Mesa A / Warramboo Iron Ore Project

Robe River Mining Company Pty Ltd

Report and recommendations
of the Environmental Protection Authority

Direction from the Minister for the
Environment under section 43
of the *Environmental Protection Act 1986*

Environmental Protection Authority
Perth, Western Australia
Bulletin 1264
September 2007

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
16/8/2007	**Proposal remitted to EPA by Minister for re-assessment under section 43(1)**	
14/9/2007	**EPA report to the Minister for the Environment**	**4**

Report released: **17.9.07**
Appeals close: **2.10.07**

Assessment No. 1574

Contents

1. Executive Summary

This report provides the Environmental Protection Authority's (EPA's) further advice and recommendations to the Minister for the Environment on the proposal by Robe River Mining Company Pty Ltd to mine iron ore at Mesa A / Warramboo. This report has been prepared in response to a request from the Minister under section 43(1) of the *Environmental Protection Act 1986* (EP Act) that the EPA re-assess the proposal in the light of additional information provided by the proponent.

The EPA previously assessed this proposal at the level of Public Environmental Review (PER) and provided its report and recommendation in EPA Bulletin 1251 published in March 2007 (EPA 2007). At that time, the EPA decided that the following key environmental factors were relevant to the proposal and required detailed evaluation:

(a) Subterranean Fauna;

(b) Landforms, Closure Planning and Rehabilitation;

(c) Flora and Vegetation; and

(d) Terrestrial Fauna.

The EPA concluded in Bulletin 1251 that, based on the information then available on Subterranean Fauna and on Landforms, Closure Planning and Rehabilitation, that the proposal as a whole was environmentally unacceptable and should not be implemented. The EPA reached this conclusion primarily because of the inadequate information provided by the proponent on the risk of extinction of species of subterranean (troglobitic) fauna only known to occur at Mesa A.

While the EPA considered subterranean fauna to be the critical issue for this project, the EPA also considered the proposed Mining Exclusion Zone or MEZ (the "rim" of the mesa to be retained after mining) to be inadequate to conserve landscape and Aboriginal heritage values associated with Mesa A. The EPA also expressed concern over the long term structural stability of the landform post-mining.

The EPA considered that the other two key factors associated with the proposal (Flora and Vegetation, and Fauna) could be managed to meet the EPA's objectives.

The proponent appealed the EPA's report and recommendations and subsequently provided the Minister with additional information including the results of further troglobitic fauna surveys and an independent geotechnical assessment. In order to address the EPA's key concern in relation to troglobitic fauna, the proponent also proposed enlarging the MEZ to provide greater surety that all troglobitic fauna species will be protected. The Minister then resubmitted the project and extra information back to the EPA.

Having considered the additional information now provided by the proponent, the EPA has concluded that the proposal can be managed to meet its environmental objectives provided that conditions are imposed requiring:

(a) A Troglobitic Fauna Monitoring Program;

(b) Protection of the Sand Sheet Vegetation Community; and

(c) A Mine Closure and Rehabilitation Plan.

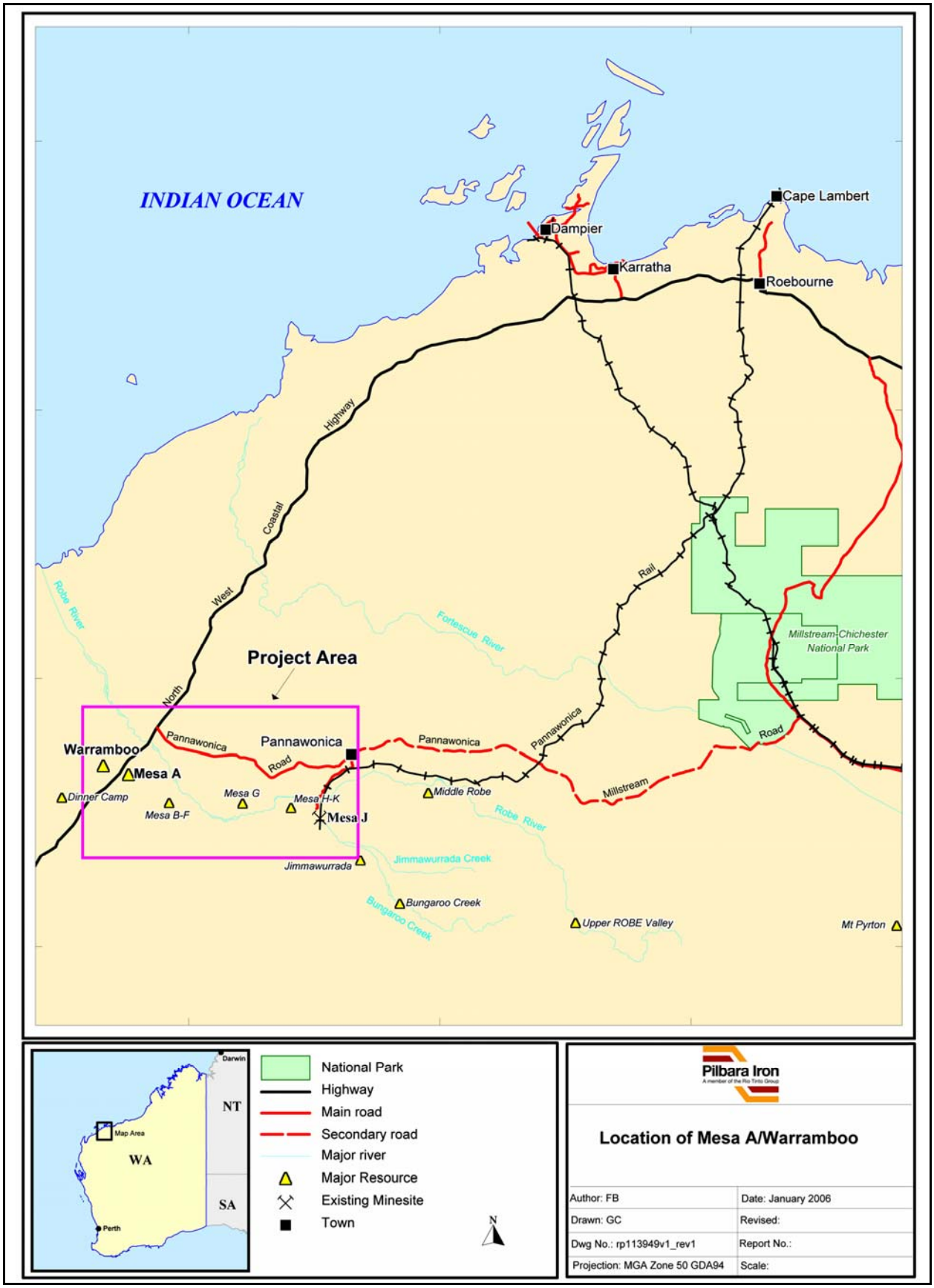

Figure 1: Regional Location of Mesa A / Warramboo Mine Site

2. Introduction and background

This report provides the Environmental Protection Authority's (EPA's) further advice and recommendations to the Minister for the Environment on the proposal by Robe River Mining Company Pty Ltd to mine iron ore at Mesa A / Warramboo. This report has been prepared in response to a request from the Minister under section 43(1) of the *Environmental Protection Act 1986* (EP Act) that the EPA re-assess the proposal in the light of additional information provided by the proponent.

Previous EPA assessment

The EPA previously assessed this proposal at the level of Public Environmental Review (PER) and provided its report and recommendation in EPA Bulletin 1251 published in March 2007 (EPA 2007). At that time, the EPA decided that the following key environmental factors were relevant to the proposal and required detailed evaluation:

(a) Subterranean Fauna;

(b) Landforms, Closure Planning and Rehabilitation;

(c) Flora and Vegetation; and

(d) Terrestrial Fauna.

The EPA concluded in Bulletin 1251 that, based on the information available on Subterranean Fauna and on Landforms, Closure Planning and Rehabilitation, that the proposal as a whole was environmentally unacceptable and should not be implemented. The EPA reached this conclusion primarily because of the inadequate information provided by the proponent on the risk of extinction of species of subterranean (troglobitic) fauna only known to occur at Mesa A.

The EPA noted that troglobitic fauna recorded from Mesa A are of high conservation significance. The proponent had undertaken extensive troglobitic fauna studies in the Robe Valley region and had found that, due to the isolated nature of individual mesa formations in the Robe Valley, troglobitic fauna species recorded at each mesa appear to be endemic to (i.e. unique to) that particular mesa. The 11 species recorded from Mesa A had not been recorded elsewhere, and five of those species had only been recorded in the area proposed for mining, and not in the area to be set aside as a 'mining exclusion zone' (MEZ). The EPA was therefore of the view that the proposal had the potential to result in the extinction of at least five species of troglobitic fauna, and considered this to be a high and unacceptable risk.

The EPA noted that the extensive research and sampling conducted by Robe River Mining Company had significantly contributed to the knowledge of troglobitic fauna, both at Mesa A and in the wider Robe Valley region. The EPA further noted that, in order to provide confidence that troglobitic fauna will be conserved at Mesa A, the proponent had proposed to establish the MEZ. However, the proponent had not been able to demonstrate to the EPA that the full troglobitic fauna assemblage known to occur at Mesa A was represented in the proposed MEZ. In addition, the proponent had not been able to demonstrate that the proposed MEZ was adequate, in terms of its size and configuration, to ensure the long term viability of the species remaining within it.

The proponent also proposed that the sub-grade ore be retained in addition to the MEZ. The EPA considered additional information on habitat characterisation work provided by the proponent on the sub-grade ore at Mesa A, and additional work undertaken on previously mined mesas in the Robe Valley. While troglobitic fauna had been found in the sub-grade ore in previously mined mesas (i.e. Mesa K and 2402E), the proponent had not been able to demonstrate that troglobitic fauna occur in the sub-grade ore at Mesa A. In addition, the lack of baseline data on troglobitic fauna prior to mining at the other mesas in the Robe Valley made it impossible to tell whether all troglobitic fauna species can persist after mining.

While the EPA considered troglobitic fauna to be the critical issue for this project, the EPA also considered the proposed MEZ (only 50 m wide in places) to be inadequate to conserve landscape and Aboriginal heritage values associated with Mesa A. The EPA also expressed concern over the long term structural stability of the landform post-mining.

The EPA considered that the other two key factors (Flora and Vegetation, and Fauna) could be managed to meet the EPA's objectives.

Additional information now available

Since the publication of Bulletin 1251, the proponent has provided the results of further investigations into troglobitic fauna (Biota 2007a, Biota 2007b) and also a geotechnical assessment (Snowden 2007). In order to address the EPA's key concern in relation to troglobitic fauna, the proponent has also proposed enlarging the MEZ to provide greater surety that all troglobitic fauna species will be protected. This report provides the EPA's re-assessment of the proposal, taking account of the additional information now available and the proposed modifications to the MEZ.

3. Comments received on the additional information

A submission was received from the Conservation Council of Western Australia and technical comments were provided by the Department of Environment and Conservation (DEC) and by the Western Australian Museum. All comments related to conservation of troglobitic fauna. The main points raised in the submission and in the technical comments were:

- Sampling of troglobitic fauna in the subgrade material to be retained after mining is incomplete because sampling has only been carried out within the Mining Exclusion Zone (MEZ) and not under the floor of the proposed mine pit.

- The applicability of the information about survival of troglobitic fauna at other, previously mined, areas is uncertain because it is unclear whether the extent, configuration and depth of habitat retained at those areas is comparable to that which is proposed to be retained at Mesa A.

- Troglobitic fauna require high humidity (near saturation) in their underground habitats in order to survive. The MEZ will be a narrow linear structure, open on both sides, and there is therefore the risk of the troglobitic fauna habitats within the MEZ drying out (through lateral desiccation) with consequent loss of the fauna.

- The mining process may result in the underground cavities which provide habitat for troglobitic fauna becoming "bunged up" with sediment. This may result in permanent flooding of the cavities following heavy rain because the water is unable to drain away. This would lead to death of troglobitic fauna, and possibly the extinction of species, because these creatures cannot survive underwater.

The Conservation Council gave two additional views:

- Troglofauna sampling to date is incomplete because all species sampled appear to be carnivores.

- Troglofauna habitat requires protection within the Conservation Estate.

4. The current proposal

The original proposal is described in section 3 of the proponent's PER document (Strategen, 2006). Reference should also to be made to the information provided in EPA Bulletin 1251 in relation to modifications made to the proposal between the release of the PER document and release of Bulletin 1251.

In its appeal against the EPA's report and recommendations, the proponent has now proposed further modifying the proposal such that the area of escarpment or mesa "rim" to be retained after mining (the Mining Exclusion Zone or "MEZ") will be further increased as indicated in figure 1.

Other aspects of the proposal would remain as described in the PER document (including the modifications as noted in Bulletin 1251).

5. Key environmental factors

The Minister has formally remitted the proposal to the EPA to re-assess the following two factors in the light of additional information provided by the proponent in the appeals process:

(a) Subterranean fauna
(b) Landforms, Closure Planning and Rehabilitation

The EPA's re-assessment of these factors is contained in sections 4.1 and 4.2.

In its original assessment of the proposal, the EPA concluded that the following two additional key factors could be managed to meet the EPA's objectives:

(c) Flora and Vegetation;
(d) Terrestrial Fauna.

Because, in its original assessment, the EPA formed the view that the proposal as whole should not be implemented, Bulletin 1251 did not contain any recommended environmental conditions. The present bulletin includes some supplementary discussion (section 4.3) about Flora and Vegetation, specifically the need for a condition addressing management of a significant vegetation community ("Sand Sheet Vegetation Community").

In its original assessment, the EPA noted in relation to Terrestrial Fauna that the proponent had made commitments to ensure that there would be no significant impacts on terrestrial fauna species. The EPA has no additional comments to make in relation to Terrestrial Fauna and this factor is not discussed further in the present report.

As indicated in its original assessment (EPA 2007), the EPA has no concerns about the proposed mining at Warramboo.

5.1 Subterranean Fauna

Description

A detailed description of the characteristics and significance of the troglobitic fauna at Mesa A is contained in EPA Bulletin 1251 (EPA 2007). The key points of the original proposal relevant to troglobitic fauna can be summarised as follows:

- Survey work completed on several mesas in the Robe Valley indicated that the species recorded on Mesa A are not recorded elsewhere, and that troglobitic fauna species appear to be endemic (i.e. unique) to each isolated mesa (Strategen, 2006).

- Troglobitic fauna at Mesa A would be directly impacted through the removal by mining of habitat to an average depth of 20 – 25 m.

- Robe proposed to only mine the high-grade ore in the upper pisolite horizon of the mesa, leaving the sub-grade ore intact. The sub-grade ore under the pit floor was considered by Robe to be potential troglobitic fauna habitat. Both the sub-grade ore and the MEZ were proposed by Robe as troglobitic fauna conservation areas.

- In the original proposal, Robe proposed to disturb approximately 570 hectares (ha) of Mesa A during mining. Approximately 87 ha (approximately 15%) was to be retained in the MEZ around the outer rim of the north western, north eastern and south eastern sides of the mesa. The MEZ would be variable in width from 50 m in most places, to up to 200m in the gully area on the south-eastern side of the mesa. One area of the MEZ would be breached (approximately 50 m wide), to allow for vehicular access to the mine pit.

The additional information provided by the proponent (Biota Environmental Sciences 2007a and 2007b; Snowden 2007) can be summarized as follows:

- Additional detailed survey work confirms that the troglobitic fauna species in the Robe Valley are short range endemics, with unique species found on each mesa formation. The species recorded at Mesa A are only found at Mesa A.

- Robe has now provided further information to support its contention that the sub-grade ore provides habitat for troglobitic fauna. This additional data comes from troglofauna traps set in the sub-grade ore with inflatable sleeves used to block the drill hole above the traps and thereby preventing troglobitic fauna from shallower depths from moving down the hole to reach the trap. Two troglobitic species and two potentially troglobitic fauna species were recorded from the traps, providing evidence that these species occur naturally in the sub-grade ore.

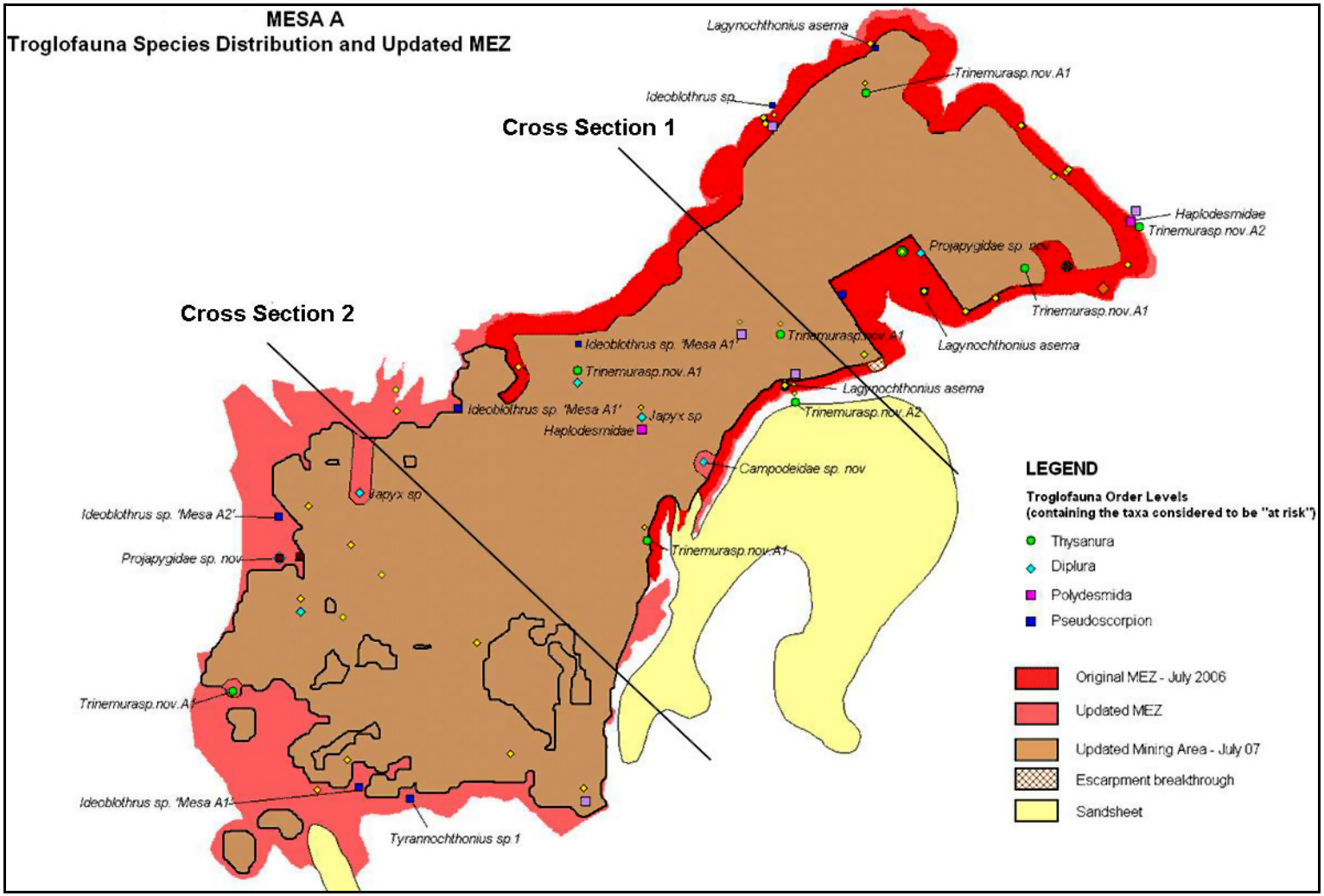

Figure 2: Mesa A updated MEZ and cross section locations

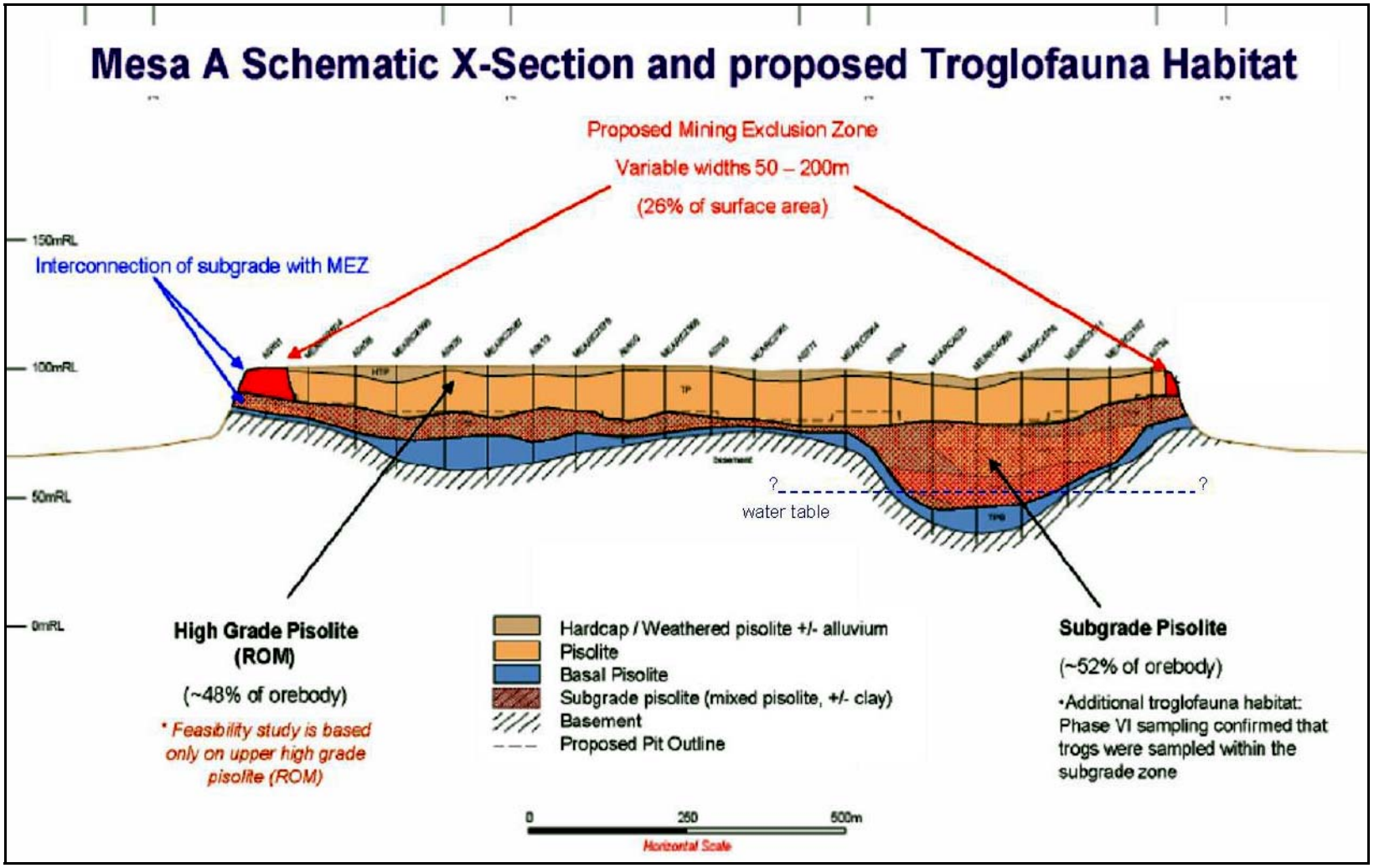

Figure 3: Cross section 1

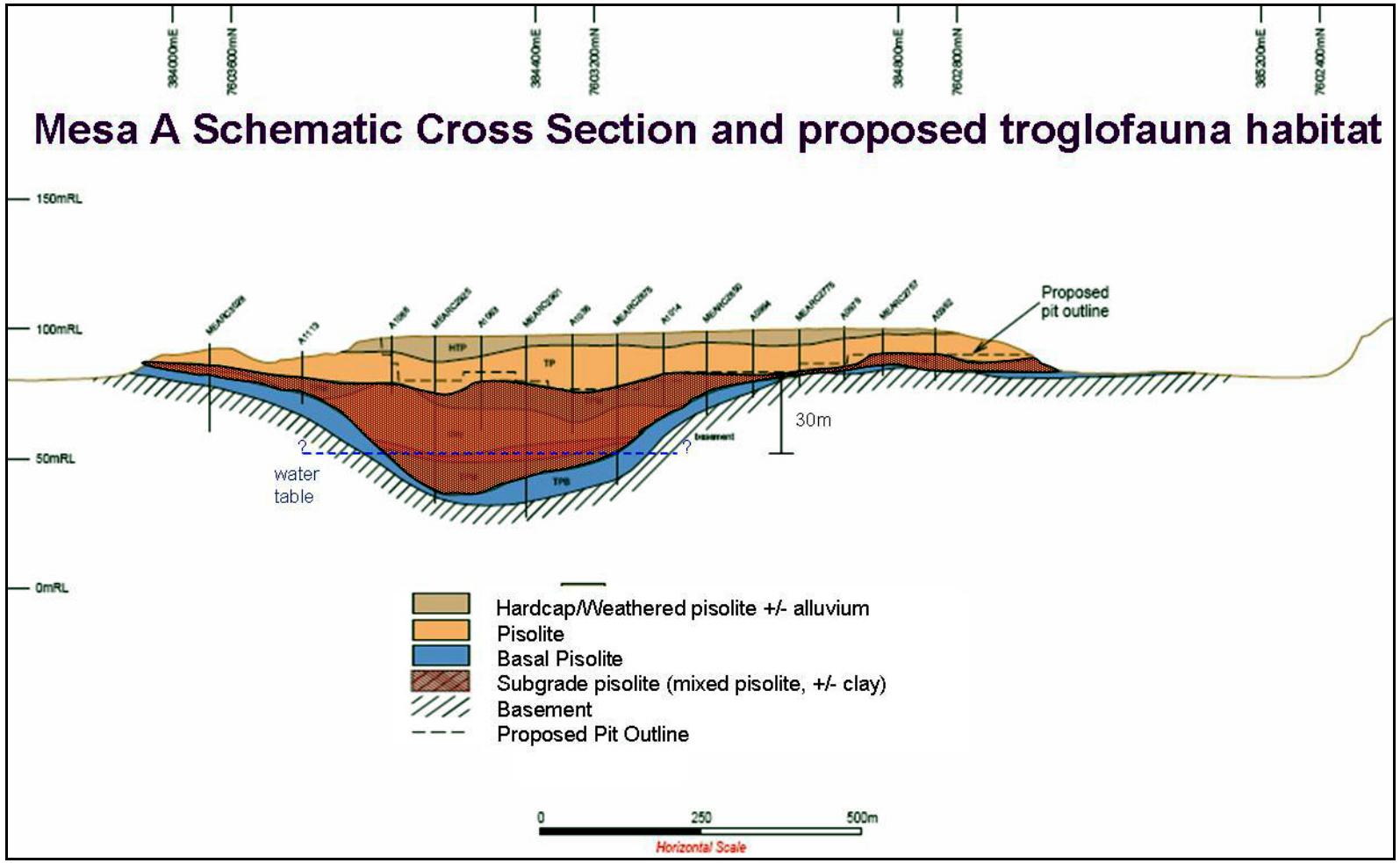

Figure 4: Cross section 2

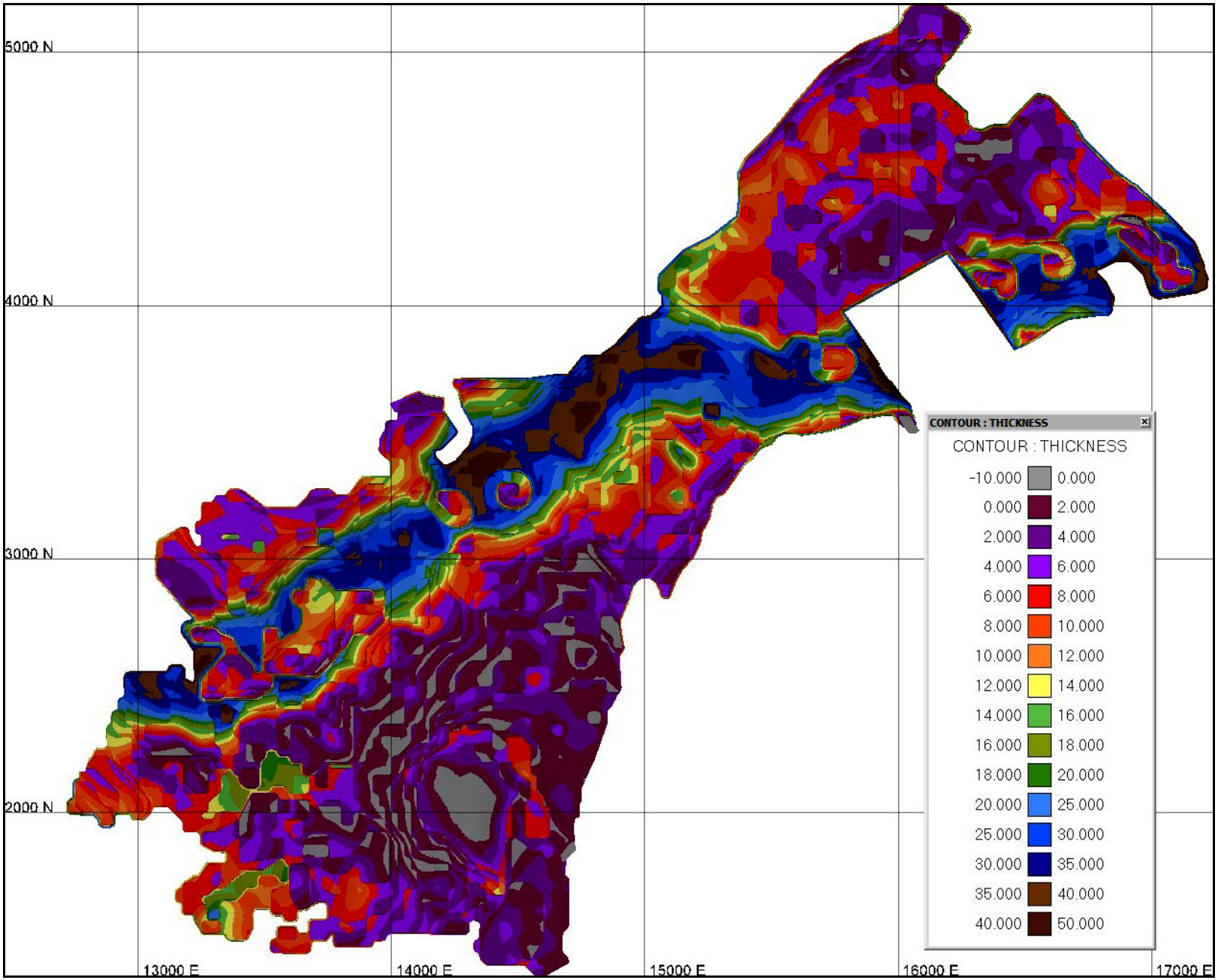

Figure 5: Contour map showing depths of subgrade material to be left under the mine pit

- Robe proposes to make the MEZ larger so that that retained habitat will provide for all known troglobitic fauna species at Mesa A after mining (see Figure 1).

- Robe has provided results from further surveys carried out at other, previously mined, areas in the Robe Valley as evidence that troglobitic fauna species can persist after mining. At one old mine (Mesa K) a range of troglofauna species was found to exist at the site 10 years after the end of mining. At another old mine (Middle Robe) a range of species was found to exist 25 years after the end of mining.

Assessment

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

As noted, the particular concern with troglobitic fauna is that the species found at Mesa A would appear to be endemic to (i.e. only occur at) Mesa A. In addition, based on research elsewhere (e.g. North West Cape) it is possible that there is population differentiation (restricted gene flow) within the mesa (Dr W Humphries, Western Australian Museum, *pers comm*). This means it is possible that some of the species at Mesa A may be extreme short range endemics which do not exist throughout the whole mesa, but are restricted to smaller habitat areas (isolated micro-cave systems) within the mesa. It is for these reasons that very careful sampling and assessment is required.

The EPA notes the additional information which has now been provided. In its original assessment of this proposal (EPA 2007), the key consideration which led the EPA to conclude that the proposal was environmentally unacceptable was that, at that time, five of the eleven species of troglobitic fauna recorded at Mesa A had only been recorded in the area proposed for mining, and not in the area to be set aside as a 'mining exclusion zone' (MEZ). The EPA was therefore of the view that the proposal had the potential to result in the extinction of at least five species of troglobitic fauna, and considered this to be a high and unacceptable risk.

The EPA notes that the proponent now proposes to enlarge the MEZ so that that habitat of all known troglobitic fauna species at Mesa A will be retained after mining (Figure 1).

The additional information provided by the proponent about the persistence of troglobitic fauna species at two other mine sites in Robe Valley after mining is also relevant. Because there is no pre-mining baseline information available, it is impossible to be sure that all species have survived at those sites following mining. However the fact that a number of troglofauna species have been found at these sites, even though no active rehabilitation was carried out, provides greater confidence as to the resilience of troglobitic fauna species.

Concerns have been expressed in the submission and in technical advice received that the relatively narrow MEZ may not be sufficient to sustain troglobitic fauna in the long term. This is because troglobitic fauna are dependent on high humidity (near saturation) in their underground habitats and the narrow shape of the MEZ with open faces on each side, may result in lowered humidity in the animals' underground habitats through evaporation. However it should be noted that the MEZ will not be as narrow as might be presumed from the diagram (Figure 1). This is because the diagram only represents the top surface of the structure. The inner face to be left after mining will not be vertical but will consist of a series

of benches. In addition, the proponent proposes to carefully place waste rock against narrower sections of the MEZ to protect the structure and to assist in protecting the troglobitic fauna habitat remaining within the MEZ. For these reasons the EPA is of the view that the troglofauna habitat should be adequately protected from desiccation.

Concerns have also been expressed that sediment accumulation resulting from mining may result in the underground cavities which provide habitat for troglobitic fauna becoming "bunged up" with sediment. This may result in permanent flooding of the cavities following heavy rain because the water is unable to drain away, resulting in the death of troglobitic fauna and possibly in the extinction of species. However, in view of the size of the MEZ, and the evidence that troglobitic species have survived in other, previously mined, areas, the EPA's conclusion is that sediment accumulation is unlikely to result in species extinction at Mesa A.

The EPA also notes the further sampling work the proponent has carried out in the subgrade material below the orebody at Mesa A. Two species of troglobitic fauna and two species of potentially troglobitic fauna were collected from the traps. These results provide evidence that some species of troglofauna naturally inhabit the deeper subgrade ore.

This sampling has only been carried out under the area of the proposed MEZ at Mesa A, and not in the subgrade material under the proposed mine pit**.** However surveys have also been carried out at Mesa K, another nearby location which was mined 10 years ago. Those surveys did locate troglobitic fauna species still existing in the lower grade pisolite material (i.e. material immediately above the subgrade material) remaining under the mine pit. It is therefore reasonable to conclude that the subgrade material under the mine pit at Mesa A is likely to be suitable habitat for troglobitic fauna species.

The Conservation Council has raised concerns that sampling may be incomplete because all species collected to date appear to have been carnivores. However both DEC and the Western Australian Museum have advised that this is not the case and that a number of the species collected are in fact not carnivores but detritivores (i.e. species which feed on particles of organic matter rather then preying on other organisms). The species accumulation curves now provided (Biota Environmental Sciences 2007a) indicate that there may be additional species of troglobitic fauna present which have yet to be detected by sampling. However, having regard to the very significant sampling effort which the proponent has so far expended, the EPA's view is that it would be unreasonable to require further sampling at this stage of the assessment.

A judgment also needs to be made as to whether the area and configuration of habitat to be retained is adequate to ensure the long-term survival of all species after mine closure. Taking into account the enlarged MEZ, the evidence that some troglobitic fauna species do inhabit the sub-grade material, and also the evidence from other nearby mine sites that troglobitic fauna are able to persist after mining, it is the EPA's judgment that the proposal is now capable of meeting its environmental objective with regard to subterranean fauna.

However the EPA notes that in some locations, in order to protect particular species, it is proposed to retain "fingers" of rock projecting into the mine pit. It would be preferable, following mining in these areas, that waste rock material be carefully placed against the sides of such features to "buttress" them and ensure their long-term structural stability and to protect the troglobitic fauna habitat within the structures.

It will be important to ensure that an adequate area of subgrade material suitable for troglobitic fauna habitat is retained under the pit after mining and which is contiguous with the MEZ. Figure 4 shows the depths of subgrade material to be retained under the pit floor according to the proponent's preliminary mine plan. The proponent's troglobitic fauna sampling results have indicated that the fauna occur in subgrade material at depths greater than 10 metres. Figure 4 indicates that shows that much of the material to be retained will be too shallow to be of value as troglobitic fauna habitat. In some areas, particularly in the south, much of the remaining material will be only around 1 metre deep. In addition, some of the deeper areas of remaining material will be isolated "islands" and their long-term viability as habitat is therefore questionable.

It is the EPA's judgment that there needs to be at least one area of suitable subgrade habitat contiguous with the MEZ and with a total volume of not less than that of the MEZ. The area of habitat needs to be a continuous block of material (i.e. not split into isolated "islands"). The area of subgrade habitat should retain adequate connectivity to the MEZ to allow movement of troglobitic fauna between the subgrade material and the MEZ. The area of subgrade material to be retained needs to be not less than 15 metres deep.

As noted, evidence from other, previously mined, sites in the area indicates that troglobitic fauna can persist after mining even where there has been no active rehabilitation. Nevertheless it is likely that the food chain which supports troglobitic fauna communities is based ultimately on the input of plant material from the surface. It is therefore important that active and progressive rehabilitation be carried out at the Mesa A / Waramboo project using native plant species of local provenance to provide optimal conditions for the long-term survival of troglobitic fauna populations.

It is also important that a monitoring program be put in place to collect information about the response of troglofauna to mining. This monitoring should be carried out while mining is proceeding, and for a period after mine closure, with the objective of providing more information about the effects of mining on troglofauna and on the fate of troglobitic fauna populations after mining ceases. Such information will supplement the considerable amount of information on this subject which Robe River has amassed in its studies to date and will be of considerable value for planning of other mining projects in locations where troglobitic fauna is likely to be an issue.

Conclusion

Having particular regard to:

- The proposed enlargement of the MEZ to ensure that habitat of all known troglobitic species is retained after mining;

- The results of the supplementary sampling which provides evidence indicating that some troglobitic species occur naturally in the sub-grade ore; and

- The evidence from other previously mined areas in the Robe Valley which indicates that troglobitic species are able to persist after mining;

it is the EPA's opinion, based on the new information now before it, that the proposal can be managed to meet the EPA's environmental objective for this factor provided conditions are imposed requiring:

- the proponent to carry out troglofauna monitoring during mining and for a period after mine closure to provide more information about the effects of mining on troglofauna and on the fate of troglobitic fauna populations after mining ceases.

- the proponent to prepare and implement a mine closure and rehabilitation plan to ensure that: the MEZ is retained intact, that waste rock material is carefully placed against the MEZ to support and protect projecting "fingers" of rock; that an adequate volume of intact troglobitic fauna habitat is retained under the mine pit and that this habitat retains connectivity with the MEZ; and that native vegetation of local prevenance is progressively returned to all areas to be disturbed by mining.

5.2 Landforms, Closure Planning and Rehabilitation

Description

A detailed description of the issues relevant to Landforms, Closure Planning and Rehabilitation is contained in EPA Bulletin 1251 (EPA 2007). The key issues of concern to the EPA were:

- the width of the MEZ – the EPA considered the proposed MEZ (only 50 m wide in places) to be inadequate to conserve landscape and Aboriginal heritage values associated with Mesa A.

- The EPA also expressed concern over the long term structural stability of the landform post-mining.

The additional information now before the EPA can be summarized as follows:

- the MEZ is to be increased in size as shown in Figure 1.

- the geotechnical report (Snowden 2007) concludes that the MEZ will be stable after mine closure.

Assessment

The EPA's environmental objectives for this factor are unchanged and are as follows:

- Maintain landscape and landform integrity, ecological functions and ecological values;

- Protect landforms or geological features of heritage significance or of outstanding scenic or scientific value;

- To ensure that self-sustaining native vegetation communities are returned after mining, which in species composition and ecological function are as close as possible to naturally occurring analogue sites; and

- Ensure as far as practicable that rehabilitation achieves a stable and functioning landform that is consistent with the surrounding landscape and other environmental values.

In its original assessment (EPA 2007), the EPA's fundamental concern was that the MEZ, as originally proposed, may not have been geotechnically stable after mine closure and that therefore there might be a possibility of collapse or slumping over time with consequent degradation of landscape and Aboriginal heritage values.

The new information provided in the geotechnical report, combined with the proponent's proposal to make the MEZ larger, is sufficient to allay the EPA's concerns in this regard and the EPA is now satisfied that the proposal, as amended, is now capable of meeting its environmental objectives in relation to this factor.

Conclusion

Having regard to the additional information now before it, the EPA has concluded that the proposal, as modified, is now capable of meeting its environmental objectives for the factor "Landforms, Closure Planning and Rehabilitation".

5.3 Flora and Vegetation

In its original assessment of the proposal (EPA 2007) the EPA concluded that the proposal could be managed to meet its environmental objective for the factor "Flora and Vegetation". However the EPA did not include recommended environmental conditions for this factor because it formed the view that, based on its assessment of other factors associated with the proposal, that the proposal as a whole was environmentally unacceptable and should not be implemented.

In its original assessment of the proposal (EPA 2007), the EPA noted that there is a significant vegetation community (Sand Sheet Community) located to the south east of Mesa A and that the proponent has made a commitment to prepare and implement a specific Sand Sheet Community Management Plan.

The EPA also noted that the proponent had made commitments to prepare and implement management plans to address management of other vegetation communities of high conservation significance as well as the management of weeds.

Management of the Sand Sheet Vegetation Community is a particularly significant issue. Therefore, in the event that the Minister determines that the proposal should now be approved, the EPA recommends that the proponent's existing commitment to prepare and implement a Sand Sheet Community Management Plan be reflected in a specific Ministerial condition.

6. Recommended Conditions

6.1 Proponent's commitments

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. The EPA recognises that the proponent's commitments 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.

6.2 Recommended conditions

Having considered the proponent's commitments and the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Robe River Mining Pty Ltd to mine at the Mesa A / Waramboo Iron Ore Project is approved for implementation. These conditions are presented in Appendix 2.

7. Conclusions

At the request of the Minister for the Environment, the EPA has re-assessed the proposal by Robe River Mining Pty Ltd to mine at the Mesa A / Waramboo Iron Ore Project.

The EPA notes that the proponent has now provided additional information on the two key factors of Subterranean Fauna, and Landforms, Closure Planning and Rehabilitation. In addition the proponent now proposes to modify the proposal such that the Mining Exclusion Zone (MEZ) will be made larger so that habitat containing all known troglofauna species will be included in the new expanded MEZ.

The EPA has concluded, based on the new information now available, 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 the Environment:

1. That the Minister notes that the proposal being assessed is for iron ore mining at Mesa A / Waramboo in the Pilbara;
2. That the Minister considers the report on the key environmental factors as set out in Section 3;
3. That the Minister notes that the EPA has concluded, based on the new information now available, 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

EPA (2007). *Mesa A / Waramboo Iron Ore Project*, EPA Bulletin 1251 July 2007.

Biota Environmental Sciences (2007a). *Mesa A Troglobitic Fauna Studies Update*, unpublished report prepared for Pilbara Iron.

Biota Environmental Sciences (2007a). *Mesa A Troglobitic Fauna Species Accumulation Update*, unpublished report prepared for Pilbara Iron.

Snowden (2007). *Rio Tinto: Mesa A Geotechnical Assessment, Project No. 5978*, unpublished report prepared for Rio Tinto, May 2007.

Strategen (2006). *Mesa A / Waramboo Iron Ore Project: Public Environmental Review*, prepared for Robe River Mining Company Pty Ltd, July 2006.

Appendix 2

Recommended Environmental Conditions

Statement No.

RECOMMENDED ENVIRONMENTAL CONDITIONS

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

MESA A / WARRAMBOO IRON ORE PROJECT, 43 KM WEST OF PANAWONICA, SHIRE OF ASHBURTON

Proposal: **Mesa A / Warramboo Iron Ore Project**

Proponent: **Robe River Mining Company Pty Ltd**

Proponent Address: **152-158 St Georges Terrace, Perth 6000**

Assessment number: **1574**

Report of the Environmental Protection Authority: Bulletin 1264

The proposal referred to in the above report 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 documented and described in schedule 1 of this statement subject to the condition and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under 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 of the Department of Environment and Conservation (CEO) 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 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 environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO to report more frequently.

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

4-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent's chief executive officer or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's chief executive officer;

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. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;

5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

7. review the effectiveness of all corrective and preventative actions taken; and

8. 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.

5 Troglobitic Fauna Monitoring

5-1 Prior to the commencement of productive mining, the proponent shall submit a Troglobitic Fauna Monitoring Program for approval of the CEO.

The objective of this Program is to gather information about the response of troglobitic fauna species and populations to direct and indirect impacts of mining, both during the mining process and after mining has ceased.

5-2 The Troglobitic Fauna Monitoring Program required by condition 5-1 shall incorporate periodic sampling of:

1. troglobitic fauna species and populations;
2. key habitat parameters including humidity within the underground spaces which form the habitat of the troglobitic fauna;

and shall provide for studies on:

3. the impacts of blasting and mining on the integrity of the troglobitic fauna habitat; and
4. the effectiveness of re-creating troglobitic fauna habitat through such measures as replacement of waste rock.

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5-3 The proponent shall implement the Troglobitic Fauna Sampling Program required by condition 5-1 before the start of ground disturbing activity and shall continue through the active mining phase of the project and into the post-mining phase, until such time as the CEO determines that monitoring may be discontinued.

5-4 The proponent shall make the Troglobitic Fauna Sampling Program required by condition 5-1 publicly available to the requirements of the CEO.

6 Protection of the Sand Sheet Vegetation Community

6-1 The proponent shall ensure that the Sand Sheet Vegetation Community as shown in Figure 1 is not significantly adversely affected through either direct or indirect impacts from the implementation of the proposal.

6-2 The proponent shall carry out a suitable program of environmental monitoring to ensure that the Sand Sheet Vegetation Community is not adversely affected by either direct or indirect impacts of the proposal.

6-3 In the event that monitoring referred to in condition 6-2 detects adverse direct or indirect impacts on the Sand Sheet Vegetation Community resulting from the proposal, the proponent shall take prompt remedial action and shall advise the CEO of the action taken as soon as practicable.

7 Mine Closure and Rehabilitation

7-1 Prior to the commencement of productive mining, the proponent shall prepare a Mine Closure and Rehabilitation Plan for approval by the CEO.

The objectives of this plan are:

1. To ensure that an intact Mining Exclusion Zone (MEZ) is retained as indicated in Figure 1;

2. To ensure that waste rock is carefully placed after mining both to protect and support any projecting "fingers" of rock and to maximise the potential for survival of, and possible re-colonisation by, troglobitic fauna;

3. To ensure that an adequate mass of intact material suitable for troglobitic fauna habitat is retained under the pit floor after mining and which is contiguous with the MEZ. This mass of material below the pit floor is to be a continuous block of material, not less than 15 metres deep and containing a total volume of suitable material not less than the volume of the MEZ. This mass of material below the pit floor is to retain adequate connectivity to the MEZ to allow movement of troglobitic fauna between the material below the pit floor and the MEZ.

4. To provide successful progressive rehabilitation of all areas disturbed by mining with vegetation composed of native species of local provenance.

7-2 The proponent shall implement the Mine Closure and Rehabilitation Plan required by condition 7-1 until such time as the CEO determines that the proponent's mine closure and rehabilitation responsibilities have been fulfilled.

7-3 The proponent shall make the Mine Closure and Rehabilitation Plan required by condition 7-1 publicly available to the requirements of the CEO.

1. The Minister for the 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. 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. 1574)

General Description

The proposal is to mine iron ore at Mesa A / Warramboo in the Robe Valley, Pilbara. The proposal involves the development of mine pits at Mesa A and Warramboo, a primary sizer processing plant, associated mine infrastructure and the construction of a rail line to link into existing Mesa J mining operations.

The original proposal is described in section 3 of the proponent's Public Environmental Review (PER) document (Strategen, 2006. *Mesa A / Warramboo Iron Ore Project: Public Environmental Review*. July 2006). Reference should also to be made to the information provided in EPA Bulletin 1251 in relation to modifications made to the proposal between the release of the PER document and release of Bulletin 1251.

In an appeal against the EPA's report and recommendations as set out in Bulletin 1251, the proponent further modified the proposal such that the area of escarpment to be retained after mining (the Mining Exclusion Zone or "MEZ") is to be as indicated in Figure 2.

Other aspects of the proposal would remain as described in the PER document (but including the modifications as noted in Bulletin 1251).

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

Table 1 – Summary of Key Proposal Characteristics

Element	Description
Project life	Approximately 10 years
Clearing of native vegetation	2870 hectares (vegetation in the Mining Exclusion Zone to be retained)
Ore location	Above water table
Processing	Primary sizer located at Mesa A
Transport of product	By road from Warramboo to Mesa A By rail (on new spurline) to existing Mesa J mine

Figures (attached)

Figure 1: Location Plan (refer Figure 1, page 2 above)
Figure 2: Mining Exclusion Zone (MEZ) (refer Figure 2, page 7 above)