

Cervantes — Jurien Coastal Road, Shire of Dandaragan

Main Roads Western Australia

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 881
February 1998**

ISBN. 0 7309 8073 1
ISSN. 1030 - 0120

Summary and recommendations

Main Roads Western Australia proposes to construct the Cervantes to Jurien section of the coastal road between Lancelin and Dongara proposed in the Central Coast Regional Strategy (WAPC, 1996). This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors, conditions and procedures relevant to the proposal.

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.

Relevant environmental factors

Although a number of environmental factors were considered by the EPA in the assessment, it is the EPA's opinion that the following are the environmental factors relevant to the proposal, which require detailed evaluation in the report:

- (a) Vegetation Communities - Clearing of communities with poor representation in Conservation Reserves
- (b) Dieback - Introduction into uninfected areas
- (c) Rivers - Change of hydrological characteristics and ecological function
- (d) Surface Water Quality - Contamination of Hill River with pollutants in road runoff
- (e) Wetland Water Quality - Contamination of Wealacutta Pool with pollutants in road runoff
- (f) Noise - Impact on adjacent residents
- (g) Visual Amenity - Deterioration of visual qualities, and
- (h) Aboriginal Culture and Heritage - Impact on areas of cultural significance and destruction of artefacts.

Conclusion

The EPA has considered the proposal by Main Roads Western Australia to construct a coastal road between Cervantes and Jurien. The main issues of concern relate to clearing of vegetation, and possible contamination of the Hill River and Wealacutta Pool due to road runoff containing contaminants, particularly following an accident. The EPA has recommended conditions to ensure that an effective plan is in place to manage possible impacts on water quality and river flows. The EPA has concluded that the proposed road can be constructed and managed to meet the EPA's objectives provided the conditions recommended in Section 4, and set out in Appendix 3, are imposed.

Recommendations

The EPA recommends that:

1. The Minister for the Environment considers the report on the relevant environmental factors of Vegetation Communities, Dieback, Rivers, Wetland Water Quality, Surface Water Quality, Noise, Visual Amenity, and Aboriginal Culture and Heritage;
2. The Minister for the Environment notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Section 4;
3. The Minister for the Environment imposes the conditions and procedures consistent with Section 4 and set out in formal detail in Appendix 3 of this report.

Conditions

Having considered the proponent's commitments and the information provided in this report, the EPA has developed the following a set of conditions which the EPA recommends be imposed if the proposal Main Roads Western Australia to construct a coastal road between Cervantes and Jurien, is approved for implementation.

- (a) the proponent shall fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended conditions in Appendix 3;
- (b) in order to manage the relevant factors and EPA objectives contained in this bulletin, and subsequent conditions and procedures authorised by the Minister for the Environment, the proponent shall be required to prepare, prior to implementation of the proposal, environmental management system documentation with components such as those adopted in Australian Standards AS/NZ ISO 14000 series;
- (c) the proponent shall design all surface water runoff management structures associated with the road to ensure no that significant erosion occurs in the road environs as a result of road runoff;
- (d) the proponent shall design the bridge over Hill River to ensure that no detrimental effects occur on the environment to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection.

The detrimental effects addressed are to be:

- erosion and scour,
 - siltation,
 - undue restrictions on the floodplain, and
 - upstream flooding and potential effects on flora and fauna communities
- (e) the proponent shall prepare a strategy to ensure rapid clean-up of the spillage of contaminants resulting from an accident in the vicinity of Wealacutta Pool, to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection;
 - (f) the proponent shall design the swales and detention basins in the vicinity of Wealacutta Pool to facilitate the rapid clean up of the spillage of contaminants resulting from an accident, and to minimise the potential for groundwater contamination as a result of general road usage and/or accidental spills, to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection.

Contents

	Page
Summary and recommendations	i
1. Introduction and background	1
2. The proposal	1
3. Environmental factors	4
3.1 Relevant environmental factors	4
3.2 Vegetation communities - Clearing of communities with poor representation in Conservation Reserves.....	5
3.3 Dieback - Introduction into uninfected areas	10
3.4 Rivers - Change of hydrological characteristics and ecological function.....	11
3.5 Surface water quality - Contamination of Hill River with pollutants in road runoff.....	12
3.6 Wetland water quality - Contamination of Wealacutta Pool with pollutants in road runoff.....	12
3.7 Noise - Impact on adjacent residents	13
3.8 Visual amenity - Deterioration of visual qualities	14
3.9 Aboriginal culture and heritage - Impact on areas of cultural significance and destruction of artefacts	15
4. Conditions	15
5. Conclusions	17
6. Recommendations	17

Tables

1. Summary of proposal aspects.....	4
2. Area of clearing required for construction of the Cervantes to Jurien Coastal Road	6
3. Identification of Relevant Environmental Factors	18
4. Summary of Assessment of Relevant Environmental Factors	25

Figures

1. Location map for the proposal	2
2. Location of proposed coastal road between Cervantes and Jurien.....	3
3. Land exchanges proposed in the Draft Management Plan for Nambung National Park (1995).....	7
4. Conservation reserves in the Jurien to Cervantes area	9

Appendices

List of submitters

References

List of recommended ministerial conditions and proponent's consolidated commitments

1. Introduction and background

Main Roads Western Australia, the proponent, proposes to construct a coastal road between Cervantes and Jurien. This road is part of a continuous coastal road proposed between Lancelin and Dongara by Central Coast Regional Strategy released by the Western Australian Planning Commission in 1996.

The intended functions of the coastal route are to encourage tourist traffic into the region rather than heavy haulage traffic, and to encourage intra-regional and local traffic between the local centres. The intent is for the Brand Highway to remain as the primary route for servicing the Central Coast Region with the coastal route becoming part of the secondary road network for the region.

The portion of the Coastal Road between Jurien and Greenhead was previously assessed by the EPA in Bulletin 782. This assessment is for the Cervantes to Jurien section of the Coastal Road which joins onto the southern end of the previous assessment at Jurien. The southern section, between Lancelin and Cervantes, has yet to be finalised and referred to the EPA.

The EPA required that the proposal for the coastal road be subject to assessment at the level of Consultative Environmental Review (CER). The CER document (ecologia, 1997) was released for public comment between 14 April and 12 May 1997.

Further details of the proposal are presented in Section 2 of this Report. Section 3 discusses environmental factors relevant to the proposal. Conditions and procedures to which the proposal should be subject if the Minister determines that it may be implemented are set out in Section 4. Section 5 presents the EPA's conclusion and Section 6 the EPA's recommendations.

A list of people and organisations that made submissions is included in Appendix 1. References are listed in Appendix 2, and recommended conditions and procedures and proponent's commitments are provided in Appendix 3.

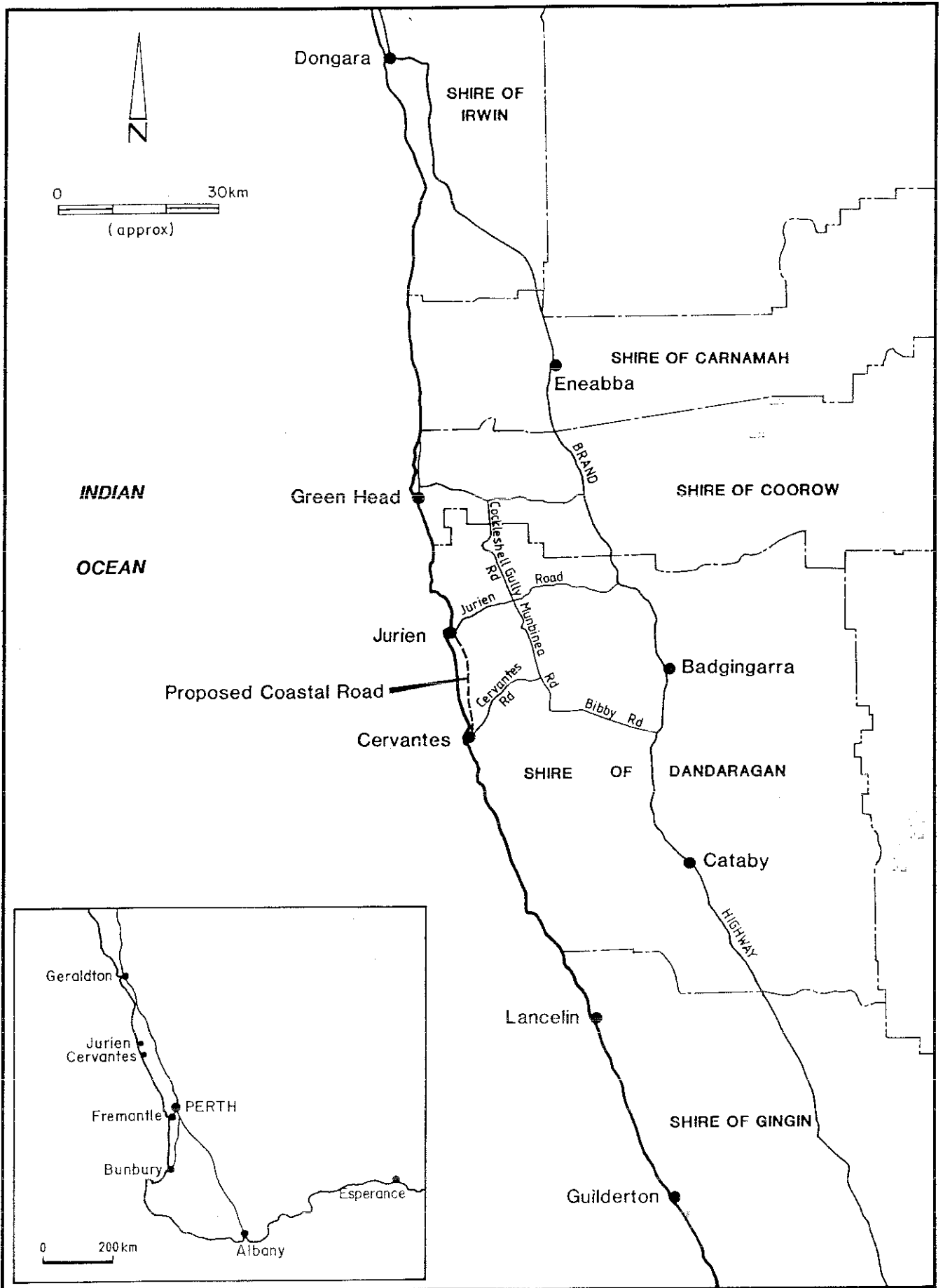
The DEP's summary of submissions and the proponent's response to those submissions has been published separately and is available in conjunction with this report.

2. The proposal

The proposed 33km Cervantes to Jurien Coastal Road consists of a 7m wide sealed carriageway with a 0.5m sealed and 1m unsealed shoulder on each side (a total of 10m in width) linking the townsites of Cervantes and Jurien via a coastal route (see Figure 2). A road reserve of 100m is proposed with provision for a lookout facility at Molah Hill and a bridge across Hill River.

The proposal includes an entry road to Cervantes, and a bypass of Cervantes to link with a proposed coastal road from Cervantes to Lancelin. At the northern end the proposal includes an entry road into Jurien which deviates from the approved Jurien bypass.

This report relates to the main alignment, Cervantes and Jurien entries and the Cervantes bypass.



Source: WA Planning Commission 1996

Figure 1 - Location Map for the Proposal

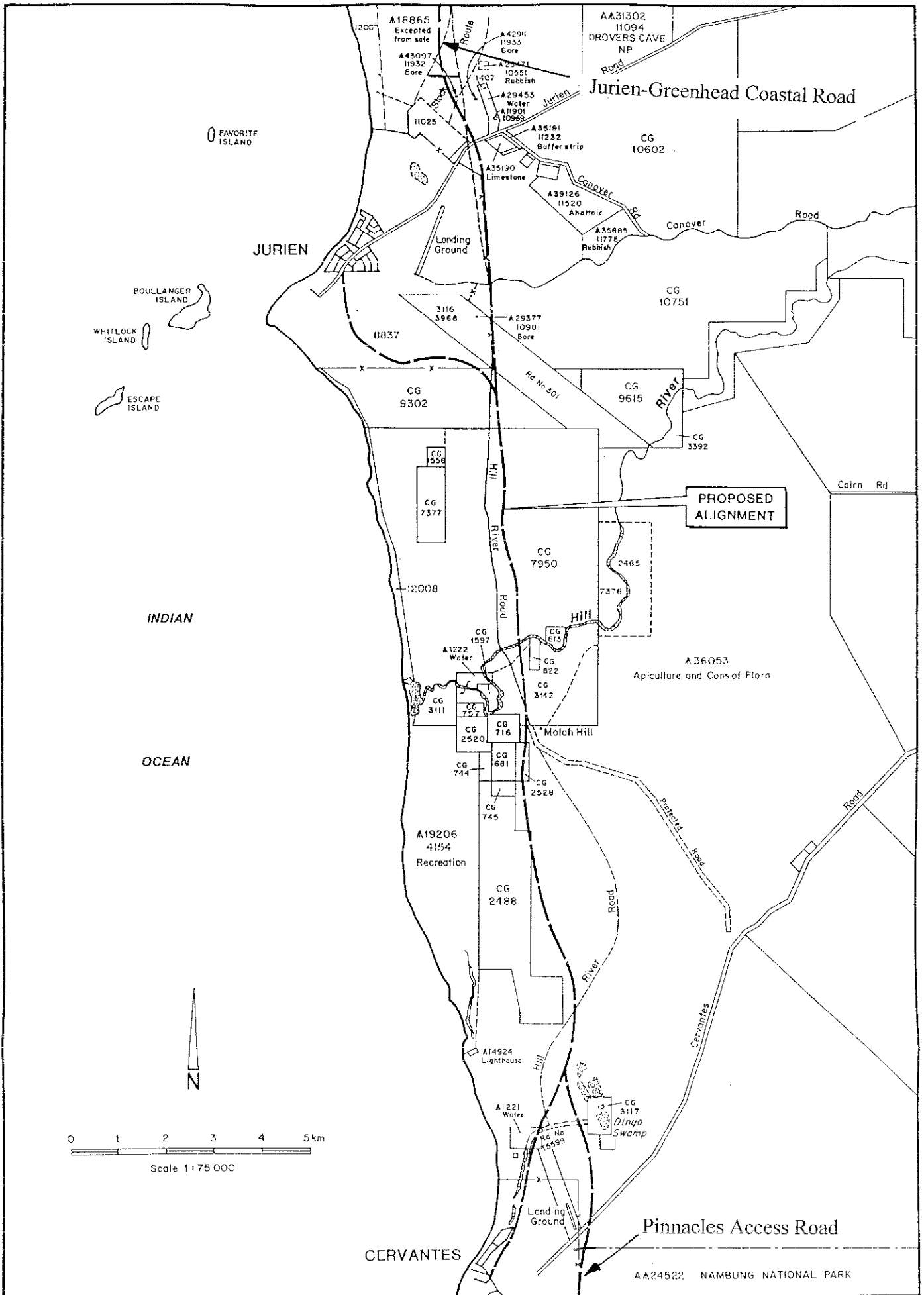


Figure 2 - Location of proposed coastal road between Cervantes and Jurien.

The main aspects of the proposal are summarised in Table 1 below.

Table 1 - Summary of proposal aspects

Proposal Aspect	Description
Clearing of Vegetation	The expected clearing requirement for the construction of the road based on the proposal as presented is approx. 83ha of remnant vegetation which is in good to very good condition.
Potential for Introduction of Dieback	Many species of vegetation in the vicinity of the proposal are susceptible to Dieback. Movement of construction vehicles into the area from Dieback-infected areas may introduce Dieback into Dieback-free zones if adequate hygiene procedures are not followed. Construction of the road will also require the importation of considerable quantities of fill from nearby locations which are potentially infected with Dieback .
Bridge on Hill River	A bridge needs to be constructed over the Hill River. The dimensions of the proposed bridge are approximately 13.5m AHD with a span of 40m. The construction of this bridge has the potential to alter the hydrologic characteristics, and hence ecology, of the Hill River. Contaminated road runoff could also enter the watercourse from road runoff or as a result of a traffic accident. Note the bridge design has been modified from that presented in the CER to address the concerns of the Water and Rivers Commission.
Proximity to locally and potentially regionally significant wetlands (notably Wealacutta Pool)	The proposed road passes within approximately 50m of the Wealacutta Pool which has an interim listing of Conservation Category in the draft South West Agricultural Zone Wetlands EPP. Wealacutta Pool is also recognised as locally significant in a report for the Conservation Council of WA to the Australian Heritage Commission (Semeniuk, 1994). The proposed road could result in pollution and or possible physical changes to this wetland.
Construction Details	<ul style="list-style-type: none"> • 32.6km (~28km currently vegetated) - 10m road (7m sealed carriageway with 0.5m of sealed shoulder and 1.0m gravel shoulder on each side) • approx 150 000m³ of sub-base and basecourse pavement material required for construction • 12 potential sources of pavement material (5 are existing pits or adjacent to existing pits, 1 is adjacent to a rubbish tip, and the remaining 6 are located on pastoral properties). See Table 1 and Figure 3 in ecologia (1997).

3. Environmental factors

3.1 Relevant environmental factors

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.

It is the EPA's opinion that the following are the environmental factors relevant to the proposal, which require detailed evaluation in this report:

- (a) Vegetation Communities - Clearing of communities with poor representation in Conservation Reserves
- (b) Dieback - Introduction into uninfected areas
- (c) Rivers - Change of hydrological characteristics and ecological function
- (d) Surface Water Quality - Contamination of Hill River with pollutants in road runoff
- (e) Wetland Water Quality - Contamination of Wealacutta Pool with pollutants in road runoff
- (f) Noise - Impact on adjacent residents
- (g) Visual Amenity - Deterioration of visual qualities, and
- (h) Aboriginal Culture and Heritage - Impact on areas of cultural significance and destruction of artefacts.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors (preliminary factors) generated from the CER document and the submissions received, in conjunction with the proposal characteristics (including significance of the potential impacts), the adequacy of the proponent's response and commitments, and the effectiveness of current management. On this basis, the EPA considers that Declared Rare and Priority Flora, Declared Rare and Specifically Protected (Threatened) Fauna, Wetlands, Dunes factors and other issues raised in the submissions do not require further evaluation by the EPA. The identification of relevant environmental factors is summarised in Table 3, and a summary of their assessment is set out in Table 4.

The relevant environmental factors are discussed in Sections 3.2 to 3.9 of this report.

3.2 Vegetation communities — Clearing of communities with poor representation in Conservation Reserves

Description

The Jurien to Cervantes coastal road is included in the Central Coast Regional Strategy prepared by the Western Australia Planning Commission (1996). The Western Australian Planning Commission (WAPC) considered that there are considerable social and economic benefits in constructing a road to connect the coastal towns. However it was also recognised that there would likely be some effect on the conservation values of the environment in this area. Given these possible impacts the WAPC considered that the construction of a coastal road should minimise impacts on the natural environment while providing planned access to this environment for conservation, recreation and other uses. A coastal road should also prevent unmanaged intensive use of the coast and discourage pressure for ad hoc settlement and development. (WAPC, 1996)

The proposed coastal road has also been recognised by CALM and used as a feature to maximise the protection of reserves between Jurien and Cervantes in the Draft Nambung National Park Management Plan (1995). This plan advocates the rationalisation of the administration and management of reserves between Jurien and Cervantes, particularly through boundary changes, and minimising future land use conflicts through possible reserve excisions or additions (CALM, 1995).

The proposed road is immediately adjacent to the Nambung National Park and passes through vacant Crown land. The road crosses the south-western corner of the current Southern Beekeeper's Reserve just to the north of Jurien. With the construction of the road the south-western segment of the Beekeeper's Reserve will be fragmented from the whole. This consequence is recognised in the Nambung National Park: Draft Management Plan (1995). The Nambung National Park: Draft Management Plan (1995) proposes to seek the acquisition of Locations 2488, 2528, 1597 and 716 which are proposed for subdivision adjacent to Hill River in exchange for free-hold title for two areas currently within the Southern Beekeeper's Nature Reserve (refer to Figure 3). This is an attempt to obtain areas of high conservation value adjacent to Hill River in exchange for areas of less conservation value to the north of Cervantes and is dependent on a detailed review of the conservation values and townsite requirements. (CALM, 1995)

These proposed land exchanges are on the basis of a coastal road being constructed between Jurien and Cervantes. The coastal road then forms a clear delineation between CALM managed lands for conservation and Local Authority managed land and private land.

The construction of the road will result in the clearing of approximately 83ha of vegetation which is in good to very good condition. The majority of this vegetation is within the coastal strip, not within the relatively species rich inland area. No species of Declared Rare Flora or Priority Flora were detected along the proposed route of the road and the vegetation that is to be cleared for the construction of the road is well represented in existing conservation reserves in the area. (ecologia, 1997)

The area of vegetation types impacted during construction of the road presented in Table 2 are based on a worst case scenario of clearing a 30m wide strip during construction. The nett area impacted following rehabilitation assumes a 10m wide road with the remaining cleared area revegetated following rehabilitation works.

Table 2 - Area of clearing required for construction of the Cervantes to Jurien Coastal Road

Vegetation type	Distance Traversed (km)	Area Impacted during Construction (ha)	Nett Area Impacted following Rehabilitation (ha)
Coastal <i>Melaleuca acerosa</i> heath	16.02	48.06	19.22
Coastal Scrub <i>Acacia cyclops</i> over <i>Melaleuca</i> spp	5.40	16.20	6.48
<i>Dryandra sessilis</i> scrub heath	5.32	16.00	6.38
Riverine thicket <i>Eucalyptus rudis</i> over <i>Acacia cyclops</i>	0.30	0.90	0.36
Low <i>Melaleuca scabra</i> heath	0.38	1.13	0.45
Scrub dominated by <i>Allocasuarina lehmaniana</i>	0.38	1.13	0.45
TOTAL	27.8	83.42	33.34

There are three conservation reserves in the Cervantes to Jurien area, all of which are vested in the National Parks and Nature Conservation Authority.

- Drovers Cave National Park (Reserve 31302) to the north of the study encompasses an area of 2681ha. It is located in the diverse limestone associations of the Jurien Vegetation System.

Land Use Management

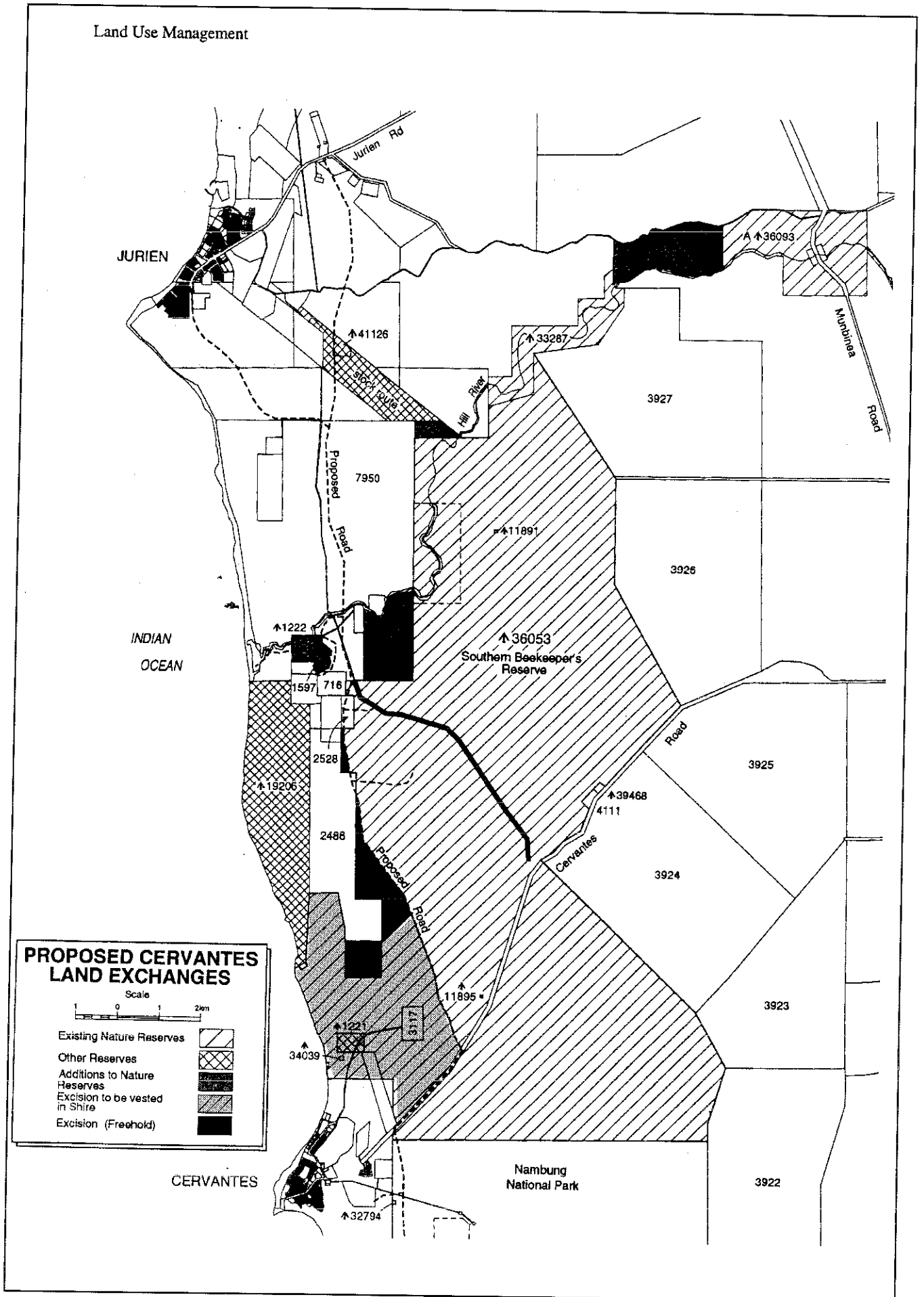


Figure 3 - Land exchanges proposed in the Draft Management Plan for Nambung National Park (1995).

- Southern Beekeeper's Nature Reserve (36053) is currently a 'C' class reserve however the Draft Nambung National Park Management Plan (1995) has recommended that the reserve be changed to an 'A' class miscellaneous reserve for the purpose of 'Apiculture and Conservation of Flora and Fauna'. The reserve includes an area of 10841ha extending from the northern boundary of Nambung National Park north to Hill River.
- Nambung National Park (24522) is south of the study area and is a major tourist attraction incorporating the 'Pinnacles'. The park includes an area of 18319ha extending from Cervantes approximately 20km south to the vicinity of the coastal town of Grey.

Although the construction of the road will require the clearing of approximately 83ha of vegetation (ie: a strip 30m wide by approximately 28km long) Main Roads will rehabilitate almost two thirds of this area. Once constructed the width of the road will be approximately 10m (8m of sealed road with a 1m shoulder on each side) resulting in a net cleared area of approximately 33ha following rehabilitation work on about 50ha. Auditing of the rehabilitation works carried out by the Department of Environmental Protection on the Greenhead to Jurien section of road to the north shows the proponents are able to achieve a high standard of rehabilitation.

The main issue raised in submissions on the proposed road was the alignment of the southern end of the bypass around Cervantes. The Department of Conservation and Land Management (CALM) has recently constructed the Pinnacles Road to a standard that is equivalent to the proposed coastal road. CALM would like to see the alignment of the southern portion of the proposed Coastal Road reviewed to link with the existing Pinnacles Road and thereby reduce the impact on the Nambung National Park.

An accurate survey of the route at Cervantes will also be necessary to allow CALM and the local authority to conduct land exchanges and rationalisation of the estate boundaries as discussed in the Draft Management Plan for the Nambung National Park (1995) in readiness for the bypass construction. The survey will need to be physically marked on the ground and be of a standard that DOLA can use for land exchange.

Assessment

The area considered for assessment is the Swan Coastal Plain north of Perth.

The EPA's objective in regard to this environmental factor is to maintain the abundance, species diversity, and geographic distribution of vegetation communities.

The vegetation that will be affected by the road construction is well represented in established Nature Reserves and National Parks in the region.

The proponent has made the following commitments to ensure the areas of vegetation affected by the road construction are minimised and those areas impacted by road construction are rehabilitated:

- Main Roads will liaise with CALM to determine requirements for fire management access tracks and firebreaks for the section of the Southern Beekeeper's Reserve where the coastal road forms the western boundary of the reserve.
- The Department of Conservation and Land Management will be involved in, and consulted with regard to, the detailed route alignment of the north-south through route in the vicinity of Nambung National Park and the Pinnacles & Cervantes Road.
- Clearing and stockpiling of vegetation shall occur in accordance with the procedures designated within the MRWA Environmental Management Manual and Roadside Flora Care Manual. These factors will be addressed to the satisfaction of the DEP.

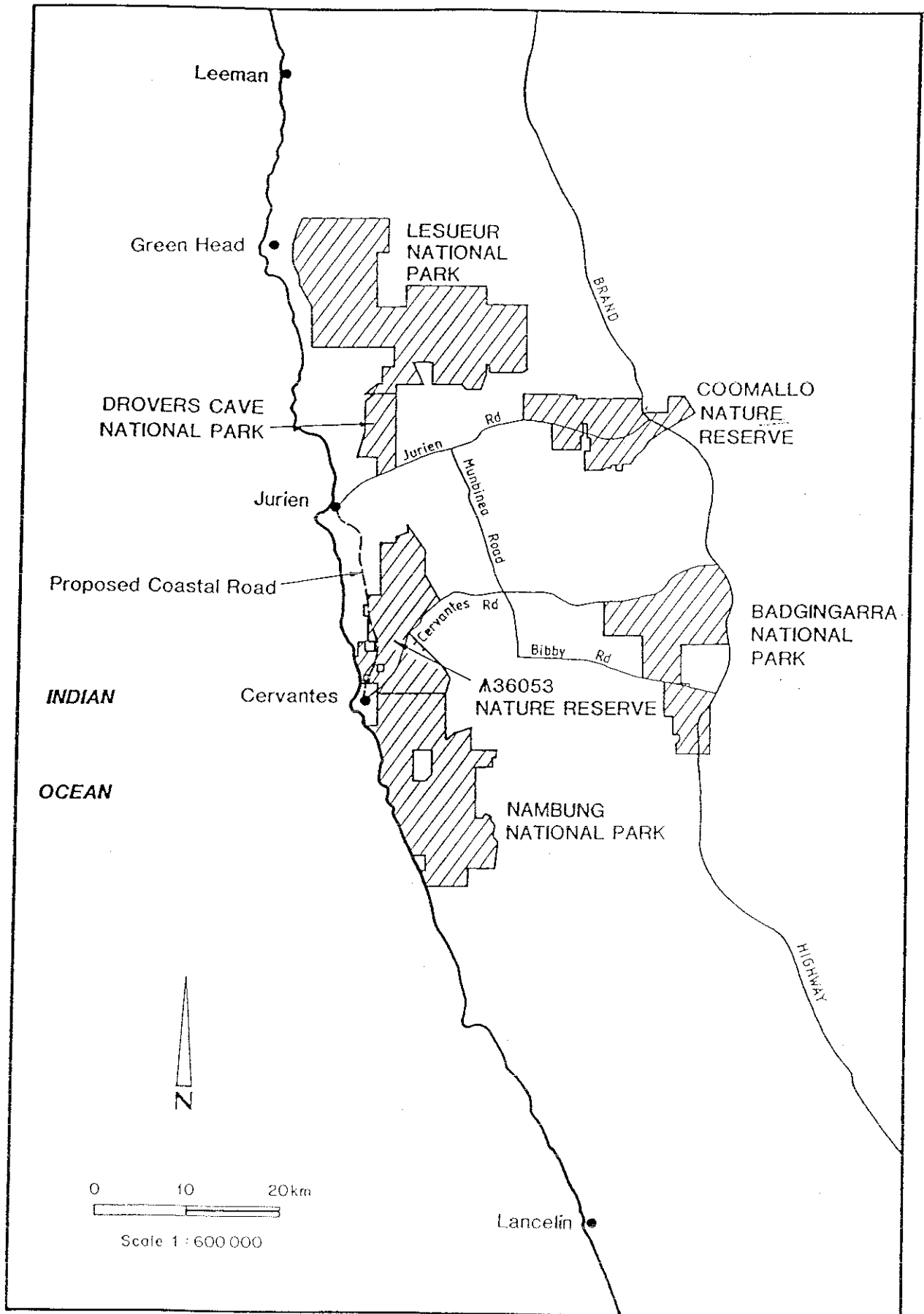


Figure 4 - Conservation Reserves in the Jurien to Cervantes Area

- During construction, road verges shall not be cleared by Main Roads beyond the corridor required for the construction of the road formation and earthworks. This commitment will be implemented to the satisfaction of the DEP.
- Weed control shall be included as a component of the rehabilitation strategy and form an ongoing component of road reserve management. Implementation will be to the satisfaction of the DEP and CALM.
- On completion of construction, all borrow pits on private or public lands shall be reinstated or rehabilitated in accordance with Main Roads policy, and in consultation with owners on private land and or CALM and Local Authorities on public lands. This commitment will be implemented to the satisfaction of the DEP.

Having particular regard to the:

- (a) commitments made by the proponent, and
- (b) the wide representation of affected vegetation communities in conservation reserves,

it is the EPA's opinion that the proposal can meet the EPA's objective for Vegetation Communities.

3.3 Dieback - Introduction into uninfected areas

Description

There is potential for dieback to be spread into uninfected areas as a result of this proposal. The proposed road is to be constructed through an area dominated by vegetation types that are highly susceptible dieback and will require the importation of significant quantities of fill from nearby sources. Twelve areas of dieback infection have been noted in the Beekeeper's Reserve up to 1994 (ecologia, 1997).

Assessment

The area considered for assessment is the land and vegetation adjacent to the proposed route of the road, and source areas for fill.

The EPA's objective in regard to this environmental factor is to protect areas free of vegetation diseases and to minimise the spread of diseases where they are identified.

The proponent has made the following commitments to manage the potential impacts of dieback:

- Prior to construction, a Dieback Hygiene Management Program shall be developed and implemented to the requirements of CALM.
- Sites utilised for acquisition of construction materials will be subject to assessment for the presence of dieback. No materials will be sourced from areas infected with dieback fungus. This commitment will be implemented to the satisfaction of the DEP.

Having particular regard to the:

- (a) the vulnerability of vegetation in the region to dieback, and
- (b) commitments made by the proponent;

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

3.4 Rivers - Change of hydrological characteristics and ecological function

Description

The proposed coastal road will cross the Hill River. The bridge and abutments have the potential to alter the hydrological characteristics of the river and hence ecological function of the area. For example, by creating a backwater that floods areas in the river system more frequently and for longer than is normally the case resulting in changes in habitat, or downstream erosion of the river channel resulting in a more defined flow path leading to more rapid drainage of the flood plain once again changing the habitat of the area.

The Water and Rivers Commission (WRC) has recommended that the construction of the bridge at Hill River should not unduly restrict the floodplain and that the bridge piles should be located so as not to cause bank scour. "Guidelines for the Establishment of Bridges over Waterways" (Water and Rivers Commission, undated) was recommended as a guide to assist the proponent with detailed advice on constructing bridges over waterways. Having been made aware of the concern about the design of the bridge over Hill River the proponent has redesigned the bridge presented in the CER to ensure it complies with WRC recommendations. The bridge design is now 13.5m AHD with a span of 40m as compared to the original design of 11m AHD with a span of 36m span. Calculations done by the proponent indicate that the influence of the bridge at Hill River would be minimal with no scour or significant backwaters attributable to the bridge for a flood equivalent to the flood of 1963 (approx 667 year average return interval).

Water and Rivers Commission also advised that the construction of the bridge at Hill River should only result in minimal disturbance of the floodway and banks of the broad river channel and minimal removal of vegetation. Where areas are to be revegetated the plants used should primarily be local native species, preferably derived from plant material collected from the Hill River system.

The Water and Rivers Commission has also advised that care should be taken to ensure stormwater discharge does not cause roadside erosion and deposit sediment in the river.

Assessment

The area considered for assessment is Hill River in the vicinity of, up stream, and down stream of the road crossing.

The EPA's objective in regard to this environmental factor is to maintain the integrity, functions and environmental values of rivers.

The EPA acknowledges the proponent's willingness to redesign the bridge at Hill River following concerns raised by the Water and Rivers Commission. The redesigned bridge addresses the potential hydrological changes to Hill River, however there remains potential for erosion of the river banks as a result of road runoff.

It is recognised that road runoff is likely to be well controlled and managed within the confines of the road and immediate drainage management structures. However, a common feature of road drainage systems is the degradation of the environment between the point where the runoff is released from the road and where it is assimilated into the environment. This is usually as a result of insufficient consideration of the means of assimilating the runoff into the environment.

To ensure degradation of the road environs is kept to a practical minimum the design of runoff conveying structures from the road should include consideration of the entire flow path from the road to safe discharge into a natural watercourse or into appropriate infiltration facilities. The issues that must be considered to prevent such degradation include, but are not limited to:

- erosion and scour,
- siltation,

- undue restrictions on the floodplain, and
- upstream flooding.

The proponent did not make any commitments to manage this factor.

Having particular regard to the:

- (a) the potential for erosion of the road environs resulting from road drainage;

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective for Rivers provided the road design takes into account drainage management requirements to the satisfaction of the Department of Environmental Protection on advice of the Water and Rivers Commission.

3.5 Surface water quality - Contamination of Hill River with pollutants in road runoff

Description

There is potential for road runoff containing contaminants (typically petroleum based products) to enter the Hill River during rainfall events or for other pollutants to enter the river as a result of a traffic accident.

Assessment

The area considered for assessment is Hill River in the vicinity, and downstream, of the proposed road crossing.

The EPA's objective in regard to this environmental factor is to maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.

The proponent has committed to install drainage management structures to prevent direct discharge of road runoff to the Hill River. These structures will be designed and maintained to the satisfaction of the Department of Environmental Protection and the Water and Rivers Commission.

Having particular regard to the:

- (a) commitment made by the proponent; and
- (b) the recommendation made in relation to the factor Rivers - Change of hydrological characteristics and ecological function;

it is the EPA's opinion that the proposal can meet the EPA's objective for Surface Water Quality.

3.6 Wetland water quality - Contamination of Wealacutta Pool with pollutants in road runoff

Description

The proposed road passes within 50m of Wealacutta Pool (preliminary surveys by the Department of Environmental Protection suggest a high degree of naturalness and possible suitability for protection under the Southwest Agricultural Zone Wetlands EPP) which is

adjacent to the Cervantes Golf Course. Surface runoff will not directly enter Wealacutta Pool as there is a sand ridge between the road and the wetland, however the wetland is generally down-gradient of the groundwater flow from the coast road. The lowest point of the road for about 1000m north and south of Wealacutta Pool is located less than 50m on the up-gradient (eastern) side of Wealacutta Pool. All road runoff will flow to this point and infiltrate into the groundwater.

Given the close proximity of the road to Wealacutta Pool there is concern that runoff from the road (containing particulates including hydrocarbons and heavy metals) may adversely impact on wetland quality through movement of contaminated groundwater. The Water and Rivers Commission has recommended that the proponent make a commitment to undertake appropriate mitigation strategies should adverse environmental impacts occur that can be attributed to stormwater runoff from the road.

Assessment

The area considered for assessment is Wealacutta Pool.

The EPA's objective in regard to this environmental factor is to maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.

Given the close proximity of Wealacutta Pool to the proposed road there is potential for contamination of the wetland as a result of an accident or through general road usage. The proponent should ensure an appropriate strategy is developed to facilitate clean up activities in the event of an accident resulting in possible contamination of the groundwater in the vicinity of Wealacutta Pool. The design of swales and detention basins in this vicinity should take account of the need for rapid clean-up and minimise the possibility of groundwater contamination as a result of general road usage and/or accidents.

The proponent did not make any commitments to manage this factor.

Having particular regard to the:

- (a) possible contamination following traffic accidents,
- (b) the need to minimise the potential for contamination of groundwater contributing to Wealacutta Pool,
- (c) the need to develop a clean-up strategy in the event of an accidental spill, and
- (d) the recommendation made in relation to the factor Wetland Water Quality - Contamination of Wealacutta Pool with pollutants in road runoff;

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective for Wetland Water Quality, Wealacutta Pool - Contamination with pollutants in road runoff provided that Ministerial Conditions are imposed to ensure viable drainage design and clean-up strategy to protect the water quality of Wealacutta Pool.

3.7 Noise - Impact on adjacent residents

Description

Some residents in Cervantes and Jurien may be disturbed due to construction noise on the sections of the road where the proposal enters the townsites. This particularly applies to residents in Catalonia Street and Brown Streets in Cervantes, and Jurien Road in Jurien.

No submissions were received by the EPA on the management of this factor.

Assessment

The area considered for assessment is that part of the proposed road near to Cervantes and Jurien.

The EPA's objective in regard to this environmental factor is to protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring that noise levels meet statutory requirements and acceptable standards.

The proponent has committed to limit construction activities adjacent to residential areas to reasonable daylight hours to mitigate noise impacts in adjacent localities to the satisfaction of the Shire of Dandaragan.

Having particular regard to the:

- (a) the commitment made by the proponent;
- (b) the requirement for the proponent to comply with Environmental Protection (noise) Regulations 1997;

it is the EPA's opinion that the proposal can meet the EPA's objective for Noise for residential areas in Jurien and Cervantes - Impact on adjacent residents.

3.8 Visual Amenity - Deterioration of visual qualities

Description

The proposal will alter the visual amenity of the area as there is currently no formal access and little formal development in the region to be traversed by the proposed road.

The area of most interest is the Hill River crossing. Hill River is a regionally significant wetland (Semenuk, 1994) and is an area that is frequently used for recreation. The potential visual impacts of the proposed bridge should be minimised and to this end should be located, designed and constructed to minimise landscape intrusion. The Water and Rivers Commission has recommended that the proponent seek advice from a Landscape Consultant during the initial stages of development to minimise any visual intrusion as a result of the bridge.

Assessment

The area considered for assessment is generally the area in the vicinity of the proposed road, and specifically the proposed Hill River crossing.

The EPA's objective in regard to this environmental factor is visual amenity of the area adjacent to the project should not be unduly affected by the proposal.

To manage this factor the proponent has made the following commitments:

- The Department of Conservation and Land Management will be involved in and consulted with regard to the detailed route alignment of the north-south through route in the vicinity of Nambung National Park and the Pinnacles & Cervantes Road. This commitment will be to the satisfaction of CALM.
- Rehabilitation shall be incorporated into the project and is to be based upon procedures designated within the MRWA Environment Manual and the Roadside Flora Care Manual to the satisfaction of the DEP and CALM.

- A qualified landscape architect will develop plans to minimise visual impacts from the bridge and associated earthworks using local native species. The plan will be implemented as soon as practical following construction to the satisfaction of CALM.

Having particular regard to the:

- (a) commitments made by the proponent;

it is the EPA's opinion that the proposal can meet the EPA's objective for Visual Amenity.

3.9 Aboriginal Culture and Heritage - Impact on areas of cultural significance and destruction of artefacts

Description

Archaeological survey work has been documented in a report by O'Connor (1992). This report indicates the presence of historical Aboriginal activity in the vicinity of the proposed road and it is quite possible that sites of Aboriginal significance are present.

On reviewing the CER the Department of Aboriginal Affairs (DAA) was concerned that insufficient consultations with the Aboriginal community had been conducted. The ethnographic information in the O'Connor report is lacking in detail (ie: how the site visit was carried out, what specific information was given by the elders to the consultant, and who specifically visited the survey area) and the literature search conducted by the proponent was limited. The general area was part of the old Stock Route between Yanchep and Hill River, and there are still Aboriginal people who have knowledge about the route. DAA has recommended that further consultations with the Aboriginal Community be conducted prior to the construction of the road to ensure all those with interests in the area have been heard.

The Archaeological Report was considered by the DAA to be adequate, but vague.

Assessment

The area considered for assessment is the area in the vicinity of the proposed route of the road.

The EPA's objective in regard to this environmental factor is to ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972, and to ensure that changes to the biological and physical environment resulting from the project do not adversely affect cultural associations with the area.

Given the criticisms of the Aboriginal studies conducted as part of the CER the proponent has made a commitment to carry out a further ethnographic survey prior to finalisation of design of the road to the satisfaction of the Department of Aboriginal Affairs. The proponent also noted that should archaeological material be discovered during construction activities all work in the immediate vicinity would stop and the Department of Aboriginal Affairs notified.

Having particular regard to:

- (a) the commitments made by the proponent, and
- (b) the requirements of the Aboriginal Heritage Act

it is the EPA's opinion that the proposal can meet the EPA's objective for Aboriginal Culture and Heritage.

4. 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.

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal, and following discussion with the proponent the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponent's responsibility for and commitment to continuous improvement in environmental performance. The commitments, modified if necessary to ensure enforceability, then form part of the conditions to which the proposal should be subject if it is to be implemented.

The EPA may, of course, also recommend conditions additional to that relating to the proponent's commitments.

Having considered the proponent's commitments and the information provided in this report, the EPA has developed a set of conditions which the EPA recommends be imposed if the proposal by Main Roads Western Australia to construct a coastal road between Cervantes and Jurien, is approved for implementation. These conditions are presented in Appendix 3. Matters addressed in the conditions include the following:

- (a) the proponent shall fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended conditions in Appendix 3;
- (b) in order to manage the relevant factors and EPA objectives contained in this bulletin, and subsequent conditions and procedures authorised by the Minister for the Environment, the proponent shall be required to prepare, prior to implementation of the proposal, environmental management system documentation with components such as those adopted in Australian Standards AS/NZ ISO 14000 series;
- (c) the proponent shall design all surface water runoff management structures associated with the road to ensure no that significant erosion occurs in the road environs as a result of road runoff;
- (d) the proponent shall design the bridge over Hill River to ensure that no detrimental effects occur on the environment to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection.

The detrimental effects addressed are to be:

- erosion and scour,
 - siltation,
 - undue restrictions on the floodplain, and
 - upstream flooding and potential effects on flora and fauna communities
- (e) the proponent shall prepare a strategy to ensure rapid clean-up of the spillage of contaminants resulting from an accident in the vicinity of Wealacutta Pool, to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection;
 - (f) the proponent shall design the swales and detention basins in the vicinity of Wealacutta Pool to facilitate the rapid clean up of the spillage of contaminants resulting from an accident, and to minimise the potential for groundwater contamination as a result of general road usage and/or accidental spills, to the requirements of the EPA on advice of the Water and Rivers Commission and the Department of Environmental Protection.

5. Conclusions

The EPA has considered the proposal by Main Roads Western Australia to construct a coastal road between Cervantes and Jurien. The main issues of concern relate to clearing of vegetation, and possible contamination of the Hill River and Wealacutta Pool due to road runoff containing contaminants, particularly following an accident. The EPA has recommended conditions to ensure that an effective plan is in place to minimise possible impacts on water quality and river flows. The EPA has concluded that the proposed road can be constructed and managed to meet the EPA's objectives provided the conditions recommended in Section 4, and set out in Appendix 3, are imposed.

6. Recommendations

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 submits the following recommendations to the Minister for the Environment.

1. That the Minister considers the report on the relevant environmental factors of Vegetation Communities, Dieback, Rivers, Groundwater Quality, Surface Water Quality, Noise, Visual Amenity, and Aboriginal Culture and Heritage as set out in Section 3.
2. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is satisfactory implementation by the proponent of the commitments and recommended conditions set out in Appendix 3.
3. That the Minister impose the conditions recommended in Appendix 3.

Table 3. Identification of relevant environmental factors

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
BIOPHYSICAL			
Vegetation Communities	<p>The proposed road passes immediately adjacent to the Nambung National Park and impacts on vacant Crown land (CTRC Rec 5.24).</p> <p>The proposed road will form the western boundary of the Southern Beekeeper's Nature Reserve which is likely to result in some modification of the existing boundary.</p> <p>Approximately 83 ha of vegetation will be cleared to construct the road.</p>	<p>S2 Bypass - Cervantes (Comments from CALM)</p> <p>The alignment of the southern end on the S2 bypass should be reviewed with the intent of linking it to the existing Pinnacles Road as close as possible to the Cervantes Road junction. This will reduce the impact on the National Park and minimise the cost of future road construction as the Pinnacles Road has been newly constructed and built to the appropriate standard.</p> <p>An accurate survey of the route for the S2 bypass at Cervantes will be necessary to allow CALM and the local government to conduct land exchanges and rationalisation of the estate boundaries in readiness for the bypass construction. The survey will need to be physically marked on the ground and be of a standard that DOLA can use for land exchange.</p>	<p>Considered to be a Relevant Factor.</p>

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Declared Rare and Priority Flora	There is potential for Declared Rare and Priority Flora to present along the route of the road. Surveys to identify Declared Rare and Priority Flora were carried out as part of the preparation of the CER.		No Declared Rare and Priority Flora was identified in the vicinity of the proposed route for the road. No further evaluation required by the EPA.
Dieback	The spread of dieback is a potential impact of the proposal due to construction activities and increases traffic on the road itself. The significance of this aspect results from the proximity to dieback susceptible vegetation types and the need to import fill from nearby sources.		Considered to be a Relevant Factor.

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
<p>Declared Rare and Specifically Protected (Threatened) Fauna</p>	<p>Road may form a barrier to fauna movement. There is potential for Declared Rare Fauna habitat to be present along the proposed route for the road. Surveys for Declared Rare Fauna were conducted as part of the preparation of the CER.</p>		<p>No Declared Rare Fauna was identified in the vicinity of the proposed road.</p> <p>The proposed road is considered to cause only minor impact as a barrier to fauna movement.</p> <p>Some road deaths will be an unavoidable impact of this road. The impact will be primarily in the form of isolated deaths of larger mobile species, predominantly Kangaroos and snakes through road deaths.</p> <p>No further evaluation required by the EPA.</p>

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Wetlands	<p>Potential to impact on the Jurien and Cervantes Suites of wetlands within the System 5 Region as identified by "Ecological Assessment and Evaluation of Wetlands in the System 5 Region" a report to the Australian Heritage Commission by V&C Semeniuk Research Group for the Conservation Council of WA (1994).</p> <p>The proposal crosses the Hill River which has been identified as regionally significant by the Conservation Council of WA (1994).</p> <p>The proposal passes within approximately 50m of the Wealacutta Pool which has an interim listing of Conservation Category in the draft EPP South West Agricultural Zone Wetlands. Wealacutta Pool is also recognised as locally significant by the Conservation Council of WA (1994).</p>	<p>Hill River Crossing (comments from the Water and Rivers Commission)</p> <p>Hill River is a regionally significant wetland therefore impact of the proposed bridge should be minimised. The bridge should be located, designed and constructed to minimise landscape intrusion. Main Roads should seek advice from a Landscape Consultant in initial stages of development.</p> <p>Construction of the bridge over Hill River should involve minimal disturbance of the floodway and banks of the board river channel and minimal removal of vegetation. All revegetation works should involve local native species, preferably plant material collected from the Hill River system.</p>	<p>Considered to be a Relevant Factor and discussed under the factors Surface Water Quality and Wetland Water Quality.</p>
Rivers	<p>Crosses the Hill River and has the potential to alter the hydrological characteristics and hence ecological function of the area.</p>	<p>Hill River Crossing (comments from the Water and Rivers Commission)</p> <p>The construction of the bridge over Hill River should not constrict the floodway and bridge piles should be located so as not to cause bank scour. Main Roads should refer to Guidelines for the Establishment of Bridges over Waterways (Water and Rivers Commission) for detailed advice on constructing bridges over waterways.</p>	<p>Considered to be a Relevant Factor.</p>

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Dunes	Close proximity to primary dunes or potential mobile Quindalup dunes. Road construction activities could lead to degradation of these dunes.		Although some localised, short term dune impacts are to be expected as part of road construction activities the proposal is not located within, nor likely to impact upon, any active dune areas. No further evaluation required by the EPA

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
POLLUTION MANAGEMENT			
Surface Water Quality	<p>Hill River Contaminated road runoff could enter the watercourse from road runoff or as a result of a traffic accident</p>	<p>Hill River (comments from the Water and Rivers Commission) Care should be taken to ensure stormwater discharge does not cause roadside erosion and deposit sediment in the river.</p>	<p>Considered to be a Relevant Factor.</p>
Wetland Water Quality	<p>Wealacutta Pool The road proposal may result in pollution and or possible physical changes to wetland features adjacent to the proposed route.</p>	<p>Wealacutta Pool (comments from the Water and Rivers Commission) Given the close proximity of the road to Wealacutta Pool there is concern that runoff from the road (containing particulates including hydrocarbons and heavy metals) may adversely impact upon wetland quality through movement of contaminated groundwater. The proponent needs to substantiate the claim made in the CER that there is little potential for groundwater contamination and to make a commitment to undertake appropriate mitigation strategies should adverse environmental impacts occur that can be attributed to stormwater runoff from the road.</p>	<p>Considered to be a Relevant Factor.</p>
Noise	<p>Construction noise may disturb residents where the proposal enters the Cervantes and Jurien townships.</p>		<p>Considered to be a Relevant Factor.</p>

FACTOR	PROPOSAL CHARACTERISTIC	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
SOCIAL SURROUNDINGS			
Visual Amenity	The proposal will alter the visual amenity of the area as there is currently no formal access and little development in the region.		Considered to be a Relevant Factor.
Aboriginal Culture and Heritage	Archaeological survey work has been documented by the O'Connor report referenced by the CER. This report indicates the presence of Aboriginal activity in the area which the road is passing through and it is quite possible that there are sites of Aboriginal significance in the vicinity of the proposal.	<p>Aboriginal Heritage Further consultations with the Aboriginal Community prior to development is recommended to ensure all those with interests in the area have been heard.</p> <p>Ethnographic Report The O'Connor report is lacking in detail, that is how the site visit was carried out, what specific information was given by the elders to the consultant, and who specifically visited the survey area. It appears that limited consultation was carried out with the Aboriginal community who may have interests in the Hill River area. The literature search was sketchy. The general area was part of the old Stock Route between Yanchep and Hill River, and there are still aboriginal people who have knowledge about the route.</p> <p>Archaeological Report Adequate, but vague. The survey methodology would be useful and 35% coverage is questionable. If the consultant were to locate the four sites recorded within 15km of the project area it may explain why no sites were located within the study area.</p>	Considered to be a Relevant Factor.

Table 4. Summary of assessment of relevant environmental factors

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
BIOPHYSICAL				
Vegetation Communities, Within the proposed road reserve - Clearing of communities with poor representation in Conservation Reserves	Swan Coastal Plain north of Perth.	Maintain the abundance, species diversity, and geographic distribution of vegetation communities.	<p>Impacts on significant vegetation are expected to be minimal given the wide representations of associations both within the region and in established Nature Reserves and National Parks.</p> <p>The Commitments made by the proponent adequately deal with the construction and rehabilitation aspects of the Vegetation Communities factor.</p> <p>Proponent's Commitments</p> <ul style="list-style-type: none"> • <i>Liaison with CALM to determine requirements for fire management access tracks and firebreaks.</i> • <i>Consult CALM in regard to the detailed route alignment of the north-south through route in the vicinity of Nambung National Park and the Pinnacles & Cervantes Road.</i> • <i>Clearing and stockpiling of vegetation shall occur in accordance with the procedures designated within the MRWA Environmental Management Manual and Roadside Flora Care Manual.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • commitments made by the proponent, • the wide representation of effected vegetation communities in conservation reserves, and • the relatively small area to be cleared <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.</p>

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
Dieback, Adjacent to the proposed road - Introduction into uninfected areas	Land and vegetation adjacent to the proposed route of the road, and source areas for fill.	To protect areas free of vegetation diseases and to minimise the spread of diseases where they are identified.	<ul style="list-style-type: none"> • Road verges shall not be cleared by Main Roads beyond the corridor required for the construction of the road formation and earthworks. • Weed control shall be a component of the rehabilitation strategy and form an ongoing component of road reserve management. • All borrow pits on private or public lands shall be reinstated or rehabilitated in accordance with Main Roads policy. <p>Proponent's Commitments</p> <ul style="list-style-type: none"> • Prior to construction, a Dieback Hygiene Management Program shall be developed and implemented to the requirements of CALM. • Sites utilised for acquisition of construction materials will be subject to assessment for the presence of dieback. No materials will be sourced from areas infected with dieback fungus. This commitment will be implemented to the satisfaction of the DEP. 	Having particular regard to: <ul style="list-style-type: none"> • commitments made by the proponent, it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
Rivers, Hill River crossing- Change of hydrological characteristics and ecological function	The Hill River in the vicinity of the road crossing.	Maintain the integrity, functions and environmental values of rivers.	<p>The road runoff is likely to be well controlled and managed within the confines of the road and immediate drainage management structures. The proponent's commitment is likely to ensure there is no adverse effects due to contaminated surface water runoff on the Hill River, however there is potential for erosion of the road environs due to insufficient consideration of the means of assimilating the runoff into the environment.</p> <p>The design of all runoff conveying structures from the road should include consideration of the entire flow path from the road to safe discharge into the natural watercourse or into appropriate infiltration facilities. Issues that must be to adequately manage the surface runoff include, but are not be limited to:</p> <ul style="list-style-type: none"> • erosion and scour, • siltation, • undue restrictions on the floodplain, and • upstream flooding. <p>Proponent's Commitment</p> <ul style="list-style-type: none"> • <i>Prior to Construction , an appropriate design will be developed to prevent direct discharge of stormwater runoff to the Hill River, to the satisfaction of the DEP and Water and Rivers Commission.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • the commitment made by the proponent, • the potential for erosion of the road environs, and • the recommendation to ensure road runoff is assimilated into the environment without causing environmental degradation, <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the recommended Ministerial Conditions are implemented.</p>

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
POLLUTION MANAGEMENT				
Wetland Water Quality, Wealacutta Pool - Contamination with pollutants in road runoff	Wealacutta Pool.	Maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	<p>Given the close proximity of Wealacutta Pool (within 50m) of the proposed road there is potential for contamination of the wetland as a result of an accident or through general road usage.</p> <p>MRD should ensure an appropriate strategy is developed to facilitate clean up activities in the event of an accident resulting in possible contamination of the groundwater in the vicinity of Wealacutta Pool. The design of swales and detention basins in this vicinity should take account of the need for rapid clean-up and minimise the possibility of groundwater contamination as a result of general road usage and/or accidents.</p>	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • possible contamination following traffic accidents, • the need to minimise the potential for groundwater contamination, • the recommendation to develop a strategy for rapid clean up of spills as a result of accidents, and • the recommendation to design swales and detention basins to facilitate rapid clean-up and minimise potential for groundwater contamination <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the recommended Ministerial Conditions are implemented.</p>

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
Surface Water Quality, Hill River - Contamination with pollutants in road runoff	Hill River	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	<p>Proponent's Commitment</p> <ul style="list-style-type: none"> • <i>Prior to Construction, an appropriate design will be developed to prevent direct discharge of stormwater runoff to the Hill River, to the satisfaction of the DEP and Water and Rivers Commission.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • the commitment made by the proponent, it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.
Noise, Adjacent to residential areas in Jurien and Cervantes - Impact on adjacent residents	Areas along the proposed route near to the centers of Cervantes and Jurien.	Protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring that noise levels meet statutory requirements and acceptable standards.	<p>Proponent's Commitment</p> <ul style="list-style-type: none"> • <i>Construction activities adjacent to residential areas will be limited to reasonable daylight hours to mitigate noise impacts in adjacent localities to the satisfaction of the Shire of Dandaragan.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • the commitment made by the proponent, it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
SOCIAL SURROUNDINGS				
Visual Amenity, Adjacent to the proposed road and specifically at Hill River - Deterioration of visual qualities	The area in the vicinity of the proposed route of the road.	Visual amenity of the area adjacent to the project should not be unduly affected by the proposal.	<p>The area of most concern for the factor is the Hill River Crossing. The commitments made by the proponent area likely to satisfactorily manage this area.</p> <p>Proponent's Commitments</p> <ul style="list-style-type: none"> • <i>Rehabilitation shall be incorporated into the project and is to be based upon procedures designated within the MRWA Environment Manual and the Roadside Flora Care Manual to the satisfaction of the DEP and CALM</i> • <i>A qualified landscape architect will develop plans to minimise visual impacts from the bridge and associated earthworks using local native species. The plan will be implemented as soon as practical following construction to the satisfaction of CALM.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • commitments made by the proponent <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.</p>

RELEVANT ENVIRONMENTAL FACTOR	RELEVANT AREA	EPA OBJECTIVE	EPA ASSESSMENT	EPA ADVICE
<p>Aboriginal Culture and Heritage, Within the proposed road reserve and adjacent areas - Impact on areas of cultural significance and destruction of artefacts</p>	<p>The area in the vicinity of the proposed route of the road.</p>	<p>Ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972; and</p> <p>Ensure that changes to the biological and physical environment resulting from the project do not adversely affect cultural associations with the area.</p>	<p>Should archaeological material be discovered during construction activities all work in the immediate vicinity should stop and the Department of Aboriginal Affairs notified.</p> <p>Proponent's Commitment</p> <ul style="list-style-type: none"> • <i>An ethnographic survey will be carried out as near as practicable to the commencement of construction to the satisfaction of the Department of Aboriginal Affairs.</i> 	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • commitments made by the proponent, and • the requirements of the Aboriginal Heritage Act <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective.</p>

Appendix 1

List of submitters

List of submitters

Department of Aboriginal Affairs

Department of Conservation and Land Management

Water and Rivers Commission

Ministry for Planning

Appendix 2

References

CALM (1995), "Nambung National Park: Draft Management Plan.", Department of Conservation and Land Management.

ecologia (1997), "Cervantes-Jurien Coastal Road Consultative Environmental Review", Main Roads Western Australia, April 1997.

O'Connor, R (1992), "Report on an Ethnographic Survey of the Proposed Telecom Australia Optic Fibre Cable Route: Perth - Geraldton Region." Prepared for Telecom Australia.

Semeniuk (1994), "Ecological Assessment and Evaluation of Wetlands in the System 5 Region", Report to the Australian Heritage Commission for the Conservation Council of Western Australia by V & C Semeniuk Research Group, October 1994.

Water and Rivers Commission (undated), "Guidelines for the Establishment of Bridges over Waterways"

Western Australian Planning Commission (1996), "Central Coast Regional Strategy, September 1996

Appendix 3

List of recommended ministerial conditions and proponent's consolidated commitments

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

CERVANTES - JURIEN COASTAL ROAD,
SHIRE OF DANDARAGAN (1019)

MAIN ROADS WESTERN AUSTRALIA

This proposal may be implemented subject to the following conditions:

1 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the proposal, the proponent shall fulfil the commitments made in the Consultative Environmental Review, those made as part of the proponent's response to public submissions (14 October 1997) during the environmental impact assessment process conducted by the Environmental Protection Authority, and those made as part of the fulfilment of the requirements of conditions in this statement requiring the preparation of Environmental Management Plans; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.

In the event of any inconsistency, the conditions and procedures shall prevail to the extent of the inconsistency.

The attached environmental management commitments form the basis for consideration by the Chief Executive Officer of the Department of Environmental Protection for auditing of this proposal in conjunction with the conditions and procedures contained in this statement.

2 Implementation

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

- 2-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal.
- 2-2 Where, in the course of the detailed implementation referred to in condition 2-1, the proponent seeks to change the designs, specifications, plans or other technical material submitted to the Environmental Protection Authority in any way that the Minister for the Environment determines, on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

3 Proponent

These conditions legally apply to the nominated proponent.

- 3-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

4 Environmental Management System

- 4-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to construction, the proponent shall prepare environmental management system documentation with components such as those adopted in Australian Standards AS/NZS ISO 14000 series, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 4-2 The proponent shall implement the Environmental Management System referred to in condition 4-1.

5 Hill River

- 5-1 The proponent shall design all surface water runoff management structures associated with the road to ensure no that significant erosion occurs in the road environs as a result of road runoff to the requirements of the Department of Environmental Protection on advice of the Water and Rivers Commission.
- 5-2 The proponent shall construct the surface water runoff management structures according to the designs required by Condition 5-1.
- 5-3 The proponent shall design the bridge over Hill River to ensure that no detrimental effects occur on the environment to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission and the Department of Environmental Protection.

The detrimental effects addressed are to be:

1. erosion and scour,
2. siltation,
3. undue restrictions on the floodplain, and
4. upstream flooding and potential effects on flora and fauna communities.

5-4 The proponent shall construct any bridging structure over Hill River in accordance with the design requirements of Condition 5-3.

6 Wealacutta Pool

6-1 The proponent shall prepare a strategy to ensure rapid clean-up of the spillage of contaminants resulting from an accident in the vicinity of Wealacutta Pool, to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission and the Department of Environmental Protection.

6-2 The proponent shall design the swales and detention basins in the vicinity of Wealacutta Pool to facilitate the rapid clean-up of any spillage of contaminants resulting from an accident, and to minimise the potential for groundwater contamination as a result of general road usage and/or accidental spills, to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission and the Department of Environmental Protection.

6-3 The proponent shall implement the designs and maintain the facilities required by Condition 6-2.

7 Commencement

7-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced.

Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period to the Minister for the Environment.

Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

8 Compliance Auditing

8-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit programme prepared in consultation between the proponent and the Department of Environmental Protection.

Procedures

1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.

2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.

Note

- 1 The Environmental Protection Authority reported on the proposal in Environmental Protection Authority Bulletin 881 (February 1998).

Proponent's Environmental Management Commitments

14 October 1997

CERVANTES - JURIEN COASTAL ROAD (1019)

MAIN ROADS WESTERN AUSTRALIA

COMMITMENTS CONTAINED IN THE CONSULTATIVE ENVIRONMENTAL REVIEW

1. Main Roads will liaise with CALM to determine requirements for fire management access tracks and firebreaks for the section of the southern Beekeepers Reserve where the coastal road forms the western boundary of the reserve.
2. Clearing and stockpiling of vegetation shall occur in accordance with the procedures designated within the MRWA Environmental Management Manual and Roadside Flora Care Manual. These factors will be addressed to the satisfaction of the Department of Environmental Protection.
3. During construction, road verges shall not be cleared by Main Roads beyond the corridor required for the construction of the road formation and earthworks. This commitment will be implemented to the satisfaction of the Department of Environmental Protection.
4. Weed control shall be included as a component of the rehabilitation strategy and form an ongoing component of road reserve management. Implementation will be to the satisfaction of the Department of Environmental Protection and CALM.
5. Prior to construction, a Dieback Hygiene Management Program shall be developed and implemented to the requirements of CALM.
6. Prior to Construction, an appropriate design will be developed to prevent direct discharge of stormwater runoff to the Hill River, to the satisfaction of the Department of Environmental Protection and Water and Rivers Commission.
7. Rehabilitation shall be incorporated into the project and is to be based upon procedures designated within the MRWA Environment Manual and the Roadside Flora Care Manual to the satisfaction of the DEP and CALM.

8. Sites utilised for acquisition of construction materials will be subject to assessment for the presence of dieback. No materials will be sourced from areas infected with dieback fungus. This commitment will be implemented to the satisfaction of the Department of Environmental Protection.
9. On completion of construction, all borrow pits on private or public lands shall be reinstated or rehabilitated in accordance with Main Roads policy, and in consultation with owners on private and or CALM and other authorities on public lands. This commitment will be implemented to the satisfaction of the Department of Environmental Protection.
10. Construction activities adjacent to residential areas will be limited to reasonable daylight hours to mitigate noise impacts in adjacent localities to the satisfaction of the Shire of Dandaragan.
11. Pre-Construction: The Department of Conservation and Land Management will be involved with and consulted in regard to the detailed route alignment of the north-south through route in the vicinity of Nambung National Park and the Pinnacles & Cervantes Road. This commitment will be to the satisfaction of CALM.
12. Pre-construction and post-construction: A qualified landscape architect will develop plans to minimise visual impacts from the bridge and associated earthworks using local native species. The plan will be implemented as soon as practical following construction to the satisfaction of CALM.
13. An ethnographic survey will be carried out prior to finalisation of design of the road to the satisfaction of the Department of Aboriginal Affairs.