



XSTRATA COAL:

## **Tahmoor Colliery – Longwalls 27 to 30**

Management Plan for Potential Impacts to the Picton-Mittagong Loop Line

## AUTHORISATION OF MANAGEMENT PLAN

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## DOCUMENT REGISTER

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## CONTENTS

<b>1.0 INTRODUCTION</b>	<b>4</b>
1.1. Background	4
1.2. Objectives	5
1.3. Scope	6
1.4. Proposed Mining Schedule	6
<b>2.0 RISK MANAGEMENT METHOD</b>	<b>8</b>
2.1. General	10
2.1.1. Consequence	10
2.1.2. Likelihood	11
2.1.3. Hazard	11
2.1.4. Risk	12
<b>3.0 RISK ASSESSMENT</b>	<b>15</b>
3.1. Picton-Mittagong Loop Line	15
3.2. Hazard Identification	15
3.3. Hazard 1 – Railway Tracks and Ballast	16
3.4. Hazard 2 – Cracking to Culverts	17
3.5. Hazard 3 – Loss of Drainage to Culverts	18
3.6. Summary of Risk Analysis for Picton-Mittagong Railway Loop Line	19
<b>4.0 RISK CONTROL PROCEDURES</b>	<b>20</b>
<b>5.0 CONTACT LIST</b>	<b>22</b>

### 1.1. Background

Tahmoor Colliery is located approximately 80 kilometres south west of Sydney in the township of Tahmoor NSW. It is managed and operated by Xstrata Coal. Tahmoor Colliery has previously mined 26 longwalls to the north and west of the mine's current location. It is currently mining Longwall 27.

Longwall 27 is a continuation of a series of longwalls that extend into the Tahmoor North Lease area, which began with Longwall 22. The longwall panels are located between the Bargo River in the south-east, the township of Thirlmere in the west and Picton in the north. The Picton-Mittagong Loop Line is located at a distance of more than 500 metres north west of these areas, as shown in Fig. 1.1.

Longwall 27 is approximately 283 metres wide (rib-to-rib) and approximately 3.0 kilometres long. Longwalls 28 to 30 are the same width but become progressively shorter down to 2200 metres. The width of the chain pillars between all longwalls are 40 metres.

This Management Plan provides detailed information about how the risks associated with the mining of Longwalls 27 to 30 will be managed by Tahmoor Colliery and the NSW Rail Transport Museum.

The Management Plan is a live document that can be amended at any stage of mining, to meet the changing needs of Tahmoor Colliery and the NSW Rail Transport Museum.

### 1.2. Objectives

The objectives of this Management Plan are to establish procedures to measure, control, mitigate and repair potential impacts that might occur on the Picton-Mittagong Loop Line.

The objectives of the Management Plan have been developed to:-

- Ensure the safe and serviceable operation of railway infrastructure. Public and workplace safety is paramount. Disruption and inconvenience should be kept to minimal levels.
- Initiate action to mitigate or remedy potential significant impacts that are expected to occur on the surface.
- Provide a plan of action in the event that the impacts of mine subsidence are greater than those that are predicted.
- Provide a forum to report, discuss and record impacts to the surface. This will involve Tahmoor Colliery, the Rail Transport Museum, Mine Subsidence Board, NSW Department of Trade and Investment, Regional Infrastructure and Services, Division of Resources and Energy (DTIRIS), and consultants as required.
- Establish lines of communication.

### 1.3. Scope

The Management Plan is to be used to protect and monitor the condition of the items of infrastructure identified to be at risk due to mine subsidence. The major items at risk are:-

- Railway track and ballast
- Culverts

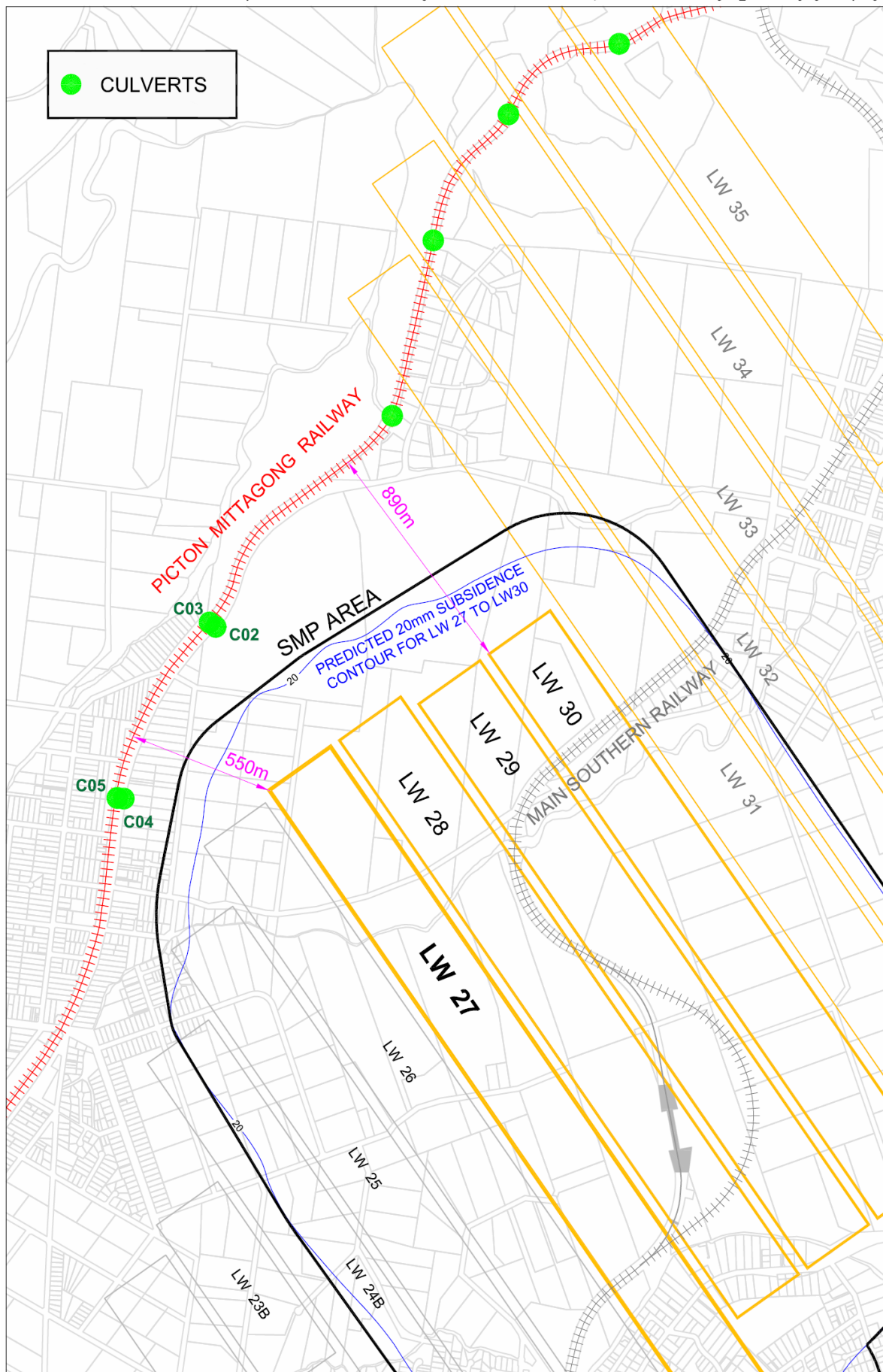
The Management Plan describes measures that will be undertaken as a result of mining Longwalls 27 to 30.

### 1.4. Proposed Mining Schedule

It is planned that each longwall will extract coal working northwest from the southeastern ends. This Management Plan covers longwall mining until completion of mining in Longwall 30 and for sufficient time thereafter to allow for completion of subsidence effects. The current schedule of mining is shown in Table 1.1.

**Table 1.1 Schedule of Mining**

Longwall	Start Date	Completion Date
Longwall 27	November 2012	October 2013
Longwall 28	November 2013	July 2014
Longwall 29	August 2014	February 2015
Longwall 30	March 2015	October 2016



**Fig. 1.1 Location of Railway Lines near Longwalls 27 to 30**

## 2.1. General

The Australian/New Zealand standard for Risk Management defines the terms used in the risk management process, which includes the identification, analysis, assessment, treatment and monitoring of risk. In this context:-

### 2.1.1. Consequence

'The outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. There may be a range of possible outcomes associated with an event.'<sup>1</sup> The consequences of a hazard are rated from very slight to very severe.

### 2.1.2. Likelihood

'Used as a qualitative description of probability or frequency.'<sup>2</sup> The likelihood can range from very rare to almost certain.

### 2.1.3. Hazard

'A source of potential harm or a situation with a potential to cause loss.'<sup>3</sup>

### 2.1.4. Risk

'The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.'<sup>4</sup> The risk combines the likelihood of an impact occurring with the consequence of the impact occurring. The risk is rated from very low to extreme. In this study, the likelihood and consequence are combined via the qualitative risk analysis matrix shown in Table 2.1, to determine an estimated level of risk for particular events or situations.

The Risk Analysis Matrix is similar to the example provided in AS/NZS 4360:1995, Appendix D, p.25.

**Table 2.1 Qualitative Risk Analysis Matrix**

Likelihood	CONSEQUENCES				
	Very Slight	Slight	Moderate	Severe	Very Severe
Almost Certain	Low	Moderate	High	Extreme	Extreme
Likely	Low	Moderate	High	Very High	Extreme
Moderate	Low	Low	Moderate	High	Very High
Unlikely	Very Low	Low	Moderate	High	High
Rare	Very Low	Very Low	Low	Moderate	High
Very Rare	Very Low	Very Low	Low	Moderate	Moderate

This Management Plan adopts a common system of nomenclature to summarise each risk analysis, which is **“LIKELIHOOD / CONSEQUENCE → LEVEL OF RISK”**.

For example, if the likelihood of a risk is assessed as **“UNLIKELY”**, and the consequence of a risk is assessed as **“SEVERE”**, the risk analysis would be summarised as **“UNLIKELY / SEVERE → HIGH”**.

<sup>1</sup> AS/NZS 4360:1999 – Risk Management pp2

<sup>2</sup> AS/NZS 4360:1999 – Risk Management pp2

<sup>3</sup> AS/NZS 4360:1999 – Risk Management pp2

<sup>4</sup> AS/NZS 4360:1999 – Risk Management pp3

### 3.1. Picton-Mittagong Loop Line

The NSW Rail Transport Museum operates trains along the Picton-Mittagong Loop Line. Trains usually run on weekends, with occasional special events on weekdays.

The Picton-Mittagong Loop Line is located at a distance of more than 500 metres north west of Longwall 27, at its closest point to the proposed longwalls. The loop line is located well outside the predicted limit of subsidence, taken as the predicted 20 mm subsidence contour resulting from the extraction of Longwalls 27 to 30. It is unlikely, therefore, that the extraction of the proposed longwalls would result in any significant impacts on the Picton-Mittagong Loop Line.

### 3.2. Hazard Identification

Three hazards have been identified that are associated with mine subsidence impacts on the Picton – Mittagong Loop Line:-

1. The hazard that railway tracks may become unsafe or unserviceable as a result of mine subsidence movements.
2. The hazard that culverts may crack.
3. The hazard that culverts may not drain.

The likelihood and consequence of each hazard and the associated level of risk are discussed in the following sections.

#### 3.3. Hazard 1 – Railway Tracks and Ballast

The Picton-Mittagong Loop Line is located well outside the predicted limit of subsidence. The railway tracks are therefore not expected to experience any adverse impacts as a result of the proposed mining.

The likelihood of any impacts occurring on the railway tracks and ballast is therefore considered **VERY RARE**.

If any impact occurs, it is likely that the impact will be minor in nature, particularly given that the track consists of short lengths connected by fish plates. Given that the Rail Transport Museum inspects the track prior to operating its trains, the consequence of any minor is considered **SLIGHT**.

The level of risk can therefore be considered **VERY RARE / SLIGHT → VERY LOW**.

#### 3.4. Hazard 2 – Cracking to Culverts

All culverts are located well outside the predicted limit of subsidence. Culverts located in watercourses can also experience closure and upsidence movements. Given that the culverts are located in shallow watercourses at distances of more than 500 metres from the proposed longwalls, closure and upsidence movements, if they were to occur, will be very small (less than 5 mm).

The likelihood of any cracking occurring on culverts, as a result of mine subsidence, is therefore considered **VERY RARE**.

If any cracking occurs, it is likely that the impact will be minor in nature, which could be easily repaired. The consequence of any impact is therefore considered **SLIGHT**.

The level of risk can therefore be considered **VERY RARE / SLIGHT → VERY LOW**.

#### 3.5. Hazard 3 – Loss of Drainage to Culverts

All culverts are located well outside the predicted limit of subsidence. It is therefore extremely unlikely that the culverts will experience any changes in gradient. The likelihood of loss of drainage to the culverts as a result of mining is therefore considered **LESS THAN VERY RARE**. Further risk analysis has therefore not been completed.

### 3.6. Summary of Risk Analysis for Picton-Mittagong Railway Loop Line

A summary of the level of risk for the Picton-Mittagong Railway Loop Line is provided in Table 3.1 below.

**Table 3.1 Risk Analysis Matrix for Picton-Mittagong Railway Loop Line**

Risk	Likelihood	Consequence	Level of Risk
Impacts to Railway Tracks and Ballast	VERY RARE	SLIGHT	VERY LOW
Cracking to culverts	VERY RARE	SLIGHT	VERY LOW
Loss of drainage to culverts	LESS THAN VERY RARE		

## 4.0 RISK CONTROL PROCEDURES

Given that the Picton-Mittagong Loop Line is located at a distance of more than 500 metres from the proposed longwalls, potential impacts on the railway will be managed by standard Rail Transport Museum procedures.

The standard procedures include an inspection of the track and ballast prior to operating trains. Any track defects will be repaired by the Rail Transport Museum prior to operating trains on the track. The costs of any repairs caused by mine subsidence will be claimed from the Mine Subsidence Board.



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