

ENVIRONMENTAL SCOPING DOCUMENT

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| Proposal name: | Yanchep Rail Extension: Part 2 – Eglinton to Yanchep |
| Proponent: | Public Transport Authority |
| Assessment number: | 2174 |
| Location: | Between the suburbs of Eglinton and Yanchep |
| Local Government Area: | City of Wanneroo |
| Public review period: | Environmental Review Document – 6 weeks |
| EPBC reference no: | 2018/8262 |

1. Introduction

The Environmental Protection Authority (EPA) has determined that the above proposal is to be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

The purpose of the Environmental Scoping Document (ESD) is to define the form, content, timing and procedure of the environmental review, required by s. 40(3) of the EP Act. This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities and interested agencies consistent with the EPA's *Procedures Manual*.

Form

The EPA requires that the form of the report on the environmental review required under s. 40 (Environmental Review Document, ERD) is according to the [Environmental Review Document template](#) (refer to the EPA's *Instructions on how to prepare an Environmental Review Document* (2018)).

Content

The EPA requires that the environmental review includes the content outlined in sections 2 to 6 of this ESD.

Timing

Table 1 sets out the timeline for the assessment of the proposal agreed between the EPA and the proponent.

Table 1 Assessment timeline

| Key assessment milestones | Completion Date |
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| EPA approves Environmental Scoping Document | 18 October 2018 |
| Proponent submits first draft Environmental Review Document | 20 December 2018 |
| EPA provides comment on first draft Environmental Review Document <i>(6 weeks from receipt of ERD includes two weeks over Christmas period)</i> | 15 February 2019 |
| Proponent submits revised draft Environmental Review Document | 1 March 2019 |
| EPA authorises release of Environmental Review Document for public review <i>(2 weeks from EPA approval of ERD following review)</i> | 29 March 2019 |
| Proponent releases Environmental Review Document for public review for 6 weeks | 1 April 2019 |
| Close of public review period | 13 May 2019 |
| EPA provides Summary of Submissions <i>(3 weeks from close of public review period)</i> | 3 June 2019 |
| Proponent provides Response to Submissions | 1 July 2019 |
| EPA reviews the Response to Submissions <i>(4 weeks from receipt of Response to Submissions)</i> | 29 July 2019 |
| EPA prepares draft assessment report and completes assessment <i>(6 weeks from EPA accepting Response to Submissions)</i> | 19 September 2019 EPA Meeting |
| EPA finalises assessment report (including two weeks consultation on draft conditions) and gives report to Minister <i>(6 weeks from completion of assessment)</i> | 21 October 2019 |

Procedure

The EPA requires the proponent to undertake the environmental review according to the procedures in the *Administrative Procedures* and the *Procedures Manual*, including requirements for public review.

This ESD has not been released for public review. The ESD will be available on the EPA website (www.epa.wa.gov.au) upon endorsement and must be appended to the ERD document.

Assessment as an accredited assessment

The proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is being

assessed as an accredited assessment. The relevant matters of national environmental significance (MNES) for this proposal are:

- Listed threatened species and communities (s18 and 18A)

This draft ESD includes work required to be carried out and reported on in the ERD document in relation to MNES. The ERD will also address the matters in Schedule 4 of the *Environmental Protection and Biodiversity Conservation Regulations 2000*.

MNES that may be impacted by the proposal will be identified and the potential impacts on these matters addressed within each relevant preliminary environmental factor as identified in Table 4. The ERD will include a separate section which summarises the potential impacts on MNES and describes, to the extent practicable, any feasible alternatives to the proposed action and possible mitigation measures. Proposed offsets to address significant residual impacts on MNES are also to be discussed.

2. The proposal

The subject of this ESD is the proposal by the Public Transport Authority to construct and operate an extension of the existing Joondalup railway line from a point north of the proposed future Eglinton Station. The proposal will extend the Joondalup railway line through to Yanchep in the City of Wanneroo and includes a new intermodal transit station within the Yanchep City Centre area. The regional location of the proposal is shown in Figure 1 and the development envelope encompassing the physical elements of the proposal is delineated in Figure 2.

Please include a section in the ERD which sets out how the PTA evaluated, compared and considered alternative route alignments and construction methods (eg. tunnelling, bridges) during the planning phase of the proposal in order avoid and reduce the extent of potential environmental impacts, particularly on biodiversity values.

The key characteristics of the proposal are set out in Tables 2 and 3. The key proposal characteristics may change as a result of the findings of studies and investigations conducted and the application of the mitigation hierarchy by the proponent.

The proposal is part of the Western Australian Government's broader METRONET policy to expand Perth's urban rail system, incorporating associated infrastructure and elements of urban planning. The EPA is currently assessing Part 1 of the Yanchep Rail Extension to construct and operate the rail extension from the existing Butler Station and includes two new intermodal transit stations at Alkimos and Eglinton. The location of the current proposal in relation to Part 1 of the Yanchep Rail Extension is depicted in Figure 2.

Table 2 Summary of the proposal

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| Proposal title | Yanchep Rail Extension: Part 2 – Eglinton to Yanchep |
| Proponent name | Public Transport Authority |
| Short description | The proposal is to construct and operate a new 7.2 kilometre (km) section of dual narrow-gauge railway track to extend the existing Joondalup railway track from the future station in the suburb of Eglinton through to Yanchep in the City of Wanneroo and construct and operate a new intermodal transit station within the Yanchep City Centre area. The Public Transport Authority will operate train services between Perth and Yanchep and bus services from the Yanchep Station. |

Table 3 Location and proposed extent of physical and operational elements

| Element | Location | Proposed extent |
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| <i>Physical elements</i> | | |
| Railway line and associated infrastructure | 7.2 km of track from a point 0.7 km north of the previously proposed Eglinton Station passing through Bush Forever site 289 terminating at a point 0.9 km north of the proposed Yanchep Station in the City of Wanneroo. | 7.2 km of dual narrow-gauged track and access tracks within a 73.0 ha development envelope inclusive of a turnback and stowage facility north of Yanchep Station. |
| Yanchep Station | Located within the north of the Yanchep City Local Structure Plan area, 1.6 km north of Yanchep Beach Road within the City of Wanneroo. | An at-grade station occupying no more than 6.4 ha with provision for an intermodal rail, bus, 'park and ride', 'kiss and ride' and active mode facilities. |
| Construction and access areas | As required along the alignment between the previously proposed Eglinton Station and the proposed termination point. | No more than 12.6 ha for temporary construction and access areas. |
| <i>Operational elements</i> | | |
| Railway line | 7.2 km of track from a point 0.7 km north of the previously proposed Eglinton Station passing through Bush Forever site 289 terminating at a point 0.9 km north of the | Train services will operate between Perth and Yanchep stations on a regular, timetabled schedule. |

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| | proposed Yanchep Station in the City of Wanneroo. | |
| Yanchep Station | Located within the north of the Yanchep City Local Structure Plan area, 1.6 km north of Yanchep Beach Road within the City of Wanneroo | Train and Bus services will operate from the Yanchep station. 'Park and ride' and 'kiss and ride' facilities. |

3. Preliminary key environmental factors and required work

The preliminary key environmental factors for the environmental review are:

1. Flora and Vegetation
2. Terrestrial Fauna
3. Subterranean Fauna
4. Landforms
5. Inland Waters
6. Social Surroundings

Table 4 outlines the work required for each preliminary key environmental factor and contains the following elements for each factor:

- **EPA factor** and **EPA objective** for that factor.
- **Relevant activities** – the proposal activities that may have a significant impact on that factor.
- **Potential impacts and risks** to that factor.
- **Required work** for that factor.
- **Relevant policy and guidance** – EPA (and other) guidance and policy relevant to the assessment.

The following EPA guidance applies to all factors:

- *Statement of Environmental Principles, Factors and Objectives* (EPA 2016)
- *Instructions and Template: Part IV Environmental Management Plans* (EPA 2016)

The referral documentation includes a number of appended reports of various environmental investigations that cover the combined areas of both Part 1 and Part 2 of the Yanchep Rail Extension. The EPA acknowledges the work that has already been undertaken and requires that these reports be appended to the ERD. Information in the appended reports should *clearly* differentiate the values present within Part 1 and Part 2. For the purposes of conducting an environmental impact assessment of Part 2, the EPA expects that the ERD should present information relevant to Part 2 only.

Table 4 Preliminary key environmental factors and required work

| Flora and Vegetation | |
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| EPA objective | To protect flora and vegetation so that biological diversity and ecological integrity are maintained. |
| Relevant activities | <ul style="list-style-type: none"> • Clearing of native vegetation • Cut and fill works • Soil compaction • Excavation and construction of roads, buildings and other hard stand areas • Operation of plant and machinery and service vehicles • Operation and maintenance of the electrified railway line |
| Potential impacts and risks | <ul style="list-style-type: none"> • Permanent loss of flora and vegetation through clearing. • Smothering of native vegetation by movement of unstable dunes (blowouts) owing to cut and fill works. • Indirect impacts from dust, weeds, changed infiltration during rainfall events, increased nutrients and/or edge effects. • Impacts from the introduction and/or distribution of diseases, including <i>Phytophthora</i> spp. dieback to surrounding areas. • Increased risk of fire. • Fragmentation of intact vegetation and potentially conservation significant ecological communities. • Potential indirect impacts to conservation significant ecological communities from groundwater abstraction. |
| Required work | <p>1. Identify and characterise the flora and vegetation of areas that may be directly or indirectly impacted by the proposal in accordance with Technical Guidance - <i>Flora and Vegetation Surveys for Environmental Impact Assessment</i>. This should include sampling more broadly to inform local and regional context and include conservation significant ecological communities whose buffers are intercepted by the proposal. Where this has not been undertaken, previous surveys or extrapolation using aerial imagery may be used to inform local and regional context provided it is consistent with EPA Guidance. Floristic community types (FCTs) are to be determined through multivariate analysis. Demonstrate how surveys are relevant, representative and demonstrate consistency with current EPA policy and guidance. Ensure database searches and taxonomic identifications are up-to-date.</p> <p><i>Note: Survey results and a demonstration of how the requirements have been met are to be included in the ERD. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys. Where surveys were undertaken prior to scoping, justification should be provided to</i></p> |

demonstrate that they are relevant and consistent with EPA Guidance. Where surveys have not been undertaken consistent with the EPA guidance provide a justification for any variation. Index of Biodiversity Surveys for Assessment (IBSA) data packages should be provided in accordance with EPA guidance.

2. Identify and describe the vegetation and significant flora species present and likely to be present within the development envelope and any areas that may be indirectly impacted by the proposal beyond the development envelope recorded in 1 above. Undertake and provide an assessment of the significance of flora and vegetation in a local and regional context (refer to Environmental Factor Guideline – Flora and Vegetation for definition of significance). Include a quantitative assessment of levels of impact on significant flora, priority or threatened ecological communities, FCTs and all vegetation units.
 - a. For significant flora, this includes:
 - i. number of individuals and populations in a local and regional context;
 - ii. numbers and proportions of individuals and populations directly or potentially indirectly impacted, and
 - iii. numbers/proportions/populations currently protected within the conservation estate (where known).
 - b. For significant ecological communities and all vegetation units this includes:
 - i. the area (in hectares) and proportions directly or potentially indirectly impacted, and
 - ii. proportions/hectares of the species, community or vegetation unit currently protected within conservation estate (where known).
3. Identify and describe any flora species and ecological communities recorded during 1 above that are currently listed as Priority by the Department of Biodiversity, Conservation and Attractions or listed under the *Wildlife Conservation Act 1950* and the Commonwealth EPBC Act (including the Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community).

Note: The State Government anticipates that the Biodiversity Conservation Act 2016 and associated regulations will come into effect early 2019, therefore it is likely the assessment of this proposal may be undertaken in accordance with the species, ecological communities and key threatening processes listed under this legislation.

4. Determine whether any vegetation identified in 1 above is consistent with the classification of any State or Commonwealth listed ecological community. If any vegetation is classified as a Priority or Threatened

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| | <p>Ecological Community, present survey information consistent with the relevant guidelines set out below.</p> <ol style="list-style-type: none">5. Provide a map depicting the recorded locations of the significant flora, ecological communities and significant vegetation in 2 above in relation to the development envelope in accordance with the relevant guidelines set out below.6. Assess the potential direct and indirect impacts of the construction and operational elements of the proposal on identified environmental values in 2 above. Describe and assess the extent of any cumulative impacts within local and regional contexts as appropriate. Include a quantitative assessment of levels of impact on significant flora, significant ecological communities and all vegetation units. Include an assessment of the potential indirect impacts to the Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community that may occur as a result of potential impacts (blowouts) to the Quindalup dune system.7. Describe and justify any proposed avoidance and mitigation measures to reduce the potential impacts of construction and operation of the proposal including revegetation.8. Include proposed management and/or monitoring plans that will be implemented pre- and post-construction to demonstrate and ensure residual impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with the EPAs instructions. <p><i>Note: The proposed Construction Environment Management Plan to avoid and mitigate impacts to the Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community is to be consistent with the Department of Environment and Energy's (DoEEs) Environmental Management Plan Guidelines.</i></p> <ol style="list-style-type: none">9. Demonstrate how the proposal has had regard to, and is not inconsistent with, relevant recovery plans, conservation advice and threat abatement plans, particularly for the Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community.10. Determine and quantify any significant residual impacts by applying the:<ol style="list-style-type: none">a. Residual Impact Significance Model (page 11 of the WA Environmental Offsets Guideline) for all direct and indirect impacts, including an explanation of how the information and values within the model have been determinedb. WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), including the provision of supporting information, such as evidence of rehabilitation successc. the Commonwealth Offsets Assessment Guide including rationale for the values entered into the guide. |
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| | <p>11. Where significant residual impacts remain, propose an appropriate offsets package with supporting information to demonstrate consistency with the WA Environmental Offsets Policy and Guidelines. Where residual impacts relate to EPBC Act listed threatened and/or migratory species propose an appropriate offset package consistent with the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i>. Spatial data defining the area of significant residual impacts for each environmental value should also be provided (e.g. vegetation type, vegetation condition, specific fauna species habitat).</p> <p>12. Propose an appropriate offset package consistent with the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i> for the predicted likely significant residual impact to the Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community. Demonstrate how the proposed offset is consistent with each of the principles of the DoEEs policy in addition to providing a rationale for the values entered into the offset guide. Spatial data defining the area of significant residual impacts for each environmental value should also be provided (e.g. vegetation type, vegetation condition, specific fauna species habitat).</p> |
| <p>Relevant policy and guidance</p> | <p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Flora and Vegetation</i> • <i>Instructions and Form: IBSA Data Packages</i> • <i>Instructions on how to prepare <u>Environmental Protection Act 1986 Part IV Environmental Management Plans</u></i> • <i>Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment</i> <p><i>Other policy and guidance</i></p> <ul style="list-style-type: none"> • Commonwealth Threat Abatement and Recovery Plans, Interim Recovery Plans and Conservation Advice where relevant. • Department of Biodiversity, Conservation and Attractions <i>Geomorphic Wetlands Swan Coastal Plain Dataset</i> (last updated July 2016) • Department of Environment and Energy <i>Banksia Woodlands of the Swan Coastal Plain: Draft guidance for Part 7 referrals</i>. • Department of Environment and Energy <i>Environmental Management Plan Guidelines</i> • Department of Environment and Energy <i>Survey guidelines for Australia’s threatened orchids: Guidelines for detecting orchids listed as ‘Threatened’ under the <u>Environment Protection and Biodiversity Conservation Act 1999</u></i>. • <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i>, Department of Sustainability, Environment, Water, Population and Communities, October 2012 • <i>State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region</i> |

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| | <ul style="list-style-type: none"> • Threatened Species Scientific Committee <i>Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community</i>. Canberra: Department of the Environment and Energy • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Template</i>, 2014 |
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| Terrestrial Fauna | |
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| EPA objective | To protect terrestrial fauna so that biological diversity and ecological integrity are maintained. |
| Relevant activities | <ul style="list-style-type: none"> • Permanent clearing of native vegetation • Cut and fill works • Soil compaction • Excavation and construction of roads, buildings and other hard stand areas • Lighting during construction and operation • Movement of machinery and vehicles • Operation and maintenance of the electrified railway line |
| Potential impacts and risks | <ul style="list-style-type: none"> • Permanent loss of fauna habitat, including short range invertebrate fauna habitat due to clearing. • Fauna deaths resulting from collisions with earth moving equipment and/or vehicles during construction and operation. • Fragmentation of fauna habitat and loss of ecological connectivity. • Degradation of habitat and habitat modification from introduction and increased spread of weeds and/or disease, altered surface water flows and edge effects. • Noise and lighting during construction and operation may impact or change fauna movement. • Change in feral animal abundance and/or movement. |
| Required work | <p>13. In accordance with the requirements of EPA Guidance:</p> <ol style="list-style-type: none"> Conduct a Level 1 survey, incorporating existing regional terrestrial fauna surveys and databases. Surveys are to identify and characterise faunal assemblages and habitats (including water sources) present within and immediately adjacent to the proposal area. Undertake Level 2 (targeted) surveys for identified significant fauna species that may be impacted directly and indirectly by the implementation of the proposal. This should include sampling inside and outside the impact areas and consider cumulative impacts. |

Note: Surveys, including targeted surveys, should include both Terrestrial Vertebrate Fauna and Short Range Endemic (and/or other significant) Invertebrate Fauna. Survey results and a demonstration of how the requirements have been met are to be included in the ERD. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys. Reports for terrestrial vertebrates and short-range endemics should be provided separately. Where surveys were undertaken prior to scoping, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. Ensure species database searches and taxonomic identifications are up-to-date. IBSA data packages should be provided in accordance with EPA guidance.

14. Identify and describe the values and significance of fauna, fauna habitats and habitat connectivity within, and immediately adjacent to, the development envelope from 13 above that may be impacted directly and/or indirectly by implementation of the proposal during both construction and operations. Describe the significance of these values in a local and regional context. Identify and quantify in absolute and relative terms, the areas of important or restricted habitats e.g. breeding habitat, foraging/feeding/dispersal habitat and habitats that are important to significant species (including nearby water sources) and the reasons for their importance (for example, proximity to breeding and foraging habitat). Support the discussion with the use of tables and figures to illustrate the extents of the habitats.

15. Identify and describe any fauna species recorded during 13 above that are currently listed under the *Wildlife Conservation Act 1950* and/or the EPBC Act. Include the likelihood of occurrence of each identified species and discuss the habitats important to each identified species in detail on a species-by-species basis. Determine if nearby water sources are used by Carnaby's black cockatoo. Include a discussion of the expected direct and indirect impacts on each identified species. Include a discussion on the risk of indirect impact to nearby water sources as it relates to the potential to impact on Carnaby's black cockatoo.

Note: The State Government anticipates that the Biodiversity Conservation Act 2016 and associated regulations will come into effect early 2019, therefore it is likely the assessment of this proposal may be undertaken in accordance with the species, critical habitat and key threatening processes listed under this legislation.

16. Identify any potential fauna movement corridors within, adjacent to or across the development envelope including, but not limited to, areas of intact native vegetation, using appropriate methods. Describe the methods undertaken.

17. In accordance with relevant guidelines set out below, provide figures and maps illustrating fauna habitats, known recorded locations of

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| | <p>significant vertebrate species and short-range endemic invertebrate species in relation to the proposal impact areas, and any potential fauna movement corridors identified in 14 and 16 above in relation to the development envelope.</p> <p>18. Describe and assess the potential direct and indirect impacts (including mortality and fragmentation) of the construction and operational elements of the proposal on fauna assemblages, identified significant fauna (including short-range endemic or other significant invertebrates), fauna habitats and habitat corridors identified in 14, 15 and 16 above. Describe and assess the extent of any cumulative impacts within local and regional contexts as appropriate.</p> <p>19. Quantify the extent of direct, indirect and cumulative impacts, including percentages, of habitat types to be disturbed or otherwise impacted.</p> <p>20. Demonstrate that no short-range endemic invertebrate fauna are restricted to the development envelope or that such species have been adequately surveyed outside of the development envelope.</p> <p>21. Outline the proposed management, monitoring and mitigation methods to be implemented to ensure impacts (direct and indirect) are acceptable and not greater than predicted. Include proposed management and/or monitoring plans that will be implemented pre- and post-construction to demonstrate and ensure impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with the EPAs instructions.</p> <p><i>Note: The proposed Construction Environment Management Plan to avoid and mitigate impacts to Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>) (Endangered) and Chuditch (<i>Dasyurus geoffroii</i>) (Vulnerable) is to be consistent with the DoEEs Environmental Management Plan Guidelines.</i></p> <p>22. Provide maps and detailed justification for the location, dimensions, shape and number of proposed fauna underpasses/overpasses if any. Include and describe best practice design attributes of proposed fauna underpasses or overpasses to maximise effectiveness and minimise the risk of predation of fauna using the underpass/overpass.</p> <p>23. Demonstrate how the proposal has had regard to, and is not inconsistent with, relevant recovery plans, conservation advice and threat abatement plans set out below</p> <p>24. Predict the residual impacts to terrestrial fauna after considering and applying the mitigation hierarchy.</p> <p>25. Determine and quantify any significant residual impacts by applying the:</p> <ul style="list-style-type: none">d. Residual Impact Significance Model (page 11 of the WA Environmental Offsets Guideline) for all direct and indirect |
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| | <p>impacts, including an explanation of how the information and values within the model have been determined</p> <ul style="list-style-type: none"> e. WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), including the provision of supporting information, such as evidence of rehabilitation success f. the Commonwealth Offsets Assessment Guide including rationale for the values entered into the guide. <p>26. Where significant residual impacts remain, propose an appropriate offsets package with supporting information to demonstrate consistency with the WA Environmental Offsets Policy and Guidelines. Where residual impacts relate to EPBC Act listed threatened and/or migratory species propose an appropriate offset package consistent with the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i>. Spatial data defining the area of significant residual impacts for each environmental value should also be provided (e.g. vegetation type, vegetation condition, specific fauna species habitat).</p> <p>27. Propose an appropriate offset package consistent with the <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i> for the predicted likely significant residual impact to Carnaby's black cockatoo. Demonstrate how the proposed offset is consistent with each of the principles of the Department of Environment and Energy's policy in addition to providing a rationale for the values entered into the offset guide. Spatial data defining the area of significant residual impacts for each environmental value should also be provided (e.g. vegetation type, vegetation condition, specific fauna species habitat).</p> <p><i>Note: For the area of the proposal that will clear 4.07 ha of foraging habitat for the Carnaby's black cockatoo from an environmental offset that has been approved for another approval under the EPBC Act (EPBC 2011/6021 Landcorp – Eglinton/South Yanchep Residential Development – 45 km North-West of Perth, Western Australia) develop an offset package to compensate for both the impact of the proposed action as well as the original action for which the offset was a condition of approval. The offset package should demonstrate how the proposed offset will achieve both objectives.</i></p> |
| <p>Relevant policy and guidance</p> | <p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Terrestrial Fauna</i> • <i>Instructions and Form: IBSA Data Packages</i> • <i>Instructions on how to prepare <u>Environmental Protection Act 1986 Part IV Environmental Management Plans</u></i> • <i>Technical Guidance: Sampling methods for terrestrial vertebrate fauna,</i> • <i>Technical Guidance: Sampling of short range endemic invertebrate fauna</i> |

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| | <ul style="list-style-type: none"> • <i>Technical Guidance: Terrestrial fauna surveys</i> <p>Other policy and guidance</p> <ul style="list-style-type: none"> • Commonwealth of Australia (2017). <i>Threat Abatement Plan for Competition and Land Degradation by Rabbits.</i> • Commonwealth Threat Abatement and Recovery Plans, Interim Recovery Plans and Conservation Advice where relevant • Department of Environment and Conservation (2012). <i>Chuditch (Dasyurus geoffroii) Recovery Plan.</i> • Department of Environment and Energy <i>Environmental Management Plan Guidelines</i> • Department of Environment and Energy <i>Survey guidelines for Australia's threatened species: various Guidelines for surveying for species listed as threatened under the EPBC Act</i> • Department of Parks and Wildlife (2013). <i>Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan.</i> • Department of the Environment (2014). <i>Threat Abatement Plan for Disease in Natural Ecosystems caused by Phytophthora cinnamomi.</i> • Department of the Environment (2015). <i>Threat Abatement Plan for Predation by Feral Cats.</i> • Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). <i>Threat abatement plan for predation by the European red fox.</i> • <i>Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy</i>, Department of Sustainability, Environment, Water, Population and Communities, October 2012 • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Template, 2014</i> |
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| Subterranean Fauna | |
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| EPA objective | To protect subterranean fauna so that biological diversity and ecological integrity are maintained. |
| Relevant activities | <ul style="list-style-type: none"> • Excavation and construction of the railway, roads, buildings and other hard stand areas • Groundwater abstraction activities • Clearing of native vegetation • Storage and use of hydrocarbons and chemicals |
| Potential impacts and risks | <ul style="list-style-type: none"> • Permanent loss of subterranean fauna habitat due to excavation and construction activities. • Temporary loss of subterranean fauna habitat due to groundwater abstraction. |

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| | <ul style="list-style-type: none"> • Changes to surface topography from compaction or creation of hard surfaces altering groundwater flow paths, increased runoff and reduced infiltration and aquifer recharge. • Fragmentation of subterranean fauna habitat and loss of ecological connectivity. • Indirect impacts to subterranean fauna from elevated concentrations of contaminants in water due to chemical or hydrocarbon spills. |
| Required work | <p>28. In accordance with EPA guidance, conduct a Level 1 (basic) subterranean fauna survey, including a desktop study that incorporates existing regional subterranean fauna surveys and databases.</p> <p>29. In accordance with EPA guidance, undertake Level 2 (detailed) surveys in all areas of impact to identify and characterise subterranean fauna and subterranean fauna habitat, at a local and regional scale, that may be impacted directly and indirectly by the implementation of the proposal. This should include sampling inside and outside the impact areas and consider cumulative impacts.</p> <p><i>Note: Where surveys have not been undertaken consistent with the EPA guidance provide a justification for any variation. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys.</i></p> <p>30. If further geotechnical investigations identify any karstic features such as sinkholes or caverns, or subterranean fauna, surveys may be required to be undertaken in accordance with 28 and 29 above.</p> <p><i>Note: If surveys are not undertaken justification should be provided to demonstrate that subterranean fauna and habitats will not be significantly impacted on from construction of the proposal.</i></p> <p>31. Describe the characteristics of subterranean fauna habitat that may be impacted directly and indirectly by implementation of the proposal during both construction and operations, and describe the significance of these values in a local and regional context. Include relevant geological and hydrological information to determine habitat suitability and connectivity, including inside and outside the impact areas.</p> <p>32. Provide figure(s) and maps showing the extent of subterranean fauna habitat in relation to the proposal and species distributions.</p> <p>33. Describe and assess the extent of direct, indirect and cumulative impacts as a result of implementation of the proposal during both construction and operations to subterranean fauna, taking into consideration the significance of fauna and fauna habitat.</p> |

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| | <p>34. Demonstrate that no subterranean fauna species are restricted to the development envelope or that such species have been adequately surveyed outside of the development envelope.</p> <p>35. Quantify the extent of direct, indirect and cumulative impacts, including percentages, of habitat types to be disturbed or otherwise impacted.</p> <p>36. Outline the proposed management, monitoring and mitigation methods to be implemented to ensure residual impacts (direct and indirect) are not greater than predicted.</p> <p>37. Predict the residual impacts from the proposal on subterranean fauna after considering and applying the mitigation hierarchy.</p> <p>38. Determine and quantify any significant residual impacts by applying the:</p> <ol style="list-style-type: none"> a. Residual Impact Significance Model (page 11 of the WA Environmental Offsets Guideline) for all direct and indirect impacts, including an explanation of how the information and values within the model have been determined b. WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), including the provision of supporting information, such as evidence of rehabilitation success c. the Commonwealth Offsets Assessment Guide including rationale for the values entered into the guide. <p>39. Where significant residual impacts remain, propose an appropriate offsets package with supporting information to demonstrate consistency with the WA Environmental Offsets Policy and Guidelines. Spatial data defining the area of significant residual impacts for each environmental value should also be provided (e.g. vegetation type, vegetation condition, specific fauna species habitat).</p> |
| <p>Relevant policy and guidance</p> | <p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Subterranean Fauna</i>, December 2016 • <i>Instructions and Form: IBSA Data Packages</i> • <i>Technical Guidance: Sampling methods for subterranean fauna</i>, December 2016 • <i>Technical Guidance: Subterranean fauna survey</i>, December 2016 <p><i>Other policy and guidance</i></p> <ul style="list-style-type: none"> • Commonwealth Threat Abatement and Recovery Plans, Interim Recovery Plans and Conservation Advice where relevant • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Template, 2014</i> |

| Landforms | |
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| EPA objective | To maintain the variety and integrity of significant physical landforms so that environmental values are protected. |
| Relevant activities | <ul style="list-style-type: none"> • Construction and operation of railway line • Cut and fill works • Compaction of soil • Excavation and construction of roads, buildings and other hard stand areas |
| Potential impacts and risks | <ul style="list-style-type: none"> • Structural alteration of the Quindalup parabolic dune system. • Disruption of sediment flow as a result of the railway line bisecting the dune system. • Impacts to the ecological function and environmental values of the Quindalup parabolic dune system. • Movement of unstable dunes (blowouts) owing to cut and fill works. |
| Required work | <p>40. Characterise the Quindalup parabolic dune system in terms of variety, integrity, ecological importance, scientific importance, rarity and social importance.</p> <p>41. Describe and assess the significance of potential direct, indirect and cumulative impacts to the Quindalup parabolic dune system within and directly adjacent to the development envelope. Include an analysis of the nature, magnitude and duration of the impacts (temporary and permanent). Discuss cumulative impacts including the impacts from other existing and potential approvals/developments.</p> <p>42. Apply the mitigation hierarchy. Discuss how the proposal has been designed to avoid and minimise impacts to the geomorphology and structure of the Quindalup parabolic dune system through the design and location of infrastructure. Detail proposed specific monitoring, management and mitigation measures.</p> <p>43. Predict the residual impacts and the significance from the proposal on the Quindalup parabolic dune system after considering and applying the mitigation hierarchy.</p> |
| Relevant policy and guidance | <p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Landforms</i>, June 2018 |

| Inland Waters | |
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| EPA objective | To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. |
| Relevant activities | <ul style="list-style-type: none"> • Groundwater abstraction • Construction of railway and hard stand areas • Alteration of landscape from construction of railway • Storage and use of chemicals and hydrocarbons |
| Potential impacts and risks | <ul style="list-style-type: none"> • Potential water pollution impacts to Public Drinking Water Source Protection Areas (PDWSA) Perth Coastal and Gwelup Underground Water Pollution Control Area (Priority 3 (P3)) from construction activities, chemical and hydrocarbon spills. • Changes to infiltration rates from the construction of hard stand areas. • Alteration of landscape from construction resulting in changes to surface water flow paths and recharge locations during rainfall events. • Potential impacts to vegetation and significant ecological communities from groundwater abstraction. |
| Required work | <p>44. Identify and describe the environmental values and significance of hydrological and soil characteristics within the development envelope and immediately adjacent to the development envelope.</p> <p>45. Identify the indicative location of abstraction bores for water requirements and identify and discuss any associated impacts of groundwater abstraction including from drawdown.</p> <p>46. Analyse, discuss and assess the potential impacts (direct and indirect) from construction and operation of the proposal on water quantity and quality in relation to the environmental values identified in 44 above including but not limited to the P3 PDWSA, Wellhead Protection Zones, native vegetation, Aquatic Root Mat Community in Caves of the Swan Coastal Plain and Loch McNess.</p> <p>47. Predict the extent, severity and duration of potential impacts to the environmental values identified in 44 above, including changes to local and regional groundwater flows and levels, drawdown and local water quality.</p> <p>48. Demonstrate the pathways for adopting best practice water sensitive urban design principles in the design of the infrastructure and also in stormwater and drainage components to ensure hydrological regimes and groundwater quality are maintained. Attention should also be given to PDWSA and Wellhead Protection Zones. Provide maps and justification of the indicative locations of stormwater/drainage infrastructure.</p> <p>49. Discuss any mitigation and management measures, including proposed management and/or monitoring plans that will be</p> |

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| | implemented pre-and post-construction to demonstrate that residual impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with the EPAs instructions. |
| Relevant policy and guidance | <p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Inland Waters</i>, June 2018 <p><i>Other policy and guidance</i></p> <ul style="list-style-type: none"> • <i>Loch McNess hydrogeology and causes of water-level decline (1975-2001) Report No. HG</i>, Department of Water, 2016 • <i>Statement of Planning Policy No. 2.7 Public Drinking Water Source Policy</i> |

| Social Surroundings | |
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| EPA objective | To protect social surroundings from significant harm. |
| Relevant activities | <ul style="list-style-type: none"> • Clearing of native vegetation • Cut and fill works • Soil compaction • Excavation and construction of roads, buildings and other hard stand areas • Stockpiling and crushing of limestone • Operation of plant and machinery and service vehicles • Operation and maintenance of the electrified railway line |
| Potential impacts and risks | <ul style="list-style-type: none"> • Temporary exposure to construction noise and vibration for sensitive receptors in residential and recreational areas in close proximity to the railway and associated infrastructure. • Increased and ongoing exposure to operational noise and vibration for sensitive receptors in residential and recreational areas in close proximity to the railway and associated infrastructure. • Exposure of nearby residents and recreational users to impacts from dust during construction, including from the crushing of excavated limestone. • Ongoing and increased risk of bushfire due to the presence of the electrified railway in close proximity to urban development and recreational use areas. |
| Required work | <p><i>Noise and vibration</i></p> <p>50. Undertake noise and vibration monitoring and modelling as appropriate along the proposed alignment to determine ambient noise levels (including vibrational noise) in areas of noise sensitive receptors, including in areas used for recreational purposes.</p> |

51. Undertake a screening assessment and if required a detailed noise and vibration assessment in accordance with relevant guidelines to predict future noise and vibration levels resulting from the proposal on sensitive receptors, including recreational values as appropriate. Justify the use of any parameters used to model impacts from noise and vibration along the proposed alignment including cut and fill design considerations. Consideration should be given to planned areas of higher density and mixed-use development in proximity to the proposed station, for example, multi-storey residential dwellings should be considered as well as single storey dwellings.
52. Identify relevant noise and vibration mitigation measures for identified sensitive receptors in 50 above and describe any proposed mitigation to reduce the potential impacts of construction and operation of the proposal. Provide maps of and justification for the location and number of any proposed mitigation infrastructure.
53. Include any proposed management and/or monitoring plans for noise and vibration that will be implemented pre- and post-construction to demonstrate and ensure the EPAs objectives can be met.
54. Identify and describe the potential residual impacts (direct and indirect) that may occur following implementation of the proposed mitigation measures and determine the significance of the residual impacts of noise and vibration on the identified sensitive receptors in 51 above with reference to the residual impact model set out in the WA Environmental Offsets Guidelines.

Note: if noise and vibration monitoring and modelling has previously been undertaken specify the modelled parameters including the proposed railway design, areas of cut and fill and where the railway is proposed to be "at grade".

Dust

55. Characterise current, pre-construction dust emissions at sensitive receptors along the proposed alignment that could be impacted by dust emissions during construction of the proposal.
56. Identify and describe the potential sources and impacts (direct and indirect) of dust for the sensitive receptors in 55 above that may arise from construction of the proposal.
57. Describe and assess any proposed mitigation measures to avoid or minimise the identified sources of direct and indirect impacts from dust in 55 above.
58. Include any proposed management and/or monitoring plans for dust that will be implemented pre- and post-construction to demonstrate and ensure the EPAs objectives can be met. Management and/or monitoring plans are to be presented in accordance with the EPAs instructions.

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| | <p>59. Identify and describe the potential residual impacts (direct and indirect) that may occur following implementation of the proposed mitigation measures and determine the significance of the residual impacts on the identified sensitive receptors of dust.</p> <p>Bushfire</p> <p>60. Characterise the current, pre-construction risk of bushfire to people, property and infrastructure in designated bushfire-prone areas along the proposed alignment that could be impacted by bushfire during construction and operation of the proposal in accordance with relevant guidelines.</p> <p>61. Identify and describe the potential sources of and impacts (direct and indirect) from bushfire that may arise as a result of construction and operation of the proposal.</p> <p>62. Identify and describe the proposed bushfire risk reduction strategies that will be implemented pre- and post-construction.</p> <p>63. Predict the residual bushfire risk after considering implementation of the proposed bushfire risk reduction strategies.</p> |
| <p>Relevant policy and guidance</p> | <p>EPA Policy and Guidance</p> <ul style="list-style-type: none"> • <i>Environmental Factor Guideline – Social Surroundings</i> <p>Other policy and guidance</p> <ul style="list-style-type: none"> • Australian Standard AS 2670.2-1990: Evaluation of human exposure to whole body vibration - Part 2: Continuous and shock induced vibration in buildings (1 to 80 Hz). • Implementation guidelines for State Planning Policy 5.4 • State Planning Policy 3.7 – Planning in bushfire prone areas • State Planning Policy 5.4 – Road and rail transport noise and freight considerations in land use planning |

Index of Biodiversity Surveys for Assessments

Each time a biodiversity survey report is submitted (at any point in the assessment and compliance process under Part IV of the EP Act) it should be accompanied by an electronic appendix known as the IBSA data package.

4. Other environmental factors or matters

The EPA has identified the following other environmental factors or matters relevant to the proposal that must be addressed during the environmental review and discussed in the ERD.

1. Consideration of Alternatives

Include a section in the ERD which sets out how the PTA evaluated, compared and considered alternative route alignments and construction methods (eg. tunnelling, bridges) during the planning phase of the proposal in order to avoid and reduce potential environmental impacts, particularly on biodiversity values.

2. Air Quality

Include a section in the ERD which discusses and compares net greenhouse gas emissions (tonnes of carbon dioxide equivalent per annum) between rail transport and conventional vehicle modes of transport; and the potential reduction in transport emissions (eg. particulate matter, oxides of nitrogen, carbon monoxide) associated with reducing the number of motor vehicle journeys following construction of the Yanchep Rail Extension.

If studies, modelling or investigations have previously been undertaken that:

- identify the potential transport emission reductions
- analyse the potential greenhouse gas emission (tonnes of carbon dioxide equivalent per annum) savings

include a description and discussion regarding the results in the ERD.

3. Principle of Waste Minimisation

Set out the proposed waste minimisation strategy to demonstrate consideration of the principle of waste minimisation. The waste minimisation strategy should include details on the destination or use of removed materials in accordance with the principle of waste minimisation as defined in the EP Act.

4. Matters of National Environmental Significance

The Commonwealth DoEE requires additional information relevant to the assessment of impacts under the EPBC Act. Information should be included to enable the consideration of the social and economic impacts of the proposal under the EPBC Act. Relevant matters may include:

- the cost of the proposal (including the basis for any estimations of costs and/or benefits)
- expected employment impacts
- social amenity/public use of affected areas
- public concerns
- cultural and traditional activities in or relating to the affected area
- details of any public and stakeholder consultation activities including outcomes.

Additional information relevant only to the assessment under the EPBC Act should be provided as appendices to the ERD.

The Commonwealth DoEE is strongly supportive that information provided should relate only to Part 2 of the Yanchep Rail Extension.

It is important that the proponent be aware that other factors or matters may be identified during the course of the environmental review that were not apparent at the time that this ESD was prepared. If this situation arises, the proponent must consult with the EPA to

determine whether these factors and/or matters are to be addressed in the ERD, and if so, to what extent.

5. Stakeholder consultation

The proponent must consult with stakeholders who are affected by, or are interested in, the proposal. This includes the decision-making authorities (see section 6), other relevant state and Commonwealth government agencies and local government authorities, the local community and environmental non-government organisations.

The proponent must document the following in the ERD:

- identified stakeholders
- the stakeholder consultation undertaken and the outcomes, including decision-making authorities' specific regulatory approvals and any adjustments to the proposal as a result of consultation
- any future plans for consultation.

6. Decision-making authorities

At this stage, the EPA has identified the authorities listed in Table 5 as decision-making authorities (DMAs) for the proposal. Additional DMAs may be identified during the course of the assessment.

Table 5 Decision-making authorities

| Decision-making authority | Relevant legislation |
|--|--|
| 1. Minister for Aboriginal Affairs | <i>Aboriginal Heritage Act 1972</i> – Section 18 disturbance of a site of Aboriginal heritage significance |
| 2. Minister for Environment | <i>Wildlife Conservation Act 1950</i> – Taking of flora and fauna |
| 3. Minister for Planning | <i>Planning and Development Act 2005</i> – Scheme amendments |
| 4. Minister for Transport | <i>Land Administration Act 1997</i> – Section 183 Authority to enter land and do anything that is authorised to be done under the rail enabling legislation (once enacted). |
| 5. Minister for Water | <i>Rights in Water and Irrigation Act 1914</i> –Licence to take water |
| 6. CEO, Department of Water and Environmental Regulation | <i>Environmental Protection (clearing of Native Vegetation) Regulations 2004</i> – Native vegetation clearing permit <i>Environmental Protection Regulations 1987</i> – crushing of excess limestone during construction; works |

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| | approval and licence to construct and operate concrete batching plants. |
| 7. Chief Dangerous Goods Officer, Department of Mines, Industry Regulation and Safety | <i>Dangerous Goods Safety Act 2004</i> – Storage and handling of hazardous materials |
| 8. Panel Secretariat, Metro North-West Joint Development Assessment Panel | <i>Planning and Development Act 2005</i> - Development applications for station precincts |
| 9. Chairman, Western Australian Planning Commission | <i>Planning and Development Act 2005</i> - Development applications for station precincts |
| 10. Executive Director, Department of Health | <i>Health Act 1911 s.107(2)(b), Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations) r. 4A.</i> Drains, sanitary conveniences, and any apparatus for the treatment of sewage intended to serve a building that is not a single dwelling or any other building that produces more than 540 litres of sewage per day. |
| 11. CEO, City of Wanneroo | <i>Health Act (Underground Water Supply) Regulation 1959 – Reg 11</i> Prior approval required for a well or other underground source of water supply |

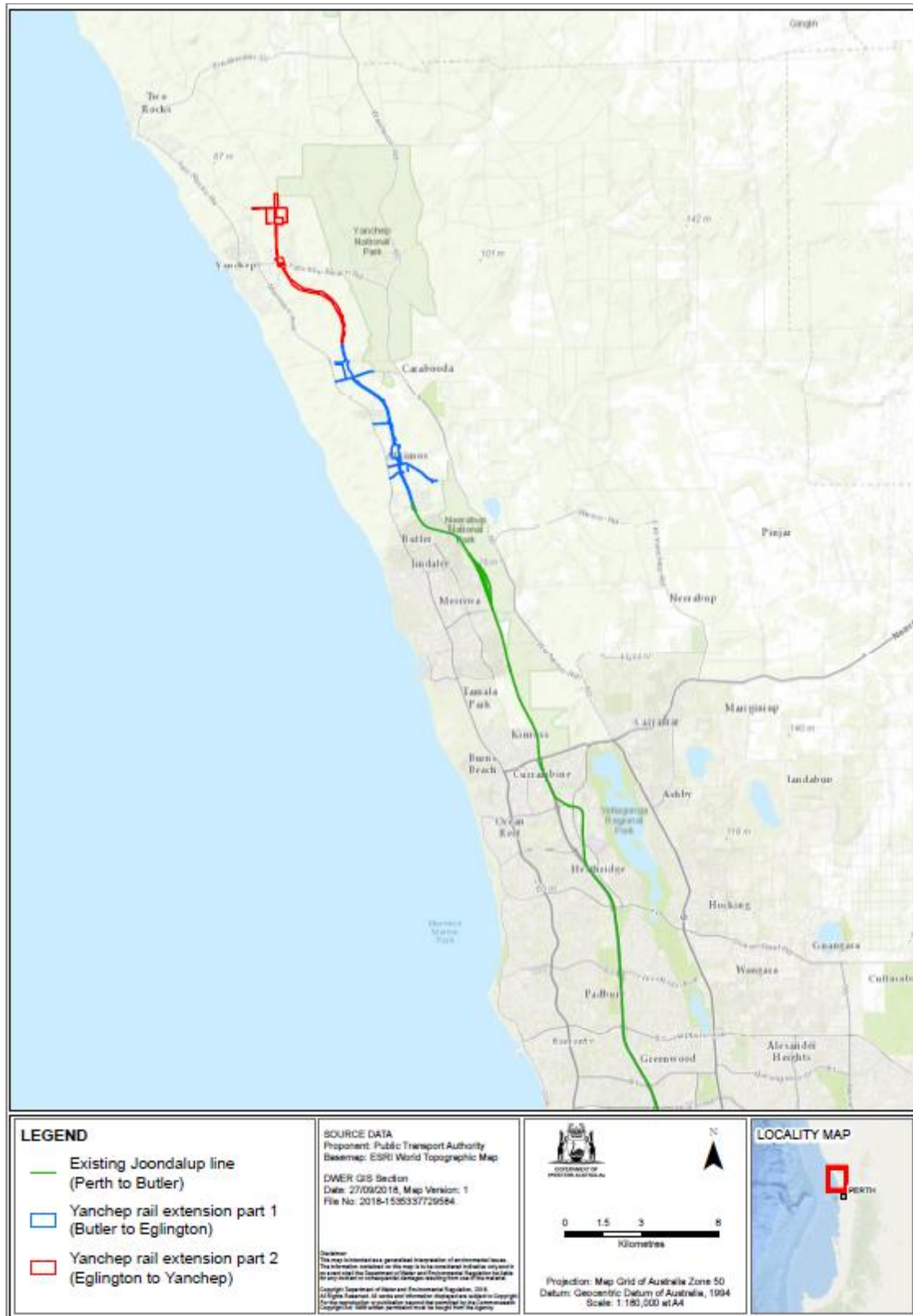


Figure 1 – Regional location

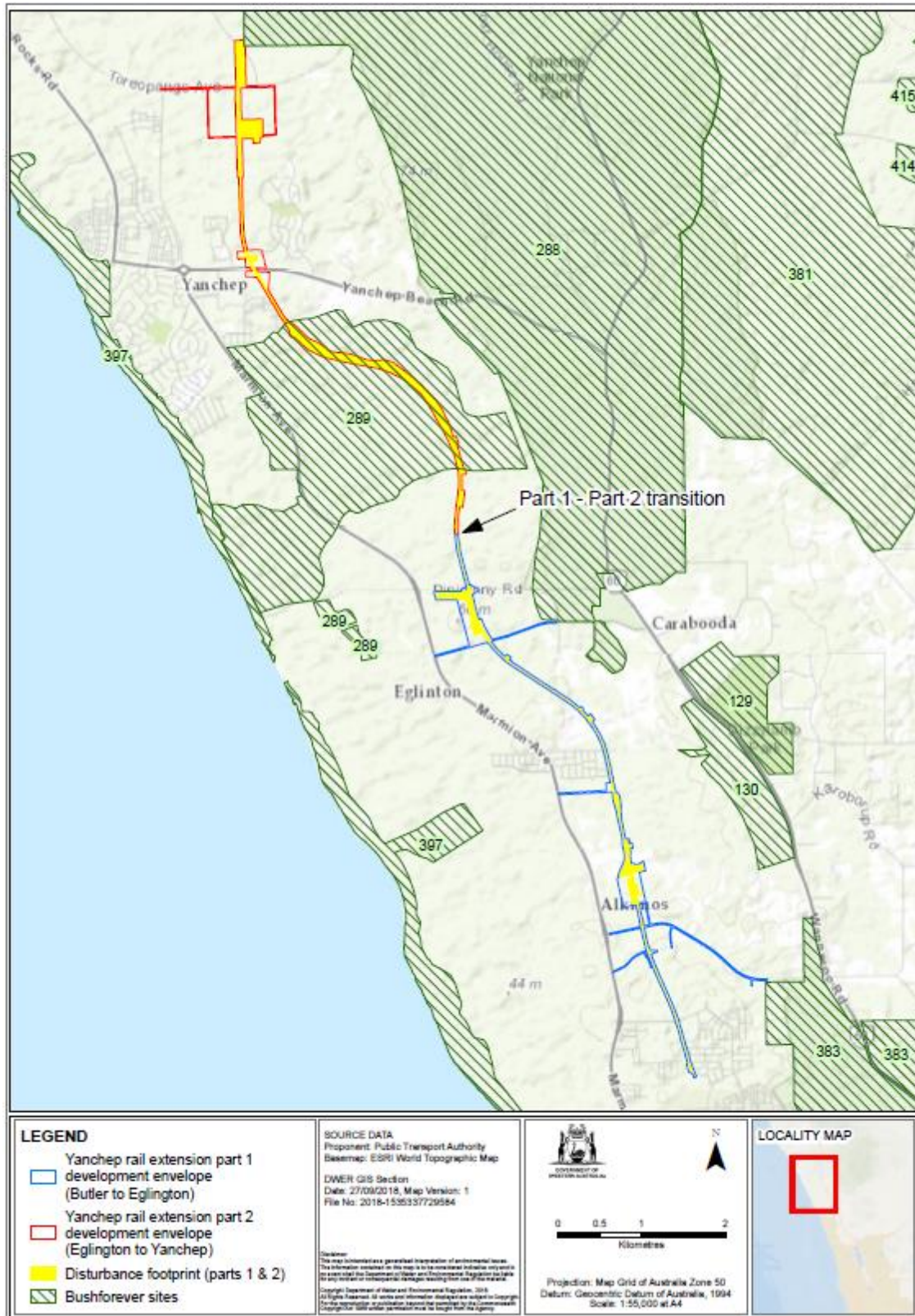


Figure 2 – Location and Development Envelope of Part 1 and 2