

1 Introduction

1.1 Overview

Xstrata Mangoola Pty Limited (Xstrata Mangoola) operates the Mangoola Coal open-cut coal mine (Mangoola Coal), approximately 20 kilometres (km) west of Muswellbrook and 10 km north of Denman (refer to Figure 1.1). Project approval 06_0014 (PA 06_0014) for Mangoola Coal was originally granted in June 2007 under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Xstrata Mangoola, a wholly owned subsidiary of Xstrata Coal (NSW) Pty Limited (XCN), purchased Mangoola Coal (formerly the Anvil Hill Project) in late 2007. Xstrata Mangoola was granted a mining lease on 20 November 2008 and, after a period of construction, commenced mining operations in September 2010.

Xstrata Mangoola regularly reviews its mining operation to assess current performance and identify improvement opportunities. Since acquisition in 2007, this has resulted in modifications to PA 06_0014 (Modifications 1 to 5) which improved overall efficiencies and operation of the mine (see Chapter 3 for further detail of these prior modifications). Any references to PA 06_0014 in this document refer to the project approval as modified which is attached as Appendix A. Operations at Mangoola Coal approved under PA06_0014 are referred to herein as the 'current operations'.

Xstrata Mangoola has identified further opportunities to improve efficiency and resource utilisation and is seeking a modification primarily aimed at increasing mining intensity. The increase in mining intensity can be achieved due to efficiencies already realised in the operation of the Coal Handling and Preparation Plant (CHPP). Hereafter, this project will be referred to as Modification 6 (the proposed modification).

To implement these efficiencies, Xstrata Mangoola is seeking approval from the Minister for Planning and Infrastructure (or the Planning Assessment Commission (PAC) under delegation) to further modify PA 06_0014 under section 75W of the EP&A Act. The key modification sought is an increase in the maximum rate of extraction from 10.5 million tonnes per annum (Mtpa) run-of-mine (ROM) coal to 13.5 Mtpa ROM coal. Associated with this change are the following key aspects:

- increase in equipment numbers to support increased mining intensity (though the operation will remain a truck and shovel/excavator operation);
- increase in employee numbers to support additional equipment and operational needs and requirements. Up to 150 additional employees, employed over the next few years to meet peak operational capacity and continue to maintain a safe and efficient operation. Additionally, up to 90 full-time equivalent (FTE) contractors may also be required and are considered in this assessment;
- amendment to blasting conditions to increase frequency of blasting from five blasts per week to six blasts per week and removing the condition relating to maximum instantaneous charge (MIC);
- re-define one temporary ROM stockpile to a permanent (life-of-mine) ROM stockpile;
- utilisation of suitable mined waste rock for on-site gravel production. Up to 50,000 tonnes per annum (tpa) of gravel may be crushed for use on-site; and
- discharge of saline water to the Hunter River under the rules and regulations of the Hunter River Salinity Trading Scheme (HRSTS).

An overview of key infrastructure under the proposed modification is shown in Figure 1.2.

The proposed modification will be undertaken within the existing approved project disturbance boundary (refer to Figure 1.2) which is not proposed to be increased or extended. The proposed modification can be achieved through efficiencies already realised at the CHPP and relatively minor alterations to site infrastructure with minimal environmental consequences expected beyond the current approval.

EMGA Mitchell McLennan Pty Limited (EMM) has been engaged by Xstrata Mangoola to prepare an environmental assessment (EA) to accompany an application under section 75W of the EP&A Act for the proposed modification.

1.2 Stakeholder engagement

Xstrata Mangoola undertook a program of stakeholder engagement with the community which included engagement with the community consultative committee (CCC), as well as meetings with near neighbours and a community information session with the wider community.

An integral part of the stakeholder engagement process for the proposed modification is the identification of the interactions between Mangoola Coal and stakeholders. In addition to consultation with neighbouring and local communities undertaken by Mangoola Coal, a social impact and opportunities assessment (SIOA) was undertaken by Coakes Consulting. A key objective was to identify potential social impacts of the proposed modification on neighbouring and local communities, and assess and develop strategies to address these matters for both Mangoola Coal's operations generally, and also for the proposed modification. Consultation with the local community, service providers and key regional stakeholder groups has been a primary component of the SIOA program, and is described further in Chapters 6 and 12, and in the SIOA in Appendix I.

During the preparation of this EA, stakeholders were provided opportunities to discuss and provide feedback on the proposed modification through face-to-face meetings, the distribution of community fact sheets, community information sessions, and presentations at CCC meetings. Xstrata Mangoola has also provided information on its website regarding the proposed modification. This EA has taken into account matters raised by stakeholders during this consultation and addressed the areas of concern where relevant to this proposed modification. Further details on the stakeholder engagement process are provided in Chapter 6.

1.3 Purpose of this report

The purpose of this report is to provide an assessment of the potential environmental, social and economic effects of the proposed modification and details of stakeholder consultation undertaken in accordance with the Director-General's Requirements (DGRs). This information allows the relevant consent authority, either the Minister for Planning and Infrastructure or the PAC, to make a determination on the application. The statutory framework for the proposed modification is detailed in Chapter 5.

1.4 Director-General's Requirements

A request for DGRs was submitted to the Director-General of the Department of Planning and Infrastructure (DP&I) on 8 November 2012 along with a letter briefing the DP&I on the potential environmental, social and economic impacts of the proposed modification. The DGRs were issued on 3 December 2012 and are provided as Appendix B.

As required under section 78A of the EP&A Act, this EA has been prepared in accordance with the DGRs. A list of each of the requirements and the relevant sections of the EA that address the requirements are provided in Table 1.1. Each technical report also includes a list of DGRs related to the particular aspect and a reference where each of these has been addressed within that report.

Table 1.1 Summary of Director-General's Requirements

Requirement	EA reference
General Requirements	
The Environmental Assessment (EA) for the modification must meet the form and content requirements in clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000.	
In addition, the EA must include a:	
- detailed description of the proposed modification, including: - need for the proposal; - justification for the proposed mine plan, including alternatives considered, efficiency of resource recovery, mine safety, and environmental protection; - likely staging of the proposal - including construction, operational stage/s and rehabilitation; - likely interactions between the proposal and existing, approved and proposed mining operations in the vicinity of the site; - plans of any proposed building works;	Chapter 4 and Section 18.2
consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments;	Section 5.2
risk assessment of the potential environmental impacts of the proposal, identifying the key issues for further assessment;	Chapter 7
- detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (above), including: - a description of the existing environment, using sufficient baseline data; - an assessment of the potential impacts of all stages of the proposal, including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and statutes; and - a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the proposal, including proposals for adaptive management and/or contingency plans to manage any significant risks to the environment; and	Chapters 8 – 13
consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EA.	Section 17.2
The EA must be accompanied by a report from a qualified quantity surveyor providing:	
a detailed calculation of the capital investment value (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all the assumptions and components from which the capital investment value calculation is derived.	Attached to DA
Key Issues	
The EA must address the following specific matters:	
Air Quality – including a quantitative assessment of potential:	
construction and operational impacts, with a particular focus on dust emissions including PM_{2.5} and PM₁₀ emissions;	Section 9.4
reasonable and feasible mitigation measures to minimise dust emissions, including evidence that there are no such measures available other than those proposed; and	Table 9.2

Table 1.1 Summary of Director-General's Requirements

Requirement	EA reference
monitoring and management measures, in particular real-time air quality monitoring;	Section 9.5
Noise, Vibration and Blasting – including a quantitative assessment of potential:	
construction, operational and off-site transport noise impacts;	Section 8.3
blasting impacts on people, livestock and property;	Section 8.3
reasonable and feasible mitigation measures, including evidence that there are no such measures available other than those proposed; and	Section 3.3 in Appendix E
monitoring and management measures, in particular real-time, attended noise monitoring and predictive meteorological forecasting;	Section 8.4
Water Resources – including:	
a detailed site water balance, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures;	Section 4.2 in Appendix H
- assessment of potential impacts on the quality and quantity of existing surface water and ground water resources, including: - detailed information of potential impacts associated with proposed discharges under, and in compliance with, the Hunter River Salinity Trading Scheme; and - impacts on riparian, ecological, geo-morphological and hydrological values of watercourses, including environmental flows;	Sections 11.3 and Section 11.3.5 and 16.2
Social and Economic – including an assessment of the:	
potential direct and indirect economic benefits of the proposal for local and regional communities and the State;	Sections 13.2 and 13.3.
- potential impacts on local and regional communities, including: - increased demand for local and regional infrastructure and services (such as housing, childcare, health, education and emergency services); and - impacts on social amenity;	Chapter 12
a detailed description of the measures that would be implemented to minimise the adverse social and economic impacts of the proposed modification, including any infrastructure improvements or contributions and/or voluntary planning agreement or similar mechanism; and	Chapter 12
a detailed assessment of the costs and benefits of the proposed modification as a whole, and whether it would result in a net benefit for the NSW community.	Section 13.2
Traffic and Transport – including:	
a detailed assessment of potential impacts of the proposal on the capacity, efficiency and safety of the road and rail networks;	Sections 10.4 and 10.5
a description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road and rail networks over the life of the project;	Section 10.6
References	
The environmental assessment of the key issues listed above must take into account relevant guidelines, policies and plans. While not exhaustive, the following attachment contains a list of guidelines, policies and plans that may be relevant to the environmental assessment of this modification.	
Consultation	
During the preparation of the EA, you must consult with the relevant local, State and Commonwealth Government authorities, service providers, community groups or affected landowners. The consultation process and the issues raised must be described in the EA. In particular you must consult with the:	Chapter 6

Table 1.1 Summary of Director-General's Requirements

Requirement	EA reference
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities; - Office of Environment and Heritage (including the Heritage Branch); - Environment Protection Authority; - Division of Resources and Energy within the Department of Trade and Investment, Regional Infrastructure and Services; - Department of Primary Industries (including the NSW Office of Water, Agriculture and Fisheries sections, Catchments and Lands (Crown Lands Division)); - NSW Health; - Transport for NSW (including the Centre for Transport Planning, and Roads and Maritime Services); - Australian Rail Track Corporation, and downstream coal chain operators including RailCorp and Newcastle Ports Corporation; - Hunter Central Rivers Catchment Management Authority; - Muswellbrook Council.	
The EA must:	
describe the consultation process used and demonstrate that effective consultation has occurred;	Section 6.3
describe the issues raised by public authorities, service providers, community groups and landowners;	Sections 6.3 and 6.4
identify where the design of the proposed modification has been amended in response to issues raised; and	Section 4.12
otherwise demonstrate that issues raised have been appropriately addressed in the assessment.	Sections 4.12 and 6.5

1.5 Structure of this EA

The EA provides a main overview volume (Volume 1) supported by the technical specialist studies which are given in Volumes 2 to 4. Volume 1 is structured as follows:

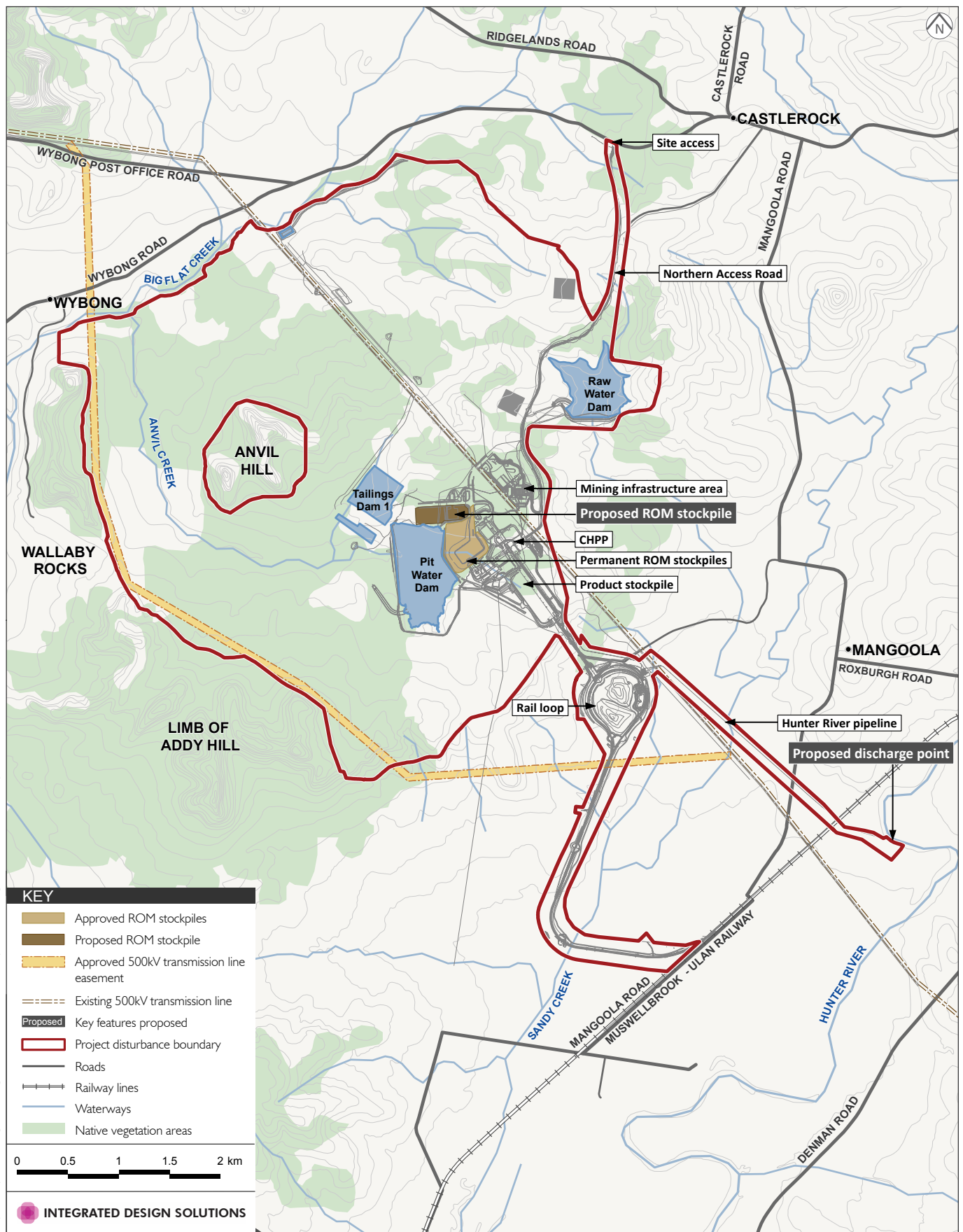
- Executive summary;*
- Chapter 1 Introduction* – provides an introduction to the proposed modification, including information about the applicant and context;
- Chapter 2 Site and context* – provides a description of the site locally and regionally;
- Chapter 3 Current operations* – provides a description of the current operations and approval history;
- Chapter 4 Modification description* – provides a description of the proposed modification;
- Chapter 5 Statutory approvals* – describes the relevant planning and environmental approvals for the proposed modification;

- *Chapter 6 Stakeholder engagement* – describes the consultation process with stakeholders, including the local community and government agencies, and the matters raised and references sections of the document where these matters have been addressed;
- *Chapter 7 Environmental risk assessment* – outlines the preliminary environmental risk assessment and the environmental matters to be addressed in the EA;
- *Chapters 8 to 16* provide details on the environmental interactions of the proposed modification in relation to:
 - noise and vibration (technical report in Appendix E);
 - air quality and greenhouse gas (technical report in Appendix F);
 - traffic and transport (technical report in Appendix G);
 - surface water (technical report in Appendix H);
 - social (technical report in Appendix I);
 - economics (technical report in Appendix J);
 - visual and lighting (technical report in Appendix K);
 - agriculture; and
 - other matters.

These chapters provide a description of the existing environment, predicted impacts from the proposed modification, and a description of the management and monitoring measures for implementation;

- *Chapter 17 Statement of commitments* – describes the measures which Xstrata Mangoola will take to avoid or mitigate potential adverse environmental impacts of the proposed modification as well as proposed changes to conditions within PA 06_0014; and
- *Chapter 18 Justification and conclusion* – provides justification for the proposed modification taking into account the positive and negative social, economic and environmental impacts as well as the principles of ecologically sustainable development (ESD).

The study team responsible for preparation of the EA and the technical assessments is detailed in Appendix C of this EA.



Key features of the proposed modification

Mangoola Coal Modification 6 Environmental Assessment

Figure I.2