mine subsidence ENGINEERING CONSULTANTS

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SIMEC Mining:

Tahmoor Coal – Longwall S3A

The effects of the proposed modification to the commencing end of LW S3A on previous subsidence predictions and impact assessments

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Background reports available at *www.minesubsidence.com*:

Introduction to Longwall Mining and Subsidence (Revision A)

General Discussion of Mine Subsidence Ground Movements (Revision A)

Mine Subsidence Damage to Building Structures (Revision A)

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1.1. Background

Tahmoor Coal (TC) owns and operates Tahmoor Mine, an existing underground coal mine that is located approximately 80 km south-west of Sydney in the Southern Coalfield of NSW. Tahmoor Coal is a wholly owned entity within the SIMEC Mining Division of the GFG Alliance group.

Mine Subsidence Engineering Consultants (MSEC) was previously commissioned by Tahmoor Coal to undertake subsidence predictions and impact assessments for the proposed Longwalls S1A to S6A in the Tahmoor South Domain area at Tahmoor Mine. Report No. MSEC1192 (Revision A) was issued during May 2022 in support of the Extraction Plan Application for these longwalls. The Department of Planning and Environment (now Department of Planning, Housing and Infrastructure) granted Tahmoor Coal approval for extraction of LW S1A to S6A on 20 September 2022.

The longwall layout adopted in Report No. MSEC1192 is referred to as the *Approved Layout* in this report.

Tahmoor Coal is currently extracting LW S2A and proposes to shorten the commencing (i.e. southern) end of LW S3A by 104 m from the position that was adopted in Report No. MSEC1192. The longwall layout based on the shortened commencing end of LW S3A is referred to as the *Modified Layout* in this report.

The longwall commencement position has shifted approximately 104 m to the north, with the key drivers for the change being coal seam gas drainage hindering first workings development and longwall progress.

This subsidence report will support the modification application for the shortened commencing end of LW S3A, which will be submitted to the Department of Planning, Housing and Infrastructure.

1.2. Mining geometry

The locations of the longwalls in the Tahmoor South Domain are shown in Drawing No. MSEC1395-01, in Appendix B. The commencing (i.e. southern) end of LW S3A based on the *Modified Layout* is shown in orange in this drawing. The difference between the *Approved* and *Modified* layouts is shown in magenta.

A summary of the dimensions of LW S3A for both layouts is provided in Table 1.1.

Table 1.1 Dimensions of LW S3A based on the *Approved* and *Modified* layouts

Layout (Report No.)	Longwall	Overall void length including installation heading (m)	Overall void width including first workings (m)	Overall tailgate chain pillar width (m)
Approved Layout (MSEC1192)	LW S3A	1,808	285	36
Modified Layout (MSEC1395)	LW S3A	1,704	285	36

The commencing end of LW S3A is proposed to be shortened by 104 m from that adopted in the *Approved Layout* in Report No. MSEC1192. The length of longwall mining (i.e. secondary extraction) is approximately 8 m less than the overall void lengths provided in Table 1.1.

The overall void width and solid chain pillar width are not proposed to be modified. The actual width extracted by longwall mining (i.e. secondary extraction) is approximately 275 m.

1.3. Surface and seam

The Tahmoor South Domain area at Tahmoor Mine is located between Tahmoor's surface facilities to the north and the township of Bargo to the south. Except where the surface is dissected by Teatree Hollow and its tributaries, the terrain directly above LW S3A is otherwise relatively flat and varies between approximately 285 metres above Australian Height Datum (m AHD) and 320 m AHD.

The surface levels directly above the modified commencing end of LW S3A vary between approximately 285 m AHD and 300 m AHD. The surface level contours are shown in Drawing No. MSEC1395-02.

The depth of cover contours are shown in Drawing No. MSEC1395-04. The depth of cover directly above the modified commencing end of LW S3A vary between approximately 375 m and 390 m.

The surface and seam levels along the centreline of LW S3A are shown in Fig. 1.1.

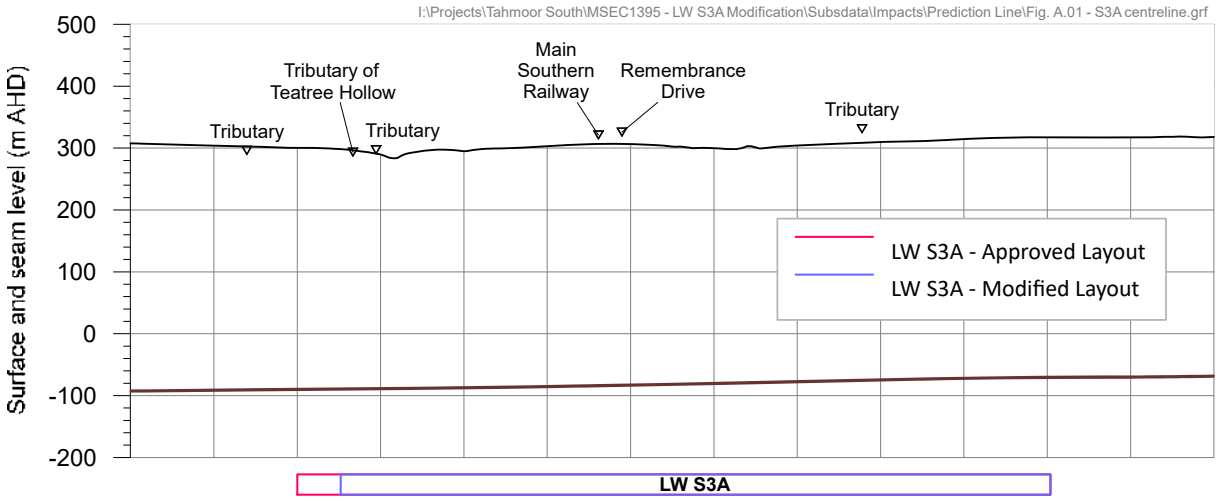


Fig. 1.1 Surface and seam levels along the centreline of LW S3A

The longwalls are approved to extract coal from the Bulli Seam. Tahmoor Coal has slightly revised its forecast extraction heights since the previous predictions were provided in Report No. MSEC1192. While seam thickness contours for the Bulli Seam indicated seam thicknesses of approximately 1.7 metres at the commencing end of LW S3A, as shown in Drawing No. MSEC1395-03, a minimum extraction height of 2.1 metres was applied when providing predictions of subsidence in Report No. MSEC1192.

Tahmoor Coal has revised its forecast extraction heights since the previous predictions were provided in Report No. MSEC1192. The changes are generally minor for the A series longwall panels, in the range of 50 to 100 mm greater than previously forecast. In the case of the commencing end of LW S3A, the planned extraction height has been increased from 2.1 metres to 2.15 metres, which represents an increase of 2.4%.

2.1. Maximum predicted conventional subsidence effects

The Incremental Profile Method was previously used to predict the conventional subsidence parameters resulting from the extraction of the approved LW S1A to S6A at Tahmoor, which were provided in Report No. MSEC1192.

The Incremental Profile Method has also been used to predict the conventional subsidence parameters resulting from the extraction of LW S3A, based on the *Modified Layout.*

The predicted incremental subsidence contours due to the extraction of LW S3A, based on the *Modified Layout*, are shown in Drawing No. MSEC1395-07. The predicted total subsidence contours after the extraction of LW S3A, based on the *Modified Layout*, are shown in Drawing No. MSEC1395-08. The predicted total 20 mm subsidence contours, based on the *Approved Layout*, are also shown in the drawings for comparison.

Predicted profiles of subsidence, tilt and curvature along the LW S3A centreline are shown in Fig. A.01 (included in Appendix A at the back of this report).

A summary of the maximum predicted incremental conventional subsidence, tilt and curvature values due to the extraction of LW S3A for both the *Approved Layout* and the *Modified Layout* is provided in Table 2.1. The predicted tilts provided in this table are the maxima after the completion of LW S3A. The predicted curvatures are the maxima at any time during or after the extraction of LW S3A.

Table 2.1 Maximum Predicted Incremental Conventional Subsidence, Tilt and Curvature Resulting from the Extraction of LW S3A

Longwall	Maximum predicted incremental conventional subsidence (mm)	Maximum predicted incremental conventional tilt (mm/m)	Maximum predicted incremental conventional hogging curvature (km^{-1})	Maximum predicted incremental conventional sagging curvature (km^{-1})
Approved Layout				
LW S3A	950	8.0	0.09	0.22
Modified Layout				
LW S3A	950	8.0	0.09	0.22

It can be seen from the above table, that the predicted incremental maxima, based on the *Modified Layout*, are the same as those based on the *Approved Layout*. There are no differences in the predicted maximum parameters due to the proposed modification at the commencing end of LW S3A.

As discussed in Section 1.2, the planned extraction height has been increased from 2.10 metres to 2.15 metres. The 2.4% increase has resulted in an increase in the magnitude of predicted maximum incremental subsidence, tilt and curvature due to the extraction of LW S3A by a similar percentage. The increases, however, are insignificant did not result in an increase in the published maxima in Table 2.1, which were rounded to their nearest significant figures in both Report No. MSEC1192 and this report.

Although the magnitudes of the predicted incremental maxima are the same, the locations of the predicted incremental maximum longitudinal tilts and curvatures above the commencing end of LW S3A change as a result of the proposed modification. This is illustrated in Fig. A.01 in Appendix A, which shows the profiles of the predicted incremental subsidence, tilt and curvature along the LW S3A centreline due to the extraction of LW S3A.

2.2. Comparison between Observed and Predicted Subsidence during the mining of Longwalls LW S1A and S2A

Extensive monitoring has been undertaken by Tahmoor Coal during the mining of LW S1A and the current mining of LW S2A. Observed incremental subsidence due to the extraction of LW S1A has correlated reasonably well with predictions, as shown in Fig. 2.1, Fig. 2.3 and Fig. 2.4.

Subsidence was observed to vary in magnitude along the centreline of LW S1A. Maximum subsidence was measured at Peg V51 on the V-Line, which is located between Teatree Hollow and the Tributary to Teatree Hollow. Observed subsidence was reduced in magnitude over the northern half of the longwall panel at the Main Southern Railway and Tahmoor Mine Site (Pier 2).

As shown in Fig. 2.1, observed subsidence at Peg V51 was slightly greater than predicted but within the accuracy of the prediction model of ± 15% (Reports Nos. MSEC1123 and MSEC1192). Observed subsidence values at other locations above LW S1A were less than predicted.

As at February 2024, monitoring during the mining of LW S2A has measured subsidence movements developing within predictions, as shown in Fig. 2.2.

As recommended in Report No. MSEC1192, Tahmoor Coal is monitoring during mining to compare observations with predictions. Tahmoor Coal has extensive experience in successfully managing potential subsidence impacts on surface features, even when actual subsidence is substantially greater than the magnitudes that have been predicted above LW S3A. Subsidence management plans have been developed to manage potential impacts that could occur if greater than predicted subsidence occurs.

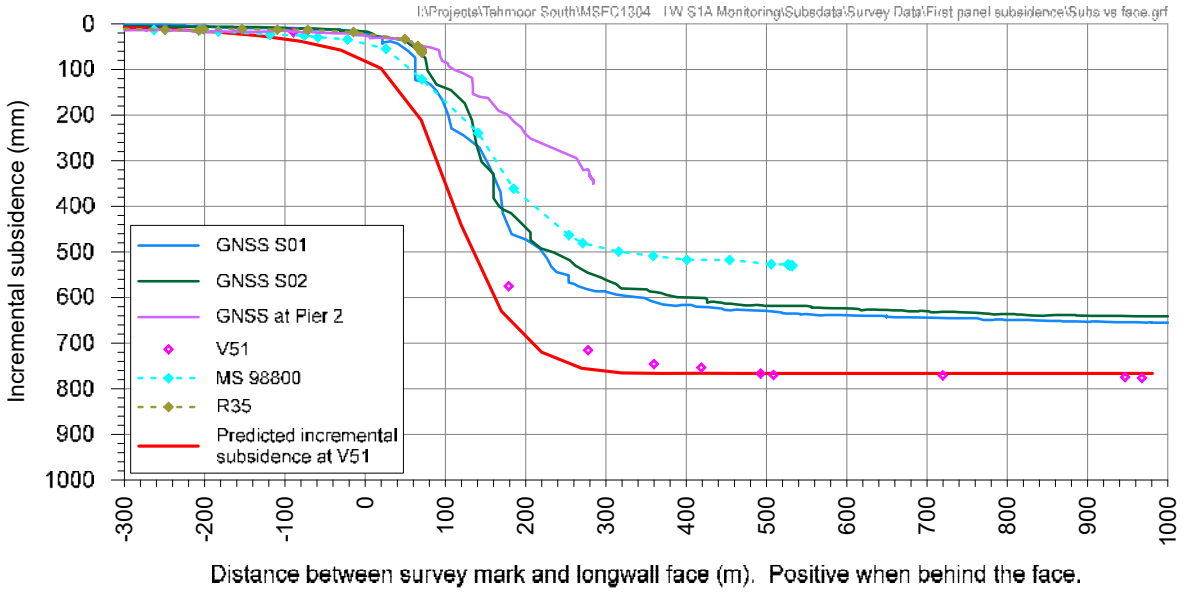


Fig. 2.1 Comparison between predicted and observed subsidence above centreline of LW S1A

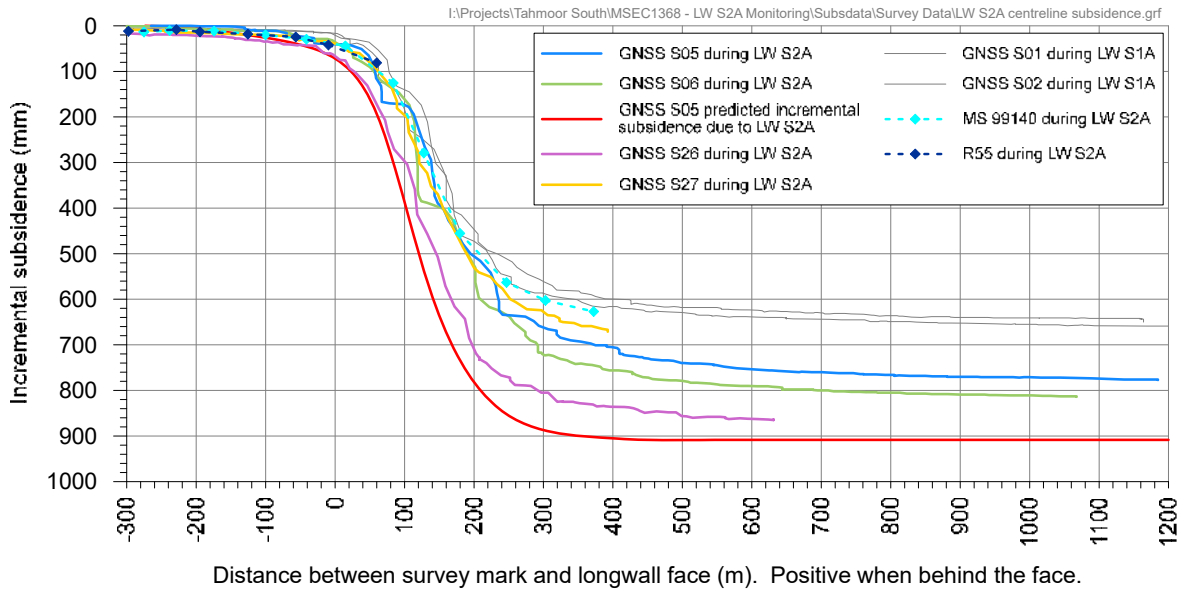


Fig. 2.2 Comparison between predicted and observed subsidence above centreline of LW S2A

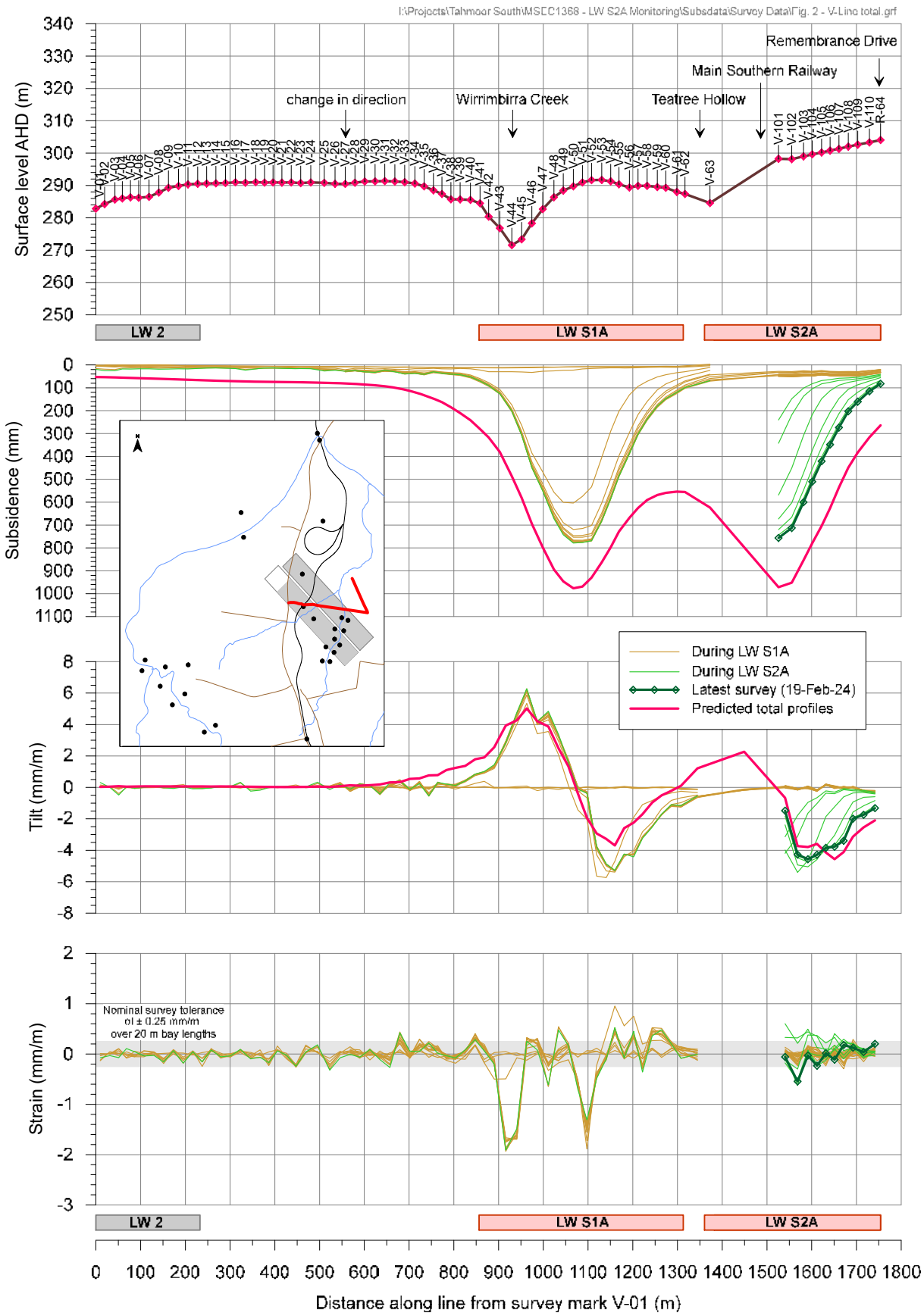


Fig. 2.3 Observed subsidence along V Line during the mining of LW S1A and S2A

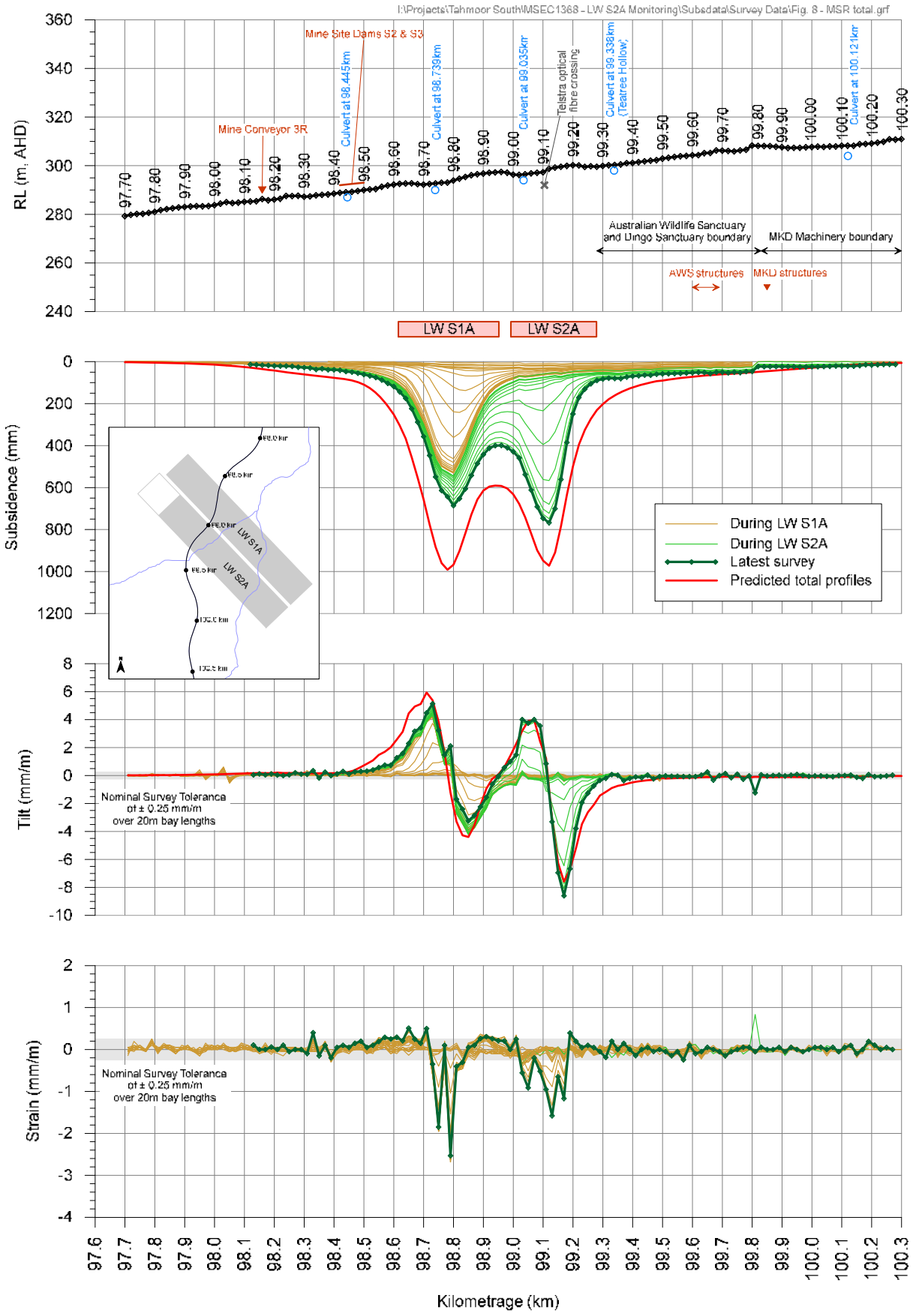


Fig. 2.4 Observed subsidence along Main Southern Railway during the mining of LW S1A and S2A

3.1. The Study Area

The *Study Area* has been defined as the zone where the predicted subsidence effects, based on the *Modified Layout*, are different to those predicted based on the *Approved Layout*. The Study Area has been based on the following:

- 35° angle of draw line around the commencing (i.e. southern) end of LW S3A, based on both the *Approved* and *Modified Layouts*; and
- the limit where the change in the predicted incremental vertical subsidence, due to the modified commencing end of LW S3A, is greater than 20 mm.

The extent of the Study Area is shown in Drawing No. MSEC1395-01.

The natural and built features that are located within the Study Area are shown in Drawings Nos. MSEC1395-05 and MSEC1395-06. The surface features that have been included in the assessments provided in this report are:

- Teatree Hollow and tributaries;
- Steep slopes;
- Main Southern Railway;
- Local roads
- Powerlines and telecommunication cables
- Dams;
- Building Structures
- Groundwater bores.

The effects of the proposed shortening of the commencing end of LW S3A on the subsidence predictions and impact assessments for these features are provided in the following sections.

3.2. Teatree Hollow and tributaries

The locations of the watercourses are shown in Drawing No. MSEC1395-05. The watercourses within the Study Area are ephemeral first or second order drainage lines having shallow incisions into the natural surface soils.

Tributary 1 to Teatree Hollow is a first to second order stream that runs directly above and to the side of LW S1A to S6A. The catchment area is located across the Study Area and comprises predominantly uncleared land in the vicinity of LW S3A. There are a number of pools and stream monitoring points within the Study area (TTH-P01, TTH-P02).

It can be seen from Drawing No. MSEC1395-05, that the effect of the proposed modification to LW S3A will be a reduction in the magnitude of subsidence along a section of the Tributary.

The revised predictions of subsidence, upsidence and valley closure are shown in Fig. A.02 It can be seen that the predictions are reduced over the shortened commencing end of LW S3A when compared to the predictions based on the *Approved Layout*. A summary of the maximum predicted values of total vertical subsidence, upsidence and closure for Tributary 1 to Teatree Hollow is provided in Table 3.1.

Table 3.1 Maximum predicted total vertical subsidence, upsidence and closure for Tributary 1 to Teatree Hollow

Longwall	Maximum predicted total vertical subsidence (mm)	Maximum predicted total upsidence (mm)	Maximum predicted total closure (mm)
Approved Layout			
After LW S6A	1350	450	375
Modified Layout			
After LW S6A	1300	450	375

As shown in Fig. A.02 and Table 3.1, the effect of shortening LW S3A has resulted in a minor reduction in the prediction of maximum total subsidence under the *Modified Layout*. The predicted locations of

maximum closure and upsidence, however, are located to occur above LWs S1A and S2A and, therefore, there has been negligible change in the prediction of maximum closure and upsidence under the *Modified Layout* when compared to the *Approved Layout*.

Accordingly, it is expected that the potential for impacts on the section of the Tributary to Teatree Hollow near the modified commencing end of LW S3A will be similar or less under the *Modified Layout* than previously assessed due to the *Approved Layout*.

While the potential for impacts is reduced when compared to the *Approved Layout*, Tahmoor Coal will continue to implement measures to manage the potential for impacts on Tributary 1 to Teatree Hollow during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.3. Steep Slopes

The locations of the steep slopes are shown in Drawing No. MSEC1395-05. A steep slope was defined in Report No. MSEC1192 as "*an area of land having a natural gradient greater than 1 in 3 (i.e. a grade of 33 %, or an angle to the horizontal of 18.3°)*". Within the Study Area above the commencing end of LW S3A, slopes with grades greater than 1 in 3 have been identified on the sides of the Tributary to Teatree Hollow, where the near-surface lithology is part of the Wianamatta Shale group. There are no identified cliffs located within the Study Area.

An analysis of the LiDAR survey has also identified steep slopes that have been constructed within the Study Area, such as dam walls, railway embankments and cutting faces.

While the potential for impacts is slightly reduced, Tahmoor Coal will continue to implement measures to manage the potential for impacts on steep slopes during the extraction of LW S3A under the Land Management Plan, as undertaken during the mining of previous LW S1A and current LW S2A.

3.4. Main Southern Railway

The location of the Main Southern Railway is shown in Drawing No. MSEC1395-06. It can be seen that LW S3A is located beneath the Main Southern Railway, although not within the Study Area.

The proposed shortening of LW S3A is not expected to significantly change the potential for impacts to the railway track and railway infrastructure under the *Modified Layout* compared with the potential for impacts under the *Approved Layout*.

Tahmoor Coal and the Australian Rail Track Corporation (ARTC) have implemented extensive measures to manage potential impacts on the Main Southern Railway and the associated railway structures due to the extraction of LWs S1A to S6A, in accordance with a Railway Management Plan.

Tahmoor Coal will continue to implement the planned measures to manage the potential for impacts on the Main Southern Railway, as is currently undertaken during the mining of previous LW S1A and current LW S2A.

3.5. Roads

The locations of the local roads are shown in Drawing No. MSEC1395-06, where it can be seen that a short section of Charlies Point Road is the only road located within the Study Area. However, it can also be seen that Charlies Point Road is located outside of the predicted 20 mm contour for change in incremental subsidence between the *Modified* and *Approved Layouts* and hence the effect of the proposed modification to LW S3A will be negligible along Charlies Point Road.

Tahmoor Coal and Wollondilly Shire Council have implemented extensive measures to manage potential impacts on local roads and the associated structures due to the extraction of LWs S1A to S6A, in accordance with a subsidence management plan.

Tahmoor Coal will continue to implement measures to manage the potential for impacts on local roads during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.6. Services Infrastructure

The location of electrical, telecommunications, gas, potable water and sewerage infrastructure is shown in Drawing No. MSEC1395-06. It can be seen that only electrical services and telecommunications infrastructure are located within the Study Area, and there are no services infrastructure located directly above the shortened end of LW S3A.

The electrical infrastructure comprises 11 kV power lines owned and operated by Endeavour Energy. These run alongside Charlies Point Road, and approximately 150 m north and parallel to Charlies Point Road. There are also a small number of low voltage power lines connecting to individual properties from the line along Charlies Point Road. As mentioned in Section 3.5, Charlies Point Road is located outside of the predicted 20 mm contour for change in incremental subsidence between the *Modified* and *Approved Layouts* and hence the effect of the proposed modification to LW S3A will be negligible along the powerlines following Charlies Point Road.

There are short sections of powerline located just within the Study Area, over LW S4A and S1A, which are predicted to experience approximately 20 mm less subsidence under the *Modified Layout*, and the effect of the proposed modification to LW S3A will be negligible along these sections of powerline.

Tahmoor Coal and Endeavour Energy have implemented extensive measures to manage potential impacts on electrical infrastructure due to the extraction of LWs S1A to S6A, in accordance with a subsidence management plan.

While the potential for impacts is slightly reduced under the *Modified Layout*, Tahmoor Coal will continue to implement measures to manage the potential for impacts on electrical infrastructure during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

Within the Study Area, telecommunications infrastructure comprises NBN copper service cables and Telstra copper cables which are direct buried and follow the alignment of Charlies Point Road. There is no optical fibre cable located within the Study Area.

As shown in Drawing No. MSEC1395-06, the telecommunications infrastructure is located outside of the predicted 20 mm contour for change in incremental subsidence between the *Modified* and *Approved Layouts,* and hence the effect of the proposed modification to LW S3A will be negligible on the telecommunications infrastructure.

3.7. Archaeological Sites

There are no archaeological sites located within the Study Area.

The nearest archaeological site is Site 52-2-4471 which is located above LW S2A. This rock shelter site is located approximately 295 metres from LW S3A at its closest point under both the *Approved Layout* and the *Modified Layout*.

While the potential for impacts on archaeological sites due to the extraction of LW S3A is negligible, Tahmoor Coal will continue to monitor archaeological sites under the Heritage Management Plan during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.8. Heritage Sites

There are no items of heritage significance located within the Study Area.

Bargo Cemetery and the Wirrimbirra Sanctuary (Australian Wildlife Sanctuary) are items of heritage significance situated above the longwall mining area but outside of the Study Area. The potential for impacts due to the extraction of LW S3A under the *Modified Layout* is negligible compared with the potential for impacts under the *Approved Layout*.

Tahmoor Coal will continue to consult with Wollondilly Shire Council to develop a management plan to manage the potential for impacts on Bargo Cemetery prior to the extraction of LW S4A.

Tahmoor Coal and the Australian Wildlife Sanctuary have implemented extensive measures to manage potential impacts with the Australian Wildlife Sanctuary due to the extraction of LWs S1A to S6A, in accordance with a Subsidence Management Plan. Tahmoor Coal will continue to implement measures to manage the potential for impacts with the Australian Wildlife Sanctuary during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.9. Dams

There are three dams located wholly or partly within the Study Area and their locations are shown in Drawing No. MSEC1395-06. None of these dams are located directly above the commencing end of LW S3A under the *Approved Layout* and none of these three dams will be directly mined beneath by LW S3A under the *Modified Layout*.

Summaries of the maximum predicted values of total vertical subsidence, tilt and curvature for the farm dams within the Study Area, due to the mining of LWs S1A to S6A, are provided in Table 3.2 for the *Approved Layout* and in Table 3.3 for the *Modified Layout.* The values in these tables are based on the

maximum predicted parameters within 20 m of the perimeter of each dam after the completion of all longwalls in the series.

Table 3.2 Maximum predicted total vertical subsidence, tilt and curvature for the dams within the Study Area due to mining of LWs S1A to S6A based on the *Approved Layout*

Dam Reference	Maximum predicted total vertical subsidence (mm)	Maximum predicted total tilt (mm/m)	Maximum predicted total hogging curvature (km^{-1})	Maximum predicted total sagging curvature (km^{-1})
BCP_010_d01	125	1.0	0.02	0.01
BCP_020_d01	90	1.0	0.01	< 0.01
BGR_203_d01	50	< 0.5	< 0.01	< 0.01

Table 3.3 Maximum predicted total vertical subsidence, tilt and curvature for the dams within the Study Area due to mining of LWs S1A to S6A based on the *Modified Layout*

Dam Reference	Maximum predicted total vertical subsidence (mm)	Maximum predicted total tilt (mm/m)	Maximum predicted total hogging curvature (km^{-1})	Maximum predicted total sagging curvature (km^{-1})
BCP_010_d01	125	1.0	0.02	0.10
BCP_020_d01	60	0.5	< 0.01	< 0.01
BGR_203_d01	50	< 0.5	< 0.01	< 0.01

When comparing the results, it can be seen that the farm dams are predicted to experience similar or less vertical subsidence as a result of the proposed modification, as expected. Predicted tilts and curvature under the *Modified Layout* are equal to or less than the predictions under the *Approved Layout*, as expected. As the closest of the three dams to the shortened end of LW S3A, the changes to predicted subsidence parameters are greatest at Dam BCP_020_d01.

Tahmoor Coal has implemented extensive measures to manage potential impacts on the farm dams due to the extraction of LW S3A, in accordance with the Land Management plan.

While the potential for impacts is slightly reduced, Tahmoor Coal will continue to implement measures to manage the potential for impacts on farm dams during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.10. Building Structures

There are three building structures located within the Study Area, as shown in Drawing No. MSEC1395-06. These are a house and two sheds, which are all located on the same property on the northern side of Charlies Point Road. As also shown in Drawing No. MSEC1395-06, the buildings are located outside of the predicted 20 mm contour for change in incremental subsidence between the *Modified* and *Approved Layouts*, hence the effect of the proposed modification to LW S3A will be negligible for these buildings.

Tahmoor Coal will continue to implement measures to manage the potential for impacts on building structures during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.11. Groundwater Bores

There is one shallow groundwater bore (P55) located within the Study Area, as shown in Drawing No. MSEC1395-06. The bore is located adjacent to the commencing end of future LW S4A and will not be directly mined beneath. The bore is located outside of the predicted 20 mm contour for change in incremental subsidence between the *Modified* and *Approved Layouts*, hence the effect of the proposed modification to LW S3A will be negligible at this bore.

The Groundwater Impact Assessment (SLR, 2022a) provides an assessment on groundwater bores. Tahmoor Coal will continue to implement measures to manage the potential for impacts on groundwater bores during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

3.12. Survey Control Marks

There are no survey control marks located within the Study Area. The nearest marks are located alongside the Main Southern Railway, more than 150 m to the west of the Study Area at its closest point.

The survey control marks located outside and in the vicinity of the Study Area are expected to experience small amounts of subsidence and small far-field horizontal movements and it is possible that other survey control marks outside the immediate area could also be affected by far-field horizontal movements, up to 3 kilometres away.

It will be necessary on the completion of the longwalls, when the ground has stabilised, to re-establish any state survey control marks that are required for future use. Consultation between Tahmoor Coal and Spatial Services NSW has been conducted prior to and during the mining period to ensure that these survey marks are reinstated at an appropriate time, as required.

3.13. Summary

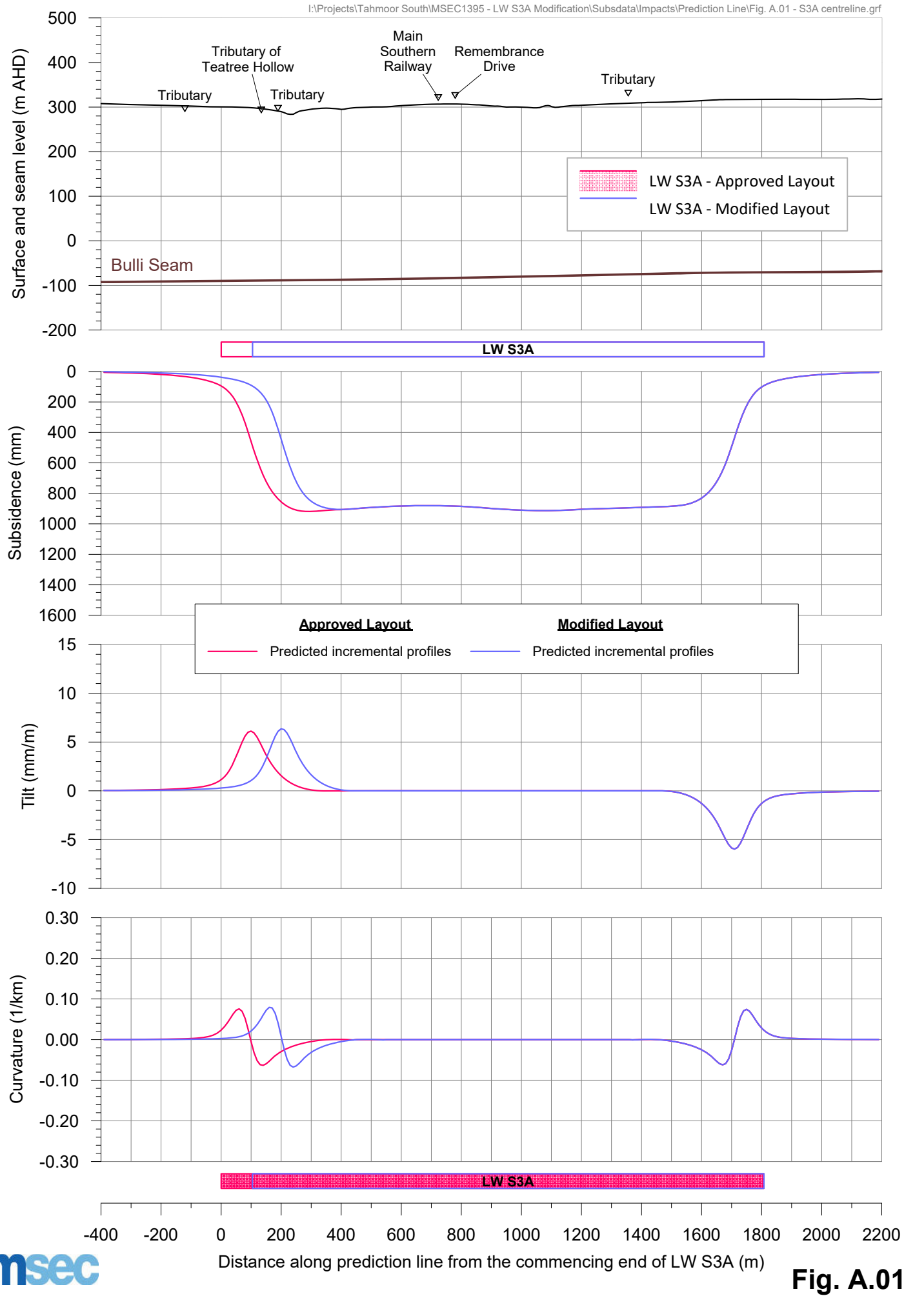
The maximum predicted subsidence parameters within the Study Area, based on the *Modified Layout*, are similar to those based on the *Approved Layout*.

The effect of the proposed modification to LW S3A will be a slight reduction in the magnitude of subsidence for the natural and built features located near the commencing end of this longwall.

While the potential for impacts is reduced, Tahmoor Coal will continue to develop and implement measures to manage the potential for impacts on natural and built features during the extraction of LW S3A, as undertaken during the mining of previous LW S1A and current LW S2A.

APPENDIX A. FIGURES

Predicted profiles of incremental conventional subsidence, tilt and curvature along S3A centreline due to the extraction of LW S3A



msec

Fig. A.01

Predicted profiles of subsidence, upsidence and closure along Tributary of Teatree Hollow resulting from the extraction of Longwalls S1A to S6A

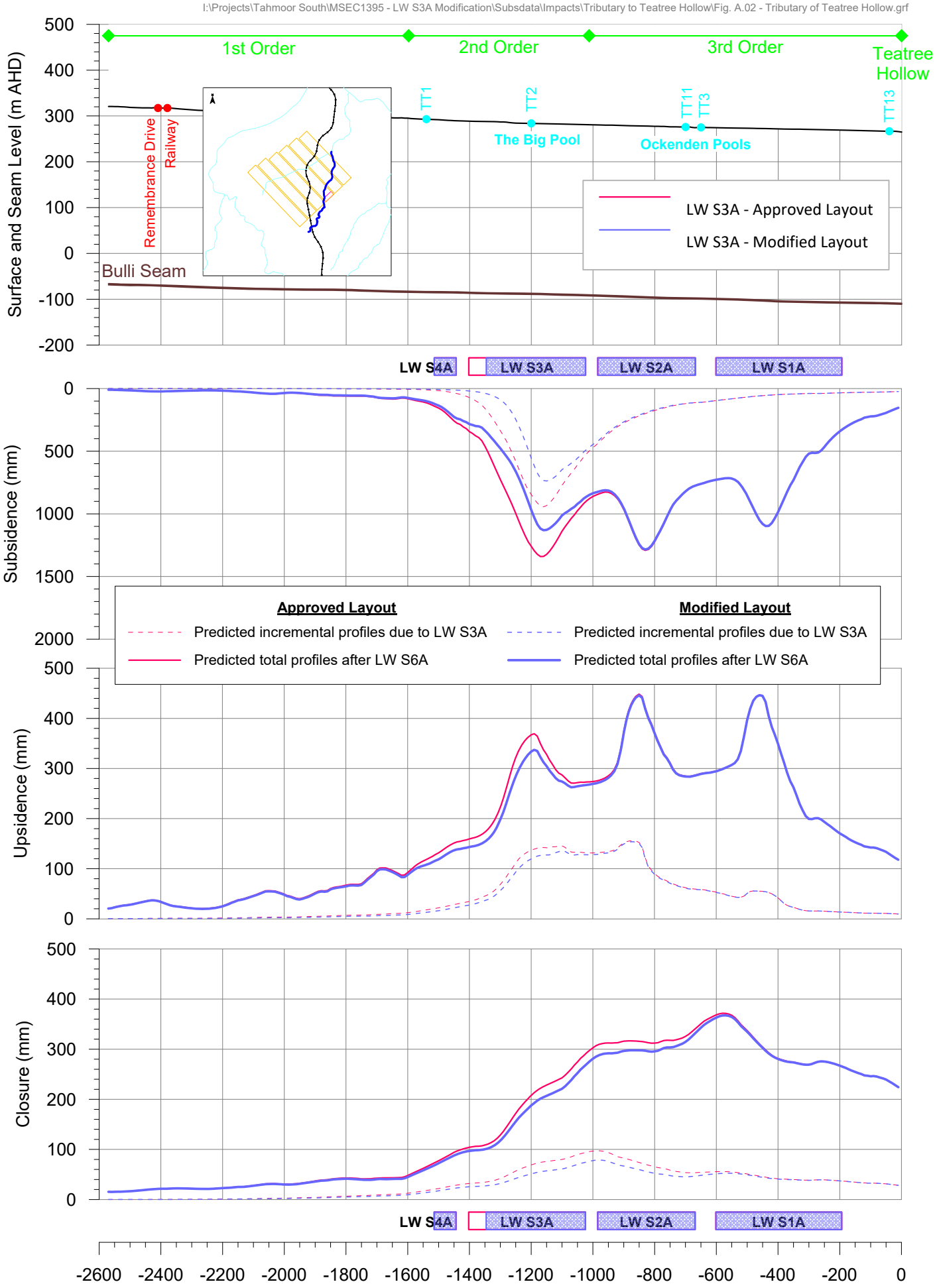


Fig. A.02

APPENDIX B. DRAWINGS

I:\Projects\Tahmoor South\MSEC1395 - LW S3A Modification\AcadData\MSEC1395-01 General Layout.dwg

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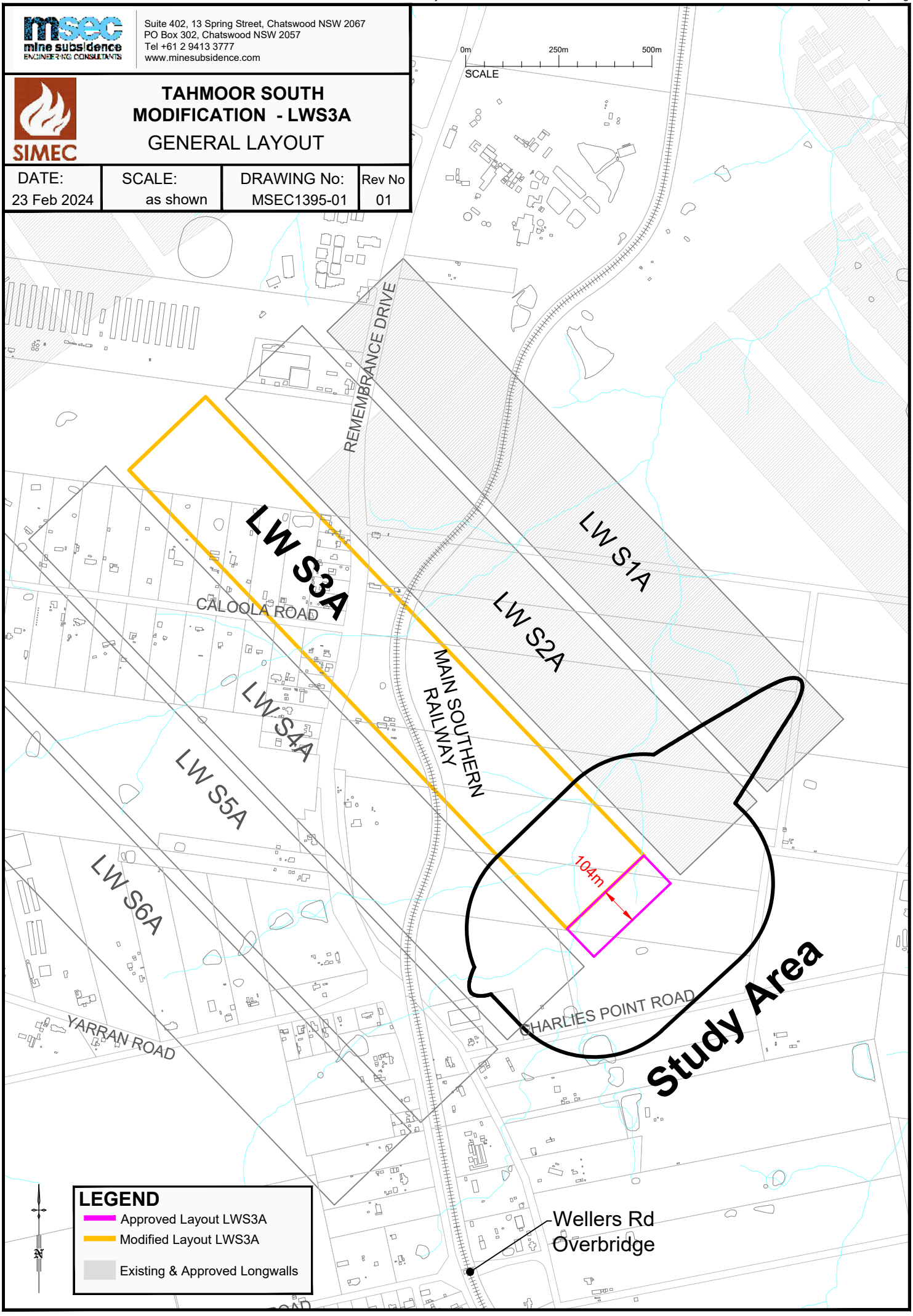
TAHMOOR SOUTH MODIFICATION - LWS3A

GENERAL LAYOUT

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2024	as shown	MSEC1395-01	01



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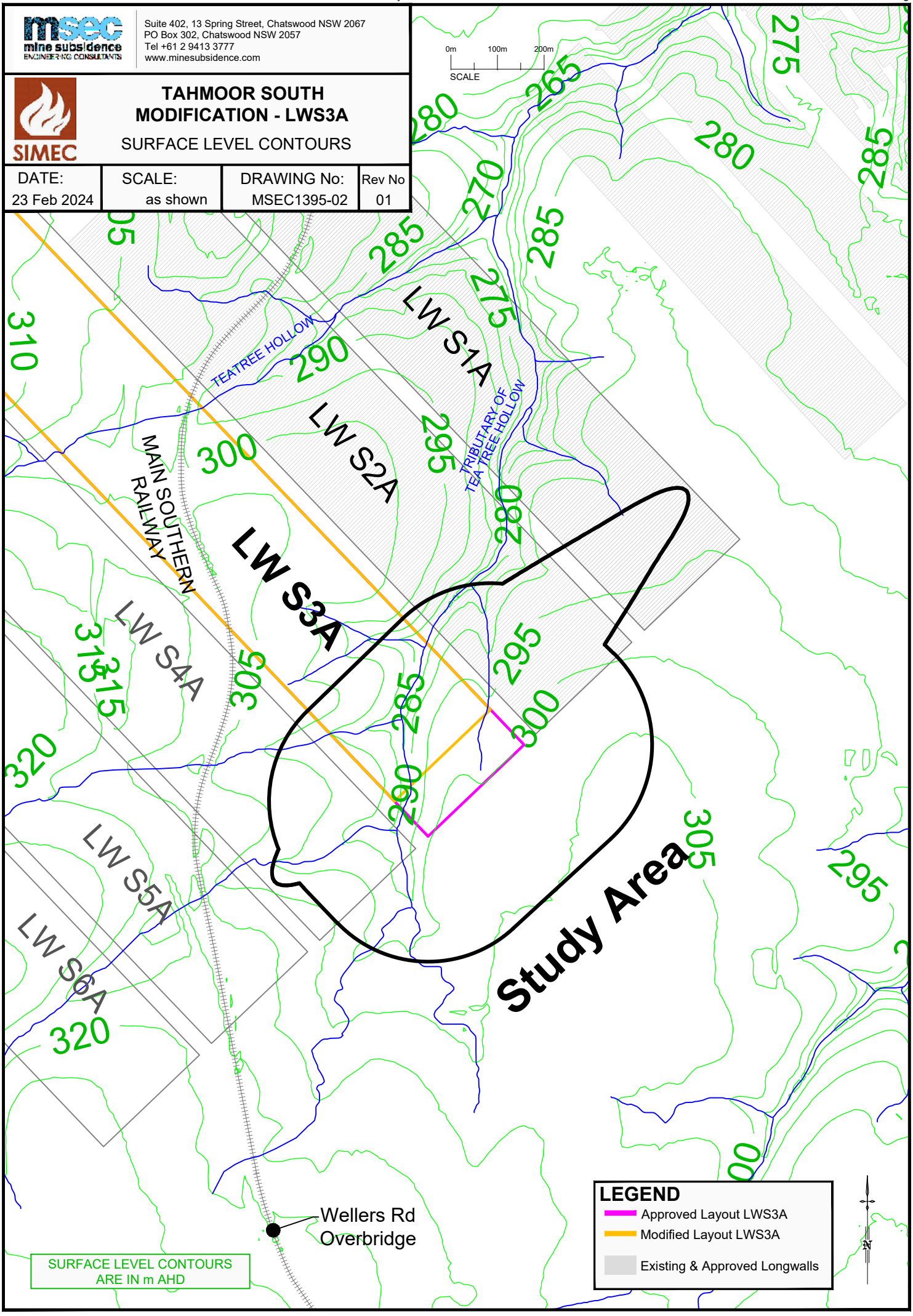
TAHMOOR SOUTH MODIFICATION - LWS3A

SURFACE LEVEL CONTOURS

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2024	as shown	MSEC1395-02	01



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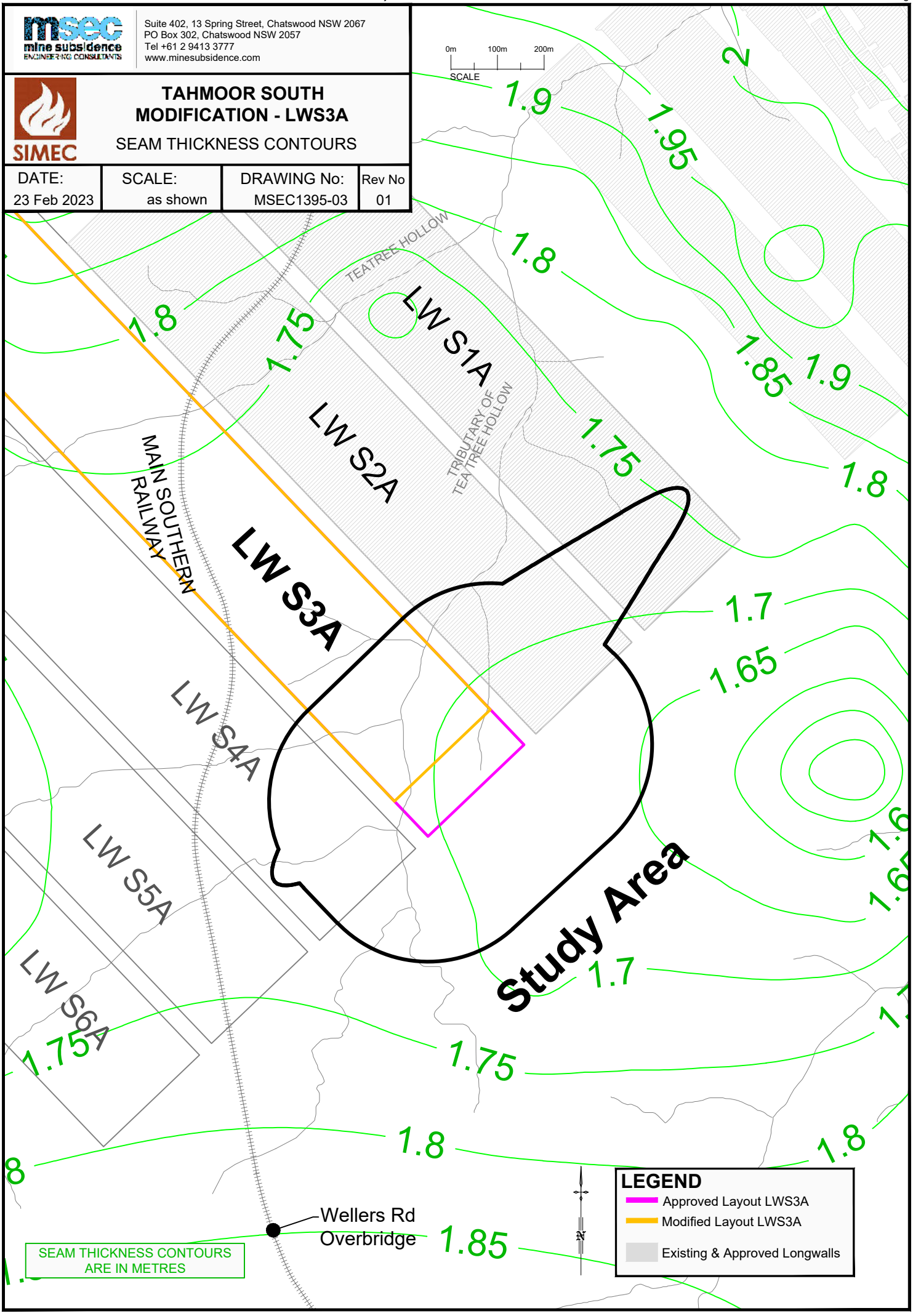
TAHMOOR SOUTH MODIFICATION - LWS3A

SEAM THICKNESS CONTOURS

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2023	as shown	MSEC1395-03	01



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TAHMOOR SOUTH MODIFICATION - LWS3A

DEPTH OF COVER CONTOURS

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2023	as shown	MSEC1395-04	01

0m 100m 200m
SCALE

LW S1A
LW S2A
LW S3A
LW S4A
LW S5A
LW S6A
MAIN SOUTHERN RAILWAY
Study Area
Wellers Rd Overbridge

DEPTH OF COVER CONTOURS ARE IN METRES

LEGEND
- Approved Layout LWS3A
- Modified Layout LWS3A
- Existing & Approved Longwalls

I:\Projects\Tahmoor South\MSEC1395 - LW S3A Modification\AcadData\MSEC1395-05 Natural Features.dwg

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TAHMOOR SOUTH MODIFICATION - LWS3A

NATURAL FEATURES

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2023	as shown	MSEC1395-05	01

0m 100m 200m
SCALE

LEGEND
- POOLS
- CLIFFS
- CLIFFS LONGER THAN 20m, HIGHER THAN 10m &/OR HIGHER THAN 40m
- STEEP SLOPES
- 1m SURFACE LEVEL CONTOURS
- WATERCOURSE

Pool locations, cliffs and steep slopes were identified courtesy Fluvial Systems

TEATREE HOLLOW
LW S1A
LW S2A
TRIBUTARY OF TEA TREE HOLLOW
MAIN SOUTHERN RAILWAY
LW S3A
LW S4A
LW S5A
LW S6A
TT2
TT15
TT10
TT1
Predicted 20mm subsidence contour based on the Modified Layout
Study Area
Wellers Rd Overbridge

LEGEND
- Approved Layout LWS3A
- Modified Layout LWS3A
- Existing & Approved Longwalls

I:\Projects\Tahmoor South\MSEC1395 - LW S3A Modification\AcadData\MSEC1395-06 Surface Infra & Built Feat.dwg

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TAHMOOR SOUTH MODIFICATION - LWS3A

SURFACE INFRASTRUCTURE & BUILT FEATURES

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2024	as shown	MSEC1395-06	01

SCALE 0m 100m 200m

LEGEND
- POWERLINES
- GAS PIPELINES
- POTABLE WATER PIPELINES
- SEWER PIPELINES
- TELECOMMUNICATIONS
- GROUND WATER BORES
- BOREHOLES
- DAMS
- HOUSE
- RURAL STRUCTURES

TEATREE HOLLOW
LW S1A
MAIN SOUTHERN RAILWAY
LW S2A
TRIBUTARY OF TEATREE HOLLOW
CALOOLA ROAD
LW S3A
REMEMBRANCE DRIVE
LW S4A
LW S5A
LW S6A
Predicted 20mm subsidence contour based on the Modified Layout
BCP_020_d01
P55
BCP_010_r01
BCP_010_d01
BCP_010_h02
BCP_010_h01
CHARLIES POINT RD
BGR_203_d01
Study Area
GREAT SOUTHERN RD
WELLERS ROAD
Wellers Rd Overbridge

LEGEND
- Approved Layout LWS3A
- Modified Layout LWS3A
- Existing & Approved Longwalls

N

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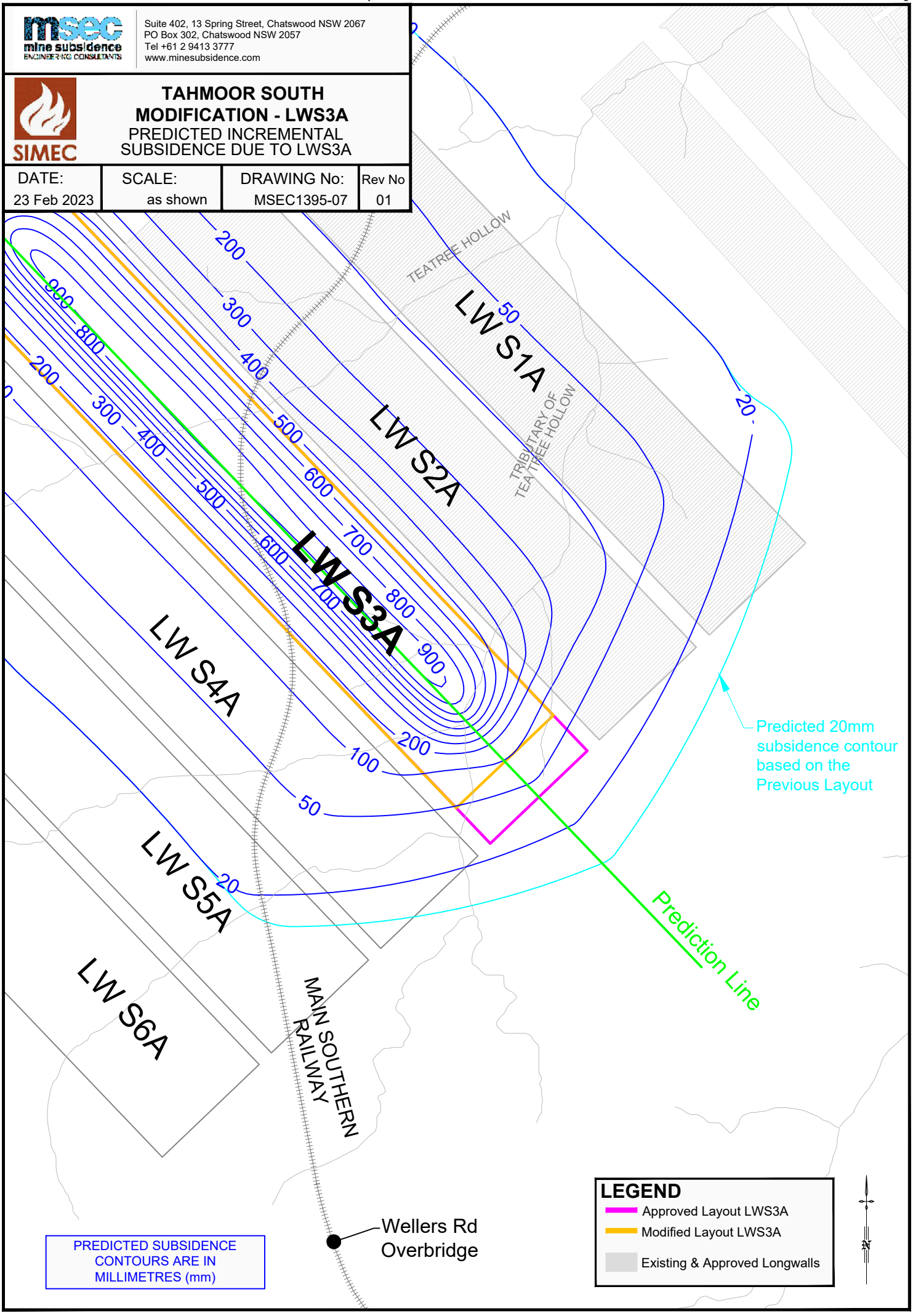
TAHMOOR SOUTH MODIFICATION - LWS3A

PREDICTED INCREMENTAL SUBSIDENCE DUE TO LWS3A

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2023	as shown	MSEC1395-07	01



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TAHMOOR SOUTH MODIFICATION - LWS3A

PREDICTED TOTAL SUBSIDENCE AFTER LWS3A

DATE:	SCALE:	DRAWING No:	Rev No
23 Feb 2023	as shown	MSEC1395-08	01

LW S1A
LW S2A
LW S3A
LW S4A
LW S5A
LW S6A

TEATREE HOLLOW
TRIBUTARY OF TEA TREE HOLLOW

MAIN SOUTHERN RAILWAY

Wellers Rd Overbridge

Predicted 20mm subsidence contour based on the Previous Layout

Prediction Line

PREDICTED SUBSIDENCE CONTOURS ARE IN MILLIMETRES (mm)

LEGEND

- Approved Layout LWS3A
- Modified Layout LWS3A
- Existing & Approved Longwalls

N