GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10628/1
Permit Holder:	Shire of Harvey
Duration of Permit:	From 2 July 2025 to 2 July 2030

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road upgrades.

2. Land on which clearing is to be done

Harris River State Forest (PIN 11182057), Hoffman and Mornington.

3. Clearing authorised

The permit holder must not clear more than 3.2 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

PART II – MANAGEMENT CONDITIONS

4. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

5. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

6. Wind erosion management

The permit holder must commence activities related to the purpose of the clearing, no later than three (3) months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

7. Directional clearing

The permit holder must:

(a) conduct *clearing* activities in a slow, progressive manner towards adjacent remnant *native vegetation*; and

(a) allow reasonable time for fauna present within the area being cleared under this permit to move into adjacent *native vegetation* ahead of the *clearing* activity.

8. Fauna management – Retain *black cockatoo habitat tree*

(a) The permit holder must not clear within ten (10) metres of the *black cockatoo habitat tree* identified as 'Tree 5' within the *Targeted Fauna Survey* (marri - *Corymbia calophylla*) as containing a suitable hollow for *black cockatoo species* located at the following location within the area cross-hatched yellow on Figure 1 of Schedule 1:

Easting: 414954.215697

Northing: 6339121.546321

(b) Prior to clearing under this permit, the permit holder must demarcate the *black cockatoo habitat tree* and ten (10) metre buffer area in accordance with condition 8(a).

9. Watercourse management

Where clearing is within 30 metres of a watercourse, the permit holder must:

(a) conduct the clearing during dry conditions, outside of the high flow period, and

(b) maintain the existing surface flow of the watercourse.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates

No.	Relevant matter	Specifications
		in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 5; (g) actions taken in accordance with condition 6; and (h) actions taken in accordance with condition 7. (i) actions taken in accordance with condition 9.
2.	In relation to fauna management pursuant to condition 8	(a) actions taken in accordance with condition 8; (b) photos of the tree before and after clearing activities.

11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
black cockatoo species	means one or more of the following species: (a) *Zanda latirostris* (Carnaby's cockatoo); (b) *Zanda baudinii* (Baudin's cockatoo); and/or (c) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).
black cockatoo habitat tree	Means trees that have a diameter, measured at 150 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for Eucalyptus salmonophloia or Eucalyptus wandoo) that contains hollows suitable for breeding by *black cockatoo species*.
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of *Phytophthora* species on native vegetation.

Term	Definition
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
targeted fauna survey	means the Targeted Fauna Survey: Black Cockatoo – 19.0-24.2 SKL Harvey-Quindanning Road, Harvey, conducted by SW Environmental (2024).
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

J Burton

Jessica Burton
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

9 June 2025

Schedule 1 - The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

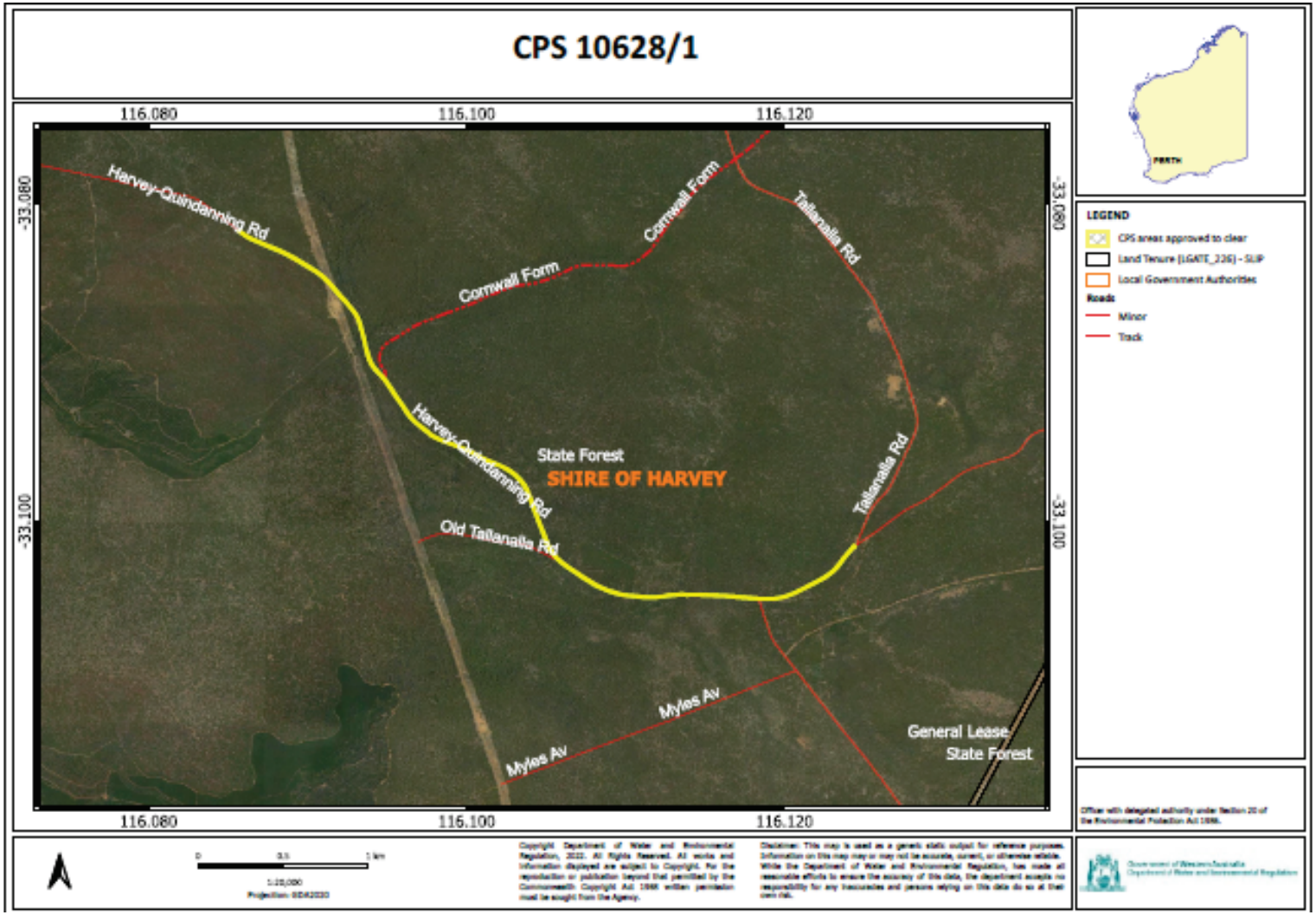

Figure 1: Map of the boundary of the area within which clearing may occur

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 10628/1
Permit type:	Purpose permit
Applicant name:	Shire of Harvey
Application received:	27 May 2024
Application area:	3.2 hectares (as revised) of native vegetation within a 7.5-hectare footprint
Purpose of clearing:	Road upgrades
Method of clearing:	Mechanical
Property:	Harris River State Forest (PIN 11182057)
Location (LGA area/s):	Shire of Harvey
Localities (suburb/s):	Hoffman and Mornington

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single, long and linear contiguous area (see Figure 1, Section 1.5).

The proposed clearing is along two sides of an approximately five-kilometre section of Harvey-Quindanning Road, an existing gravel road, within the Haris River State Forest. Harvey-Quindanning Road is described by Main Roads as an important east-west link that services grain, logging, mining and freight transport requirements for a large area east of Harvey (Shire of Harvey, 2024b). The significance of this road is stated in the Main Roads' report of 'Roads 2040 – Regional Strategies for Significant Local Government Roads South West, 2022 (amended 2023)' as follows (Shire of Harvey, 2024b):

- It connects the rural community of Harvey and the various community facilities, which are available at the sub-regional centre.
- With Pinjarra – Williams Road, Harvey-Quindanning Road forms an inter-regional, east-west link between the South West and the Wheatbelt Regions.
- Harvey-Quindanning carries local and inter-regional traffic and is the most direct link between the communities of Harvey and Williams.
- As a through route linking two major north-south routes, it should be developed to a uniform standard. Traffic forecasts indicate that in the longer term the road should be sealed to a uniform width. The ultimate standard proposed is a minimum of 6-metre-wide seal.

The purpose of clearing is to seal the road as recommended in the above-mentioned Main Roads' report to improve the road safety (Shire of Harvey, 2024a).

1.3. Decision on application

Decision:	Granted
Decision date:	9 June 2025
Decision area:	3.2 hectares of native vegetation.

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 B), relevant datasets (see Appendix F.1), the findings of biological surveys (see Appendix E), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the necessity of upgrading the Harvey-Quindanning Road, as stated in the Main Roads' report of 'Roads 2040 – Regional Strategies for Significant Local Government Roads Southwest, 2022 (amended 2023)' (see Section 1.2).

The assessment identified that the proposed clearing will result in:

- the loss of native vegetation that is suitable habitat for black cockatoos, woylies, Chuditch, western brush wallabies and western ringtail possum;
- the loss of native vegetation within the Harris River State Forest;
- 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;
- potential land degradation in the form of wind erosion; and
- potential impacts to non-perennial watercourses intersecting the application area.

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 loss of suitable habitat for conservation significant fauna species and the loss of native vegetation within the state forest is unlike to be significant, noting the narrow nature of the proposed clearing which is along approximately five kilometres of an active road, the already existed edge effects of the road, and the extensive area of remnant vegetation remaining in the surrounding state forest. Weeds and dieback risks, land degradation risks in the form of wind erosion and potential impact to watercourses can be minimised and managed to unlikely lead to an unacceptable risk to environmental values through permit's conditions. The applicant has suitably demonstrated avoidance and minimisation measures.

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.
- Commence activities related to the purpose of the clearing no later than three months after undertaking the clearing to minimise wind erosion.
- Avoid clearing a tree containing suitable breeding hollow for black cockatoos (Tree 5) with a minimum buffer of 10 metres.
- Conduct the clearing within 30 metres of a watercourse only during dry conditions and maintain the surface water flows.

1.5. Site map

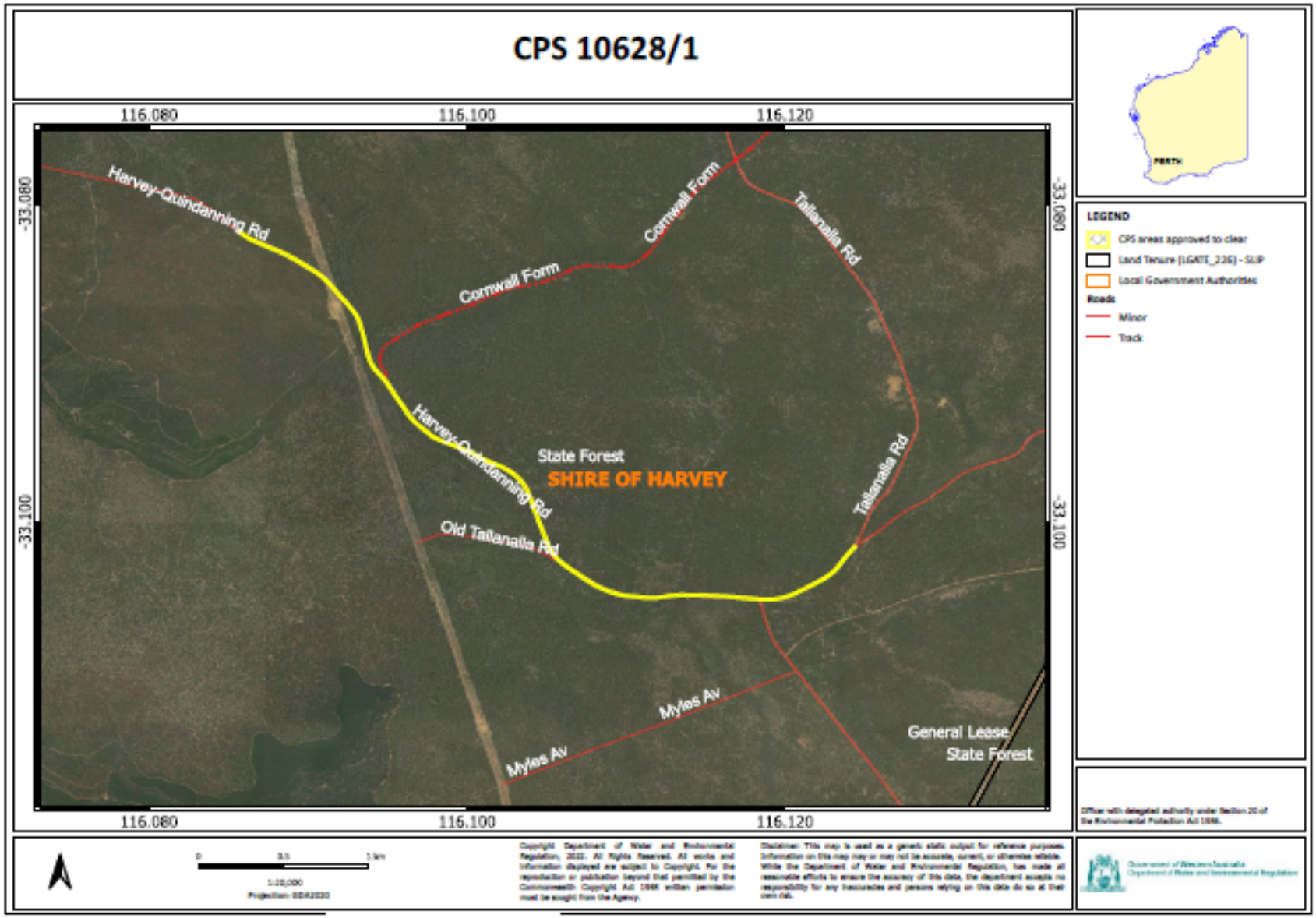

Figure 1 Map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

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 polluter pays principle
- 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)
- *Metropolitan Water Supply Sewerage and Drainage Act 1909*
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Right in Water and Irrigation Act 1914* (RiWI Act)
- *Conservation and Land Management Act 1984* (CALM Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (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)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Supporting information (Shire of Harvey, 2024a, 2024b) submitted by the applicant indicates that the applicant has considered the mitigation hierarchy, as follows:

- The width of the clearing footprint was originally 20 metres. This width has been reduced to 14-16 metres to conserve as much of the natural area as possible.
- The road alignment was adjusted to retain mature trees or those that appeared to be habitat trees, smaller and/or exotic blue gums were substituted.
- Commitment to avoid clearing one Marri (*Corymbia calophylla*) tree (Tree 5) which was found to have a suitable breeding hollow for black cockatoos. This commitment has been enforced as a permit condition.
- Where possible, during the final alignment, other trees on the clearing edge will be earmarked for non-removal if slope, safety, infrastructure (culverts) etc. are suitable.
- During the road construction, following measures will be applied:
    - Have a water truck on site at all times of operation to water down the road during construction.
    - All machinery will be turned off when not being used. All machinery will be stored onsite within a Water Corporation secured location, not close to ecologically valuable assets/resources.
    - All basic raw material/substrate will be delivered and not left on site overnight.
    - Implement the traffic management plan approved by the Department of Biodiversity, Conservation and Attractions (DBCA).

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 B) 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 **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and biodiversity), conservation area, 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 and biodiversity) - Clearing Principles (a) and (b)

Assessment

According to available databases, 15 conservation significant fauna have been recorded in the local area (10-kilometre radius of the application area). The application area may provide suitable habitat for ten conservation significant fauna species, including four bird and six mammal species (See B.3 for fauna analysis table).

Bird species

Three threatened species of black cockatoos (BC)

Based on the known distribution and habitat preferences of the conservation significant bird species recorded, all the three threatened black cockatoo most likely occur over the application area. Within the local area, there are nine records of Carnaby's cockatoo (*Zanda latirostris* - Endangered), eight records of Baudin's cockatoo (*Zanda baudinii* - Endangered) and eight records of forest red-tailed black cockatoos (FRTBC) (*Calyptorhynchus banksii naso* - Vulnerable) with the closest distance of approximately 0.1, 3.7 and 3.7 kilometres, respectively, from the application area. The application area is located within the mapped distribution areas of all three black cockatoo species, and it occurs in the potential breeding range of Carnaby's cockatoos. The closest black cockatoo roost is recorded approximate 10.6 kilometres from the proposed clearing area. No black cockatoo breeding sites are recorded within a 12- kilometre radius from the application area.

There are three key components of BC habitat: foraging habitat; roosting habitat; and breeding habitat. Any tall trees, generally close to a riparian environment, can provide potential roosting habitat for BC (Commonwealth of Australia, 2022). A tree suitable for BC breeding is defined as a tree with a diameter of 50 centimetres or greater at a height of 1.5 metres above the ground. BC generally forages within six kilometres of a night roost site and, while nesting, within a 12-kilometre radius of their nest site (Commonwealth of Australia, 2022). BC forages on the seeds, nuts and flowers of a large variety of plants including *Proteaceou*s species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008).

Vegetation proposed to be cleared comprises jarrah (*Eucalyptus marginata*), marri (*Corymbia calophylla)*, blackbutt (*E. patens*), flooded gum (*E. rudis*) (SW Environmental, 2024a) which can provide suitable foraging, roosting and nesting habitat for BC. According to the findings of the targeted black cockatoo survey, the application area comprises 3.15 hectares of suitable foraging and roosting habitat for BC, including 2.68 hectares of native vegetation providing moderate to high foraging quality habitat (SW Environmental, 2024b). The BC survey also observed feed residue of Baudin's BC and FRTBC across the application area, with FRTBC feed residue being more abundant (SW Environmental, 2024b). Within the application area, there are 85 trees with suitable diameter at breast height (DBH of over 50 centimetres) providing potential breeding habitat, with one tree containing a suitable breeding hollow but without evidence of current or past use (see Figure E.3 in Appendix E) (SW Environmental, 2024b). The applicant has committed to avoid clearing this tree with a buffer of ten metres (Shire of Harvey, 2025).

Based on the above information, the proposed clearing will impact 3.15 hectares of suitable foraging and roosting habitat for BC. However, noting the narrow nature of the vegetation proposed to be cleared located along five kilometres of an existing road and the extensive area of better-quality foraging and roosting habitat for BC within the surrounding Harris River State Forest (total area of over 98,000 hectares - DBCA, 2020), the impacts of the proposed clearing on BC's habitat are not considered significant.

Noisy scrub-bird (*Atrichornis clamosus* - Endangered)

Noisy scrub-bird is a small sized bird species endemic to southwest of Western Australia (TSSC, 2017). There are three records of this species mapped within the local area, with the closest record mapped 7.3 kilometres away from the application area. Noisy scrub-bird's preferred habitat is dense, unburnt understorey vegetation of low forest, scrub thicket where the dense clumps of shrubs and sedges provides cover for nesting and the thick leaf litter provides its foraging resources (TSSC, 2017). Noting the understory vegetation within the application area comprises sparse to open shrubland/sedgeland (SW Environmental, 2024a) with lack of dense shrubs, the application area is unlikely to provide preferred habitat for this species and the proposed clearing is unlikely to impact the noisy scrub-bird's habitat.

Mammal species

Woylie (*Bettongia penicillata ogilbyi* – Critically endangered)

Woylie is a small marsupial that once occupied most of the Australian mainland but is now mainly distributed in the southwest region of Western Australia. The main threats to this species include predation by foxes and cats, disease and habitat destruction (DEC, 2012a). There are two records of woylies mapped within the local area, with the closest record mapped 7.4 kilometres from the application area. Woylies are known to inhabit a range of habitats including

tall Eucalypt forest; dense myrtaceous shrubland and kwongkan or mallee heath (DEC, 2012a). Even though the vegetation within the application area consists of open Eucalypt forest dominated by jarrah, flooded gum, blackbutt that can provide suitable habitat for woylies, noting the edge effects of the existing road and extensive area of similar of better-quality habitat in the adjacent remnant vegetation within the Harris River State Forest, the vegetation proposed to be cleared is unlikely to be a significant habitat for this species.

Western ringtail possum (*Pseudocheirus occidentalis* – Critically endangered)

The western ringtail possum is a medium sized, nocturnal species that roams through the trees at night, feeding on leaves of eucalypt, marri and peppermint trees and other fruits and flowers (DPAW, 2017). Habitat critical to survival for this species is not well understood. Therefore, this species' critical habitat is determined based on the habitat variables observed where they are most commonly recorded and vary between key management zones. According to the database, the application area is not mapped within three key management zones of this species. There are four records of western ringtail possum mapped within the local area, in which the closest record is mapped approximately 3.7 kilometres from the application area. Noting the application area mapped outside this species' key management zones and the availably of extensive remnant vegetation within the local area, the application area is not considered as comprising critical habitat for this species.

Chuditch (*Dasyurus geoffroii* - Vulnerable)

Chuditch is known to occupy a range of habitats including jarrah forests, eucalypt woodlands, mallee shrublands and heathland. The species uses denning habitat types such as hollow logs, burrows or rock crevices (DEC, 2012b). According to available databases, nine records occur within the local area with the closest record 3.7 kilometres from the application area. Noting the narrow nature of the application area located along an existing road which has been affected by the edge effects, the proposed clearing area is unlikely to be significant habitat for chuditchs.

Quokka (*Setonix brachyurus* - Vulnerable)

Quokka is a small wallaby with thick, coarse grey-brown fur and mostly nocturnal (DEC, 2013). In the southern forest area, quokka is known to be associated with a variety of habitats, including forest, woodlands and wetland ecotypes (DEC, 2013). A total of eight records of quokka have been mapped within the local area, with the closest record mapped 4.7 kilometres from the application area. Road signs notifying quokka known populations have been installed under a cooperation between the Shire of Harvey (the Shire) and DBCA to prevent the roadkill of quokkas (Shire of Harvey, 2024b). The Shire informed that no signs have been installed on Harvey-Quindanning Road and no sightings of quokka have been reported in the area (Shire of Harvey, 2024b). Noting this, quokka is unlikely to occur within the application area.

Noting that the above species are protected under the EPBC Act, the applicant was recommended to contact Commonwealth Department of Climate Change, the Environment, Energy and Water (DCCEEW) to discuss their responsibilities in relation to these species. The Shire met DCCEEW in December 2024 and decided not to refer the proposed clearing to the Commonwealth for assessment (Shire of Harvey, 2024c).

Quenda *(Isoodon fusciventer* – Priority 4)

Quendas are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012c). This species has a wide coastal distribution from Guilderton to east of Esperance with a patchy distribution within the jarrah and karri forests and the Swan Coastal Plain (DEC, 2012c). This species is known from two records within the local area, with the closest record approximately 7.0 kilometres from the application area. The sparse to open understory of the vegetation proposed to be cleared is unlikely to provide suitable habitat for quendas.

Western brush wallaby (*Notamacropus Irma* – Priority 4)

Western brush wallaby is highly mobile and does not rely on specialised niche habitats. This species inhabits open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland (DBCA, 2012). Four records of western brush wallaby are mapped within the local area. The closest record is approximately 3.7 kilometres from the application area. Noting the high mobility of the species and the relatively small application area in comparison with the extensive available habitat for this species within the remnant vegetation, the application area is unlikely to comprise significant habitat for western brush wallaby.

However, there is a chance that the proposed clearing may result in impacts to fauna individuals if they happen to be transiting across the application area during the time of the clearing.

Conclusion

Based on the above assessment, the application area is likely to provide suitable habitat for black cockatoos, woylies, chuditch, western brush wallabies and western ringtail possum. However, the habitat within the application area is

not considered significant due to narrow nature of vegetation proposed to be cleared along an active road which has been subject to edge effects and the existence of extensive remnant vegetation in the adjacent area.

The clearing activities may impact to fauna individuals if they occur within the application area at the time of clearing. In addition, the clearing activities have the potential to impact the quality of the surrounding fauna habitat by facilitating the spread of weeds and dieback.

Conditions

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

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing.
- Weed and dieback management measures to assist in mitigating impacts to surrounding vegetation that provides fauna habitat.

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

Assessment

No threatened flora species have been mapped within the local area. It is likely that no threatened flora species occur within the application area.

Results of the desktop assessment and an analysis of suitable soil type, vegetation type, and habitat showed that there are three priority flora species having the potential to be present within the application area. This presumption is based on known records on similar landform types within the local area. They consist of one threatened species and three priority species (See Appendix B.4 for flora analysis table), including:

- *Schizaea rupestris* (Priority 2)
- *Grevillea prominens* (Priority 3)
- *Senecio leucoglossus* (Priority 4)

Considering that, the Department has requested a flora survey targeting the above priority species. The targeted flora survey was undertaken for the application area in October 2024, within the optimal period to detect these species based on their flowering time. The targeted flora survey observed two priority 3 flora species including *Grevillea prominens* and *Netrostylis* sp. Blackwood River (A.R. Annels 3043) within the application area and surrounding areas. No records of *Schizaea rupestris*, *Senecio leucoglossus* and other threatened, priority or otherwise considered significant flora taxa were observed during the survey (SW Environmental, 2025).

Grevillea prominens is a spreading shrub, distributed in Northern Jarrah Forest and Southern Jarrah Forest IBRA subregions with 11 recorded populations in the Florabase. Most of records in the Florabase are within the local area of the area proposed to be cleared (WA Herb, 1998-). Seven individuals of *Grevillea prominens*, including four adults and three juveniles, were observed within the application area. More than 100 plants were observed outside of the area proposed to be cleared during the additional surveys conducted in January and February 2025 to determine the extent of the identified *G. prominens* population (See Figure 2) (SW Environmental, 2025). It was expected that the total population count to be well in excess of this number, noting this population extending into the remnant vegetation of the Harris River State Forest (SW Environmental, 2025). Noting that the number of *G. prominens* to be impacted is less than seven per cent of the identified number of individuals and this population is likely to expand to the adjacent remnant vegetation, the proposed clearing is unlikely to significantly impact *Grevillea prominens* at either the local or bioregional scale.

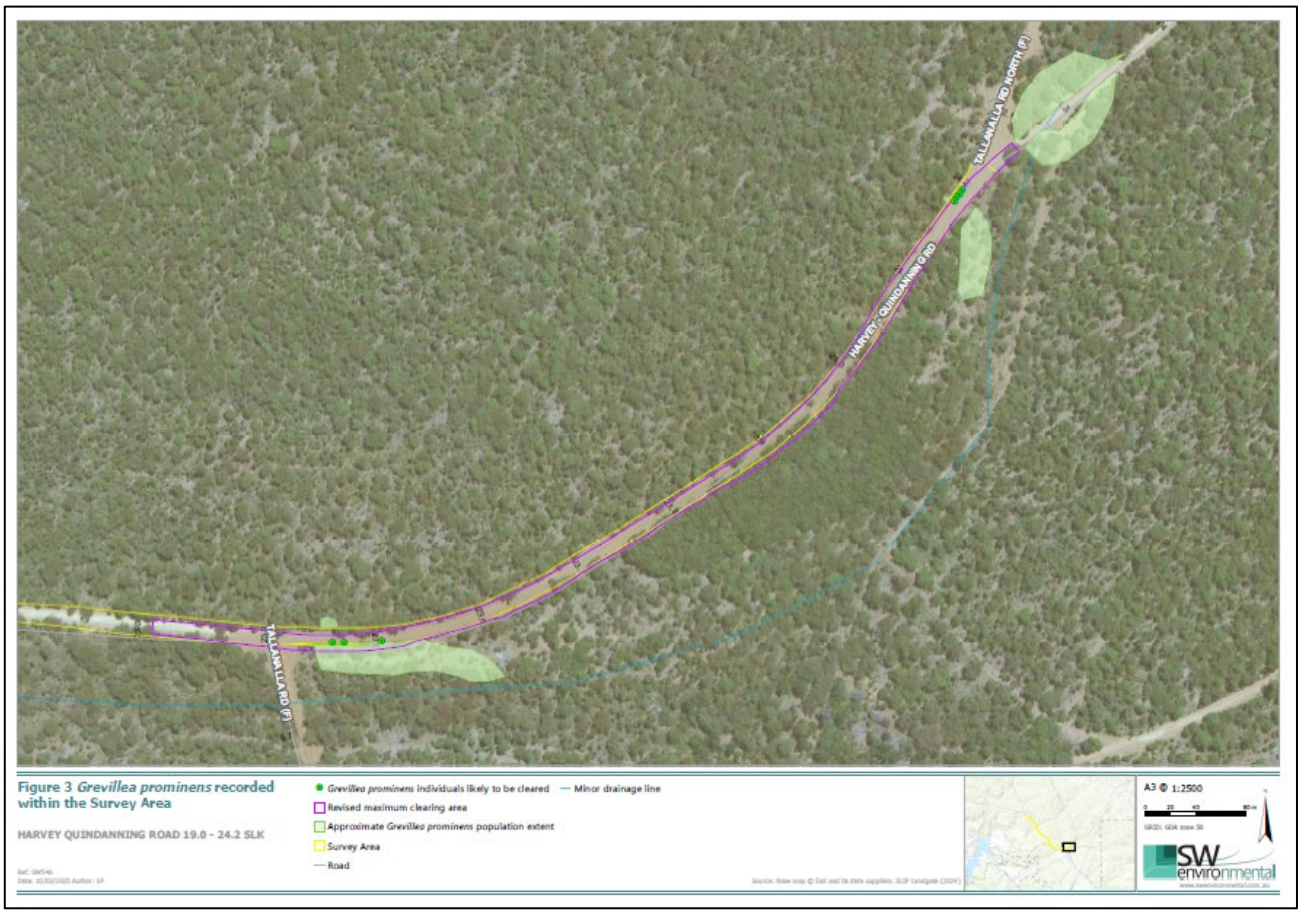

Figure 2. *Grevillea prominens* recorded within the application area and surrounding area (highlight green)(SW Environmental, 2025).

Netrostylis sp. Blackwood River (A.R. Annels 3043) was opportunistically observed outside the area proposed to be cleared, in the adjacent remnant vegetation along seasonal creek lines intersecting the application area. Estimated distribution of the species within the adjacent remnant vegetation is shown in Figure 3. It was expected that this species occurs in similar habitat across the landscape (SW Environmental, 2025). The number of individuals was unable to be identified as this is a sedge species and was not flowering at the survey time (SW Environmental, 2025).

This species has been known distributed in the IBRA subregions of Northern Jarrah Forest, Southern Jarrah Forest, Perth, Warren, Fitzgerald with 17 recorded populations in the Florabase (WA Herb, 1998-). The closest record is mapped approximately 13 kilometres from the application area. Noting the species was found within its distribution range and that no individuals of this species have been observed within the application area as well as the species is likely to extend along seasonal creek lines in the surrounding remnant vegetation, the proposed clearing is unlikely to impact the conservation status of *Netrostylis* sp. Blackwood River (A.R. Annels 3043).

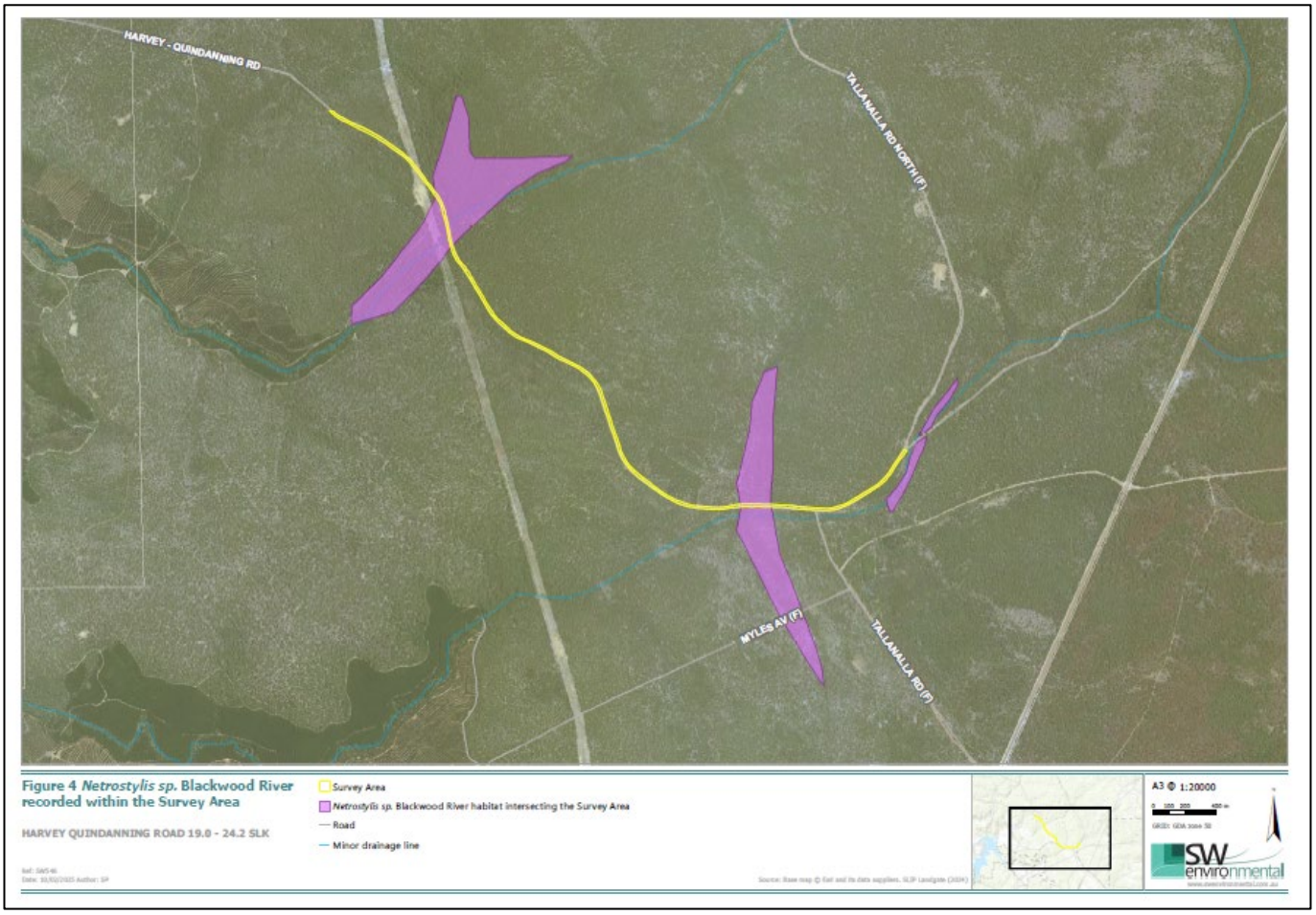

Figure 3. Estimated distribution of *Netrostylis* sp. Blackwood River (A.R. Annels 3043) within the surrounding area of the area proposed to be cleared (SW Environmental, 2025).

Conclusion

Based on the above assessment, the proposed clearing is unlikely to comprise or to have significant impacts to any conservation significant flora species. The clearing activities have the potential to impact the quality of the surrounding flora habitat by facilitating the spread of weeds and dieback.

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
- Weed and dieback management measures to assist in mitigating impacts to surrounding vegetation.

3.2.3. Conservation areas - Clearing Principles (h)

Assessment

The application area is mapped within the Harris River State Forest (Class A) which is a conservation area managed by Department of Biodiversity, Conservation and Attractions (DBCA) under the CALM Act. The proposed works to upgrade the existing road has received the approval from DBCA to undertake disturbance activity (Shire of Harvey, 2024a) with following management actions to be required:

- The road alignment has been marked to avoid clearing mature trees and as few as reasonably possible. A DWER permit is likely required, the extent of the clearing needs to be identified.
- Avoidance of mature trees. If mature trees are to be removed, they must be assessed for habitat value (black cockatoo habitat) If habitat is to be cleared federal approval may be required.
- No wetlands will be impacted.
- Cleared vegetation to be removed from site, removing fire risk once operations complete and hot dry conditions return.
- Water truck on site; road watered during road construction. Machinery operation only when in use otherwise turned off - grader, roller, water truck on site. Truck delivery of substrate.

- Works machinery will overnight on site, but facilities will not be close to any ecologically valuable assets/ resources. No basic raw material will be left on site and all Shire machinery including cartage will use Harvey-Quindanning Road
- Traffic management plan to be approved by DBCA.

To widen the locally and regionally important east-west transport corridor (see section 3.1), the proposed clearing seems unlikely to be avoidable. Considering the narrow nature of the application area along an active road which already exists within the Harris River State Forest and the management actions required by DBCA's approval, the proposed clearing is unlikely to significantly impact the conservation area any further than what is already being impacted by the existing road. Noting the relatively small proposed clearing area compared with the extensive area of the Harris River State Forest, the loss of vegetation caused by the proposed clearing can be considered minor.

The proposed clearing may increase the risk of spreading weeds and dieback into the remnant vegetation of the State Forest and impact forest's habitat values. These impacts can be managed by weed management and control measures.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to the Harris River State Forest. It may spread the weeds and dieback into the remnant vegetation which can be manged through the permit's conditions.

Conditions

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

- avoid and minimise clearing, to minimise the direct impacts to native vegetation
- weed and dieback management condition to minimize the spread of weeds and dieback within State Forest.

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

Assessment

Land

The soils within the proposed clearing area are mapped as susceptible to wind erosion and subsurface acidification. To mitigate the land degradation risks due to wind erosion, in addition to management action required in DBCA's approval and the Shire's proposed mitigation measure (i.e. watering road during road construction - see Sections 3.1 and 3.2.3), a condition on the clearing permit requiring construction/extraction works to begin with three months of clearing, which will prevent the prolonged exposure of bare sandy soils, will be required.

For subsurface acidification related risks, the applicant advised that DBCA has requested the Shire to use limestone as road base to assist in subsoil acidification by neutralising acid reactions in the soil (Shire of Harvey, 2024b). The Shire also advised that the soils will be pH tested before applying any large amounts of lime to avoid over-liming which can cause deficiencies in trace elements (Shire of Harvey, 2024b). Noting this issue has been addressed under DBCA's approval, the proposed clearing and its subsequent activities are unlikely to cause appreciable land degradation in regard to subsurface acidification.

Water resources

This application area falls within the Stirling Dam Catchment Area, a Priority 1 (P1) Public Drinking Water Source Area (PDWSA) proclaimed under the *Metropolitan Water Supply Sewerage and Drainage Act 1909*. DWER's Water Souce Protection Planning team advised that the road construction across the Shire of Harvey Harris River State Forest is compatible with condition number 37 in P1 areas, therefore, it is supported. However, the applicant was recommended to apply the following conditions of best practice to the planning approval (DWER, 2024a):

- Condition number 37: In accordance with Roads to reuse: Product specification – recycled road base and recycled drainage rock:
    - Do not use recycled drainage rock in PDWSAs.
    - Do not use recycled road base in P1 areas, wellhead protection zones and reservoir protection zones.
- Water Quality Protection Note (WQPN) 10: Contaminant spills – emergency response plan
- WQPN 28: Mechanical servicing and workshops
- WQPN 29: Mobile mechanical servicing and cleaning
- WQPN 44: Roads near sensitive water resources

- WQPN 56: Tanks for fuel and chemical storage near sensitive water resources
- WQPN 83: Infrastructure corridors near sensitive water resources
- WQPN 84: Rehabilitation of disturbed land in PDWSAs
- Brochure: Construction depots near sensitive water resources

The application area is mapped intersecting several non-perennial tributaries and occurs within the Harvey Irrigation District. The proposed clearing is likely to result in deterioration of surface water quality through soil erosion, sedimentation, turbidity increase and then impacts on aquatic fauna. The Shire of Harvey has contacted DWER's Water Business Support Unit – Kwinana Peel region team and received advice that a permit to interfere with the bed and banks is not required (Shire of Harvey, 2024c). The DWER's South West Bunbury Licensing team advised that the proposed activities should not occur while the non-perennial tributaries are flowing to limit the risk of sediment movement downstream (DWER, 2024b).

Conclusion

Based on the above assessment, the proposed clearing may result in the land degradation due to wind erosion. It may cause downstream sedimentation if the clearing occurs when there is water flowing in non-perennial tributaries intersecting the application area, however this impact is in the short-term and minor due to the non-perennial nature of the watercourses. The proposed clearing may also have short term impacts to the water flows of these watercourses.

Conditions

To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- activities for which clearing is authorised to commence within three months of clearing; and
- conduct the clearing within 30 metres of a watercourse during dry conditions and maintain surface water flows.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on DWER's website on 15 August 2024, inviting submissions from the public within a 21-day period. No submissions were received.

As the Harvey-Quindanning Road is within the Harris River State Forest which is under the management of DBCA, the Harvey-Quindanning Road upgrade proposal has received DBCA's approval to undertake disturbance activity for the period from 8 April 2024 to 24 December 2026 (Shire of Harvey, 2024a).

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. Additional information provided by applicant

Summary of information	Consideration of information provided
Biological surveys including structural vegetation and condition assessment, targeted black cockatoo survey, targeted flora survey	Results of the biological surveys have been reviewed during the assessment and presented in Section 3.2.1 and 3.2.2 of this Report
Further information on the necessity of the proposed clearing, avoidance and mitigation measures	This information has been considered when making decision and presented in Sections 1.2 and 3.1 of this Report
Information on the measures to address land degradation risks	This information has been presented in Sections 3.1 and 3.2.4 of this Report
Information on DCCEEW's referral and DWER's water licence/permit	This information has been presented in Sections 3.2.1 and 3.2.4 of this Report

Appendix B. Site characteristics

B.1. 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 C.

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is along an existing gravel road within a state forest with both sides of the road adjacent to the forest. Aerial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 90 per cent of the original native vegetation cover.
Ecological linkage	The application area is not mapped or appears to be within any formal/informal ecological linkages.
Conservation areas	The application area is within the Harris River State Forest, a conservation area under the management of DBCA.
Vegetation description	Vegetation survey (SW Environmental, 2024a) indicates the vegetation within the proposed clearing area consists of five vegetation units (VU): • VU 1 (2.44 ha): Mid open forest of *Eucalyptus marginata* subsp. *marginata* and *Corymbia calophylla* over isolated or clumps of trees (*Banksia* spp.), over open shrubland (including *Hakea* spp. *Bossiaea aquifolium*), with isolated grasstrees (*Xanthorrhoea* sp.) and cycads (*Macrozamia riedlei*) over open shrubland (*Hypocalymma angustifolium*, *Hibbertia* spp.) and open fernland areas. • VU 2 (0.24 ha): Mid, open forest of *Eucalyptus patens*, *Corymbia calophylla* and occasional *Eucalyptus marginata* subsp. *marginata* over isolated trees (*Banksia* and *Acacia* spp.) over open shrubland (including *Bossiaea aquifolium Trymalium odoratissimum* subsp. *trifidum*) with isolated grasstrees (*Xanthorrhoea* sp.) and cycads (*Macrozamia riedlei*) over open shrubland (including *Hypocalymma angustifolium*) and open fernland areas. • VU 3 (0.28 ha): Isolated trees of *Eucalyptus patens* over woodland of *Eucalyptus rudis* and *Melaleuca preissiana* over sparse to open shrubland over sparse to open sedgeland over open forbland. • VU 4 (0.06 ha): Isolated trees of *Persoonia longifolia* over sparse (right hand side of the road) to open (left hand side) shrubland dominated by *Bossiaea aquifolium* and *Hypocalymma angustifolium*. • VU 5 (0.19 ha): Open woodland of Blue Gums over scattered, isolated trees (including *Persoonia longifolia*) over sparse understorey shrubland (including

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>Hypocalymma angustifolium, Trymalium odoratissimum subsp. trifidum, Bossiaea aquifolium).
Representative photos and the full survey descriptions are available in Appendix E.

This is partly consistent with the mapped vegetation types (Heddle et al., 1980):
Dwellingup, which is described as open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on lateritic uplands in mainly humid and subhumid zones.
Yarragil 1, which is described as open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on slopes with mixtures of Eucalyptus patens and Eucalyptus megacarpa on the valley floors in humid and subhumid zones.
The mapped vegetation types retain approximately 81.0 and 86.8 per cent of the original extents, respectively (Government of Western Australia, 2019).</td></tr>
<tr><td>Vegetation condition</td><td>Vegetation survey (SW Environmental, 2024a) indicates the vegetation within the proposed clearing area is in Very Good to Completely Degraded (Keighery, 1994 condition, with the majority (80%) is in good condition.

The full Keighery (1994) condition rating scale is provided in Appendix D.
The vegetation condition mapping is available in Appendix E.</td></tr>
<tr><td>Climate</td><td>Climate: Mean maximum temperature is 23.1 degrees Celsius.
Mean minimum temperature is 11.5 degrees Celsius.
Rainfall: Mean annual rainfall is 923.6 millimetres. (At Wokalup station, approximately 23 kilometres from Hoffman - BOM, 2024)</td></tr>
<tr><td>Soil and landform description</td><td>The soils and landform types are mapped as:
<table>
<tr><th>ID</th><th>Name</th><th>Description</th></tr>
<tr><td>255DpYGu</td><td>Yarragil upstream valleys Phase</td><td>Relief 5-20 m, slopes 3-10%. Valley floor is broader than downstream phase. Soil parent material is mainly laterite. Soils are gravels and sands.</td></tr>
<tr><td>255DpDW</td><td>Dwellingup Subsystem</td><td>Divides, lower to upper slopes and hillcrests. Duplex sandy gravels and loamy gravels with minor areas of shallow gravels, deep sandy gravels, yellow deep sands and yellow and pale deep sands, often gravelly.</td></tr>
<tr><td>255DpYG</td><td>Yarragil Subsystem</td><td>Shallow, narrow, upper valleys of the deeply dissected Murray, Bindoon and Helena units. Alluvial, clay and loam soils, moderately well drained, often gravelly, with some sands and loams. Salt prone. Woodland of E. wandoo, E. accedens.</td></tr>
<tr><td>255DpMH</td><td>Mornington Hill Subsystem</td><td>Low hills on laterite overlying granite, relief 40-80 m, slope5-20%. Soils are sandy and loamy gravels with some deep sands and loamy earths.</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The mapped soil has low to medium risks of land degradation resulting from salinity, flooding, waterlogging, water erosion and phosphorus export; but having high risks due to subsurface acidification and wind erosion (See Appendix B.4).</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment and aerial imagery indicated that several minor, non-perennial watercourses transect the area proposed to be cleared.</td></tr>
<tr><td>Hydrogeography</td><td>This application area falls within the Stirling Dam Catchment Area, a Priority 1 Public Drinking Water Source Area (PDWSA) proclaimed under the Metropolitan Water Supply Sewerage and Drainage Act 1909 and within the Harvey Irrigation District Surface Water Area, as proclaimed under the RIWI Act.</td></tr>
</table>

Characteristic	Details
	Groundwater salinity within the application area is mapped as from 500 to 1000 milligrams per litre total dissolved solids.
Flora	Records of five conservation significant flora species have been mapped within the local area, all are priority. Among them, three are mapped within the same vegetation type and soil type that occur within the application area. The closest species is *Grevillea prominens*, recorded only 28 meters from the application area.
Ecological communities	No threatened and priority ecological communities are mapped within the local area.
Fauna	The desktop assessment identified that a total of 14 threatened or priority fauna species have been recorded within the local area, including nine threatened fauna species and five priority fauna species. The application area is located within the distribution of all three threatened black cockatoo species. The closest record from the proposed clearing is approximately 100 metres for white-tailed black cockatoo (*Zanda* sp. 'white-tailed black cockatoo'). No BC roosting and breeding sites are mapped within the local area.

B.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and biological survey information, 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 in the local area	Are surveys adequate to identify? [Y, N, N/A]
Grevillea prominens	P3	Y	Y	Y	0.03	11	Y
Schizaea rupestris	P2	Y	Y	Y	7.20	1	Y
Senecio leucoglossus	P4	Y	Y	Y	5.16	5	Y
Netrostylis sp. Blackwood River (A.R.. Annels 3043)	P3	Y			Has not been recorded within the local area		Y

P: priority

B.3. Fauna analysis table

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 the local area	Are surveys adequate to identify? [Y, N, N/A]
Noisy scrub-bird (*Atrichornis clamosus*)	EN	Y	Y	7.3	3	N/A
Woylie (*Bettongia penicillata ogilbyi*)	CR	Y	Y	7.4	2	N/A
Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)	VU	Y	Y	3.7	8	Y
Chuditch (*Dasyurus geoffroii*)	VU	Y	Y	3.7	9	N/A
Quenda (*Isoodon fusciventer*)	P4	Y	Y	7.0	2	N/A
Quokka (*Setonix brachyurus*)	VU	Y	Y	4.7	8	N/A
Western brush wallaby (*Notamacropus Irma*)	P4	Y	Y	3.7	4	N/A
Western ringtail possum (*Pseudocheirus occidentalis*)	CR	Y	Y	8.7	12	N/A
Baudin's cockatoo (*Zanda baudinii*)	EN	Y	Y	3.7	8	Y
Carnaby's cockatoo (*Zanda latirostris*)	EN	Y	Y	0.1	9	Y

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

B.4. Land degradation risk table

Risk categories	Soil type			
	255DpYGu	255DpDW	255DpYG	255DpMH
Wind erosion	H2	H2	H1	H2
Water erosion	M1	L2	M1	L1
Salinity	L1	L1	L1	L1
Subsurface Acidification	H2	H2	H2	H2
Flood risk	L2	L1	L2	L1
Water logging	M1	L1	M1	L1
Phosphorus export risk	M2	M1	M2	M1

Note:

L1 <3% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

L2 3-10% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

M1 10-30% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

M2 30-50% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

H1 50-70% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

H2 >70% of map unit has a moderate/high to high/extreme (or is presently acid/saline for the risk of subsurface acidification/salinity)

Appendix C. 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 contains suitable habitat for conservation significant flora and fauna species. It is also located within a state forest. However, noting the existence of the intact remnant vegetation and the edge effect of the existing road, the application area is unlikely to comprise a higher level of biodiversity compared with the surrounding native vegetation.	May be at variance	Yes *Refer to Section 3.2.1 and 3.2.2, 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 contains suitable habitat for three threatened black cockatoo species and other conservation significant fauna species such as woylies, chuditch, western ringtail possum, and western ringtail possum.	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: No threatened flora species are recorded within the local area. The area proposed to be cleared is unlikely to contain habitat for threatened flora species.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
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 does not contains species that can indicate a threatened ecological community.	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 extents of the mapped vegetation type and the native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not 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 application area is located within a conservation area, the Harris River State Forest. The proposed clearing may have an impact on the environmental values of the conservation area.	May be at variance	Yes *Refer to Section 3.2.3, above.*
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: Given several water courses are recorded intersecting the application area, the proposed clearing is likely to impact the environment associated with a watercourse.	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 are highly susceptible to wind erosion and subsurface acidification. Noting the extent of the application area and the condition of the vegetation, 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: The application area is located within the Stirling Dam Catchment Area, a Priority 1 PDWSA. Given the extent and the final land use purpose of the clearing, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	Yes *Refer to Section 3.2.4, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
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 water courses intersecting the application area are minor and non-perennial, the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance	No

Appendix D. 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 E. Biological survey information excerpts

Table E.1. Description and representative photographs of vegetation units within the application area (SW Environmental, 2024a)

VU	Description	Survey Area Extent (ha)	Representative Photos
VU 1	Mid open forest of *Eucalyptus marginata* subsp. *marginata* and *Corymbia calophylla* over over isolated or clumps of trees (*Banksia* spp.), generally towards the eastern end of the Survey Area, over open shrubland (inc. *Hakea* spp. *Bossiaea aquifolium*), with isolated grass-trees (*Xanthorrhoea* sp.) and cycads (*Macrozamia riedlei*) over open shrubland (*Hypocalymma angustifolium, Hibbertia* spp.) and open fernland areas.		 
VU 2	Mid, open forest of *Eucalyptus patens, Corymbia calophylla* and occasional *Eucalyptus marginata* subsp. *marginata* over isolated trees (*Banksia* and *Acacia* spp.) over open shrubland (inc. *Bossiaea aquifolium, Trymalium odoratissimum* subsp. *trifidum*) with isolated grass-trees (*Xanthorrhoea* sp.) and cycads (*Macrozamia riedlei*) over open shrubland (inc. *Hypocalymma angustifolium*) and open fernland areas.		 

VU 3	Isolated trees of *Eucalyptus patens* over woodland of *Eucalyptus rudis* and *Melaleuca preissiana* over sparse to open shrubland over sparse to open sedgeland over open forbland.		 
VU 4	Isolated trees of *Persoonia longifolia* over sparse (RHS) to open (LHS) shrubland dominated by *Bossiaea aquifolium* and *Hypocalymma angustifolium*.		 

			
VU 5	Open woodland of Blue Gums over scattered, isolated trees (inc. *Persoonia longifolia*) over sparse understorey shrubland (inc. *Hypocalymma angustifolium, Trymalium odoratissimum* subsp. *trifidum, Bossiaea aquifolium*).		


Figure 3 – Vegetation Unit
HARVEY QUINDANNING ROAD 19.0 - 24.2 SLK
Road
Clearing
Vegetation unit
VU 1
VU 2
VU 3
VU 4
VU 5
A3 @ 1:3000
SW environmental


Figure 3 – Vegetation Unit
HARVEY QUINDANNING ROAD 19.0 - 24.2 SLK
Road
Clearing
Vegetation unit
VU 1
VU 2
VU 3
VU 4
VU 5
A3 @ 1:3000
SW environmental


Figure 3 – Vegetation Unit
HARVEY QUINDANNING ROAD 19.0 - 24.3 SLK
Road
Clearing
Vegetation unit
VU 1
VU 2
VU 3
VU 4
VU 5
A3 @ 1:3000
SW environmental

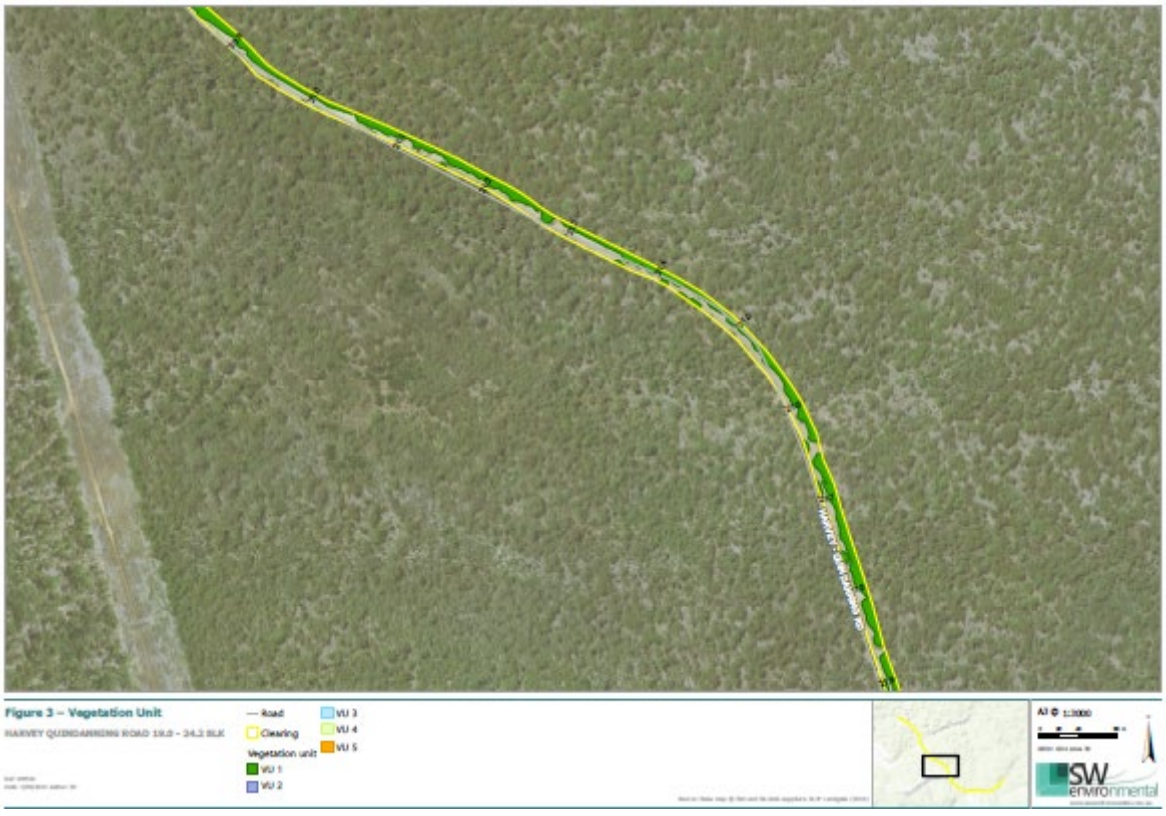
Figure 3 – Vegetation Unit
HARVEY QUINDANNING ROAD 19.0 - 24.3 SLK
Road
Clearing
Vegetation unit
VU 1
VU 2
VU 3
VU 4
VU 5
A3 @ 1:3000
SW environmental

Figure E.1. Mapping of vegetation units within the application area (SW Environmental, 2024a).

Table E.2. Extent of vegetation condition within each vegetation unit (SW Environmental, 2024a).

VU	Survey Area Extent (ha)					
	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
VU 1	–	0.40	2.04	–	–	2.44
VU 2	–	0.21	0.03	–	–	0.24
VU 3	–	–	0.28	–	–	0.28
VU 4	–	–	–	0.06	–	0.06
VU 5	–	–	–	–	0.19	0.19
Total (ha)	0	0.61	2.35	0.06	0.19	3.20
Total (%)	0	19	73	2	6	100

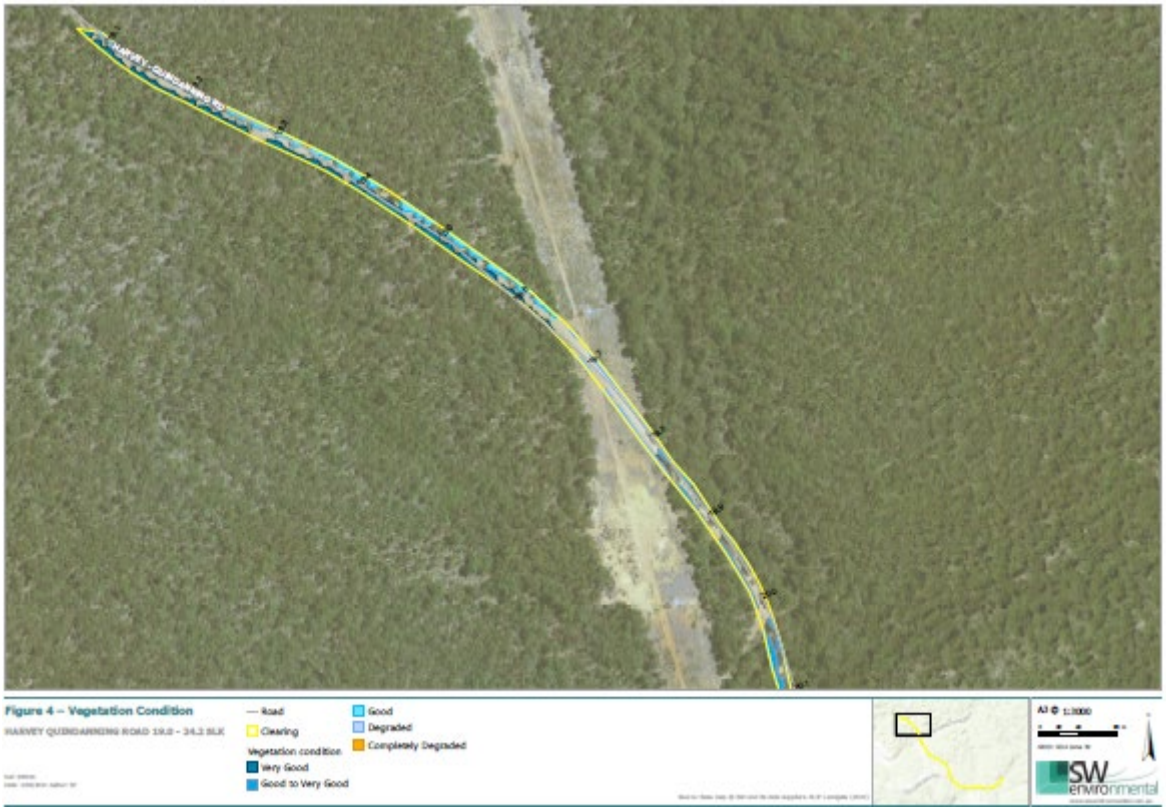
Figure 4 – Vegetation Condition
HARVEY QUINDANNING ROAD 19.0 - 34.3 SLK
Road
Clearing
Vegetation condition
Very Good
Good to Very Good
Good
Degraded
Completely Degraded
A3 @ 1:3000
SW environmental

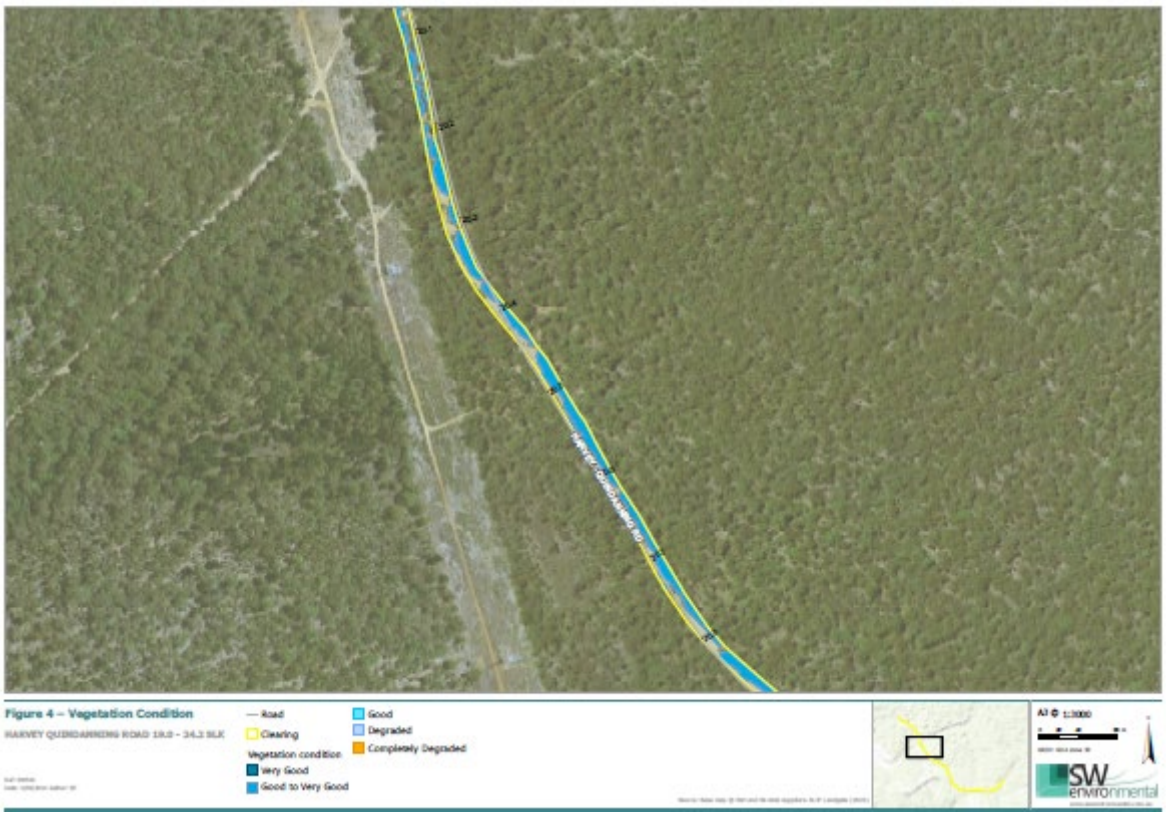
Figure 4 – Vegetation Condition
HARVEY QUINDANNING ROAD 19.0 - 34.3 SLK
Road
Clearing
Vegetation condition
Very Good
Good to Very Good
Good
Degraded
Completely Degraded
A3 @ 1:3000
SW environmental

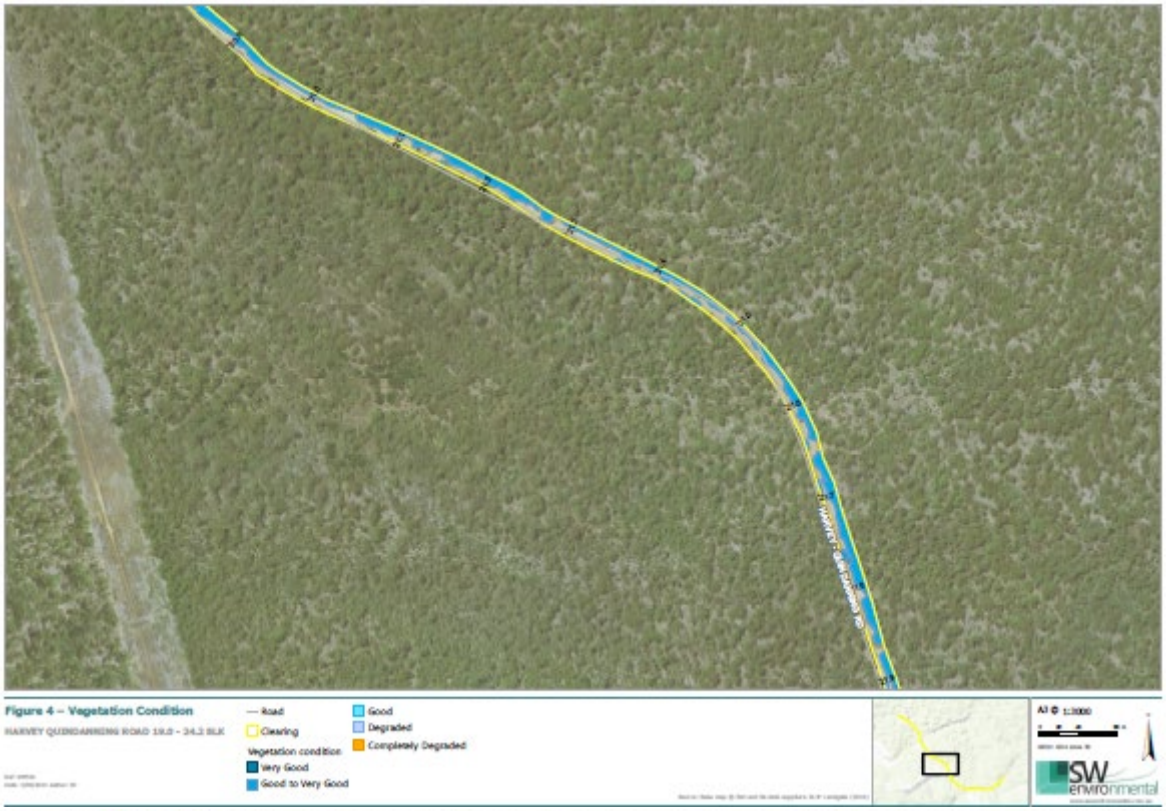
Figure 4 – Vegetation Condition
HARVEY QUEENANNING ROAD 19.0 - 34.3 SLK
Road
Clearing
Vegetation condition
Very Good
Good to Very Good
Good
Degraded
Completely Degraded
A3 @ 1:3000
SW environmental


VEGETATION CONDITION
HARVEY QUEENANNING ROAD
19.0 - 34.3 SLK
Road
Clearing
Vegetation condition
Very Good
Good to Very Good
Good
Degraded
Completely Degraded
A3 @ 1:3000
SW environmental

Figure E.2. Mapping of vegetation conditions within the application area (SW Environmental, 2024a).

Photo 4-1 Tree ID 5 with Hollow 1 large potentially suitable hollow but with no evidence of use.

Photo 4-2 Tree ID 5 with Hollow 1 large potentially suitable hollow but with no evidence of use (increased exposure).

Photo 4-3 Tree ID 5 with Hollow 2 large hollow entrance but hollow not deep enough.

Photo 4-4 Tree ID 5 with Hollow 3 large hollow entrance but hollow not deep enough.

Figure E.3. Photos of tree containing a suitable breeding hollow for BC within the application area (SW Environmental, 2024b)

Appendix F. Sources of information

F.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)
- 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

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)

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