

Dampier to Bunbury Natural Gas Pipeline Corridor Widening - Kwinana to Bunbury Project

Gas Pipeline Sale Steering Committee

**Advice to the Minister for the Environment from the Environmental Protection
Authority (EPA) under Section 16(e) of the *Environmental Protection Act 1986***

**(This is not an assessment of the Environmental Protection Authority under Part IV of the
Environmental Protection Act 1986)**

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Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice to the Minister for the Environment on the strategic assessment of the concept by the Gas Pipeline Sale Steering Committee (GPSSC) to expand the existing Dampier to Bunbury Natural Gas Pipeline (DBNGP) corridor between Kwinana and the Kemerton Industrial Estate.

The GPSSC, on behalf of the Western Australian State Government, requested early advice from the Environmental Protection Authority on any environmental constraints on establishing the expanded corridor. The EPA's report highlights areas where further work would be required by proponents prior to assessment of individual future proposals for gas pipelines within the proposed expanded corridor, under Section 38 of the *Environmental Protection Act, 1986*.

Relevant environmental factors

Although a number of environmental factors were considered by the EPA in the strategic assessment, it is the EPA's opinion that the following are the environmental factors that would need to be addressed in detail in any assessment of an individual proposal:

- (a) Terrestrial flora;
- (b) Specially Protected (Threatened) Fauna;
- (c) Rehabilitation;
- (d) Liquid and solid waste disposal;
- (e) Dust;
- (f) Noise and vibration;
- (g) Surface water and groundwater;
- (h) Rivers and streams;
- (i) Wetlands;
- (j) Risk and hazards; and
- (k) Culture and heritage.

Conclusion

The EPA has strategically assessed the concept to expand the existing DBNGP corridor between Kwinana and the Kemerton Industrial Estate.

The EPA notes that no major constraints that would preclude the use of the proposed expanded corridor for the construction of future gas transmission pipelines have been identified on the basis of the information currently available.

The EPA also notes the commitments that will need to be made and implemented by future proponent(s) intending to construct new gas transmission pipelines within the proposed expanded corridor.

The EPA has concluded that all factors identified can be managed in an environmentally acceptable manner, and that it is unlikely that the EPA's environmental objectives would be compromised, subject to future proponent(s) agreeing to adopt the recommended commitments detailed in this report, and implementing them in a satisfactory manner.

Any specific proposal for the development of new gas transmission pipelines within the proposed expanded corridor will require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the concept on which advice is being provided is the expansion of the existing DBNGP corridor between Kwinana and the Kemerton Industrial Estate.
2. That the Minister considers the EPA's advice on relevant environmental factors as detailed in Section 3 of this report.
3. That the Minister notes that the EPA has concluded that no major constraints that would preclude the use of the proposed expanded corridor for the construction of future gas transmission pipelines have been identified on the basis of the information currently available.
4. That the Minister notes that the EPA has concluded that the intent of the commitments that will need to be adopted and implemented by future proponent(s) intending to construct new gas transmission pipelines within the proposed expanded corridor is appropriate.
5. That the Minister notes that future proposals for the development of new gas transmission pipelines within the proposed expanded corridor would require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

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1. List of submitters
2. References
3. Consolidated list of commitments on management measures to be implemented by future proponent(s)
4. CD containing the summary of submissions and the proponent's response to submissions, a copy of the Strategic Environmental Review document (including Appendices A - J), and Attachment 1 - Synopsis of the Natural Values of the Kemerton Bushland and the Potential Damaging Impacts of Service Corridors

1. Introduction and background

The Gas Pipeline Sale Steering Committee (GPSSC), on behalf of the Western Australian Government, requested the Environmental Protection Authority (EPA) to undertake a strategic assessment of the concept of expanding the existing Dampier to Bunbury Natural Gas Pipeline (DBNGP) corridor between Kwinana and the Kemerton Industrial Estate.

As the concept to establish the corridor did not constitute a “proposal”, it could not be subject to environmental impact assessment under Section 38 of the *Environmental Protection Act, 1986* with associated Conditions imposed by the Minister for the Environment. The EPA has considered the proposed expanded corridor at a conceptual level and provides advice on the concept to the Minister for the Environment under Section 16(e) of the *Environmental Protection Act, 1986*. The advice is provided to guide the establishment of the expanded corridor, through identification of ‘fatal flaws’ early in the planning of the concept and to provide guidance to potential gas pipeline developers on the type and extent of further work that will be required for environmental approval in order to address environmental issues of concern to the EPA.

The GPSSC prepared a Strategic Environmental Review (SER) document which was made available for a four week public review period commencing on 29 March 2004 and closing on 27 April 2004.

In compiling this report, the EPA has considered the relevant environmental factors associated with the concept, issues raised in public submissions during the public review period, specialist advice from the Department of Environment (DoE) and other government agencies, the proponent’s response to submissions and the EPA’s own research and expertise.

Further details of the concept are presented in Section 2 of this report while Section 3 discusses environmental factors relevant to the concept. Commitments requiring management measures to be implemented by future proponent(s) are commented on in Section 4. The EPA provides general advice on other issues associated with the concept in Section 5. Section 6 outlines the EPA’s conclusions on the strategic assessment. The EPA’s Recommendations regarding the concept are included in Section 7. A list of people and organisations that made submissions is included in Appendix 1 and References are listed in Appendix 2. A list of consolidated commitments that require management measures to be implemented by future proponent(s) is included in Appendix 3. Appendix 4 features a CD which contains a summary of submissions and the proponent’s response to submissions and is included as a matter of information only. It does not form part of the EPA’s report and recommendations. The EPA has considered issues raised in public submissions and the response from the GPSSC to those issues when identifying relevant environmental factors. The CD in Appendix 4 also contains an electronic copy of the SER document (including Appendices A - J), and Attachment 1 - Synopsis of the Natural Values of the Kemerton Bushland and the Potential Damaging Impacts of Service Corridors.

2. The concept

The GPSSC proposes to expand the existing DBNGP corridor between Kwinana and the Kemerton Industrial Estate in order to ensure that the necessary tenure is in place to accommodate the construction of future gas transmission pipelines. When the concept was originally referred to the EPA, the GPSSC intended to continue the expansion south to the DBNGP terminus at Clifton Road, Australind. For a number of reasons, including market and logistical factors, this was subsequently modified to make the Kemerton Industrial Estate the end point of the expansion.

The proposed expanded corridor is approximately 118km long and extends from Kwinana Junction, located at the intersection of Thomas Road and Abercrombie Road in the southern metropolitan suburb of Postans, to the Kemerton Industrial Estate in the Shire of Harvey (Figure 1).

The width of the DBNGP corridor will be expanded to 50m, which will enable the construction of up to four additional gas pipelines within the proposed corridor over the next 100 years. In some locations it has been necessary to deviate from the existing DBNGP corridor to avoid environmentally sensitive areas. In these areas a separate 30m wide corridor will be established.

Where expansion is to occur to the west of the existing DBNGP, sequential construction of additional gas pipelines within the 50m wide corridor would enable space within it to be used for running tracks and some storage areas etc. Where construction is to occur to the east of the existing DBNGP, or within deviations, additional space may be required for construction activities.

Once the expanded corridor is established, the Western Australian Government will be able to confer the necessary rights to pipeline operators to enable them to build, own and operate gas transmission pipelines within the corridor. Provision will be made for the construction of up to four additional gas transmission pipelines to service the envisaged increase in demand for natural gas in the south-west of Western Australia over the next century.

A more detailed description of the original concept can be found in the SER document (Bowman Bishaw Gorman, 2004a) [refer to CD in Appendix 4].

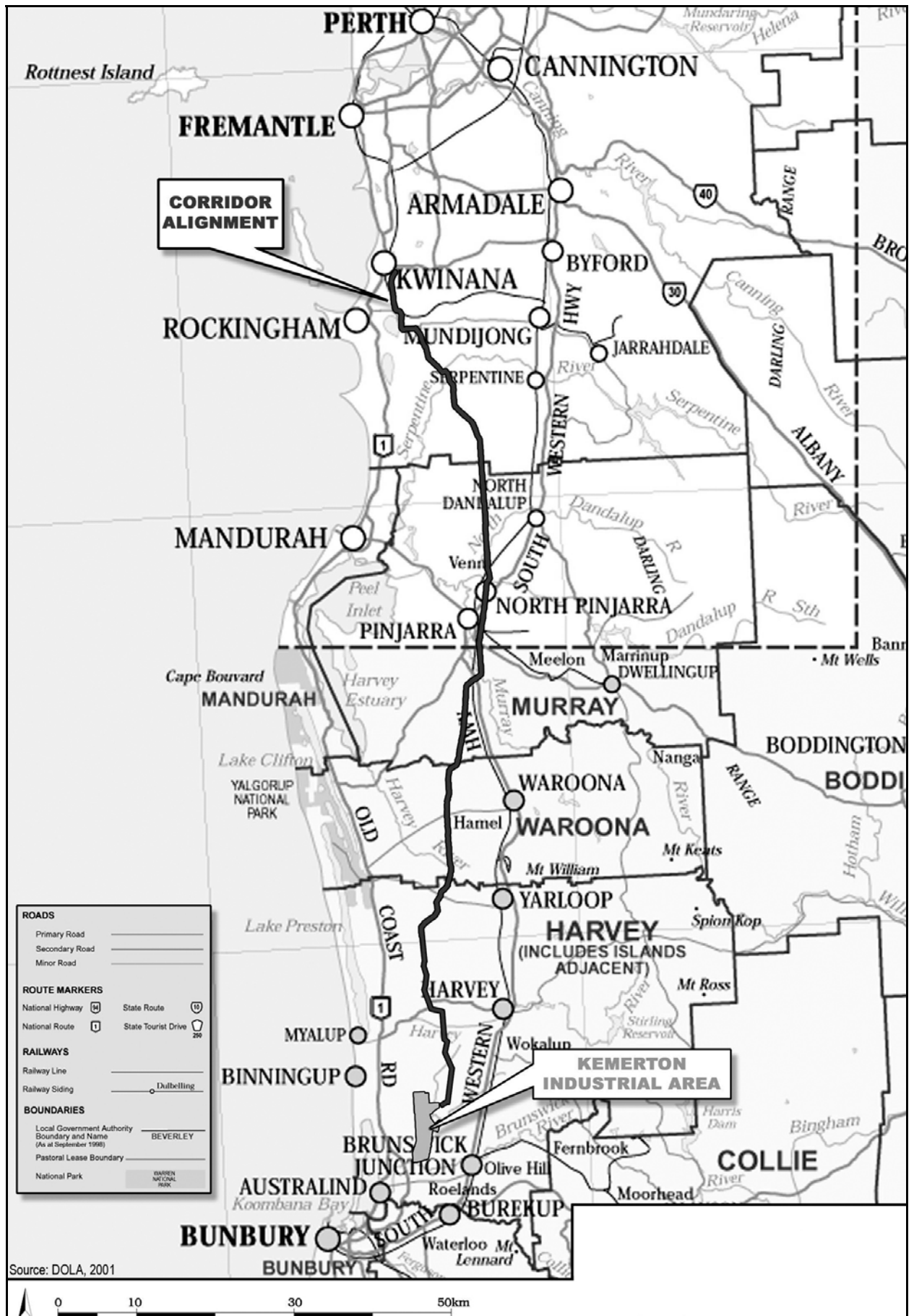


Figure 1. Corridor location (Source: Modified version of Figure 1 from Bowman Bishaw Gorman, 2004a)

3. Relevant environmental factors

Appendix A of the SER contains a copy of the EPA's guidelines for the assessment and identifies the issues to be addressed during the assessment.

Having considered appropriate references, public and government submissions and the proponent's response to submissions, in the EPA's opinion, the following are the environmental factors relevant to the proposal:

- (a) Terrestrial flora;
- (b) Specially Protected (Threatened) Fauna;
- (c) Rehabilitation;
- (d) Liquid and solid waste disposal;
- (e) Dust;
- (f) Noise and vibration;
- (g) Surface water and groundwater;
- (h) Rivers and streams;
- (i) Wetlands;
- (j) Risk and hazards; and
- (k) Culture and heritage.

Details on the relevant environmental factors are contained in Sections 3.1 - 3.11. The description of each factor shows why it is important and how the establishment of the expanded corridor, and the development of future gas transmission pipelines within it, may impact upon the environment.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors generated from the SER document and the submissions received, in conjunction with the proposal characteristics.

Objectives for each factor have been included to assist in providing guidance to any potential developers. Objectives for any or all factors may change for any subsequent proposal based on subsequent information that becomes available.

Submissions on the SER are summarised before the EPA assessment for each relevant factor.

3.1 Terrestrial flora

3.1.1 Declared Rare and Priority Flora and vegetation communities

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact on Declared Rare and Priority Flora, and vegetation communities.

Submissions

The Department of Conservation and Land Management's (CALM's) submission indicated that there was a need to:

- further investigate flora and vegetation at Leda and Kemerton, and to consider alternative corridor routes in these areas and near the Buller Nature Reserve;
- include a Flora and Vegetation Management Plan;
- implement an Access Management Plan where any pipeline development arising from the current SER is likely to impact on remnant vegetation or reserves;
- clarify whether communities listed as threatened ecological communities (TECs) at the State level (i.e. not listed under the *Environment Protection and Biodiversity Conservation Act, 1999*) [EPBC Act, 1999] are present on the alignment;
- provide additional information on the condition of TEC 3a as this had not been adequately addressed within the SER document;
- include a review of species lists for conservation status of individual species and of vegetation mapping for conservation status of communities, and additional biological surveys if required for future environmental assessment of proposals; and
- provide an offset for potential impacts on and/or loss of vegetation of significance.

The EPA Service Unit (EPASU) expressed the following concerns:

- the significance of TEC 3a appeared to be understated;
- a Flora Management Plan should be included in the list of proposed management plans as recommended on page 19 in Appendix G of the SER document;
- the predicted outcome that there will be “No impact on DRF or Priority Flora” was not appropriate as the status of some plant species still needs to be determined;
- the statements and assumptions made in Table E0.1 of the SER document in relation to the clearing of native vegetation and the ability to successfully rehabilitate the affected areas were questioned;
- Table E0.1 of the SER document did not accurately reflect the nature of impacts on native vegetation;
- the significant conservation values of the bushland north of Kemerton had not been adequately recognised;
- more consideration needed to be applied to the distribution and status of Priority Flora on the proposed alignments;
- additional fieldwork should be conducted in those areas where the three Priority Flora species were recorded, to include the species listed in Appendix A and Appendix B; and
- the conservation status of the flora along the proposed corridor had not been adequately addressed.

The Department of Environment (DoE) indicated that the Pines deviation should be reconsidered as a viable option given that it avoids System 6 and native vegetation areas.

A member of the public indicated that the proposed new route goes through two areas of remnant vegetation on their property, including one that they have been trying to rehabilitate.

The Southern Peel-Harvey Landcare Project expressed the following concerns:

- the statement in Table E0.1 that there would be “No impact on DRF or Priority Flora” should be changed to "Limited impact on DRF or Priority Flora";
- details need to be provided on the economic values that were credited to the loss of remnant vegetation in determining the viability of the Pines deviation, and whether ecosystem services were considered in the analysis;
- the impact on two remnant areas of vegetation on Murray locations D089639 61 & 62 should be avoided via minor deviation options;
- the SER document did not identify the proportion of the flora survey that was done in spring. Spring surveys are important and should be undertaken by future proponents;
- the potential impact of the proposed corridor on TEC 3c. If that community does lie within the proposed corridor then referral should be made under the EPBC Act, 1999; and
- details need to be provided on the actions that have been triggered within the SER document as a result of CALM locating two plant species listed as Priority Flora.

EPA advice

The EPA’s environmental objectives for this factor are to:

- protect Declared Rare and Priority Flora, consistent with the provisions of the *Wildlife Conservation Act, 1950*; and
- maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 2 - see Appendix 3 of this report) to implement appropriate actions to minimise construction impacts on flora and vegetation communities. Commitment No. 2 includes the following action items:

1. All ground-disturbing construction activity will be restricted to the identified corridor.
2. Restricted working widths will be maintained through areas of native vegetation to limit impacts on vegetation.
3. Develop a Bushfire Management Plan.
4. Detailed management strategies for vegetation protection will be developed prior to construction.

5. GPSSC will discuss the potential to establish offset areas to replace vegetation impacted by the proposal.

The EPA notes from the SER document that the management strategies referred to in action items 2, 3, and 4 in the above commitment will be included in an Environmental Management Plan (EMP) that future pipeline proponent(s) will be required to commit to prepare (i.e. Commitment No. 1).

The EPA expects that future pipeline proponent(s) will be required to undertake additional vegetation surveys in those communities that support Priority Flora prior to construction in order to determine appropriate mitigation measures that can be implemented to minimise impacts to these species. The EPA also notes that future pipeline proponent(s) may be required to undertake additional flora and vegetation surveys prior to construction in order to supplement existing information. Where flora and vegetation surveys are undertaken by future proponent(s), the EPA expects that they would be conducted in accordance with the advice provided in EPA Guidance Statement No. 51 titled, "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia" (EPA, 2004a). The EPA intends to produce a specific addendum to EPA Guidance Statement No. 51 to address the scope of terrestrial flora and vegetation surveys for infrastructure corridor development proposals.

The EPA considers that the management measures described on pages 73, 74, and 75 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on Declared Rare and Priority Flora and vegetation communities are environmentally acceptable, given the current level of knowledge.

The EPA notes that in order to address the concerns raised by the EPASU, CALM, and the DoE in regard to the potential impacts on the Leda Nature Reserve, the areas immediately to the north of the Buller Nature Reserve, east of the Myalup Management Priority Area, and north of the Kemerton Industrial Estate, additional detailed botanical surveys and joint field inspections were undertaken to determine whether a more environmentally acceptable corridor route could be adopted. The EPA was advised that as a result, the originally proposed corridor route was likely to be acceptable through the Leda Nature Reserve (Figure 2) and north of the Buller Nature Reserve (Figures 3 and 4), but was modified in the vicinity of the Myalup Management Priority Area (Figure 5) and the Kemerton Industrial Estate (Figure 6).

A synopsis of the natural values of the Kemerton Bushland and the potential damaging impacts of service corridors is provided in Attachment 1 (DoE 2004) [refer to CD in Appendix 4].

The EPA considers that the outcomes of the above-mentioned botanical surveys and joint field inspections, as well as the proponent's responses to the public submissions, have adequately addressed the concerns that were raised in relation to Declared Rare and Priority Flora and vegetation communities. However, the EPA recommends that the EMP referred to above should include a Flora and Vegetation Management Plan to enable the relevant management measures to be easily accessed in one location.

Whilst the EPA acknowledges that the final modified corridor route minimises the amount of vegetation that will need to be cleared for future gas pipeline construction, it considers that offsets should be provided by future proponents to account for any vegetation that will be cleared. The EPA considers that these offsets should be provided in a manner which is consistent with the principles and objectives of EPA Position Statement No. 9 titled, “Environmental Offsets” (EPA 2004b).

In view of the above, the EPA considers that the proposal can be managed to meet the EPA’s environmental objective for this factor.

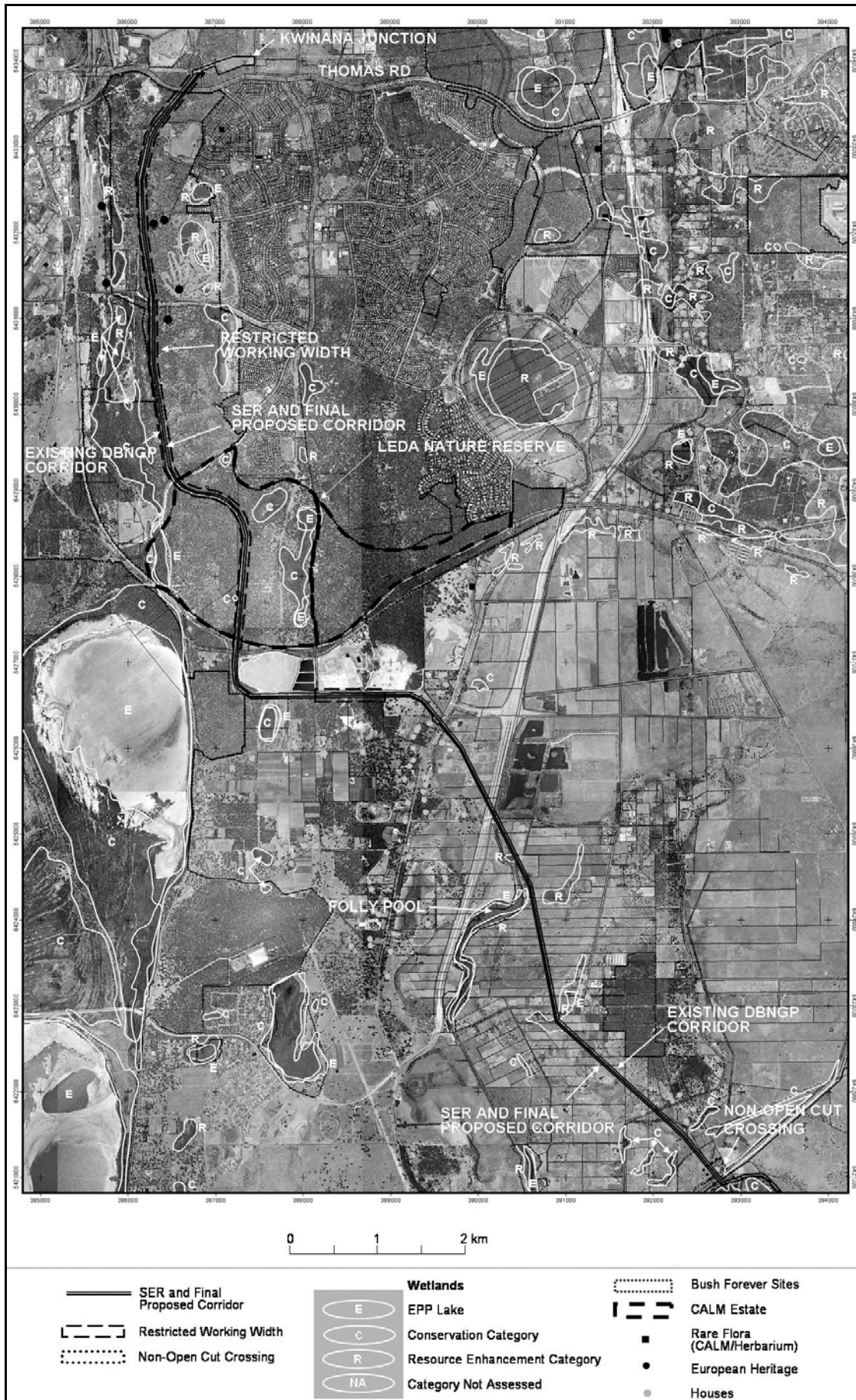


Figure 2 Corridor location in the vicinity of the Leda Nature Reserve (Source: Modified version of Figure 2a from Bowman Bishaw Gorman, 2004a)



Figure 3 Corridor location north of Buller Nature Reserve (Source: Modified version of Figure 1 - Appendix B from Bowman Bishaw Gorman, 2004b)

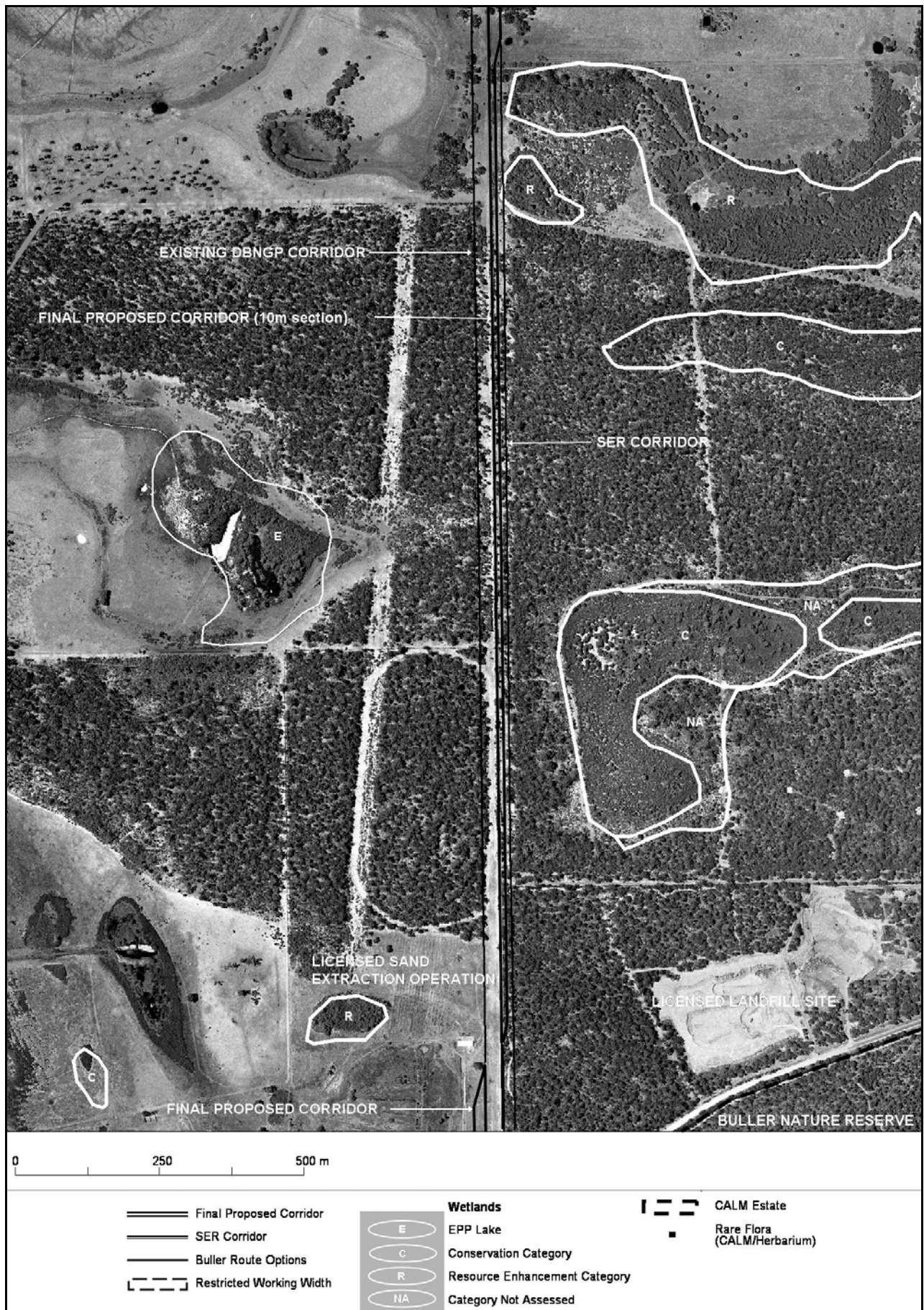


Figure 4 Close-up view of corridor location north of Buller Nature Reserve (Source: Modified version of Figure 2 - Appendix B from Bowman Bishaw Gorman, 2004b)

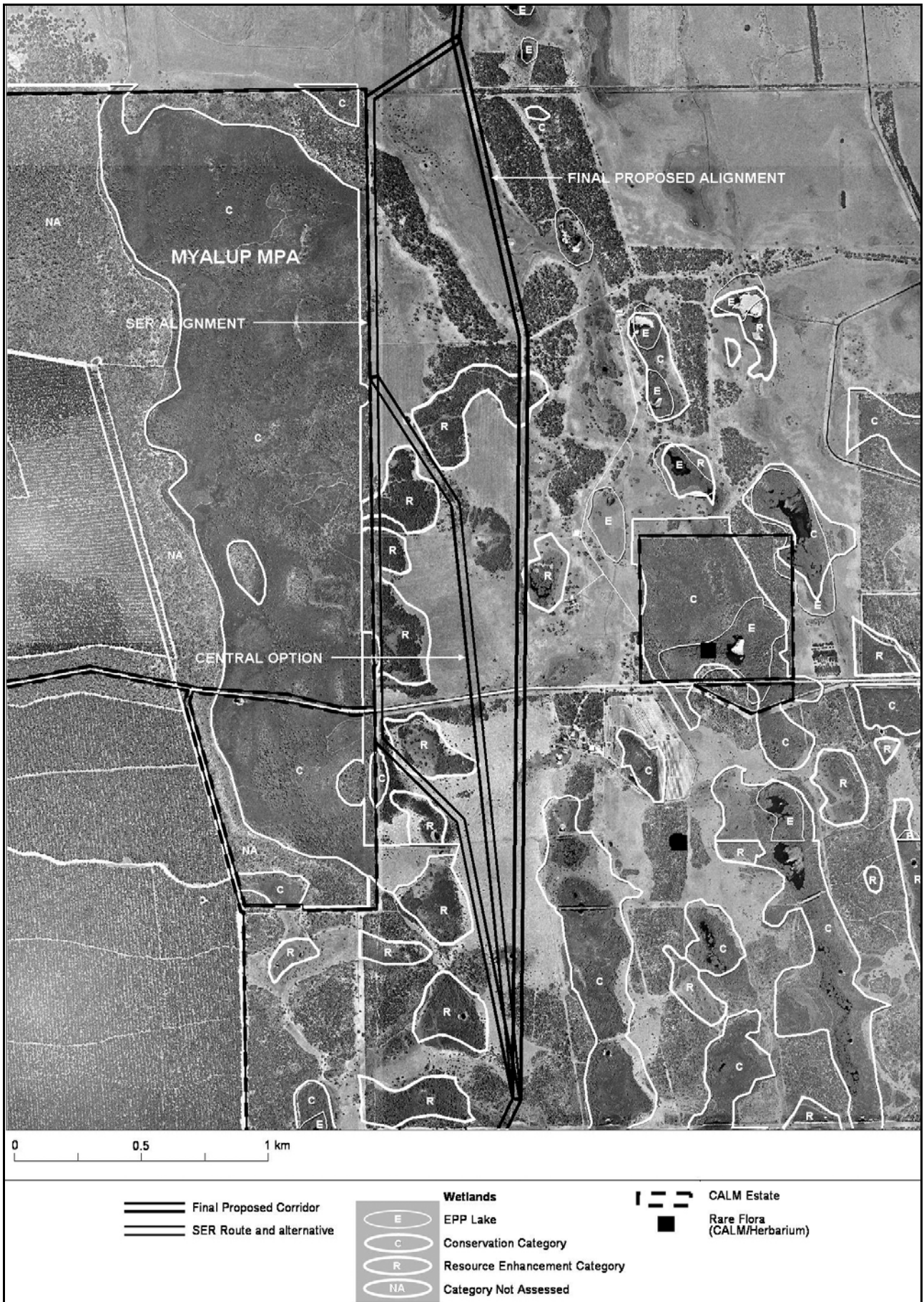


Figure 5 *Corridor location in the vicinity of the Myalup Management Priority Area (Source: Modified version of Figure 3 - Appendix B from Bowman Bishaw Gorman, 2004b)*

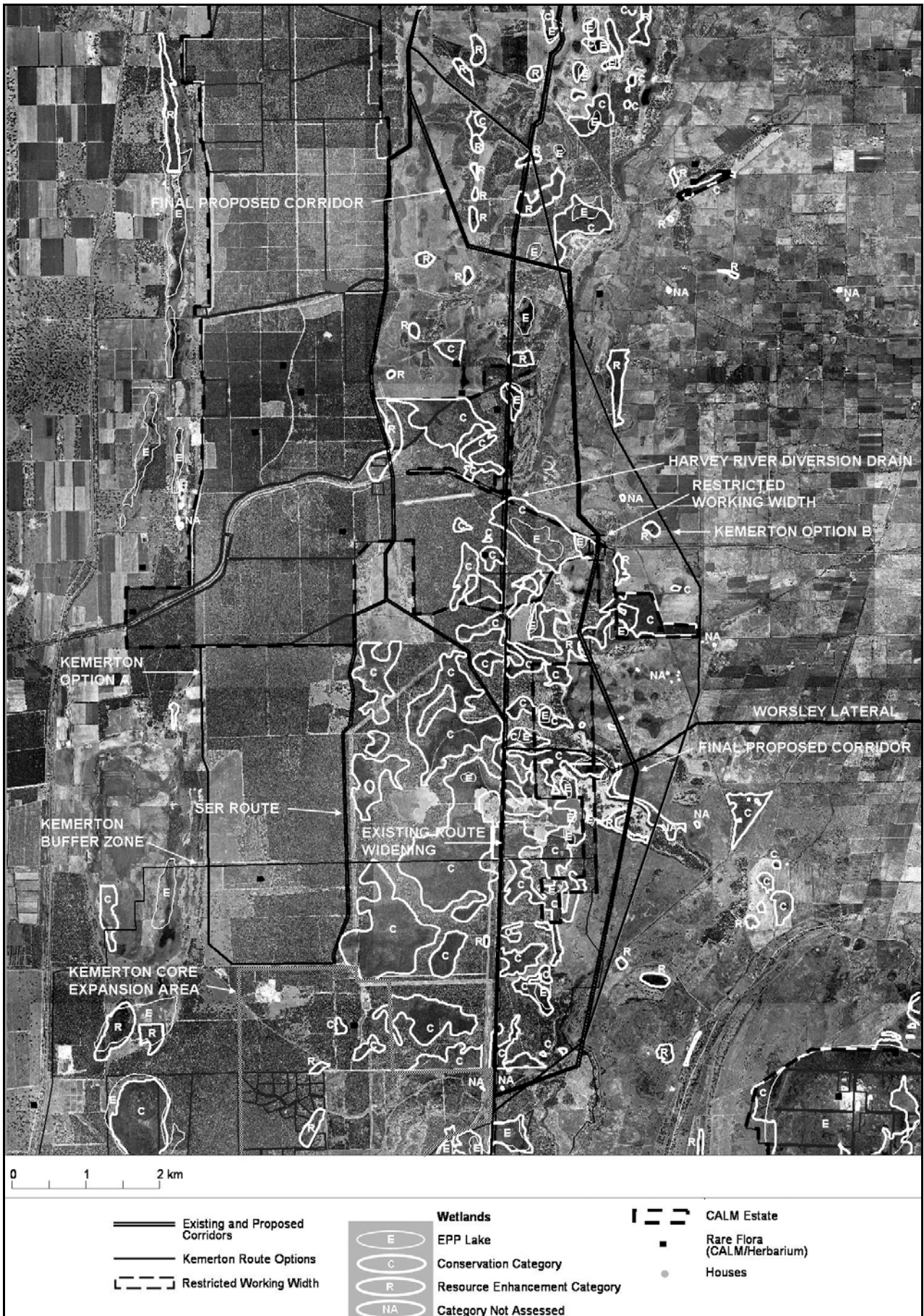


Figure 6 Corridor location north of the Kemerton Industrial Estate (Source: Modified version of Figure 4 - Appendix B from Bowman Bishaw Gorman, 2004b)

3.1.2 Nature reserves

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact upon nature reserves.

Submissions

CALM expressed the following concerns in relation to potential impacts on nature reserves:

- there was a need to consider further alternative corridor routes at Leda and near the Buller Nature Reserve;
- the ranking system used to assess the five alternative corridor alignments within the Leda Bushland Reserve was not absolutely quantitative and therefore, could not be used as an absolute assessment criterion;
- a specific assessment of vegetation community and tree health for each of the Leda corridor route options should be examined prior to the ranking system being employed;
- a formal assessment of Tuart tree health within the Leda Nature Reserve on the proposed corridor alignments was required to adequately assess the impact on Tuart tree communities and provide information on improving their health through strategic rehabilitation and monitoring;
- an Access Management Plan should be implemented where any pipeline development arising from the current SER impacts upon remnant vegetation or reserves;
- given the degradation of the Leda Bushland Reserve as a result of past pipeline installation, it is unclear what short-term or immediate commitment to control access and to rehabilitate this area is proposed;
- details should be provided outlining the use of thicker walled pipes within the 'Restricted Working Width' zones, including pipe thickness specifications and pipe spacing distances;

The EPASU expressed the following concerns:

- the Pines Deviation needed to be examined in much more detail as it appears to be a far better environmental outcome and would avoid environmentally sensitive areas including the Buller Nature Reserve and the bushland areas to the north of it;
- details should be provided on the number of vegetation communities found within the Leda Nature Reserve that are adequately represented in other secure areas; and
- the simple numerical ranking system used to rank each of the three Leda options did not place adequate weighting on the environmental values present in the area.

The Southern Peel-Harvey Landcare Project expressed the following concerns:

- further fragmentation of remaining bush reserves such as the Leda Nature Reserve, should be avoided;

- the corridor route should swing into Murray Loc 323 at the northern border of Reserve 36315 in order to avoid the good quality vegetation within Reserve 36315; and
- it should be noted that C59: Reserve C22199 Wagerup is Buller Nature Reserve.

EPA advice

The EPA's environmental objective for this factor is to protect the environmental values of nature reserves.

The EPA notes that as a result of the additional detailed botanical surveys and joint field inspections that were undertaken in the Leda Nature Reserve, and in the vicinity of the Buller Nature Reserve and the Myalup Management Priority Area, it was determined that the originally proposed corridor route through the Leda Nature Reserve (Figure 2) and in the vicinity of the Buller Nature Reserve (Figures 3 and 4) was environmentally acceptable, and that a new environmentally acceptable corridor route alignment has been adopted in the vicinity of the Myalup Management Priority Area (Figure 5).

The EPA also notes from the proponent's response to the submission from CALM that thick walled gas pipelines will be required at Leda and the Buller Nature Reserve to enable the existing and future gas pipelines to be placed very close to each other so that they all fit within the existing corridor, in order to reduce the working width and the area to be cleared at these locations.

The EPA considers that the outcomes of the above-mentioned botanical surveys and joint field inspections as well as the proponent's responses to the public submissions have adequately addressed the concerns that were raised in relation to potential impacts on nature reserves.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.1.3 Weeds

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to spread weeds along the corridor and into areas that were previously weed free.

Submissions

CALM indicated that the stockpiling and respreading of vegetation in areas of native vegetation should be done with consideration of the presence of weeds, and that the Weed Control Plan needs to identify the presence of weed species in vegetation to be removed for stockpiling and respreading in order to reduce the risk of reinfestation.

EPA advice

The EPA's environmental objective for this factor is to avoid or minimise the potential for the spread of weeds.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 3) to develop and implement management measures to minimise the spread of weeds along the working width and within any areas used for borrow pits etc. Commitment No. 3 includes the following action items:

1. Prepare and implement a Weed Control Programme as part of the EMP.
2. A weed survey will be conducted prior to construction.
3. Weed infested areas will be marked and delineated on construction plans and appropriate vehicle clean-down areas located in the field.
4. Weed control measures will be developed prior to construction to prevent weed species being introduced or spread.

The EPA considers that the management measures described on page 76 and page 77 of the SER document (refer to CD in Appendix 4) that will be used to minimise the potential for the spread of weeds are environmentally acceptable, given the current level of knowledge.

The EPA considers that the proponent's response to the above-mentioned submission from CALM and the actions above adequately address the concerns that were raised in relation to weeds.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.1.4 Dieback

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to spread dieback along the corridor and into areas that were previously dieback free.

Submissions

A member of the public expressed concern about the spread of dieback and the affect it could have on the avocado trees that he grows.

EPA advice

The EPA's environmental objective for this factor is to avoid or minimise the potential for the spread of dieback.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 4) to develop and implement management measures to minimise the

spread of dieback along the working width. Commitment No. 4 includes the following action items:

1. Prepare and implement a site-specific Dieback Control Programme as part of the EMP.
2. Undertake a review of dieback prior to construction. Surveys will be undertaken in appropriate seasonal conditions to ensure that the identification of infected areas is maximised.
3. The boundaries of dieback-infected and uninfected areas will be mapped and accurately delineated in the field.
4. Develop and implement appropriate hygiene measures to minimise the potential for the spread of disease.

The EPA considers that the management measures described on page 78 and page 79 of the SER document (refer to CD in Appendix 4) that will be used to minimise the potential for the spread of dieback are environmentally acceptable, given the current level of knowledge.

The EPA considers that the implementation of the above actions can adequately address the concerns that were raised in relation to dieback by a member of the public.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.2 Specially Protected (Threatened) Fauna

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact upon Specially Protected (Threatened) Fauna.

Submissions

CALM indicated that trenching operations can have a negative impact on fauna and suggested that an indication of the length of time that a section of trench will be open, as well as the approximate length of trench that will be open at any one time should be provided.

The Southern Peel-Harvey Landcare Project raised the following issues:

- significant levels of fauna fatalities have been recorded in open trenches during pipeline construction. Guidelines should be set whereby proponents for pipeline construction projects will address this issue;
- details need to be provided on the measures that will be used to protect the Kemerton population of the Black- striped Jollytail;
- it is important that pipeline installation works do not affect freshwater aquatic species found within Bancell Brook and Logue Brook;

- details need to be provided on the measures that will be used to protect the Red-tailed Black-Cockatoo, the Golden Whistler, Grey Currawong, Western Yellow Robin and Western Rosella that are found in the Kemerton area; and
- local knowledge regarding the observation of mammals such as the Water Rat (Rakali) and the Quenda (Southern Brown Bandicoot) should be utilised.

The EPASU indicated that all snakes are protected under the Wildlife Conservation Act.

A member of the public expressed concern about a number of native trees on their property that provide habitat for local species of birds and wildlife that are positioned within the direct path of the proposed corridor. The submission questioned whether there will be any negotiation to prevent the destruction of trees within the proposed boundaries of the corridor.

EPA advice

The EPA's environmental objective for this factor is to protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act, 1950*.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 5) to develop and implement management measures to minimise construction and operation impacts on fauna. Commitment No. 5 includes the following action items:

1. Prepare and implement a Fauna Management Plan as part of the EMP.
2. Prior to construction develop management strategies to minimise and manage short and long-term impacts on fauna.

The EPA considers that the management measures described on page 81 and page 82 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on fauna are environmentally acceptable.

Where fauna surveys are undertaken by future proponent(s), the EPA expects that they would be conducted in accordance with the advice provided in EPA Guidance Statement No. 56 titled, "Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia" (EPA, 2004c).

The EPA considers that the proponent's response to the above-mentioned public submissions adequately addresses the concerns that were raised in relation to potential impacts on fauna.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.3 Rehabilitation

Description

Significant areas of land will be affected by the construction of future gas transmission pipelines within the expanded corridor, and these areas will need to be properly rehabilitated.

Submissions

A member of the public indicated that rehabilitation on their property is of paramount concern.

The Department of Agriculture (AgWA) indicated that subsidence following the rehabilitation of disturbed agricultural land has been an issue in the past with similar developments throughout the region. AgWA also indicated that while every effort should be made during the rehabilitation stage to minimise the possibility and severity of ground subsidence, the proponent should implement a follow-up program to identify and ameliorate subsidence and any other problems that may arise post rehabilitation.

The EPASU indicated that the statement on pages 2 and 9 of Appendix C in the SER document that the preferred option “presents the opportunity for this area to be fully rehabilitated with both understorey species and deep-rooted trees” is based on the assumption that complete assemblages of plants can be rehabilitated. The EPASU also indicated that the proposals to rehabilitate parts of the Leda Nature Reserve have yet to be determined in detail and the Memorandum of Understanding with CALM appeared not to have been finalised.

The Southern Peel-Harvey Landcare Project indicated that rehabilitation of the east-west vegetation corridors through the cleared agricultural landscape in the Peel-Harvey catchment will be required to minimise the disturbance caused by the corridor, and to maintain them for fauna and flora. It was also suggested that where trees with hollows are removed these hollows should be returned to the local landscape.

A submission from a member of the public expressed concern in regard to whether:

- the rehabilitation process will include an equivalent replacement of trees that are removed or destroyed;
- there will be any extra construction as a result of rehabilitation, such as fences or gates; and
- they will receive an independent report on rehabilitation processes for their property.

EPA advice

The EPA’s environmental objective for this factor is to ensure that areas affected by the proposed development are satisfactorily rehabilitated.

The EPA notes that future proponent(s) will be required to make three separate commitments (i.e. Commitments No. 10, No. 11, and No. 13) in relation to rehabilitation.

Commitment No. 10 requires future proponent(s) to develop and implement management measures to minimise the impacts and ensure the stability of the landscape following construction and to prevent erosion.

Commitment No. 11 requires future proponent(s) to develop and implement site-specific management measures to prevent short-term and long-term depletion of topsoil and to maintain subsoil structure.

Commitment No. 13 requires future proponent(s) to develop and implement measures to ensure that the working width and associated construction areas are successfully rehabilitated. Commitment No. 13 includes the following action items:

1. Develop and implement a Rehabilitation Plan as part of the EMP.
2. Develop specific measures prior to construction to assist in the successful reinstatement and regeneration of construction areas.

The EPA considers that the management measures described on pages 91, 92, 93, and 96 of the SER document (refer to CD in Appendix 4) pertaining to erosion control, soil conservation and rehabilitation are environmentally acceptable.

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to rehabilitation.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.4 Liquid and solid waste disposal

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to generate liquid and solid wastes which will need to be disposed of in an acceptable manner.

Submissions

No submissions were received in relation to this factor.

EPA advice

The EPA's environmental objective for this factor is to ensure that the disposal of liquid and solid waste is consistent with local Shire requirements, and any other regulatory requirements.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 14) to develop and implement management measures to address the

disposal of liquid and solid wastes from the construction area. Commitment No. 14 includes the following action items:

1. Develop and implement a Waste Management Plan that addresses all regulatory and Shire requirements as part of the EMP.
2. Prior to construction, identify likely wastes arising from construction activities and develop appropriate handling and disposal methods.

The EPA considers that the management measures described on page 99 and page 100 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts from liquid and solid waste disposal are environmentally acceptable.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.5 Dust

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to generate dust.

Submissions

A public submission indicated that the red dust from the Alcoloam that was applied experimentally on farms around the Meredith Drain System caused flu-like symptoms and may have contributed to some calf deaths, and as a result, the relevant property owners are very against any proposal that may potentially disturb these affected areas again.

EPA advice

The EPA's environmental objective for this factor is to protect surrounding land users such that dust emissions will not adversely impact upon their welfare and amenity or cause health problems by meeting the Guidelines for the Prevention of Dust and Smoke Pollution from Land Development Sites in WA.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 15) to develop and implement measures to prevent excessive dust lift off from the working width and associated stored material. Commitment No. 15 includes the following action items:

1. Develop and implement a Dust Management Plan as part of the EMP.
2. Prior to construction, identify potential dust sources from construction activities and develop specific management strategies to minimise dust emissions from the spread.

The EPA considers that the management measures described on page 101 and page 102 of the SER document (refer to CD in Appendix 4) that will be used to minimise dust generation are environmentally acceptable.

The EPA expects future proponent(s) to meet the requirements of EPA Guidance Statement No. 18 - Prevention of air quality impacts from land development sites (EPA, 2004a).

The EPA considers that the proponent's response to the above-mentioned public submission adequately addresses the concerns that were raised in relation to dust.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.6 Noise and vibration

Description

Construction of new gas transmission pipelines within the expanded corridor and the operation of gas transmission pipeline related infrastructure such as compressor stations has the potential to generate noise and vibration.

Submissions

The Southern Peel-Harvey Landcare Project indicated that there were times when blasting was required during the laying of the Stirling Trunk (Water) Main.

A submission from a member of the public expressed concern in regard to the expected impact of construction noise on the management and stocking of their property.

EPA advice

The EPA's environmental objective for this factor is to ensure that noise and vibration levels meet statutory requirements and acceptable regulatory standards.

The EPA notes that future proponent(s) will be required to make two separate commitments (i.e. Commitments No. 16 and No. 17) in relation to noise and vibration.

Commitment No. 16 requires future proponent(s) to develop and implement measures to identify and attenuate noise emissions during construction activities. Commitment No. 16 includes the following action items:

1. Develop and implement a Noise and Vibration Control Programme as part of the EMP.
2. Prior to construction, identify expected noise levels from construction activities and also from associated plant and equipment.

Commitment No. 17 requires future proponent(s) to identify activities associated with high vibration levels and develop measures to attenuate vibration impacts as applicable. Commitment No. 17 includes the following action items:

1. Develop and implement a Noise and Vibration Control Programme as part of the EMP.

2. Prior to construction, identify potential vibration sources along the corridor and determine the proximity of vibration sources to sensitive premises. Develop measures to attenuate vibration impacts as applicable.

The EPA considers that the management measures described on pages 103 - 106 of the SER document (refer to CD in Appendix 4) that will be used to control noise and vibration are environmentally acceptable. However, the EPA considers that future proponents should also be required to determine the potential impact of noise emissions from the operation of gas pipeline compressor stations and other associated above ground infrastructure on nearby residences, and to develop and implement appropriate management measures to ensure compliance with the *Environmental Protection (Noise) Regulations, 1997*.

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to noise and vibration.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.7 Surface water and groundwater

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact on the quality and quantity of surface water and groundwater.

Submissions

The DoE expressed the following concerns:

- a large proportion of the proposed alignment traverses land identified as medium risk for acid sulphate soil. The proponent should note that the acid sulphate soil mapping is indicative only, and high risk areas, such as those east and north of Alexander Road should be avoided. There is scope to amend the alignment to avoid intersecting these high risk areas, and it is strongly recommended. Prior to undertaking any dewatering or disturbance of greater than 100m³ of soil, the proponent should contact the Water & Rivers Commission (now the DoE) for comment and refer to the Department of Planning and Infrastructure's Planning Bulletin No. 64 regarding acid sulphate soils;
- a dewatering licence will be required from the DoE under the *Rights In water and Irrigation Act, 1914*;
- there must be surety that the proposed works do not adversely impact on the hydraulic conductivity or impede groundwater movement, particularly where the proposed pipeline route traverses identified wetlands;
- although acid sulphates are mentioned in Section 6.0 of the SER document and the need for a management plan has been acknowledged, this should be added to the list of management plans on page 72; and
- the release of large volumes of hydrostatic test water will impact hydrology (quantity and quality) of receiving water bodies. There is no mention of what

"acceptable" change to receiving water bodies is proposed. Hydrologic change needs to address both the timing of release and the volume. The management plan should incorporate a clear commitment to monitor both surface and groundwater as well as the actual discharge point. Whilst there is a commitment to monitor discharge for contaminants, there is no prescribed species list.

A member of the public indicated that the relatively high groundwater levels on their property make it an unsuitable location to install a pipeline.

The Southern Peel-Harvey Landcare Project indicated that the SER document should identify any impact from the *Peel-Harvey Coastal Plain Catchment, Statement of Planning Policy No.2* on the proposal, and that it should also recognise the *Environmental Protection (Peel Inlet-Harvey Estuary) Policy, 1992* and identify any impact that it may have on the proposal.

A member of the public expressed concern in regard to whether they would receive an independent report on EPA objectives for their property with specific reference to watercourse and rehabilitation factors and pollution management, given that their property relies on the availability of quality groundwater, and that the groundwater level is high, especially during the winter months.

EPA advice

The EPA's environmental objectives for this factor are to maintain the quality of surface water and groundwater so that existing and potential uses, including ecosystem maintenance, are protected, and to maintain the quantity and distribution of groundwater so that existing and potential uses are protected.

The EPA notes that future proponent(s) will be required to make two separate commitments (i.e. Commitments No. 8 and No. 9) in relation to surface water and groundwater.

Commitment No. 8 requires future proponent(s) to develop and implement management measures to minimise impacts on groundwater aquifers. Commitment No. 8 includes the following action items:

1. Develop and implement a Dewatering Management Plan prepared in accordance with Water and Rivers Commission Guidelines as part of the EMP.
2. Develop measures to ensure that activities associated with dewatering and hydrostatic testing do not impact on existing and future beneficial uses of aquifers.

Commitment No. 9 requires future proponent(s) to develop and implement management measures to prevent contamination of surface and groundwater during construction. Commitment No. 9 includes the following action items:

1. Develop and implement a Spill Management and Contingency Plan as part of the EMP.
2. Prior to construction, develop specific measures to minimise sediment release to watercourses.

3. Prior to construction, develop specific measures to minimise surface water contamination from fuel and oil spills during construction.

The EPA considers that the management measures described on pages 89, 90, and 98 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on surface water and groundwater are environmentally acceptable.

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to surface water and groundwater.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.8 Rivers and streams

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact on rivers and streams.

Submissions

The City of Rockingham indicated that it is important that consideration be given to the impact of the proposed corridor on the Serpentine River and the various other significant drains that it crosses.

The Southern Peel-Harvey Landcare Project corrected a number of statements related to rivers and drains and noted that public water supplies are also drawn from dams constructed on the North and South Dandalup Rivers, the Harvey River (Stirling Dam), and Samson Brook.

The DoE expressed the following concerns:

- the proposed alignment does not describe how the Harvey Diversion Drain is to be traversed; and
- a number of specific steps should be adhered to with regard to waterway crossings.

EPA advice

The EPA's environmental objective for this factor is to maintain the integrity, functions and environmental values of rivers and streams, and to ensure that alterations to surface water drainage do not adversely impact indigenous vegetation.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 6) to develop and implement management measures to minimise the impacts of construction activities on watercourses and ensure the long-term stability of the systems. Commitment No. 6 includes the following action items:

1. Provide details of construction methods and environmental management procedures for each watercourse crossing.
2. Detail measures to be implemented to minimise damage and weakening of watercourse banks and to prevent physical degradation of watercourses and drainage systems.

The EPA considers that the management measures described on page 86 and page 87 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on watercourses are environmentally acceptable, given the knowledge currently available.

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to rivers and streams.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.9 Wetlands

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact on wetlands.

Submissions

The City of Rockingham indicated that it is important that consideration be given to the impact of the proposed corridor on Folly Pool and other wetlands that it runs adjacent to.

CALM indicated that a Wetlands Management Plan should have been included in the list of management plans on page v of the SER document.

The DoE expressed the following concerns:

- a number of 'Conservation' Category (CCW) and 'Resource Enhancement' wetlands (REW) have been identified within the current and proposed pipeline alignment. These priority wetlands should be afforded appropriate protection in line with the DoE's Wetland Position Statement;
- consideration should be given to investigating the validity of the current classification of wetlands in relation to their current condition with a view to providing information by which the pipeline alignment may be more accurately determined;
- the Pines deviation should be reconsidered as a viable option given that it avoids wetland areas; and
- Kemerton Option A should be further considered, as it provides greater separation from the identified wetlands and would result in less clearing of vegetation.

The Southern Peel-Harvey Landcare Project noted that the Peel-Yalgorup System is listed under the Ramsar List of Wetlands of International Importance, and that the proposed corridor traverses the Peel-Harvey catchment, which feeds the Peel Inlet and Harvey Estuary.

A member of the public indicated that there appears to be no study undertaken to show whether or not harm has taken place to the wetlands where the original pipelines were laid. The submission also indicated that there are other wetlands that will be interfered with by the proposed deviation.

EPA advice

The EPA's environmental objective for this factor is to protect and retain the integrity, functions and environmental values of protected wetlands and other wetlands not covered by EPPs, and to ensure that EPP lakes are protected and their key ecological functions are maintained.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 7) to develop and implement management measures to minimise the impacts of construction activities on wetlands and ensure the long-term stability of systems. Commitment No. 7 includes the following action items:

1. Restricted working widths will be maintained during construction where construction activities occur in proximity to protected wetlands.
2. Detail measures to be implemented during construction to prevent pollution of wetlands through surface run-off or discharge of groundwater.

The EPA considers that the management measures described on page 84 and page 85 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on wetlands are environmentally acceptable.

The EPA also notes that as a result of the additional detailed botanical surveys and joint field inspections that were undertaken in the vicinity of the Myalup Management Priority Area and the Kemerton Industrial Estate, a new environmentally acceptable corridor route alignment which minimises potential impacts on wetlands has been adopted in the vicinity of the Myalup Management Priority Area (Figure 5) and the Kemerton Industrial Estate (Figure 6).

The EPA considers that the outcomes of the above-mentioned botanical surveys and joint field inspections as well as the proponent's responses to the public submissions have adequately addressed the concerns that were raised in relation to wetlands. However, the EPA recommends that the EMP referred to previously should include a Wetland Management Plan to enable the relevant management measures to be easily accessed in one location.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.10 Risk and hazards

Description

The operation of high pressure gas transmission pipelines within the expanded corridor and/or changes in the land use of the areas immediately adjacent to the corridor after the gas pipelines have been constructed within it, may affect risk levels.

Submissions

The City of Rockingham indicated that no provisions were made in the SER document for safety or emergency issues relating to the presence of a high pressure gas pipeline, such as exclusion zones or buffer distance requirements. The City of Rockingham also indicated that whilst it understood that these issues will be dealt with in subsequent specific plans, general safety requirements relating to high pressure gas pipeline corridors should have been included.

A submission from a member of the public expressed concern in regard to the restrictions that would apply to the construction of commercial buildings, a family home, and associated buildings on their property, given the location of the proposed corridor on the property.

EPA advice

The EPA's environmental objective for this factor is to ensure that risk is managed to meet the EPA's criteria for individual fatality risk off-site (EPA, 2000b) and the requirements of the Department of Industry and Resources (DoIR) regarding public safety near natural gas pipelines.

The EPA notes that future proponent(s) will be required to make a commitment (i.e. Commitment No. 18) to design proposed pipelines to minimise risk to workers and the general public. Commitment No. 18 includes the following action items:

1. Following completion of the initial design phase, identify proximity of the pipeline(s), proposed MAOP and safety features to be incorporated to minimise risk to sensitive premises.
2. Complete Risk Assessment prior to construction in accordance with AS2885.1: 1997 to ensure that risk levels meet DoIR and EPA criteria.

The EPA considers that the management measures described on pages 110 - 112 of the SER document (refer to CD in Appendix 4) that will be used to ensure that risk levels will comply with the EPA's risk criteria are environmentally acceptable.

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to risk and hazards. However, the EPA advises that future proponent(s) should also pay particular attention to risk levels associated with above ground pipeline related infrastructure such as compressor stations and main line valves etc, with the view to establishing adequate separation distances to adjacent residential and sensitive developments to ensure that risk levels comply with the EPA's risk criteria.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.11 Culture and heritage

Description

Construction of new gas transmission pipelines within the expanded corridor has the potential to impact on Aboriginal cultural and European heritage sites.

Submissions

A submission received from the Department of Indigenous Affairs (DIA) indicated that the Department of Planning and Infrastructure (DPI) has been granted conditional consent to use the land for the proposed expanded corridor by the Minister of Indigenous Affairs under Section 18 of the *Aboriginal Heritage Act, 1972*, and provided the relevant conditions are met, the proponent will have met their obligations under the *Aboriginal Heritage Act, 1972*.

The Southern Peel-Harvey Landcare Project noted that the proposed route crosses the old formation of the Waroona to Lake Clifton railway in Murray Loc D089639-62, and suggested that a site inspection should be conducted to determine what remains of the formation at this location and any impacts from the proposed pipeline.

EPA advice

The EPA's environmental objectives for this factor are to ensure that:

- the concept complies with the requirements of the *Aboriginal Heritage Act, 1972*, and that changes to the biological and physical environment resulting from the proposed development do not adversely affect cultural associations of the areas along and adjacent to the pipeline corridor; and
- changes to the biological and physical environment resulting from the proposed development do not adversely affect European heritage values of the areas along and adjacent to the pipeline corridor.

The EPA notes that future proponent(s) will be required to make two separate commitments (i.e. Commitments No. 19 and No. 20) in relation to culture and heritage.

Commitment No. 19 requires future proponent(s) to not disturb any Aboriginal Heritage site without the agreement of relevant Aboriginal communities and the approval of the Minister for Indigenous Affairs, and to develop and implement management measures to identify and protect any new sites located during construction. Commitment No. 19 includes the following action items:

1. Prior to construction, the GPSSC will apply for clearance under Section 18 of the Act to remove known sites located within the proposed working width.
2. Prior to construction, proponent will develop strategies to ensure that any new sites located during construction are protected until assessed.

3. During construction, proponents will ensure that an Aboriginal Heritage Officer is present during all ground-disturbing construction activities.

Commitment No. 20 requires future proponent(s) to ensure that existing European Heritage sites along the route are not impacted by construction activities. Commitment No. 9 includes the following action items:

1. Prior to construction, proponent will identify all unlocated heritage sites in proximity to corridor.
2. Prior to construction, proponent will identify management measures to limit impacts to identified sites.

The EPA considers that the management measures described on pages 113 - 115 of the SER document (refer to CD in Appendix 4) that will be used to minimise potential impacts on Aboriginal cultural and European heritage sites are environmentally acceptable.

The EPA expects future proponent(s) to meet the requirements of EPA Guidance Statement No. 41 titled, "Assessment of Aboriginal heritage" (EPA, 2004d).

The EPA considers that the proponent's response to the above-mentioned submissions adequately addresses the concerns that were raised in relation to culture and heritage.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

4. Commitments

Section 16(e) of the *Environmental Protection Act, 1986* requires the EPA to advise the Minister for the Environment on the environmental protection aspects of any proposal or scheme, and on the evaluation of information relating thereto. Section 16(e) does not allow for the setting of environmental conditions or for legally binding commitments.

Nevertheless, the GPSSC has provided a list of commitments that future proponent(s) will be required to adopt and implement at the appropriate time in order to ameliorate the environmental impacts of a gas pipeline development proposal (Appendix 3). The intent of these commitments is considered by the EPA to be appropriate for a future gas pipeline development proposal within the proposed expanded corridor, although the implementation of the commitments may need to be varied to apply to specific proposals at the time of their assessment.

It is expected that when such a proposal is referred to the EPA, the referral will be consistent with the commitments listed in Appendix 3 and contain all the information required in these commitments. If the referral documentation contains sufficient and satisfactory information, the process of environmental impact assessment would be considerably expedited.

5. Other Advice

Environmental management practices for future gas pipeline development proposals

Future proponent(s) would be expected to adopt and implement environmental management practices which are consistent with EPA Guidance Statement No. 55 titled, “Implementing Best Practice in proposals submitted to the Environmental Impact Assessment process” (EPA, 2003), and the Australian Pipeline Industry Association’s “Code of Environmental Practice” (APIA, 1998).

Referral of future gas pipeline development proposals

The EPA advises that any proposal for the construction of new gas pipelines within the proposed expanded corridor will need to be referred to the EPA under Section 38 of the *Environmental Protection Act, 1986*. The timelines associated with a possible formal assessment should be taken into account in gas pipeline development planning.

Planning

State government planning agencies and local government authorities should develop and implement appropriate development control measures that will prevent non-compatible land uses from establishing directly adjacent to the proposed expanded corridor in the future. This will minimise the potential for uncoordinated development directly adjacent to the expanded corridor from compromising the ability of future gas pipeline development to meet relevant EPA risk criteria.

6. Conclusions

The EPA has evaluated the concept to expand the existing DBNGP corridor between Kwinana and the Kemerton Industrial Estate.

The EPA notes that no major constraints that would preclude the use of the proposed expanded corridor for the construction of future gas transmission pipelines have been identified on the basis of the information currently available.

The EPA also notes the commitments that will need to be made and implemented by future proponent(s) intending to construct new gas transmission pipelines within the proposed expanded corridor.

The EPA has concluded that all factors identified can be managed in an environmentally acceptable manner, and that it is unlikely that the EPA’s environmental objectives would be compromised, subject to future proponent(s) agreeing to adopt the recommended commitments detailed in this report, and implementing them in a satisfactory manner.

Any specific proposal for the development of new gas transmission pipelines within the proposed expanded corridor will require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment and Heritage:

1. That the Minister notes that the concept on which advice is being provided is the expansion of the existing DBNGP corridor between Kwinana and the Kemerton Industrial Estate.
2. That the Minister considers the EPA's advice on relevant environmental factors as detailed in Section 3 of this report.
3. That the Minister notes that the EPA has concluded that no major constraints that would preclude the use of the proposed expanded corridor for the construction of future gas transmission pipelines have been identified on the basis of the information currently available.
4. That the Minister notes that the EPA has concluded that the intent of the commitments that will need to be adopted and implemented by future proponent(s) intending to construct new gas transmission pipelines within the proposed expanded corridor is appropriate.
5. That the Minister notes that future proposals for the development of new gas transmission pipelines within the proposed expanded corridor would require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

Appendix 1

List of submitters

Organisations:

1. Department of Indigenous Affairs
2. Water Corporation
3. City of Rockingham
4. Department of Agriculture
5. Southern Peel-Harvey Landcare Project
6. Main Roads Western Australia
7. Department of Environment
8. Environmental Protection Authority Service Unit
8. Forest Products Commission
9. Department of Conservation and Land Management

Individuals:

1. Mr John Bradshaw MLA
2. SR Brislin and JP Quike
3. David Royce

Appendix 2

References

- Australian Pipeline Industry Association Inc 1998. *Code of Environmental Practice*. APIA.
- Bowman Bishaw Gorman 2004a. *Dampier to Bunbury Natural Gas Pipeline Corridor Widening - Kwinana to Bunbury Project - Strategic Environmental Review*.
- Bowman Bishaw Gorman 2004b. *Dampier to Bunbury Natural Gas Pipeline Corridor Widening - Kwinana to Bunbury Project - Strategic Environmental Review - Response to Submissions*.
- Department of Environment 2004. *Synopsis of the Natural Values of the Kemerton Bushland and the Potential Damaging Impacts of Service Corridors*. November 2004.
- Environmental Protection Authority 2000a. *Prevention of air quality impacts from land development sites. Guidance No. 18*. Final. March 2000.
- Environmental Protection Authority 2000b. *Guidance for Risk Assessment and Management: Off-site Individual Risk from Hazardous Industrial Plants. Guidance No. 2*. Final. July 2000.
- Environmental Protection Authority 2003. *Implementing Best Practice in proposals submitted to the Environmental Impact Assessment process. Guidance Statement No. 55*. Final. December 2003.
- Environmental Protection Authority 2004a. *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No. 51*. Final. June 2004.
- Environmental Protection Authority 2004b. *Environmental Offsets. Position Statement No. 9*. Preliminary. July 2004.
- Environmental Protection Authority 2004c. *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No. 56*. Final. June 2004.
- Environmental Protection Authority 2004d. *Assessment of Aboriginal heritage. Guidance Statement No. 41*. Final. April 2004.
- Standards Australia 1997. Australian Standard AS 2885.1 - 1997. *Pipelines - Gas and Liquid. Part 1: Design and Construction*.

Appendix 3

**Consolidated list of commitments on management measures to be implemented
by future proponent(s)**

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
1. Future proponent(s) will prepare an Environmental Management Plan (EMP).	Detail management measures to be implemented in order to ameliorate environmental impacts associated with pipeline construction.	<p>Prepare a detailed EMP that describes various measures to be implemented in order to ameliorate environmental impacts associated with pipeline construction and operation.</p> <p>The EMP will consolidate all individual management plans, protocols, procedures, construction techniques and other activities (i.e. surveys, etc) relating to the individual commitments listed in this document, as appropriate.</p> <p>The EMP is expected to include at least the following:</p> <ul style="list-style-type: none"> Bushfire Management Plan. Weed Control Programme. Dieback Control Programme. Fauna Management Plan. Dewatering Management Plan. Spill Management and Contingency Plan. Waste Management Plan. Dust Management Plan. Rehabilitation Plan. <p>The EMP will be prepared prior to construction and will be made publicly available.</p>	DoE	EMP prepared by the proponent(s) and approved by the DoE.
2. Future proponent(s) will implement appropriate actions to minimise construction impacts on vegetation communities and flora.	<p>Protect Declared Rare and Priority Flora, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i>.</p> <p>Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities</p>	<ol style="list-style-type: none"> 1. All ground-disturbing construction activity will be restricted to the identified corridor. 2. Restricted working widths will be maintained through areas of native vegetation to limit impacts on vegetation. 3. Develop a Bushfire Management Plan. 4. Detailed management strategies for vegetation protection will be developed prior to construction. 5. GPSSC will discuss the potential to establish offset areas to replace vegetation impacted by the proposal. 	<ol style="list-style-type: none"> 1. DoE 2. DoE 3. CALM / Bushfire Board /Town of Kwinana, City of Rockingham, Shires of Serpentine-Jarrahdale, Murray, Waroona & Harvey. 4. DoE 5. CALM 	<ol style="list-style-type: none"> 1. Pipeline alignments referred to and endorsed by EPA. 2. Working widths to be implemented in sensitive areas specified in the EMP. 3. Preparation of Bushfire Management Plan (in EMP). 4. Management strategies detailed in EMP. 5. Establishment of offset areas.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
3. Future proponent(s) will develop and implement management measures to minimise the spread of weeds along the working width and within any areas used for borrow pits, etc.	Avoid or minimise the potential for the spread of weeds.	<ol style="list-style-type: none"> 1. Prepare & implement a Weed Control Programme as part of the EMP. 2. A weed survey will be conducted prior to construction. 3. Weed infested areas will be marked and delineated on construction plans and appropriate vehicle clean-down areas located in the field. 4. Weed control measures will be developed prior to construction to prevent weed species being introduced or spread. 	<ol style="list-style-type: none"> 1. AgWA 2. AgWA 3. AgWA 4. AgWA/CALM 	<ol style="list-style-type: none"> 1. Details provided in the Weed Control Programme. 2. Results of weed surveys reported to AgWA. 3. Maps showing areas of infestation and clean-down areas submitted to AgWA and infested areas flagged with yellow tape in the field.
4. Future proponent(s) will develop and implement management measures to minimise the spread of dieback along the working width.	Avoid or minimise the potential for the spread of dieback.	<ol style="list-style-type: none"> 1. Prepare & implement a site-specific Dieback Control Programme as part of the EMP. 2. Undertake a review of dieback prior to construction. Surveys will be undertaken in appropriate seasonal conditions to ensure that the identification of infected areas is maximised. 3. The boundaries of dieback-infected and uninfected areas will be mapped and accurately delineated in the field. 4. Develop and implement appropriate hygiene measures to minimise the potential for the spread of disease. 	<ol style="list-style-type: none"> 1. CALM/DoE 2. CALM 3 & 4. CALM/DoE 	<ol style="list-style-type: none"> 1. Details provided in the Dieback Control Programme. 2. Results of dieback surveys reported to CALM. 3. Maps showing areas of infestation submitted to CALM and flagging of areas with yellow tape in the field.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
<p>5. Future proponent(s) will develop and implement management measures to minimise construction and operation impacts on fauna.</p>	<p>Maintain the abundance, diversity and geographical distribution of fauna.</p> <p>Protect Specially Protected (Threatened) Fauna and their habitats, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i> and the <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p>Avoid or minimise the potential impact of feral animals on the environment.</p>	<ol style="list-style-type: none"> 1. Prepare & implement a Fauna Management Plan as part of the EMP. 2. Prior to construction develop management strategies to minimise and manage short and long-term impacts on fauna. 	<p>1 & 2. DoE/CALM</p>	<p>1 & 2. Details provided in the Fauna Management Plan.</p>
<p>6. Future proponent(s) will develop and implement management measures to minimise the impacts of construction activities on watercourses and ensure the long-term stability of the systems.</p>	<p>Maintain the integrity, functions and environmental values of rivers.</p> <p>Maintain the integrity, functions and environmental values of rivers and ephemeral streams.</p> <p>Ensure that alterations to surface water drainage systems do not adversely impact indigenous vegetation.</p>	<ol style="list-style-type: none"> 1. Provide details of construction methods and environmental management procedures for each watercourse crossing. 2. Detail measures to be implemented to minimise damage and weakening of watercourse banks and to prevent physical degradation of watercourses and drainage systems. 	<ol style="list-style-type: none"> 1. DoE 2. DoE 	<p>1 & 2: Details provided in the EMP.</p>

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
7. Future proponent(s) will develop and implement management measures to minimise the impacts of construction activities on wetlands and ensure the long-term stability of the systems.	<p>Protect and retain the integrity, functions and environmental values of protected wetlands.</p> <p>Ensure that EPP lakes are protected and their key ecological functions are maintained.</p> <p>Protect and retain the integrity, functions and environmental values of wetlands not covered by EPPs.</p>	<ol style="list-style-type: none"> 1. Restricted working widths will be maintained during construction where construction activities occur in proximity to protected wetlands. 2. Detail measures to be implemented during construction to prevent pollution of wetlands through surface run-off or discharge of groundwater. 	1 & 2. DoE	1 & 2: Details provided in the EMP.
8. Future proponent(s) will develop and implement management measures to minimise impacts on groundwater aquifers.	Maintain the quantity and distribution of groundwater so that existing and potential uses are protected.	<ol style="list-style-type: none"> 1. Develop & implement a Dewatering Management Plan prepared in accordance with Water & Rivers Commission Guidelines as part of the EMP. 2. Develop measures to ensure that activities associated with dewatering and hydrostatic testing do not impact on existing and future beneficial uses of aquifers. 	1 & 2. DoE/Water & Rivers Commission	1 & 2. Details provided in the Dewatering Management Plan.
9. Future proponent(s) will develop and implement management measures to prevent contamination of surface and groundwater during construction.	Maintain the quality of surface water and groundwater so that existing and potential uses, including ecosystem maintenance, are protected.	<ol style="list-style-type: none"> 1. Develop & implement a Spill Management and Contingency Plan as part of the EMP. 2. Prior to construction, develop specific measures to minimise sediment release to watercourses. 3. Prior to construction, develop specific measures to minimise surface water contamination from fuel and oil spills during construction. 	1 & 2. DoE/Water & Rivers Commission 3. DoE/DoIR	<ol style="list-style-type: none"> 1. Details provided in the Spill Management & Contingency Plan. 2. Measures to minimise sediment release to watercourses detailed within the EMP. 3. Specific measures relating to the use and storage of fuels and oils within the construction area detailed within the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
10. Future proponent(s) will develop and implement management measures to minimise impacts and ensure the stability of the landscape following construction and to prevent erosion.	Establish stable, sustainable landform consistent with surroundings in order to control erosion.	Develop and implement measures to prevent erosion during and following construction to maintain the operating integrity of the pipeline(s) and the overall stability of the surrounding landscape.	DoE	Measures to minimise erosion both during and after construction detailed in the EMP.
11. Future proponent(s) will develop and implement site-specific management measures to prevent short-term and long-term depletion of topsoil and to maintain subsoil structure.	Ensure that the construction of the pipeline does not impact in short or long term depletion of quantity or quality of topsoil and to maintain subsoil structure so that vegetation growth or productivity of the soil is not adversely impacted.	Prior to construction, specific management measures will be developed to maintain the quantity and quality of topsoil and subsoil structure.	DoE/AgWA	Measures to maintain topsoil quantity and quality and to prevent the loss of subsoil structure detailed in the EMP.
12. Future proponent(s) will develop and implement measures to avoid or manage disturbance to potential acid sulphate soils.	Ensure that disturbance of acid sulphate soils does not cause damage to ecosystems, crops, infrastructure or other natural, economic or social values.	<ol style="list-style-type: none"> 1. Develop and implement an Acid Sulphate Soil Management Plan as part of the EMP. 2. Prior to construction, develop specific measures to minimise and manage the effects of any acid sulphate soil intersected by the pipeline. 	1 & 2: DoE	1 & 2: Details provided in the Acid Sulphate Soil Management Plan.
13. Future proponent(s) will develop and implement measures to ensure that the working width and associated construction areas are successfully rehabilitated.	Ensure that the areas affected by the proposed development are satisfactorily rehabilitated.	<ol style="list-style-type: none"> 1. Develop & implement a Rehabilitation Plan as part of the EMP. 2. Develop specific measures prior to construction to assist in the successful reinstatement and regeneration of construction areas. 	1 & 2: DoE/CALM/AgWA	1 & 2: Details provided in the Rehabilitation Plan.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
14. Future proponent(s) will develop and implement management measures to address the disposal of liquid and solid wastes from the construction area.	Ensure disposal of liquid and solid waste is consistent with the local Shire requirements. To prevent pollution of soil, water and vegetation from liquid and solid wastes.	1. Develop & implement a Waste Management Plan that addresses all regulatory and Shire requirements as part of the EMP. 2. Prior to construction, identify likely wastes arising from construction activities and develop appropriate handling and disposal methods.	1 & 2. DoE/ Town of Kwinana/ City of Rockingham/ Shires of Serpentine-Jarrahdale, Murray, Waroona & Harvey	1 & 2: Details provided in the Waste Management Plan.
15. Future proponent(s) will develop and implement measures to prevent excessive dust lift off from the working width and associated stored material.	Protect surrounding land users and ecosystems such that dust emissions will not adversely impact upon their welfare and amenity or cause health problems by meeting the Guidelines for the Prevention of Dust and Smoke Pollution from Land Development Sites in WA.	1. Develop & implement a Dust Management Plan as part of the EMP. 2. Prior to construction, identify potential dust sources from construction activities and develop specific management strategies to minimise dust emissions from the spread.	1 & 2. DoE	1 & 2. Details provided in the Dust Management Plan.
16. Future proponent(s) will develop and implement measures to identify and attenuate noise emissions during construction activities.	Ensure that noise levels meet statutory requirements and acceptable standards.	1. Develop & implement a Noise & Vibration Control Programme as part of the EMP. 2. Prior to construction, identify expected noise levels from construction activities and also from associated plant and equipment.	DoE	Expected noise levels from construction and operation activities and measures required to control noise emissions detailed in the Noise & Vibration Control Programme. Noise emissions from construction activities comply with the <i>Environmental Protection (Noise) Regulations, 1997</i> .
17. Future proponent(s) will identify activities associated with high vibration levels and develop measures to attenuate vibration impacts as applicable.	Ensure that the vibration levels meet statutory requirements and acceptable standards.	Develop & implement a Noise & Vibration Control Programme as part of the EMP. Prior to construction, identify potential vibration sources along the corridor and determine the proximity of vibration sources to sensitive premises. Develop measures to attenuate vibration impacts as applicable.	DoE/DoIR	Potential vibration sources to sensitive premises and applicable attenuation measures identified in the Noise & Vibration Control Programme.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
18. Future proponent(s) will design proposed pipeline(s) to minimise risk to workers and the general public.	Ensure that risk is managed to meet the EPA's criteria for individual fatality risk offsite and the DoIR's requirements in relation to worker and public safety near natural gas pipelines.	<ol style="list-style-type: none"> 1. Following completion of the initial design phase, identify proximity of the pipeline(s), proposed MAOP and safety features to be incorporated to minimise risk to sensitive premises. 2. Complete Risk Assessment prior to construction in accordance with AS2885.1:1997 to ensure that risk levels meet DoIR and EPA criteria. 	<ol style="list-style-type: none"> 1. DoIR 2. DoIR 	<p>Risks posed by future proposed pipeline(s) will be assessed and submitted to DoIR for consideration.</p> <p>Measures to minimise risk detailed in the EMP.</p>
<p>19. Future proponent(s) will not disturb any Aboriginal Heritage site without the agreement of relevant Aboriginal communities and the approval of the Minister for Indigenous Affairs.</p> <p>Future proponent(s) will develop and implement management measures to identify and protect any new sites located during construction.</p>	<p>Ensure that the strategic plan complies with the requirements of the <i>Aboriginal Heritage Act, 1972</i>.</p> <p>Ensure that changes to the biological and physical environment resulting from the proposed development are minimised and do not adversely affect cultural associations of the areas along and adjacent to the pipeline corridor.</p>	<ol style="list-style-type: none"> 1. Prior to construction, the GPSSC will apply for clearance under Section 18 of the Act to remove known sites located within the proposed working width. 2. Prior to construction, proponent will develop strategies to ensure that any new sites located during construction are protected until assessed. 3. During construction, proponents will ensure that an Aboriginal Heritage Officer is present during all ground-disturbing construction activities. 	1, 2 & 3: DoE/Department of Indigenous Affairs (DIA)	<ol style="list-style-type: none"> 1. Clearance for disturbance of sites provided under Section 18. 2. Strategies for the location and handling of new sites located during construction works, including training of personnel with regard to their responsibilities under the <i>Aboriginal Heritage Act, 1972</i>, detailed in the EMP. 3. Suitable monitors from representative groups detailed in the EMP.
20. Future proponent(s) will ensure that existing European Heritage sites along the route are not impacted by construction activities.	Ensure that changes to the biological and physical environment resulting from the proposed development do not adversely affect European heritage values of the areas along and adjacent to the pipeline corridor.	<ol style="list-style-type: none"> 1. Prior to construction, proponent will identify all unlocated heritage sites in proximity to corridor. 2. Prior to construction, proponent will identify management measures to limit impacts to identified sites. 	DoE/Shires/Heritage Council	Identify European Heritage sites and management measures in the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
21. Future proponent(s) will implement appropriate consultation and management measures to minimise impacts on visual amenity.	The visual amenity of the area adjacent to the proposed pipeline corridor should not be unduly affected.	Develop specific measures prior to construction to assist in the successful reinstatement and regeneration of construction areas.	DoE/CALM/AgWA	Rehabilitation Plan prepared as part of the EMP.
22. The GPSSC and future proponent(s) will continue consultations with stakeholders and individuals as appropriate.	Ensure the general public and affected landowners are briefed of activities and potential impacts on their day to day lives, including landowner restrictions or conflicts.	<ol style="list-style-type: none"> 1. Ongoing consultation with interested stakeholders and individuals until rights are acquired for land within the approved corridor. 2. Ongoing consultation with interested stakeholders and individuals throughout the environmental approvals process. 	DOLA/DoE/Shires	1 & 2. All interested parties are kept well informed of the project.
23. Future proponent(s) will liaise with landowners and stakeholders as appropriate.	To ensure the general public and affected landowners are briefed of activities and potential impacts on their day to day lives, including landowner restrictions or conflicts.	Future proponent(s) will liaise with landowners and stakeholders in relation to issues such as proposed construction activities and timing, property access requirements, the proposed alignment, stock control, gates and fences, crop protection and access to water.	DOLA/DoE/Shires	Liaison with landowners and stakeholders occurs prior to and during construction activities. Consultation is documented and summarised in the EMP.

Appendix 4

The attached CD contains the following information:

- 1) Summary of submissions and the proponent's response to submissions;**
- 2) Strategic Environmental Review document (including Appendices A - J); and**
- 3) Attachment 1 - Synopsis of the Natural Values of the Kemerton Bushland and the Potential Damaging Impacts of Service Corridors.**