MATRIX
CONSULTING

CARBOROUGH DOWNS JOINT VENTURE

MINE EXPANSION
DRAFT TERMS OF REFERENCE

AUGUST 2006

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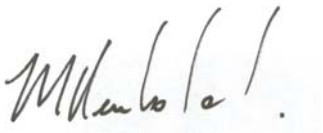
5	5 (Final V3.1)	CDJV	1	04/08/06	Maria Neuhold	

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GLOSSARY

The following abbreviations have been used in this document:

ACH Act	*Aboriginal Cultural Heritage Act 2003*
AHCA	*Australian Heritage Commission Act 1995*
ANZECC	Australian and New Zealand Environment and Conservation Council
CAMBA	China and Australia Migratory Bird Agreement
CDJV	Carborough Downs Joint Venture
CDM	Carborough Downs Mine
CDMEP	Carborough Downs Mine Expansion Project
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling and Preparation Plant
DNRMW	Queensland Department of Natural Resources, Mines and Water
EIS	Environmental Impact Statement
EM Plan	Environmental Management Plan
EMOS	Environmental Management Overview Strategy
EP Act	*Environmental Protection Act 1994*
EPA	Environmental Protection Agency
EPBC Act	*Environment Protection & Biodiversity Conservation Act (C'wlth) 1999*
EPP Air	*Environmental Protection (Air) Policy 1997*
EPP Noise	*Environmental Protection (Noise) Policy 1997*
EPP Waste	*Environmental Protection (Waste Management) Policy 2000*
EPP Water	*Environmental Protection (Water) Policy 1997*
EPWMR	*Environmental Protection (Waste Management) Regulation 2000*
IAS	Initial Advice Statement
IDAS	Integrated Development Assessment System as defined by the *Integrated Planning Act 1997*
IPA	*Integrated Planning Act 1997*
JAMBA	Japan and Australia Migratory Bird Agreement
MDL	Mineral Development Licence issued pursuant to the *Mineral Resources Act 1989*

Mining Project

A mining project means all mining activities carried out, or proposed to be carried out, under one or more mining tenements, in any combination, as a single integrated operation.

Mining Activities

1 A mining activity means an activity mentioned in Subsection (2 below), that, under the *Mineral Resources Act 1989*, is authorised to take place on –

a land to which a mining tenement relates; or

b land authorised under that Act for access to land mentioned in paragraph (a).

2 For subsection (1) the activities are as follows:

a prospecting, exploring or mining under the *Mineral Resources Act 1989* or another Act related to mining;

b processing a mineral won or extracted by an activity under paragraph (a);

c an activity that –

3 is directly associated with, or facilitates or supports, an activity mentioned in paragraph (a) or (b); and

4 may cause environmental harm;

a rehabilitating or remediating environmental harm because of a mining activity under paragraphs (a) to (c);

b action taken to prevent environmental harm because of an activity mentioned in paragraphs (a) to (d);

c any other activity prescribed for this subsection under a regulation.

ML Mining Lease issued pursuant to the *Mineral Resources Act 1989*

MRA *Mineral Resources Act 1989*

Mtpa Million Tonnes Per Annum

NCA *Nature Conservation Act 19992*

NHMRC National Health Medical Research Council

NEPMs National Environmental Protection Measures

NES National Environmental Significance as defined by the *Environment Protection & Biodiversity Conservation Act (C'wlth) 1999*

TIA *Transport Infrastructure Act 1994*

ToR Terms of Reference

WAct *Water Act 2000*

VMA *Vegetation Management Act 1999*

PART A PREAMBLE

PROJECT PROPONENT

The proponent for this mining project is Carborough Downs Coal Management Pty Ltd on behalf of the Carborough Downs Joint Venture participants:

- AMCI (CQ) Pty Ltd-75%;
- Nebo Central Coal Pty Ltd-5%;
- Kalimati Coal Company Pty Ltd (KCC) (India)-5%;
- NS Carborough Downs Pty Ltd (NSCD) (Japan)-5%;
- POS-CD Pty Ltd (Korea)-5%;
- JS Carborough Downs Pty Ltd (JSCD) (Japan)-2.5%; and
- JFE Steel Australia (CD) Pty Ltd (JFECD) (Japan)-2.5%.

The Carborough Downs Mine is operated as an unincorporated joint venture with the proponent, Carborough Downs Coal Management Pty Ltd being the management company responsible for all operations undertaken at the mine on behalf of the joint venture participants.

The MLs are currently held by Nebo Central Coal Pty Ltd (25%) and AMCI (CQ) Pty Ltd (75%), however, an assignment of a 20% interest from Nebo Central Coal to each of KCC, NSCD, POS-CD, JSCD and JFECD in the above proportions is underway.

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SUMMARY

Project Description

The Carborough Downs Mine (CDM) is an existing underground coal mine located in Central Queensland approximately 15 km east of the township of Moranbah along the Peak Downs Highway and 150 km south west of Mackay as illustrated in **Figure 1**.

For the sake of simplicity, the term Carborough Downs Joint Venture (CDJV) is used throughout this document in lieu of Carborough Downs Coal Management Pty Ltd and or the individual joint venture participants.

The existing CDM is covered by two mining leases (MLs), the Annandale ML (ML 70340) and the Carborough Downs ML (ML 70339). The Annandale ML is located north of (and includes) the Peak Downs Highway and the Carborough Downs ML is located to the south of the Peak Downs Highway. The Coal Handling and Preparation Plant (CHPP) and rail loop are located within ML 70340. Coal is hauled from ML 70339 to ML 70340 via a haul road that passes beneath the Peak Downs Highway.

The CDM has an approved production rate of 1.9 million tonnes per annum (Mtpa) run of mine (ROM) coal. Carborough Downs Joint Venture is proposing to increase the rate of mining to approximately 5 Mtpa ROM and extend ML 70340 to the north-east and ML 70339 to the south (refer **Figure 2**). The extensions to ML70340 and ML70339 are referred to as the "expansion areas". The proposed expansion areas are located outside of the current MLs but within Mineral Development Lease (MDL) 354. Two additional MLs are required for these areas.

Increasing the rate of production will be achieved either through a continuation of the existing mining method, as described in **Section 2.2** or, subject to further evaluation, the introduction of longwall mining techniques. Modifications to the CHPP will be required to accommodate the increase in mining rate. Alterations to other infrastructure may be required, subject to further investigation.

The project is referred to as the CDM Expansion Project (CDMEP).

Project Site

The CDMEP includes existing ML 70340, ML 70339 and the expansion areas within MDL 354. ML 70340 covers approximately 1,754 hectares (ha) directly north of and including the Peak Downs Highway while ML 70339 covers approximately 2,657 ha directly south of the Peak Downs Highway. Both the MLs and expansion areas are located within MDL354 which has an area of approximately 2,109 ha. The topography of the CDMEP is dominated by an escarpment running north to south through the site. The area above the escarpment, on the western side of the CDMEP, is gently undulating with a plateau like formation. The balance of the CDMEP is located on the mid and lower slopes of the escarpment. The CDMEP is located wholly within the Nebo Shire, which is a well established grazing, farming and coal mining region within the Bowen Basin.

The approved CDM was based on a resource estimate of approximately 100 million tonnes (Mt) of in-situ coal, an estimated recovered of 40-50% and a production rate of up to 1.9 Mtpa, giving a projected mine life of approximately 30 years. The ROM coal will be washed to produce both coking and pulverised coal injection (PCI) products.

Additional exploration drilling and geological interpretation undertaken since the initial approval was sought has increased the resource within MDL 345 to approximately 300 Mt of in-situ coal and also identified the expansion areas as amenable to mining. Conservatively assuming a similar recovery, the expanded CDMEP will produce approximately 150 Mt of product coal for the export market. In order to maintain a similar mine life, CDJV are now seeking approval for an increase in the rate of mining and expansion into the additional areas where the resource has been confirmed.

The principal land use within the project area is grazing. There are no national parks, conservation zones, or significant cultural heritage sites other than those identified by cultural heritage surveys conducted on the proposed ML, the management of which are the subject of a Cultural Heritage Management Plan (CHMP) developed with the traditional owners (TOs) (refer **Section 4.9**).

Current approved mining activities are carried out under the following approvals/documents:

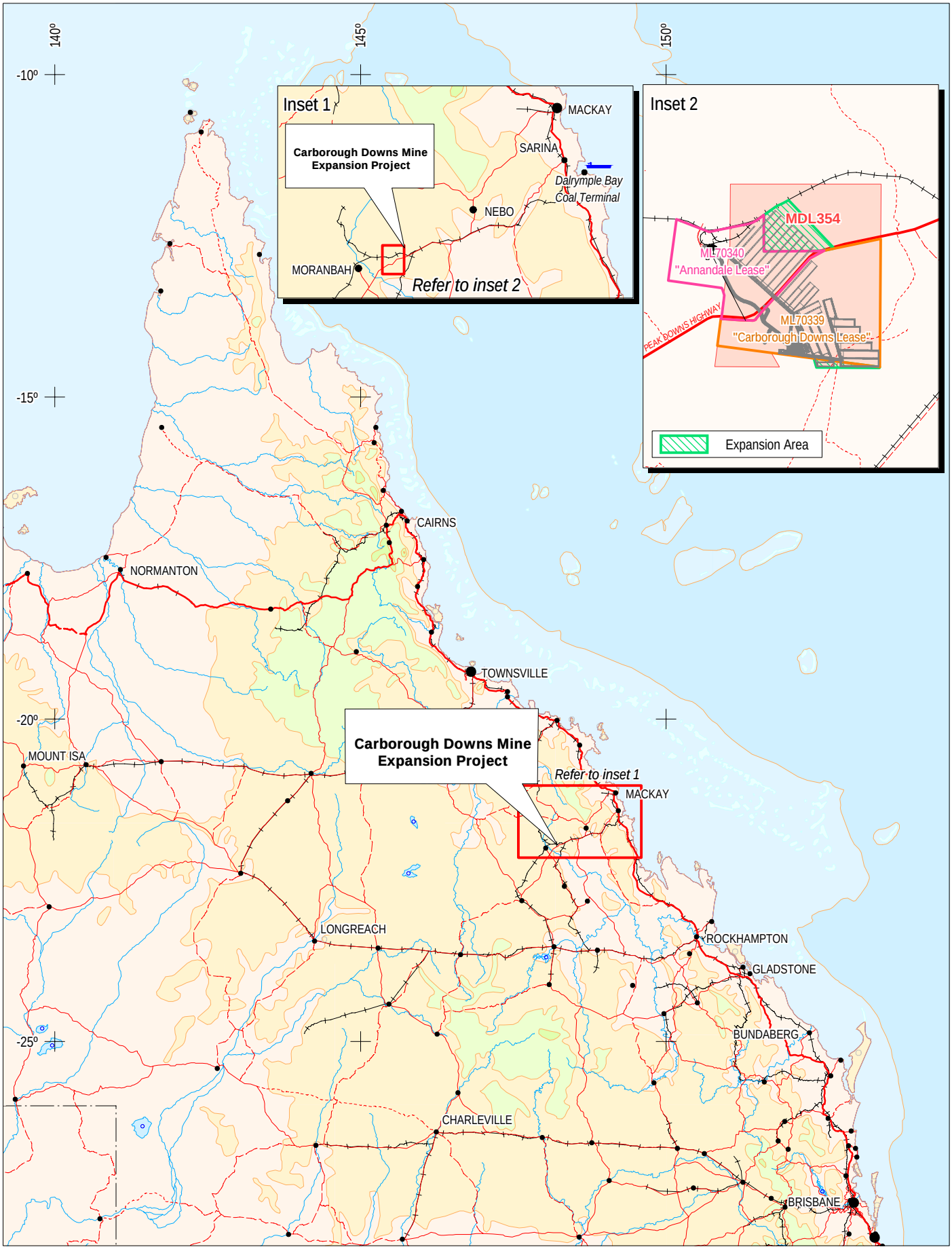
- Environmental Authority (EA) Number MIM100329305 (for ML 70339 and ML 70340);
- Environmental Management Plan (EM Plan) December 2005; and
- Plan of Operations (PoO) May 2006 to June 2007.

Tenements and Tenure

The CDMEP is located wholly within the Nebo Shire, which is a well established grazing, farming and coal mining region within the Bowen Basin. The proposed mine expansion area to the north of the Annandale Lease is located on Lot 26 SP160973, which is freehold land currently owned by WR and EJ Neilson while the proposed expansion area to the south of the Carborough Downs Lease is located on Lot 1 RP866478, which is freehold land owned by Millennium Coal Pty Ltd (refer **Figure 3**).

Native Title

The proposed mine expansion areas are located on Lot 26 on SP1060973 and Lot 1 on RP866478 which are freehold lands. Native title is extinguished on freehold land. One registered native title claim by the Barada Barna Kabalbara Yetimarla QC01/013 TO group exists in the CDMEP area, as shown in **Figure 4.**



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Legend

- City
- Town
- Road
- Track
- Railway line

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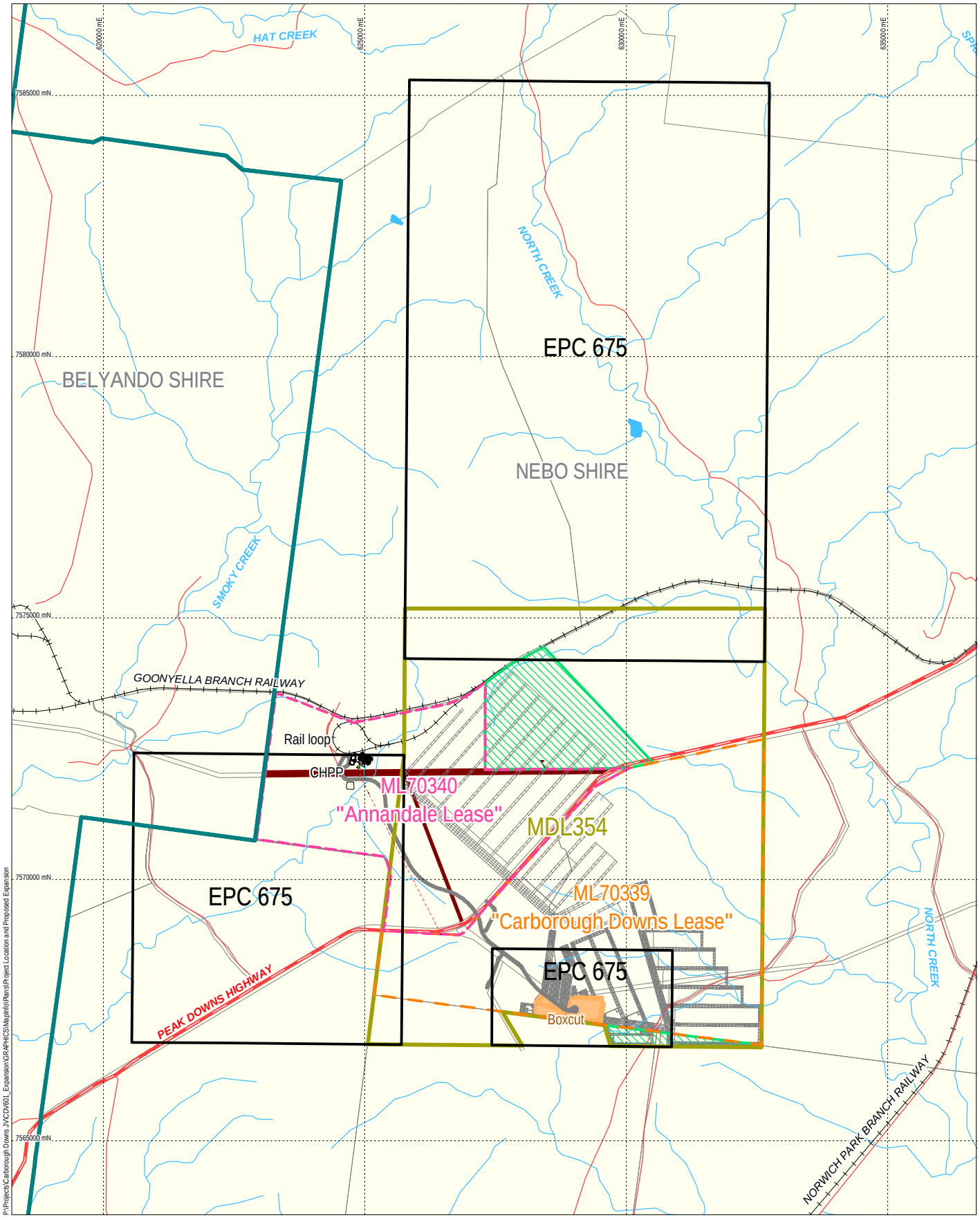
Carborough Downs Joint Venture
Carborough Downs Mine Expansion Project
Project Location

Datum: GDA94
Projection: Lat/Long

0 250 500
kilometres

FIGURE 1



- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road

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Carborough Downs Joint Venture

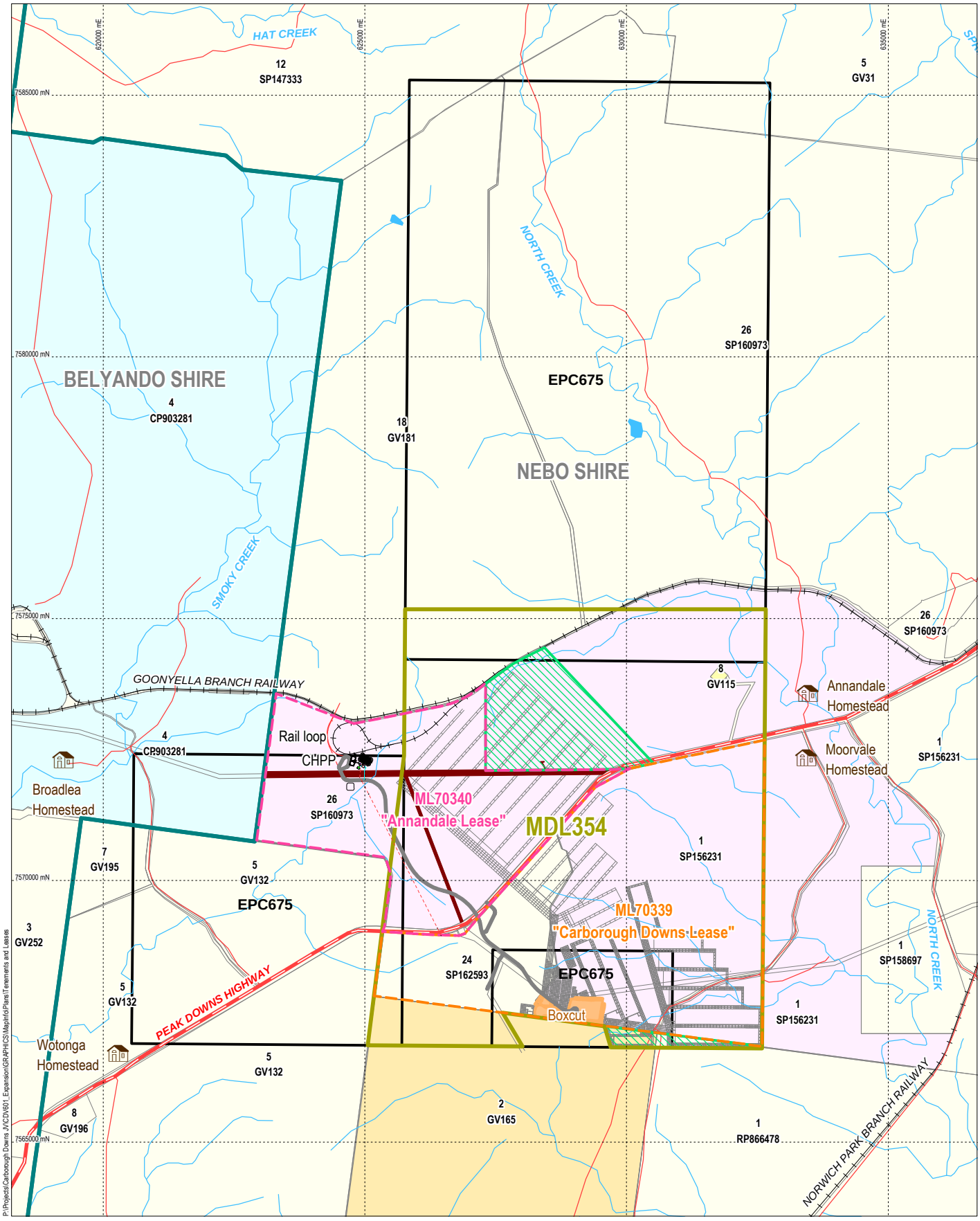
Carborough Downs Mine Expansion Project

Project Location and Proposed Expansion

Datum: GDA94
Projection: MGA, Zone 55

2 0 2
kilometres

FIGURE 2



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MATRIX CONSULTING

- Local Government Boundary
- Exploration Permit
- ML 70339
- ML 70340
- MDL354
- Mine Layout
- Expansion Area
- Highway / Road
- Railway
- Drainage
- Easement
- Haul Road
- Property Boundary
- Grazing Homestead Perpetual Lease
- Freehold
- State Lease
- Reserved
- Building

Carborough Downs Joint Venture

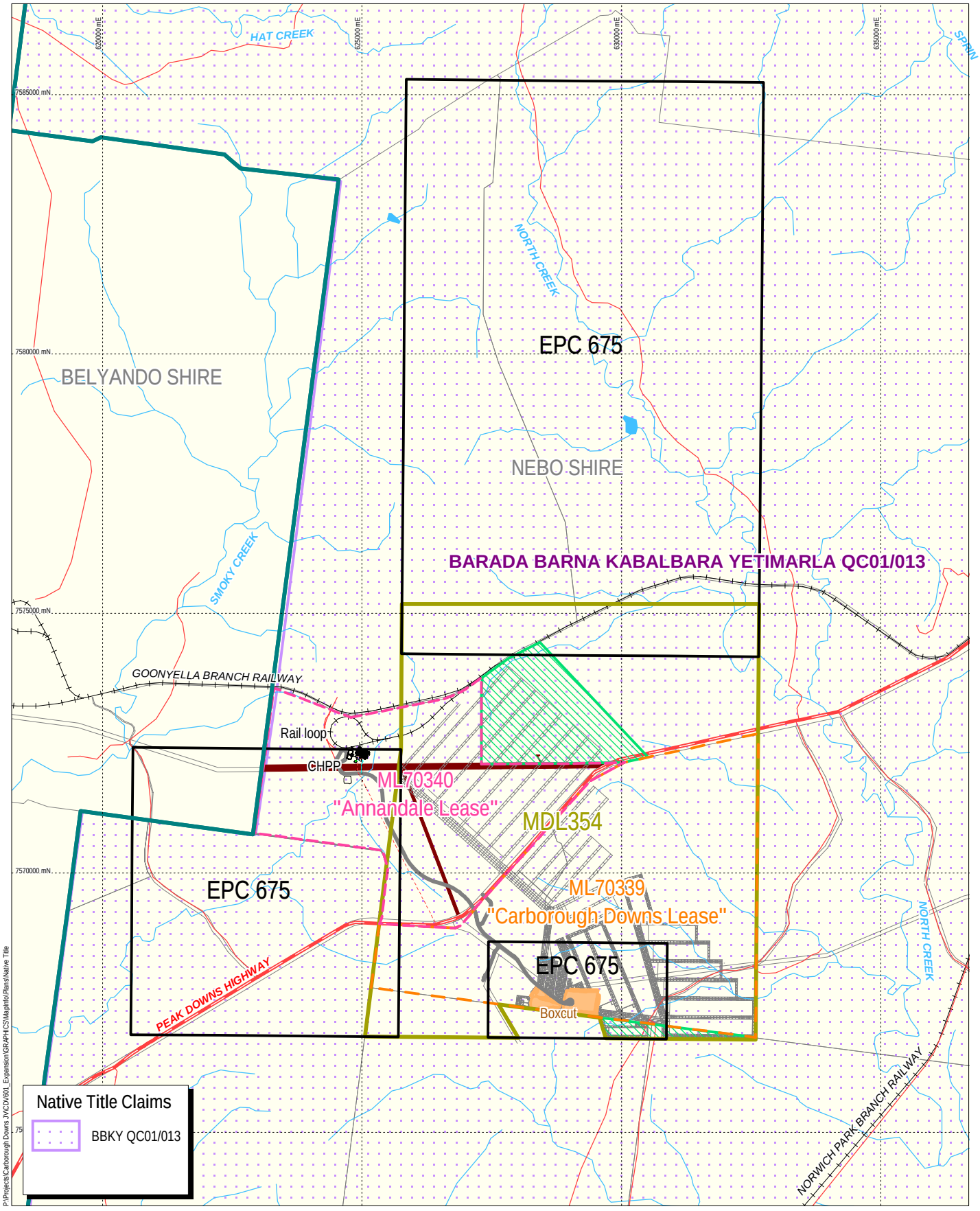
Carborough Downs Mine Expansion

Tenements and Leases

Datum: GDA94
Projection: MGA, Zone 55

2 0 2
kilometres

FIGURE 3



Local Government Boundary
Exploration Permit
ML 70339
ML 70340
MDL354
Mine Layout
Expansion Area
Highway / Road
Railway
Drainage
Easement
Haul Road

MATRIX CONSULTING

Carborough Downs Joint Venture

Carborough Downs Mine Expansion Project

Native Title Claims

Datum: GDA94
Projection: MGA, Zone 55

2 0 2
kilometres

FIGURE 4

ADMINISTRATIVE DETAILS FOR THESE TERMS OF REFERENCE

The Legislative Framework

The CDMEP requires two MLs under the *Mineral Resources Act 1989* (MRA) to secure tenure for the CDMEP. To obtain the mining leases, an environmental authority (non-standard mining activity) under the *Environmental Protection Act 1994* (EP Act) is required. The increase in mining rate within existing mining leases ML 70339 and ML 70340 also requires an amendment of CDJV's existing EA, MIM100329305.

The increase in mining rate to approximately 5 Mtpa triggers the 2 Mtpa EIS trigger threshold criteria and accordingly, an EIS is required. CDJV propose to lodge an application to conduct a voluntary EIS for this mining project.

PUBLIC CONSULTATION ON THESE DRAFT TERMS OF REFERENCE

Stakeholder consultation is an integral component of the planning and approvals process for the CDMEP. The consultation process requires the early identification and engagement of stakeholders.

The draft Terms of Reference (ToR) for the CDMEP will be published on a date and for a duration to be agreed with the EPA, in order to invite public comment.

The following is a list of stakeholders to be notified.

1 Federal

- Department of the Environment and Heritage

2 State

- Department of Local Government, Planning, Sport and Recreation
- Department of Communities
- Queensland Emergency Services
- Queensland Health
- Environmental Protection Agency - Queensland Parks and Wildlife Services
- Environmental Protection Agency – Environmental Operations
- Department of Natural Resources, Mines and Water
- Department of the Premier and Cabinet
- Department of Primary Industries and Fisheries
- The Coordinator-General
- Department of Main Roads
- Queensland Transport
- Department of Energy

3 Local

- Nebo Shire Council
- Belyando Shire Council
- Fitzroy Basin Association
- Mackay and Whitsunday Branch Bird Observers Club of Australia
- Mackay Conservation Council

4 Agencies/Authorities

- Central Queensland Land Council Aboriginal Corporation
- Queensland Rail
- North Queensland Conservation Council

- Barada Barna Kabalbara Yetimarla People
- Wildlife Preservation Society of Queensland
- Queensland Farmers Federation
- Queensland Resource Council
- Local Landcare Groups (Nebo-Broadsound Landcare group)
- Sunwater

5 Directly affected landholders

6 Indirectly affected landholder/groundwater users

7 The general community

The content of all submissions will be reviewed by CDJV and a response provided to the EPA containing recommendations for modifying the draft ToR, where necessary.

Following the notification period, the EPA will:

- consider the submissions on the draft ToR;
- consider CDJV response to the submissions;
- finalise the ToR;
- provide the final ToR to the CDJV; and
- publish the final ToR.

PART B CONTENT OF THE EIS

GENERAL INFORMATION

1 The objective of the EIS process is to ensure that all matters relevant to the CDMEP, particularly environmental, social and economic impacts, are fully identified and addressed. There may be issues other than those specified within this draft ToR that will be considered in the EIS.

2 Consistent with this objective, the EIS will provide:

- for interested bodies and persons, a basis for understanding the CDMEP; alternatives and preferred solutions; the existing environment that it would affect, both on and off the site; the impacts that may occur and the measures to be taken to mitigate all adverse impacts;
- for the advisory agencies, a framework for assessing the impacts of the CDMEP, in view of legislative and policy provisions; and
- a definitive statement of measures or actions to be undertaken to mitigate any adverse impacts during and following the implementation of the CDMEP. The EP Act will require that these objectives are achieved by the inclusion of a draft Environmental Management Plan in the EIS which describes acceptable impacts and environmental management strategies designed to meet agreed performance criteria.

3 It is the responsibility of the consultant (Matrix+ Consulting) preparing the EIS (in conjunction with CDJV) to determine those parties that should be consulted during the EIS preparation stage in addition to those specified by this draft ToR.

4 The EIS will be a stand-alone document, i.e. it will contain sufficient information from previous studies to avoid the need to search out previous or supplementary reports.

5 Where possible, information provided in the EIS will be clear, logical, objective and concise, so that non-technical persons may easily understand it. Where appropriate, text will be supported by maps and diagrams. Factual information contained in the document will be referenced wherever possible. Where applicable, aerial photography and/or digital information will be presented. The purpose of the documents is to enable members of the public, the assessing agencies and the determining authority to properly understand the environmental consequences of the proposed development.

6 The body of the EIS is to be written in a clear and concise style that is easily understood by the general reader and avoids the use of technical jargon wherever possible. It will be acknowledged that readers are likely to include representatives of Commonwealth, State and Local Governments, special interest groups and the general public.

7 The EIS will refer (by suitable appendices) to all relevant studies/investigations that may have been carried out.

8 If CDJV require any information in the EIS to remain confidential, this shall be clearly indicated, and separate information shall be prepared on these matters.

9 A concise reference list and bibliography will be included. Any Internet 'web' pages used as data sources will also be referenced.

10 A checklist shall be provided to indicate compliance of the EIS with the final ToR.

11 The EIS will state the criteria adopted in assessing the CDMEP and its impacts, such as compliance with relevant legislation, policies and standards; community acceptance; maximisation of environmental benefits (if any); and minimisation of risks and harm.

12 The level of analysis in the EIS shall reflect the level of significance of the impacts. Unknown variables or assumptions made in the assessment will be clearly stated and discussed. The extent to which the limitations, if any, of available information may influence the conclusions of the environmental assessment will also be discussed.

13 The emphasis shall be on quality and not quantity. Repetition will be avoided wherever possible.

14 The EIS will relate to the CDMEP including the areas of construction, operation, maintenance, and decommissioning. The EIS will enable reasonable economic and technically achievable conditions to be developed to ensure that the impact of the CDMEP is reduced to acceptable levels.

15 The terms 'describe', 'detail' and 'discuss' will be taken to include both quantitative and qualitative matters as practicable and meaningful. Similarly, adverse and beneficial effects will be presented in quantitative and/or qualitative terms as appropriate.

16 Within this draft ToR, the term CDMEP includes all mining activities undertaken on lands covered by the proposed CDMEP area and supporting CDMEP infrastructure (e.g. haul road) as defined in the glossary.

17 A listing of all members of the advisory agencies for the EIS process will be provided, along with contact details. A 'preliminary' EIS (number of copies to be advised) will be lodged with the relevant Government authorities for review prior to its release for public comment.

18 Copies (number to be advised) of the prepared EIS will be lodged with the relevant Government authorities for distribution to advisory agencies for comment and review during the public review period. In addition, the EIS will be placed on the Matrix+ Consulting website. Documents will be made available in CDROM format with a quantity of hard copy documents will also be produced. Further advice on arrangements for public review will be sought closer to the EIS completion date.

While every attempt has been made to ensure that the draft ToR address all of the major issues associated with this CDMEP, the issues are not necessarily exhaustive and will not be interpreted as excluding from consideration matters deemed to be significant but not incorporated in them, or matters (currently unforseen) that emerge as important or significant from environmental studies or otherwise during the course of preparation of the EIS.

EXECUTIVE SUMMARY

The function of the executive summary is to convey the most important aspects and options relating to the CDMEP to the reader in a concise and readable form. The structure of the executive summary will follow that of the EIS, focussing on the key issues.

GLOSSARY OF TERMS

A glossary of technical terms, acronyms and abbreviations for the EIS shall be provided.

1 INTRODUCTION

The introduction will clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve, in particular, the level of detail of information required to meet the level of approval being sought.

It will also define the audience to whom it is directed and contain an overview of the structure of the document.

1.1 PROJECT TITLE

The project title is the 'Carborough Downs Mine Expansion Project'.

1.2 PROJECT PROPONENT

This section will provide details regarding the proponent for the CDMEP including details of the Carborough Downs Joint Venture partners.

1.3 PROJECT DESCRIPTION

A brief description of the key elements of the CDMEP will be provided. Any major associated infrastructure requirements associated with the CDMEP will also be summarised with detailed descriptions of the CDMEP presented in **Section 3**. The location of the CDMEP and its infrastructure requirements will be described and mapped.

A brief description of studies or surveys which have been undertaken for the purposes of developing the CDMEP and preparing the EIS, including reference to relevant baseline studies or investigations previously undertaken, will be provided.

1.4 PROJECT OBJECTIVES AND SCOPE

This section will provide:

- a statement of the objectives which have led to the development of the CDMEP and a brief outline of the events leading up to the CDMEP's formulation, including alternatives, time scale envisaged for implementation and CDMEP life; anticipated establishment costs and actions already undertaken within the CDMEP area;
- the current status of the CDMEP and an outline of the relationship of the CDMEP to other developments or actions which may relate, whether or not they have been approved; and
- the consequences of not proceeding.

1.5 THE ENVIRONMENTAL IMPACT STATEMENT PROCESS

The important aspect of this section is to make clear the objectives of the environmental impact assessment process under the EP Act. This section will note that the EIS is voluntary and include a description of the impact assessment process steps, timing and decisions to be made for relevant stages of the CDMEP. Importantly, this section will outline mechanisms in the process for public input and the public release of the EIS and all responses to stakeholder submissions will be identified.

This section will highlight the necessity for the CDJV to undertake community consultation as part of the impact assessment process.

The information required in this section will ensure:

- the relevant legislation is addressed;
- an awareness of the process to be followed; and
- stakeholders are aware of the any opportunities for input and participation.

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) impact assessment process will also be detailed. An EPBC referral is currently being prepared for the CDMEP and will be lodged in due course. The referral will state, that in the opinion of the person preparing the referral, that the action is not a controlled action. However, EPBC matters are addressed in this draft ToR in the event that the Department of the Environment and Heritage (DEH) deem the project to be a controlled action. In the event that it is deemed not

to be a controlled action, the relevant provisions of the draft ToR will not apply. Schedule 4 of the EPBC Act, '*Matters to be addressed by draft public environment report and environmental impact statement*' outlines the information required to be provided. The DEH will be included as a stakeholder in the process.

1.5.1 Objectives of the EIS

Having described the objectives of the EIS process, a succinct statement will be made of the objectives of the EIS. The structure of the EIS will then be outlined as an explanation of how the EIS will meet its objectives. In brief, the purpose of the EIS is to provide public information on the need for, and likely effects of, the CDMEP; to set out acceptable standards and levels of impacts (both beneficial and adverse) on environmental values, and demonstrate how environmental impacts can be managed through the protection and or enhancement of the environmental values. Discussion of options and alternatives will be a key aspect of the EIS.

If it transpires during the preparation of the EIS that previously unforeseen matters not addressed in the terms of reference are found to be relevant to the assessment of impacts of the proposal, those matters will be included in the EIS.

The EIS will address all relevant matters concerning environmental values, impacts on those values and proposed mitigation measures. No relevant matter will be raised for the first time in an appendix or the draft EM Plan. When considering whether an impact is or is not significant, the EIS will take into account both the intensity of the impact and the context in which it would occur.

The role and purpose of the EIS will be outlined and the audience will be able to distinguish the EIS as the key environmental document providing advice to decision-makers considering approvals for the CDMEP. The main text will be written in plain English, avoiding jargon as much as possible. Additional technical detail, where required, will be provided in appendices. The main text will not assume that a reader has a prior knowledge of the CDMEP site. The role of the EM Plan, formerly referred to as an Environmental Overview Strategy (EMOS), the regulation of the CDMEP will also be discussed. The EM Plan's role will provide management measures that can be carried over into conditions that would attach to any approval(s), environmental authorities and permits for the CDMEP.

1.5.2 Submissions

Readers will be informed as to:

- how to make submissions;
- what form the submissions will take and required contact details;
- when submissions must be made to gain standing for any legal appeal process; and
- how submissions on the draft EIS will be addressed and taken into account in the decision-making process.

1.6 PUBLIC CONSULTATION PROCESS

An appropriate public consultation program, developed to the satisfaction of the Environmental Protection Agency (EPA), is essential to the full conduct of the impact assessment. This section will outline the methodology to be adopted to identify and mitigate socio-economic impacts which may arise from the CDMEP. Information about consultation which has taken place up to the date of the EIS release, and the results of such consultation, will be provided.

Section 41 of the EP Act requires the submission of a list of affected persons and interested persons as well as information on consultation.

The public consultation program will attempt to provide ongoing opportunities for community involvement and education, and may include public meetings, interest group meetings, production of regular summary information and updates, and other consultation mechanisms designed to encourage and facilitate active public participation.

The public consultation process will attempt to identify broad issues of concern to local community and interest groups and will extend from the CDMEP planning phase through operations and final rehabilitation.

1.7 PROJECT APPROVALS

1.7.1 Legislation and Policy Requirements

This section will explain the legislation and policies controlling the approvals process, including the roles of government agencies. Reference will be made to relevant State legislation including the EP Act, *Water Act 2000* (WAct) and MRA. Any requirements of the EPBC Act will also be included.

This information is required to assess how the legislation applies to the CDMEP, which agencies have jurisdiction, and whether the proposed impact assessment process is appropriate.

1.7.2 Planning Processes and Standards

This section will discuss the consistency of the CDMEP with existing land uses or long term policy framework for the area (e.g. as reflected in local and regional plans) and the legislation, the standards, codes or guidelines available to monitor and control operations on site and refer to all relevant State and Regional Planning Policies. In particular, this section will highlight requirements of the EP Act, such as ESD, 'best practice environmental management', 'general environmental duty', relevant Environmental Protection Policies (EPPs) i.e. Air, Noise, Water and Waste Management, the *Environmental Protection Regulation 1998* (EPR) and *Environmental Protection (Waste Management) Regulation 2000* (EPWMR).

Local Government planning controls, local laws and policies applying to the development will also be described together with a list of the approvals required for the CDMEP and the expected timetable for approval of the various applications.

This information is required to make clear how the CDMEP conforms to State, regional and local plans for the area.

2 PROJECT NEED AND ALTERNATIVES

2.1 PROJECT JUSTIFICATION

The justification for the CDMEP will be described, with particular reference made to the economic and social benefits, including employment and spin-off business development which the CDMEP may provide. The status of the CDMEP will be discussed in a regional, State and National context.

2.2 ALTERNATIVES TO THE PROJECT

This section will describe feasible alternatives, including conceptual, technological and locality alternatives to the proposed CDMEP and a discussion of the consequences of not proceeding. Alternatives will be discussed in sufficient detail to enable an understanding of the reasons for preferring certain options and courses of action and rejecting others. Reasons for selecting the preferred options will be delineated in terms of technical, commercial, social and natural environment aspects. The comparative environmental impacts of each alternative will be summarised.

The interdependence of the various project components will be described, explaining how the infrastructure requirements relate to the viability of the CDMEP. A rationale for water supply and/or storage infrastructure will be described. The relationship of options chosen for waste management and any emissions produced will also be detailed.

This information is required to assess why the scope of the CDMEP is as it is and to ensure that the ESD principles and sustainable development aspects have been considered and incorporated during the scoping of the CDMEP.

3 DESCRIPTION OF THE PROJECT

This section will describe the CDMEP through its lifetime with emphasis on those aspects that will change as a consequence of the increased coal production rate and or additional areas to be mined. Where appropriate, each section will also address the various stages of the project i.e. planning, construction, operation and decommissioning. It also allows further assessment of which approvals may be required.

3.1 LOCATION

3.1.1 Regional Context

The regional context of the CDMEP will be described and illustrated on maps at suitable scales.

3.1.2 Local Context

The local context of the CDMEP will be described and illustrated on maps at suitable scales. Real property descriptions of the CDMEP site will be provided.

3.2 RESOURCE

This section will summarise the results of studies and surveys undertaken to identify and delineate the coal resource and describe the location, tonnage and quality of the resource and resource utilitisation.

The geological reserves and/or resource will be defined using formal terminology as recommended by the Australian Stock Exchange, the Australasian Institute of Mining and Metallurgy and the Australian Mining Industry Council.

Where relevant, maps will be provided showing the general location of the CDMEP, and in particular:

- the location of the reserve, i.e. that component of the resource which is viable to extract under current economic circumstances;
- the location and boundaries of mining tenures, granted or proposed, to which the CDMEP area is or will be subject;
- the location of any proposed buffers surrounding the working areas; and
- the location and boundaries of the site.

Consideration will be given to providing a rectified aerial photo overlaid by the CDMEP to illustrate a comparison to the natural features of the area.

3.3 CONSTRUCTION

The extent and nature of the CDMEP's construction phase will be described, including the type and methods of construction to be employed, the construction equipment to be used and the items of plant to be transported onto the construction site.

The estimated numbers of persons to be employed during the proposed construction activities will be provided. It should be noted, however, that the construction activity proposed will be undertaken concurrently with the existing approved mining activities.

3.4 OPERATION

The location of the proposed CDMEP will be illustrated on maps and described, including the probable mining boundaries and development sequences or timeframes, the final void to be left at the cessation of mining and the processing of coal. The rationale for the preferred operational program will be explained.

3.4.1 Exploration and Mining

The extent and nature of the CDMEP mining operations will be described, including:

- the methods and equipment to be used in any further exploration activities and mining;
- the approximate quantity of coal to be mined;
- the location and extent of existing and proposed excavations, overburden stockpiles and waste to be handled during the operation; and
- the operational workforce.

3.4.2 Processing

The location and nature of both the existing approved proposed coal processing activities will be described including:

- a description of the plant and equipment and its capacity; and

- chemicals to be used.

Concept and layout plans will be provided identifying existing and proposed buildings, structures, plant and equipment associated with the processing operation. The nature, sources, location and quantities of all materials to be handled, including the storage and stockpiling of raw materials, will be described. Flow-sheets will be provided showing material balances for the mine and processing plant, and the anticipated rates of inputs, along with similar data on products, wastes and recycling streams. A description of the quantities and characteristics of the products produced will be provided.

Information will be provided on the workforce numbers employed in processing plant operations.

3.4.3 Product Handling

This section will describe and show on plans (at an appropriate scale), the existing and proposed methods and the facilities to be used for ROM coal storage and for transferring product coal from the processing plant to the storage facilities and from the storage facilities to the existing train loading facilities. Environmental design features for both the existing and proposed facilities will also be described, where warranted.

3.4.4 Waste Management

This section will provide an inventory of all wastes generated by the existing approved and proposed activities through construction, mining and production. In addition to the expected total volumes of each waste produced, this section will include an inventory of the tonnage of coal processed; the amount of resulting process wastes; the tonnage and volume of waste rock removed to extract the coal; and the volume and tonnage of any by-products left from the processing of the coal per unit volume of product coal.

The physical and chemical characteristics of the waste material from the mine and processing plant (including existing approved and proposed operations) will be provided. All other wastes, including regulated wastes, generated by the CDMEP, e.g. tyres, packaging materials etc, will be described.

The EIS will describe waste management strategies having regard to the *Environmental Protection (Waste Management) Policy 2000* (EPP Waste) including the concepts for waste avoidance, reuse, recycling, treatment and disposal.

Information will also be provided on the production rates of all major wastes generated from the CDMEP and processing plant.

Schematic diagrams will be provided for each distinct stage of the project (e.g. construction/site preparation, commissioning, operation and decommissioning) indicating the processes to be used and highlighting their associated waste streams (i.e. all waste outputs: solid, liquid and gaseous), including recycling efforts, such as stockpiling and reusing topsoil. The physical and chemical characteristics of the waste material from the process plant will be provided.

Where relevant, cleaner production waste management planning will be detailed, especially as to how these concepts have been applied in order to prevent or minimise environmental impacts at each stage of the CDMEP.

If applicable, details on natural resource use efficiency (e.g. energy and water) will be presented. This information will be provided to enable the resource management agencies and other stakeholders to assess the efficiency of resource use.

3.4.4.1 Solid Waste

The proposed location, site suitability, dimensions and volume of disposal areas, e.g. coal rejects, including their method of construction, will be provided. Subject to the outcomes of geotechnical investigations, if required, methods to prevent acid formation, seepage and contamination will be provided. Measures to ensure stability of the disposal areas will be described.

3.4.4.2 Waste water

A description will be presented of the origin, quality and quantity of waste water originating from the CDMEP. Particular attention will be paid to the capacity of any wastes produced to generate acid, saline or sodic waste water. A water balance for the CDMEP and processing plant will be provided.

Where relevant the EIS will consider the management of:

- groundwater from the underground workings;
- rainfall on disturbed areas;
- run-off from infrastructure areas (for both existing approved and proposed operations);
- drainage (i.e. run-off plus any seepage or leakage) from dumps and stockpiles;
- seepage from other waste storages;
- water usage for:
    - domestic purposes;
    - process use; and
    - dust suppression
- evaporation;
- liquid effluent and sludge from any domestic sewage treatment plant; and
- management of wastes from any water supply treatment plant.

3.5 INFRASTRUCTURE REQUIREMENTS

Layout plans will be provided identifying existing approved and proposed buildings, structures, plant, equipment and other infrastructure associated with the CDMEP, as well as other infrastructure existing in the vicinity.

3.5.1 Transport - Road/Rail/Ship

Arrangements for the transport of additional plant, equipment, coal, products, wastes and personnel during the construction and operational phases of the CDMEP will be described, including the proposed use of rail for transport of materials, products or wastes to or from the CDMEP.

Information will also be provided on the implications of the mine expansion on transportation requirements on public roads including:

- the volume, composition (types and quantities), origin and destination of additional goods to be moved including construction materials, plant, raw materials, wastes, hazardous materials, finished products;
- the volume of additional traffic generated by workforce personnel, visitors and service vehicles;
- method of movement (including vehicle types and number of vehicles likely to be used);
- anticipated times at which movements may occur;
- details of additional vehicle traffic and transport of heavy and oversize indivisible loads (including types and composition);
- the proposed transport routes; and
- need for increased road maintenance and upgrading.

Details will be included on any new roads, road realignments or proposed road closures required as a result of the CDMEP.

3.5.2 Energy

Any electricity and natural gas supply requirements for the construction and operation of the CDMEP will be provided and the locations shown on the infrastructure plan.

3.5.3 Water Supply/Storage

The EIS will provide information on water usage by the CDMEP, including the quality and quantity of all water supplied to the current Carborough Downs processing plant and future operational requirements i.e. demand for potable and process water. Both proposed and optional sources of water supply will be described (e.g. bores, mine water and any surface storages such as dams, weirs and/or municipal water supply pipelines, etc).

Estimated rates of supply from each source (average and maximum rates) will be given and any proposed water

conservation and management measures will also be described. Similarly, if water storage and treatment is proposed on site for use by the site workforce, then this will be described.

3.5.4 Stormwater Drainage

A description will be provided of the CDMEP stormwater drainage system as well as the proposed disposal arrangements, including any off-site services, with emphasis on those aspects which, as a consequence of the expansion, will change from those already approved,

3.5.5 Sewage

The EIS will provide volume estimates of industrial and domestic effluent that will be produced and the proposed method of disposal.

3.5.6 Accommodation and Other Infrastructure

A description will be provided of any other developments directly related to the CDMEP not previously described, such as:

- camps, townships or residential developments;
- fuel storage areas;
- equipment maintenance areas;
- laboratories;
- site offices; and
- roads (both haul roads and access roads).

Given the extent of infrastructure developed to date on the MLs, or elsewhere locally as a consequence of the increase of the mining activity in general, it is unlikely that there will be any requirement for such infrastructure.

3.6 Rehabilitation and Decommissioning

This section will present the strategies and methods for both progressive and final rehabilitation of the environment disturbed directly or indirectly by mining activities, including areas subsided by underground mining The final landform of excavations, waste dumps and co-disposal areas, will be shown and the post-mining land use suitability of the various land disturbance types described.

The means of decommissioning the CDMEP, in terms of the removal of plant, equipment, structures and buildings will be described, with the methods proposed for the stabilisation of the affected areas provided. For completeness, the previously-approved method of final rehabilitation of the plant site and box cut will be described in terms of ongoing land use suitability, management of any residual contaminated land and any other land management issues.

4 DESCRIPTION OF THE EXISTING ENVIRONMENTAL VALUES/ POTENTIAL IMPACTS AND MITIGATION MEASURES

The functions of this section will be to describe:

- the existing environmental values of the area which may be affected by the CDMEP. Environmental values, which are defined by the EP Act, EPPs and regulations, will be described with reference to background information and studies; and
- the potential adverse and beneficial impacts of the CDMEP on the identified environmental values. Any likely environmental harm on the environmental values will also be described;
- any cumulative impacts on environmental values caused by the CDMEP, either in isolation or by combination with other known existing or planned sources of contamination;
- present environmental protection objectives and the standards and measurable indicators to be achieved;

- viable alternative strategies for managing impacts. These alternatives will be presented and compared in view of the stated objectives and standards to be achieved. Available techniques, including best practice, to control and manage impacts to the nominated objectives will be discussed. This section will detail the environmental protection measures incorporated in the planning, construction, operations, decommissioning, rehabilitation and associated works for the proposal. Measures should prevent, or where prevention is not possible, minimise environmental harm and maximise socio-economic and environmental benefits of the proposal. Preferred measures will be identified and described in more detail than other alternatives;
- environmental protection objectives that may be derived from legislative and planning requirements which apply to the CDMEP, including Commonwealth strategies, State planning policies, local authority strategic plans, environmental protection policies under the Environmental Protection Act 1994, and any catchment management plans prepared by local water boards or land care groups. Special attention will be given to those mitigation strategies designed to protect the values of any sensitive areas and any identified ecosystems of high conservation value within the area of possible proposal impact; and
- elements of the environment such as land, water, coast, air, waste, noise, nature conservation, cultural heritage, social and community, health and safety, economy, hazards and risk, in a way that is comprehensive and clear. To achieve this, the following issues will be considered for each environmental value relevant to the CDMEP.
    - Relevant environmental values affected - A description of the existing environmental values of the area to be affected, including values and areas that may be affected by any cumulative impacts will be provided. The description would include reference to any background studies, some of which may need to be undertaken over several seasons. It will be explained how the environmental values were derived (e.g. by citing published documents or by following a recognised procedure to derive the values).
    - Impact on relevant environmental values - A quantitative description of the likely impacts of the proposal on the identified environmental values of the area will be provided. The cumulative impacts of the proposal will be considered over time or in combination with other (all) impacts in the dimensions of scale, intensity, duration or frequency of the impacts. In particular, any requirements and recommendations of relevant State planning policies, environmental protection policies, national environmental protection measures and integrated catchment management plans will be addressed.
    - Cumulative impacts on the relevant environmental values of land, air and water and cumulative impacts on public health and the health of terrestrial, aquatic and marine ecosystems will be discussed in the relevant sections.
    - Environmental protection objectives – A qualitative and quantitative description of the proposed objectives for enhancing or protecting each relevant environmental value will be presented. A description of the proposed indicators to be monitored to demonstrate the extent of achievement of the objective as well as the numerical standard i.e. auditable standard that defines the achievement of the objective will be provided. Objectives for progressive and final rehabilitation and management of contaminated land will be included.
    - Control strategies to achieve the objectives - A description of the control principals, proposed actions and technologies to be implemented that are likely to achieve the environmental protection objectives would be provided. The details to show that the expected performance is achievable and realistic would also be provided.
    - Monitoring programs – Details of the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals will be provided.
    - Auditing programs - A description on how progress towards achievement of the objectives would be measured, reported and whether external auditors will be employed will be presented.
    - Management strategies - A description will be provided of the strategies to be used to ensure the environmental protection objectives are achieved and control strategies implemented eg. continuous improvement framework including details of corrective action options, reporting (including any public reporting), monitoring, staff training, management responsibility pathway,

and any environmental management systems and how they are relevant to each element of the environment.

- Information quality – The information given under each element will state the sources of the information, how recent the information is, how any background studies were undertaken (eg intensity of field work sampling), how the reliability of the information was tested, and what uncertainties (if any) are in the information.

As with the contents of Section 3, Description of Project, emphasis will be placed on the environmental aspects which will be affected directly or indirectly as a consequence of the increased rate of coal production and or the additional areas to be mined. The investigations undertaken will, where appropriate, extend upon the findings of the studies undertaken for the existing approved CDM.

4.1 LAND

4.1.1 Environmental Values

This section will describe the existing environment of the land area which may be affected by the CDMEP in the context of environmental values as defined by the EP Act, EPPs and regulations. The following topics will be addressed.

4.1.1.1 Topography/Geomorphology

Contour information for the CDMEP will be provided at suitable increments with levels shown with respect to Australian Height Datum (AHD) and, the environmental values of the cultural landscapes of the affected area described in terms of the physical and cultural integrity of the landforms.

4.1.1.2 Geology

The EIS will provide a description, map and geological cross sections of the CDMEP, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures within the areas to be mined. Properties which may influence stability, occupational health and safety, rehabilitation programs, or the quality of waste water leaving any area disturbed by the CDMEP will also be described.

CDJV will consider the possibility that fossil specimens may be located during construction/operations and propose strategies for their recovery, if possible.

4.1.1.3 Geochemistry and Soils

An initial geochemical study into the geochemical characteristics of the coal rejects will be undertaken, including an assessment of the potential for acid mine drainage to be generated. The study will describe the geochemical nature of the waste materials to be generated from the CDMEP and their potential to leach contaminated water, impact on the quality of mine rehabilitation and impact on existing environmental values.

A soil survey of the additional areas to be affected by the project will be conducted at a suitable scale, with particular reference to the physical and chemical properties of the materials which will influence erosion potential, stormwater run-off quality and rehabilitation.

Soil profiles will be mapped at a suitable scale and described according to the Australian Soil and Land Survey Field Handbook (McDonald *et al*, 1990) and Australian Soil Classification (Isbell, 1996). In the areas of proposed surface disturbance, an appraisal of the depth and quality of useable soil will be undertaken, with the information will be presented according to the standards required in the Planning Guidelines: the Identification of Good Quality Agricultural Land (DPI & DHLGP, 1993), and the State Planning Policy 1/92: Development and the Conservation of Agricultural Land.

The description of topsoil management in areas of proposed surface disturbance will consider pre-stripping, transport, storage and replacement, including feasible methods for the minimisation of topsoil storage times (i.e. to reduce fertility degradation).

4.1.1.4 Land Use

The EIS will provide a description of current land tenures and land uses, including native title, in the entire CDMEP area, with particular mention of land with special purposes. The location and owner/custodians of native title in the area and details of native title claims will be identified.

A map showing existing land uses and tenures, and the locations of the various project elements (approved and proposed) will be provided for the entire project area and surrounding land that could be affected by the CDMEP. Maps will be included identifying areas of conservation value, the location of existing dwellings, and the zoning of all affected lands according to any relevant existing town or strategic plan.

The land use suitability of the affected area will be described in terms of physical and economic attributes. The potential environmental harm caused by the project on the adjacent areas currently used for agriculture will be described, together with the implications of the CDMEP for future developments in the impacted area, including constraints on surrounding land uses.

A land suitability map of the proposed and adjacent areas, illustrating land suitability and current land uses, will be provided, with land classified as Good Quality Agricultural Land (GQAL) (as defined by Planning Guideline: the Identification of Good Quality Agricultural Land (DPI & DHLGP, 1993)), identified.

4.1.1.5 Infrastructure

The location and owner/custodians of all tenures, reserves, stock routes and the like, covering the affected land will be identified, as will the locations of gas and water pipelines, powerlines and any other easements. The environmental values affected by this infrastructure will be addressed.

4.1.1.6 Sensitive Environmental Areas

The EIS will identify whether areas that are environmentally sensitive could be affected directly and/ or indirectly by the CDMEP, and the proximity of any elements of the CDMEP to sensitive environmental areas identified. In particular, the EIS will indicate if the land affected by the CDMEP is or is likely to contain heritage/historic areas or items, national estates or areas of cultural significance.

In addition, any matters of national environmental significance protected under the EPBC Act will be identified and addressed.

4.1.1.7 Landscape Character

The impacts of the CDMEP on the visual quality and landscape character of the site and the surrounding area will be addressed considering both the broad and local level, with particular reference made to:

- impacts on existing land uses that contribute to the character of the local area; and
- the visual absorption capacity of the site - the ability to absorb the impact of the proposed development.

If appropriate, simulation to portray broad and near views and impacts of the CDMEP on visually sensitive areas, including the extent of the significance of the skyline as viewed from known vantage points, will be included.

The EIS will detail the scenic or landscape values of the area.

4.1.1.8 Scenic Values

The visual impact of the CDMEP, as it relates to the surrounding landscape, will be analysed and discussed, where relevant, in terms of the extent and significance of the changed skyline as viewed from places of residence, work, and recreation, from the air and other known vantage points day and night. Sketches, diagrams, computer imaging and or photos may be used where possible to portray the near views and far views of the completed structures and their surroundings from any visually sensitive locations.

Special consideration will be given to public accessible vantage points eg. roads, which are in line of sight of the surface components of the project.

4.1.1.9 Lighting

An assessment of all potential impacts from lighting on the CDMEP, during all stages, will be provided, with particular reference to:

- the visual impact at night;
- night operations/maintenance and effects of lighting on fauna, flora and residents;
- the potential impact of increased vehicular traffic; and
- changed habitat conditions for nocturnal fauna and associated impacts.

4.1.2 Potential Impacts and Mitigation Measures

The function of this section will be to define and describe the objectives for protecting the environmental values for land. Topics which may be relevant are listed below.

4.1.2.1 Land Use Suitability

The potential for the CDMEP to change existing and potential land uses of the CDMEP site and adjacent areas will be detailed.

Should it be determined that the development adjoins or potentially impacts on Good Quality Agricultural Land or residential land, then an assessment of the potential for land use conflict will be undertaken, with the investigations to follow the procedures set out in the Planning Guidelines: Separating Agricultural and Residential Land Uses (DNR & DLGP, 1997).

The following will be identified and measures to avoid unacceptable impacts discussed.

- Incompatible land uses, whether existing or potential, adjacent to all aspects of the CDMEP, including essential and proposed ancillary developments.
- Activities and areas directly or indirectly affected by the construction and operation of these activities.

4.1.2.2 Land Disturbance

The previously-approved methods to rehabilitate areas of surface disturbance will be presented including backfilling, covering, re-contouring, topsoil handling and revegetation.

Proposals for the management of any dams, roads or other additional infrastructure to be constructed after completion of the project, will be provided, together with a contour map of the area. Also, the final drainage and seepage control systems, erosion and sediment controls and any long term monitoring plans will be described.

Proposed decommissioning will be described in detail, including consolidation, revegetation, fencing, and monitoring.

Information will be provided regarding decommissioning of any plant site, removal of the processing plant, rehabilitation of concrete footings and foundations, hardstand areas and storage tanks (including any potential for reuse of these facilities).

4.1.2.3 Land Contamination

The possibility of contamination of land from aspects of the mining activities, e.g. waste, coal rejects, and spills at chemical and fuel storage areas, will be described and the means of preventing land contamination (within the meaning of the EP Act) will be addressed.

Methods proposed for recording, containing and remediating any contaminated land will be outlined. Intentions shall be stated concerning the classification (in terms of the Queensland Contaminated Land Register) of land contamination on the land, processing plant site and product storage areas after completion of the CDMEP.

Where appropriate, a preliminary site investigation (PSI) of the CDMEP site consistent with the EPA's Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, will be undertaken to determine background contamination levels. The results of the PSI will be summarised in the EIS and provided in detail in an appendix.

If the results of the preliminary site investigation indicate potential or actual contamination, a detailed site investigation progressively managed in accordance with the stages outlined in Appendix 5 of the Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, will be undertaken where appropriate.

In short, the following information will be presented in the EIS:

- mapping of any areas listed on the Environmental Management Register or Contaminated Land Register under the EP Act;
- identification of any potentially contaminated sites not on the registers which may require remediation; and
- a description of the nature and extent of contamination at each site.

In addition to the prevention and management of contamination resulting from mining activities, the EIS will address management of any existing or potentially contaminated land.

4.1.2.4 Soil Erosion

For each soil type identified in all areas of surface disturbance, erosion potential, possible erosion rates and management techniques will be described. Erosion monitoring, including rehabilitation measures for erosion problems identified during monitoring, will also be outlined. Mitigation strategies will be developed to achieve acceptable soil loss rates, levels of sediment in rainfall runoff and wind generated dust concentrations.

4.1.2.5 Landscape character

A description of the potential impacts of the CDMEP on the landscape character of the site and the surrounding area will be provided. Particular mention will be made of any changes to the broad-scale topography and vegetation character of the area eg. due to spoil dumps, excavated voids and broad-scale clearing.

Details will be provided of measures to be undertaken to mitigate or avoid the identified impacts.

4.1.2.6 Visual amenity

This section will analyse and discuss the visual impact of the CDMEP on particular panoramas and outlooks. It will be written in terms of the extent and significance of the changed skyline as viewed from, for example, places of residence, work, and recreation, from road, cycle and walkways, from the air and other known vantage points day and night, during all stages of the project as it relates to the surrounding landscape. The assessment will address the visual impacts of the CDMEP structures and associated infrastructure using methods such as, sketches, diagrams, computer imaging and/or photos to portray the near views and far views of the completed structures and their surroundings from visually sensitive locations. Special consideration will be given to public roads, public thoroughfares, and places of residence or work, which are within the line-of-sight of the project.

Detail will be provided of all management options to be implemented and how these will mitigate or avoid the identified impacts.

4.1.2.7 Transport

The EIS will provide sufficient information for the Department of Main Roads (DMR) and/or Local Governments to make an independent assessment of how their roads may be affected. Sufficient information will also be provided to enable Queensland Rail (QR) to make an independent assessment of how the rail network (including infrastructure) will be affected.

The EIS will include a detailed analysis of probable impacts of the identified construction and incremental operational traffic generated by the CDMEP, with particular emphasis on impacts on road infrastructure, road users and road safety. This will be achieved by comparing the traffic situation and road conditions with and without the CDMEP and be undertaken in close consultation with the local district office of the DMR. Measures necessary to address any adverse road impacts, and the costs involved, will be provided.

The EIS will provide details of the impact on any current or proposed rail infrastructure.

Details will be provided on product spill contingency plans and the adequacy of equipment and facilities to deal with possible spills at the transport nodes.

4.1.2.8 Rehabilitation and Decommissioning

The strategies and methods for progressive and final rehabilitation of the environment disturbed by the CDMEP will be described in the context of the expected final landforms for nominated final land uses. The final topography of excavations, waste dumps and co-disposal sites will be illustrated and the post-mining land suitability of the various land disturbance types will be described.

The means of decommissioning the CDMEP, in terms of removal of plant, equipment, structures and buildings will be described (including any potential for reuse of these facilities), together with the methods proposed for the stabilisation of the affected areas. Final rehabilitation of the plant site will be discussed in terms of ongoing land use suitability, stability, sustainability, management of any residual contaminated land and other land management issues.

The existing rehabilitation strategy will be outlined and amended as appropriate to reflect the additional areas of disturbance.

Proposals to divert creeks during mining, and, if applicable, for the reinstatement of the creeks after mining has ceased, will be provided. Where dams are to be constructed, proposals for the management of these structures after the completion of the CDMEP will be given. A contour map of the lease area after the proposed mining operation is completed will be provided. Also, the final drainage and seepage control systems and long term monitoring plans will be described.

Rehabilitation of co-disposal areas will be described in detail, including consolidation, capping, and revegetation.

Any potential impacts of the proposed rehabilitation and decommissioning methods and the mitigation measures will be discussed for each relevant section (eg. flora and fauna, soil, air and water) and appropriately cross-referenced.

4.2 CLIMATE / NATURAL DISASTERS

The EIS will provide descriptions of the air temperature, humidity, wind (direction and speed) and any other special features (e.g. temperature inversions) likely to affect air quality within the environs of the CDMEP. Rainfall patterns, including magnitude and seasonal variability, will be considered. Extremes of climate (i.e. droughts, floods, cyclones, etc) will also be discussed, with particular reference to water management at the CDMEP site. The vulnerability of the area to natural or induced hazards, such as floods, bushfires and earthquakes, and the relatively frequency, magnitude and risk of these events, will be addressed.

4.3 WATER RESOURCES

4.3.1 Environmental Values

The function of this section is to describe the existing environment for water resources which may be affected by the CDMEP in the context of environmental values as defined by the EP Act, EPPs, ANZECC 2000 guidelines and regulations. Subject to further evaluation, the following topics may be required to be addressed (note - the topics are not exhaustive).

4.3.2 Surface Waterways

A description will be given of the number of surface watercourses and their quality in the area affected by the CDMEP, together with an outline of the significance of these waters to the surrounding catchment and an assessment of the impact of the CDMEP. Information provided will include a description of existing surface drainage patterns, wetlands and, if present, flows in major streams. Details of the likelihood of flooding, history of flooding including extent, levels and frequency, and a description of present and potential water uses downstream of the areas affected by CDMEP will be provided. Flood studies will be conducted if appropriate and include a range of annual exceedance probabilities for affected waterways, where data permits.

The water quality description will include, seasonal variations or variations with flow, where applicable. If appropriate, a relevant range of physical, chemical and biological parameters will be measured to gauge the potential for environmental harm on any affected creek or wetland system present.

As appropriate, the environmental values of the surface waterways in the affected area will be described in terms of:

- values identified in the *Environmental Protection (Water) Policy 1997* (EPP Water);
- sustainability, incorporating both quality and quantity;
- physical integrity, fluvial processes and morphology of watercourses, including riparian zone vegetation and form; and
- any Water Resource Plans, Land and Water Management Plans relevant to the affected catchment.

4.3.3 Groundwater

The EIS will review the quality, quantity and significance of groundwater in the CDMEP area, together with groundwater use in neighbouring areas.

The review will include a survey of existing groundwater supply facilities (bores, wells, or excavations), with the information gathered including:

- location;
- pumping parameters;
- drawdown and recharge at normal pumping rates; and
- seasonal variations (if records exist) of groundwater levels.

A network of observation points which would satisfactorily monitor groundwater resources both before and after commencement of operations will be developed, where necessary.

This section will include reference to:

Nature of the aquifer/s

- geology/stratigraphy - such as alluvium, volcanic, metamorphic;
- aquifer type - such as confined, unconfined; and
- depth to and thickness of the aquifers.

Hydrology of the aquifer/s

- depth to water level and seasonal changes in levels;
- groundwater flow directions (defined from water level contours);
- interaction with surface water;
- interaction with saline water;
- possible sources of recharge; and
- vulnerability to pollution.

The data obtained from the groundwater investigations will be sufficient to enable specification of the major ionic species present, pH, electrical conductivity and total dissolved solids. A description of the environmental values of the underground waters of the affected area will be provided in terms of:

- values identified in the EPP Water;
- sustainability, including both quality and quantity; and
- physical integrity, and morphology of groundwater resources.

4.3.4 Potential Impacts and Mitigation Measures

This section will define and describe the potential impacts caused by the CDMEP and practical measures for protecting or enhancing the water resources environmental values; describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.

Water management controls will be described, addressing surface and groundwater quality, quantity, drainage patterns and sediment movements. The beneficial (environmental, production and recreational) use of the surface and groundwater resources will be described.

Where appropriate, monitoring programs will be described which will assess the effectiveness of the management strategies for protecting water quality, with the key water management strategy objectives including:

- the protection of any important local aquifers and their waters; and
- the maintenance of a sufficient quantity and quality of surface waters to protect existing beneficial downstream uses of those waters.

The EIS will also consider the risks of uncontrolled emissions to water due to system or catastrophic failure and describe the strategies to prevent, minimise and contain impacts.

4.3.4.1 Surface Water and Watercourses

The potential environmental harm to the flow and the quality of surface waters from the CDMEP will be discussed, with particular reference to their suitability for the current and potential downstream uses (including the requirements of any affected riparian area, wetland and any in-stream biological uses). The impacts of surface water flows on existing infrastructure will be considered.

The water quality characteristics discussed will be those appropriate to the downstream uses that may be affected. The chemical and physical properties of any waste water (including concentrations of constituents) at the point of entrance to natural surface waters will be discussed, along with toxicity of effluent constituents to flora and fauna.

Reference will be made to the properties of the land disturbed, the technology for settling suspended sediments from contaminated water (if necessary), and the techniques to be employed to ensure that contaminated water is contained and successfully treated on the site.

In relation to water supply and usage and wastewater disposal, the EIS will discuss anticipated flows of water to and from the CDMEP area. Where dams, weirs or ponds are proposed, the EIS will investigate the effects of predictable climatic extremes (i.e. storm events, floods and droughts, etc) on the capacity of the dams to retain contaminants; the structural integrity of the containing walls; the quality of water contained; and the quantity and quality of water discharged.

The need or otherwise for licensing of any dams (including referable dams) under the WAct will be discussed and a dam failure impact assessment undertaken for any proposed dam where required under the WAct. If required, water allocation and water sources will be established in consultation with the Department of Natural Resources Mines and Water (DNRMW).

Having regard to the requirements of the EPP Water, the EIS will present the methods to avoid stormwater contamination from raw materials, wastes or products and present the means of containing, recycling, reusing, treating and disposing of stormwater. Where no-release water systems are to be used, the fate of salts and particulates derived from intake water will be discussed.

The Australian and New Zealand Environment and Conservation Council's (ANZECC, 2000) 'National Water Quality Management Strategy, Australian Water Quality Guidelines for Fresh and Marine Waters' and the EPP Water will be used as a reference for evaluating the effects of various levels of contamination.

Options for mitigation, and the effectiveness of mitigation measures, will be discussed with particular reference to sediment, acidity, salinity and other emissions of a hazardous or toxic nature to human health, flora or fauna.

4.3.4.2 Groundwater

The EIS will include an assessment of the potential for environmental harm to local groundwater resources to be caused by the CDMEP.

The impact assessment will define the extent of the area within which groundwater resources are likely to be affected by the proposed operations; the significance of the CDMEP to groundwater depletion or recharge and, if appropriate, propose management options available to monitor and mitigate these effects. The response of the groundwater resource to the progression and final cessation of the CDMEP will be described.

The assessment will also address the impact of the CDMEP on the local groundwater regime caused by the altered porosity and permeability as a consequence of subsidence and the potential to contaminate groundwater resources. Measures to prevent, mitigate and remediate any such contamination will be discussed.

The impact of any groundwater drawdown on local vegetation will be discussed.

4.4 AIR

This section will describe the existing air environment which may be affected by the CDMEP in the context of environmental values as defined by the EP Act, EPPs and regulations.

4.4.1 Environmental Values

A description of the existing airshed environment will be provided having regard to particulates, gaseous and odorous compounds. The background levels and sources of suspended particulates, SOx, NOx, and any other major constituent of the air environment, including greenhouse gases, which may be affected by the CDMEP will be discussed.

Sufficient data on local meteorology and ambient levels of pollutants will be gathered to provide a baseline for later studies or for the modelling of air quality environmental impacts within the airshed. Parameters will include air temperature, wind speed and direction, atmospheric stability and other parameters necessary for input to the models.

A description of the environmental values of the airshed for the affected area will be provided in terms of the *Environmental Protection (Air) Policy 1997* (EPP Air).

4.4.2 Greenhouse Gas Emissions

This section of the EIS will:

- provide an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO2 equivalent' terms;
- estimate emissions from upstream activities associated with the CDMEP, including fossil fuel based electricity consumed;
- provide an estimate of coal seam methane to be released as well as emissions resulting from such activities as transportation of products and consumables, and energy use; and
- briefly describe the method(s) by which the estimates were made.

4.4.3 Potential Impacts and Mitigation Measures

This section will define and describe the objectives and practical measures for protecting or enhancing environmental values for air, describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.

The proposed levels of emissions will be compared with the national environmental protection measures (NEPMs) for ambient air quality (1998), the National Health and Medical Research Council (NHMRC) National Guidelines (1985) for control of emissions from stationary sources, and the EPP Air.

The EIS will identify residential areas or other developments that could be sensitive to the effects of the predicted emissions and discuss the likely impact of air emissions on nearby vegetation and biodiversity. Ground level predictions will be made at any rural residence in close proximity to the project. These predictions will be made for both normal and expected maximum emission conditions and the worst case meteorological conditions will be identified and modelled where necessary. The techniques used to obtain the predictions will be referenced, and key assumptions and data sets explained. The air quality assessment will consider:

- the limitations and accuracy of the applied atmospheric dispersion models will be discussed. The air quality modelling results will be discussed in light of the limitations and accuracy of the applied models;
- air quality predictions compared to the relevant goals in the National Environmental Protection Council (Ambient Air Quality) Measure and the EPP Air goals; and
- airshed management and the contribution of the CDMEP to airshed capacity, i.e. in view of existing and future users of the airshed, for assimilation and dispersion of emissions.

4.4.4 Greenhouse Gas Abatement

This section of the EIS will propose and assess greenhouse gas abatement measures. It will include:

- a description of the proposed measures (alternatives and preferred) to avoid and/or minimise greenhouse gas emissions directly resulting from activities of the CDMEP, including such activities as transportation of products and consumables, and energy use by the project;
- an assessment of how the preferred measures minimise emissions and achieve energy efficiency;
- an indication of how the preferred measures for emission controls and energy consumption compare with the relevant sector of industry with a view to achieving best practice environmental management;
- a description of any opportunities for further offsetting greenhouse gas emissions through indirect means.

Direct means of reducing greenhouse gas emissions could include such measures as:

- minimising clearing at the site (which also has imperatives besides reducing greenhouse gas emissions);
- integrating transport for the CDMEP with other local industries such that greenhouse gas emissions from the construction and running of transport infrastructure are minimised;
- maximising the use of renewable energy sources; and
- co-locating coal seam methane use for energy production with coal extraction.

Indirect means of reducing greenhouse gas emissions could include such measures as:

- carbon sequestration at nearby or remote locations, either:
    - above ground by such means as planting trees and other vegetation to achieve greater biomass than that cleared for the CDMEP; or
    - below ground by geosequestration; and/or
    - carbon trading through recognised markets.

The environmental management plan in the EIS will include a specific module to address greenhouse abatement. That module will include:

- commitments to the abatement of greenhouse gas emissions from the CDMEP, with details of the intended objectives, measures and performance standards to avoid, minimise and control emissions;
- commitments to energy management, including undertaking periodic energy audits with a view to progressively improving energy efficiency;
- a process for regular review of new technologies to identify opportunities to reduce emissions and use energy efficiently, consistent with best practice environmental management;
- any voluntary initiatives such as projects undertaken as a component of the National Greenhouse Challenge Plus program, or research into reducing the lifecycle and embodied energy carbon intensity of the CDMEP's processes or products;
- opportunities for offsetting greenhouse emissions, including, if appropriate, carbon sequestration and renewable energy uses; and
- commitments to monitor, audit and report on greenhouse emissions from all relevant activities and the success of offset measures.

4.4.5 Climate Change Adaptation

Climate change, through alterations to weather patterns and rising sea level, has the potential to impact in the future on developments designed now. Most developments involve the transfer to, or use by, a proponent of a community resource in one form or another, such as the granting of a non-renewable resource or the approval to discharge pollutants to air, water or land. It is recognised that the CDMEP design should be adaptive to climate change so that community resources are not depreciated or abandoned or require costly modification before their potential to provide a full return to the community is realised. Consequently, the EIS will provide an

assessment of the CDMEP's vulnerabilities to climate change and describe possible adaptation strategies for the activity including:

- a risk assessment of how changing patterns of rainfall and hydrology, temperature, extreme weather and sea level (where appropriate) may affect the viability and environmental management of the CDMEP;
- the preferred and alternative adaptation strategies to be implemented; and
- commitments to undertaking, where practicable, a co-operative approach with government, other industry and other sectors to address adaptation to climate change.

4.5 NOISE AND VIBRATION

This section will describe the existing environment values which may be affected by noise and vibration from CDMEP in the context of environmental values as defined by the EP Act, EPPs and regulations.

4.5.1 Environmental Values

The results of baseline monitoring of noise and vibration, including the daily variation of background noise levels at nearby residences in the vicinity of the CDMEP, will be described and comments provided on any current activities near the project area that may cause a background level of ground vibration.

Monitoring methods will adhere to relevant EPA Guidelines or Australian Standards, and any relevant requirements of the *Environmental Protection (Noise) Policy 1997* (EPP Noise).

4.5.2 Potential Impacts and Mitigation Measures

This section will define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by noise and vibration, describe how nominated quantitative standards and indicators may be achieved for noise and vibration management, and how the achievement of the objectives will be monitored, audited and managed. Mapped noise contours from a suitable acoustic model, and other relevant information, will also be presented to describe the noise generated by the mining activities.

The potential environmental harm of noise and vibration at all potentially sensitive places will be quantified in terms of the objectives, standards and indicators to be achieved. This will also include potential environmental harm on terrestrial animals and avifauna, particularly migratory species. Ameliorative measures, such as screening, lining, enclosing or bunding will be considered, if necessary, in order to minimise or eliminate these effects. If appropriate, timing schedules for the proposed construction activities will be discussed with respect to minimising environmental impacts from noise.

Consideration will be given to the emission of low frequency noise from major items of plant or equipment and, if necessary, measures will be described for reducing the intensity of these components.

Blasting activities at the CDMEP will be limited to low MIC blasts underground. Notwithstanding, information will be supplied on blasting which might cause ground vibration on or adjacent to the site, with particular attention given to sensitive places, including details of the magnitude, duration and frequency of any vibration. Measures to prevent or minimise environmental harm, including nuisance, will be discussed.

4.6 WASTE

This section will describe the existing environment values which may be affected by wastes from the CDMEP in the context of environmental values as defined by the EP Act, EPP and regulations, and the effects on those values from the management of wastes.

4.6.1 Environmental Values

This section will define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes; describes how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives will be monitored, audited and managed.

4.6.2 Potential Impacts and Mitigation Measures

This section will assess the potential impact of all wastes to be generated and provide details of each waste in terms of:

- operational handling and fate, including storage;
- proposed on-site treatment methods;
- proposed methods of disposal (including the need to transport wastes off-site for disposal) for any liquid and solid wastes;
- the potential level of impact on environmental values; and
- proposed discharge/disposal criteria for liquid and solid wastes;

Measures to insure ensure stability of the co-disposal areas will be described and methods to prevent, seepage and contamination of groundwater from stockpiles will be given. The EIS will also address waste minimisation techniques and processes proposed; the market demand for recyclable waste (where appropriate) and decommissioning of the site.

The EIS will indicate the results of investigations into the feasibility of using waste minimisation and cleaner technology options during all phases of the project having regard to the EPP Waste and EPWMR, and the draft guidelines covering aspects for waste management under the EPP Waste and EPWMR.

4.7 NATURE CONSERVATION

This section will describe the existing environment values for nature conservation that may be affected by the proposed activities in the context of environmental values as defined by the EPBC Act, EP Act, EPPs and regulations, and the *Nature Conservation Act 1992* (NCA).

4.7.1 Environmental Values

The environmental values of nature conservation for the affected area will be described in terms of:

- integrity of ecological processes, including habitats of rare and threatened species;
- conservation of resources;
- biological diversity, including habitats of rare and threatened species;
- integrity of landscapes and places, including wilderness and similar natural places; and
- terrestrial ecosystems; and
- matters of national environmental significance (MNES) protected under the EPBC Act.

A discussion will be presented on the nature conservation values of the areas likely to be affected directly or indirectly, by CDMEP and where relevant, rare and threatened flora and fauna communities, MNES and environmentally sensitive localities will be described in relation to potential impacts from CDMEP.

The EIS will include a plant species list, a vegetation map at an appropriate scale, and an assessment of the significance of native vegetation from a local, regional, State and Commonwealth perspective, including the Biodiversity Planning Assessment (BPA) produced by the EPA. Reference will be made the Queensland *Vegetation Management Act 2000* (VMA), including the findings of any Regional Vegetation Management Plan, the NCA and the EPBC Act.

The EIS will identify issues relevant to sensitive areas, or areas which may have low resilience to environmental change, and assess the capacity of the environment to assimilate discharges/emissions.

The occurrence of pest plants and animals in the CDMEP area will be described.

Should any key flora and fauna indicators be identified, further monitoring may be proposed. Surveys of flora and fauna within those areas not previously assessed as part of the investigations for the approved Carborough Downs Mine will be conducted at the appropriate time of year to reflect seasonal variation in communities and provide details of species structure, assembly, diversity and abundance and to identify migratory species.

Within each defined (standard system) vegetation community, three sites (a minimum of at least one site) will be surveyed for plant species, preferably in both summer and winter, as follows.

- Site data will be recorded in a form compatible with the Queensland Herbarium CORVEG database.
- The minimum site size will be 20 by 50 metres.
- A complete list of species present at each site will be recorded.
- The relative abundance of plant species present will be recorded.
- Any plant species of conservation, cultural, commercial or recreational significance will be identified.
- Specimens of species listed as Protected Plants under the NCR, other than common species, are to be submitted to the Queensland Herbarium for identification and entry into the HERBRECS database.

Where existing information on plant species is derived from surveys consistent with the above methodology, this information may be used instead of new survey work. The methodology used for flora surveys will be provided.

4.7.1.1 Terrestrial Flora

A terrestrial vegetation a map (at a suitable scale) will be provided, with descriptions of the units mapped. Sensitive or important vegetation types will be highlighted and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types discussed. The existence of rare or threatened species protected under State and Commonwealth legislation will be specifically addressed.

The location of any horticultural crops in the vicinity of the site will be shown and the existence of important local and regional weed species will also be discussed.

Vegetation mapping will identify:

- the CDMEP including new infrastructure and irrigation land, if relevant; and
- the terrestrial vegetation communities within the affected areas will be described at an appropriate scale (i.e. 1:10,000) with mapping produced from aerial photographs and ground truthing, showing:
    - the location and extent of vegetation types using the EPA's regional ecosystem type descriptions in accordance with the Regional Ecosystem Description Database [REDD];
    - the location of vegetation types of conservation significance based on EPA's regional ecosystem types and the occurrence of species listed as Protected Plants under the *Nature Conservation (Wildlife) Regulation 1994* (NCR) and subsequent amendments, as well as areas subject to the VMA;
    - the location and type of endangered ecological communities and endangered, rare and vulnerable flora under the EPBC Act.
    - the current extent (bioregional and catchment) of protected vegetation types of conservation significance within the protected area estate (National Parks, Conservation Parks, Resource Reserves, Nature Refuges); and
    - any plant communities of cultural, commercial or recreational significance.

4.7.1.2 Terrestrial Fauna

The terrestrial and riparian fauna occurring in the areas affected by the CDMEP will be described, noting the broad distribution patterns in relation to vegetation, topography and substrate. The description of the fauna present or likely to be present in the area will include:

- species diversity (i.e. a species list) and abundance, including amphibians, birds, reptiles, mammals and bats;
- any species which are poorly known but suspected of being rare or threatened under State and Commonwealth legislation;
- habitat requirements and sensitivity to changes, including movement corridors and barriers to movement;
- the existence of feral or exotic animals;
- endangered, rare and vulnerable fauna, migratory and other species as listed under the EPBC Act;

- existence of any endangered, rare, vulnerable, threatened or otherwise noteworthy species/communities in the study area, including discussion of range, habitat, breeding, recruitment, feeding and movement requirements, and current level of protection (e.g. any requirements of Protected Area Management Plans); and
- use of the area by migratory birds, nomadic birds and terrestrial fauna.

The EIS will indicate how well any affected communities are represented and protected elsewhere in the province where the site of the CDMEP occurs.

4.7.1.3 Aquatic Biology

Streams within and adjacent to the CDMEP are all ephemeral with limited aquatic flora and fauna occurring, if any. A description of the streams will be provided, noting any patterns and distribution in the waterways. The description of the fauna and flora present or likely to be present in the area will include:

- fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways within the affected area;
- aquatic plants;
- aquatic and benthic substrate; and
- habitat downstream of the CDMEP area.

4.7.2 Potential Impacts and Mitigation Measures

This section will define the objectives and practical measures for protecting or enhancing nature conservation environmental values; describe how nominated quantitative standards and indicators will be achieved for nature conservation management, and how the achievement of objectives will be monitored, audited and managed.

The EIS will address any proposed actions or likely impacts that will require a permit under the NCA, and/or would be assessable development for the purposes of the VMA, and will cover all likely direct and indirect potential environmental harm on flora and fauna, particularly on sensitive areas. Human impacts and the control of any domestic animals introduced to the area will also be described.

Strategies for protecting any rare or threatened species will be described, and any obligations imposed by State or Commonwealth legislation or policy or International treaty obligations (Japan and Australia Migratory Bird Agreement (JAMBA) and China and Australia Migratory Bird Agreement (CAMBA)) will be discussed.

The potential environmental harm to the ecological values of the area arising from the CDMEP such as clearing, salvaging or removal of vegetation will be described, and the indirect effects on remaining vegetation will be discussed. Short-term and long-term effects will be considered with comment on whether the impacts are reversible or irreversible. Mitigation measures and/or offsets will be proposed to compensate for adverse impacts. Any departure from no-net-loss of ecological values will be described.

The potential environmental harm on flora and fauna arising from any alterations to the local surface water and groundwater environment will be discussed with specific reference to environmental harms on riparian vegetation or other sensitive vegetation communities. A monitoring program and measures to mitigate the environmental harm to habitat and remaining endangered ecosystems; the inhibition of normal movement, propagation or feeding patterns, and change to food chains will be described if appropriate.

Similarly the provision of buffer zones and movement corridors, and strategies to minimise environmental harm on migratory, nomadic and aquatic animals, will be discussed, if relevant.

Weed management strategies aimed at containing existing weed species (that is, Parthenium and other declared plants) and ensuring no new declared plants are introduced to the area will be discussed, and feral animal management strategies will be addressed. Weed control strategies will include specific components relating to washdown procedures, education of on-site staff and reporting mechanisms during all phases of the CDMEP. The EIS will present strategies to ensure that the CDMEP does not contribute to increased encroachment of a feral animal species, with reference made to the local government authority pest management plans when determining control strategies. The strategies for flora, fauna and pest management will be discussed in the main body of the EIS and provided in a working form in a pest management plan as part of the overall EM Plan for the CDMEP.

Rehabilitation of disturbed areas will be discussed in the context of the existing rehabilitation approvals for the CDM.

The following information will be provided if areas are proposed to be cleared.

- The area of remnant vegetation listed by regional ecosystem (on both freehold and leasehold land).
- The area of non-remnant vegetation on leasehold land.

The EIS will outline mitigation measures, taking into consideration the Regional Vegetation Management Code for Ongoing Clearing Purposes for Nebo-Broadsound (Brigalow Belt Bioregion).

Areas regarded as sensitive with respect to flora and fauna have one or more of the following features and will be identified, mapped and, if relevant, avoided or the effects minimised.

- Important habitats of species listed under the NCA and/or EPBC Act as presumed extinct, endangered, vulnerable or rare.
- Regional ecosystems recognised by the EPA as 'endangered' or 'of concern' and/or ecosystems listed as presumed extinct, endangered or vulnerable under the EPBC Act.
- Good representative examples of remnant regional ecosystems or regional ecosystems which are poorly represented in protected areas.
- Sites containing near threatened or bio-regionally significant or EPBC-listed species or essential, viable habitat for near threatened or bio-regionally significant or EPBC-listed species.
- Sites in, or adjacent to, areas containing important resting, feeding or breeding sites for migratory species of conservation concern listed under the Convention of Migratory Species of Wild Animals, and/or bilateral agreements, and CAMBA.
- Sites containing common species which represent a distributional limit and are of scientific value or which contains feeding, breeding, resting areas for populations of echidna, koala, platypus and other species of special cultural significance.
- Sites containing high biodiversity that are of a suitable size or with connectivity to corridors/protected areas to ensure survival in the longer term; such land may contain:
    - natural vegetation in good condition or other habitat in good condition, for example, wetlands; and/or
    - degraded vegetation or other habitats that still supports high levels of biodiversity or acts as an important corridor for maintaining high levels of biodiversity in the area.
- A site containing other special ecological values, for example, high habitat diversity and areas of high endemism.
- Ecosystems which provide important ecological functions e.g. riparian vegetation, and important buffers to a protected area or, an important habitat corridor.
- Sites of palaeontologic significance such as fossil sites.
- Protected areas which have been proclaimed under the NCA or are under consideration for proclamation.
- Areas of major interest, or critical habitat declared under the NCA or high nature conservation value areas or areas vulnerable to land degradation under the VMA.

4.7.3 Matters of National Environmental Significance

This section will describe the Proposed Action as it would impact on MNES, including impacts on threatened or migratory species, populations and communities listed under the EPBC Act. This section will define the objectives and practical measures for protecting or enhancing environmental values of MNES; describe how nominated quantitative standards and indicators will be achieved for MNES, and how the achievement of objectives will be monitored, audited and managed.

A description of the affected environment relevant to the Controlling Provisions will be supplied (i.e. it will describe the features of the environment that are MNES matters protected under the EPBC).

This section will contain an assessment of impacts on MNES and mitigation measures. A monitoring program and measures to mitigate the environmental harm to habitat and remaining endangered ecological communities, migratory and other species; the inhibition of normal movement, propagation or feeding patterns, and change to food chains will be described if appropriate.

4.8 CULTURAL HERITAGE

This section will describe the existing cultural heritage values that may be affected by the proposed activities in the context of the *Aboriginal Cultural Heritage Act 2003* (ACH Act).

4.8.1 Environmental Values

A cultural heritage survey was undertaken over the area of the existing approved CDM during the preparation of the approved EMOS. Subject to the outcomes of discussions with the TOs, a cultural heritage survey of the expansion areas and an amendment to the existing CHMP may be required in order to describe indigenous and non-indigenous cultural heritage sites and places, and their values. Any studies undertaken will be in accordance with the ACH Act.

4.8.2 Potential Impacts and Mitigation Measures

This section will define and describe the objectives and practical measures for protecting or enhancing cultural heritage environmental values, describe how nominated quantitative standards and indicators may be achieved for cultural heritage management, and how the achievement of the objectives will be monitored, audited and managed.

The potential for environmental harm to cultural heritage values in the vicinity of the CDMEP will be managed under a revised CHMP which will expand upon the contents, procedures etc, presented in the CHMP for the existing approved CDM. The CHMP will provide a process for the management of both identified at subsurface cultural heritage places at the CDMEP site.

The amended CHMP will address and include the following.

- A process for including Aboriginal people associated with the CDMEP areas in protection and management of indigenous cultural heritage.
- Processes for mitigation, management and protection of identified cultural heritage places and material in the CDMEP site, including associated infrastructure developments, both during the construction and operational phases of the project.
- Provisions for the management of any cultural material accidentally discovered, e.g. including burial sites.
- The monitoring of foundation excavations and other associated earthwork activities for possible subsurface cultural material.
- Cultural awareness training or programs for CDMEP staff.
- A conflict resolution process.

The development of the CHMP will be discussed with the lead agency (DNRMW) and all stakeholder representatives.

Any collection of artefact material as part of a mitigation strategy will be undertaken in accordance with the CHMP.

4.9 SOCIAL

The function of this section will be to describe the existing social values which may be affected by the mining activities.

4.9.1 Environmental Values

The amenity and use of the CDMEP area and adjacent areas will be described, with consideration, where relevant, to the following. It should be noted, however, that the CDM is an existing approved and operating underground coal mine, with the CDMEP relating primarily to an increase in annual rate of production and two minor extensions to the existing mining lease. The following will be discussed in the EIS.

- Community infrastructure and services, access and mobility.
- Population and demographics.
- Local community values, vitality and lifestyles.
- Recreational, cultural, leisure and sporting facilities and activities.
- Health and educational facilities.
- On farm activities near the CDMEP.
- Current property values.
- Number of properties and or families directly affected by the CDMEP.

The environmental values of social attributes for the affected area will be described in terms of:

- the integrity of social conditions, including amenity and liveability, harmony and well being, sense of community, access to recreation, and access to social and community services and infrastructure; and
- public health and safety (refer **Section 4.10**).

4.9.2 Potential Impacts and Mitigation Measures

This section will describe the objectives and practical measures for protecting or enhancing social values, describe how nominated quantitative standards and indicators may be achieved for social impact management, and how the achievement of the objectives will be monitored, audited and managed.

The CDMEP social impact assessment will consider the information gathered in the community consultation program and the analysis of the existing socio-economic environment, and describe the CDMEP's impact (both beneficial and adverse) on the local community. The impacts of CDMEP on local and regional residents, community services and recreational activities will be analysed. The nature and extent of the community consultation program will be described and a summary of the results incorporated in the EIS.

The social impact assessment will, where relevant, consider:

- impacts on demographic, social, cultural and economic profiles;
- impacts on local residents, current land uses and existing lifestyles and enterprises;
- impacts on local residents' values and aspirations; and
- impacts on the ability of social infrastructure, such as health and education facilities, to meet the community's needs.

The EIS will describe changes to the existing CDM workforce as a consequence of the construction of the proposed additional infrastructure and its commissioning, as well as any consequential changes in the operational workforce, including any additional accommodation, community infrastructure or community services that will be required as a result of the CDMEP.

Estimates will be provided of:

a) Construction workforce,

that is, the number of workers to be employed on-site during the construction activities, including the number of sub-contractors and an outline of the recruitment schedule and policies for the recruitment of workers.

b) Commissioning and operational phase workforce,

that is, the number of workers to be employed on-site during any commissioning activities and of mine personnel in addition to those employed in the current mining operation.

With respect to accommodation of workers, the EIS will, if relevant, provide:

- an estimate of the number of additional employees that will be housed in the existing facilities;
- an estimate of the number of new workers who will be accompanied by dependents;

- a description of the existing facilities, and the circumstances of workers currently occupying the accommodation (i.e. single or accompanied);
- the spare capacity of the existing facilities and their suitability for housing the new workforce;
- details of the tenure of the existing facilities (that is, whether exclusively owned or managed by CDJV);
- the size of the private rental market in the catchment area, including caravan parks, backpacker hostels, hotel and motel accommodation;
- the current vacancy rate of rental accommodation, including an assessment of seasonal fluctuations;
- the availability and median cost of housing for purchase in the catchment area; and
- any identified constraints and opportunities for new housing construction in the catchment area, including the capacity of the local land development and housing construction industries to provide new housing.

The potential environmental harm on the amenity of adjacent areas will be discussed, together with the implications of the CDMEP for future developments in the local area.

4.10 HEATH AND SAFETY

4.10.1 Environmental Values

This section will describe the existing community values for health and safety which may be affected by the mining activities. Nearby and other potentially affected populations will be identified and described when assessing air and odour emissions from the CDMEP. Particular attention will be paid to those sections of the population, such as children and the elderly, that are especially sensitive to environmental health factors.

4.10.2 Potential Impacts and Mitigation Measures

This section will define and describe the objectives and practical measures for protecting or enhancing health and safety community values, describe how nominated quantitative standards and indicators may be achieved for social impact management, and how the achievement of the objectives will be monitored, audited and managed.

The EIS will assess the effects on the CDMEP workforce of occupational health and safety risks and the impacts on the community in terms of health, safety, and quality of life from project operations and emissions. Any impacts on the health and safety of the community, workforce, suppliers and other stakeholders from factors such as air emissions, odour, dust and noise will be detailed in terms of health, safety, quality of life.

Map(s) will be provided showing the locations of sensitive receptors, such as, but not necessarily limited to, kindergartens, schools, hospitals, aged care facilities, residential areas, and centres of work (e.g. office buildings, factories and workshops). The EIS, illustrated by the maps, will discuss how planned discharges from the CDMEP could impact on public health in the short and long term, and will include an assessment of the cumulative impacts on public health values caused by the proposal, either in isolation or by combination with other known existing or planned sources of contamination.

The EIS will address the CDMEP's potential for providing disease vectors. Measures to control mosquito and biting midge breeding will be described where applicable. Any use of recycled water will be assessed for its potential to cause infection by the transmission of bacteria and/or viruses by contact, dispersion of aerosols, and ingestion (e.g. via use on food crops). Similarly, the use of recycled water will be assessed for its potential to cause harm to health via the food chain due to contaminants such as heavy metals and persistent organic chemicals. Practical monitoring regimes will also be recommended.

4.11 ECONOMY

This section will describe the existing economic environment which may be affected by the CDMEP.

4.11.1 Environmental Values

The character and basis of the local and regional economies will be described, including:

- economic viability (including the economic base and economic activity) and future economic opportunities;

- current local and regional economic trends, in particular drought and 'rural downturn' etc;
- the existing housing market, particularly rental accommodation which may be available for the CDMEP workforce; and
- historical descriptions of large scale resource developments and their effects in the region.

The economic attributes of the area around the CDMEP will be described in terms of the integrity of economic conditions and the economic benefits to the affected communities.

An analysis of the economy of the impacted areas will be undertaken addressing, where relevant:

- economic viability – the economic base, level of economic activity and future economic opportunities;
- the types and numbers of businesses;
- existing property and land values; and
- availability and prices of goods and services.

4.11.2 Potential Impacts and Mitigation Measures

An economic analysis, including a cost-benefit analysis, will be presented from National, State, regional and local perspectives as appropriate to the scale of the CDMEP, and the general economic benefits from the project will be described.

Attention will be given to the short and long term effects of the CDMEP on the land-use of the surrounding area, regional income and employment, and the State economy.

4.12 HAZARD AND RISK

This section will describe the potential hazards and risks that may be associated with the CDMEP.

4.12.1 Environmental Values Affected

The environmental values likely to be affected by any hazardous materials and actions at the CDMEP, and the degree of risk and sensitivity of the environmental values at risk, will be detailed.

An analysis will be conducted into the potential impacts of both natural and induced emergency situations and assess counter-disaster and rescue procedures as a result of the CDMEP on sensitive areas and resources, State and Local Government controlled roads, places of residence and work, and recreational areas, as relevant.

4.12.2 Potential Impacts and Mitigation Measures

A preliminary hazard analysis (PHA) will be conducted for the CDMEP. The assessment will outline the implications for, and the impacts on surrounding land uses, and will involve consultation with Department of Emergency Services, Queensland Fire and Rescue Authority, and Queensland Ambulance Service. The PHA will:

- describe the processes, type of the machinery and equipment used;
- address all relevant hazards (minor and major) including potential wildlife hazards such as snakes, and disease vectors;
- assess the possible frequency of potential hazards, accidents, spillages and abnormal events occurring over the life of the CDMEP;
- provide an indication of cumulative risk levels to surrounding land uses;
- identify the life of any identified hazards;
- identify the hazardous substances to be used, stored, processed or produced and the rate of usage; and
- outline the public liability of the State for private infrastructure and visitors on public land.

5 CROSS REFERENCE WITH THE TERMS OF REFERENCE

This section provides a cross reference of the relevant sections of the EIS to the appropriate sections of the ToR.

6 ENVIRONMENTAL MANAGEMENT PLAN

The EM Plan for the CDMEP will be an integral part of the EIS, will be developed from the information in the EIS and set commitments to environmental management in order to protect the identified environmental values.

The EM Plan will be based on these commitments.

The general contents of the EM Plan will comprise:

- the CDJV's commitments to acceptable levels of environmental performance, including environmental objectives, i.e. levels of expected environmental harm, performance standards and associated measurable indicators, including progressive and final rehabilitation, performance monitoring and reporting;
- impact prevention and control strategies to satisfy the commitments; and
- corrective actions to rectify any deviation from performance standards.

Through the EM Plan, the commitments contained in the EIS to environmental performance can be used as regulatory controls through conditions to comply with those commitments. Therefore, the EM Plan is a relevant document for project approvals, environmental authorities and permits and may be referenced by them.

7 PUBLIC ACCESS TO DRAFT EIS

Matrix+ Consulting will place a copy of the draft EIS on its website for public access throughout the period of public review and consultation. A copy of the document will be made available for viewing by members of the public at the Matrix + consulting office, the CDJV office and at the Nebo Shire Council library. Copies of the draft EIS, in both bound and CDRom, form will also be made available for purchase from Matrix+ Consulting.

8 PREPARATION OF THE FINAL EIS

Following completion of the period of public review and consultation, the draft EIS shall be amended as appropriate to include:

a a list of the parties consulted (subject to their permission);

b a summary of all submissions and the account taken of the issues raised;

c any further assessment of environmental effects of the CDMEP;

d any additional strategies for managing the environmental effects; and

e any recommended changes to the proposed CDMEP area.

Matrix+ Consulting will prepare both bound and CDRom copies of the final EIS and place a copy on its website. In order to facilitate downloading of the information, the copy of the final EIS on the Matrix+ Consulting website will contain no individual file greater than 4MB.

9 INFORMATION SOURCES PROVIDED IN THE EIS

For information given in the EIS, the EIS will state:

a the source of the information;

b how recent the information is;

c the perceived reliability;

d how the reliability of the information was tested; and

e what uncertainties (if any) are in the information.

Matrix+ Consulting shall confirm that any such information remains current and fit for its use.

10 COMMUNITY CONSULTATION

CDJV proposes to undertake an extensive community consultation program in order to adequately address the various environmental, social and economic interests of community within Nebo Shire. This program will ideally

involve community representatives working with CDJV to identify and work towards the following objectives and the achievement of the best practicable environmental, social and economic outcomes for the local community.

1 Provide opportunities and seek community input into future uses for different types of land (or domains) on site that would provide the best possible environmental, economic and social outcomes for the local community.

2 Be open and accountable and meet, and where possible exceed, all requirements under the EP Act (i.e. Schedule of public advertisements).

3 Be used to develop a review process that:

- provides the broader community with opportunities to continually provide input; and
- ensures the various management plans evolve over time to reflect changing community values and advances in scientific knowledge.

Additionally all feedback will be recorded and used to aid the development of criteria that could subsequently be used to judge whether CDJV's future rehabilitation efforts are successfully progressing towards developing that land (or domain) for its proposed future use.

The community and stakeholder involvement process will provide an opportunity for community issues and concerns to influence the nature of the expansion. All comments received through the stakeholder and community consultation process will be summarised into broad issues for inclusion in technical and planning processes.

Table 1 details the consultation activities that are to specifically meet the information and feedback needs for the various community stakeholders.

Table 1 Proposed Consultation Activities

Task	Stage	Consultation Activity
Introduce project to key local and State Government stakeholders	Prior to release of IAS.	One-to-one meetings with EPA, DNRMW, DMR and Nebo Shire Council.
Introduce project to directly and indirectly-affected landholders and utilities and service providers.	Release IAS/draft TOR for public comment.	Public advertisement of IAS/draft TOR and invitation to comment.
Provide results of environmental studies to stakeholders.	Draft EIS.	Public advertisement of draft EIS and request comments. Mail-out to key project stakeholders.
Provide information sessions for all interested stakeholders.	During public comment period on draft EIS.	Open day workshop with Matrix + Consulting and CDJV personnel where the community can meet with project team and ask any questions about the project.
Consultation with stakeholders who lodge submissions.	Following public comment on draft EIS.	One-to-one meetings with individual stakeholders, as necessary.

The concerns of the relevant local, State and Commonwealth agencies, service and utility providers, community groups, affected property owners and individuals shall be identified and addressed in the EIS. All consultation will be clearly documented including what issues were raised and how they were dealt with. Results of consultation will be included in the EIS.

11 REFERENCES

All references consulted will be presented in the EIS in a recognised format.

12 RECOMMENDED APPENDICES

A1 FINAL TERMS OF REFERENCE FOR THIS EIS

A copy of the final ToR will be included in the EIS. If it is intended to bind appendices in a separate volume from the main body of the EIS, the TOR at least will be bound with the main body of the EIS for ease of cross-referencing. A summary, cross-referencing specific items of the TOR to the relevant section of the EIS, will also be provided at the end of Section 4 of the EIS. For this purpose, the TOR will be line numbered.

A2 DEVELOPMENT APPROVALS

A list of approvals required by the CDMEP will be presented.

A3 THE STANDARD CRITERIA

A brief summary of the compatibility of the CDMEP project with the ESD policy and other relevant policy instruments, such as the Standard Criteria as defined by the EP Act, will be presented. Consideration will focus on The National Strategy for ESD, (Commonwealth Government, December 1992). Each principle will be discussed and conclusions drawn as to how the CDMEP conforms. A life-of-project perspective will also be shown.

A4 RESEARCH

Any proposals for researching alternative environmental management strategies or for obtaining any further necessary information will be outlined in an appendix.

A5 CONSULTATION REPORT

A list of referral agencies will be provided in a summary Consultation Report, which will also list the Commonwealth, State and Local Government agencies and the individuals and groups of stakeholders consulted. The discussion will include the methodology used in the community consultation program, including the criteria used for identifying stakeholders and the communication methods employed.

A summary of the issues raised by these parties, and the means by which the issues were considered in finalising the EIS, will be provided.

Information about identifying affected parties and interested and/or affected persons will be included.

A6 STUDY TEAM

The qualifications and experience of the study team, and specialist sub-consultants and expert reviewers will be provided.

A7 GLOSSARY OF TERMS

A glossary of technical terms and acronyms will be provided.

A8 SPECIALIST STUDIES

All reports on specialist studies undertaken as part of the EIS will be included as appendices. Based on the issues identified with respect to the existing CDM, the specialist investigations undertaken for that project and the experience of Matrix+ Consulting with similar ventures, it is considered likely that specialist investigations will be undertaken in the following fields.

- Flora and fauna (of the expansion areas).
- Surface hydrology.
- Groundwater.
- Soils of the expansion area.

- Subsidence on the expansion area.
- Economic and social environment issues.
- Hazard and risk.
- Land use and land capability of the expansion area.

A9 CORPORATE ENVIRONMENTAL POLICY

CDJV will include a copy of its corporate environmental policy and planning framework document.

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