Australian Government
Department of the Environment and Energy

**Title of Proposal** - Greenbushes to Kirup Link

# Section 1 - Summary of your proposed action

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

### 1.1 Project Industry Type

Transport - Water

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

The Water Corporation proposes to construct new infrastructure to improve the supply of water to the towns of Balingup, Mullalyup and Kirup, and as a component of the broader Warren Blackwood Water Supply Scheme (the project). The project will construct around 13 km of pipeline and associated works to create a single water supply scheme which will deliver water from a storage facility in Greenbushes to the towns of Balingup, Mullalyup and Kirup.
The infrastructure associated with the project includes:
• Approximately 5 km of 150 mm nominal diameter water supply main from the Greenbushes summit tank to the Balingup Dam tanks (Southern Alignment parts A and B)
• Approximately 8 km of 150 mm nominal diameter water supply main, from Balingup to the Mullalyup tank (Northern Alignment)
• A pump station for the town of Mullalyup, located in Balingup (within the 'Northern Alignment' footprint)
• A pump station to Kirup, chlorination module and associated site work at the Mullalyup tank site (no clearing)
• A 66 m, 125 mm nominal diameter bypass main near Kirup Dam site (Kirup Bypass)
• A chlorination module and associated site work at the Kirup tank site (no clearing)
Construction of the infrastructure will involve the clearing of small amounts of vegetation and fauna habitat.

### 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 |
|---|---|---|---|
| Kirup Dam Bypass | 1 | -33.714628722799 | 115.88903974832 |
| Kirup Dam Bypass | 2 | -33.714628722799 | 115.88903974832 |
| Kirup Dam Bypass | 3 | -33.714628722799 | 115.88903974832 |
| Kirup Dam Bypass | 4 | -33.714632961661 | 115.88898867895 |
| Kirup Dam Bypass | 5 | -33.714632961661 | 115.88898867895 |
| Kirup Dam Bypass | 6 | -33.714632961661 | 115.88898867895 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Kirup Dam Bypass | 7 | -33.714250506731 | 115.88900911737 |
| Kirup Dam Bypass | 8 | -33.714157023069 | 115.88868725229 |
| Kirup Dam Bypass | 9 | -33.714055016859 | 115.88873832165 |
| Kirup Dam Bypass | 10 | -33.7141612625 | 115.88906528267 |
| Kirup Dam Bypass | 11 | -33.714284508737 | 115.88912659826 |
| Kirup Dam Bypass | 12 | -33.714628722799 | 115.88903974832 |
| | | | |
| Northern Alignment | 1 | -33.788586712131 | 115.98388753287 |
| Northern Alignment | 2 | -33.788552739033 | 115.9832438027 |
| Northern Alignment | 3 | -33.78627681387 | 115.98349925626 |
| Northern Alignment | 4 | -33.786073061555 | 115.98261037246 |
| Northern Alignment | 5 | -33.784960576526 | 115.98291689538 |
| Northern Alignment | 6 | -33.78485009392 | 115.98260007254 |
| Northern Alignment | 7 | -33.78400091693 | 115.98290670286 |
| Northern Alignment | 8 | -33.783797159745 | 115.98221179594 |
| Northern Alignment | 9 | -33.78315173152 | 115.9824468651 |
| Northern Alignment | 10 | -33.782506298431 | 115.98240598826 |
| Northern Alignment | 11 | -33.782336422919 | 115.98329497946 |
| Northern Alignment | 12 | -33.78104545087 | 115.98234461898 |
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| Northern Alignment | 14 | -33.779465795517 | 115.98156806577 |
| Northern Alignment | 15 | -33.776824351318 | 115.98098570424 |
| Northern Alignment | 16 | -33.776934844277 | 115.9800558362 |
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| Northern Alignment | 18 | -33.774735037723 | 115.97922821428 |
| Northern Alignment | 19 | -33.774131991891 | 115.97885013021 |
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| Northern Alignment | 21 | -33.773350576576 | 115.97704157023 |
| Northern Alignment | 22 | -33.773206190166 | 115.97602994852 |
| Northern Alignment | 23 | -33.772441800792 | 115.97481404934 |
| Northern Alignment | 24 | -33.769706761507 | 115.97269885938 |
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| Northern Alignment | 27 | -33.767201118639 | 115.97154432851 |
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| Northern Alignment | 37 | -33.760813156747 | 115.96166350007 |
| Northern Alignment | 38 | -33.760702732281 | 115.96173495383 |
| Northern Alignment | 39 | -33.760371458027 | 115.96145911587 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Northern Alignment | 40 | -33.758757437659 | 115.96005921755 |
| Northern Alignment | 41 | -33.758663957838 | 115.9595586097 |
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| Area | Point | Latitude | Longitude |
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| Northern Alignment | 86 | -33.745606162421 | 115.94735842189 |
| Northern Alignment | 87 | -33.745895029081 | 115.94773650596 |
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| Northern Alignment | 105 | -33.757236868378 | 115.95141499323 |
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| Northern Alignment | 109 | -33.756642174064 | 115.95535912789 |
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| Northern Alignment | 117 | -33.76089816216 | 115.96185769076 |
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| Northern Alignment | 120 | -33.761968503 | 115.96339051951 |
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| Northern Alignment | 122 | -33.76343805949 | 115.96755942342 |
| Northern Alignment | 123 | -33.763964743145 | 115.96821334545 |
| Northern Alignment | 124 | -33.765825010054 | 115.9703080433 |
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| Northern Alignment | 127 | -33.767591857407 | 115.97168745048 |
| Northern Alignment | 128 | -33.768721513329 | 115.97200427267 |
| Northern Alignment | 129 | -33.772356898277 | 115.97484483941 |
| Northern Alignment | 130 | -33.773121288409 | 115.97601986175 |
| Northern Alignment | 131 | -33.773282710269 | 115.97706206104 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
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| Northern Alignment | 133 | -33.773936684726 | 115.97858458988 |
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| Northern Alignment | 135 | -33.774718094695 | 115.97930996633 |
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| Northern Alignment | 137 | -33.776849947304 | 115.98008662692 |
| Northern Alignment | 138 | -33.776748015089 | 115.98104707188 |
| Northern Alignment | 139 | -33.777223606462 | 115.98115940314 |
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| Northern Alignment | 142 | -33.780994533538 | 115.98240598663 |
| Northern Alignment | 143 | -33.782404285319 | 115.98344829331 |
| Northern Alignment | 144 | -33.782574159608 | 115.98251842527 |
| Northern Alignment | 145 | -33.783185619135 | 115.98252872519 |
| Northern Alignment | 146 | -33.783763098209 | 115.98230395594 |
| Northern Alignment | 147 | -33.783983886476 | 115.98303963231 |
| Northern Alignment | 148 | -33.784816211318 | 115.98271261694 |
| Northern Alignment | 149 | -33.784901102028 | 115.98304982418 |
| Northern Alignment | 150 | -33.786005116616 | 115.98272291686 |
| Northern Alignment | 151 | -33.78623437084 | 115.98362210059 |
| Northern Alignment | 152 | -33.788450913264 | 115.9833564545 |
| Northern Alignment | 153 | -33.78848479606 | 115.98388774602 |
| Northern Alignment | 154 | -33.788578243892 | 115.98389793854 |
| Northern Alignment | 155 | -33.788586712131 | 115.98388753287 |
| Southern Alignment - Part A | 1 | -33.80952903174 | 116.00250325599 |
| Southern Alignment - Part A | 2 | -33.809804935284 | 116.00250325599 |
| Southern Alignment - Part A | 3 | -33.810055431438 | 116.00221711812 |
| Southern Alignment - Part A | 4 | -33.810577549161 | 116.0027433674 |
| Southern Alignment - Part A | 5 | -33.811231239339 | 116.00350967438 |
| Southern Alignment - Part A | 6 | -33.811927445151 | 116.00421472013 |
| Southern Alignment - Part A | 7 | -33.812551440619 | 116.00501171143 |
| Southern Alignment - Part A | 8 | -33.813332498747 | 116.00607434914 |
| Southern Alignment - Part A | 9 | -33.813960717919 | 116.00705528687 |
| Southern Alignment - Part A | 10 | -33.814605913861 | 116.00835808936 |
| Southern Alignment - | 11 | -33.814962471549 | 116.00939519239 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Southern Alignment - Part A | 12 | -33.815238402183 | 116.00996736107 |
| Southern Alignment - Part A | 13 | -33.815951511888 | 116.01042719883 |
| Southern Alignment - Part A | 14 | -33.816541516557 | 116.010958491 |
| Southern Alignment - Part A | 15 | -33.81701265254 | 116.01135191723 |
| Southern Alignment - Part A | 16 | -33.817386181572 | 116.01164824763 |
| Southern Alignment - Part A | 17 | -33.817314024981 | 116.01129569824 |
| Southern Alignment - Part A | 18 | -33.816851358821 | 116.01115262963 |
| Southern Alignment - Part A | 19 | -33.81642265112 | 116.0107541605 |
| Southern Alignment - Part A | 20 | -33.815934530771 | 116.01033519958 |
| Southern Alignment - Part A | 21 | -33.815263851214 | 116.00989585361 |
| Southern Alignment - Part A | 22 | -33.814987965275 | 116.00929300029 |
| Southern Alignment - Part A | 23 | -33.814631407693 | 116.00825074763 |
| Southern Alignment - Part A | 24 | -33.814024408353 | 116.00703484845 |
| Southern Alignment - Part A | 25 | -33.813307003984 | 116.00592618427 |
| Southern Alignment - Part A | 26 | -33.812653329667 | 116.00503724677 |
| Southern Alignment - Part A | 27 | -33.812097261403 | 116.00434748981 |
| Southern Alignment - Part A | 28 | -33.811914697833 | 116.00409208994 |
| Southern Alignment - Part A | 29 | -33.811103942407 | 116.00325931774 |
| Southern Alignment - Part A | 30 | -33.81003849431 | 116.00211487298 |
| Southern Alignment - Part A | 31 | -33.809783763405 | 116.00243673806 |
| Southern Alignment - Part A | 32 | -33.809516328681 | 116.00243164213 |
| Southern Alignment - Part A | 33 | -33.80952903174 | 116.00250325599 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Southern Alignment - Part B | 1 | -33.817475187255 | 116.01173005566 |
| Southern Alignment - Part B | 2 | -33.817619499559 | 116.01205701668 |
| Southern Alignment - Part B | 3 | -33.817933616285 | 116.01243000482 |
| Southern Alignment - Part B | 4 | -33.818154317507 | 116.01307883125 |
| Southern Alignment - Part B | 5 | -33.818336823148 | 116.01370212266 |
| Southern Alignment - Part B | 6 | -33.818447217921 | 116.01408530333 |
| Southern Alignment - Part B | 7 | -33.818536353616 | 116.01447862283 |
| Southern Alignment - Part B | 8 | -33.818502392949 | 116.01566394443 |
| Southern Alignment - Part B | 9 | -33.818353803788 | 116.01622592091 |
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| Southern Alignment - Part B | 12 | -33.818043966967 | 116.01729365489 |
| Southern Alignment - Part B | 13 | -33.818294394383 | 116.0173242855 |
| Southern Alignment - Part B | 14 | -33.819686596695 | 116.01733453173 |
| Southern Alignment - Part B | 15 | -33.820862316823 | 116.01740598614 |
| Southern Alignment - Part B | 16 | -33.822021040879 | 116.01738554739 |
| Southern Alignment - Part B | 17 | -33.822526150369 | 116.01740088955 |
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| Southern Alignment - Part B | 20 | -33.825424969643 | 116.0176767812 |
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| Southern Alignment - Part B | 22 | -33.826180419286 | 116.01850445714 |
| Southern Alignment - Part B | 23 | -33.826702438582 | 116.01925032604 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Southern Alignment - Part B | 24 | -33.826842501457 | 116.01994517861 |
| Southern Alignment - Part B | 25 | -33.826986797955 | 116.02042540141 |
| Southern Alignment - Part B | 26 | -33.827092903653 | 116.02068595156 |
| Southern Alignment - Part B | 27 | -33.827254133449 | 116.02143696976 |
| Southern Alignment - Part B | 28 | -33.827258411894 | 116.02173330016 |
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| Southern Alignment - Part B | 31 | -33.82834062415 | 116.022515003 |
| Southern Alignment - Part B | 32 | -33.828425515753 | 116.02266821109 |
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| Southern Alignment - Part B | 34 | -33.828535852896 | 116.02429287833 |
| Southern Alignment - Part B | 35 | -33.828786249588 | 116.02488553913 |
| Southern Alignment - Part B | 36 | -33.829172471943 | 116.02577957322 |
| Southern Alignment - Part B | 37 | -33.829346487689 | 116.02623941098 |
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| Southern Alignment - Part B | 39 | -33.829066368825 | 116.02785892858 |
| Southern Alignment - Part B | 40 | -33.829083347335 | 116.02841071287 |
| Southern Alignment - Part B | 41 | -33.829342209349 | 116.02909531987 |
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| Southern Alignment - Part B | 43 | -33.830080690678 | 116.03030102652 |
| Southern Alignment - Part B | 44 | -33.830182559388 | 116.03052069918 |
| Southern Alignment - Part B | 45 | -33.830513563588 | 116.03120015655 |
| Southern Alignment - Part B | 46 | -33.830636642566 | 116.03216065553 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
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| Southern Alignment - Part B | 48 | -33.831239290361 | 116.03435239585 |
| Southern Alignment - Part B | 49 | -33.831392090764 | 116.03508297562 |
| Southern Alignment - Part B | 50 | -33.831438746118 | 116.03636024375 |
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| Southern Alignment - Part B | 52 | -33.831706112296 | 116.03803598068 |
| Southern Alignment - Part B | 53 | -33.832363918635 | 116.03945122083 |
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| Area | Point | Latitude | Longitude |
|---|---|---|---|
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| Southern Alignment - Part B | 71 | -33.8291173038 | 116.02839542376 |
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| Southern Alignment - Part B | 76 | -33.828565620683 | 116.02427249328 |
| Southern Alignment - Part B | 77 | -33.828472262209 | 116.02266316754 |
| Southern Alignment - Part B | 78 | -33.827954486978 | 116.02188661434 |
| Southern Alignment - Part B | 79 | -33.827309347129 | 116.02168228384 |
| Southern Alignment - Part B | 80 | -33.827262689522 | 116.02116113049 |
| Southern Alignment - Part B | 81 | -33.827114115583 | 116.02060940023 |
| Southern Alignment - Part B | 82 | -33.826884970316 | 116.01992988949 |
| Southern Alignment - Part B | 83 | -33.826744907511 | 116.01922994033 |
| Southern Alignment - Part B | 84 | -33.8261634402 | 116.0183920717 |
| Southern Alignment - Part B | 85 | -33.825441948331 | 116.01761036854 |
| Southern Alignment - Part B | 86 | -33.824469997167 | 116.01731918809 |
| Southern Alignment - Part B | 87 | -33.823909771993 | 116.01732428436 |
| Southern Alignment - Part B | 88 | -33.820773228163 | 116.01735491497 |
| Southern Alignment - Part B | 89 | -33.818094953119 | 116.01725787251 |
| Southern Alignment - Part B | 90 | -33.818387809126 | 116.01630246979 |
| Southern Alignment - Part B | 91 | -33.818544866222 | 116.01566383556 |
| Southern Alignment - Part B | 92 | -33.818574593148 | 116.01449900591 |

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| Southern Alignment - Part B | 93 | -33.817976089841 | 116.01237373065 |
| Southern Alignment - Part B | 94 | -33.817666252196 | 116.01201098873 |
| Southern Alignment - Part B | 95 | -33.817432803219 | 116.01138260073 |
| Southern Alignment - Part B | 96 | -33.817454017818 | 116.01158693155 |
| Southern Alignment - Part B | 97 | -33.817475187255 | 116.01173005566 |

**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 Project area is located within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes in Western Australia. The Project area consists of five distinct areas between the towns of Kirup and Greenbushes, approximately 230 km south of Perth. The total extent of the Project area is approximately 13.3 km corridor, with an average width of less than 10 m.

Much of the Project area occurs along existing gravel tracks which were created as a result of infrastructure development (e.g. road, water and railway). The majority of the alignment occurs within Main Roads road reserve and State Forest. Land use in the region is largely agriculture.

**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 total Project area is 13.23 hectares, of which 4.81 ha contains native vegetation and 8.42 ha has previously been cleared.

**1.7 Is the proposed action a street address or lot?**

Lot

**1.7.2 Describe the lot number and title.**The project footprint traverses a large number of land parcels. See spreadsheet in 4.3

**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?**

No

**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 10/2018

End date 05/2020

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

The Kirup Bypass Site and the Northern Alignment fall within the Shire of Donnybrook – Balingup Local Planning Scheme No. 7. Within this scheme the project footprint traverses Major Road reserve, General and Priority Agriculture zones, Public Purposes reserves (golf course and tip site), parks and recreation reserves and a small amount of railway reserve. The two southern alignments fall within the Shire of Bridgetown - Greenbushes Local Planning Scheme No. 4 and are predominantly in State Forest reserve with some areas traversing a rural zone.

In accordance with Regulation 8(1) of the Conservation and Land Management Regulations 2002, a Regulation 4 Authority to access the State Forest for the works will be sought prior to construction. Access to all timber materials cleared will be made available to the Forest Products Commission.

The Water Corporation will seek approval to clear native vegetation, under Part V of the Western Australian Environmental Protection Act 1986 (EP Act) through the Department of Water and Environmental and Regulation (DWER).

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

All property owners potentially affected by the proposed alignment have been contacted and the appropriate consultation has been undertaken. Further refinement and reduction to the original alignment has resulted in many of the landowners along the original pipe route will no longer be impacted.

The principle Government agencies involved are:

Department of Biodiversity Conservation and Attractions (DBCA)

Shire of Donnybrook-Balingup

Shire of Bridgetown-Greenbushes

Main Roads Western Australia

Public Transport Authority (PTA) and Brookfield Rail

Department of Water (now Department of Water and Environmental Regulation)

Regional Development and Lands (now Department of Primary Industries and Regional Development) and Department of State Development (now Department of Jobs, Tourism, Science and Innovation)

Details of consultation undertaken as part of the project are provided in the attached documents.

**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 potential biological impacts associated with the proposal are linked to native vegetation clearing and loss of fauna habitat. Several biological studies specific to the project have been undertaken to inform the environmental assessment contained in this referral.

The Project will not be referred to the Western Australian Environmental Protection Authority (EPA) for a decision on whether formal impact assessment is required pursuant to s38 of the EP Act. The proposed clearing of native vegetation will be managed under Part V of the EP Act.

The action has not previously been referred to the Department of the Environment and Energy (DotEE) for a decision on whether approval under the EPBC Act is required. The release of the Environmental Protection and Biodiversity Conservation Act 1999 referral guidelines for the threatened black cockatoo species requires consideration of this proposal by DotEE.

**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?**

No

# 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?**

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 |
|---|---|
| Carnaby's Black Cockatoo (Endangered) | The Project area is located within the modelled |

| Species | Impact |
| --- | --- |
| Forest Red-tailed Black Cockatoo (Vulnerable)<br>Baudin's Black Cockatoo (Vulnerable) | distribution for all three species of black cockatoo. All three species have been recorded within the Project area or in the immediate vicinity by recent surveys undertaken by Astron (2013), GHD (2017a) and GHD (2017b). The Project area is located within the known feeding and breeding range of the Carnaby's Black Cockatoo and feeding range and predicted breeding range of the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo (DSEWPaC 2012). The Project area provides suitable foraging, roosting and breeding habitat for black cockatoos. All jarrah-marri woodland within the Project area in good condition or better would be considered medium to high foraging habitat for black cockatoo species (Astron 2013). Black cockatoo species were regularly observed feeding within the alignment near the golf course and along Cirillo Road. Targeted black cockatoo habitat surveys have been undertaken across the entire Project area by Astron (2013) and GHD (2017a and 2017b). Details of the methodology and results of these surveys are provided in the attached Vegetation, Flora and Fauna Assessment Report (Astron 2013) and Biological Assessment Report (and supplementary habitat survey) (GHD 2017a). A total of 477 potential habitat trees were identified within the survey areas by Astron (2013) and GHD (2017a and 2017b) (some records were located just outside of the survey areas). The Project area has since been refined to reduce the amount of clearing required, and in particular retain as many potential black cockatoo habitat trees as possible. As a result, a total of 64 black cockatoo potential habitat trees are located within the Project boundary. Of these, 12 are hollow bearing. None of the trees recorded were observed to be actively used by black cockatoos for breeding or roosting. Additionally, no evidence of recent use of suitable hollows by black cockatoos (e.g. chews) was recorded. Foraging evidence was noted across the extent of the Project area (Forest Red-tailed Black Cockatoo feeding evidence on marri nuts). A |

| Species | Impact |
| --- | --- |
| | total of 4.81 ha of foraging habitat is located within the Project area, consisting of jarrah-marri woodland (high quality) and Eucalyptus rudis woodland (low quality). The Project area provides limited potential roosting habitat (GHD 2017). Significant Impact Guidelines An assessment of impacts on black cockatoos was undertaken against the Significant Impact Guidelines as presented below. The assessment of Carnaby's Black Cockatoo includes criteria for Endangered species whilst the assessment of Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo includes criteria for Vulnerable species. Carnaby's Black Cockatoo Lead to a long-term decrease in the size of an important population of a species The Project will result in the removal of up to 4.81 ha of suitable foraging habitat and 64 potential habitat trees, of which 12 are hollow bearing. The Project area is located within the modelled breeding range of the species (DSEWPaC 2012) however no evidence of breeding activity has been recorded. The closest known breeding sites are along the coast near Bunbury, approximately 40 km north-west of the Project area (WAPC 2011). Black cockatoo habitat is well represented within the locality. The estimated area of suitable foraging habitat available within the Shire of Donnybrook-Balingup and Shire of Bridgetown-Greenbushes (based on current extent of Smith (1974) vegetation associations) is estimated to be 157,807 ha (GoWA 2016). The Project may reduce the overall area of habitat by less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes as a result of direct loss of habitat from clearing. The vegetation is largely contained in DBCA-managed land, including State Forest (approximately 84%). The proposed action, without the implementation of species specific mitigation measures, is unlikely to result in a long-term decrease in the size of a population of this species as it is unlikely to substantially: • reduce the overall area of available habitat to the population • reduce the overall area of |

| Species | Impact |
| --- | --- |
| | occupancy of the population • exacerbate existing barrier effects or create new barrier effects • disrupt the breeding cycle of part of the population. Therefore, it is considered that clearance of 4.81 ha of suitable foraging and potential breeding and roosting habitat is unlikely to lead to a long-term decrease in the size of the local population of the Carnaby's Black Cockatoo. Reduce the area of occupancy of an important population The Project is unlikely to substantially reduce the area of occupancy of the population of Carnaby's Black Cockatoo within the local area or region. The species is known to occur throughout the greater south-west region and Swan Coastal Plain bioregion. The estimated area of suitable foraging habitat available within the Shire of Donnybrook-Balingup and Shire of Bridgetown-Greenbushes is estimated to be 157,807 ha (GoWA 2016). The Project may reduce the overall area of habitat by less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes as a result of direct loss of habitat from clearing. The vegetation is largely contained in surrounding DBCA-managed land, including State Forest (approximately 84%). There are large blocks of suitable foraging habitat immediately adjacent to the Project area. The removal of 4.81 ha of habitat within the Project area is not considered to be substantial for the species in a regional context, due to the extent of the known habitat adjacent to the Project area as well as the availability of known and modelled suitable habitat within the locality and region. Fragment an existing important population into two or more populations The Project is unlikely to fragment the population into two or more populations. The Project proposes widening areas of existing tracks or other cleared areas within the majority of the alignment. The Project is unlikely to substantially fragment the habitat or impose a physical barrier (i.e. the proposed alignment has an average width of less than 10 m including the previous cleared areas) to the movement of Carnaby's Black Cockatoos |

| Species | Impact |
| --- | --- |
| | between the habitat within the Project area and surrounding habitat areas. The habitat within the Project area exists as a long linear strip of vegetation along an existing track for a large extent of it. Therefore clearing for the Project is unlikely to significantly fragment the habitat available in the local area and/or regional area. The species is highly mobile and capable of traversing the small gaps between patches of habitat. Based on the mobility of the species and the availability of suitable habitat adjacent to the Project area, fragmentation of potential populations is considered unlikely. Adversely affect habitat critical to the survival of a species The Project is unlikely to affect habitat critical to the survival of the species. Up to 4.81 ha of suitable foraging and potential breeding habitat will be cleared for the Project. The habitat located within the Project area does not consist of habitat described by the recovery plan as critical for the survival of the Carnaby's Black Cockatoo (DEC 2008; DEC 2012), nor is the habitat listed on the Register of Critical Habitat maintained by the Minister under the EPBC Act (DotEE 2013). Given the habitat is well represented adjacent to the Project area and in the greater locality, the impacts of the clearing are not considered significant. Disrupt the breeding cycle of an important population Sixty-four potential breeding trees, including 12 hollow bearing trees, have been recorded within the Project area. However there was no current or historical evidence of breeding recorded during the field surveys. Moreover, an additional 413 potential breeding trees are known to be present immediately adjacent to the Project area within the survey area (Astron 2013, GHD 2017a and 2017b). Given the extent of remaining habitat in the region, it is reasonable to assume significantly more potential breeding trees exist throughout the broader area. The Project is located within the modelled breeding range for the Carnaby's Black Cockatoo. Considering there have been no known black cockatoo breeding records within the Project area, it is unlikely that black |

| Species | Impact |
| --- | --- |
| | cockatoos will initiate breeding in the Project area prior to the clearing of the habitat (assuming clearing commences within the next 12 months). Given the lack of breeding evidence within the Project area, it is likely that the breeding cycle of the local population occurs in other locations across the district and is not limited to this area. The vegetation within the project area is not likely to hold significant breeding value so as to disrupt the breeding cycle of a population of this species. Modify, destroy, remove 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 of potential habitat for this species, but unlikely to the point that this species would decline significantly. The project may reduce the overall area of habitat by up to 4.81 ha as a direct loss of habitat from construction. The small scale of this habitat loss within a regional context (i.e. less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes) is considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitats 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 species' habitat The Project may potentially exacerbate existing invasive species (such as weeds and introduced predators) that already occur within the Project area. However, the potential incremental change is considered to be minor and unlikely to significantly impact the value of the black cockatoo habitat adjacent to the Project area or Carnaby's Black Cockatoo individuals. The European Honey Bee was recorded within the Project area during the field survey. European Honey Bees are listed as a threat to several fauna species because of the hollow competition. Given the availability of suitable habitat both locally and regionally, the removal of 12 hollow bearing trees within a Project area which stretches over 13 km, is not expected to exacerbate the |

| Species | Impact |
| --- | --- |
| | distribution or impact of the European Honey Bee. The Project is unlikely to result in an invasive species becoming established in the Project area to the extent that black cockatoos are substantially impacted. Introduce disease that may cause the species to decline The Project area is considered to occur in an area at risk of Phytophthora cinnamomi, commonly known as Dieback. No detailed Dieback mapping has been undertaken for the Project area, however a Dieback assessment has been commissioned to be undertaken in spring 2017. There is potential that the presence/introduction of Dieback could reduce the flora species diversity and density, and potentially impact on the habitat quality for black cockatoos. Dieback management controls will be implemented during the construction phase of the Project in line with the findings of the Dieback assessment. The Project is unlikely to introduce a disease (e.g. beak and feather disease virus) that may cause the species to decline. There are no known diseases that may be introduced to the area that may cause the black cockatoo population to decline and it is unlikely that any disease already exists in the Project area that may be spread by the activities of the Project. Interfere substantially with the recovery of the species The Project is unlikely to interfere substantially with the recovery of Carnaby's Black Cockatoo as it is unlikely to interfere with the recovery actions outlined in the recovery plan for this species (DEC 2012).These actions include: • protect and manage important habitat • conduct research to inform management • undertake regular monitoring • manage other impacts • undertake information and communication activities • engage with the broader community. Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo Lead to a long-term decrease in the size of an important population of a species The Project will result in the removal of up to 4.81 ha of suitable foraging habitat and 64 potential breeding trees, of which 12 are hollow bearing. The Project area is located within the modelled breeding range of |

| Species | Impact |
| --- | --- |
| | Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo however no evidence of breeding activity has been recorded. Black cockatoo habitat is well represented within the locality. The estimated area of suitable foraging habitat available within the Shire of Donnybrook-Balingup and Shire of Bridgetown-Greenbushes (based on current extent of Smith (1974) vegetation associations) is estimated to be 157,807 ha (GoWA 2016). The Project may reduce the overall area of habitat by less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes as a result of direct loss of habitat from clearing. The vegetation is largely contained in DBCA-managed land, including State Forest (approximately 84%). The proposed action, without the implementation of species specific mitigation measures, is unlikely to result in a long-term decrease in the size of a population of this species as it is unlikely to substantially: • reduce the overall area of available habitat to the population • reduce the overall area of occupancy of the population • exacerbate existing barrier effects or create new barrier effects • disrupt the breeding cycle of part of the population. Therefore, it is considered that clearance of 4.81 ha of suitable foraging and potential breeding and roosting habitat is unlikely to lead to a long-term decrease in the size of the local population of the Baudin's Black Cockatoo or the Forest Red-tailed Black Cockatoo. Reduce the area of occupancy of an important population The Project is unlikely to substantially reduce the area of occupancy of the population of Baudin's Black Cockatoo or Forest Red-tailed Black Cockatoo within the local area or region. Both species are known to occur throughout the greater south-west region and Swan Coastal Plain bioregion. The estimated area of suitable foraging habitat within the Shire of Donnybrook-Balingup and Shire of Bridgetown-Greenbushes is estimated to be 4.81 ha. The Project may reduce the overall area of habitat by less than 0.005%. There is suitable foraging habitat immediately |

| Species | Impact |
| --- | --- |
| | adjacent to the Project area. Large areas of suitable habitat are also available in the nearby State Forests and nature reserves. The removal of 4.81 ha of habitat is not considered to be substantial for the species in a regional context, due to the extent of the known habitat adjacent to the Project area as well as the availability of known and modelled suitable habitat within the locality and region. Fragment an existing important population into two or more populations The Project is unlikely to fragment the populations of Baudin's Black Cockatoo or Forest Red-tailed Black Cockatoo into two or more populations. The Project proposes widening areas of existing tracks or other cleared areas within the majority of the alignment. The Project is unlikely to substantially fragment the habitat or impose a physical barrier (i.e. the proposed alignment has an average width of less than 10 m including the previous cleared areas) to the movement of black cockatoos between the habitat within the Project area and surrounding habitat areas. The habitat within the Project area exists as a long linear strip of vegetation along an existing track for a large extent of it. Therefore clearing for the Project is unlikely to significantly fragment the habitat available in the local area and/or regional area. The species is highly mobile and capable of traversing the small gaps between patches of habitat. Based on the mobility of the species and the availability of suitable habitat adjacent to the Project area, fragmentation of potential populations is considered unlikely. Adversely affect habitat critical to the survival of a species The Project is unlikely to affect habitat critical to the survival of the species. Up to 4.81 ha of suitable foraging and potential breeding habitat will be cleared for the project. The habitat located within the Project area is not listed on the Register of Critical Habitat maintained by the Minister under the EPBC Act (DotEE 2013). The recovery plan for the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo identifies all marri, karri and jarrah |

| Species | Impact |
| --- | --- |
| | forests, woodlands and remnants in the south-west of Western Australia receiving more than 600 mm of annual average rainfall as habitat critical to survival for these species (DEC 2008). Therefore the vegetation within the Project area would be classified as critical habitat. However given this habitat type is well represented in the greater locality the impact of this clearing is not considered substantial. Disrupt the breeding cycle of an important population The Project is located within the breeding range for the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo. Although 64 potential breeding trees including 12 hollow bearing trees have been recorded within the Project area, an additional 413 potential breeding trees are known to be present immediately adjacent to the Project area within the survey area (Astron 2013, GHD 2017). There was also no current or historical evidence of breeding recorded in the Project area. Considering there has been no known black cockatoo breeding records within the Project area, it is unlikely black cockatoos will initiate breeding in the Project area prior to the clearing of the habitat (assuming clearing commences within the next 12 months). The vegetation within the Project area is not likely to hold significant breeding value so as to disrupt the breeding cycle of a population of this species. Modify, destroy, remove 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 of potential habitat for this species, but unlikely to the point that this species would decline significantly. The Project may permanently reduce the overall area of habitat by up to 4.81 ha as a direct loss of habitat from construction. The small scale of this habitat loss within a regional context (i.e. less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes) is considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitats to |

| Species | Impact |
| --- | --- |
| | 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 species' habitat The project may potentially exacerbate existing invasive species (such as weeds and introduced predators) that already occur within the Project area. However, the potential incremental change is considered to be minor and unlikely to significantly impact the value of the black cockatoo habitat adjacent to the Project area or Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo individuals. The European Honey Bee was recorded within the Project area during the field survey. European Honey Bees are listed as a threat to several fauna species because of the hollow competition. Given the availability of suitable habitat both locally and regionally, the removal of 12 hollow bearing trees within a Project area which stretches over 13 km, is not expected to exacerbate the distribution or impact of the European Honey Bee. The project is unlikely to result in an invasive species becoming established in the Project area to the extent that black cockatoos are substantially impacted. Introduce disease that may cause the species to decline The Project area is considered to occur in an area at risk of Dieback. No detailed dieback mapping has been undertaken for the Project area, however a Dieback assessment has been commissioned to be undertaken in spring 2017. There is potential that the presence/introduction of Dieback could reduce the flora species diversity and density, and potentially impact on the habitat quality for black cockatoos. Dieback management controls will be implemented during the construction phase of the Project in line with the findings of the Dieback assessment. The Project is unlikely to introduce a disease (e.g. beak and feather disease virus) that may cause the species to decline. There are no known diseases that may be introduced to the area that may cause the black cockatoo population to decline and it is unlikely that any disease already exists in the Project area that |

| Species | Impact |
| --- | --- |
| | may be spread by the activities of the Project. Interfere substantially with the recovery of the species The Project is unlikely to interfere substantially with the recovery of the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo as it is unlikely to interfere with the recovery actions outlined in the recovery plan for this species (DEC 2008).These actions include: • seek the funding required to implement future recovery actions • determine and promote non-lethal means of mitigating fruit damage by Baudin's Black Cockatoo in orchards • eliminate illegal shooting • develop and implement strategies to allow for the use of noise emitting devices in orchards • determine and implement ways to remove feral Honeybees from nesting hollows • identify factors affecting the number of breeding attempts and breeding success and manage nest hollows to increase recruitment • determine and implement ways to minimise the effects of mining and urban development on habitat loss • determine and implement ways to manage forests for the conservation of Forest Black Cockatoos • identify and manage important sites and protect from threatening processes • map feeding and breeding habitat critical to survival and important populations, and prepare management guidelines for these habitats • monitor populations numbers and distribution • determine the patterns and significance of movement • maintain the Cockatoo care program and use other opportunities to promote the recovery of Forest Black Cockatoos. |

**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?**

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.**

A Spring Flora and Fauna Survey Report was prepared by Astron Environmental Services (Astron) in 2013 covering the majority of the Project area (Astron 2013) An additional flora and fauna survey was completed by GHD in 2017 to account for some project changes. Since this time the Project area has been reduced to reduce the clearing of native vegetation and fauna habitat.

Astron (2013) recorded 206 flora taxa (28 introduced) representing 128 genera from 48 families from the survey area. GHD (2017a) recorded 106 flora taxa (including subspecies and varieties) representing 40 families and 74 genera during the survey. No EPBC Act or WC Act listed flora were recorded within the Project area during the surveys. In addition no DBCA Priority-listed flora or flora of conservation significance were recorded (Astron 2013, GHD 2017). The flora and vegetation recorded during the surveys are typical of the southern jarrah forest.

Astron (2013) recorded 34 fauna species during the fauna assessment, comprising three amphibian, 28 bird and three mammal species. Four of these are listed under State and Federal legislation and have conservation significance: Baudin’s Black Cockatoo, Forest Red-tailed Black Cockatoo, Eastern Great Egret and Quenda. GHD (2017a) recorded 46 fauna species during the survey, including 33 birds, nine mammals, and four amphibians. Eight of these species are introduced. Three conservation significant fauna were recorded by GHD (2017a): Carnaby’s Black Cockatoo, Forest Red-tailed Black Cockatoo and Baudin’s Black Cockatoo.

For copies of reports see previous technical report upload.

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

There are no regionally significant wetlands or watercourses with permanent water within the Project area. The Project area intersects the Dumpling Gully Surface Water Area and Mullalyup Surface Water Area as proclaimed under the Rights in Water and Irrigation Act 1914. The Project area also occurs within two Public Drinking Water Source Areas, the Mullalyup Water Reserve and Greenbushes Catchment Area.

The Project area intersects three creeklines and a few drainage lines: Mullulyup Brook, Balingup Brook and Spring Creek. Of these water courses only one was still vegetated with native vegetation, at Spring Creek.

The Project will not change the hydrology of the area. As no surface water will be taken for this project and due to the minor nature of the works it is unlikely that there will be a significant impact to the water quality of this area. Given the small scale of clearing and that no water extraction, dewatering or drainage modifications are required; it is considered that there will be very little to no deterioration of underground water quality.

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

The Project area is situated in the South West Botanical Province of WA (Beard 1990) within the Jarrah Forest Bioregion and Southern Jarrah Forest sub-region described by the Interim Biogeographic Regionalisation of Australia (IBRA) (DotEE 2016).

The Southern Jarrah Forest is described as duricrusted plateau of the Yilgarn Craton characterised by jarrah-marri forest on laterite gravels and, in the eastern part by wandoo-marri woodlands on clayey soils. Elluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands (Hearn et al. 2002).

The Department of Agriculture and Food Western Australia (DAFWA) (2007) soil mapping indicates there are nine different soil types within the survey area:

Kirup low slopes phase; duplex sandy gravels, loamy gravels and yellow deep sands (255LvKR3)

Kirup gentle slopes phase; duplex sandy gravels, loamy gravels, pale deep sands and yellow deep sands (255LvKR2)

Mumballup upstream flats phase; Wet soils, Semi-wet soils, Friable red/brown loamy earths and Brown loamy earths (255LvMLu)

Kirup sandy slopes phase; duplex sandy gravels, yellow deep sands, pale deep sands, yellow sandy earths and gravelly pale deep sands (255LvKRs)

Balingup footslopes phase; friable red-brown loamy earths, brown loamy earths, brown deep loamy duplexes and loamy gravels (255LvBLF)

Queenwood low slopes phase; duplex sandy gravels and loamy gravels (255LvQW3)

Balingup moderate slopes phase; Friable red-brown loamy earths, Brown loamy earths, Brown deep loamy duplexes and Loamy gravels (255LvBL4)

Dwellingup subsystem; Duplex sandy gravels and Loamy gravels with pockets of deep sands, often gravelly, and minor Shallow gravels (255DpDW)

Yarragil upstream valleys phase; loamy gravels, duplex sandy gravels, wet and semi-wet soils and pale deep sands (255DpYGu).

Broad scale (1:250,000) pre-European vegetation mapping of the survey area was completed by Smith (1974) at an association level. The mapping indicates that one vegetation association is present within the survey area:

Medium forest; jarrah-marri (association 3).

As part of the Regional Forest Agreement, Mattiske and Havel (1998) mapped vegetation complexes of the forest regions of south west WA at a scale of 1:50,000. Mattiske and Havel (1998) mapping indicates seven vegetation complexes are present within the survey area:

Kirup (KR) Open forest to woodland of Eucalyptus marginata subsp. marginata-Corymbia calophylla-Banksia attenuata-Xylomelum occidentale on sandy slopes in the humid zone

Dwellingup (D1) Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on lateritic uplands in mainly humid and subhumid zones

Mumballup (ML) Open forest of Eucalyptus patens-Corymbia calophylla on slopes and woodland of Eucalyptus rudis-Melaleuca rhaphiophylla on lower valley floor in the humid zone

Balingup (BL) Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on slopes and woodland of Eucalyptus rudis on the valley floor in the humid zone

Bridgetown (BT) Mixture of open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla with some Eucalyptus patens on slopes to low open forest of Eucalyptus rudis-Melaleuca rhaphiophylla on the valley floors in the humid zone

Catterick (CC1) Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla mixed with Eucalyptus patens on slopes, Eucalyptus rudis and Banksia littoralis on valley floors in the humid zone

Queenwood (QW) Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on slopes in the humid zone.

Seven vegetation types were identified and described within the survey area by GHD (2017a). Six of these vegetation types were Eucalyptus woodlands (jarrah-marri woodlands and a Eucalyptus rudis woodland) with variations in the mid and lower storey species. The remaining vegetation type consisted of isolated stands of native and planted trees with scattered natives over weedy grasses (GHD 2017a). Astron (2013) identified six vegetation types within the survey area, five consisting of Eucalyptus woodlands (variations of Jarrah-Marri woodlands, Marri woodland, and Marri-Flooded Gum woodland) and one vegetation type consisted of planted (introduced) vegetation.

The vegetation communities of the Project area are typical of those found in the jarrah forest region. All vegetation types identified by GHD (2017a) and Astron (2013) were consistent with the vegetation mapped by Smith (1974).

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

N/A

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

The Smith (1974) pre-European mapping has been adapted and digitised by Shepherd et al. (2002). The extent of the vegetation associations has been determined by the state-wide vegetation remaining extent calculations maintained by the DBCA (latest update October 2016 – Government of WA (GoWA) 2016). The current extent of vegetation association 3 is greater than 50% of its pre-European extent at all levels (State, IBRA bioregion, IBRA subregion and LGA).

The Local Biodiversity Program (2013) and Molloy et al., (2007) have assessed vegetation complexes described and mapped by Mattiske and Havel (1998) against presumed pre-European extents within the Southern Jarrah Forest IBRA subregion. Three of the vegetation complexes (Balingup, Bridgetown and Mumballup) have less than 30% extent remaining (24%, 12% and 4%, respectively). However the mapped areas of these three complexes do not contain any remnant vegetation within the Project area. Therefore no impact to these complexes is proposed. The remaining six complexes are above the 30 % threshold level for the Southern Jarrah Forest region.

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

N/A

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

The vegetation condition within the Project area ranged from Very Good to Completely Degraded condition, with the majority of the Project area in Degraded to Completely Degraded condition (55%) (Astron 2013, GHD 2017).

The small patches of Very Good and Very Good – Good vegetation contained a number of common bushland weeds, however native vegetation dominated each strata. Good – Degraded vegetation were areas that had been affected by ‘edge effects’ due to the proximity to roads and other disturbance. Degraded areas were dominated by weeds, whilst Degraded-Completely Degraded areas lacked a native mid and lower storey; these areas were commonly characterised by isolated stands of native and introduced trees over grass. The Completely Degraded/Cleared areas were devoid of native vegetation and are associated with firebreaks and gravel roads.

Within the biological assessment many common weed species were identified within the survey

area. Two introduced flora taxa recorded within the Project area are listed as Declared Pests under the Biosecurity and Management Act 2007 and as Weeds of National Significance: *Asparagus asparagoides (Bridal Creeper) and *Rubus ulmifolius (Blackberry). Construction personnel will be made aware of these weeds and any infestations identified within the Project area will be removed.

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

No Commonwealth Heritage Places will be impacted.

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

The Aboriginal Heritage Inquiry System identified one ‘Registered’ site of Aboriginal heritage significance within the Project area. The Project area intersects the Aboriginal Heritage Site 20434 (Blackwood River) at two locations, Balingup River and Spring Creek. Site personnel will be made aware of the importance of this site. No further heritage actions are recommended.

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

The project footprint traverses a large number of land parcels with a range of tenures, including freehold, crown land, reserves, road reserves, and easements. Details of the properties are provided in the attached spreadsheet.

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

infrastructure development (e.g. road, water and railway). The majority of the alignment occurs within Main Roads road reserve and Sate Forest. Land use in the region is largely agriculture.

There are four Department of Biodiversity, Conservation and Attractions (DBCA) managed lands which overlap with the Project area, Greenbushes State Forest (F 20), CALM Exec Body Freehold (name 1042/47) (P229098 2298), CALM Exec Body Freehold (name: 117/388) (P252367 6367) and Mullalyup State Forest (F 21).

# 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.**

Impact avoidance

Potential impacts to MNES have been considered during project design and minimised as far as practical. The Project area has been designed to avoid potential breeding trees as much as possible. Approximately 413 potential black cockatoo habitat trees which were recorded during the fauna surveys (some of which were recorded outside the survey boundary) have been avoided during the design phase of the Project.

The Project area represents the maximum area to be cleared. Within this footprint, opportunities to further reduce clearing will be considered, where practicable. Only the area absolutely necessary for the project development will be disturbed; this will be ascertained by adequate planning prior to project implementation. The Water Corporation has made considerable effort to minimise the amount of clearing of native vegetation and removal of black cockatoo potential breeding trees required for the Project.

Impact reduction

The Water Corporation will prepare a number of management plans for implementation during the Project, including a Construction Environmental Management Plan (CEMP). Environmental management actions which will be addressed in the CEMP associated with fauna and their habitat include:

Development and implementation of a Black Cockatoo Management Plan.

Minimise vegetation clearing and the area of disturbance on the ground by utilising existing cleared areas where possible.

Retention, where possible, of potential black cockatoo habitat trees (particularly hollow-bearing trees). A pre-clearance survey will be undertaken to flag the potential black cockatoo trees within the project footprint (using distinctive flagging for those with hollows) to allow contractors to see which trees should be avoided where possible.

If clearing is unavoidable during the typical breeding season of the Black Cockatoo, a pre-clearing inspection of trees to be cleared will be undertaken to ensure there are no breeding activities present in the trees. If breeding activities are identified clearing is to be avoided until such time nestlings have left the nest without human intervention.

Compliance with internal clearing procedures and standards.

All vegetation proposed to be cleared will be clearly demarcated on site prior to the commencement of project activities. Any vegetation or trees that are to be retained will be marked accordingly.

Clearing of vegetation shall not exceed the limits of clearing and mature trees shall be conserved as far as practicable.

All staff and contractors involved in clearing activities will be inducted on the potential impacts to fauna and advised to stop works in the vicinity of any injured or shocked animals that are encountered.

In the event that sick, injured or orphaned native wildlife are located on the project site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance.

Millable timber will be identified and salvaged for re-use.

No pets, traps or firearms are allowed within the project area.

Fauna are not to be fed or intentionally harmed or killed.

Dieback management controls will be implemented during the construction phase of the Project in line with the findings of the Dieback assessment and include controls such as cleaning earth moving machinery of soil and vegetation prior to entry and departure to avoid the introduction and/or spread of weeds and Dieback.

Restrict movement of machines and other vehicles to the limits of the areas cleared.

Identify areas to undertake weed control to stop spread of weeds.

Control/spray identified significant weeds species within the Project area prior to construction to limit the amount of propagative material that may be spread during disturbance.

Remove or kill any other weeds growing in project area that are likely to spread and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.

**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.**

4.81 ha of black cockatoo foraging habitat will be removed. There are 64 potential black

cockatoo habitat trees (DBH >500 mm) within the Project area that will be potentially removed. Only 12 trees have hollows, although none were observed or known to be actively used by black cockatoos for breeding or roosting.

# 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.

Implementation of the proposed action has the potential to impact three species listed as matters of National Environmental Significance:

Carnaby's Black Cockatoo (Calyptorhynchus latirostris) – Endangered

Baudin's Black Cockatoo (Calyptorhynchus baudinii) – Vulnerable

Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) – Vulnerable

The Department of Environment Policy Statement 1.1 (DotEE 2013) was referenced to determine whether the impacts of the proposed action are likely to be significant. The proposed Project may result in the loss of habitat for these species including:

up to 4.81 ha of black cockatoo foraging habitat

64 potential black cockatoo breeding trees (including 12 hollow bearing trees).

Clearing of this habitat is unlikely to result in negative long-term impacts to these species or interfere substantially with the breeding cycle of any of these species. Black cockatoo habitat is considered to be well represented in the local region. The estimated area of suitable foraging habitat available within the Shire of Donnybrook-Balingup and Shire of Bridgetown-Greenbushes is estimated to be 157,807 ha (GoWA 2016). The Project may reduce the overall area of habitat by less than 0.005% within the Shires of Donnybrook-Balingup and Bridgetown-Greenbushes as a result of direct loss of habitat from clearing. The vegetation remaining in the region is largely contained in DBCA-managed land, including State Forest (approximately 84%).

An assessment against the significant impact criteria (DotEE 2013) for Endangered Species (Carnaby's Black Cockatoo) and the significant impact criteria for Vulnerable Species (Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo) was undertaken in section 2. In summary:

None of the hollow bearing trees were observed to be ‘active’ nesting trees.

No evidence of roosting was identified during the surveys.

Evidence of foraging was recorded throughout the extent of the Project area.

The loss of 4.81 ha of fauna habitat is unlikely to further fragment local ecological linkages or seriously impact vegetation corridors.

Clearing comprises a narrow strip of native vegetation across the majority of the Project area which is predominantly adjacent to existing roads/tracks.

The total length of the Project area is approximately 13.3 km, with an average width of less than 10 m (including previously cleared areas).

With the availability of suitable habitat in the surrounding region and highly mobile nature of black cockatoos, the loss of this relatively small area of suitable habitat is not considered to have a significant impact on the species survival.

There is no habitat within the survey area that would be considered specific to, or solely relied upon by, the three black cockatoo species known to occur within the area.

It is therefore considered unlikely that the proposed action would cause a significant impact on the Carnaby’s Black Cockatoo, Baudin’s Black Cockatoo or Forest Red-tailed Black Cockatoo and is therefore not considered a controlled action.

# 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 magnitude of the Water Corporation's operations across the State of Western Australia and diversity of the natural environment in which it operates is vast. This is reflected in the range of evidence for excellence in environment performance, including the climate adaptation award from the Banksia Environmental Foundation (2013), the Earth awards (2011) for the Walkington Avenue Community Verge Garden Project (Margaret River), the Prime Minister's Award (2004) for environmental excellence in Public Sector Management, the WA Premiers Award (2004), the 2003 Australian Greenhouse Office Gold Award, and the United Nations Association of Australia World Environment Day Award 2004 for excellence in Marine and Coastal Management.

The Water Corporation has been responsible for the safe treatment and distribution of drinking water; collection, treatment and disposal of domestic wastewater; and the transport of drainage water in Western Australia for over 100 years. Over this period the organisation has been at the forefront of environmental management in Western Australia: implementing Environmental Management Systems for elements of the business, becoming one of the first water utilities to sign up for the Greenhouse Challenge in 1999 and more recently, committing to full carbon neutrality by 2030. Sustainability principles were developed and agreed to at a Board level and are now being integrated into all levels of decision making across the Corporation.

**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.**

The Water Corporation has had no actions bought against it in relation to its environmental performance under Commonwealth legislation, but has received two modified penalty notices from WA State authorities. Note that under the applicable WA legislation modified penalty notices do not represent an admission for the purposes of criminal or civil proceedings.

**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?**

Yes

**6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.**

The Water Corporation's visions of Water Forever, Great Place and Zero Footprint can be supported through the implementation of sustainable business practices that consider environmental impacts for current and future generations. We will strive to achieve this by:

Managing risks – We are all responsible for identifying and addressing environmental risks and potential incidents.

Taking personal responsibility – We are all responsible for protecting the environment and understanding and meeting our environmental obligations.

Improving performance – Our environmental objectives include reducing native vegetation clearing, reducing greenhouse gas emissions, reducing water use and increasing recycling of wastewater. We set targets to continually reduce our environmental impact and improve our environmental performance. We regularly review our performance against these targets.

Maintaining an effective system – Our Environmental Management System provides the framework for setting and reviewing our environmental objectives and targets and continually improving our environmental performance. We will provide the necessary resources, systems, training and mechanisms to improve our environmental performance.

**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.**

2017/7935 – Goldfields water supply scheme – remove sections from existing main conduit.

2017/7932 – Vasse Diversion Drain Upgrade

2016/7786 – Groundwater replenishment scheme (GWRS) Stage 2

2015/7421 – Ellenbrook reliable water storage project

2014/7329 – Onslow water supply infrastructure upgrade project, Onslow

2014/7277 – Stirling to Harris dam pipeline construction, Harris River State Forest

2013/6720 – Mount Barker to Albany Water Supply Pipeline

2012/6632 – Millstream to Greenbushes Link Mains

2012/6379 – Millstream 20GL Pipeline, Bungaroo, Borefield Integration

2012/6329 – Samson Brook Dam Remedial Works

2012/6315 – Mundaring outlet works upgrade – Stage 1

2012/6248 – Sepia Depression Ocean outlet landline duplication

2011/6096 – Fire control access track

2011/6077 – Dwellingup water supply new source and supply pipeline

2010/5614 – Millstream dam expansion

2010/5345 – Perth hills district office and depot relocation

2009/5193 – Mundaring water treatment plant and Mundaring C pump station project

2009/4970 – Wastewater treatment plant, East Rockingham

2008/4545 – Wastewater treatment plant, Broome

2008/4173 – Southern seawater desalinisation project

2007/3532 – Wungong transfer mains project

2007/3259 – Development of new Alkimos wastewater treatment plant

2006/2507 – Bulgarene Borefield

2005/2073 – Yarragadee water supply development

2005/1971 – Perth seawater desalinisation project: Thomsons Lake to Kogolup pipeline

# 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 |
|---|---|---|
| Astron Environmental Services (2013) Greenbushes to Kirup Pipeline Route Vegetation, Flora and Fauna Assessment, Prepared for Water Corporation | Environmental survey undertaken using guideline specifications | None |
| GHD Pty Ltd (2017a) Greenbushes to Kirup Link Biological Assessment, Prepared for Water Corporation | Environmental survey undertaken using current guideline specifications. | None |
| GHD Pty Ltd (2017b) Additional Black Cockatoo Tree Survey, Memorandum prepared for Water Corporation | Environmental survey undertaken using current guideline specifications. | None |
| Beard, JS 1990,Plant Life of Western Australia, Perth, Kangaroo Press. | Peer reviewed book. | None |
| DotEE (2017) EPBC Act Protected Matters Search Tool Results, retrieved May2017, from http://www.environment.gov.au/epbc/pmst/index.html. | Government database. | None |
| Department of Biodiversity, Conservation and Attractions (DBCA) (2007) – NatureMap: Mapping Western Australia's biodiversity, Department of Parks and Wildlife, retrieved May 2017, from http://NatureMap.dpaw.wa.gov.au/default.aspx. | Government database | None |
| DSEWPaC (2012) EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species: Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest red-tailed | Government publication, peer reviewed guideline. | None |

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| Black Cockatoo, Canberra, Department of Sustainability, Environment, Water, Population and Communities | | |
| GoWA (2017) 2016 South West Vegetation Complex Statistics, current as of December 2016, WA Department of Parks and Wildlife, Perth, retrieved July 2017 from https://catalogue.data.wa.gov.au/dataset/dpaw/resource/688c6f7c-08c6-4f2e-b629-24d8aea47974 | Government publication, peer reviewed database. | None |
| GoWA (2016) Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full report), Current as of October 2016, Perth Western Australia, Department of Environment and Conservation, retrieved May 2017, from https://www2.landgate.wa.gov.au/web/guest/downloader. | Government publication. | None |
| Local Biodiversity Program (2013) 2013 Native vegetation by vegetation complex dataset for the South West of Western Australia, retrieved May 2017, from http://pbp.walga.asn.au/Publications.aspx. | Government publication | None |
| Mattiske, EM and Havel, JJ (1998) Vegetation Mapping in the South West of Western Australia, Department of Conservation and Land Management, Perth. | Peer reviewed publication. | None |
| Western Australian Planning Commission (WAPC) (2011) Greater Bunbury Region Scheme (GBRS) – potential habitat for the Carnaby's Black Cockatoo which may require further assessment, Government of WA | Government publication | None |
| Smith, FG (1974) Vegetation | Peer reviewed publication | None |

| Reference Source | Reliability | Uncertainties |
| --- | --- | --- |
| survey of Western Australia: Collie, Western Australia, 1:250 000 series, Perth, department of Agriculture | | |

# 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.

**8.0 Provide a description of the feasible alternative?**

No alternatives

**8.1 Select the relevant alternatives related to your proposed action.**

**8.27 Do you have another alternative?**

No

# 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**

Senior Project Manager

**9.2.2 First Name**

Ian

**9.2.3 Last Name**

Bierman

**9.2.4 E-mail**

ian.bierman@watercorporation.com.au

**9.2.5 Postal Address**

PO Box 100
Leederville WA 6007
Australia

**9.2.6 ABN/ACN**

ABN

28003434917 - WATER CORPORATION

**9.2.7 Organisation Telephone**

(08) 9420 3741

**9.2.8 Organisation E-mail**

environment@watercorporation.com.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, Ian Bierman, 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: 27-9-17

I, Ian Bierman, the person proposing the action, consent to the designation of Digby Short as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 27-9-17

**9.3 Is the Proposed Designated Proponent an Organisation or Individual?**

Australian Government
Department of the Environment and Energy

Organisation

### 9.5 Organisation

#### 9.5.1 Job Title

Manager Governance Assurance and Approvals

#### 9.5.2 First Name

Digby

#### 9.5.3 Last Name

Short

#### 9.5.4 E-mail

digby.short@watercorporation.com.au

#### 9.5.5 Postal Address

PO Box 100
Leederville WA 6007
Australia

#### 9.5.6 ABN/ACN

ABN

28003434917 - WATER CORPORATION

#### 9.5.7 Organisation Telephone

(08) 9420 2038

#### 9.5.8 Organisation E-mail

environment@watercorporation.com.au

**Proposed designated proponent - Declaration**

I, DIGBY SHORT, 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: 28.9.2017

**9.6 Is the Referring Party an Organisation or Individual?**

Organisation

**9.8 Organisation**

**9.8.1 Job Title**

Senior Advisor - Environment

**9.8.2 First Name**

Gemma

**9.8.3 Last Name**

Tribbick

**9.8.4 E-mail**

gemma.tribbick@watercorporation.com.au

**9.8.5 Postal Address**

PO Box 100
Leederville WA 6007
Australia

**9.8.6 ABN/ACN**

ABN

28003434917 - WATER CORPORATION

**9.8.7 Organisation Telephone**

(08) 9420 3006

**9.8.8 Organisation E-mail**

environment@watercorporation.com.au

**Referring Party - Declaration**

Australian Government
Department of the Environment and Energy

I, Gemma Tribbick, 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: G Tribbick Date: 27/9/17

## Appendix A - Attachments

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

1. 6135763_001_locality_rev1_fig1.pdf
2. 6135763_002_vegtypes_rev1_fig2.pdf
3. 6135763_003_vegcondition_rev1_fig3.pdf
4. 6135763_004_fauna_rev2_fig4.pdf
5. astron_-_biological_survey_october_2013_final_part1_of_8.pdf
6. astron_-_biological_survey_october_2013_final_part2_of_8.pdf
7. astron_-_biological_survey_october_2013_final_part3_of_8.pdf
8. astron_-_biological_survey_october_2013_final_part4_of_8.pdf
9. astron_-_biological_survey_october_2013_final_part5_of_8.pdf
10. astron_-_biological_survey_october_2013_final_part6_of_8.pdf
11. astron_-_biological_survey_october_2013_final_part7_of_8.pdf
12. astron_-_biological_survey_october_2013_final_part8_of_8.pdf
13. cw00860_comms_summary_sep_2017.pdf
14. cw00860_final_ghd_ff_report_august_2017_part1_of_3.pdf
15. cw00860_final_ghd_ff_report_august_2017_part2_of_3.pdf
16. cw00860_final_ghd_ff_report_august_2017_part3_of_3.pdf
17. cw00860_lot_title_landowner_details.xlsx
18. final_impact_area.zip
19. ghd_draft_additonal_black_cockatoo_tree_survey_-_august_2017_part1_of_3.pdf
20. ghd_draft_additonal_black_cockatoo_tree_survey_-_august_2017_part2_of_3.pdf
21. ghd_draft_additonal_black_cockatoo_tree_survey_-_august_2017_part3_of_3.pdf
22. pcy230_environment_policy.pdf