

Southern Looping Project, Loop 10 South of Kwinana

**Dampier to Bunbury Natural Gas Pipeline (WA) Nominees Pty
Limited**

**Report and recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1206
November, 2005**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
2 Aug 05	Referral received	
21 Nov 05	ARI Level of Assessment set and EPA report to the Minister for the Environment; Science	15

ISBN. 0 7307 6847 3
ISSN. 1030-0120
Assessment No. 1607

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1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to a proposal by Dampier to Bunbury Natural Gas Pipeline (DBNGP) (WA) Nominees Pty Limited, the proponent, to construct and operate a 23-kilometre pipeline from Kwinana Junction, in Kwinana to Hopelands (between Punrak Road and Henderson Road). This proposal is known as the Southern Looping Project, and comprises loop 10.

The proponent has also referred a proposal to construct and operate a 194-kilometre pipeline from Compressor Station 1 south of Karratha, to Compressor Station 9, north of Gingin. This proposal, known as the Northern Looping Project, and comprising loops 1 to 9, is currently being assessed by the EPA. Together, the Northern and Southern Looping Projects have been designed to increase the supply of natural gas into the south-west of Western Australia, where the demand for gas by the household and commercial sectors is increasing.

Dampier Bunbury Pipeline (DBP) is the trading name of the DBNGP group of companies. DBNGP (WA) Nominees Pty Limited is the holder of the pipeline licence for the DBNGP, and is one of the companies forming the DBP group. Alinta Network Services Pty Ltd is the Project Manager for the work.

The proponent has submitted a referral document (Ecos, 2005) setting out the details of the proposal, potential environmental impacts and measures to manage those impacts. The EPA considers that, based on the information provided in the referral document, the proposal can be managed in an acceptable manner, subject to the EPA's recommended conditions being made legally binding.

The EPA has therefore determined under Section 40(1) of the *Environmental Protection Act 1986* that the level of assessment for the proposal is Assessment on Referral Information, and this report provides the EPA advice and recommendations in accordance with Section 44(1).

2. The proposal

The proponent proposes to construct and operate a 23-kilometre underground gas transmission pipeline within the existing DBNGP corridor (Figure 1), to increase the supply of natural gas into the south-west of Western Australia. The pipeline is designed to increase the gas flow rate and increase the volume of gas stored within the pipeline infrastructure.

The pipeline will commence at Kwinana Junction Main Line Valve 139, north of Thomas Road and extend in a southerly direction. The loop of the pipeline will tie in at Hopelands, between Punrak Road and Henderson Road. The pipeline passes predominantly through cleared agricultural properties, with some sections passing through public open space (Leda Nature Reserve and surrounds), remnant vegetation on private property (Lowlands Bushland Western Block (Hymus Swamp)) and road/rail easements.

Pipeline construction will be carried out within the existing 30-metre wide DBNGP corridor using a production line approach. However, the footprint of the cleared corridor for this project will be 23.5 metres, except in environmentally sensitive areas where it will be 20 metres.

Construction techniques will be in accordance with the requirements of *AS2885 Pipelines — Gas and Liquid Petroleum* and the Australian Pipeline Industry Association *Code of Environmental Practice*.

The proposal is described in detail in section 2 of the proponent's *DBNGP Looping 10 Project Assessment on Referral Information (ARI) Summary* (Ecos, 2005).

The key characteristics of the proposal are summarised in Table 1.

2.1 Alternative routes considered

In 2003, the Western Australian Government appointed the Gas Pipeline Working Group to consider additional corridor options for future pipeline construction. In the area for the looping project, there was no additional land purchased by the Western Australian Government to provide alternative corridor options. The proposed pipeline has been designed to maximise the use of the existing DBNGP corridor by providing the equivalent of four times the capacity of the existing pipeline in one larger pipeline, removing the need for several smaller pipelines.

The proposed southern looping pipeline “looping 10” will be constructed within the DBNGP corridor established in the early 1980’s and gazetted under the *Dampier to Bunbury Pipeline Act 1997*.

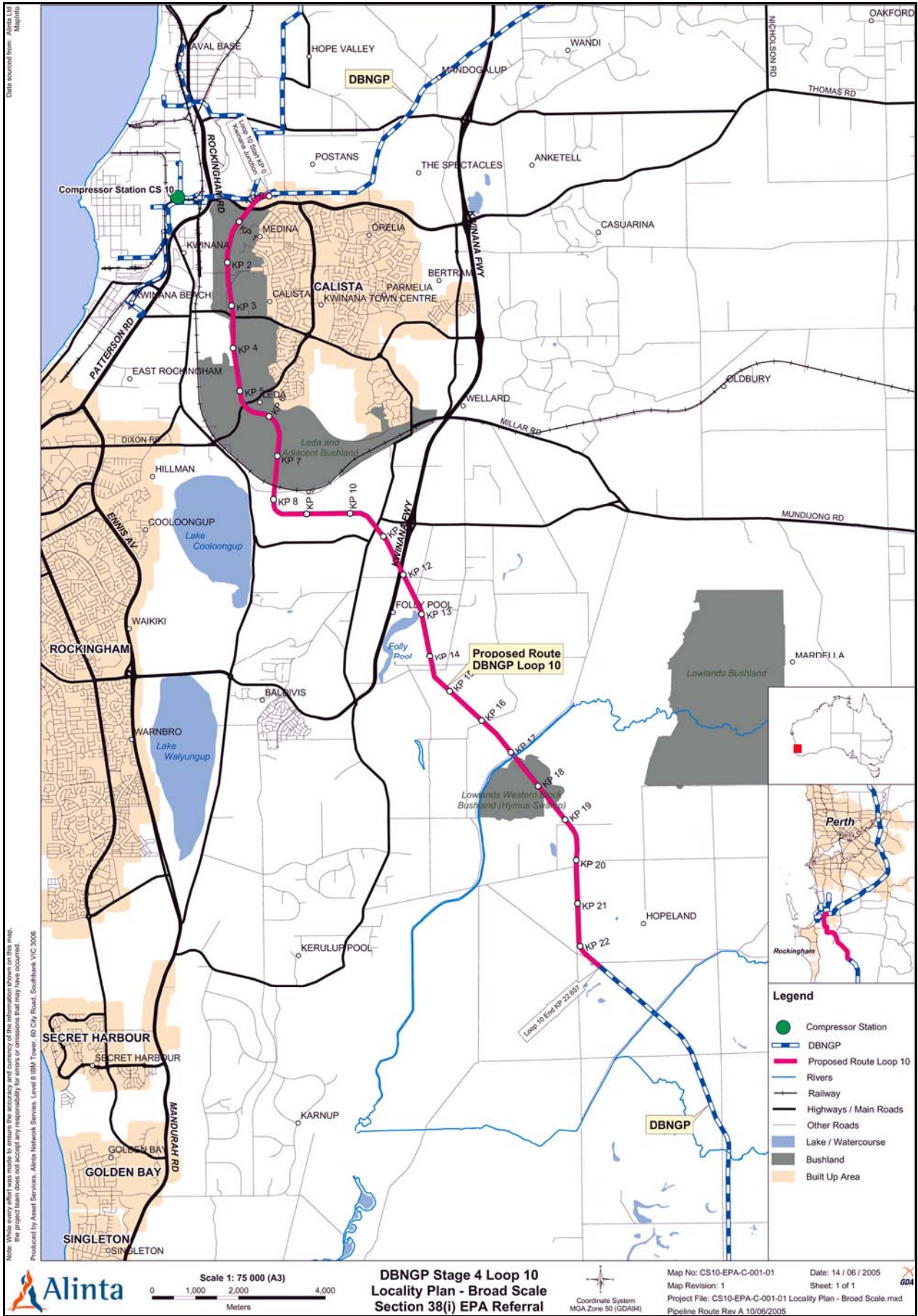


Figure 1: Pipeline location

Table 1: Summary of key proposal characteristics

Element	Description
Location	Start at Kwinana Junction, Kwinana and extend 23 kilometres in a south and south-east direction. End in Hopelands, Shire of Serpentine-Jarrahdale
Proposed action	Construct a buried 660-millimetre diameter pipeline adjacent to the existing DBNGP. This pipeline will be looped to the existing DBNGP to increase flow of natural gas
Route alignment	The pipeline will commence at Kwinana Junction Main Line Valve 139, north of Thomas Road. The route traverses south through the Leda area and Leda Nature Reserve. The pipeline route bends east at Mundijong Road, and extends in a south easterly direction prior to Baldivis Road, crossing the Kwinana Freeway and Serpentine River. The tie in point will be in Hopelands, between Punrak Road and Henderson Road, west of Hopelands Road
Route length	Approximately 23 kilometres
Proposed tenure	The pipeline will be constructed wholly within the existing DBNGP easement which is gazetted under the <i>Dampier to Bunbury Pipeline Act 1997</i> . The existing easement is 30 metres wide, and the footprint of the cleared corridor will be 23.5 metres, except in environmentally sensitive areas where it will be 20 metres
Minimum depth of cover	1,000 millimetres
Temporary disturbance area	Approximately 69 hectares
Area of temporary vegetation clearance	Approximately 22 hectares
Environmentally sensitive areas	<ul style="list-style-type: none"> • Bush Forever site, Leda Nature Reserve (kilometre point 0.5 to 7.8); • Serpentine River (kilometre point 17.2); • Lowlands Bushland Western Block (Hymus Swamp) (kilometre point 17.1 to 18.6), which is a Bush Forever site and Conservation Category Wetland; • individuals of the Declared Rare Flora species <i>Drakaea elastica</i>, identified within Lowlands Bushland Western Block (Hymus Swamp) (kilometre point 17 to 18); and • Conservation Category Wetland (kilometre point 22.4)
Activities outside the DBNGP easement	<ul style="list-style-type: none"> • truck reversing bays either side of Thomas Road and 400 metres south of Thomas Road; • ingress and egress via existing roads; and • truck turnaround bay and access from the end of the pipeline to Yangedi Road
Construction duration	Approximately 4 months
Construction workforce	Approximately 100 people

Key

DBNGP – Dampier to Bunbury Natural Gas Pipeline

3. Consultation

The proponent has advised that consultation has occurred with the following government agencies and stakeholders during preparation of the referral document (Ecos, 2005):

- Department of Conservation and Land Management (CALM);
- Department for Planning and Infrastructure;
- Department of Industry and Resources;
- Department of Environment;
- Shire of Serpentine-Jarrahdale;
- Town of Kwinana;
- City of Rockingham; and
- Office of Energy.

The issues raised from this consultation include the need for additional flora surveys, fauna handling, acid sulphate soils, dewatering and Bush Forever. Further consultation is planned during the development of the Construction Environmental Management Plan.

4. Relevant environmental factors

A description of all the environmental factors, potential impacts and their management is outlined in sections 5 and 6 of the referral document (Ecos, 2005). It is the EPA's opinion that the following environmental factors relevant to the proposal require evaluation in this report:

1. flora and vegetation;
2. fauna;
3. wetlands; and
4. rehabilitation, weeds and hygiene.

4.1 Flora and vegetation

Description

A flora and vegetation survey was undertaken on the DBNGP corridor from Kwinana to Australind by Matiske Consulting Pty Ltd in a series of field trips between October 2002 and October 2003. This survey is inclusive of the looping 10 pipeline section, and is provided in Appendix 3 of the referral document (Ecos, 2005).

The proponent undertook a search of the CALM database and found that Declared Rare Flora (DRF) and Priority Flora species have previously been recorded in close proximity to the proposed route. A targeted flora survey along the proposed pipeline route was undertaken by Woodman Environmental Consulting in spring 2005 to search for the presence of DRF and Priority Flora species. One species of DRF, *Drakaea elastica* was recorded during this survey in the Hymus Swamp area.

The existing easement has re-grown since it was cleared for the installation of the original DBNGP in the 1980's, therefore some clearing is required. The total area of native vegetation that is proposed to be cleared is approximately 22 hectares.

The proposed pipeline route traverses the Class A Reserve: Leda Nature Reserve and two Bush Forever sites; Site 349 Leda and adjacent bushland, Leda; and Site 372 Lowlands Bushland Western Block (Hymus Swamp).

Assessment

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

- maintain the abundance, diversity, geographic distribution and productivity of flora and vegetation at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge; and
- protect Declared Rare and Priority Flora, consistent with the provisions of the *Wildlife Conservation Act 1950*.

The EPA notes that all trench excavation and pipeline construction work would be contained within the existing 30-metre wide DBNGP corridor. The EPA notes that the proponent would conduct trench excavation and pipeline construction work within a restricted working width of 20 metres through environmentally sensitive areas, including Leda Nature Reserve and Hymus Swamp. The EPA notes that although approximately 22 hectares of vegetation would initially be cleared for the pipeline route, the proponent proposes to retain habitat trees and rehabilitate the area of disturbance.

The EPA recommends the proponent avoid vegetation disturbance outside of the existing easement, except for turnaround areas, and limit construction in environmentally sensitive areas (condition 6).

The proponent carried out additional flora surveys in September and October 2005, in accordance with the EPA Guidance Statement No. 51 *Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia* (EPA, 2004a). The EPA notes that the DRF species, *Drakaea elastica*, was recorded during these surveys. The EPA also notes that one DRF plant that occurs along the pipeline route will be lost, and topsoil will be graded in the areas surrounding the other DRF plants to ensure that the orchid corms remain *in situ* within the soil profile. The EPA recommends that the proponent liaise with CALM regarding measures to minimise impacts on DRF, and implements a comprehensive Rehabilitation Management Plan (condition 9).

Summary

Having particular regard to the:

- significance of the vegetation and flora along the proposed pipeline route;
- proposed area of disturbance and previous level of disturbance; and
- proponent's management measures, and the EPA's recommended conditions;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor.

4.2 Fauna

Description

The results of a desktop study by Bamford & Davis (2003) indicate that four species of fish, nine species of frogs, 45 species of reptiles, 26 species of waterbirds, 96 species of land birds and 23 species of mammals have the potential to occur along the proposed pipeline route. A list of significant and priority fauna species that have the potential to occur along the pipeline route is provided in Appendix 4 of the referral document (Ecos, 2005).

The proponent believes that it is unlikely that the pipeline route represents critical habitat for any of the species likely to occur along the route, due to the transitory nature of fauna through the area.

The EPA notes that the proponent will undertake additional fauna surveys prior to pipeline construction activities to further identify the distribution of the significant fauna species.

Assessment

The EPA's environmental objective for this factor is to maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

The EPA notes that the proposal is not expected to effect any critical habitats. However, the proposal will involve disturbance in the environmentally sensitive areas, of Leda Nature Reserve and Hymus Swamp. The EPA recommends that the length of open trench in sensitive areas be restricted, a fauna clearing person be employed to manage and monitor impacts on fauna, and significant fauna habitat trees be protected where possible, in accordance with condition 7.

Summary

Having particular regard to the:

- restricted length of trench left open at any time;
- the retention of fauna habitat trees along the easement; and
- proponent's management measures, and the EPA's recommended conditions;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

4.3 Wetlands

Description

The proposed pipeline route intersects two Conservation Categorised Wetlands at kilometre point 17.1 to 18.6 (Hymus Swamp) and kilometre point 22.4. These wetlands support a high level of ecological attributes and functions. The classification and evaluation of wetlands on the Swan Coastal Plain has been endorsed under the Wetlands Conservation Policy for Western Australia 1997.

As the proposed pipeline alignment dissects several basin wetlands, there is the potential for wetland hydrology to be altered and the connectivity between these wetland systems to be affected. If not managed, these impacts have the potential to extend to the whole wetland system.

Assessment

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

- maintain the integrity, ecological functions and environmental values of protected wetlands; and
- maintain the quantity of water so that existing and potential environmental values, including ecosystem maintenance, are protected.

The EPA considers that the Conservation Category Wetlands traversed by the proposed pipeline route have high conservation values. In accordance with the *Environmental Protection of Wetlands* Position Statement No. 4 (EPA, 2004b), it is the EPA's preference that Conservation Category Wetlands are not disturbed. However, the EPA recognises that there is an existing pipeline corridor, wetland areas have previously been disturbed and have recovered well, and consideration has been given to alternative pipeline routes. Given the previous disturbance to the area and the proponent's management measures, the EPA considers the proposed pipeline route to be acceptable.

The EPA recommends that a condition specifying the timing of construction is required (condition 5) so that trench excavation is undertaken when water levels are lowest, minimising the potential impacts on wetlands.

The EPA notes that while the two Conservation Category Wetlands would be disturbed, the disturbance is temporary and best practice rehabilitation measures would be used to restore the ecological values of the wetlands. The proponent has developed a Rehabilitation Environmental Plan which would be implemented to ensure that wetland areas are appropriately rehabilitated. The EPA notes that the vegetation cleared from a wetland area, would be replaced back to that specific area, in accordance with this plan.

The EPA considers that there is a potential risk associated with the occurrence of acid sulphate soils and their potential to impact on wetland systems along the proposed pipeline route. Therefore the EPA recommends that the proponent should prepare and implement an Acid Sulphate Soils and Dewatering Management Plan (condition 10).

Summary

Having particular regard to the:

- rehabilitation of wetland areas;
- timing of trench construction; and
- proponent's management measures, and EPA's recommended conditions;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor.

4.4 Rehabilitation, weeds and hygiene

Description

The Leda Nature Reserve contains a number of widespread weed species. Of the 248 taxa identified in Leda, 88 were introduced weed species.

Lowlands Bushland Western Block (Hymus Swamp), located adjacent and south of Serpentine River, supports *Banksia* woodlands and *Kunzea erificalifolia* shrublands. With the exception of clearing for the original DBNGP, much of the property has not been cleared. The *Banksia* woodlands are in very good condition but there is weed invasion in the flooded gum woodlands and ephemeral wetlands on the western side of the block. A gas pipeline and powerline easements add to the disturbance on this block and there is evidence of dieback invasion along these service corridors. This area has survived long periods free from fire. The proposed pipeline route would require the clearing of approximately 22 hectares of native vegetation.

The existing DBNGP easement was originally cleared in the 1980's, however vegetation has regrown since this disturbance. Investigations of the easement by Woodman Environmental in 2005 indicate that the wetland communities have recovered from the original pipeline installation to a level where the regenerating communities closely resemble the adjacent undisturbed vegetation. The dunal woodland communities have not regenerated to the same extent as the wetland communities, due to the removal of large trees from the easement to protect the integrity of the pipe. The proponent has included the establishment of native vegetation in woodland areas in the Rehabilitation Environmental Plan (Ecos, 2005).

Vegetation clearing would be restricted to a working width within the existing DBNGP easement. Following completion of the gas pipeline construction, the proponent proposes to rehabilitate the cleared areas.

Assessment

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

- ensure that post-disturbance landforms are stable and comparable to those which existed pre-disturbance;
- maintain the integrity, ecological functions and environmental values of the soil and landform;
- ensure that rehabilitation achieves an acceptable standard compatible with the intended landuse(s), and consistent with the appropriate criteria; and
- return self-sustaining native vegetation which is as close as possible to the pre-disturbance vegetation in species composition and ecological function.

The EPA notes that the proponent has developed a Rehabilitation Management Plan in consultation with CALM with suitable completion criteria and monitoring, which addresses:

- best practice rehabilitation procedures;
- weed management;
- dieback management;

- priority and rare flora management;
- resource management;
- soil profile and landform; and
- establishment of vegetation based on local native species.

The EPA recommends that the proponent be required to appropriately rehabilitate all disturbed bushland and wetlands in accordance with this plan (condition 10).

The EPA is aware of the potential for weeds and dieback (*Phytophthora cinnamomi*) to spread along the pipeline route. The invasive weed species *Watsonia meriana* var. *bulbillifera* and *Leptospermum laevigatum* have been recorded on the easement (Woodman, 2005). The EPA recommends the proponent be required to manage and monitor weeds along the pipeline route and manage dieback in accordance with the hygiene protocol as outlined in the Rehabilitation Environmental Plan (condition 10).

Summary

Having particular regard to the:

- vegetation clearing being restricted to the existing corridor, except for the turnaround areas;
- comprehensive Rehabilitation Management Plan with completion criteria; and
- proponent's management measures, and EPA's recommended conditions;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor.

5. Conditions

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

The EPA has set out recommended environmental conditions in Appendix 2 of this report.

6. Other advice

The EPA notes that while advising that this proposal can be managed so as not to compromise the EPA's objectives, it should not be seen as a precedent that future gas pipelines within this, and other environmentally sensitive areas of the existing DBNGP corridor would be considered acceptable. The EPA reiterates its earlier advice set out in its Section 16(e) report *Dampier to Bunbury Natural Gas Pipeline Corridor Widening – Kwinana to Bunbury Project* (EPA 2004c), that its preference is that future pipelines are located in an alternative easement which avoids environmentally sensitive areas.

7. Conclusions

The EPA has considered the proposal by Dampier to Bunbury Natural Gas Pipeline (WA) Nominees Pty Limited to construct and operate a 23-kilometre pipeline from Kwinana Junction in Kwinana to Hopelands (between Punrak Road and Henderson Road).

The EPA considers that the impacts on flora and vegetation as a result of the proposed clearing and trench construction, are able to be managed by restricting clearance and undertaking rehabilitation. The EPA considers it unlikely that this proposal would result in a high level of fauna mortality provided that the open trench length is restricted. The EPA considers that the potential impacts on wetlands are not likely to be significant, given the timing of proposed trench construction, and that rehabilitation will occur in wetland areas.

The EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation of the recommended conditions set out in Appendix 2.

8. Recommendations

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

1. that the Minister notes that the proposal being assessed is for the Southern Looping Project, Loop 10, south of Kwinana;
2. that the Minister considers the report on the relevant environmental factors as set out in Section 4;
3. that the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2; and
4. that the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

- Ecos (2005) *DBNGP Looping 10 Project Assessment on Referral Information (ARI) Summary*. (Unpubl) Ecos Consulting (Aust) Pty Ltd, November 2005.
- EPA (2004a) *Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia*. Guidance for the Assessment of Environmental Factors. Environmental Protection Authority, Perth, Western Australia.
- EPA (2004b) *Environmental Protection of Wetlands*. Position Statement No. 4. Environmental Protection Authority, Perth, Western Australia.
- EPA (2004c) *Dampier to Bunbury Natural Gas Pipeline Corridor Widening – Kwinana to Bunbury Project*. Advice to the Minister for the Environment under Section 16(e). Environmental Protection Authority, Perth, Western Australia.
- Woodman (2005) *DBNGP Flora and Vegetation Studies*. (Unpubl) Woodman Environmental Consulting Pty Ltd, June 2005.

Appendix 2

Recommended environmental conditions

RECOMMENDED CONDITIONS AND PROCEDURES

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

SOUTHERN LOOPING PROJECT, LOOP 10 SOUTH OF KWINANA

Proposal: To construct and operate a 23-kilometre pipeline from Kwinana Junction in Kwinana to Hopelands (between Punrak Road and Henderson Road) adjacent (and connected) to the existing underground gas transmission pipeline within the Dampier to Bunbury Natural Gas Pipeline corridor

Proponent: Dampier to Bunbury Natural Gas Pipeline (WA) Nominees Pty Limited

Proponent Address: Level 7 GHD House 239 Adelaide Terrace PERTH WA 6000

Assessment Number: 1607

Report of the Environmental Protection Authority: Bulletin 1206

The proposal referred to above may be implemented by the proponent subject to the following conditions and procedures:

1 Implementation

1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.

- 2-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.
- 2-3 The nominated proponent shall notify the Department of Environment of any change of contact name and address within 60 days of such change.

3 Commencement and Time Limit of Approval

- 3-1 The proponent shall substantially commence the proposal within five years of the date of this statement or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment will determine any dispute as to whether the proposal has been substantially commenced.

- 3-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment, prior to the expiration of the five-year period referred to in condition 3-1.

The application shall demonstrate that:

1. the environmental factors of the proposal have not changed significantly;
2. new, significant, environmental issues have not arisen; and
3. all relevant government authorities have been consulted.

Note: The Minister for the Environment may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

4 Compliance Audit and Performance Review

- 4-1 The proponent shall prepare an audit program and submit compliance reports to the Department of Environment which addresses:
1. the status of implementation of the proposal as defined in schedule 1 of this statement;
 2. evidence of compliance with the conditions and commitments; and
 3. the performance of the environmental management plans and programmes.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environment is

empowered to monitor the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions and procedures contained in this statement.

4-2 The proponent shall submit a performance review report every five years following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, which addresses:

1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;
2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best practicable measures available;
3. significant improvements gained in environmental management, including the use of external peer reviews;
4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
5. the proposed environmental objectives over the next five years, including improvements in technology and management processes.

4-3 The proponent may submit a report prepared by an independent auditor to the Chief Executive Officer of the Department of Environment on each condition of this statement which requires the preparation of a management plan, programme, strategy or system, stating whether the requirements of each condition has been fulfilled within the timeframe stated within each condition.

5 Timing of Works

5-1 The proponent shall only undertake open trench work between January and May 2006 (inclusive) unless otherwise authorised by the Minister for the Environment.

6 Vegetation Disturbance

6-1 Prior to ground-disturbing activities, the proponent shall clearly delineate on the ground the boundaries of the pipeline easement.

6-2 The proponent shall not cause or allow disturbance of vegetation outside the delineated pipeline easement, as referred to in condition 6-1, except for those

activities stipulated in Schedule 1, Table 1, “Activities outside the Dampier to Bunbury Natural Gas Pipeline easement.”

- 6-3 The proponent shall not cause or allow disturbance outside the 20 metre wide easement between kilometre points 0.5 and 7.8 and kilometre points 17.1 and 18.6 unless authorised by the Minister for the Environment.

7 Fauna

- 7-1 The proponent shall limit the length of open trench between kilometre points 0.5 and 7.8 and kilometre points 17.1 and 18.6 to a maximum length of 2.5 kilometres at any time.
- 7-2 The proponent shall limit the length of open trench in other sections of the pipeline construction to a maximum length of seven kilometres at any time.
- 7-3 Prior to vegetation clearing, the proponent shall mark significant habitat trees of sufficient age to form nesting hollows for hollow-nesting birds and mammals, in consultation with the Department of Conservation and Land Management and the Department of Environment.

The proponent shall not fell marked trees, except in the case where habitat trees occur in the direct line of the proposed pipeline.

- 7-4 The proponent shall employ a “fauna clearing person” to remove fauna from the trench. The “fauna clearing person” shall be able to demonstrate suitable experience to obtain a fauna handling licence by the Department of Conservation and Land Management.
- 7-5 The area of open trench shall be cleared by a “fauna clearing person” each day before 10a.m. and then subsequently during the day at intervals not exceeding two hours, and then half an hour prior to backfilling the pipeline trench at the end of each day.
- 7-6 In the event of significant rainfall, the proponent shall, following the clearing of fauna from the trench, pump out any pooled water in the open trench (with the exception of groundwater) and discharge it via a mesh (to dissipate energy) to adjacent vegetated areas.

Definition:

“Fauna clearing person” means employee whose responsibility is to daily walk the open trench to recover and record fauna found within the trench.

8 Flora

- 8-1 Prior to vegetation clearing commencing, the proponent shall submit a report which details the results of the spring flora surveys undertaken in 2005, to the requirements of the Minister for the Environment, on advice of the Department of Conservation and Land Management.

This report shall address:

1. the recorded location of any Declared Rare Flora and Priority Flora species;
 2. a description of the habitat in which specially protected flora species were found, and the extent of the contiguous area of the same habitat in the local area;
 3. the degree of impact of the proposed works on specially protected flora species or its identified contiguous habitat;
 4. the proposed management strategy for the protection of Declared Rare Flora or Priority Flora species; and
 5. post activity monitoring plan of specially protected flora species.
- 8-2 The proponent shall not disturb any Declared Rare Flora, without prior approval by the Minister for the Environment, pursuant to the provisions of *Wildlife Conservation Act 1950*.

9 Rehabilitation

- 9-1 The proponent shall implement and comply with the Rehabilitation Management Plan provided in the proponent's *Assessment on Referral Information* document dated November 2005.
- 9-2 The proponent shall carry out rehabilitation to achieve the following completion criteria as specified in the Rehabilitation Management Plan referred to in condition 9-1:
1. 100% compliance with the weed hygiene protocol;
 2. 100% compliance with the dieback hygiene protocol;
 3. vegetation and topsoil to be cleared and stored in accordance with the Environmental Management Plan;
 4. significant plant species to be protected in accordance with the rehabilitation plan;
 5. all equipment, materials and litter to be removed from the area of disturbance;
 6. natural contours to be re-instated to pre-disturbance conditions;
 7. no active erosion rills in excess of the surrounding land;
 8. no bare patches longer than 10 metres after 12 and 24 months in the Leda Nature Reserve and Lowlands Bushland Western Block (Hymus Swamp);
 9. the foliage cover of declared and environmental weeds on the area of disturbance to be similar to surrounding undisturbed areas at 12 and 24 months;
 10. a minimum of one native plant per square metre when averaged over the entire area rehabilitated at 12 months and two native plants per square metre when averaged over the entire area rehabilitated at 24 months in the Leda Nature Reserve and Lowlands Bushland Western Block (Hymus Swamp);
 11. percentage foliage cover of native species indigenous to each plant community to be greater than or equal to 40% of foliage cover in undisturbed areas of similar vegetation types outside the easement at 24

months in the Leda Nature Reserve and Lowlands Bushland Western Block (Hymus Swamp);

12. species richness to be greater or equal to 50% of richness in undisturbed areas of similar vegetation types outside the easement at 24 months;
 13. no bare patches longer than 10 metres after 12 and 24 months when inconsistent with the original condition, in the Leda Bushland and surrounding remnant vegetation;
 14. a minimum of one native plant per square metre when averaged over the entire area rehabilitated at 24 months in the Leda Bushland and surrounding remnant vegetation; and
 15. percentage foliage cover of native species indigenous to each plant community to be greater than or equal to 30% of foliage cover in undisturbed areas of similar vegetation types outside the easement at 24 months in the Leda Bushland and surrounding remnant vegetation.
- 9-3 The proponent shall continue to manage rehabilitation of the pipeline route until the completion criteria, referred to in condition 9-2, have been achieved to the requirements of the Minister for the Environment on advice of the Environment Protection Authority and the Department of Conservation and Land Management.

Note: The proponent has obligations under the Department of Industry and Resources legislation to maintain the vehicle access track. Certain completion criteria may not be achievable within the access track.

- 9-4 The proponent shall, in consultation with the Department for Conservation and Land Management, review and revise, as required, the Rehabilitation Management Plan referred to in condition 9-1, to the requirements of the Department of Environment.
- 9-5 The proponent shall implement subsequent revisions of the Rehabilitation Management Plan required by condition 9-4.
- 9-6 The proponent shall make subsequent revisions of the Rehabilitation Management Plan required by condition 9-4 publicly available.

10 Acid Sulphate Soils and Dewatering

- 10-1 The proponent shall, prior to trenching and excavation activities, prepare an Acid Sulphate Soils and Dewatering Management Plan to demonstrate that all practical measures have been included to manage the potential impacts from acid sulphate soils and dewatering activities, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.
- 10-2 The proponent shall implement and comply with the Acid Sulphate Soils and Dewatering Management Plan, required by condition 10-1.

- 10-3 The proponent shall review and revise, as required, the Acid Sulphate Soils and Dewatering Management Plan referred to in condition 10-1, to the requirements of the Department of Environment.
- 10-4 The proponent shall implement subsequent revisions of the Acid Sulphate Soils and Dewatering Management Plan required by condition 10-3.
- 10-5 The proponent shall make the Acid Sulphate Soils and Dewatering Management Plan, referred to in condition 10-1 and subsequent revisions referred to in condition 10-3 publicly available.

11 River Crossing

- 11-1 The proponent shall delineate the riparian vegetation along the Serpentine River (kilometre point 17.2) to the requirements of the Minister for the Environment on advice of the Department of Conservation and Land Management.
- 11-2 The proponent shall not cause or allow disturbance of riparian vegetation or the creek bed and banks during construction works of the Serpentine River crossing (kilometre point 17.2).

Procedures

1. Where a condition states “to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority”, the Environmental Protection Authority will provide that advice to the Department of Environment for the preparation of written notice to the proponent.
2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment.
3. Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment.

Notes

1. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment over the fulfilment of the requirements of the conditions.
2. The proponent is required to apply for a Ground Water Abstraction Licence for this project in order to conduct dewatering activities in accordance with the *Rights in Water and Irrigation Act 1914*.

Schedule 1

The Proposal (Assessment No. 1607)

The proponent proposes to construct and operate a 23-kilometre underground gas transmission pipeline within the existing Dampier to Bunbury Natural Gas Pipeline corridor, to increase the supply of natural gas into the south-west of Western Australia. The pipeline is designed to increase the gas flow rate and the volume of gas stored within the pipeline infrastructure. Construction techniques will be in accordance with the requirements of *AS2885 Pipelines — Gas and Liquid Petroleum* and the Australian Pipeline Industry Association *Code of Environmental Practice*.

Table 1: Summary of key proposal characteristics

Element	Description
Location	Start at Kwinana Junction, and extend 23 kilometres in a south and south-east direction. End in Hopelands, Shire of Serpentine-Jarrahdale
Proposed action	Construct a buried 660-millimetre diameter pipeline adjacent to the existing DBNGP. This pipeline will be looped to the existing DBNGP to increase flow of natural gas
Route alignment	The pipeline will commence at Kwinana Junction Main Line Valve 139, north of Thomas Road. The route traverses south through the Leda area and Leda Nature Reserve. The pipeline route bends east at Mundijong Road, and extends in a south easterly direction prior to Baldivis Road, crossing the Kwinana Freeway and Serpentine River. The tie in point will be in Hopelands, between Punrak Road and Henderson Road, west of Hopelands Road
Route length	Approximately 23 kilometres
Proposed tenure	The pipeline will be constructed wholly within the existing DBNGP easement which is gazetted under the <i>Dampier to Bunbury Pipeline Act 1997</i> . The existing easement is 30 metres wide, and the footprint of the cleared corridor will be 23.5 metres except in environmentally sensitive areas where it will be 20 metres
Minimum depth of cover	1,000 millimetres
Temporary disturbance area	Approximately 69 hectares
Area of temporary vegetation clearance	Approximately 22 hectares
Environmentally sensitive areas	<ul style="list-style-type: none"> • Bush Forever site, Leda Nature Reserve (KP 0.5 to 7.8); • Serpentine River (KP 17.2); • Lowlands Bushland Western Block (Hymus Swamp) (KP 17.1 to 18.6), which is a Bush Forever site and Conservation Category Wetland; • individuals of the Declared Rare Flora species <i>Drakaea elastica</i>, identified within Lowlands Bushland Western Block (Hymus Swamp) (KP 17 to 18); and • Conservation Category Wetland (KP 22.4)
Activities outside the DBNGP easement	<ul style="list-style-type: none"> • truck reversing bays either side of Thomas Road and 400 metres south of Thomas Road; • ingress and egress via existing roads; and • truck turnaround bay and access from the end of the pipeline to Yangedi Road
Construction duration	Approximately 4 months
Construction workforce	Approximately 100 people

Key

DBNGP – Dampier to Bunbury Natural Gas Pipeline

KP – Kilometre Point

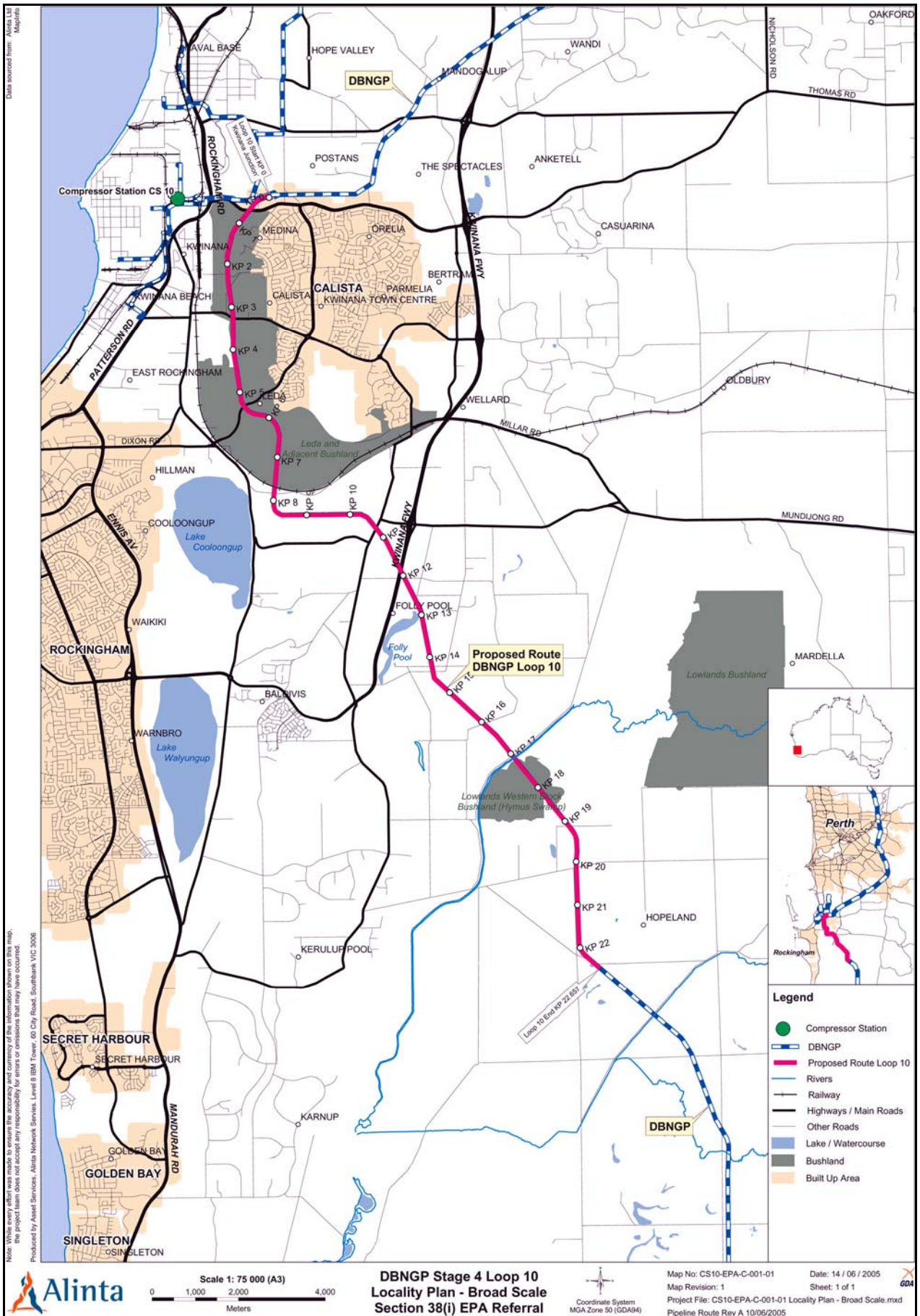


Figure 1: Pipeline location