### **Project title:**

# **1** Summary of proposed action

#### 1.1 Short description

The Shires of Harvey and Dardanup are proposing to construct a new bridge (Bridge 5370) across the Collie River at Eaton. The bridge is being designed and constructed by Main Roads Western Australia on behalf of each of the local authorities.

This bridge will provide a link for the residential areas of Eaton in the Shire of Dardanup and Treendale in the Shire of Harvey (Attachment 1).

The Project is being referred to the Department of the Environment (DotE) under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act): Listed threatened species and communities (sections 18 and 18A), as it may result in the loss of an estimated 0.48 ha of known Western Ringtail Possum (*Pseudocheirus occidentalis*) habitat and 0.48 ha of potential foraging and roosting habitat for Black Cockatoos. The Project may also result in the removal of a component of a locally significant wildlife corridor, and lead to the creation of potential barrier effects to the movement of the Western Ringtail Possum along the Collie River.

#### 1.2 Latitude and longitude

	Latitude	Longitude
North-western corner	33°17'44.501"S	115°44'3.907"E
South-western corner	33°17'45.889"S	115°44'5.539"E
North-eastern corner	33°17'40.145"S	115°44'11.925"E
South-eastern corner	33°17'41.495"S	115°44'13.505"E
The area is a square, a straight line.	nd each of the corner p	oints are connected by a

#### 1.3 Locality and property description

The proposed Bridge 5370 (the 'Study Area') is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, Perth (Swan Coastal Plain) Sub-region. The Study Area is located across the Collie River at the northern end of Eaton Drive (Figure 1 – Attachment 2, and Figure 2 - Attachment 2). The Study Area for this project is approximately 1.43 ha (excluding the River) in area and includes both sides of the Collie River comprising 0.18 ha of '*Eucalyptus rudis* woodland' and 0.17 ha of 'fringing riparian vegetation'.

For the purpose of this referral, the 'Study Area' is the disturbance footprint, and it is assumed that the entire Study Area (excluding the River) will be cleared. The majority of the Study Area is in a degraded condition, with the *Eucalyptus rudis* woodland in degraded condition and the 'fringing riparian vegetation' good to degraded condition.

1.4	Size of the development footprint or work area (hectares)	The Study Area for this project is 1.43 ha (excluding the River) in area and includes both sides of the Collie River. For the purpose of this referral the Study Area is the disturbance area footprint.	
1.5	Street address of the site	Eaton Drive, Eaton	

#### 1.6 **Lot description** See Figure 2.

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Parcel	Lot	Reserve	
Shire of Dardanup – Sout	h of Collie River		
P019868	5727	R43939	
P038067	3001		
P Road	-	-	
P051067	645	R48829	
P051067	647	R48979	
Shire of Harvey - North o	f Collie River		
P054132	9200	-	

#### 1.7 Local Government Area and Council contact (if known)

The Study Area is located within the Shire of Dardanup and Shire of Harvey. The contacts for each of these council are:

Shire of Harvey	Theo Naude	(08 9729 0300)
Shire of Dardanup	Luke Botica	(08 9724 0000)

#### 1.8 Time frame

Bridge construction is planned to commence in June 2016.

1.9	Alternatives to proposed action	✓ .	No. The proposed bridge has been included in planning for existing and future sub-divisions of Eaton (south of Collie River) and Millbridge (north of Collie River). The extension of Eaton Drive to the Collie River foreshore (south of the Collie River) is shown in the Greater Bunbury Region Scheme.
1.10	Alternative time frames etc	1	No
1.11	State assessment	✓ 	No. The Project will not be referred to the Western Australian Environmental Protection Authority (EPA) but clearing will be assessed under the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i> via a purpose clearing permit. A Purpose Clearing Permit was issued by the Department of Environment Regulation in September 2014 (reference CPS 6049/1) for the proposed clearing and is included as Attachment 3.
1.12	Component of larger action		No. The bridge is not part of a larger action, although it will link existing and future residential development either side of the Collie River these developments could proceed without the bridge being constructed.
1.13	Related actions/proposals	1	No

1.14	Australian Government funding	~	No	
1.15	Great Barrier Reef Marine Park	✓ 	No	

# 2 Detailed description of proposed action

#### 2.1 Description of proposed action

The proposed bridge will be a six span concrete steel concrete composite structure approximately 224 m in length and 14.4 m wide with spill through abutments. The bridge deck will include:

- Two 3.5 metre (m) wide lanes (north and southbound) with 1.2 m wide shoulders
- One 3.0 m wide dual use path

The southern bridge approach, across the Collie River floodplain will be a raised earth formation with culvert/s to maintain existing surface water flows. One pier will be located within the river outside of the main river channel. Construction is planned to occur in June 2016.

#### 2.2 Alternatives to taking the proposed action

There are no alternatives to constructing the bridge or constructing it at this location. The bridge and its current location have been defined in planning and subdivisions plans for the current and future development of Eaton (south of the Collie River) and Millbridge (north of the Collie River).

#### 2.3 Alternative locations, time frames or activities that form part of the referred action

There are no alternative locations, time frames or activities for constructing the bridge.

#### 2.4 Context, planning framework and state/local government requirements

The proposed bridge crossing and/or approach roads are shown in the following planning documents:

- WA State Clearing Permit (CPS 6049/1) was issued by the Department of Environment Regulation in September 2014 (Attachment 3)
- The approved Shire of Harvey and Dardanup Joint Planning Scheme No.1 (East Australind/Eaton Development Scheme, 2006)
- Amended Southbank@eaton Structure Plan (2009)
- An amendment to the Millbridge Structure Plan, 2009
- The Treendale Structure Plan approved by the Shire of Harvey in 2010
- Proposed subdivision Plan (Treendale South) as approved by the Western Australian Planning Commission in 2010

#### 2.5 Environmental impact assessments under Commonwealth, state or territory legislation

A Level 1 flora and fauna assessment was completed by GHD for the Project. Key terrestrial flora and fauna and general ecological issues were identified (GHD 2014 – Attachment 2). Other than the Western Ringtail Possum, there are no other potentially significant environmental impacts associated with this Project. The Level 1 flora and fauna assessment completed by GHD excluded survey and assessment of the Collie River and its aquatic environs.

In addition, a targeted Western Ringtail Possum survey of the Study Area and surrounds was undertaken by Zoologist, Greg Harewood (Harewood 2014 – Attachment 4). The survey revealed that the Western Ringtail Possum was using the habitat within and adjacent the Study Area, along both sides of the Collie River.

The Project will not be referred to the Western Australian Environmental Protection Authority (EPA) but native vegetation clearing has been approved under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* via a purpose clearing permit. The purpose clearing permit was issued by the Department of Environment Regulation (DER) in September 2014 (reference CPS 6049/1) (Attachment 3).

#### 2.6 Public consultation (including with Indigenous stakeholders)

Brad Goode and Associates completed an Aboriginal heritage survey and consultation for the Project. This consultation occurred in October 2013 and included meetings on site with representatives of the Gnaala Karla Booja native title group, Department of Aboriginal Affairs (DAA) site informants and Main Roads. A report (Goode, 2013) on the outcomes of the survey are available on request as the report has been defined as Restricted and Culturally Sensitive.

#### 2.7 A staged development or component of a larger project

The Project is not part of a staged development or a component of a larger project. The bridge is not part of a larger action, although it will link existing and future residential development either side of the Collie River. These developments could proceed without the bridge being constructed.

# **3 Description of environment & likely impacts**

#### 3.1 Matters of national environmental significance

#### 3.1 (a) World Heritage Properties

Not applicable. There are no World Heritage Properties located near or within the Study Area.

#### 3.1 (b) National Heritage Places

Not applicable. There are no National heritage places located near or within the Study Area.

#### 3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Not applicable. There are no Wetlands of International Importance located near or within the Study Area.

#### 3.1 (d) Listed threatened species and ecological communities

#### Description

A search of the EPBC Act Protected Matters Search Tool (PMST) (DotE 2013b) and DPaW NatureMap database (Appendix B of Attachment 2) identified, without assessment, 45 EPBC listed threatened flora and fauna species that could potentially occur within 10 km of the Study Area.

#### **Threatened Ecological Communities**

Two Threatened Ecological Communities (TEC) were identified as potentially occurring within 10 km of the Study Area:

- Eucalyptus calophylla [now Corymbia calophylla] Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain
- Claypans of the Swan Coastal Plain.

Neither TEC was identified to occur in the Study Area.

#### **Threatened Flora**

A total of 11 EPBC listed threatened flora species were identified as potentially occurring within 10 km of the Study Area from the PMST (Appendix B of Attachment 2).

The Level 1 flora and vegetation assessment undertaken by GHD in November 2013 (GHD 2014, Attachment 2) did not identify any threatened flora species listed under the EPBC Act within the Study Area.

The desktop likelihood of occurrence assessment undertaken as part of the GHD (2014, Attachment 2) assessment determined that only one species, *Drakaea micrantha*, may possibly occurring in the Study Area. This species was searched for during the field survey and was not recorded, despite it being within the flowering period for this species.

#### Threatened Fauna

#### Level 1 flora and fauna survey (November 2013)

The Level 1 fauna assessment undertaken by GHD in November 2013 (GHD 2014, Attachment 2) identified the following key fauna habitat values:

- 0.48 ha of foraging habitat, potential night roosting and potential breeding habitat for Black Cockatoos. The potential breeding habitat includes 10 habitat trees with a diameter at breast height (DBH) greater than 500 mm, including one tree with a potentially suitable breeding hollow for the threatened Black Cockatoo species.
- 0.48 ha of riparian and woodland foraging habitat for the Western Ringtail Possum, including potential breeding and denning habitat in the form of hollow-bearing trees.
- A locally significant wildlife corridor along the Collie River. There are previous records for the Western Ringtail Possum within riparian habitat along Collie River and adjoining vegetation upstream and downstream of Study Area. The habitat within the Study Area is moderate to good quality habitat as it provides potential foraging and refuge, however is probably most important as a movement corridor along both sides of the river.

Evidence for the three species of black cockatoo (Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) – Endangered, Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable, and Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) – Vulnerable) was recorded within the Study Area. Recently chewed Marri nuts were recorded on the north side of River. The riparian vegetation, woodland and scattered trees provide foraging and potential night roosting and breeding habitat for all three species of black cockatoo. One tree with a hollow deemed suitable for breeding was recorded within the Study Area. This hollow showed no recent or historical signs of breeding (nesting use) by cockatoo species.

It should be noted that this Level 1 assessment only provided for a brief snapshot of those species present at the time of sampling (daytime), in one season, and in one year. Not all species identified as potentially occurring would be recorded during a single survey, due to spatial and temporal variations in fauna population numbers.

In addition, the likelihood of occurrence assessment undertaken as part of the GHD (2014, Attachment 2)

assessment identified five EPBC Act listed fauna species likely to occur or that could possibly occur within the Study Area. This likelihood of occurrence is summarised in Table 1 and based on species biology, habitat requirements, the quality and availability of suitable habitat within the Study Area and records of the species in the locality.

Scientific Common		Status	Likelihood of occurrence
name	name	Federal	to say that and same a share being the first
Calyptorhynchus latirostris	Carnaby's Black Cockatoo	Endangered	<b>Likely</b> – chewed Marri nuts recorded on north side of River. Riparian vegetation, woodland and scattered tree habitats provide foraging and potential night roosting habitat.
Calyptorhynchus baudinii	Baudin's Black Cockatoo	Vulnerable	<b>Likely</b> – chewed Marri nuts recorded on north side of River. Riparian vegetation, woodland and scattered tree habitats provide foraging and potential night roosting habitat.
Calyptorhynchus banksii subsp. naso	Forest Red- tailed Black Cockatoo	Vulnerable	<b>Likely</b> – riparian vegetation, woodland and scattered tree habitats provide foraging and potential night roosting habitat.
Rostratula benghalensis	Painted Snipe	Endangered, Migratory wetland	<b>Possible</b> - riparian vegetation and River provides potential temporary foraging and roosting habitat, and corridor for movement to surrounding areas. The proposed works are unlikely to disrupt the lifecycle of an ecologically significant proportion of a population of this species. The Project is unlikely to result in an invasive species that is harmful to a listed migratory species becoming established in an area of important habitat for this species. It is unlikely that this species would be significantly impacted by the proposed Project.
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	Vulnerable	<b>Likely</b> – there are previous records for this species within riparian habitat along Collie River and adjoining vegetation upstream and downstream of Study Area. The habitat within the Study area is moderate to good quality habitat as it provides potential foraging and refuge, however is probably most important as a movement corridor (both sides of the river). It was recommended that additional surveys for the species be undertaken to determine the value of the riparian habitat as a movement corridor.

Table 1 - Summary of EPBC fauna species likely to occur or possibly occurring in the Study Area
(based on likelihood of occurrence assessment, GHD 2014 – see Attachment 2).

Targeted Western Ringtail Possum survey

A targeted Western Ringtail Possum survey was undertaken by Harewood (2014) of the remnant vegetation along a section of the Collie River, including both the Study Area and an area adjacent to the location of the proposed new bridge crossing (see Figures 1 and 2 Attachment 4). The main aim of the survey was to obtain information on the distribution and abundance of Western Ringtail Possum in the Study Area and adjoining/nearby vegetation so as to allow the scale of potential impacts to be determined. The detailed scope of works, methods and results is provided in Attachment 3. The survey area for the targeted survey was defined by MRWA as:

- The northern bank of the Collie River upstream from the proposed bridge crossing to the Australind Bypass bridge and downstream of the bridge crossing to the Brunswick River confluence
- The southern bank of the Collie River upstream from the proposed bridge crossing to the Australind Bypass bridge and downstream of the bridge crossing to a point opposite the Brunswick River confluence
- Millar's Creek upstream for a distance of ~500m from the Collie River.

It should be noted that the area surveyed for this study was much larger than the disturbance footprint (Study Area) for this referral. The survey undertaken by Harewood (2014) included the entire Study Area, as well as a larger area of the vegetation north and south of the Study Area along the Collie River (see Figure 1 – Attachment

4). The results of this survey have been adapted to only include the disturbance footprint for this referral (and therefore differ from the survey results reported in Harewood (2014)).

Summary of survey results relevant to the Study Area:

- No Western Ringtail Possum dreys were located within the Study Area, however four were located in close proximity to the Study Area in the fringing riparian vegetation along the Collie River (on the northern side of the river).
- The locations of trees observed to contain hollows possibly suitable for Western Ringtail Possum to use are shown in Figure 3 (Attachment 4). Thirty one trees with hollows possibly suitable for Western Ringtail Possum (or Common Brushtail Possums) to utilise were recorded. Most of these hollows were within flooded gum (*E. rudis*) trees. Approximately eight (8) of these hollows were recorded within the Study Area with two within trees to be cleared for the Project.
- Western Ringtail Possum scats were observed within vegetation at three locations bordering Millar's Creek, though searching for scats was abandoned in other areas due to the presence of dense groundcover. The results therefore do not represent the actual distribution of scats in the entire survey area at the time.
- Twenty four Western Ringtail Possum were observed within the area examined on the first night survey. Four Western Ringtail Possum were found in vegetation directly bordering the Collie River on its south bank and nine on the north bank. Of these, two observations (one north of the river and one south of the river) were within the Study Area, and another three were recorded within 30 m (upstream and downstream) of the Study Area on the northern bank of the river. No WRP were observed within the Study Area on the second night of the possum survey.
- Additional Western Ringtail Possum were observed along Millar's Creek (seven sightings) or in vegetation away from the actual Collie River foreshore (four sightings). Forty-three Common Brushtail Possums were also recorded. Fourteen Western Ringtail Possum were observed within the area examined on the second night survey. Seven Western Ringtail Possum were found in vegetation directly bordering the Collie River on its south bank and one on the north bank. None of these observations were within the approximate boundary of the Study Area.
- Other Western Ringtail Possum were observed along Millar's Creek (four sightings) or in vegetation away from the actual Collie River foreshore (two sightings). Thirty nine Common Brushtail Possums were also recorded.

#### Nature and extent of likely impact

Based on the results of the flora, vegetation and fauna field assessment (GHD 2014) and the targeted Western Ringtail Possum survey (Harewood 2014), the project is only considered likely to impact threatened fauna species. As the one threatened flora species (*Drakaea micrantha*) that may possibly occur within the Study Area was not recorded during search efforts during the field survey, therefore impacts to this species are not considered further. The potential impacts to threatened fauna species are detailed below.

#### Potential impacts to threatened fauna species

The majority of the potential impacts to threatened fauna species would occur during the construction and operational phases of the Project. In the absence of mitigation the following key impacts are likely.

#### Construction phase

- Removal of threatened fauna species habitat including:
  - Up to 0.48 ha of foraging habitat potential night roosting and potential breeding habitat for Black Cockatoos. The potential breeding habitat includes 10 trees with a DBH greater than 500 mm, including one tree with a potentially suitable breeding hollow for the threatened Black Cockatoo species.
  - Up to 0.48 ha of riparian and woodland foraging habitat for the Western Ringtail Possum, including
    potential breeding and denning habitat in the form of eight hollow-bearing trees.
- Clearing or modification of this habitat, which will only further reduce the overall area of habitat available, albeit minor, to fauna species within the Study Area and locality.
- Removal of a component of a locally significant wildlife corridor, and the creation of potential short term barrier effects to the movement of fauna along the Collie River.
- Given that Western Ringtail Possums have been observed using vegetation within the Study Area and along the Collie River adjoining the Study Area the potential exists for individuals to be killed or injured when clearing is undertaken.

#### Operational phase

- The removal of a component of a locally significant wildlife corridor and the introduction of a new barrier (the bridge) may create ongoing barrier effects and inhibit the functionality of the habitat linkage along the Collie River.
- With regard to the Western Ringtail Possum, fragmentation of such linkages may create a disjuncture between patches that affects the ability of animals to move (e.g. habitat trees separated by more than six m [DEWHA 2009a]).

The specific impacts with regard to the relevant guidelines to both Black Cockatoos and the Western Ringtail Possum are discussed further below.

#### Black Cockatoos

In order to review the potential issues to the Black Cockatoo species within the Study Area, the DotE EPBC Act referral guidelines for three threatened Black Cockatoo species were consulted (DSEWPaC 2012). Within these guidelines, DotE provides a risk table that gives guidance on what it views as risks/impacts to Black Cockatoos that will trigger referral. Risk is broken into three categories: high, uncertain and low and primarily focuses on breeding, feeding and roosting areas as well as indirect impacts. If there is uncertainty with regard to risks on Black Cockatoos then the DotE recommends referring the Project or contacting the DotE to ensure legal certainty.

The proposed Project will remove up to 0.48 ha of foraging and potential night roosting habitat, including 10 potential breeding trees (for both sides of the River). One tree with a potentially suitable breeding hollow will also be removed.

While the entire 0.48 ha of native vegetation with the Study Area is to be removed, the clearing area is within a corridor of vegetation along the Collie River an therefore, it is considered that the proposed Project will not have a significant impact to any of these three species of Black Cockatoo.

#### Western Ringtail Possum

In order to determine the potential impacts and significance of these impacts to the Western Ringtail Possum, both the species specific Significant Impact Guidelines for the Western Ringtail Possum (EPBC Act Policy Statement 3.10, DEWHA 2009a) and the DotE 1.1 Significant Impact Guidelines (DotE 2013a) were consulted and an assessment undertaken.

#### Significant Impact Guidelines for the Western Ringtail Possum (DEWHA 2009a)

In order to determine the potential impacts to the Western Ringtail Possum, the Significant Impact Guidelines for the species were consulted (EPBC Act Policy Statement 3.10) (DEWHA 2009a). The purpose of this policy statement is to assist in determining whether a proposed action is likely to have a significant impact on the Western Ringtail Possum in the southern Swan Coastal Plain, Western Australia.

The Study Area is located in or just north of the mapped boundary (see Figure 1 - DSEWPaC 2009) defining the area considered by the guidelines. The area within the guidelines that may overlap with the Study Area is mapped as 'Supporting Habitat' for the species (as defined in DSEWPaC 2009). Supporting habitat includes vegetation patches that buffer key local populations from threats, as well as providing foraging, breeding, and dispersal opportunities. This habitat provides the opportunity for an immigration source and emigration destination to allow for natural fluctuations in the species' fecundity (DEWHA 2009a). Supporting habitat provides connectivity on the plains and to the hinterland, thus increasing opportunities for foraging, breeding and dispersal (DEWHA 2009a). According to the significant impact assessment guidelines (pp. 7, DSEWPaC 2009a) there is a real chance or possibility of a significant impact on the species if the action will result in one or more of the following to 'Supporting Habitat':

- Clearing in a remnant habitat patch that is greater than 0.5 hectares in size
- Clearing of more than 50% of a remnant habitat patch that is between 0.2 and 0.5 hectares in size
- Fragmentation of existing habitat linkages.

Clearing of the habitat within the Study Area and construction of the bridge may fragment the existing habitat linkages along Collie River. Fragmentation of such linkages may create a disjuncture between patches that affects the ability of animals to move (e.g. habitat trees separated by more than six m (DEWHA 2009a)). Furthermore, the proposed Project may result in clearing in a remnant patch that is greater than 0.5 ha in size. Given the location of the Project with regard to the important areas for the Western Ringtail Possum described in the guidelines (DEWHA 2009a), the Project is unlikely to impact any core habitat or primary corridor areas.

#### Significant Impact Guidelines 1.1 (DotE 2013a)

An assessment of impacts on the Western Ringtail Possum was undertaken against the DotE 1.1 Significant Impact Guidelines (DotE 2013a) and presented in Table 4. The outcome of the assessment that the Project is **unlikely** to have a significant impact on Western Ringtail Possums.

For the purpose of this assessment an 'important population' of a species refers to the Western Ringtail Possums located in the Greater Bunbury Region, specifically including the Bunbury and Binningup Management Zones determined by Shedley and Williams (2014). A summary of these management zones is provided in Table 2. These zones mostly incorporate Population 2, listed on the Species Profile and Threats database (SPRAT) by the DotE (DotE 2014). A summary of each population is provided in Table 3.

# Table 2. Summary of management zones - including suitable areas of modelled habitat for theWestern Ringtail Possum (Shedley and Williams 2014).

Zone	Habitat suitability class	Area (>10ha)	Area (2-10 ha)	Area (<2ha)	Total area (ha)
Bunbury	A	0	0	0.2	0.2
	В	1241.9	237.4	156.8	1636.1
	С	2947.1	1241.4	439.4	4627.9
Binningup	A	0	0	0	0
	В	910.6	555.2	161.7	1627.5
	С	6026.3	1894.8	514.2	8435.3

Total area (ha)	11,125.9	3928.8	1272.3	16.327 ha

Table notes:

- Habitat suitability class: A very high, B high, C medium. Noting that classes D, E and U are low to very low, and mostly unsuitable and are therefore not reported
- Approximately 29,730 ha of habitat was modelled as high quality (habitat classes A, B, or C) within the southern Swan Coastal Plain from Binningup to Dunsborough, of which 16,327 ha occurs within the Greater Bunbury Region.

#### Table 3. Population 2 locations and estimated population size (source: DotE 2014).

Population	Location	Estimated Population Size	Land tenure
2	Leschenault Peninsula Conservation Park	Population considered to be at risk	Conservation Park
2	Ludlow Forest region, Capel	274 Western Ringtail Possums sighted in 1995	State Forest
2	Abba River region Busselton	Population considered to be at risk	Various
2	Locke Estate	Stable	Nature Reserve
2	Bussell Highway	70–90 individuals spotted in a stand of 700 Peppermint Trees	Freehold

#### Table 4. Significant Impact Criteria for The Western Ringtail Possum

Significant Impact Criteria	Impact Outcome
An action is likely to have that it will:	a significant impact on a vulnerable species if there is a real chance or possibility
Lead to a long-term decrease in the size of an important population of a species	<ul> <li>Unlikely</li> <li>Western Ringtail Possums are known to occur in the Study Area, in the immediate surrounds (Harewood 2014) and in the locality (DPaW's NatureMap, Shedley and Williams 2014). The proposed project is likely to result in the removal of 0.48 ha of suitable habitat and create a new barrier to the movement of the Western Ringtail Possum individuals along both sides of the Collie River.</li> <li>The proposed Project, without the implementation of species specific mitigation measures, is unlikely to result in a long term decrease in the size of the 'Greater Bunbury Region important population' of this species (as described above) as it is unlikely to significantly: <ul> <li>Reduce the overall area of available habitat to the population</li> <li>Disrupt the breeding cycle of part of the population</li> <li>Disrupt the Collie River), and create a new barrier to the movement of the Western Ringtail Possum individuals along the river. Despite this, the new barrier is unlikely to lead to the long term decrease in the size of an important population along both sides of the Collie River).</li> </ul> </li> </ul>
Reduce the area of occupancy of an	<b>Unlikely</b> The Project is unlikely to substantially reduce the area of occupancy of the

important population of a species	'Greater Bunbury Region important population' of Western Ringtail Possums within either the local area or region. The species is known to occur throughout the south-west region of Western Australia.
	The estimated area of suitable habitat available within the Greater Bunbury Region is approximately 16,327 ha (see Table 2). The Project may reduce the overall area of habitat by less than 0.003% within the Greater Bunbury Region as a result of direct loss of habitat from clearing. Therefore removal of 0.48 ha of habitat for the Project is not considered likely to be significant for the species, due to the extent of the known habitat adjacent the Study Area (see Harewood 2014) as well as the availability of known and modelled suitable habitat within the locality and region (DPaW 2014 and Shedley and Williams 2014).
Fragment an existing	Unlikely
important population into two or more populations	The purpose of the Project is to build a new bridge across the Collie River to link the residential areas of Eaton in the Shire of Dardanup and Millbridge. The proposed bridge will be a concrete or composite steel concrete structure approximately 130 m in length with spill through abutments. One pier will be located within the watercourse outside of the main channel. The bridge deck will include:
	<ul> <li>Two 3.5 m wide lanes (north and southbound) with 1.2 m wide shoulders</li> <li>One 3.0 m wide dual use path</li> </ul>
	The southern bridge approach, across the River floodplain will likely be a raised culvert (or similar) crossing approximately 100 m in length. The bridge will form a new barrier to the movement of fauna, including the Western Ringtail Possum, along both sides of the Collie River.
	Aerial photography was reviewed in conjunction with DPaW NatureMap records and targeted survey results (Harewood 2014) to determine the importance of the vegetation along the Collie River as a habitat linkage for the Western Ringtail Possum, within the local area and Greater Bunbury Region.
	A number of other potential riparian and other habitat linkages (e.g. roadside corridors) were identified in the Greater Bunbury Region including:
	<ul> <li>The coastal strip of vegetation along the Leschenault Thiet (north-south corridor)</li> </ul>
	<ul> <li>Large blocks of contiguous vegetation north of the Wellesley locality on the eastern side of the Old Coast Road (ultimately linking in with the Brunswick River)</li> </ul>
	The Brunswick River (east-west corridor)
<u>)</u>	The Preston River (north-south corridor)
	Larger blocks of vegetation in the Preston locality.
	In addition to these potential corridors, a number of existing barriers to the movement of Western Ringtail Possum individuals within the Greater Bunbury Region were also noted including:
	<ul> <li>Major roads (e.g. Australind Bypass, South Western Highway and Bunbury Outer Ring Road)</li> </ul>
	• Urban development (e.g. adjacent housing estates).
	The aerial photograph review revealed that habitat linkages between the Swan Coastal Plain and the Darling Scarp (i.e. the next largest area of remnant vegetation east of the coastal plain) were mostly absent. Within the Greater Bunbury Region, the most obvious habitat linkages connecting the Swan Coastal Plain and the Darling Scarp are the Collie. Preston and Brunswick Rivers.
	The Study Area is within a largely cleared and fragmented landscape, where existing corridors, including degraded corridors form important habitat linkages

	<ul> <li>for native fauna including the Western Ringtail Possum. The Collie River riparian vegetation and adjacent vegetation provides an important habitat linkage for the Western Ringtail Possum in the locality, particularly in linking: <ul> <li>Areas north east of the Study Area (in conjunction with the Brunswick River corridor) and the coastal habitats in the Leschenault inlet area</li> <li>Areas south of the Study Area (in conjunction with the Millar's Creek corridor), and ultimately the habitats south of Eaton (between the Australind Bypass and South Western Highway).</li> </ul> </li> </ul>
	Therefore, the proposed Project may fragment the habitat linkage along both sides of the Collie River, which forms an important local habitat linkage for the Western Ringtail Possum in the locality. Consequently the Project may exacerbate the existing fragmentation effects to the local population of the species, however it is unlikely to fragment the 'Greater Bunbury Region important population' into two or more populations given the existing barriers (e.g. Australind Bypass, South Western Highway and Bunbury Outer Ring Road) to the movement of the species within the Greater Bunbury Region.
Adversely affect habitat critical to the survival of a species	<b>Unlikely</b> The DPaW Recovery Plan (DPaW 2014) for the Western Ringtail Possum describes habitat critical to the survival of the species, including habitat critical to the survival of populations on the Swan Coastal Plain. Populations on the Swan Coastal Plain are associated with stands of myrtaceous trees (usually peppermint trees) growing near swamps, water courses or floodplains, and at topographic low points which provide cooler often more fertile conditions (Jones 2001, de Tores et al. 2004 as cited in DPaW 2014). Studies have shown that locations of extant populations are related to the quality of habitat, principally high canopy continuity and high nutrient foliage, but also the number and type of refuges available (Jones et al. 1994b, Jones et al. 2004, Wayne et al. 2006 – as cited in DPaW 2014).
	Based on the Recovery Plan description, the habitat along the Collie River including in the Study Area and its associated vegetation types (mostly myrtaceous trees including peppermint trees) may be considered part of the overall habitat critical to the survival of the species.
	Up to 0.48 ha of Western Ringtail Possum habitat in the Study Area will be cleared for this Project. Furthermore, the proposed Project may fragment the habitat linkage along both sides of the Collie River, which forms an important local habitat linkage for the Western Ringtail Possum in the locality. Consequently the Project may exacerbate the existing fragmentation of the local population of the species. Given that this habitat type is well represented adjacent to the Study Area, and the greater locality, the impacts of this clearing are unlikely to be significant, nor are the potential fragmentation effects. Therefore the Project is unlikely to adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	<b>Unlikely</b> The works associated with the Project are unlikely to disrupt the breeding cycle of the Western Ringtail Possum. While this species is known to occur within the both Study Area and the local area, the area is not considered core breeding habitat or habitat that is a component of or wholly habitat for an important population for this species. In addition, the Study Area is not considered to provide core breeding habitat for 'Greater Bunbury Region important population' of the species.
Madife	It is therefore considered unlikely that the Project will disrupt the breeding cycle of an important population of the species.
Modify, destroy, remove	Uniikely

or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The works associated with the Project, may modify and destroy a small proportion (0.48 ha, or approximately 0.003% of the overall habitat within the Greater Bunbury Region) of known and potential habitat for this species, but not to the point that this species would decline. Given that this habitat type is well represented adjacent to the Study Area and the greater locality, the impacts of this clearing are not considered significant. The proposed Project is therefore unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable	<b>Unlikely</b> The Project may potentially exacerbate existing invasive species (such as weeds and the European Honeybee) that already occur within or adjoining the Study Area.
species' habitat	The European Honey Bee was recorded adjacent the Study Area during the field survey. The bees were recorded utilising a hollow that would otherwise be suitable for native fauna such as the Western Ringtail Possum. European Honey Bees are listed as a threat to several native fauna species because of this hollow competition, including the Western Ringtail Possum (DPaW 2014).
	The Project is unlikely to significantly increase or introduce new invasive species to Study Area. Therefore the Project is unlikely to result in invasive species that are harmful to the Western Ringtail Possum becoming established in the habitat within the Study Area, or surrounds.
Introduce disease that may cause the species to decline	<b>Unlikely</b> It is considered unlikely that the project would introduce diseases that may cause the Western Ringtail population to decline.
Interfere with the recovery of the species.	<ul> <li>Unlikely The DPaW Recovery Plan (DPaW 2014) for the Western Ringtail Possum describes the long term goals of the recovery program for the species as: <ul> <li>To improve the population status, leading to future removal of the Western Ringtail Possum from the threatened species list of the EPBC Act and the WC Act. <ul> <li>To ensure that threatening processes do not impact on the ongoing viability</li> </ul></li></ul></li></ul>
-	of the Western Ringtail Possum. This recovery plan guides the recovery of the Western Ringtail Possum for the next 10 years. The 10 year goal is to slow the decline in population size, extent and area of occupancy through managing major threatening processes affecting the subpopulations and their habitats, and allowing the persistence of the species in each of the identified key management zones (Swan Coastal Plain, southern forests and south coast).
	<ul> <li>DPaW have deemed that the recovery plan will be unsuccessful if, within a 10 year period, any of the following occur:</li> <li>There is substantial loss of habitat and/or increasing threatening processes that result in a further contraction of the population size, extent or area of occupancy.</li> <li>An evidence-based management approach cannot be applied to all populations.</li> </ul>
	The Project is unlikely to lead to the substantial loss of habitat and/or increase threatening processes that result in a further contraction of the population size, extent or area of occupancy.
	Although the Project may affect a small portion (up to 0.48 ha) of habitat critical to the survival of the species, the Project and its actions are unlikely to interfere

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substantially with or prevent the recovery of the species.	

Legend for Table 3 - For the purpose of this assessment:

**'important population of a species'** is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range (DotE 2013, pp 10).

**'habitat critical to the survival of a species or ecological community'** refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act (DotE 2013, pp 10).

#### 3.1 (e) Listed migratory species

#### Description

A search of the EPBC Act Protected Matters Search Tool (Appendix B of Attachment 2) identified, without assessment, 23 EPBC listed migratory species that could potentially occur within 10 km of the Study Area. Following the field investigation five species were considered likely or possible to occur within the Study Area including:

- Rainbow Bee-eater (Merops ornatus) Migratory terrestrial
- Cattle Egret (Ardea ibis) Migratory wetland
- Eastern Great Egret (Ardea modesta) Migratory wetland
- Painted Snipe (Rostratula benghalensis) Migratory wetland
- White-bellied Sea-Eagle (Haliaeetus leucogaster) Migratory terrestrial

#### Nature and extent of likely impact

No important habitat for any of these EPBC Act migratory (terrestrial or wetland) species mentioned in this report would be substantially removed or modified as part of the proposed works. The proposed works are unlikely to disrupt the lifecycle of an ecologically significant proportion of a population of listed migratory species. The Project is unlikely to result in an invasive species that is harmful to a listed migratory species becoming established in an area of important habitat for listed migratory species. It is unlikely that these listed migratory species would be significantly impacted by the proposed works.

#### **3.1 (f)** Commonwealth marine area

#### Description

The Project Area is not located within or in proximity to a Commonwealth marine area.

#### 3.1 (g) Commonwealth land

#### Description

The Project Area is not located within or in proximity to a Commonwealth land.

#### 3.1 (h) The Great Barrier Reef Marine Park

#### Description

The Project is not within the Great Barrier Reef Marine Park.

#### 3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

The Project does not involve a water resource in relation to coal seam gas development and large coal mining development.

# 3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?       ✓       No         Is the proposed action to be taken in a Commonwealth marine area?       ✓       No         Is the proposed action to be taken on Commonwealth land?       ✓       No	Is the proposed action a nuclear action?	✓ No
Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?       ✓       No         Is the proposed action to be taken in a Commonwealth marine area?       ✓       No         Is the proposed action to be taken on Commonwealth land?       ✓       No		
Is the proposed action to be taken in a Commonwealth marine area?       ✓       No         Is the proposed action to be taken on Commonwealth land?       ✓       No         Is the proposed action to be taken in the Great Barrier Reef Marine Park?       ✓       No	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	✓ No
Is the proposed action to be taken in a Commonwealth marine area?       ✓       No         Is the proposed action to be taken on Commonwealth land?       ✓       No         Is the proposed action to be taken in the Great Barrier Reef Marine Park?       ✓       No		
Is the proposed action to be taken on Commonwealth land?       ✓       No         Is the proposed action to be taken in the Great Barrier Reef Marine Park?       ✓       No	Is the proposed action to be taken in a Commonwealth marine area?	✓ No
Is the proposed action to be taken on Commonwealth land?       ✓       No         Is the proposed action to be taken in the Great Barrier Reef Marine Park?       ✓       No		ж.
Is the proposed action to be taken in the Great Barrier Reef Marine Park?	Is the proposed action to be taken on Commonwealth land?	✓ No
Great Barrier Reef Marine Park?	Is the proposed action to be taken in the	✓ No
	Great Barrier Reef Marine Park?	

#### 3.3 Other important features of the environment

#### 3.3 (a) Flora and fauna

Main Roads Western Australia (Main Roads) commissioned GHD Pty Ltd (GHD) to undertake a Level 1 flora and fauna assessment for the proposed Bridge 5370 (Attachment 2). This assessment includes a desktop assessment, vegetation and flora survey and an opportunistic fauna survey.

The key outcomes of the survey include:

Flora and vegetation

- Up to 0.48 ha of native vegetation will be removed including 0.18 ha of '*Eucalyptus rudis* woodland' and 0.17 ha of 'fringing riparian vegetation' consisting of *Casuarina obesa, Melaleuca rhaphiophylla* and *Eucalyptus rudis* over Juncus species and weedy grasses.
- The 'fringing riparian vegetation' within the Study Area is riparian vegetation, associated with the River. The vegetation on the banks would be important in maintaining bank stability.
- The '*Eucalyptus rudis* woodland' and 'fringing riparian vegetation' that was mapped within the Study Area is considered equivalent to vegetation association 1182 of Beard (1979) and the vegetation complex 'Swan Complex' of Heddle et al (1980), both of which are under the 30 percent threshold level and are considered underrepresented.
- It is recommended that clearing of the native vegetation within the Study Area be minimised by utilising the eastern side of the Study Area on the south side of the Collie River, which would minimise clearing of the *Eucalyptus rudis* woodland. Additionally, clearing of the riparian vegetation should be avoided or minimised where possible by placing infrastructure as far from the River as possible.

#### Fauna

- Up to 0.48 ha of foraging habitat, and potential night roosting and breeding habitat and 10 potential breeding habitat trees, for the threatened Black Cockatoo species.
- Up to 0.48 ha of riparian and woodland habitat for the Western Ringtail Possum, and other fauna species of conservation significance (e.g. the Water Rat).
- Removal of a component of a locally significant wildlife corridor, and the creation of potential barrier effects to the movement of fauna along the Collie River. Clearing or modification of this habitat, will reduce the overall area of habitat available to fauna species within the Study Area and locality.
- Impacts to the habitat for fauna including conservation significant fauna (e.g. removal of habitat from clearing) are unavoidable for this Project. However, there is capacity of the Project to reduce the extent of these direct impacts during the project planning phase.

At this stage it is difficult to determine the impacts to the River and the instream environment without a bridge design, hence impacts to the River and its environs were not included as part of the Level 1 ecological assessment.

#### 3.3 (b) Hydrology, including water flows

The bridge will be designed and constructed to comply with Department of Water requirements in respect to backwater impacts on the Collie River.

There will be no direct discharge from the bridge to the Collie River. The bridge deck will be drained via a piped drainage system to retention basins prior to discharge to the wider environment.

#### 3.3 (c) Soil and Vegetation characteristics

N/A

#### 3.3 (d) Outstanding natural features

There are no outstanding natural features within the Study Area.

#### 3.3 (e) Remnant native vegetation

Remnant vegetation remaining within the Study Area consists of '*Eucalyptus rudis* woodland' (0.19 ha) and 'fringing riparian vegetation' consisting of *Casuarina obesa, Melaleuca rhaphiophylla* and *Eucalyptus rudis* over Juncus and weedy grasses (0.17 ha). The *Eucalyptus rudis* woodland was rated as Condition 5 (Degraded) and the fringing riparian vegetation was rated as Condition 4-5 (Good - Degraded).

A total of 290 native plant taxa and 65 naturalised (non-native) plant taxa have been previously recorded within 5 km of the Study Area. The GHD survey identified a total of 51 flora species within the Study Area (including 21 native species and 30 introduced species). Native species were primarily trees with scattered shrub species along the riverbanks.

See Section 4.3 Attachment 2 for further details.

#### 3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

N/A

#### 3.3 (g) Current state of the environment

N/A

#### 3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

There are no Commonwealth Heritage Places or other places recognised as having heritage values within the Study Area.

#### 3.3 (i) Indigenous heritage values

Brad Goode and Associates completed Aboriginal heritage survey and consultation for the Project. The heritage study included a survey of the site and consultation with Gnaala Karla Booja native title group. Main Roads subsequently submitted an application under Section 18 of the WA Aboriginal heritage Act to impact on a portion of the Collie River. The Minister for Aboriginal Affairs advised in January 2014 that bridge clearing and construction would not impact on any Aboriginal sites within the meaning of the Act.

#### 3.3 (j) Other important or unique values of the environment

The Study Area marginally intersects one Environmentally Sensitive Area (ESA) to the north-west associated with the Collie River (Figure 2 – Attachment 2). There is no impact on the ESA expected from bridge construction.

#### 3.3 (k) Tenure of the action area (eg freehold, leasehold)

The bridge will be constructed within a road reserve formally set up under the local government authorities Town Planning Schemes.

#### 3.3 (I) Existing land/marine uses of area

The existing land use of the Study Area is agriculture, specifically cattle grazing.

#### 3.3 (m) Any proposed land/marine uses of area

The Project will change the existing land use, however it is considered compatible with the existing land use within the road reserve and not likely to impact the surrounding land use.

# **4 Environmental outcomes**

Potential impacts to 0.48 ha of remnant native vegetation within the Disturbance Footprint (1.43ha), is considered to be unavoidable. Main Roads will minimise the area of native vegetation to be cleared for the safe construction and maintenance of the bridge during the design phase of this Project.

Main Roads is committed to the Environmental Management of this Project and will undertake the Project in accordance with its existing Environmental Management Systems. The main impacts to Matters of National Environmental Significance will result from clearing of the Disturbance Footprint and associated loss of habitats.

The following section outlines the proposed measures to reduce the potential impacts of the Project upon the Western Ringtail Possum. The mitigation measures are proposed for the planning, pre-construction, construction, and post-construction (operational) phases of the proposed Project.

The key objectives of the avoidance and mitigation measures are to:

- Avoid, then minimise the clearing of Western Ringtail Possum habitat
- Avoid direct impacts (e.g. injury or death) to individual Western Ringtail Possums during the construction process

#### Western Ringtail Possum

The proposed management measures for reducing the potential impacts to the Western Ringtail Possum and their habitat within the Disturbance Area, and surrounding areas are outlined below.

- Design principles that would demonstrate avoidance of, the minimisation of impacts to the Western Ringtail Possum and there habitat.
- Design and construct a rope bridge along the Collie River foreshore as part of the bridge construction to facilitate arboreal fauna movement that would otherwise be interrupted by construction of the bridge.
- Develop and include erosion, drainage, pest animal, weed and fire control protocols to be implemented during construction.
- Pre-clearance fauna survey, with potential relocation of individuals into the adjacent area of retained habitat or otherwise designated site.
- During clearing operations a suitably experienced "fauna spotter' will be employed to inspect logs and hollow trees (where possible) before clearing to reduce likelihood of injury to fauna. Any fauna encountered will be relocated to a designated site.
- Clearing will be undertaken progressively away from already cleared areas to allow Western Ringtail Possum individuals to move away from areas where site activities are being undertaken.
- Demarcate all native vegetation and Western Ringtail Possum habitat to be retained via on ground demarcation and signage, so that "No Go" zones are clearly delineated and noted by construction workers and any accidental loss of native vegetation and habitat is avoided.
- Induct all staff and contractors working within the construction area regarding the Western Ringtail
  Possum constraints (e.g. areas that can be cleared and areas that are to be retained) and required
  actions regarding these values.
- Revegetate along the Collie River foreshore beneath the new bridge with native understorey species that will not impact on maintenance or serviceability of the structure.
- Revegetate the ROS along the Collie River with native species as the land becomes available through the land development process.

# **5 Measures to avoid or reduce impacts**

The following section outlines the proposed measures to reduce the potential impacts of the Project upon the Western Ringtail Possum. The mitigation measures are proposed for the planning, pre-construction, construction, and post-construction (operational) phases of the proposed Project.

The mitigation measures are conceptual and will be further defined as the bridge design is refined. To ensure the success of each measure (e.g. revegetation success or effectiveness of fauna friendly bridge design measures) monitoring of the measures should be undertaken.

# Table 5. Proposed measures to reduce the potential impacts of the Project upon the Western Ringtail Possum

Measure	Project phase	Purpose	Responsibility
Review of proposed measures	Planning and design phase	Ensure that the proposed measures outlined in this table are viable, and can be implemented.	Main Roads and the Shires of Dardanup and Harvey
Revegetation and Habitat Enhancement	Determine during planning phase of project and implement during end of construction and post- construction phase	Revegetate Collie River Foreshore Reserve with indigenous flora species suitable for the Western Ringtail Possum to restore habitat linkages along the Collie River, and to ensure no long term loss of connectivity with Miller's Creek and Brunswick River.	Shires of Dardanup and Harvey
Fauna friendly bridge design (rope bridge / ladder) (Attachment 5)	Determined during planning and design phase and implement during construction phase.	To facilitate the movement of the Western Ringtail Possum along the Collie River, and reduce the potential for vehicle/ possum collisions a rope bridge / ladder should be constructed beneath the bridge deck (facing the water) on both sides of the river.	Shires of Dardanup and Harvey , Main Roads WA
Fauna friendly road design (barrier fencing)	Determine during planning and design phase and implement during construction phase.	To reduce the risk of Western Ringtail Possum crossing the actual road, consideration should be given to installing a climb proof barrier fence for the length of the bridge on both sides of the river. The fence design should deter possums from crossing the bridge.	Shires of Dardanup and Harvey , Main Roads WA and Ecologist

The preliminary design of the bridge structure showing the proposed rope bridge is shown in Attachment 5.

# 6 Conclusion on the likelihood of significant impacts

#### 6.1 Do you THINK your proposed action is a controlled action?

✓

No, complete section 5.2

Yes, complete section 5.3

#### 6.2 Proposed action IS NOT a controlled action.

The proposed action is **not a controlled action** because it is unlikely to have a significant impact on the MNES discussed in this report, including the Western Ringtail Possum.

The project is unlikely to have a significant impact on the Western Ringtail Possum because it is unlikely to

- Result in a long term decrease in the size of an important population of the Western Ringtail Possum
- Reduce the overall area of available habitat of an important population of the Western Ringtail Possum
- Reduce the overall area of occupancy of an important population of the Western Ringtail Possum
- Disrupt the breeding cycle of part of an important population of the Western Ringtail Possum
- Fragment an existing important population of Western Ringtail Possum into two or more populations
- Adversely affect habitat critical to the survival of the Western Ringtail Possum
- Result in invasive species that are harmful to the Western Ringtail Possum becoming established in the habitat within the Study Area, or surrounds
- Interfere substantially with the recovery of the Western Ringtail Possum.

Furthermore, the proposed mitigation measures outlined in Section 4, aim to reduce the potential impacts to this species.

#### 6.3 Proposed action IS a controlled action

#### Matters likely to be impacted

World Heritage values (sections 12 and 15A)
National Heritage places (sections 15B and 15C)
Wetlands of international importance (sections 16 and 17B)
Listed threatened species and communities (sections 18 and 18A)
Listed migratory species (sections 20 and 20A)
Protection of the environment from nuclear actions (sections 21 and 22A)
Commonwealth marine environment (sections 23 and 24A)
Great Barrier Reef Marine Park (sections 24B and 24C)
A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
Protection of the environment from Commonwealth actions (section 28)
Commonwealth Heritage places overseas (sections 27B and 27C)

# **7 Environmental record of the responsible party**

					Yes	
	Does the part environmenta	y taking the action have a satisfactory record I management?	d of responsit	ble	~	
-	Has either (a) applied for in subject to any protection of resources?	) the party proposing to take the action, or (I relation to the action, the person making the y proceedings under a Commonwealth, State the environment or the conservation and su	b) if a permit e application or Territory l stainable use	has been - ever been law for the of natural		
_	If the party ta with the corp	aking the action is a corporation, will the act oration's environmental policy and planning	ion be taken i framework?	n accordance	× _	
	Has the party been respons	taking the action previously referred an action ible for undertaking an action referred under under the most recent referrals t	the EPBC Ac	EPBC Act, or t?		
	Reference Number	Title of referral	Date received	Decision		
	2013/6934	Shire of Dardanup/Transport - land/Between Damiani-Italiano Road and Waterloo Road, Dardanup/WA/Proposal to widen Harris Road within the Shire of Dardanup, WA	12 July 2013	Approval Not Required		
	2010/5768	Shire of Dardanup/Transport - land/Between Damiani-Italiano Road and Waterloo Road, Dardanup/WA/Proposal to widen Harris Road within the Shire of	7 December 2010	Approval Not Required		

As noted above the bridge will be constructed by Main Roads South West Region on behalf of the Shires of Dardanup and Harvey. Recent EPBC assessed Main Roads South West Region projects are listed below.

Reference Number	Title of referral	Date received	Decision
2015/7626	Main Roads Western Australia/Transport – land/South of Capel, approx. 195 km south of Perth/Western Australia/Bussell Highway – Capel to Hutton, WA	16 December 2015	Decision pending
2015/7415	Main Roads Western Australia/Transport – land/Donnybrook – Balingup/Western Australia/Donnybrook-Kojonup Road (M013) widening and associated works.	3 December 2015	Not a Controlled Action – particular manner

2015/7586	Main Roads Western Australia/Natural Resources Management/ Lot 104 Ablett Road Cowaramup/ Western Australia/Wests Gravel Pit development, Cowaramup, WA	14 October 2015	Approval Not Required
2015/7422	Main Roads Western Australia/Transport – land/Collie Lake King Rd, Gibbs Siding, Shire of West Arthur/WA/Road realignment and safety improvements.	6 February 2015	Approval Not Required
2015/7141	Main Roads Western Australia/Transport – land/between Dunsborough and Yallingup/WA/Caves Road widening project between Dunsborough and Yallingup (20.3-24.6 SLK).	16 January 2015	Approval Not Required
2014/7368	Main Roads Western Australia/Transport – land/Pinjarra Williams Road, Teesdale/WA/Pinjarra Williams Rd widening and realignments (SLK 13.8 – 21.5)	17 December 2014	Approval Not Required

# **8 Information sources and attachments**

#### 8.1 References

Beard, JS 1979, Vegetation Survey of Western Australia: Perth Map and Explanatory Memoir 1:250,000 series, Perth, Vegmap Publications.

Department of Parks and Wildlife (DPaW) 2007–, NatureMap: Mapping Western Australia's Biodiversity, retrieved September 2013, from http://NatureMap.dec.wa.gov.au/.

Department of Parks and Wildlife (2014). Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2009a, Significant impact guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia, EPBC Act policy statement 3.10.

Department of the Environment, Water, Heritage and the Arts (DEWHA), 2009b. Background paper to EPBC Act Policy Statement 3.10 – Significant impact guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia. 2009.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012, Environmental Protection and Biodiversity Conservation Act 1999 referral guidelines for three threatened black cockatoo species, Canberra, DSEWPaC.

Department of the Environment (DotE) 2013a. Matters of National Environmental Significance 'Significant Impact Guidelines 1.1' Commonwealth of Australia

Department of the Environment (DotE) 2013b, Protected Matters Search Tool Results, retrieved September 18, 2013, from http://www.environment.gov.au/epbc/pmst/index.html.

Department of the Environment (DotE) 2014, Species Profile and Threats Database. Pseudocheirus occidentalis— Western Ringtail Possum, Ngwayirhttp://www.environment.gov.au/cgi-

bin/sprat/public/publicspecies.pl?taxon\_id=25911#population\_information.

GHD. 2014. Level 1 flora and fauna assessment, Collie River Bridge, Eaton. Report for Main Roads South West Region.

Harewood, G. 2014. Western Ringtail Possum Survey of the Proposed Bridge Crossing (Bridge 5370). Collie River, Millbridge/Treendale. February 2014, version 1. Report for Main Roads, Bunbury.

Shedley, E. and Williams, K. 2014. An assessment of habitat for Western Ringtail Possum (Pseudocheirus occidentalis) on the southern Swan Coastal Plain (Binningup to Dunsborough). Department of Parks and Wildlife.

#### 8.2 Reliability and date of information

A Level 1 flora, vegetation and fauna survey was undertaken by a qualified and experienced GHD botanist and GHD zoologist at the Project Area in November 2013.

The survey methodology GHD (2014, Attachment 2) employed was consistent with the EPA guidelines for Level 1 flora and vegetation surveys as outlined in Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia and Terrestrial Biological Surveys as an Element of Biodiversity Protection, Position Statement No. 3.

The survey methodology GHD (2014, Attachment 2) employed was consistent with the EPA guidelines for Level 1 fauna surveys as outlined the EPA Guidance Note for the Assessment of Environmental Factors for Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia (Guidance Statement No. 56).

#### 8.3 Attachments

		$\checkmark$	
		attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	$\checkmark$	Attachment 1 – Figure 1 Locality map
	GIS file delineating the boundary of the referral area (section 1)	$\checkmark$	
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)		
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		Attachment 3 – CPS 6049/1
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	~	Attachment 2 – GHD 2014
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		Attachment 4 – Harewood 2014 Attachment 5 – Collie River Bridge Concept
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

# 9 Contacts, signatures and declarations

**Project title:** 

Construction of a new bridge (Bridge 5370) across the Collie River at Eaton - Shires of Harvey and Dardanup, Western Australia

#### 9.1 Person proposing to take action

Name:	Michael Parker
Title:	Chief Executive Officer
Organisation:	Shire of Harvey
ACN / ABN (if applicable):	97 518 812 885
Postal address:	PO Box 500, Harvey WA 6220
Telephone:	08 - 9729 0300
Email:	theon@harvey.wa.gov.au
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence. I agree to be the proponent for this action. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.
Signature	Mary Date 3. 2. 2016
Name:	Mark Chester
Title:	Chief Executive Officer
Organisation:	Shire of Dardanup
ACN / ABN (if applicable):	57 305 829 653
Postal address:	PO Box 7016, Eaton WA 6232
Telephone:	08 - 9724 0000

Email: lukeb@dardanup.wa.gov.au

Declaration I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence. I agree to be the proponent for this action. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature

Date 9-2-2-0

#### Person preparing the referral information (if different from 8.1) 9.2

Name Fionnuala Hannon Title Senior Environmental Scientist Organisation GHD Pty Ltd ACN / ABN (if applicable) 39 008 488 373 Postal address Unit 1 10 Victoria St Bunbury Telephone 08 - 9721 0111

Email	fionnuala.hannon@ghd.com
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Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature

Jonnuale Hannon

Date 22/01/2015

# **REFERRAL CHECKLIST**

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

#### HAVE YOU:

Completed all required sections of the referral form?

- Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- Provided a map showing the location and approximate boundaries of the project area?
- Provided a map/plan showing the location of the action in relation to any matters of NES?
- Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at <u>Attachment A</u>) delineating the boundaries of the referral area?
- Provided complete contact details and signed the form?
- Provided copies of any documents referenced in the referral form?
- Ensured that all attachments are less than three megabytes (3mb)?
- Sent the referral to the Department (electronic and hard copy preferred)?

#### Attachment A

#### Geographic Information System (GIS) data supply guidelines

If the area is less than 5 hectares, provide the location as a point layer. If the area greater than 5 hectares, please provide as a polygon layer. If the proposed action is linear (eg. a road or pipeline) please provide a polyline layer.

GIS data needs to be provided to the Department in the following manner:

- Point, Line or Polygon data types: ESRI file geodatabase feature class (preferred) or as an ESRI shapefile (.shp) zipped and attached with appropriate title
- Raster data types: Raw satellite imagery should be supplied in the vendor specific format.
- Projection as GDA94 coordinate system.

Processed products should be provided as follows:

- For data, uncompressed or lossless compressed formats is required GeoTIFF or Imagine IMG is the first preference, then JPEG2000 lossless and other simple binary+header formats (ERS, ENVI or BIL).
- For natural/false/pseudo colour RGB imagery:
  - If the imagery is already mosaiced and is ready for display then lossy compression is suitable (JPEG2000 lossy/ECW/MrSID). Prefer 10% compression, up to 20% is acceptable.
  - If the imagery requires any sort of processing prior to display (i.e. mosaicing/colour balancing/etc) then an uncompressed or lossless compressed format is required.

Metadata or `information about data' will be produced for all spatial data and will be compliant with ANZLIC Metadata Profile. (<u>http://www.anzlic.org.au/policies\_guidelines#guidelines</u>).

The Department's preferred method is using ANZMet Lite, however the Department's Service Provider may use any compliant system to generate metadata.

All data will be provide under a Creative Commons license (http://creativecommons.org/licenses/by/3.0/au/)