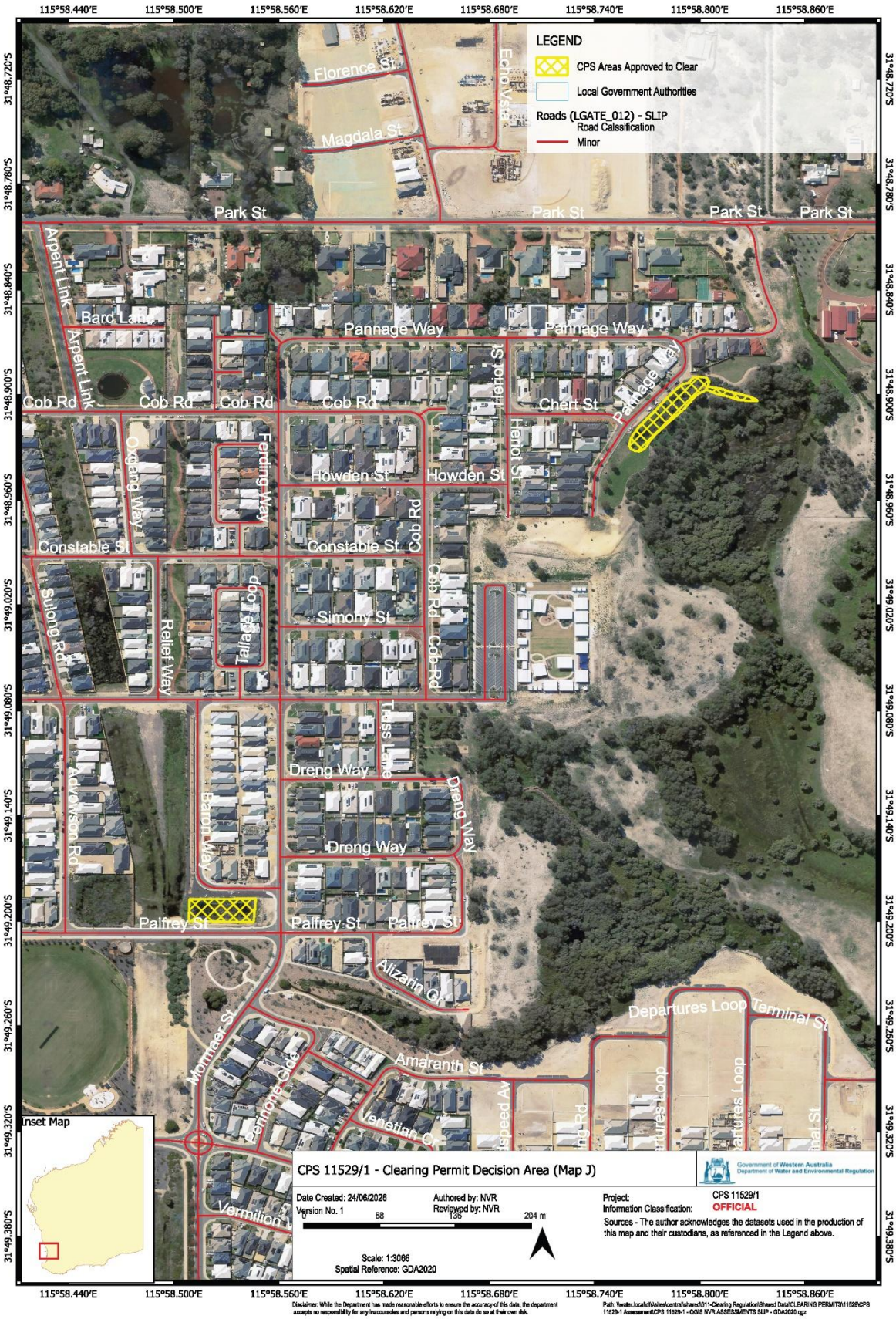


Figure 10 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 11 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 12 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 13 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 14 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 15 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 16 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 17 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

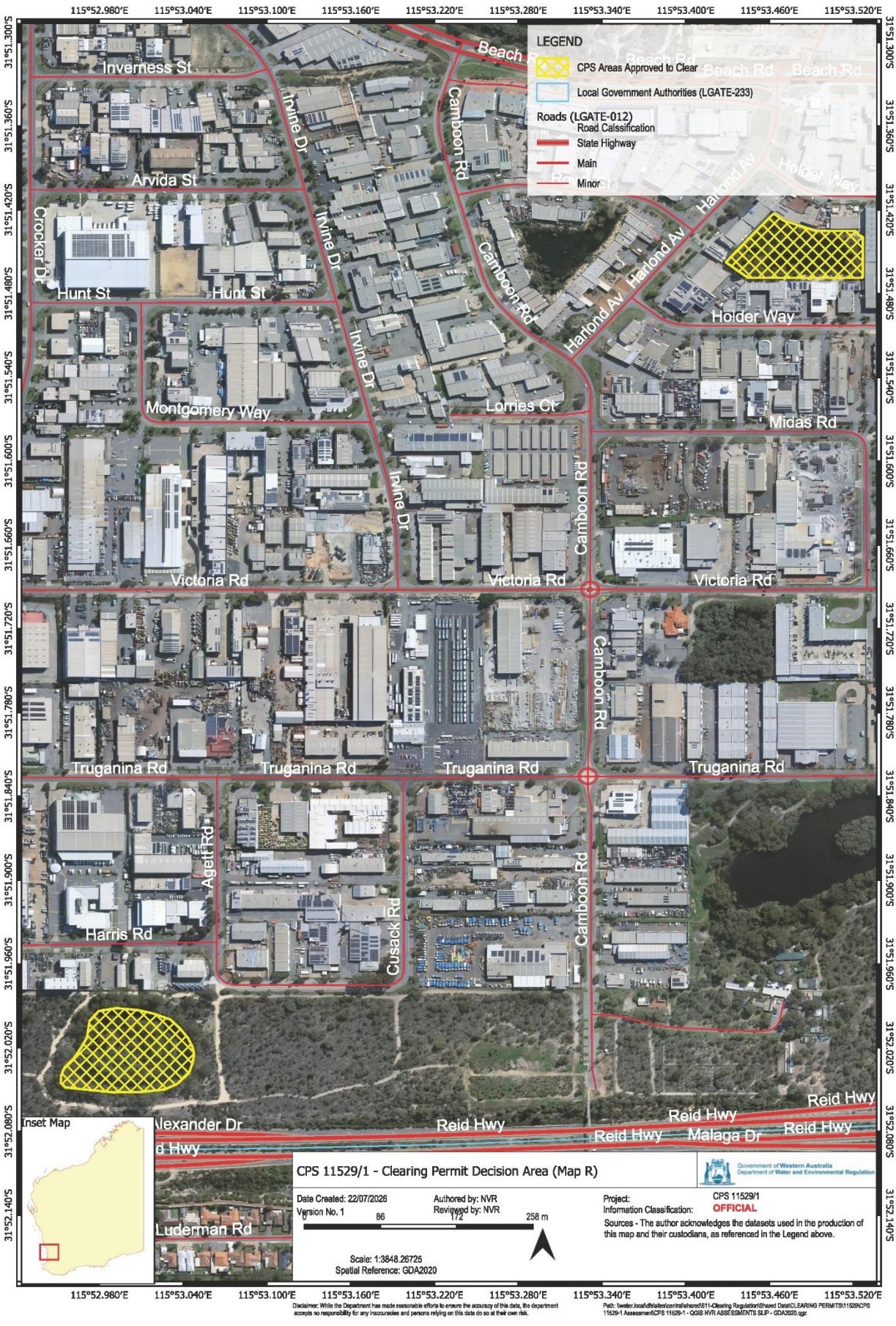


Figure 18 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 19 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Figure 20 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

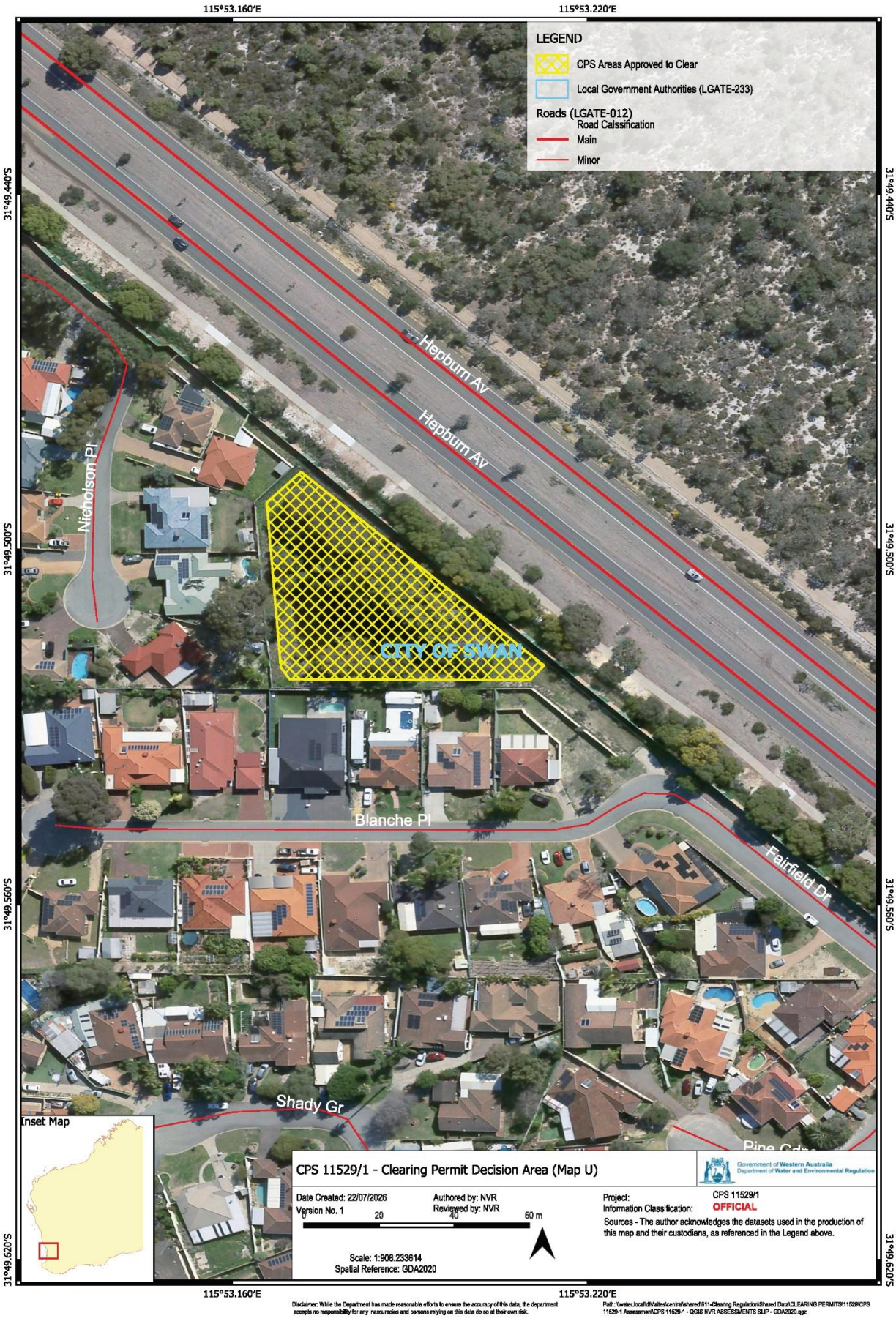


Figure 21 Map of the application area

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

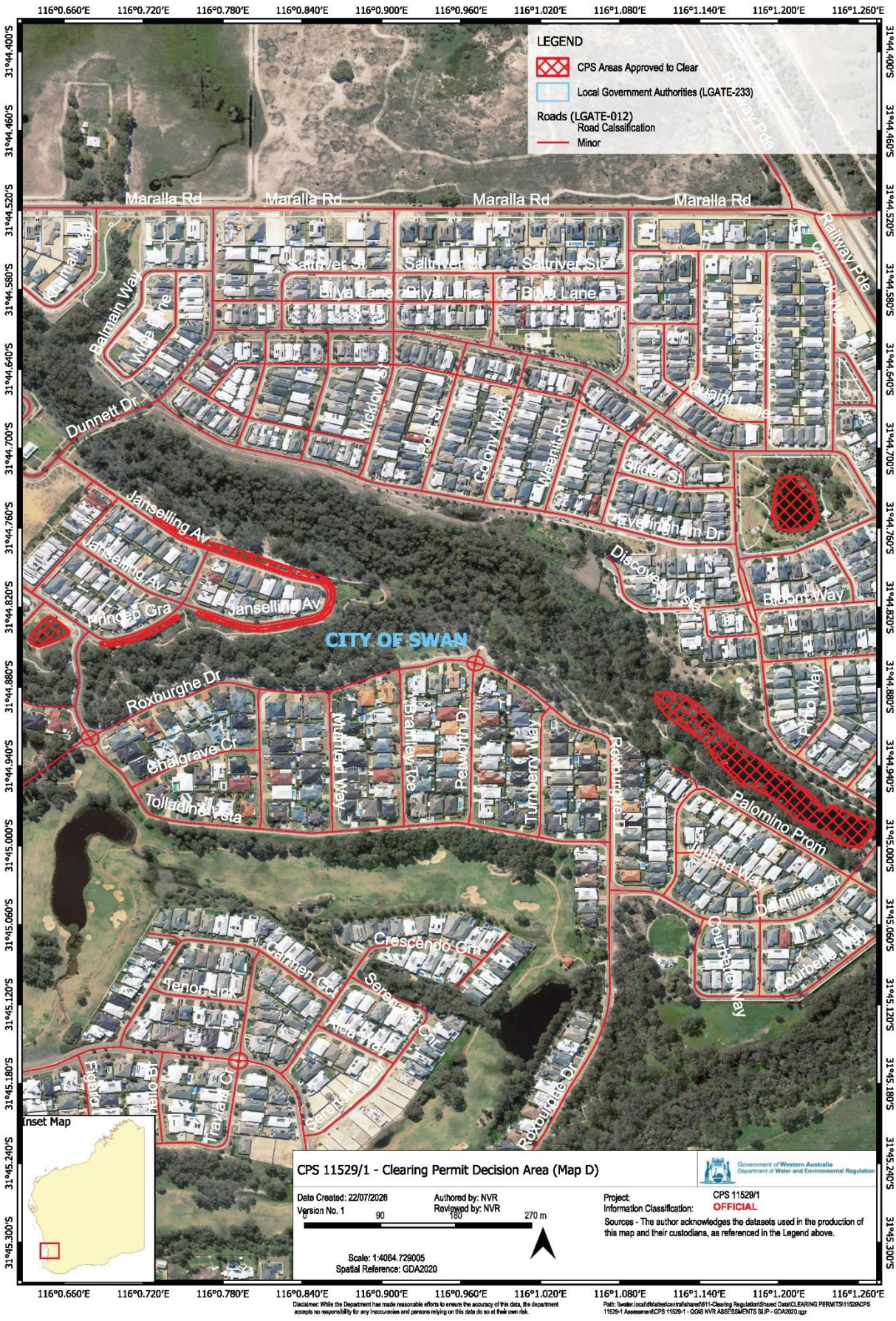


Figure 22 Map of the application area

The areas cross-hatched red indicate the areas within which specific conditions apply.



Figure 23 Map of the application area

The areas cross-hatched red indicate the areas within which specific conditions apply.

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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Health (Pesticide) Regulations 2011*

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

The applicant provided information demonstrating that avoidance and mitigation measures have been considered and incorporated into the proposed clearing activities, including (City of Swan, 2026):

- avoidance of clearing vegetation beyond that necessary to restore and maintain drainage function
- confining clearing activities to existing constructed drainage corridors which are already disturbed and purpose built for stormwater management;
- limiting clearing to areas where dense *Typha* is restricting water flow, trapping sediment, and preventing effective maintenance of the drainage channel;
- considering alternatives to restore the hydraulic capacity of the drainage system, which were deemed unsuitable due to the density and maturity of the *Typha.* These alternatives included:
    - leaving vegetation in place;
    - undertaking surface maintenance only;
    - applying spot chemical treatment to manage vegetation growth; and
    - engineering solutions.
- staged and controlled vegetation removal;
- machinery and equipment will operate within pre-selected and designated access areas to minimise disturbance;
- appropriate hygiene measures to reduce the potential spread of weeds and plant material;
- chemical control may be applied as a supplementary management measure following mechanical and manual clearing only, through methods such as direct contact or controlled spraying and undertaken under suitable site conditions to minimise chemical drift into surrounding water bodies;
- routine maintenance within the drainage corridor to manage regrowth and maintain water flow to reduce the need for repeated large-scale clearing; and
- where practical, disturbed areas will be allowed to stabilise naturally.

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 (flora and fauna) and environmental values (conservation areas, 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, 75 fauna species of conservation significance are recorded within a 10-kilometres radius of the application area (local area). Of the conservation significant fauna species recorded within the local area, the following species are likely to use *Typha*-dominated habitat for foraging, shelter, breeding and/or roosting, based on habitat preferences of these species:

- Australasian bittern (*Botaurus poiciloptilis)* (Endangered)
- Australian little bittern (*Botaurus dubius)* (Priority (P) 4)
- Australian painted snipe *(Rostratula australis)* (Endangered)
- Black bittern (southwest subpopulation) (*Botaurus flavicollis australis)* (P2)
- Blue-billed duck *(Oxyura australis)* (P4)
- Common sandpiper (*Actitis hypoleucos)* (Migratory (MI))
- Glossy ibis *(Plegadis falcinellus)* (MI)
- Marsh sandpiper (*Tringa stagnatilis)* (MI)
- Pectoral sandpiper *(Calidris melanotos)* (MI)
- Sharp-tailed sandpiper (*Calidris acminata)* (MI)
- Water-rat, rakali *(Hydromys chrysogaster)* (P4)
- Western swamp tortoise *(Pseudemydura umbrina)* (Critically Endangered)
- Wood sandpiper *(Tringa glareola)* (MI)

Migratory Birds

The application footprint and *Typha* stands proposed to be cleared, contain habitat features that are likely to be utilised by the six migratory bird species listed above. These species do not depend exclusively on foraging, nesting, roosting and refuge habitat provided by *Typha* stands, however, these species may be present at the time of clearing.

These species generally utilise a wide range of wetland habitats across the landscape and are highly mobile, often moving between multiple foraging sites within a region depending on seasonal conditions and resource availability. The vegetation proposed to be cleared consists of *Typha* within modified and disturbed drainage systems. While this vegetation can provide foraging and shelter opportunities, the habitat is fragmented, and of relatively low ecological quality compared to more extensive and intact wetlands present within the local area, including nearby conservation reserves and larger wetland systems.

Given the above, the *Typha* proposed for clearing is unlikely to provide significant habitat for these species.

Noting the limited spatial extent of clearing, the availability of higher quality alternative habitats nearby, and the mobile nature of migratory bird species, subject to appropriate management measures which will be required as a condition of the clearing permit, individuals are likely to relocate to adjacent suitable habitat with minimal impact.

Other conservation significant bird species

Botaurus poiciloptilis (Australasian bittern)

Australasian bittern occurs mainly in freshwater wetlands and, rarely, in estuaries or tidal wetlands. It often forages at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. *Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus)* or cutting grass *(Gahnia)* growing over a muddy or peaty substrate. Australasian bittern nests adjacent to relatively deep, densely vegetated freshwater swamps and pools, building its nests under dense cover over shallow water (Birdlife Australia, 2026; DCCEEW, 2026c).

In Western Australia, the Australasian bittern has undergone significant historical decline and is now largely restricted to wetlands on the Swan Coastal Plain and southern coastal regions. Suitable habitat is generally characterised by permanent or seasonal freshwater wetlands with dense vegetation structure and minimal disturbance (Birdlife Australia, 2026).

The vegetation within the application area, being *Typha* along drainage lines and modified wetlands, may provide potential foraging and refuge habitat for the Australasian bittern. However, the application areas are typically linear, fragmented, and subject to disturbance, which reduces their suitability for key behaviours such as breeding and sustained occupancy. Therefore, the *Typha* proposed for clearing is unlikely to provide significant habitat for this species. The species is highly mobile, and subject to appropriate management measures which will be required as a condition of the clearing permit, individuals are expected to relocate to suitable nearby habitat ahead of clearing if disturbed.

Botaurus dubius (Australian little bittern)

The Australian little bittern occurs in diverse freshwater habitats, mainly where tall rushes, reeds, *Typha,* shrub thickets or other dense cover is inundated by at least 30 centimetres of water. It can be found in vast swamps, but unlike the Australasian bittern, it may inhabit small patches of dense wetland vegetation along drains or in small urban lakes. It is a migratory species in the southern part of its range.

According to available databases, within the local area there are 15 historical records or sightings of the Australian little bittern, indicating that the species may be present intermittently depending on seasonal conditions and water availability. The proposed clearing may result in temporary disturbance to individuals at the time of works and minor localised reduction in available foraging or refuge habitat. However, given the extent of clearing, the modified nature of the drainage systems, the availability of higher-quality wetland habitats in the surrounding landscape, and this species' mobility, subject to appropriate management measures which will be required as a condition of the clearing permit, it is considered likely that individuals would relocate to nearby suitable habitat with minimal impact.

Rostratula australis (Australian painted snipe)

The Australian painted snipe is inferred to have undergone a severe decline in the number of mature individuals since the 1950s, and it is estimated that the species' current population is between a few hundred individuals and 5000 mature individuals (DCCEEW, 2026b).

The Australian painted snipe is usually found in permanent or temporary shallow inland wetlands, either freshwater or occasionally brackish, both ephemeral and permanent. Such areas include lakes, swamps, claypans, inundated or waterlogged grassland/saltmarsh, dams, and bore drains, generally with a good cover of grasses, rushes and reeds, low scrub, open timber or samphire (DCCEEW, 2026b).

According to available databases, there are two records of this species in the local area. Noting the limited number of recent records of this species in the local area, and site context of the highly modified proposed clearing areas, this species is unlikely to rely on the *Typha* proposed for clearing, or occur on site at the time of clearing. In the unlikely event that the species is on site at the time of clearing, fauna management conditions imposed on the clearing permit will appropriately manage impacts to individuals of this species.

Botaurus flavicollis australis (Black bittern (southwest subpopulation))

This species is known from limited records in the local area and occurs in freshwater wetlands, rivers, swamps and estuarine environments where there is dense fringing vegetation, including reeds, sedges, shrubs and riparian woodland. The species is generally solitary, cryptic, and highly mobile, sheltering within dense vegetation during the day and foraging along edges of waterbodies, often in shaded or concealed areas (Simply Birding, 2025). This species is not reliant on *Typha* for breeding, and a minor, localised reduction in foraging or refuge habitat is not likely to be significant to this species persistence in the local area. Fauna management conditions imposed on the clearing permit will appropriately manage impacts to individuals of this species occurring within the clearing areas during clearing.

Oxyura australis (Blue-billed duck)

The blue-billed duck has been recorded historically within the local area, being 8.62 kilometres from the application area in 2022. The duck is endemic to Australia's temperate regions, inhabiting natural inland wetlands and artificial

wetlands, such as sewage ponds, in large numbers. The blue-billed duck is omnivorous, and will forage on invertebrates as well as seeds, buds, and fruit of emergent and submerged plants.

Breeding habitat is typically secluded densely vegetated situations, with the nest constructed in *Typha* beds or other vegetation, in permanent water (Birdlife Australia, 2020c). While most of the application areas do not provide a secluded, densely vegetated environment, given this species commonly breeds in *Typha*, the proposed clearing may impact suitable breeding habitat for this species. This impact is unlikely to be significant given the extent of clearing, the modified nature of the drainage systems, and the availability of higher-quality wetland habitats in the surrounding landscape.

Fauna management measures conditioned on the clearing permit, including the requirement to undertake pre-clearing site inspections prior to works commencing, will appropriately manage the risk of injury / fatality to any individuals using the application area at the time of clearing.

Other Species

Hydromys chrysogaster (water-rat, rakali) (P4)

This species has 60 recorded observations within the local area, the closest being 726 metres away. Rakali occupy habitats in the vicinity of permanent water (fresh, brackish or marine) (DWER, 2026). In the south-west of Western Australia, they have been shown to prefer areas with riparian vegetation, better water quality and a degree of habitat complexity. Woody debris, rock ledges and wetland islands are likely to be important areas for feeding and refuge (Australian Platypus Conservancy, 2024; DWER, 2026).

Rakali are predominantly carnivorous, feeding largely underwater on a wide range of prey including large insects, crustaceans, mussels and fishes, and even frogs, lizards, small mammals and water birds. Although dependent on water for foraging, rakali live on land, in burrows on low banks of rivers, lakes, wetlands, and estuaries including coastal areas and nest in bankside hollow logs but can utilise artificial nests (Australian Platypus Conservancy, 2024). Intact riparian vegetation and associated bank stability is critical to their survival, and therefore, stands of *Typha* are important to ensure stability for their riparian zone habitats and often utilised for shelter and to safely traverse the landscape (DWER, 2026). While no records are located within the application footprint, individuals may be present at the time of clearing, as the home range of a rakali in the southern coastal areas of WA have been recorded up to seven to 10 hectares.

The clearing activities may impact on the stability of watercourse / wetland banks and subsequently impact on rakali habitat. However, considering the highly modified nature of the drainage systems, and the availability of similar riparian habitat in adjacent and nearby areas, the overall impact on rakali habitat is expected to be localised and temporary.

While *Typha* stands can provide shelter and assist with bank stability, they are known to proliferate in disturbed and nutrient-enriched systems and can dominate waterways, reducing habitat heterogeneity. The removal and maintenance of *Typha* may improve water flow and increase habitat diversity, if bank stability is maintained and clearing is undertaken sensitively, which is proposed by the applicant (see Section 3.1).

Fauna management measures conditioned on the clearing permit, including the requirement to undertake pre-clearing site inspections prior to works commencing, will appropriately manage the risk of injury / fatality to any individuals using the application area at the time of clearing.

Pseudemydura umbrina (western swamp tortoise)

The western swamp tortoise has been recorded multiple times within the local area, the closest being 312 metres away (recorded in 1970). Their known geographic distribution is very limited, with small populations recorded from scattered localities in a narrow strip (3-5 km wide) of the Swan Coastal Plain, roughly parallel with the Darling Range. The species is in severe decline, with only a single viable population in the wild, with two additional populations maintained by supplementation with translocated individuals. One of these populations at Twin Swamps Nature Reserve is 1 kilometre southeast of one of the northmost application areas (DCCEEW, 2026a).

Western swamp tortoise forage with a carnivorous diet consisting of insects, insect larvae, aquatic crustaceans, tadpoles and aquatic earthworms. At the end of spring, the tortoises move away from swamps to nearby aestivation sites, with their active times restricted to the cooler five to six months of the year, reducing the time available to feed, grow and reproduce. The species has a specialised biology and is dependent on rare habitat, a wholly carnivorous diet, low fecundity and slow growth rates and is threatened with further declines through habitat

clearance for agriculture, urban and industrial development, increasing aridity, predation, fire, and drainage of swamp habitat (DCCEEW, 2026a).

The species is highly habitat-specific, relying on ephemeral freshwater swamps with hydrological regimes, clay soils, and fringing vegetation. While the application areas include wetland and drainage environments, these are predominantly modified systems dominated by *Typha*, which are typically associated with permanently inundated or nutrient-enriched conditions rather than seasonally drying claypans required by the western swamp tortoise. Given the altered hydrology, vegetation composition, proposed targeted removal of *Typha*, and urban disturbance of the application areas, the proposed clearing is not likely to impact habitat critical to the survival of this species. However, given that this species is Critically Endangered the Delegated Officer has taken a precautionary approach in this instance, requiring the identification and avoidance of suitable habitat for this species in those application areas closest to its known population.

This species is also capable of short-distance dispersal (up to approximately 600 metres over a short period (DCCEEW, 2026a)), therefore the applicant will also be required, as a condition of the clearing permit, to undertake a pre-clearance search of suitable habitat for this species, and avoid clearing within 30 metres of any individuals identified.

Conclusion

Based on the above assessment, the proposed clearing will result in a minor, localised reduction of suitable habitat (*Typha*) for several conservation significant fauna species. This habitat is unlikely to provide significant habitat for these fauna species given clearing is limited to scattered occurrences of *Typha* throughout the City of Swan, within highly modified wetland and drainage systems. There is however a risk of injury / fatality to native fauna using the application areas at the time of clearing.

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitat can be appropriately managed through fauna management conditions imposed on the clearing permit, as set out below.

Conditions

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

- undertake avoidance and minimisation measures 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 directional clearing to allow fauna to move into adjacent habitat ahead of the clearing activity;
- inspect clearing areas for native vertebrate fauna prior to clearing, and cease clearing where native vertebrate fauna are identified in the clearing area, until they naturally disperse or are relocated; and
- inspect those clearing areas closest to the known population of western swamp tortoise (see Figures 22 and 23), for individuals and suitable habitat, and
    - avoid any suitable habitat identified; and
    - avoid clearing within 30 metres of any individuals identified.

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

Assessment

A total of 65 conservation significant flora species has been recorded within the local area, comprising 23 threatened species and 42 priority species.

The vegetation proposed to be cleared is limited to *Typha orientalis* occurrences within modified drainage systems. These areas are generally highly disturbed monocultures, linear in nature, and subject to ongoing maintenance activities. While some conservation significant flora species recorded in the local area are associated with wetland or seasonally inundated environments (e.g. *Carex tereticulis, Eleocharis keigheryi, Hydrocotyle lemnoides, Schoenus capillifolius),* most species are unlikely to occur within the application footprint due to the altered hydrology, ongoing disturbance regime, and dominance of dense *Typha* monocultures.

Analysis of available data indicates that the vegetation within the application area lacks key attributes such as intact native vegetation structure, appropriate species composition, and undisturbed soil profiles required to support most conservation listed riparian flora known from the local area. According to available datasets, no confirmed records of threatened or priority flora occur within or adjacent to the application areas.

Given clearing will be targeted at *Typha orientalis* within drainage environments, it is unlikely to impact on conservation listed flora.

Conclusion

The proposed clearing will be targeted at *Typha* within drainage environments, and it is unlikely to impact on conservation listed flora.

Impacts of the proposed clearing on non *Typha* flora can be appropriately managed by implementing mitigation measures such as avoiding disturbance beyond the approved footprint, controlled use of chemicals (if required), and applying appropriate hygiene measures to minimise the introduction and spread of weeds.

Conditions

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

- undertake avoidance and minimisation measures to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback; and
- undertake spraying of chemical solution during the driest period of the year when the water level is at its lowest, and during calm wind conditions.

3.2.3. Environmental value (conservation area) - Clearing Principle (h)

Assessment

Two application areas are within Bush Forever sites (sites 300 and 385). No other application areas are within any conservation reserves or protected areas. Bush Forever sites support remnant native vegetation and ecological values of regional significance, including habitat for conservation significant flora and fauna, and contributions to ecological linkages.

The proposed clearing activities are targeted at removing dense *Typha* to restore hydraulic function and will not involve expansion into adjacent undisturbed native vegetation within these Bush Forever sites. Potential indirect impacts may include the potential introduction or spread of weeds and dieback. However, this impact is expected to be localised, short-term, and capable of being appropriately managed through conditions on the clearing permit, such that the conservation values within Bush Forever sites 300 and 385 will be maintained.

Conclusion

Based on the above assessment, the proposed clearing will result in minor and localised disturbance within modified drainage environments located within Bush Forever sites 300 and 385 and may pose a low risk of indirect impacts to the conservation values of those sites.

It is considered that these impacts can be adequately managed through avoidance and minimisation measures and the implementation of hygiene requirements to minimise the introduction and spread of weeds and dieback.

Accordingly, the proposed clearing is not expected to result in a significant residual impact to the environmental values of Bush Forever sites 300 and 385.

Conditions

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

- implementation of hygiene measures to minimise the introduction and spread of weeds and dieback; and
- avoidance and minimisation to reduce the impacts and extent of clearing.

3.2.4. Environmental value (land and water resources) - Clearing Principles (f) and (i)

Assessment

The application areas occur within and adjacent to watercourses, wetlands and drainage systems, including palusplains, damplands, and sumplands, as well as constructed drainage infrastructure. As such, the vegetation proposed to be cleared, being *Typha*, is growing in association with environments linked to surface water and groundwater systems. Specifically, *Typha* commonly occurs in disturbed, nutrient-enriched, and permanently or semi-permanently inundated environments. While it can form part of native wetland systems, it is also known to

proliferate under altered hydrological conditions, where it can dominate waterways, reduce hydraulic capacity, increase sediment trapping, and contribute to waterlogging.

Most of the mapped wetland environments that the application areas intersect are multiple use category wetlands, which are recognised as highly modified wetlands where ecological values have been substantially altered by historical land use.

A small sliver of the application area shown in Figure 4 is mapped as a conservation category wetland (CCW), which are wetlands considered to have the highest ecological values. This CCW is associated with Ellen Brook. The proposed clearing areas in the vicinity of the CCW are confined to a roadside drain, and are separated from the Brook by a well established 2.1 metre wide public pathway. Noting this separation, the proposed targeted removal of Typha in this location is not likely to impact on the CCW.

The proposed clearing is for drainage maintenance and aims to restore hydraulic function, improve water flow, and reduce the risk of flooding and prolonged inundation caused by *Typha* stands. The removal of *Typha* may result in short-term impacts, including increased turbidity, sediment mobilisation, and minor disturbance to bank stability. However, given the targeted nature of the clearing and the confinement of works to existing disturbed drainage corridors, these impacts are likely to be temporary and are expected to stabilise post clearing.

Given the capacity of *Typha* to rapidly proliferate, the proposed clearing may improve drainage of water and reduce the incidence or intensity of flooding within the drainage systems.

Conclusion

The proposed clearing may result in short-term and localised disturbance to land and water resources, including temporary increases in turbidity, minor sediment mobilisation and limited disturbance to bank stability within modified drainage systems. These impacts are expected to be temporary due to the targeted nature of the clearing and the confinement of works to existing disturbed drainage corridors.

The proposed clearing is also expected to improve hydraulic capacity, reduce waterlogging and enhance the function of the drainage network by managing dense *Typha* growth that has restricted water flow. Accordingly, the proposed clearing is not expected to result in a significant residual impact to land or water resources.

No additional conditions are required specifically for land and water resources, noting that potential impacts will be managed through the avoidance, minimisation and operational controls imposed elsewhere on the permit.

3.3. Relevant planning instruments and other matters

Advice was sought from DPLH regarding the Bush Forever areas intersecting the application footprint; however, no response was received by the time of assessment. The assessment was therefore undertaken based on the information available to the Delegated Officer.

Notwithstanding this, the proposed clearing is limited to the removal of *Typha* within existing, highly modified drainage infrastructure. This vegetation is widespread, occurs in disturbed environments, and as such the proposed clearing is unlikely to conflict with the objectives of State Planning Policy 2.8: Bushland Policy for the Perth Metropolitan Region.

Where herbicides are used as part of the proposed clearing and maintenance activities, those activities should be undertaken in accordance with relevant DWER guidance to minimise risks to water quality (DWER, 2026). These guidelines include:

- WQPN 4: Sensitive water resources
- WQPN 10: Contaminant spills – emergency response plan
- WQPN 11: Assessing and managing risks in public drinking water source areas
- WQPN 28: Mechanical servicing and workshops
- WQPN 29: Mobile mechanical servicing and cleaning
- WQPN 36: Protecting public drinking water source areas
- WQPN 65: Toxic and hazardous substances
- WQPN 83: Infrastructure corridors near sensitive water resources
- WQPN 84: Rehabilitation of disturbed land in PDWSAs
- PSC 88 – use of herbicides in water catchment areas.

The Delegated Officer noted that the use of herbicides is regulated under the *Health (Pesticides) Regulations 2011*, with which the permit holder is required to comply.

Several Aboriginal Sites of Significance have been mapped over the application areas. 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

A.1. Site characteristics

Characteristic	Details
Local context	The areas proposed to be cleared consist of small patches of native vegetation along multiple drainage areas in the City of Swan. These areas are surrounded by residential and developed areas. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 40.37 per cent of the original native vegetation cover.
Ecological linkage	Some of the application areas within Malaga, Woodbridge, Brabham, the Vines, Ellenbrook and Bullsbrook fall within mapped formal ecological linkages, including Gnangara Ecological Linkages and Perth Regional Ecological Linkages. The proposed targeted removal of *Typha* within existing modified drainage systems is unlikely to impact ecological linkage values, as clearing is not proposed within remnant native vegetation that contributes substantially to linkage function.
Conservation areas	Two application areas occur within Bush Forever Sites 300 and 385. No other conservation reserves or protected areas intersect the application areas.
Vegetation description	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of *Typha orientalis*. Representative photos are available in Appendix D. The (Heddle et al, 1980) mapped vegetation type(s) over the application areas include: • **Bassendean Complex-Central and South** – Vegetation ranges from woodland of *Eucalyptus marginata* (Jarrah) – *Allocasuarina fraseriana* (Sheoak) – *Banksia* species to low woodland of *Melaleuca* species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus todtiana* (Pricklybark) in the vicinity of Perth. • **Southern River Complex** – 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. • **Swan Complex** – Fringing woodland of *Eucalyptus rudis* (Flooded Gum) – *Melaleuca rhaphiophylla* (Swamp Paperbark) with localised occurrence of low open forest of *Casuarina obesa* (Swamp Sheoak) and *Melaleuca cuticularis* (Saltwater Paperbark). • **Guildford Complex** – Mixture of open forest to tall open forest of *Corymbia calophylla* (Marri) – *Eucalyptus wandoo* (Wandoo) – *Eucalyptus marginata* (Jarrah) and woodland of *Eucalyptus wandoo* (Wandoo) (with rare occurrences of *Eucalyptus lane-poolei* (Salmon White Gum)). Minor components include *Eucalyptus rudis* (Flooded Gum) – *Melaleuca rhaphiophylla* (Swamp Paperbark). • **Yanga Complex** – Predominantly a closed scrub of Melaleuca species and low open forest of *Casuarina obesa* (Swamp Sheoak) on the flats subject to inundation. On drier sites the vegetation reflects the adjacent vegetation complexes of Bassendean and Coonambidgee. • **Bassendean Complex-North** – vegetation ranges from a low open forest and low open woodland of Banksia species *Eucalyptus todtiana* (Pricklybark) to low woodland of Melaleuca species and sedgelands which occupy the moister sites. • **Beermullah Complex**: Mixture of low open forest of *Casuarina obesa* (Swamp Sheoak) and open woodland of *Corymbia calophylla* (Marri) – *Eucalyptus wandoo* (Wandoo) – *Eucalyptus marginata* (Jarrah). Minor components include closed scrub of Melaleuca species and occurrence of *Actino pyramidalis* (Swamp Cypress). • **Karrakatta Complex-Central and South** – Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) – *Eucalyptus marginata (*Jarrah) – *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) – Banksia species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River.

Characteristic	Details
	• **Reagan Complex** – Vegetation ranges from low open woodland of Banksia species *Eucalyptus todtiana* (Pricklybark) to closed heath depending on the depth of soil. The above vegetation types have the following extents of their pre-European vegetation remaining (Government of Western Australia, 2019): • Bassendean Complex-Central and South: 23.80% • Karrakatta Complex-Central and South: 22.50% • Southern River Complex: 17.53% • Swan Complex: 12.62% • Guildford Complex: 4.73% • Yanga Complex: 15.43% • Bassendean Complex-North: 71.43% • Reagan Complex: 35.81% • Beermullah Complex: 6.83%.
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the application area is generally in a 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 application area ranges across a large area of land extending from 20 metres elevation above sea level to approximately 220 metres. The mean average rainfall in the region of Perth is 718.50 millimetres, with a mediterranean climate (BOM, 2026).
Soil description	The soil types over the application areas is mapped as: • EnvGeol S8 Phase (212Bs_S8) - very high grey sand at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin. • EnvGeol Cps Phase (212Bs_Cps) - peaty clay – dark grey and black, soft, variable organic content, some quartz sand in placed, of lacustrine origin. • Bassendean, Joel Phase (212Bs_J) - poorly drained depressions. Humus podzols. • Bassendean, Jandakot Phase (212Bs_Ja) - Jandakot low dunes. Slopes <10% and generally more than 5m relief. Grey sand over pale yellow sands generally underlain by humic and iron podsols; • Bassendean, Gavin Phase (212Bs_G) - flat or gently undulating landscape. Iron-humus podzols and some diatomite deposits. • EnvGeol S10 Phase (213Pj_S10) - sand as S8 is relatively thin veneer over sandy clay to clayey sand. Of eolian origin. • Bassendean drainage lines Phase (212Bs_DL) - broad, shallow channels, peaty soils. • BC – Valley complex (Pinjarra) (213Pj_VC) - variable soils associated with drainage lines. • Hs – Herne sand (Pinjarra) (213PjHE_Hs) - grey to greyish-brown sand with nil to few gravels over mottled clay. • Bas – Barret sand (Bassendean) (212Bs_Bas) - moderately deep grey sand over organic hardpan over light brown sand and shallow winter water table. • Sw – Swamp (Bassendean) (212BsW_SWAMP) • Mus – Muchea sand (Bassendean) (212Bs_Mus) deep grey sand. • Pinjarra System (213Pj) - Swan Coastal Plain from Perth to Capel. Poorly drained coastal plain with variable alluvial and aeolian soils. • Pinjarra, Phase Gf5 (213Pj_Gf5) - incised drainage channels with poorly drained gradational mottled yellow earths. • VC – Valley Complex (Pinjarra) variable soils associated with drainage lines. • Bassendean Yanga Phase (Bassendean) (212Bs_Ya) - flat, poorly drained complex landscape; soils include shallow sand over limestone or ferruginous pan, deep leached sand, and saline soils.

Characteristic	Details
	• Hsl – Herne sandy loam (Pinjarra) (213PjHE_Hsl) - grey-brown sandy loam over mottled clay. • Hl – Herne loam (Pinjarra) (21PjHE_Hl) - grey-brown loam over mottled clay. • Mus – Muchea sand (Bassendean) (212Bs_Mus) - deep grey sand. • Ks – Karrakatta sand (Bassendean) (212Bs_Ks) - shallow layer of grey sand over yellow sand (sand dune). • Yanga 6x Phase (213Ya_6x) - flat plain with occasional low dunes. Yellowish brown duplex and pooly structured clay soils often with pans underlying. • Myara 2 Phase (255MyMA2) - Gentle to moderately inclined lower sideslopes (1-15%). Variable well drained duplex and gradational soils. • Reagan 2 Subsystem (222Re_1) - Gentle slopes (<10%) with deep, rapidly drained loose brownish or pale sands with a sandy fabric. • Pinjarra, Phase Gf4 (213Pj_Gf4) - level to very gently inclined alluvial fans. Variable imperfectly drained soils with layers of sand, sandy loam, clay, grit and weathered granitic detritus. • Pinjarra, Phase Gf2 (213Pj_Gf2) - very gently undulating plain with imperfectly drained mottled yellow duplex soils with sand to sandy loam topsoil. • Reagan 1 Subsystem (222Re_1) - gentle slopes (<10%) with deep, rapidly drained loose brownish or pale sands with a sandy fabric.
Land degradation risk	Based on available datasets, parts of the application area are mapped as having a risk of water repellence, wind erosion, waterlogging, subsurface acidification, acidity, phosphorus export and salinity.
Waterbodies	The desktop assessment and aerial imagery indicate that some of the application areas are within mapped palusplain, dampland and sumpland geomorphic wetlands. Some application areas also intersect mapped man-made perennial lakes and waterbodies. Many of the application areas also intersect non-perennial watercourses.
Hydrogeography	Most of the application areas are located within the Swan River System, proclaimed under the RIWI Act. The application areas also fall within multiple groundwater areas including: • Perth Groundwater area; • Mirrabooka Groundwater area; and • Swan Groundwater area. According to available databases, groundwater salinity ranges from less than 500 mg/L to 1,000 mg/L TDS. Some of the application area is situated within: • Gnangara Underground Water Pollution Control Area; and • West Mirrabooka Underground Water Pollution Control Area. Some application areas occur within Public Drinking Water Source Areas (PDWSAs), including wellhead protection zones.
Flora	The desktop assessment identified that 65 conservation significant flora species have been recorded in the local area, comprising 23 threatened species, and 42 priority species (3 are listed as Priority 1, 5 as Priority 2, 18 as Priority 3, 16 as Priority 4). The closest record to the application area is threatened species *Grevillea curviloba,* recorded 106 metres from an application area.
Ecological communities	Some of the application areas are mapped within the state listed priority (P3) ecological community, 'Banksia Woodlands of the Swan Coastal Plain Ecological Community' which is also listed as Endangered under the EPBC Act. Dense stands of Typha orientalis within modified drainage systems are not characteristic of this ecological community.

Characteristic	Details
Fauna	There are records of 75 fauna species of conservation significance in the local area, including, 24 migratory birds, 11 mammals, 25 other birds, 6 reptiles, one fish, 6 terrestrial invertebrates, one aquatic invertebrate and one marine mammal.

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	1,500,622.48	576,562.37	38.42	231,916.26	15.45
Jarrah Forest	4,506,660.25	2,339,838.15	52.25	1,673,614.25	69.74
Vegetation complex **					
Bassendean Complex-Central and South	87,476.26	20,819.97	23.80	6,590.87	7.53
Southern River Complex	58,781.48	10,302.86	17.53	1,407.19	2.39
Swan Complex	15,194.13	1,917.25	12.62	151.45	1.00
Guildford Complex	90,513.13	4,279.76	4.73	315.03	0.35
Yanga Complex	26,176.46	4,039.56	15.43	525.52	2.01
Bassendean Complex-North	79,057.34	56,470.36	71.43	31,509.02	39.86
Beermullah Complex	6,707.27	457.97	6.83	135.11	2.01
Karrakatta Complex-Central and South	53,081.02	11,945.48	22.50	4,779.72	9.00
Reagan Complex	9,180.69	3,287.63	35.81	690.22	7.52
Local area					
10km radius	127,797.98	51,594.94	40.37	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Fauna analysis table

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

Species 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 in local area (total)
Australasian bittern (*Botaurus poiciloptilis)*	Endangered	Y	Y	3.98	7
Australian little bittern (*Botaurus dubius)*	Priority 4	Y	Y	0.98	15
Australian painted snipe *(Rostratula australis)*	Endangered	Y	Y	2.14	2

Species 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 in local area (total)
Black bittern (southwest subpopulation) (*Botaurus flavicollis australis)*	Priority 2	Y	Y	0.78	5
Blue-billed duck *(Oxyura australis)*	Priority 4	Y	Y	0.07	1
Common sandpiper (*Actitis hypoleucos)*	Migratory	Y	Y	5.46	1
Glossy ibis *(Plegadis falcinellus)*	Migratory	Y	Y	0.67	6
Marsh sandpiper (*Tringa stagnatilis)*	Migratory	Y	Y	3.98	-
Pectoral sandpiper *(Calidris melanotos)*	Migratory	Y	Y	6.63	-
Sharp-tailed sandpiper (*Calidris acminata)*	Migratory	Y	Y	3.98	-
Water-rat, rakali *(Hydromys chrysogaster*	Priority 4	Y	Y	0.76	60
Western swamp tortoise *(Pseudemydura umbrina)*	Critically endangered	Y	N	0.31	1592
Wood sandpiper *(Tringa glareola)*	Migratory	Y	Y	2.05	1

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 proposed clearing will target *Typha orientalis* which is capable of rapid proliferation and can negatively transform ecosystems unless it is actively managed (Western Australian Herbarium, 2019). Given the application areas are comprised predominantly of *Typha*, the proposed clearing is unlikely to significantly impact fauna habitat or conservation significant assemblages of plants. While the application areas may contain suitable habitat for several conservation significant fauna and flora species, noting that only *Typha* occurrences will be targeted, impacts to these species are unlikely to be significant, subject to the management conditions on the clearing permit as described in Sections 1.4 and 3.2.2.	Not likely to be at variance	Yes *Refer to Section 3.2.2.*
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 application areas may contain foraging, roosting and breeding habitat for conservation significant fauna.	May be at variance	Yes *Refer to Section 3.2.1.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The application areas are unlikely to include, or provide significant habitat for threatened flora.	Not likely to be at variance	Yes *Refer to Section 3.2.2.*
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 targeted removal of *Typha* is not likely to impact on any threatened ecological communities.	Not likely to be at variance	No
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 consistent with the national objectives and targets for biodiversity conservation in Australia. The targeted removal of *Typha* is not likely to impact on significant remnant vegetation within a highly cleared landscape.	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:	Not likely to be at variance	Yes *Refer to Section 3.2.3.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Two of the application areas are within Bush Forever Sites (300 and 385), however the targeted removal of *Typha* from these areas is not likely to impact on the values of these conservation areas, subject to the management conditions on the clearing permit as described in Sections 1.4 and 3.2.3.		
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 application areas occur within several watercourses and wetlands, and *Typha* forms a natural component of native wetland and watercourse vegetation. However, Typha can dominate wetland ecosystems and quickly form a monoculture. Given the clearing is limited to dense Typha growth within modified drainage systems it is unlikely to result in significant impacts to wetland values.	At variance	Yes *Refer to Section 3.2.4.*
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the clearing methods and extent of clearing proposed, being the targeted removal of *Typha* from modified drainage systems, the proposed clearing is not likely to result in appreciable land degradation.	Not likely to be at variance	No
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: The removal of *Typha* may temporarily increase water turbidity. However, these impacts are likely to be minimal and short term. The proposed clearing will not impact on groundwater quality.	Not likely to 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 purpose of the clearing permit is to remove Typha to increase water flow which is likely to reduce the likelihood, incidence and intensity of flooding in the local area.	Not likely to be at variance	No

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.

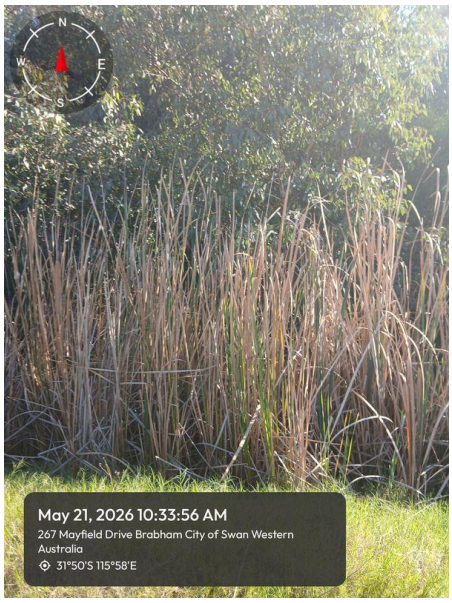
Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

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.
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







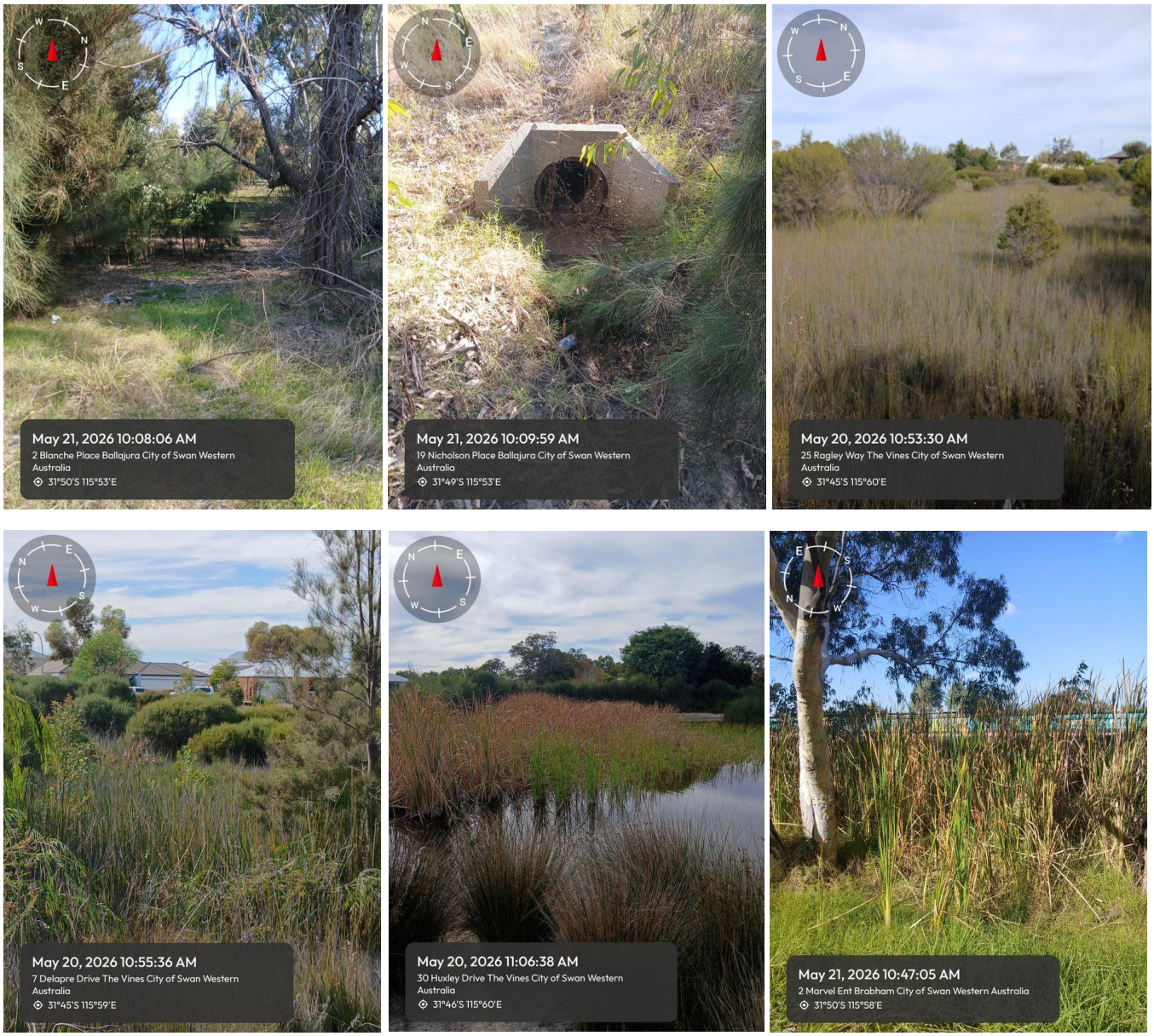


Figure 24: Representative vegetation photographs supplied by applicant (City of Swan, 2026b).

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)
- 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

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