

Chichester Rail Deviation

BHP Billiton Iron Ore Pty Ltd

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

**Environmental Protection Authority
Perth, Western Australia
Report 1336
August 2009**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
23/02/09	Referral received	
30/03/09	Intention to set ARI Level of Assessment advertised (no appeals)	1
20/08/09	Proponent's Final ARI document received by EPA	21
27/08/09	EPA report to the Minister for Environment	1

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1. Introduction and background

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for Environment on the BHP Billiton Iron Ore (BHPBIO) proposal to construct a 23km dual track railway deviation through the Chichester Ranges.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for Environment on the outcome of its assessment of a proposal. The report must set out:

- The key environmental factors identified in the course of the assessment; and
- The EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The proponent has submitted a referral document setting out the details of the proposal, potential environmental impacts and proposed commitments to manage those impacts.

The EPA considers that the proposal, as described, can be managed to meet the EPA's environmental objectives, subject to the EPA's recommended conditions being made legally binding.

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

2. The proposal

BHPBIO is proposing to construct 23 kilometres of dual track railway and associated rail infrastructure within the Chichester Ranges, approximately 220 kilometres south of Port Hedland. The proposed deviation would have a lower gradient than the existing mainline and would eliminate the requirement for train stoppages, thereby increasing the fuel efficiency of BHPBIO's iron ore transport within the Pilbara. Operation of the existing mainline would continue following construction of the Chichester deviation. The rail line would be constructed using cut and fill to minimise disturbance, and to target a cut and fill balance over the whole of the proposed alignment. Figure 1 shows the regional location of the proposed rail deviation.

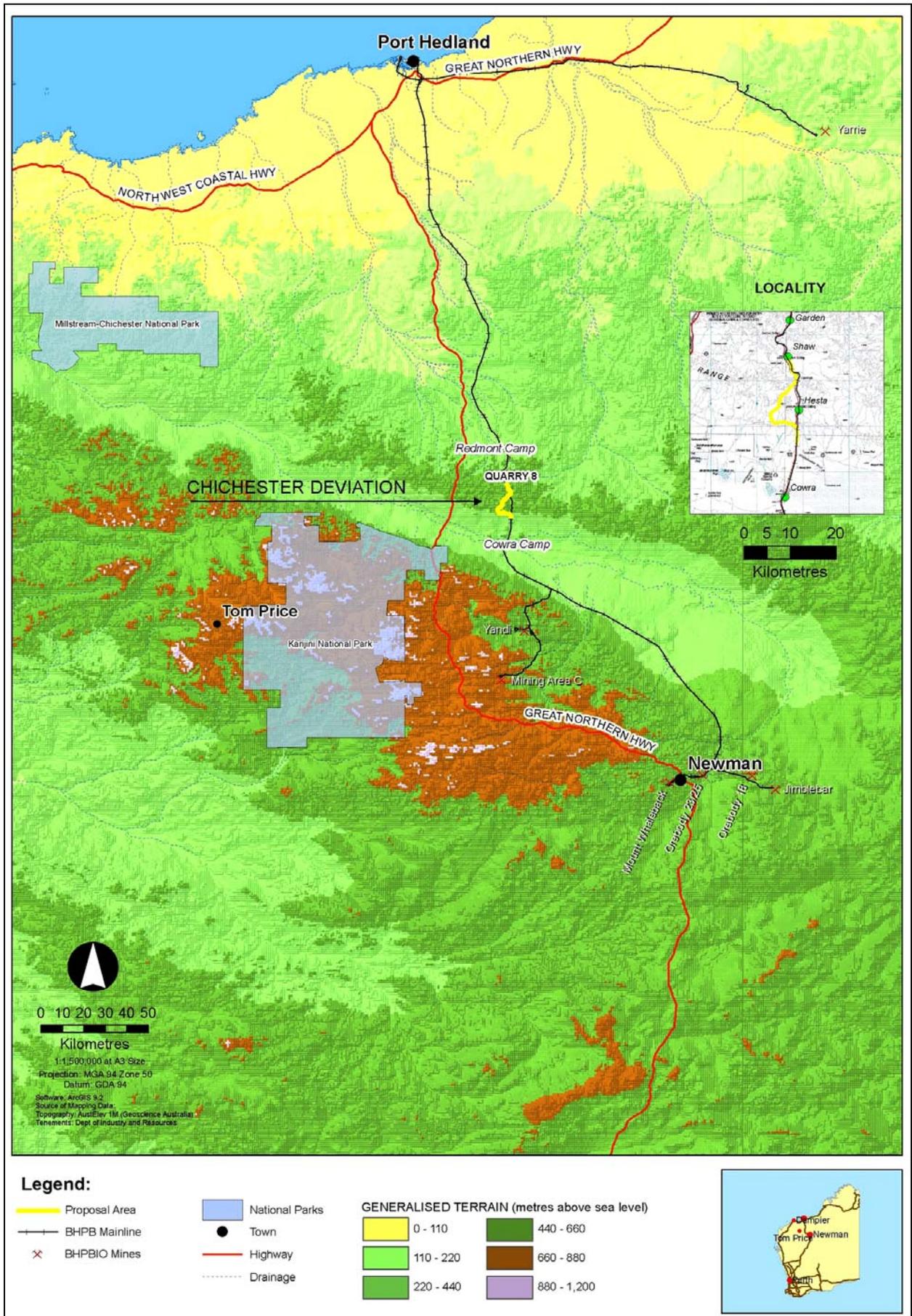


Figure 1: Regional location of proposal

The main characteristics of the proposal are summarised in the table below.

Table 1: Summary of key proposal characteristics

Element	Description
Construction Period	2 stages of approximately 12 months each
Disturbance area	Approximately 400 hectares
Railway length	Approximately 23 kilometres
Supporting infrastructure	Communications cabling, communications tower, level crossings, signalling, access tracks, borrow pits.
Culverts	Engineering culverts in 46 locations, environmental culverts at 50 metre intervals in areas of sheet flow.
Water requirements	Approximately 1000 kL/day to be sourced from two existing bores.

The potential impacts of the proposal are discussed by the proponent in the referral document (BHPBIO, February 2009).

3. Consultation

During the preparation of the ARI, the proponent has undertaken consultation with government agencies and key stakeholders, including Indigenous groups. The agencies, groups and organisations consulted, the comments received and the proponent's response are detailed in the Proponent's Assessment on Referral Information document (BHPBIO, 2009). The environmental issues raised were flora and vegetation, surface water, groundwater and fauna.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

4. Key environmental factors

It is the EPA's opinion that the following key environmental factor relevant to the proposal requires evaluation in this report.

The description of the factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of the factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Flora and Vegetation

Description

The proposal is located in the Pilbara region within the Chichester and Fortescue Plains subregions.

The proposal would clear approximately 400 hectares (ha) of native vegetation of which 282 ha is not required for ongoing operations and would be progressively rehabilitated during construction. The remainder of the cleared area (approximately 118 ha) would be rehabilitated after the decommissioning of the rail line.

There is the potential for indirect impacts to vegetation including fragmentation of vegetation communities, changes to surface water regimes, introduction or spread of weeds, hydrocarbon spills and increased risk of wildfire.

The 400 ha of clearing consists of 88 ha for the rail line, 220 ha for borrow pits, and 92 ha for other infrastructure such as fibre optic cables, access tracks and laydown areas.

A level 2 vegetation and flora survey (Ecologia, 2008) of the proposal area was carried out. Phase 1 was completed in October 2007 and Phase 2 was completed in May 2008. A total of 306 taxa within the proposal area were identified in these surveys.

Vegetation within the project area was mapped into nine vegetation types, which are described in the ARI document (BHPBIO, 2009 p4-7). The proponent's environmental consultant, Ecologia, considers the vegetation types to be of low conservation status (Ecologia 2008).

One priority flora species, *Goodenia nuda* (Priority 3), was identified within the proposal area. Each of the five populations identified were small with less than 10% cover. *Goodenia nuda* is considered to have widespread distribution throughout the Pilbara.

There is a low abundance of weeds in the project area, most of which are limited to drainage lines and areas close to the existing mainline.

No threatened ecological communities or declared rare flora have been recorded within the proposal area, however stands of Mulga in the vicinity have high conservation status, representing the northern limit of Mulga in Western Australia. Mulga is particularly susceptible to changes in surface water flows.

The proponent intends to extend cuttings where possible to provide fill material rather than establishing new borrow pits. New borrow pits may be required if the material from the cuttings is not suitable. These borrow pits would be located within the project area and would not result in the need for any additional environmental factors to be considered.

The proponent proposes to minimise impacts to Mulgas by the use of engineering controls (culverts along the rail line) to minimise changes to surface water flows.

The proponent has also prepared a plan to monitor changes in surface water flows and the health of the mulga vegetation. The monitoring plan is designed to provide information on the effectiveness of the proposed rail design and engineering design to manage surface water flows.

To minimise impacts to flora and vegetation the proponent intends to:

- delineate clearing limits and restrict access outside these limits;
- implement its Significant Species Management Plan;
- implement a Weed Management Plan including use of wash-down facilities, quarantine of infested topsoils and limitation of access to weed infested areas;
- implement preventative controls for fire including routine machine maintenance and enforcement of road safety rules;
- progressively rehabilitate approximately 282 ha not required for permanent infrastructure including borrow pits, lay-down areas and temporary access tracks; and
- include rehabilitation of the proposed rail line as part of the Conceptual Closure Plan for its Mt Newman Rail Line.

Assessment

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

The EPA considers that potential impacts to Mulga vegetation (resulting from changes to surface water flows) to pose the main environmental risk of this proposal. The EPA notes that the proponent intends to use culverts to allow surface water to pass beneath the proposed rail line and minimise disturbance to existing surface water flows.

The proponent has also developed a monitoring plan to ensure that impacts on Mulga are minimised and that knowledge can be gained to improve the long term management of mulga vegetation communities. This plan is the subject of recommended Condition 6.

The EPA notes that there will be progressive rehabilitation of areas required for temporary infrastructure during the construction phase. The proponent proposes that the rehabilitation would include the recovery of vegetation and topsoil to be placed directly on disturbed areas and, where necessary, the stockpiling of material for later use. Other rehabilitation activities include erosion control and scarification of compacted surfaces. The proponent would address the decommissioning and rehabilitation of the Chichester Deviation within the overall Conceptual Closure Plan for the Mt Newman Rail Line. Recommended Condition 7 addresses rehabilitation.

The EPA considers that rehabilitation should achieve the following outcomes:

- The percentage cover of native vegetation in all rehabilitation areas should be comparable with that of similar nearby areas of land.
- No new species of weeds (including both declared weeds and environmental weeds) should be introduced into the area as a result of the implementation of the proposal.
- The distribution and abundance of weeds (including both declared weeds and environmental weeds) should be no greater than the distribution and abundance of weeds in comparable nearby areas of land which have not been disturbed during implementation of the proposal.
- Rehabilitation activities should continue until such time as these outcomes are met and demonstrated to be met on an ongoing basis.

Summary

Having particular regard to the:

- engineering design for culverts;
- measures taken by the proponent to avoid and minimise environmental impacts to mulga and other vegetation;
- the recommended Condition 6 for a Mulga Monitoring Plan; and
- the recommended Condition 7 for progressive rehabilitation;

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

5. Recommended Conditions

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by BHPBIO to construct a 23km dual track railway deviation through the Chichester Ranges is approved for implementation. These conditions are presented in Appendix 2.

6. Other Advice

The EPA notes that as part of this proposal BHPBIO proposes to construct infrastructure associated with the rail deviation. This includes the laying of fibre optic communications cabling approximately 1.2 metres below the surface. Where this cable is to cross creeks under-boring or trenching would be used.

The proponent has committed to managing fauna impacts should trenching be used for creek crossings. Trenches will be filled in towards the end of each shift. A small section at the end of any unfinished trenching will generally be left open to identify the starting point for the next shift and allow access to conduit already buried (approximately 10-15 metres). Where trenches are left open fauna egress ramps will be built into the trench at no greater than 45 degrees. Any open trenches will be inspected at the start of each shift and entrapped fauna freed prior to commencing of work.

The EPA advises that under-boring would be a preferable approach as this would remove the potential for trapping fauna in open trenching.

7. Conclusions

The EPA has considered the proposal by BHPBIO to construct a 23km dual track railway deviation through the Chichester Ranges. The proposal would lead to 400 ha of clearing. Five small populations of a priority 3 species have been identified within the proposed project area. This species is widespread throughout the Pilbara.

The EPA notes that a monitoring plan has been proposed that would provide information on the impacts on nearby mulga vegetation in relation to potential changes in surface water flows. This monitoring plan should provide data to assist future infrastructure projects manage surface water flows in areas where mulga vegetation exists.

The EPA notes that the Chichester Deviation would be included in the Conceptual Closure Plan for the Mt Newman Rail Line and considers that an outcome based rehabilitation condition is warranted to ensure that areas not required for ongoing operations are progressively rehabilitated during the project.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2.

8. Recommendations

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

1. That the Minister notes that the proposal being assessed is for a 23km dual track railway deviation through the Chichester Ranges by BHP Billiton Iron Ore Pty Ltd;
2. That the Minister considers the report on the key environmental factor as set out in Section 4;
3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, 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

BHP Billiton Iron Ore Pty Ltd (August 2009) *Newman – Port Hedland Railway Chichester Deviation – Environmental Referral Document.*

BHP Billiton Iron Ore Pty Ltd (2009) *Chichester Deviation Surface Water Management Plan (Revision A) – February 2009.*

BHP Billiton Iron Ore Pty Ltd (2009) *Chichester Deviation Significant Species Management Plan (Revision A) – February 2009.*

BHP Billiton Iron Ore Pty Ltd (2009) *Chichester Deviation Weed Management Plan (Revision A) – February 2009.*

Ecologia Environment (2008) *Rapid Growth Project 5 (RPG5) Chichester Deviation Vegetation and Flora Assessment.*

Appendix 2

Identified Decision-Making Authorities and Recommended Environmental Conditions

Identified Decision-Making Authorities

Section 44(2) of the *Environmental Protection Act 1986* (EP Act) specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with relevant decision-making authorities, and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified for this consultation:

Decision-making Authority	Approval
1. Minister for Water	Water extraction licence
2. Minister for State Development	State Agreement Act
3. CEO Shire of Ashburton	Permits and development approvals

RECOMMENDED ENVIRONMENTAL CONDITIONS

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

CHICHESTER RAIL DEVIATION
SHIRE OF ASHBURTON

Proposal: BHP Billiton Iron Ore is proposing to construct 23 kilometres of dual track railway and associated rail infrastructure within the Chichester ranges, approximately 220 kilometres south of Port Hedland. The proposal includes clearing of 400 ha of vegetation. The required water supply would be approximately 1000 kL/day to be sourced from two existing bores. The proposal also involves the construction communications cabling, communications tower, level crossings, signalling, access tracks, and borrow pits.

Proponent: BHP Billiton Iron Ore Pty Ltd

Proponent Address: St Georges Square, 225 St Georges Tce, Perth WA 6000

Assessment Number: 1801

Previous Assessment Numbers: Nil

Previous Statement Numbers: Nil

Report of the Environmental Protection Authority: 1336

Previous Reports of the Environmental Protection Authority: Nil

The proposal referred to in report 1336 of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described 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 Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer (CEO) of the Department of Environment and Conservation of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO of the Department of Environment and Conservation with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO of the Department of Environment and Conservation environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO of the Department of Environment and Conservation to report more frequently.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO of the Department of Environment and Conservation and shall be prepared and submitted in a format acceptable to the CEO of the Department of Environment and Conservation.

4-3 The environmental compliance reports shall:

1 be endorsed by signature of the proponent's General Manager – Iron Ore or a person, approved in writing by the CEO of the Department of Environment and Conservation, delegated to sign on behalf of the proponent's General Manager – Iron Ore;

2 state whether the proponent has complied with each condition and procedure contained in this statement;

3 provide verifiable evidence of compliance with each condition and procedure contained in this statement;

- 4 provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;
- 5 identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;
- 6 review the effectiveness of all corrective and preventative actions taken; and
- 7 describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO of the Department of Environment and Conservation.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO of the Department of Environment and Conservation Performance Review Reports at the conclusion of the first, second, third and fifth years after the commencement of productive mining and then, at such intervals as the CEO of the Department of Environment and Conservation may regard as reasonable, which addresses:

- 1 the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;
- 2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and
- 3 significant improvements gained in environmental management which could be applied to this and other similar projects.

6 Mulga Monitoring Report

6-1 The proponent shall prepare an initial report to the Environmental Protection Authority within one year of completion of construction and further reports after 3 and 5 years that:

- 1 Provide scientifically sound information on the success or otherwise of the proposed rail design and associated engineering solutions to minimise

impacts on mulga, which are able to be used to inform future rail and other infrastructure projects.

7 Rehabilitation and Closure

- 7-1 The proponent shall undertake progressive rehabilitation of areas not required for permanent infrastructure to achieve the following outcomes:
1. Areas disturbed through implementation of the proposal shall be progressively rehabilitated with vegetation composed of native plant species of local provenance (defined as seed or plant material collected within 10 kilometres of the proposal) with rehabilitation commencing within 12 months of the commencement of works.
 2. The percentage cover of living native vegetation in all rehabilitation areas shall be comparable with that of similar nearby areas of land.
 3. No new species of weeds (including both declared weeds and environmental weeds) shall be introduced into the area as a result of the implementation of the proposal.
 4. The abundance of weeds (including both declared weeds and environmental weeds) shall be no greater than the abundance of weeds in comparable nearby areas of land which have not been disturbed during implementation of the proposal.
- 7-2 The proponent shall continue rehabilitation activities as necessary until such time as the requirements of condition 7-1 are met, and are demonstrated by inspections and reports to be met, for a minimum of 5 years to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation.
- 7-3 The Progressive Rehabilitation Management Plan shall be independently peer reviewed for its applicability to this proposal, to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation.
- 7-4 The proponent shall review and revise the Progressive Rehabilitation Management Plan to incorporate the findings of the peer review required in condition 7-3, prior to implementation of the proposal.
- 7-5 The proponent shall review, and as necessary in accordance with current best practice, revise the Progressive Rehabilitation Management Plan at intervals not exceeding 2 years, to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation.

Procedures

1. Where a condition states “on advice of the Environmental Protection Authority”, the Environmental Protection Authority will provide that advice to the Department of Conservation 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 and Conservation.
3. The Minister for Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.
4. 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 and Conservation.
5. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of part V of the *Environmental Protection Act 1986*.

Schedule 1

The Proposal (Assessment No.1801)

General Description

The proposal is construct 23 km of rail line through the Chichester Range.

The proposal is described in the following document – BHP Billiton Iron Ore Pty Ltd, Newman – Port Hedland Railway Chichester Deviation, Environmental Referral Document (2009).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

Table 1: Summary of key proposal characteristics

Element	Description
Construction Period	2 stages of approximately 12 months each
Approximate disturbance area	400 hectares
Railway length	Approximately 23 kilometres
Supporting infrastructure	Communications cabling, communications tower, level crossings, signalling, access tracks, borrow pits.
Culverts	Engineering culverts in 46 locations, environmental culverts at 50 metre intervals in areas of sheet flow.
Water requirements	Approximately 1000 kL/day to be sourced from two existing bores.