Australian Government
Department of the Environment and Energy

Title of Proposal - Eastern Link Project, Busselton WA

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Transport - Land

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The City of Busselton is proposing to construct a new two-lane road and bridge over the Vasse River, connecting Causeway Road to Cammilleri Street in Busselton, Western Australia. The proposed action area is located directly south of the Busselton CBD and approximately 1km from the coastline of Geographe Bay (Figure 1).

The new road will be approximately 240 m in length and connect to new roundabouts on Causeway Road and Peel Terrace / Cammilleri Street (Figure 2). The new bridge will be developed over the Lower Vasse River and comprise a 22 m long (between abutments), 12 m wide deck (Figure 2). A new shared use path will be constructed along the new road, connecting to an existing footbridge over the Lower Vasse River and a new shared use path constructed along Peel Terrace. The bridge will have vehicle / cycle barriers on either side and the bridge and road will have street lighting and signage.

The proposed action area is approximately 2.64 ha and will result in clearing of approximately 0.56 ha of native vegetation including a total of 17 mature Peppermint trees (Agonis flexuosa) comprising approximately 0.1 ha of canopy.

The proposed action will be undertaken in a particular manner to mitigate environmental impacts, including the following:

A fauna over-pass (rope bridge) will be installed immediately north and south of the new bridge to maintain connectivity of riparian vegetation along the Vasse River. Lighting on the bridge and road will be shuttered to direct light onto the road and bridge deck and minimise light spill onto adjacent river and wetlands.

The new road will run along a disused railway embankment for part of its length, to minimise disturbance to ephemeral wetlands east of the embankment. The road will drain to the south, away from the river and into bio-filtration gardens. The bio-filtration gardens will infiltrate and treat stormwater runoff. The road will have a new shared use path on its western side, to minimise public access to ephemeral wetlands east of the road.

The bridge will comprise a single span without piers, to minimise impacts to Aboriginal cultural values associated with waterways. The banks beneath the bridge abutments will be planted with

native Sword Sedge (Lepidosperma gladiatum) to encourage fauna passage and provide erosion protection. The bridge will have barrier kerbs and drain northwards away from the river and into new bio-filtration gardens developed adjacent to the new roundabout on Peel Terrace, which will infiltrate and treat stormwater runoff.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Proposed action area	1	-33.656570287827	115.35000939816
Proposed action area	2	-33.655516493111	115.34837861508
Proposed action area	3	-33.654730603905	115.34788508862
Proposed action area	4	-33.654712742703	115.3481747672
Proposed action area	5	-33.654677020289	115.34831424207
Proposed action area	6	-33.653373142009	115.34811039418
Proposed action area	7	-33.652614025694	115.34819622487
Proposed action area	8	-33.652319308143	115.34797091931
Proposed action area	9	-33.652319308143	115.34819622487
Proposed action area	10	-33.65219427615	115.3484429881
Proposed action area	11	-33.65193528073	115.34842153043
Proposed action area	12	-33.651953142508	115.34860392064
Proposed action area	13	-33.652212137875	115.34861464948
Proposed action area	14	-33.652319308143	115.34866829366
Proposed action area	15	-33.652372893227	115.34878631085
Proposed action area	16	-33.652417547439	115.34889359921
Proposed action area	17	-33.652631887331	115.34866829366
Proposed action area	18	-33.653364211268	115.34862537831
Proposed action area	19	-33.654596644802	115.34885068387
Proposed action area	20	-33.655114618845	115.34906526059
Proposed action area	21	-33.655695103293	115.34958024472
Proposed action area	22	-33.656275583825	115.35036344975
Proposed action area	23	-33.656579218236	115.35000939816
Proposed action area	24	-33.656570287827	115.35000939816

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed action area is located on road reserves, portions of Crown Reserve 41446 (fire station site vested in Department of Fire and Emergency Services), 2241, 2236 and 2236 (management order with Public Transport Authority), 7443 (vested in City of Busselton); and Lot 42 (on Plan 222224) Causeway Road (owned by City of Busselton). The proposed action area is located directly south of the Busselton CBD and approximately 1km from the coastline of Geographe Bay.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The proposed action area is approximately 2.64 ha including approximately 0.56 ha of native vegetation.

1.7 Is the proposed action a street address or lot?

Street Address

Causeway Road
Busselton WA 6280
Australia

1.8 Primary Jurisdiction.

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

Yes

1.9.1 Please provide details.

In September 2017, the City of Busselton secured partial funding for the Proposal under the Australian Government's Bridges Renewal Program, with the balance to be funded by the City.

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 08/2018

End date 12/2019

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The proposed action has been referred to the EPA under Part IV of Western Australian Environmental Protection Act 1986 (EP Act). The EPA may or may not decide to assess the proposed action. If the EPA assesses the proposed action then the action will require a Ministerial Statement under Part IV of the EP Act. If the EPA does not assess the proposed action then the action will require a clearing permit under Part V of the EP Act.

The proposed action will require translocation of the WA listed threatened species Carters Freshwater Mussel (Westalunio carteri). Translocation of the mussel will require a Regulation 17 Licence under the Wildlife Conservation Act 1950 and Wildlife Conservation Regulations 1970, as well approval for exemption from recreational bag limits under the Fish Resources Management Act 1994.

The proposed action will require conversion of Crown reserves 2236, 2237, 2238, 2241 and 7443 to a dedicated public road in accordance with the Land Administration Act 1997. Reserves 2236, 2237 and 2238 are vested in the WA Public Transport Authority for 'railway' purposes. Reserves 2241 and 7443 are vested in the City of Busselton. The City of Busselton have consulted with the Public Transport Authority, who have approved development of the road through their controlled land, subject to the City obtaining the relevant approvals under the Land Administration Act 1997.

No local government approvals are required for the proposed action.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

A community and stakeholder consultation program was held from 27 November to 8 December 2017 and included advertisement in the Busselton-Dunsborough Mail, letter drops to local residents, and invitation to key stakeholders to attend briefing sessions and provide feedback. Environmental fact sheets were provided to attendees presenting information on ecology, hydrology, traffic and construction management matters. Technical reports on environmental matters were provided to interested parties upon their request.

An Aboriginal heritage survey for the proposed action was undertaken by in July 2017, which included consultation with representatives from the South West Aboriginal Land and Sea Council and the South West Boojarah Native Title Claim group. The heritage survey concluded that there are no Aboriginal heritage sites under the Aboriginal Heritage Act 1972 within the proposed action area.

The referral to the EPA under Part IV of the EP Act was advertised on the EPA website from 15 to 21 January 2018, providing further opportunity for public comment on the proposed action. The referral documentation included an Environmental Review Document and technical reports in appendices, which can be downloaded from:

http://www.epa.wa.gov.au/proposals/busselton-eastern-link-project

The Environmental Review Document includes details of public and stakeholder consultation undertaken for the proposed action. Details of consultation with Aboriginal representatives are contained within the Aboriginal Heritage Survey report. This report is confidential and a copy is available upon request.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

The referral documentation submitted to the EPA included a comprehensive Environmental Review Document (ERD), which included an assessment of potential impacts to environmental factors. The ERD was supported by a Construction Environmental Management Plan (CEMP). The ERD covered the following environmental factors:

- vegetation and flora (clearing activities)

- terrestrial environmental quality (acid sulfate soils and mono-sulfidic black ooze)

- terrestrial fauna (Western Ringtail Possum, waterbirds)

- inland waters environmental water quality (Carters freshwater mussel, Lower Vasse River and downstream Vasse River Delta Wetlands, stormwater/spill control)

- hydrological processes (flooding and groundwater abstraction)

- social surroundings (traffic, construction noise/dust/vibration, State listed heritage buildings).

The ERD assessments were informed by the following reports, which are contained in the ERD appendices:

- reconnaissance flora, vegetation and fauna survey (Ecosystem Solutions 2017)

- detailed flora and vegetation survey (Strategen 2017)

- baseline assessment of Carter’s Freshwater Mussel (Murdoch University 2017)

- acid sulfate soil investigation report (Strategen 2017)

- waterway assessment (WSP 2017)

- Aboriginal heritage survey report (Brad Goode & Associates 2017).

A copy of the ERD and technical reports can be downloaded from:

http://www.epa.wa.gov.au/proposals/busselton-eastern-link-project

The EPA will consider the content and findings of the ERD in their decision whether to assess the proposed action.

If the EPA decide to assess the proposed action under Part IV of the EP Act then their assessment will comprise an environmental impact assessment.

If the EPA decide to not assess the proposed action then environmental impacts of clearing will be assessed by Department of Water and Environmental Regulation (DWER) as part of the clearing permit process under Part V of the EP Act. This includes impacts to biodiversity, threatened species, wetlands and soils.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

The City of Busselton is considering a range of potential road upgrades in Busselton town, the scope and timeframe for which remain to be determined.

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

Yes

2.3.1 Impact table

Wetlands	Impact
Vasse-Wonnerup System Ramsar site	Proposed action area is approximately 1 km upstream and west of the Vasse-Wonnerup System Ramsar site. Potential impacts on the downstream Ramsar site associated with construction activities include soil erosion and sediment from terrestrial areas, excavation and

Wetlands	Impact
	suspension of riverine sediments, accidental spills of fuels and chemicals, disturbance of acid sulfate soils and monosulfidic black ooze. These potential impacts will be managed through implementation of a Construction Environmental Management Plan. Potential impacts on the downstream Ramsar site associated with the operations phase include contaminated stormwater runoff; accidental spills of fuel, oil or chemicals (e.g. following vehicle accidents); and increased flow velocities or flood levels associated with obstruction/constriction through the new bridge structure which may cause scouring and sediment impacts downstream. The proposed action will be undertaken in a particular manner to mitigate impacts. Potential impacts to water quality will be mitigated through draining the new road and bridge to bio-filtration gardens to infiltrate and treat stormwater runoff and capture spills and prevent direct discharge into the Vasse River. Captured spills may be pumped out of the bio-filtration gardens for disposal off-site. In addition, the City of Busselton will purchase floating absorbent booms and provide to the Busselton Fire and Rescue Station located approximately 100 m north of the proposed action area, for spill response in event of a spill occurring over the Vasse River. Hydraulic modelling as part of the waterway assessment (WSP 2017) indicate that there will be negligible increase to peak flood levels downstream of the bridge, and peak flow velocities through the bridge will be well below peak velocities through existing bridges upstream (e.g. Causeway Road). The potential for scouring during peak flows is expected to be low and mitigated through thickly vegetating the river banks with native Sword Sedge, which will also promote fauna passage.

2.3.2 Do you consider this impact to be significant?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Subtropical and Temperate Coastal Saltmarsh	The proposed action area and its surrounds are NOT expected to contain the saltmarsh TEC due to the samphire lying over land and adjacent to wetlands that do not experience tidal / salt water influence. Department of Water and Environmental Regulation (DWER) release salt water from the surge barrier into the Vasse Estuary to maintain water levels in the summer, however this water is at too low an elevation to reach upstream into the wetlands adjacent to the proposed action area (Strategen 2017).
Western Ringtail Possum (Pseudocheirus occidentalis)	Clearing of 17 Peppermint trees (0.10 ha) along the northern foreshore of the Vasse River, which comprise known habitat for the species. Day time survey of vegetation to be cleared identified four areas of WRP scats and one drey, with nocturnal survey observing a total of seven individuals over two nights. The proposed action area lies over the WRP Core Habitat Area (Area 1) defined under the EPBC Act Significant Impact Guidelines (DEWHA 2009) and the Swan Coastal Plain management zone defined in the WRP Recovery Plan (Department of Parks and Wildlife 2017). Due to the contiguous canopy of the Peppermint trees and proximity to the Vasse River (which would promote good vegetation condition in summer and autumn), the vegetation on the north bank of the Vasse River is expected to support a habitat linkage for the WRP (K. Williams [Department of Biodiversity, Conservation and Attractions] 2017, pers. comm. 17 October). Clearing of Peppermint trees will disrupt the vegetated habitat linkage along the Vasse River and therefore may affect the movement of the species. The proposed action will be undertaken in a particular manner

Species	Impact
	to mitigate impacts as follows: Impacts of clearing on species habitat to be mitigated through re-planting peppermint trees at a ratio of at least two trees for every tree cleared, with new trees to be located within or adjacent the Vasse River riparian corridor. Construction Environmental Management Plan includes controls for un-authorised clearing/access, preventing fauna fatalities, and preventing spread of weeds and dieback that could impact adjacent WRP habitat. Impacts on habitat linkage to be mitigated through establishment of fauna over-pass (rope bridge) on north and south foreshores and a vegetated fauna under-pass (comprising Sword Sedge) on the north and south banks beneath the new bridge. The northern foreshore of the Vasse River will be planted with an understorey between the new bridge and the existing Causeway Bridge to the west, to further support fauna passage along the river. Road and bridge lighting will be shuttered to minimise light spill onto adjacent area. Road signs will be installed at the north and south ends of the new road warning motorists of fauna passage. Provision of planting, construction management and fauna passages is expected to mitigate potential impacts to WRP populations in the vicinity of the proposed action area. The proposed action is not expected to cause impacts to WRP population size, area of occupancy, population connectivity, critical habitat, breeding cycle, adjacent habitat condition or invasion by harmful species or disease.
Forest Red Tail Black Cockatoo (Calyptorhynchus banksii subsp. naso)	The field survey (Ecosystem Solutions 2017) identified tree species known to provide food and potential roosting sites for black cockatoo species (e.g. Marri and Flooded Gums), however there were no signs of foraging, feeding or roosting on or nearby the trees. There were no trees identified as suitable for Black Cockatoo nesting (i.e. there were no hollows) within the proposed action area, nor were any Black Cockatoos seen or heard during either of the dawn or dusk surveys. The Reconnaissance Survey concluded that the

Species	Impact
	proposed action area does not comprise significant Black Cockatoo habitat (Ecosystem Solutions 2017). The proposed action is not expected to cause significant impacts to the species.
Baudin's White Tailed Black Cockatoo (Calyptorhynchus baudinii)	See notes for Forest Red Tail Black Cockatoo. The proposed action is not expected to cause significant impacts to the species.
Carnaby's White Tailed Black Cockatoo (Calyptorhynchus latirostris)	See notes for Forest Red Tail Black Cockatoo. The proposed action is not expected to cause significant impacts to the species.
Chuditch (Dasyurus geoffroii)	Occupies variety of habitats, most dense in riparian jarrah forests. Requires large unfragmented habitats. The Reconnaissance Survey concluded that the proposed action area is unlikely to comprise habitat for the species (Ecosystem Solutions 2017). The proposed action is not expected to cause significant impacts to the species.
Southern Brush-Tailed Phascogale (Phascogale tapoatafa subsp. wambenger)	Highly arboreal species, prefers open forest with sparse groundcover. The Reconnaissance Survey concluded that the proposed action area is unlikely to comprise habitat for the species (Ecosystem Solutions 2017). The proposed action is not expected to cause significant impacts to the species.
Australasian Bittern (Botaurus poiciloptilus)	Occupies wetlands with tall dense vegetation, favours permanent and seasonal freshwater habitats, dominated by sedges rushes and reeds, growing over a muddy or peaty substrate. Has been found downstream of proposed action area within Vasse Estuary. The Reconnaissance Survey concluded that the proposed action area is unlikely to comprise habitat for the species (Ecosystem Solutions 2017). See notes for Ramsar wetlands on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Greater Sand Plover (Charadrius leschenaultii) – Marine, Vulnerable and Migratory listed	Habitat is littoral and estuarine habitats, sheltered sandy, shelly or muddy beaches with intertidal mudflats and sandy estuarine lagoons. Unlikely the species occurs in close proximity to

Species	Impact
	the proposed action area. See notes for Ramsar wetlands on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Southern Giant Petrel (Macronectes giganteus) – Marine, Endangered and Migratory listed	Marine bird occurs in subtropical waters. Unlikely the species occurs in close proximity to the proposed action area. See notes for Ramsar wetlands on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Eastern Great Egret (Ardea modesta) – listed as Marine	Species has been recorded in the vicinity of the proposed action area and occurs in a wide range of wetland habitats. The proposed action area lies on the western fringe of the Vasse River Delta Wetlands (Figure 1), an area of known habitat for migratory waterbirds. The field survey (Ecosystem Solutions 2017) did not observe any listed migratory or marine birds on either the Lower Vasse River or the Vasse River Delta Wetlands within or adjacent to the proposed action area. Wetlands immediately east of the proposed action area are not subject to tidal / salt water inundation and dry out during the summer and autumn (Strategen

Species	Impact
	2017), however the wetlands may potentially be used by migratory waterbirds on an occasional or opportunistic basis. Higher value waterbird habitats lie to the east of the Proposal, in the Vasse River Delta Wetlands downstream of the Old Butter Factory (Figure 1) which retains water throughout the summer and autumn, as well as the Vasse Estuary further downstream. See notes for Ramsar wetlands on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Cattle Egret (Ardea ibis) – listed as Marine	Habitat is moist, low lying poorly drained pastures. Avoids low grass pastures. Roosts in trees or in ground vegetation near lakes. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Rainbow Bee-eater (Merops ornatus) – listed as Marine	Habitat is open forest, woodland and shrublands, and in various cleared or semi cleared areas. Species known to occur in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. Impacts to potential habitat to be mitigated through re-planting cleared vegetation and clearing / weed controls in Construction Environmental Management Plan. The proposed action is not expected to cause significant impacts to the species.
Common Sandpiper (Actitis hypoleucos) - listed as Marine and Migratory	Habitat includes coastal wetlands and some inland wetland. Utilises muddy margins. Often associated with mangroves. Possible the species occurs in close proximity to the Proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret

Species	Impact
	on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Common Noddy (Anous stolidus subsp. pileatus) - listed as Marine and Migratory	Can nest in bushes, saltbush and other low vegetation, on grass or bare rock. Unlikely the species occurs in close proximity to the Proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Sharp-tailed Sandpiper (Calidris acuminate) - listed as Marine and Migratory	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or sedges or other low vegetation. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Red-necked Stint (Calidris ruficollis) - listed as Marine and Migratory	Habitat is coastal area, including sheltered inlets, bays and estuaries with intertidal mudflats. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Long-toed Stint (Calidris subminuta) - listed as Marine and Migratory	Habitat includes variety of terrestrial wetlands. Preference is for shallow freshwater or brackish wetlands. Also prefers muddy shorelines. Species known to occur in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and

Species	Impact
	mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Greater Sand Plover (Charadrius leschenaultii) – Marine, Vulnerable and Migratory listed	Habitat is littoral and estuarine habitats, sheltered sandy, shelly or muddy beaches with intertidal mudflats and sandy estuarine lagoons. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Southern Giant Petrel (Macronectes giganteus) – Marine, Endangered and Migratory listed	Marine bird occurs in subtropical waters. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Glossy Ibis (Plegadis falcinellus) - listed as Marine and Migratory	Habitat is freshwater marshes at the edges of wetland areas. occasionally found in coastal locations such as estuaries. Species known to occur in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Pacific Golden Plover (Pluvialis fulva) - listed as Marine and Migratory	Inhabits coastal habitats and forages on sandy or muddy shores of estuaries and lagoons. Possible the species occurs in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and

Species	Impact
	mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Bridled Tern (Sterna anaethetus subsp. anaethetus) - listed as Marine and Migratory	Breeds on islands included vegetated coral cays, and rocks, rarely found inshore. Forager over offshore mid and continental shelf waters. Possible the species occurs in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Wood Sandpiper (Tringa glareola) – listed as Marine and Migratory	Habitat is well vegetated, shallow freshwater wetlands. Typically associated with emergent aquatic plants or grass, dominated by taller fringing vegetation. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Common Greenshank (Tringa nebularia) - listed as Marine and Migratory	Habitat is sheltered coastal habitats, typically with large mudflats, and saltmarshes. Forages at the edges of wetlands in soft mud and in shallows around the edges of water along emergent or fringing vegetation. Species known to occur in close proximity to the proposed action area. Potential impacts to abundance, population fragmentation and wider habitat degradation are expected to be negligible. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.
Marsh Sandpiper (Tringa stagnatilis) - listed as Marine and Migratory	Habitat is permanent or ephemeral wetlands of varying salinity. Forages in shallow water at the

Species	Impact
	edges and probe wet mud or feed among marshy vegetation. Unlikely the species occurs in close proximity to the proposed action area. See notes for Eastern Great Egret on potential impacts to waterbird habitat in adjacent and downstream wetlands and mitigation associated with construction activities and operations. The proposed action is not expected to cause significant impacts to the species.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

The proposed action will involve clearing approximately 0.56 hectares of native vegetation over a total footprint of approximately 2.64 hectares. The remaining approximately 2.08 ha of the proposed action area comprises cleared land with mowed introduced grasses, and open water areas.

A reconnaissance flora survey was undertaken by Ecosystem Solutions in August 2017 and a detailed flora survey was undertaken by Strategen in November 2017. Desktop assessment identified two threatened flora species as potentially occurring within the proposed action area.

No threatened flora species as listed under section 178 of the EPBC Act or pursuant to Schedule 1 of the Wildlife Conservation Act 1954 and as listed by Department of Biodiversity, Conservation and Environment (DBCA) were recorded during the reconnaissance or detailed flora and vegetation surveys within the proposed action area. No Priority flora species as listed by Western Australian Herbarium (1998) were recorded in the proposed action area. Given that surveys were conducted over the flowering time for majority of conservation significant species potentially occurring within the survey area, it is highly unlikely that occurrences of other conservation significant flora species are present within the proposed action area.

A reconnaissance fauna survey was undertaken by Ecosystem Solutions in August 2017 to identify fauna of conservation significance, including threatened and priority species or migratory species listed and protected under Commonwealth or Western Australian legislation. Based on desktop assessment, key conservation significant fauna expected with the survey area included Western Ringtail Possum (Pseudocheirus occidentalis), endangered Black Cockatoo species, and migratory waterbirds.

The reconnaissance survey observed Western Ringtail Possum to be present at the proposed action area. During the day survey, four areas of Western Ringtail Possum scats were found and one drey was observed. During the nocturnal surveys, four Western Ringtail Possum animals were observed in Night 1 and three were observed in Night 2.

The reconnaissance survey identified trees known to provide food and roosting sites for black cockatoo species (for example Marri and Flooded Gums) to be present, however there were no signs of foraging or feeding within these areas. There were no trees suitable for Black Cockatoo nesting habitat (i.e. there were no hollows) within the proposed action area, nor were any Black Cockatoos seen or heard during either of the dawn or dusk surveys.

Desktop assessment identified eight migratory bird species as known to occur or potentially occurring in the vicinity of the proposed action. The proposed action lies on the western fringe of the Vasse River Delta Wetlands, an area of known habitat for migratory waterbirds.

The field survey did not observe any listed migratory birds on either the Lower Vasse River or the Vasse River Delta Wetlands within or adjacent to the proposed action. Wetlands immediately east of the proposed action are not subject to tidal / salt water inundation and dry out during the summer and autumn (Strategen 2017), however the wetlands may potentially be used by migratory waterbirds on an occasional or opportunistic basis. DBCA database records include the Eastern Great Egret (Ardea modesta) and Glossy Ibis (Plegadis falcinellus) in the Lower Vasse River and wetlands within 500 m of the proposed action area.

Higher value waterbird habitats lie to the east of the Proposal, in the Vasse River Delta Wetlands downstream of the Old Butter Factory (Figure 1) which retains water throughout the summer and autumn, as well as the Vasse Estuary further downstream. DWER release salt water from the surge barrier into the Vasse Estuary to maintain water levels in the summer, however this water is at too low an elevation to reach upstream into the wetlands adjacent to the Proposal (Strategen 2017).

The Lower Vasse River was surveyed in 2003 and 2004 to determine the distribution and abundance of fish (Morgan and Beatty 2004). Sampling upstream and downstream of the proposed action area recorded common fish species, including native freshwater western pygmy perch (Edelia vittata) and nightfish (Bostockia porosa), and estuarine Swan River goby (Pseudogobius olorum) and western hardyhead (Leptatherina wallacei). No threatened fish species were recorded during the surveys. The surveys identified the Lower Vasse River to be heavy infested with introduced mosquitofish (Gambusia holbrooki) and goldfish (Carassius auratus) which have become established due to the heavily altered riverine habitat and flow regime (Morgan and Beatty 2004).

Murdoch University conducted a baseline assessment of Carter's Freshwater Mussel (Westralunio carteri) at the proposed action area in September 2017. The mussel is listed as Vulnerable under the Wildlife Conservation Act. The mussel is not listed under section 178 of the EPBC Act. The assessment identified the mussel as being present at the proposed action area and at reference sites located upstream and downstream.

3.2 Describe the hydrology relevant to the project area (including water flows).

The proposed action lies over the Lower Vasse River, upstream of the Vasse River Delta Wetlands and Vasse Estuary. Flows in the Lower Vasse River are artificially controlled through the Vasse Diversion Drain penstock upstream, and the weir downstream near the Old Butter Factory.

The penstock and weir are operated by the City of Busselton to control water quality and water levels in the Lower Vasse River (G. Simpson, [City of Busselton] 2017, pers. comm. 6

September). The penstock is closed for approximately two weeks a year in May/June to divert the nutrient rich first flush into the Vasse Diversion Drain (VDD), which discharges directly into Geographe Bay approximately 2.2 km to the west of the Proposal. The penstock is also closed during large flood events when the Lower Vasse River levels are high, to prevent flooding in Busselton town. The VDD diverts much of the runoff from the Upper Vasse River and Sabina Rivers away from the Lower Vasse River and into Geographe Bay.

The weir boards near the Old Butter Factory are installed in November and remain in place until early May, to impound water during the summer and autumn. The weir boards are removed in May to release river flows and urban runoff during the winter and spring, preventing flooding and allowing flushing of nutrient rich water and sediment.

The Lower Vasse River has been dredged approximately 40 to 50 years ago and now intersects groundwater during the summer and autumn (G. Simpson, [City of Busselton] 2017, pers. comm. 6 September). Due to the controlled flows and altered bathymetry the Lower Vasse River functions hydrologically more like a lake than a natural river system.

The Vasse River Delta Wetlands are immediately downstream of the Lower Vasse River and form the geomorphic interface with the Vasse Estuary. The Vasse River Delta Wetlands are expected to have been subject to tidal / salt water inundation in the past, as evidenced by the presence of samphire, however since 1908 tidal / salt water flows have been restricted by the Vasse Estuary surge barrier downstream. Although the surge barrier is opened to allow salt water flows into the Vasse Estuary during summer, the estuary water levels are maintained below the elevation of the Vasse River Delta Wetlands and so the fringing wetlands dry out the summer and autumn. The main water body of the wetlands that lies between the Butter Factor weir and Ford Road retains water through the summer and autumn and is a known habitat for waterbirds.

There are a number of existing bridges and obstructions on the Lower Vasse River, including the Strelly Street Bridge, Causeway Bridge, railway footbridge and Butter Factor weir (WSP 2017).

DWER have developed hydrological and hydraulic models and undertaken comprehensive analyses for the Vasse-Wonnerup system to assess scenarios likely to improve water quality and ecological health of the estuaries. These have been documented in the draft report Reconnecting rivers in the Vasse Geographe catchment (DWER 2016) the final report for which has yet to be released.

The DWER hydraulic model developed for the Vasse-Wonnerup system has been adapted to model the hydraulic impact of the Proposal on peak water levels and velocities during flood events in the Lower Vasse River (WSP 2017).

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Soil characteristics

The proposed action area lies at the boundary of two geological units. The land south of the Vasse River comprises silty estuarine deposits of the Vasse land system and land north of the river comprises calcareous Safety Bay Sands of the Quindalup Dune land system (Belford 1987). The estuarine deposits west of the proposed action area have been infilled with imported material, including Rotary Park and the land bounded by Causeway Road and Southern Drive (Belford 1987).

Soils within the proposed action area are influenced by the geology and imported material in the area. The new road south of the river is expected to lie over (1) disused railway embankment and land adjacent to Causeway Road comprising imported fill, and (2) wetland areas to the east of the railway embankment underlain by silts described as brownish grey, partly calcareous, soft, with some fine sand and shell debris in places, and minor clay content (Belford 1987).

Soils north of the river are expected to comprise calcareous sand described as white, medium grained, rounded quartz and shell debris, well sorted, of Aeolian origin (Belford 1987).

Land in the vicinity of the proposed action area is mapped as being at High to Moderate risk of acid sulphate soil (ASS) occurring within 3 m of natural soil surface, reflecting the estuarine / riverine nature of the soils. There is also potential for Monosulphidic black ooze (MBO) to be present within the sediments of the Vasse River (P. Hanly [DBCA] 2017, pers. comm. 13 October). MBO is an organic ooze enriched by iron monosulfides. Disturbance of ASS or MBO through excavation, dewatering and/or dredging works has potential to impact on soil and water quality.

An ASS investigation (Strategen 2017) was undertaken to determine the nature and extent of the ASS risk in the proposed action area, including soil and groundwater sampling and analysis.

Field measurements indicated no actual (i.e. oxidised) ASS as present in the soil profile, with field soil samples recording a pHF above 4 pH units. The average pHF of samples tested was 8.0 pH units with pH varying between 7.4 and 8.8 (i.e. alkaline soils). However, all of the soil samples showed a difference between pHF and pHFOX greater than 1.0 pH unit, indicating potential (i.e. un-oxidised) ASS are present throughout the soil profiles.

Laboratory analysis using the SPOCAS method indicated a net acidity of 0.04%S to 1.3%S. The highest sample (1.3%S) was subject to verification using Chromium Reducible Sulphate method (SCr), which indicated a lower value of 0.95% S. Liming rates have been set for the soils based on SCr values, at 82 kg/tonne (Strategen 2017).

Two soil samples were analysed for heavy metals, indicating that all analytes were below environmental investigation levels (EIL) for Public Open Space and below health investigation levels (HIL) for Residential land uses.

Groundwater was encountered within 1 m of the surface. Laboratory analysis of groundwater samples indicated acidity of 12 mg/L CaCO3 and alkalinity of 340 mg/L CaCO3. The sulfate to chloride ratio was less than 0.5, with values between 0.055 and 0.11. These results indicate well buffered waters with a very high alkalinity, with have adequate buffering to maintain an acceptable pH level in the future. The laboratory analysis of groundwater samples showed no

exceedance of ASS criteria set by WA Department of Water and Environmental Regulation.

Vegetation characteristics

The Detailed Flora and Vegetation Survey (Strategen 2017) identified four vegetation types (VT) within the 2.64 ha proposed action area comprising approximately 0.56 ha of native vegetation. Of the 0.56 ha of native vegetation, 0.10 ha is Completely Degraded and the remaining 0.46 ha is Degraded, Good and Very Good. The four vegetation types comprised the following:

- VT1: 0.10 ha of Agonis flexuosa trees over managed introduced grasses (Degraded to Completely Degraded condition)

- VT2: 0.08 ha of Eucalyptus rudis, Eucalyptus cornuta and Eucalyptus grandis (introduced species) mid woodland over Melaleuca rhaphiophylla and Agonis flexuosa low open woodland over Callistemon sp. Low open shrubland over introduced grasses and Bolboschoenus caldwellii low sedgeland (Degraded to Good condition)

- VT3: 0.08 ha of Melaleuca rhaphiophylla, Melaleuca teretifolia and Melaleuca preissii low open forest over Melaleuca viminea mid shrubland over introduced grasses (Degraded condition)

- VT4: 0.11 of Salicornia quinquefolia, Tecticornia indica subsp. bidens and Salicornia blackiana low samphire shrubland (Good to Very Good condition)

- VT4(d): 0.19 of *Carex divisa mid closed sedgeland over *Stenotaphrum secundatum low open grassland (Degraded condition).

VT1 and VT2 within the proposed action area comprise vegetation predominantly planted in the 1990s and 2003/04, as well as mature Peppermint trees within VT1 that existed prior to the planting. VT3 comprises predominantly vegetation planted in the wetland area west of the railway embankment. VT4 and VT4(d) comprise remnant samphire to the east of the railway embankment with varying degrees of invasion by introduced grasses.

The Reconnaissance Level Survey (Ecosystem Solutions 2017) identified one TEC as potentially occurring within the proposed action area, namely the Subtropical and Temperate Coastal Saltmarsh which is listed as Vulnerable under the EPBC Act. This was based on floristic and structural similarities to the samphire vegetation (VT4).

The Detailed Level Survey (Strategen 2017) assessed VT4 and VT4(d) against the key diagnostic characteristics and excluding factors for the Coastal Saltmarsh TEC. The Detailed Level Survey concluded that the Development Envelope and its surrounds are not expected to contain the TEC due to (1) VT4(d) containing more than 50% weeds, being highly infested with introduced grasses, and (2) VT4 and VT4(d) lying over land and adjacent to wetlands that do not experience tidal / salt water influence.

Vegetation is described in the attached Reconnaissance flora, vegetation and fauna survey and detailed flora and vegetation survey reports.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

Not applicable.

3.5 Describe the status of native vegetation relevant to the project area.

Native vegetation in the proposed action area has been mapped as the Vasse vegetation complex by Heddle et al 1980 as updated by Webb et al 2016 (referred to as the Swan Coastal Plain dataset), which reflects the extent of Pre-European coastal saltmarsh and Melaleuca woodland south of Vasse River. Vegetation on the northern and southern Vasse River foreshore has been modified and now includes planted 'parkland cleared' Peppermint trees (Agonis flexuosa), Flooded Gum (Eucalyptus rudis) and Melaleuca species.

The total native vegetation (planted and remnant) within the proposed action area represents approximately 0.01% of the current extent (4924 ha) of the Vasse vegetation complex. The current extent of the complex represents approximately 31% of the estimated pre-European extent (15 692 ha).

Native vegetation within the proposed action area is mostly (1.83 ha or 69%) Completely Degraded condition, with the remainder in a Degraded (0.19 ha or 7%), Good (0.23 ha or 9%) or Very Good (0.04 ha or 1%) condition.

Vegetation is described in the attached Reconnaissance flora, vegetation and fauna survey and detailed flora and vegetation survey reports.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The proposed action area lies on flat and low lying land (between approximately 0 to 2 metres Australian Height Datum) adjacent to the Vasse River and the western fringe of the Vasse River Delta Wetlands.

3.7 Describe the current condition of the environment relevant to the project area.

The majority of native vegetation within the Proposal footprint is Degraded to Completely Degraded with a high level of disturbance and occurrences of weeds or managed grassland. Planting of native vegetation along the Vasse River occurred in the 1990s and 2003/04 to improve the amenity and ecological values of the area.

The Lower Vasse River has been dredged approximately 40 to 50 years ago and now intersects groundwater during the summer and autumn (G. Simpson, [City of Busselton] 2017, pers. comm. 6 September). Due to the controlled flows and altered bathymetry the Lower Vasse River functions hydrologically more like a lake than a natural river system.

A large volume of flocculent sediment has accumulated in the Vasse River bed and these stores release additional nutrients to the river system during summer (GoWA 2010). The river has experienced regular blooms of toxic phytoplankton in summer for many years: common species are Microcystis and Anabaena (Paice 2005). Summer conditions promote algal growth because the water in the river is warm and still. Seasonal odour arising from the decomposition of algae has long been a problem in the river. Loss of amenity has also occurred due to restrictions in recreational contact when toxic species of phytoplankton are present. Such occurrences have disrupted traditional festival activities in the town that involved the river (GoWA 2010).

The Lower Vasse River has been identified as exceeding criteria for both phosphorous and nitrogen and contributing a disproportionately large share of the nutrient load to the Vasse-Wonnerup Wetlands given its small catchment size (GoWA 2010).

The City of Busselton is coordinating implementation of projects to improve water quality and long-term management of the Lower Vasse River, including nutrient reduction trials and upgrading of urban stormwater and drains. Options considered include dredging nutrient rich sediments and infilling to raise the river bed to its natural level to create ephemeral water conditions or a series of pools during summer and autumn rather than the current extended lake-like condition (G. Simpson, [City of Busselton] 2017, pers. comm. 6 September).

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

Not applicable.

3.9 Describe any Indigenous heritage values relevant to the project area.

The proposed action area does not contain any Aboriginal heritage sites registered under Aboriginal Heritage Act 1972.

An Aboriginal Heritage Survey was undertaken by Brad Goode & Associates in July 2017. The survey included ethnographic and archaeological surveys and concluded that there were no Aboriginal heritage sites (registered or otherwise) over the Lower Vasse River in the vicinity of the proposed action area. The New River registered Aboriginal heritage site (Id 16807) lies upstream and approximately 350 m to the southwest of the proposed action area.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The proposed action area is located on road reserves, portions of Crown Reserves 41446, 2241, 2236, 2236 and 7443 and Lot 42 (on Plan 222224) Causeway Road (freehold owned by City of Busselton).

3.11 Describe any existing or any proposed uses relevant to the project area.

The proposed action is located in the Busselton urban area and is surrounded by residential and commercial properties to the north and south-west, with City of Busselton administration offices located approximately 160 m to the west. The main Busselton central business district (CBD) is located approximately 250 m north-west of the proposed action area.

Recreational areas in the vicinity of the proposed action area include the Lower Vasse River foreshore utilised as Public Open Space; comprising Arthur and Norah Breeden Park on the north bank and Rotary Park on the south bank. Rotary Park includes a children's playground, river viewing platform and grassed areas; the foreshore planted with native vegetation. Arthur and Norah Breeden Park includes a footpath, stands of Peppermint trees over grassed areas; with an open parkland style foreshore. The two parks and nearby wetland and riverine areas were planted with native vegetation in the 1990s and 2003/04, including within the proposed action area.

The two parks are connected by footpaths that connect with the Causeway Bridge and footbridge, which form part of the Vasse River Trail section of the City of Busselton Wetland Walks and Trails. The Vasse River Trail connects to the Vasse River Delta Wetlands Trail to the east, New River Trail to the west, and trails to the south along the Lower Vasse River upstream of the Causeway Bridge.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

The proposed action will be implemented in a particular manner to mitigate environmental impacts.

Mitigating impacts to Western Ringtail Possum habitat:

* re-planting and rehabilitation of vegetation equivalent to the vegetation to be cleared, including at least two Peppermint trees for every tree cleared

* possum over-pass (rope bridge) and underpass (1 in 2 slopes vegetated with native species Sword Sedge) provided on north and south river banks

* foreshore planting of native vegetation between new bridge and Causeway Bridge to the west, to provide connection to new fauna underpass

* fauna crossing signs installed on road to warn motorists

* road and bridge lighting shuttered to minimise light spill

* construction impacts mitigated through Construction Environmental Management Plan (CEMP) including clearing controls, weed management and fauna protection / care.

Mitigating impacts to downstream Ramsar site and migratory waterbird habitat:

* new bridge and road will drain to biofiltration gardens to capture stormwater runoff and spills to prevent water quality impacts to the Vasse River and downstream wetlands

* floating absorbent boom will be provided for Busselton Fire & Rescue for emergency spill response in the event of a spill reaching the Vasse River

* construction water quality impacts mitigated through a CEMP including controls for Acid Sulfate Soils, Mono-sulfidic Black Ooze, erosion and sediment, waste and hazardous materials,

and emergency spill response.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

No net loss of Western Ringtail Possum habitat along the Lower Vasse River and Vasse River Delta Wetlands.

Maintain Western Ringtail Possum habitat linkage along the Lower Vasse River.

Maintain water quality of Lower Vasse River upstream of Vasse-Wonnerup Wetlands Ramsar site and migratory waterbird habitats.

Minimise mortality of terrestrial vertebrate fauna during construction.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

The proposed action will be implemented in the following particular manner to mitigate environmental impacts.

The proposed action is not expected to cause significant impacts to the downstream Vasse-Wonnerup Wetlands Ramsar site due to the following:

1. Potential impacts to water quality from construction will be managed through implementation of a Construction Environmental Management Plan (CEMP), including sediment, waste, hazardous material and spill response controls.

2. Potential impacts to water quality from operations will be mitigated through draining the new road and bridge to bio-filtration gardens to infiltrate and treat stormwater runoff and capture spills.

3. Floating absorbent booms will be provided the Busselton Fire and Rescue Station located approximately 100 m north of the proposed action area, for spill response in the event of a spill entering the Vasse River.

The proposed action is not expected to cause significant impacts to Western Ringtail Possum due to the following:

1. The small scale of clearing (17 trees or 0.10 ha of canopy) will be mitigated through re-planting of Peppermint trees along and/or adjacent to the Lower Vasse River at a ratio of at least two trees for every tree cleared.

2. The disruption to the fauna habitat linkage along the Lower Vasse River will be mitigated through provision of fauna over-passes (rope bridges) and vegetated under-passes on the north and south sides of the new bridge, with planting of an understorey along the northern river foreshore between the new bridge and the Causeway Bridge to the west.

3. Fauna mortality during construction will be minimised through measures in the CEMP.

4. Warning signs will be installed on the new road to warn motorists of fauna crossing.

5. Bridge and road lighting will be shuttered to minimise light spill into adjacent riverine and wetland areas.

The proposed action is not expected to cause significant impact to migratory species. Potential impacts to migratory species habitats downstream of the proposed action area will be mitigated through measures as described for the mitigation of impacts to the Vasse-Wonnerup wetlands Ramsar site.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

The City of Busselton has an Environmental Policy and Environmental Strategies in place to guide environmental management and achieve improved community involvement and measures to increase environmental outcomes for the Council, community and other stakeholders.

The City of Busselton has referred projects to the Commonwealth for consideration including Busselton-Margaret River Regional Airport (EPBC 2016/7675), Busselton Foreshore Redevelopment (EPBC 2013/6830) and aerial application of mosquito larvicide to the Vasse-Wonnerup Wetlands (EPBC 2010/5593, 2016/7780). The City has implemented the Foreshore Redevelopment and larvicide application to the satisfaction of the Commonwealth, including ongoing monitoring of non-target invertebrates in the Vasse-Wonnerup Wetlands.

The City has previously developed and operated the existing Busselton Regional Airport to the satisfaction of the WA EPA, including the development and implementation of a Noise Management Plan that was subject to community and stakeholder consultation. The City is currently proceeding through a Public Environmental Review under WA legislation for the expansion of the Busselton-Margaret River Regional Airport.

The City of Busselton undertook a program of stakeholder and community consultation prior to submitting this referral to provide information and gain feedback on the proposed action, and notified consultation participants of the upcoming referrals process and opportunity for public submissions to the Commonwealth and EPA.

Through these actions the City of Busselton demonstrate a commitment towards continuous improvement in environmental management and progress towards creating a sustainable balance between environmental, social and economic values in the City.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Not applicable.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

No

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

EPBC 2005/1952. Aerial Mosquito Spraying Vasse-Wonnerup System.

EPBC 2005/2113. Upgrade of Ford Road – Shire of Busselton.

EPBC 2008/4439. Develop Trails and a Wetlands Demonstration Site and Centre.

EPBC 2010/5593. Application of Larvicide and Adulticide to Vasse-Wonnerup Wetlands, WA.

EPBC 2013/6830. Busselton Foreshore Redevelopment from West Street to Ford Road.

EPBC 2016/7675. Busselton-Margaret River Regional Airport Development Project, WA.

EPBC 2016/7780. Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA.

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Beatty S, Ma L, Morgan D & Lymbery A 2017, Baseline assessment of Carter's Freshwater Mussel, Westalunio carteri, at proposed bridge construction sites on the Lower Vasse River, Freshwater Fish Group & Fish Health Unit, Centre for Fish & Fisheries Research, Murdoch University report to Strategen Environmental.	Good.	As stated in reference document.
Belford SM 1987, Busselton Sheet 1930 I, Environmental Geology Series, Geological Survey of Western Australia.	Good.	As stated in reference document.
Department of the Environment, Water, Heritage and Arts (DEWHA) 2009, 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.	Good.	As stated in reference document.
Department of Parks and Wildlife 2017, Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan, Wildlife Management Program No. 58.	Good.	As stated in reference document.
Government of Western Australia (GoWA) 2010, Vasse Wonnerup Wetlands and	Good.	As stated in reference document.

Reference Source	Reliability	Uncertainties
Geographe Bay water quality improvement plan, Department of Water, Perth.		
Government of Western Australia (GoWA) 2017, 2016 South West Vegetation Complex Statistics. Current as of December 2016, WA Department of Parks and Wildlife, Perth WA.	Good.	As stated in reference document.
Heddle EM, Loneragan OW & Havel JJ 1980, Vegetation Complexes in the Darling System, Western Australia, In 'Atlas of natural resources, Darling System, Western Australia' pp 37-72, Department of Conservation and Environment, WA.	Good.	As stated in reference document.
Morgan D and Beatty SJ 2004, Fish fauna of the Vasse River and the colonisation by feral goldfish (Carassius auratus), Centre for Fish & Fisheries Research (Murdoch University) report to Geocatch.	Good.	As stated in reference document.
Paice R 2005, Review of the Lower Vasse River clean-up program, Department of Environment and Geographe Catchment Council, Busselton, Western Australia.	Good.	As stated in reference document.
Webb A, Kinloch J, Keighery G and Pitt G 2016, The Extension of Vegetation Complex Mapping to Landform boundaries within the Swan Coastal Plain Landform and Forested Region of South West Western Australia, Department of Parks and Wildlife, Bunbury WA.	Good.	As stated in reference document.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Mgr Engineering & Tech Service

9.2.2 First Name

Daniell

9.2.3 Last Name

Abrahamse

9.2.4 E-mail

Daniell.Abrahamse@busselton.wa.gov.au

9.2.5 Postal Address

City of Busselton

Locked Bag 1
Busselton WA 6280
Australia

9.2.6 ABN/ACN

ABN

87285608991 - CITY OF BUSSELTON

9.2.7 Organisation Telephone

(08) 9781 0444

9.2.8 Organisation E-mail

City@busselton.wa.gov.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Daniell Abrahamse, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:..... Date: 08/02/2018

I, Daniell Abrahamse, the person proposing the action, consent to the designation of City of Busselton as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 08/02/2018

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Mgr Engineering & Tech Service

9.5.2 First Name

Daniell

9.5.3 Last Name

Abrahamse

9.5.4 E-mail

Daniell.Abrahamse@busselton.wa.gov.au

9.5.5 Postal Address

City of Busselton

Locked Bag 1
Busselton WA 6280
Australia

9.5.6 ABN/ACN

ABN

87285608991 - CITY OF BUSSELTON

9.5.7 Organisation Telephone

(08) 9781 0444

9.5.8 Organisation E-mail

City@busselton.wa.gov.au

Proposed designated proponent - Declaration

Australian Government
Department of the Environment and Energy

I, Daniell Abrahamse, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:..... Date: 08/02/2018.....

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Associate

9.8.2 First Name

Heath

9.8.3 Last Name

Morgan

9.8.4 E-mail

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9.8.7 Organisation Telephone

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9.8.8 Organisation E-mail

info@strategen.com.au

Referring Party - Declaration

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

Signature:..... Date: 8 February 2018

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 2-14_eastern_link_epbc_ass_report.pdf
2. 2-14_eastern_link_epbc_cemp.pdf
3. 2-14_eastern_link_epbc_detailed_flora_veg_reduced.pdf
4. 2-14_eastern_link_epbc_recon_flora_veg_fauna_reduced.pdf
5. 2-14_eastern_link_epbc_waterways_assessment_reduced.pdf
6. 3-1-1_eastern_link_epbc_detailed_flora_veg_reduced.pdf
7. 3-1-1_eastern_link_epbc_recon_flora_veg_fauna_reduced.pdf
8. 3-2-1_eastern_link_epbc_waterways_assessment_reduced.pdf
9. 4-3_eastern_link_epbc_cemp.pdf
10. figure_1_proposed_action_location.pdf
11. figure_2_proposed_action_area_and_layout.pdf