



XSTRATA COAL:
Tahmoor Colliery - Longwall 27

Management Plan for Potential Impacts to Tahmoor Town Centre

AUTHORISATION OF MANAGEMENT PLAN

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DOCUMENT REGISTER

Date	Report No.	Rev	Comments
06-Mar-06	MSEC286-0701	A	Initial Draft
10-Mar-06	MSEC286-0701	B	Draft for submission to Tahmoor Town Centre
06-Jun-06	MSEC286-0701	C	Agreed plan
07-Aug-06	MSEC286-0701	D	Chapter 1 amended, as agreed in Plan Review Meeting, 7 August 2006
15-Sep-08	MSEC286-0701	E	Updated for Longwalls 25 and 26
Dec-10	MSEC446-10	A	Updated for Longwall 26
31-Oct-12	MSEC567-10	A	Updated for Longwall 27

References:-

AS/NZS 4360:1999 Risk Management

Tahmoor Colliery Longwalls 27 to 30 - *The Prediction of Subsidence Parameters and the Assessment of Mine Subsidence Impacts on Natural Features and Items of Surface Infrastructure due to mining Longwalls 27 to 30 at Tahmoor Colliery in support of the SMP Application.* (Report MSEC355, Revision B, July 2009), prepared by Mine Subsidence Engineering Consultants

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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.

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. A portion of each longwall is located beneath the urban area of Tahmoor. Tahmoor Town Centre is located within these areas.

Longwall 27 is approximately 283 metres wide (rib-to-rib) and approximately 3.0 kilometres long. The width of the chain pillar between Longwalls 26 and 27 is 40 metres.

This Management Plan provides detailed information about how the risks associated with the mining beneath potable water infrastructure will be managed by Tahmoor Colliery and Tahmoor Town Centre.

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 Tahmoor Town Centre.

1.2. Location

The Tahmoor Town Centre is located on the corner of Remembrance Drive and Thirlmere Way. The shopping centre contains a supermarket, a number of retail shops, a restaurant and a petrol station.

Tahmoor Town Centre is located between Longwalls 24A and 24B and to the side of Longwall 25, as shown in Fig. 1.1. Longwall mining has not occurred directly beneath it. The closest distance between Tahmoor Town Centre and Longwall 27 is 640 metres.

This Management Plan provides detailed information about how the risks associated with mining Longwall 27 will be managed by Tahmoor Colliery and Tahmoor Town Centre. 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 Tahmoor Town Centre.

1.3. Objectives

The objectives of this Plan are to establish procedures to measure, control, mitigate and repair potential impacts that might occur on surface infrastructure owned by Tahmoor Town Centre. The objectives of the Management Plan have been developed to:-

- Ensure the safe and serviceable operation of all surface infrastructure. Public and workplace safety is paramount. Disruption and inconvenience should be kept to minimal levels.
- Monitor ground movements and the condition of surface infrastructure during mining.
- 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, Tahmoor Town Centre, the Mine Subsidence Board and consultants as required.
- Establish lines of communication and emergency contacts.

1.4. 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:-

- Structures
- Petrol station
- Services
- Access and mobility
- Finishes
- Food Preparation Areas
- Carpark

The Plan applies to both common areas and tenancies in the Centre.

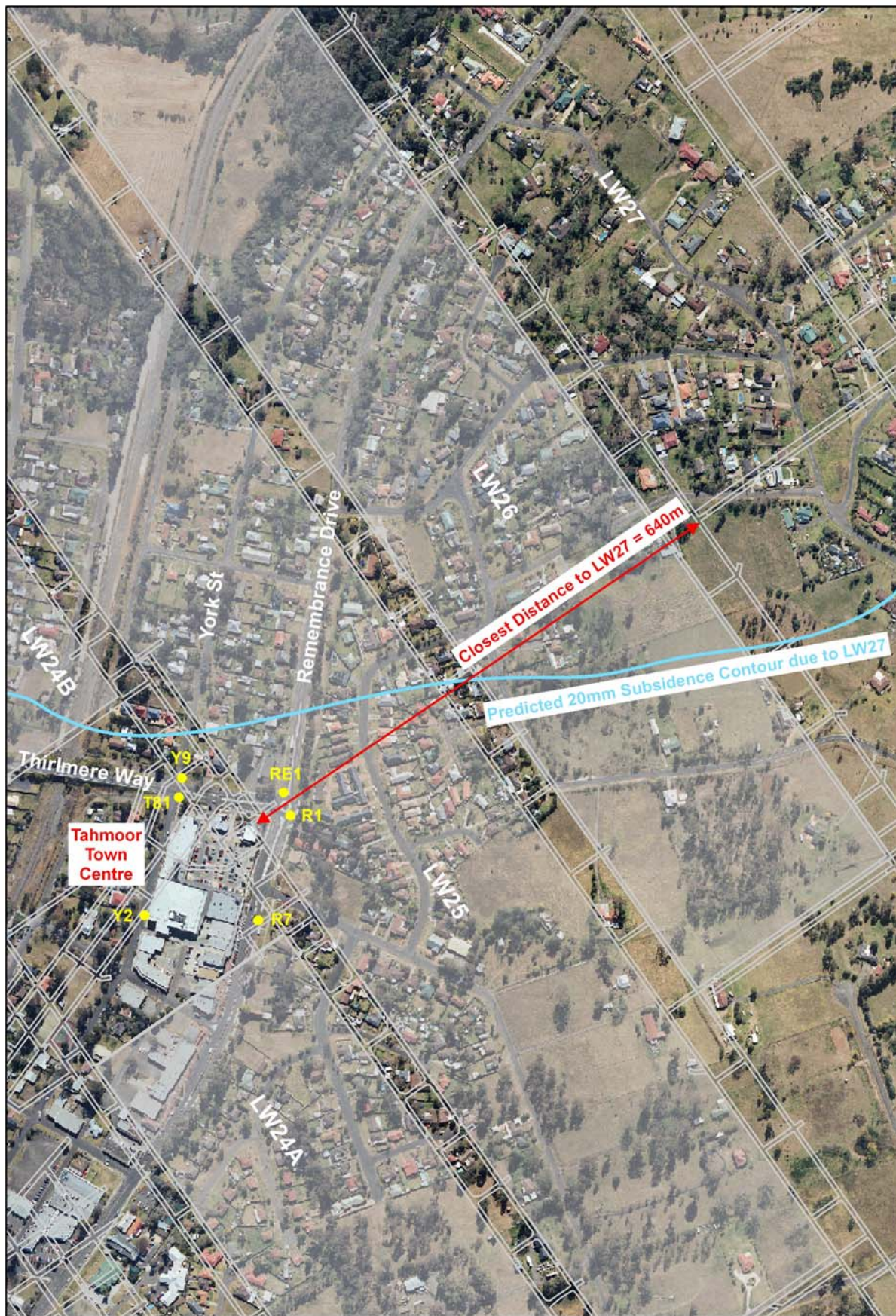


Fig. 1.1 Aerial photograph of Tahmoor Town Centre overlaid with Mine Plan

2.1. Observations during Longwalls 22 to 26

2.1.1. Survey results along surrounding streets

Survey marks have monitored subsidence around Tahmoor Town Centre during the mining of Longwalls 24B to 26. The development of subsidence over time around the four corners of Tahmoor Town Centre is shown in Fig. 2.1. The locations of the survey pegs are shown in Fig. 1.1.

It can be seen that the majority of movements occurred during the mining of Longwall 25. The additional subsidence due to the extraction of Longwall 26 was relatively small. For example, the total measured subsidence at Peg R1 (corner of Thirlmere Way and Remembrance Drive) is 570 mm, of which approximately 90 mm of additional subsidence developed during the mining of Longwall 26.

There was no evidence of irregular non-systematic movement along these monitoring lines in the vicinity of the Tahmoor Town Centre during the mining of Longwall 26.

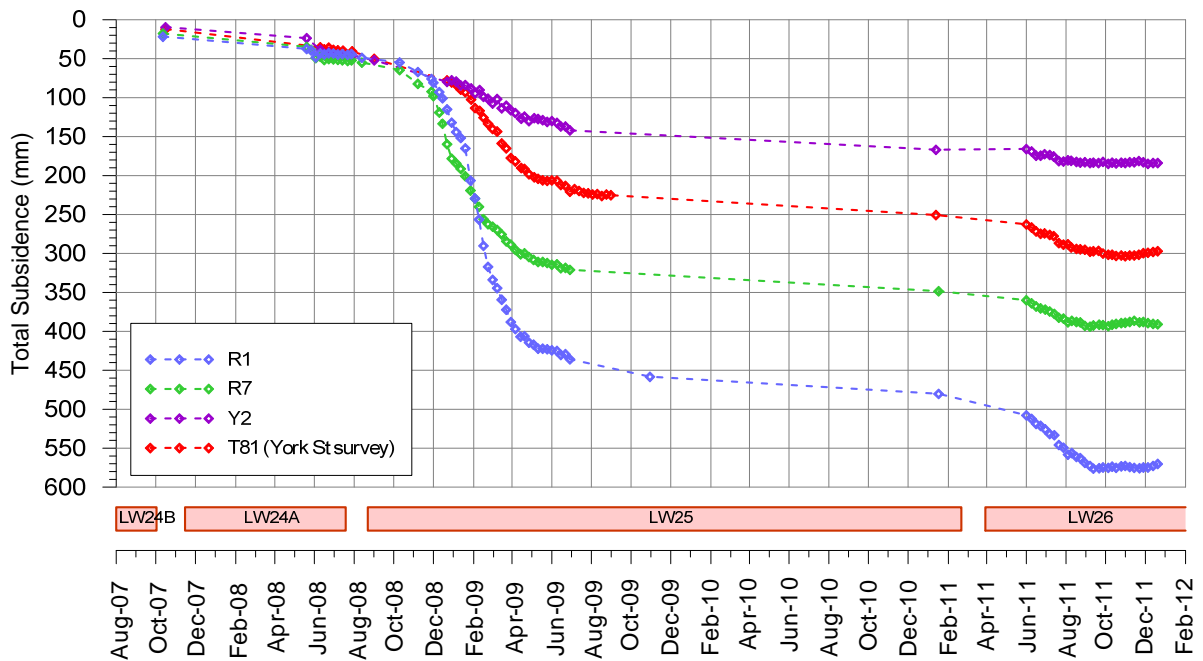


Fig. 2.1 Development of subsidence for selected survey pegs surrounding Tahmoor Town Centre

2.1.2. Survey results at Tahmoor Town Centre

Survey marks were placed around the perimeter of the Tahmoor Town Centre and for all columns located along three grid lines within the below-ground carpark. The survey marks were initially surveyed in October 2006, prior to the commencement of Longwall 24B.

Distances across the width and length of the Town Centre basement were measured monthly during the mining of Longwall 26. The results indicated small movements in the North-South and East-West directions, and across the diagonals. A plot of changes in diagonal distances in the basement over time is provided in Fig. 2.2.

Some minor changes were observed during the active subsidence period in July and August 2011, with tensile opening measured in the NE-SW direction as expected.

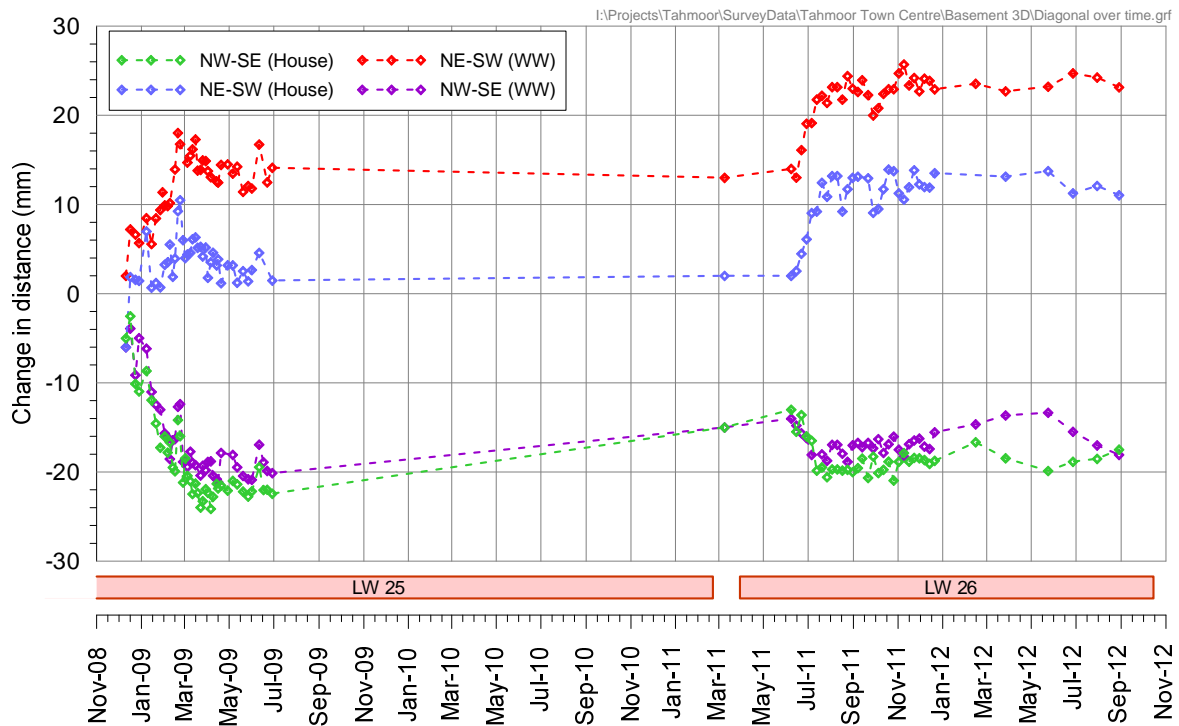


Fig. 2.2 Change in bay lengths of diagonal distances in basement over time

Detailed monitoring of survey marks were undertaken around the Woolworths Petrol Station awning during the mining of Longwall 26, following repair of mine subsidence damage that occurred during the mining of Longwall 25.

The surveys found that the awning subsided approximately 50 mm during the mining of Longwall 26, with little differential vertical or horizontal movement between the survey marks, as shown in Fig. 2.3.

Woolworths Petrol Station Monitoring during Longwall 26

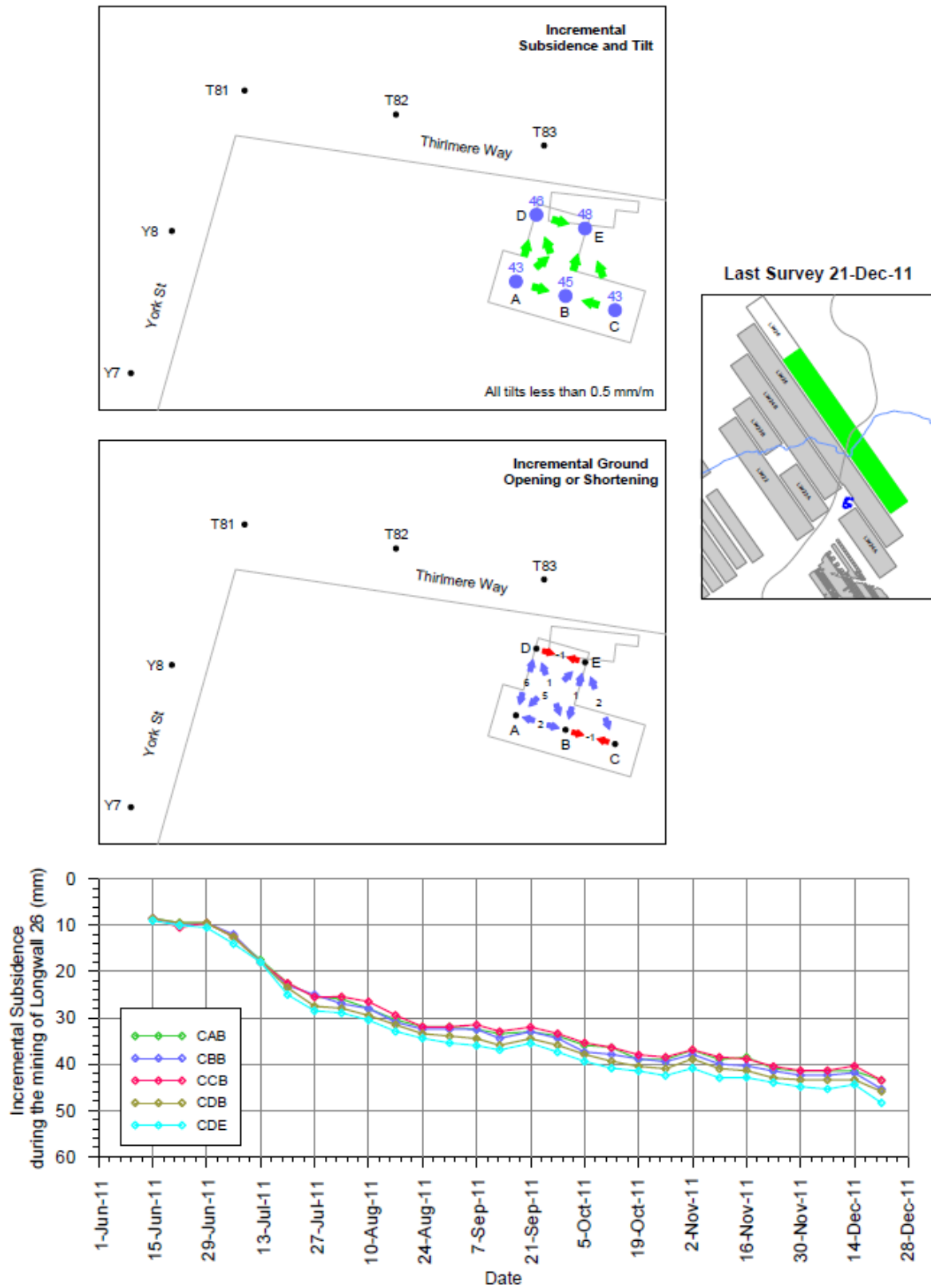


Fig. 2.3 Survey results for pegs at the petrol station at Tahmoor Town Centre

2.2. Potential subsidence impacts to surface features

Longwall 27 is located approximately 640 metres from Tahmoor Town Centre at its closest point. It is expected that the structures at the Centre will experience less than 20 mm of vertical subsidence movement as a result of the mining of Longwall 27. These additional movements are quite small and are a fraction of the total measured movements that have been previously experienced at Tahmoor Town Centre.

The likelihood of additional impacts to the structures due to the extraction of Longwall 27 is considered to be very rare. In the very rare event that mining-induced impacts occur, they will be repaired by the Mine Subsidence Board at its cost.

2.3. Measures for managing potential impacts to surface features

The following management measures will be undertaken.

- Tahmoor Colliery will be conducting ground surveys along Remembrance Drive from Peg RE1 at the intersection of Thirlmere Way to the north towards Longwall 27. The location of Peg RE1 is shown in Fig. 1.1. Remembrance Drive will be surveyed weekly commencing after 350 metres of extraction and it is planned to cease surveys in the vicinity of Tahmoor Town Centre after 700 metres of extraction.
- Tahmoor Colliery will be conducting ground surveys along York Street from Peg Y9 at the intersection of Thirlmere Way to the north towards Longwall 27. The location of Peg Y9 is shown in Fig. 1.1. York Street will be surveyed weekly commencing after 500 metres of extraction and it is planned to cease surveys in the vicinity of Tahmoor Town Centre after 700 metres of extraction.
- Monitoring of the survey lines along Remembrance Drive and York Street will allow Tahmoor Colliery to track the extent of subsidence that develops due to Longwall 27 from the centre of the longwall to the south towards Tahmoor Town Centre.
- If more than 20 mm of additional subsidence is measured to develop at the southern extents of the Remembrance Drive or York Street survey lines during the mining of Longwall 27, Tahmoor Colliery will contact Tahmoor Town Centre and consider whether any further management measures are required. The determination of appropriate measures will depend on the nature of the actual observations, though measures may include increased monitoring, including periodic detailed visual inspections.
- If mining-induced damage is observed to the building structures by Tahmoor Town Centre Management during mining, Tahmoor Town Centre will contact Tahmoor Colliery and/or the Mine Subsidence Board. Repairs will be undertaken by the Mine Subsidence Board. In addition, Tahmoor Colliery will meet with Tahmoor Town Centre to consider whether any further management measures are required. The determination of appropriate measures will depend upon the nature of the impacts observed.

3.0 CONTACT LIST

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