



Environmental Protection Authority

Mr Richard Sellers
Commissioner
Main Roads Western Australia
PO Box 6202
EAST PERTH WA 6892

Our Ref: DWERA-000414
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Dear Mr Sellers

**GREAT NORTHERN HIGHWAY UPGRADE – BINDOON BYPASS –
ASSESSMENT NO: 2135**

The Environmental Scoping Document (ESD) (DWERDA-013476) specifying the scope and content of the Environmental Review Document (ERD) for the above proposal was considered by the Environmental Protection Authority (EPA) at Meeting No. 1108, on 16 November 2017. The ESD has been approved as providing an acceptable basis for the preparation of the ERD.

During the preparation of the ERD you are encouraged to consult with the EPA Services Directorate assessment officer for the proposal, Tonja Boyd, who can be contacted on phone number (08) 6364 6419. Please quote the above "Our Ref" on any further correspondence.

Yours sincerely

Dr Tom Hatton
CHAIRMAN

4 December 2017

DRAFT ENVIRONMENTAL SCOPING DOCUMENT

Proposal name:	Great Northern Highway Upgrade – Bindoon Bypass
Proponent:	Commissioner of Main Roads Western Australia
Assessment number:	2135
Location:	Chittering Roadhouse due north through the Localities of Bindoon and Mooliabeenee then east through the Locality of Wannamal to re-join Great Northern Highway between Hay Flat Road and Calingiri Road
Local Government Area:	Shire of Chittering
Public review period:	Environmental Review Document – 6 weeks

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 draft 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](#).

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
EPA approves Environmental Scoping Document	29 November 2017
Proponent submits first draft Environmental Review Document	31 August 2018
EPA provides comment on first draft Environmental Review Document <i>(6 weeks from receipt of ERD)</i>	12 October 2018
Proponent submits revised draft Environmental Review Document	09 November 2018
EPA authorises release of Environmental Review Document for public review <i>(2 weeks from EPA approval of ERD)</i>	23 November 2018
Proponent releases Environmental Review Document for public review for 6 weeks	17 December 2018
Close of public review period	10 February 2019 <i>includes extra 2 weeks for Christmas/New Year period</i>
EPA provides Summary of Submissions <i>(3 weeks from close of public review period)</i>	01 March 2019
Proponent provides Response to Submissions	05 April 2019
EPA reviews the Response to Submissions <i>(4 weeks from receipt of Response to Submissions)</i>	03 May 2019
EPA prepares draft assessment report and completes assessment <i>(6 weeks from EPA accepting Response to Submissions)</i>	14 June 2019
EPA finalises assessment report (including two weeks consultation on draft conditions) and gives report to Minister <i>(6 weeks from completion of assessment)</i>	27 July 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 draft 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 Public Environmental Review (PER) document.

The proposal has been referred under the *Environment Protection and Biodiversity Conservation Act 1999*.

2. The proposal

The subject of this ESD is the proposal by Main Roads Western Australia to construct and operate the Great Northern Highway Upgrade – Bindoon Bypass which is a new 48 kilometre (km) section of the Great Northern Highway within the Shire of Chittering. The new section of road would bypass the town of Bindoon and consist of a combination of four lane dual carriageway, four lane single carriageway and two lane single carriageway and would divert the existing Great Northern Highway at the Chittering Roadhouse to run west of Bindoon and re-join the Great Northern Highway between Hay Flat Road and Calingiri West Road. 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.

It is expected that the development envelope shown in Figure 2 will be further refined and become more precise during the course of the assessment, particularly through environmentally sensitive areas (such as wetlands and their buffers, the vegetated buffers of significant flora species and Threatened Ecological Communities) and areas mapped as MNES. During the preparation of the ERD the EPA expects that the proponent will confirm and accurately quantify the key proposal elements (based on the results of studies and investigations) and provide a revised development envelope that is the maximum area within which the proposal footprint will be located. The EPA will not accept development envelopes that are much greater than the proposed extent of impacts. The EPA expects that the ERD will include consideration of all alternative route alignment options.

The development envelope approach provides some flexibility for the location of the proposal footprint, to allow for changes to the proposal design, or to avoid or minimise impacts. However, the development envelope should be as small as possible as detailed in Instructions on how to define the key characteristics of a proposal.

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 accuracy of the key proposal characteristics is critical to the assessment and future monitoring (if implemented) of the proposal as they are incorporated into the Ministerial Statement.

Table 2 Summary of the proposal

Proposal title	Great Northern Highway Upgrade – Bindoon Bypass
Proponent name	Main Roads Western Australia
Short description	The proposal is to construct and operate a new 48 kilometre (km) section of the Great Northern Highway (GNH) within the Shire of Chittering. The proposal would bypass the town of Bindoon located approximately 70 km north east of Perth, Western Australia. The Proposal would consist of a combination of four lane dual carriageway, four lane single carriageway and two lane single carriageway and would divert from the existing GNH at the Chittering Roadhouse running west of Bindoon and re-joining the GNH between Hay Flat Road and Calingiri West Road.

Table 3 Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
<i>Physical elements</i>		
Road construction and associated infrastructure.	<p>Figure 1</p> <p>Note: proponent to define and provide a total area of the development envelope and provide spatial data depicting that development envelope.</p> <p>Proponent to define and provide the location where the physical proposal elements occur as the proposal footprint within the development envelope and provide spatial data depicting that footprint.</p>	<p>Clearing and disturbance of no more than 660 hectares (ha) consisting of up to 144 ha of native vegetation and 392 ha of scattered trees over pasture. This includes up to:</p> <ul style="list-style-type: none"> • 79 ha of Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community • 55 ha of Priority Ecological Community Banksia woodland of the Gingin area restricted to soils dominated by yellow to orange sands • 2.5 ha of Conservation Category Wetlands • 144 ha of habitat for black cockatoos <p>within a 3,422 ha Development Envelope.</p>

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. Hydrological Processes
4. Inland Waters Environmental Quality
5. 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** to assess the environmental impact for that factor.
- **Relevant policy and guidance** – EPA (and other) guidance and policy relevant to the assessment.

Table 4 Preliminary key environmental factors and required work

Flora and Vegetation	
EPA objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained
Relevant activities	<ul style="list-style-type: none"> • Permanent and temporary clearing • Movement of vehicles and earthmoving equipment during construction • Installation of culverts and dewatering for bridge construction • Soil compaction • Movement of vehicles during operation
Potential impacts and risks	<ul style="list-style-type: none"> • Loss of flora and vegetation and loss of fauna habitat through clearing • Indirect impacts from dust, weeds, rubbish, changed surface water flows, increased nutrients and/or edge effects • Impacts from the spread of diseases, including <i>Phytophthora</i> spp. dieback • Loss of, or impact to, groundwater dependent ecosystems • Loss of wetlands, their buffers and riparian vegetation • Increased risk of fire • Fragmentation of intact vegetation
Required work	1. Identify and characterise the flora and vegetation of areas that may be directly or indirectly impacted by the proposal in accordance with the relevant guidance set out below. Demonstrate how surveys are

	<p>relevant, representative and demonstrate consistency with current EPA policy and guidance set out below. Include a summary of survey findings in accordance with relevant guidelines set out below.</p> <p><i>Note: if biological surveys were undertaken at the referral stage, survey results and a demonstration of how the requirements have been met are to be included in the PER. Ensure species database searches and taxonomic identifications are up-to-date.</i></p> <ol style="list-style-type: none"> 2. Identify wetlands and waterways that may be directly or indirectly impacted utilising the relevant database(s) set out below. 3. Undertake targeted survey/s for the Commonwealth listed Endangered/Threatened species <i>Drakaea elastica</i> in accordance with the relevant Department of Environment and Energy (DoEE) survey guidelines. Detail how these guidelines have been followed. 4. Identify and describe any flora species and ecological communities recorded during 1 and 3 above that are currently listed under the <i>Wildlife Conservation Act 1950</i> and the <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>. 5. Determine whether any vegetation identified in 1 above is consistent with the classification of the Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (the TEC). If any vegetation is classified as the TEC, present survey information consistent with the relevant guidelines set out below. 6. Identify and describe the vegetation, wetlands, waterways 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 in 1, 2, 3, 4 and 5 above. Include an analysis of the significance of flora, vegetation, wetlands and waterways in local, regional and State contexts as appropriate in accordance with the relevant guidance set out below. 7. Provide a map depicting the recorded locations of the significant flora, wetlands, ecological communities and significant vegetation in 6 above in relation to the development envelope in accordance with the relevant guidelines set out below. 8. Once the development envelope has been finalised, assess the potential direct and indirect impacts of the construction and operational elements of the proposal on identified environmental values in 6 above. Include a quantitative assessment of levels of impact on significant flora, wetlands, waterways, listed ecological communities and all vegetation units. Describe and assess the extent of any cumulative impacts within local, regional and State contexts as appropriate. 9. Describe and justify any proposed mitigation to reduce the potential impacts of construction and operation of the proposal. Include any
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	<p>proposed management and/or monitoring plans that will be implemented pre- and post-construction to demonstrate and ensure that the EPA’s objective can be met.</p> <p>10. Identify, describe and quantify the potential residual impacts (direct, indirect and cumulative) that may occur following implementation of the proposed mitigation measures and determine the significance of the residual impacts on the identified environmental values by applying the Residual Impact Significance Model (page 11) and WA Offset template (Appendix 1) in the WA Environmental Offsets Guidelines (2014). Provide spatial data defining the area of any identified significant residual impacts and proposed offsets in relation to the development envelope. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines.</p>
Relevant policy and guidance	<p>EPA Policy and Guidance</p> <ul style="list-style-type: none"> • <i>Statement of Environmental Principles, Factors and Objectives</i>, December 2016 • <i>Environmental Factor Guideline – Flora and Vegetation</i>, December 2016 • <i>Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment</i>, December 2016 <p>Other policy and guidance</p> <ul style="list-style-type: none"> • <i>DoEE Banksia Woodlands of the Swan Coastal Plain: Draft guidance for Part 7 referrals.</i> • <i>DoEE 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> • Commonwealth Threat Abatement and Recovery Plans, Interim Recovery Plans and Conservation Advice where relevant. • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Template</i>, 2014 • Department of Biodiversity, Conservation and Attractions <i>Geomorphic Wetlands Swan Coastal Plain Dataset</i> (last updated July 2016)

Terrestrial Fauna	
EPA objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained
Relevant activities	<ul style="list-style-type: none"> • Permanent and temporary clearing • Movement of machinery during construction and movement of vehicles during construction and operation • Installation of culverts and dewatering for bridge construction • Construction and ongoing permanent presence of the road

	<ul style="list-style-type: none"> • Lighting during construction and operation
Potential impacts and risks	<ul style="list-style-type: none"> • Permanent or temporary loss of fauna habitat due to clearing, dewatering, changes to surface water flows and/or impacts to wetland buffers • Disturbance to waterbirds (including migratory species) from impacts to wetlands • 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 due to weed or disease invasion or edge effects. • Noise and lighting during construction and operation may impact fauna movement and habit • Change in feral animal abundance and/or movement
Required work	<p>11. Undertake terrestrial fauna and fauna habitat surveys of the proposal area in accordance with relevant EPA and Department of Environment and Energy guidelines set out below, including appropriate targeted surveys for significant fauna on land and in aquatic systems. The degree to which these guidelines have been followed should be provided. Adequate reasons for departing from guidelines should be provided where and if relevant.</p> <p><i>Note: if biological surveys were undertaken at the referral stage, survey results and a demonstration of how the requirements have been met are to be included in the PER. If database searches were undertaken at the referral stage, ensure that no new information has been added to the database since the search was undertaken.</i></p> <p>12. Identify and describe the values and significance of fauna, fauna habitat and habitat connectivity within, and immediately adjacent to, the development envelope from 11 above within local and regional contexts as appropriate.</p> <p>13. Identify and describe any fauna species recorded during 11 above that are currently listed under the <i>Wildlife Conservation Act 1950</i> and <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p>14. Identify any potential fauna movement corridors within, adjacent to or across the development envelope including, but not limited to, areas of intact native vegetation and drainage lines, using appropriate methods. Describe the methods undertaken.</p> <p>15. Provide a map depicting the fauna habitats from 12 above in relation to the development envelope, and document the extent in hectares of each habitat type in the proposal area, development envelope and expected direct and indirect impact footprints.</p> <p>16. Provide a map depicting the known recorded locations of significant species, significant habitats (such as black cockatoo foraging habitats),</p>

	<p>significant habitat features (such as black cockatoo breeding hollows) and any potential fauna movement corridors identified in 12 and 14 above in relation to the development envelope in accordance with relevant guidelines set out below.</p> <p>17. Once the development envelope has been finalised, 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, fauna habitats and habitat corridors in 12 and 14 above. Describe and assess the extent of any cumulative impacts within local and regional contexts as appropriate.</p> <p>18. Describe and justify 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 culverts and/or fauna underpasses/overpasses. Include any proposed management and/or monitoring plans that will be implemented pre- and post-construction to demonstrate and ensure that the EPA’s objective can be met.</p> <p>19. Identify, describe and quantify 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 environmental values by applying the Residual Impact Significance Model (page 11) and WA Offset template (Appendix 1) in the WA Environmental Offsets Guidelines (2014). Provide spatial data defining the area of any identified significant residual impacts and proposed offsets in relation to the development envelope. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines.</p>
<p>Relevant policy and guidance</p>	<p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Statement of Environmental Principles, Factors and Objectives</i>, December 2016 • <i>Environmental Factor Guideline – Terrestrial Fauna</i>, December 2016 • <i>Technical guidance: Sampling methods for terrestrial vertebrate fauna</i>, December 2016 • <i>Technical guidance: Terrestrial fauna surveys</i>, December 2016 <p><i>Other policy and guidance</i></p> <ul style="list-style-type: none"> • <i>DoEE Survey guidelines for Australia’s threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act</i> • Commonwealth Threat Abatement and Recovery Plans, Interim Recovery Plans and Conservation Advice where relevant • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Template</i>, 2014

Hydrological Processes and Inland Waters Environmental Quality	
EPA objective	<ul style="list-style-type: none"> • To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected. • To maintain the quality of groundwater and surface water so that environmental values are protected.
Relevant activities	<ul style="list-style-type: none"> • Construction and ongoing presence of bridges, culverts and creek crossings • Dewatering during bridge construction • Compaction of soils for road construction • Earthworks, clearing of vegetation and stockpiling of topsoil • Refuelling of earthmoving machinery and other vehicles during construction • Use of equipment and/or vehicles that may require servicing • Physical presence of road • Runoff from road surface during operation
Potential impacts and risks	<ul style="list-style-type: none"> • Interruption of and changes to surface water flows • Changes to infiltration and recharge of groundwater • Drawdown of groundwater • Degradation of wetlands • Increased sediment loads entering waterways and/or wetlands • Contamination of surface and/or groundwater due to leaks and spills of hydrocarbons and/or other potential pollutants • Exposure of acid sulfate soils leading to mobilisation of contaminants • Change in surface water quality due to discharge of groundwater • Pollution of local waterways due to road runoff • Loss or decline of groundwater dependent ecosystems and riparian vegetation • Loss of terrestrial (freshwater) fauna due to changes in water quality or hydrological regime
Required work	<p>20. Identify and describe the values and significance of surface and groundwater hydrological and soil (hydrogeological) characteristics within the refined development envelope and the immediately adjacent area upstream and downstream of the development envelope in accordance with relevant policy and guidance set out below. Identify and describe wetlands within and in proximity upstream and downstream to the refined development envelope utilising the relevant database(s) set out below. Describe these values in local, regional and State contexts as appropriate. Identify users of the identified values.</p> <p>21. Describe and assess the potential impacts (direct and indirect) as a result of both construction and operational elements of the proposal on water quantity (excess and deficit) and quality in relation to the</p>

	<p>surface and groundwater, waterways and their floodplains and wetlands in 20 above in accordance with the relevant policy and guidance set out below.</p> <p>22. Once the development envelope has been refined, predict the extent, severity and duration of potential impacts to 20 above, including changes to local and regional surface and groundwater flows and levels (excess and deficit), groundwater drawdown, local surface and groundwater quality and impacts to surface and groundwater users as a result of construction and operation in accordance with the relevant policy and guidance set out below.</p> <p>23. Describe any proposed mitigation to reduce the potential impacts of construction and operation of the proposal on 20 above. Provide maps of and justification for the location and number of any proposed culverts and stormwater infrastructure. Include any proposed management and/or monitoring plans and strategies (for example the Drainage Strategy for the Perth-Darwin National Highway (Swan Valley section proposal) that will be implemented pre- and post-construction to demonstrate and ensure the EPA’s objectives can be met. Include any hydrological and hydrogeological assessments undertaken for dewatering and groundwater use.</p> <p>24. Identify, describe and quantify 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 environmental values by applying the Residual Impact Significance Model (page 11) and WA Offset template (Appendix 1) in the WA Environmental Offsets Guidelines (2014). Provide spatial data defining the area of any identified significant residual impacts and proposed offsets in relation to the development envelope. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines.</p> <p><i>Note: Offsets may be appropriate if the construction or operation of the proposal results in a change in the hydrology of a wetland upstream or downstream of the development envelope such that the wetland or its ecological function are significantly impacted by the proposal. In this instance an offset would be appropriate to counter the significant residual impact to the hydrological processes of the wetland. Please refer to Figure 3 of the WA Environmental Offsets Guidelines, 2014.</i></p>
<p>Relevant policy and guidance</p>	<p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Statement of Environmental Principles, Factors and Objectives, December 2016</i> • <i>Environmental Factor Guideline – Hydrological Processes, December 2016</i>

	<ul style="list-style-type: none"> • <i>Environmental factor Guideline – Inland Waters Environmental Quality</i>, December 2016 <p>Other policy and guidance</p> <ul style="list-style-type: none"> • <i>Western Australian Environmental Offsets Policy</i>, September 2011 • <i>Western Australian Environmental Offsets Guidelines</i>, August 2014 • <i>Western Australian Environmental Offsets Template</i>, 2014 • Department of Biodiversity, Conservation and Attractions <i>Geomorphic Wetlands Swan Coastal Plain Dataset</i> (last updated July 2016) • Department of Water <i>Operational policy no. 5.12 – Hydrogeological reporting associated with a groundwater well licence</i>, November 2009 • Department of Water <i>Stormwater management manual for Western Australia: A component of integrated water cycle management</i>, 2004 – 2007 • <i>State Planning Policy 2.9 – Water resources</i>
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Social Surroundings	
EPA objective	To protect social surroundings from significant harm.
Relevant activities	<ul style="list-style-type: none"> • Earthworks, excavations and other construction activities • Bridge construction and creek crossings • Construction and ongoing presence of cuts and embankments • Operational road traffic • Physical presence of the new road and associated infrastructure
Potential impacts and risks	<ul style="list-style-type: none"> • Physical damage or loss of Aboriginal heritage sites and subsequent impacts to mythological, cultural and heritage values • Loss of access to and use of Aboriginal heritage sites for Traditional Owners • Increase in noise levels and vibration for sensitive receptors in a rural setting • Increase in dust emissions during construction • Reduced local amenity due to increase in road traffic, change in rural vista due to cuts or embankments, glare from headlights, presence of street lighting and proximity of national highway.
Required work	<p>Aboriginal Heritage</p> <p>25. Conduct archaeological and ethnographic studies of the area likely to be directly and/or indirectly impacted by the proposal in order to identify and characterise any Aboriginal heritage sites and their relevance and importance to Aboriginal People and their culture.</p> <p>26. Describe and assess any potential impacts (direct and indirect) to Aboriginal heritage values in 25 above that may occur as a result of implementation of the proposal.</p>

27. Describe any proposed mitigation measures to avoid or minimise the identified direct and indirect impacts on Aboriginal heritage in 26 above.
28. Include any proposed management and/or monitoring plans for Aboriginal heritage that will be implemented pre- and post-construction to demonstrate and ensure the EPA's objectives can be met.
29. 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 environmental values of Aboriginal heritage with reference to the residual impact model set out in the WA Environmental Offsets Guidelines.

Noise

30. Undertake noise monitoring along the proposed alignment to determine ambient noise levels in areas of noise sensitive receptors.
31. Undertake a screening assessment and if required a detailed noise assessment in accordance with the relevant guidelines set out below to predict future noise levels resulting from the proposal on sensitive receptors, including recreational values as appropriate.
32. Identify relevant noise mitigation measures for identified sensitive receptors in 31 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.
33. Include any proposed management and/or monitoring plans for noise that will be implemented pre- and post-construction to demonstrate and ensure the EPA's objectives can be met.
34. 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 on the identified sensitive receptors in 31 above with reference to the residual impact model set out in the WA Environmental Offsets Guidelines.

Visual Amenity, dust and light-spill

35. Characterise the land use and aesthetic (visual amenity) values along the proposed alignment that have the potential to be impacted by implementation of the proposal.
36. Identify and describe any potential direct and indirect impacts on identified visual amenity values in 35 above as a result of implementation of the proposal.

	<p>37. Identify and describe any proposed mitigation measures to avoid or minimise the potential impacts to visual amenity values in 35 above along the proposed alignment.</p> <p>38. Characterise current, pre-construction dust and light-spill emissions at sensitive receptors along the proposed alignment that could be impacted by dust and/or light-spill emissions (including headlight glare and intersection lighting) during construction and operation of the proposal.</p> <p>39. Identify and describe the potential sources and impacts (direct and indirect) of dust and light-spill (including headlight glare or intersection lighting) for the sensitive receptors in 38 above that may arise from construction and operation of the proposal.</p> <p>40. Describe and assess any proposed mitigation measures to avoid or minimise the identified sources of and direct and indirect impacts from dust and light-spill (including headlight glare or intersection lighting) in 38 above.</p> <p>41. Include any proposed management and/or monitoring plans for visual amenity, dust and light-spill that will be implemented pre- and post-construction to demonstrate and ensure the EPA’s objectives can be met.</p> <p>42. 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 visual amenity, dust and light-spill with reference to the residual impact model set out in the WA Environmental Offsets Guidelines.</p>
<p>Relevant policy and guidance</p>	<p><i>EPA Policy and Guidance</i></p> <ul style="list-style-type: none"> • <i>Statement of Environmental Principles, Factors and Objectives, December 2016</i> • <i>Environmental Factor Guideline – Social Surroundings, December 2016</i> <p><i>Other policy and guidance</i></p> <ul style="list-style-type: none"> • <i>State Planning Policy 3.7 – Planning in bushfire prone areas</i> • <i>State Planning Policy 5.4 – Road and rail transport noise and freight considerations in land use planning</i> • <i>Implementation guidelines for state planning policy 5.4</i> • <i>Western Australian Environmental Offsets Policy, September 2011</i> • <i>Western Australian Environmental Offsets Guidelines, August 2014</i> • <i>Western Australian Environmental Offsets Template, 2014</i>

4. Other environmental factors or matters

If it is determined that the proposal has the potential to impact matters of national environmental significance (MNES) and is to be assessed as an accredited assessment under the *Environment Protection and Biodiversity Conservation Act 1999*, the ERD will:

- identify the MNES
- address the potential impacts on these matters

within each relevant preliminary environmental factor.

The ERD will include a separate section that summarises the potential impacts on MNES and describes, to the extent practicable, any feasible alternatives to the proposed action and possible mitigation measures.

If it is determined that offsets are required, propose an appropriate Offset Strategy for each factor for which a residual impact is likely to occur. The Offset Strategy should include a discussion on management measures, outcomes/objectives sought to ensure residual impacts (direct and indirect) are not greater than predicted. The Offset Strategy should set out how the proposed Offset package complies with the WA Environmental Offsets Policy.

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 4 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 Environment	<i>Wildlife Conservation Act 1950</i>
2. Minister for Water	<i>Rights in Water and Irrigation Act 1914</i>
3. Minister for Lands	<i>Land Administration Act 1997</i>
4. Minister for Aboriginal Affairs	<i>Aboriginal Heritage Act 1972</i>

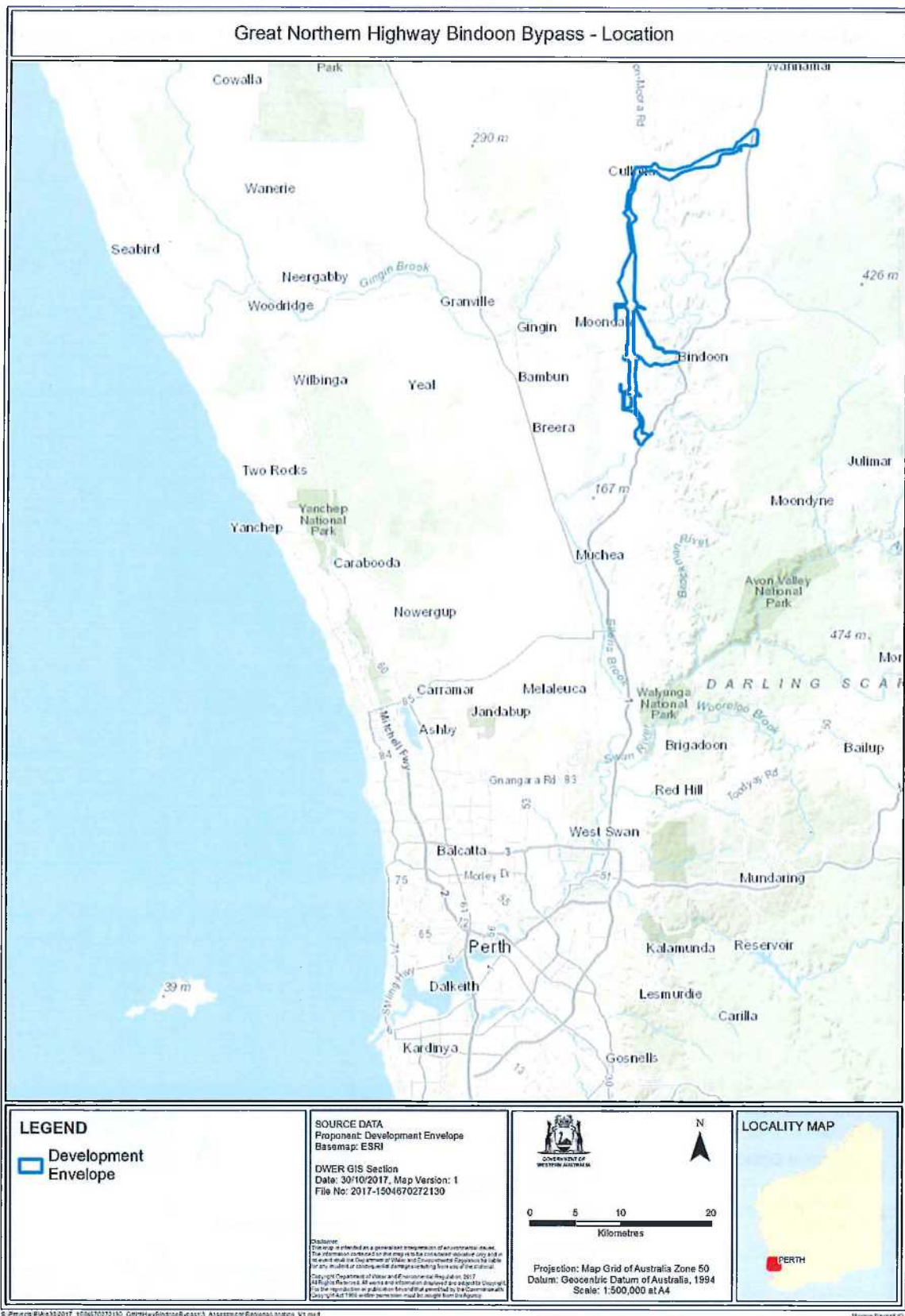


Figure 1 – Regional location



Figure 2 – Development envelope