**Narrabri Coal Operations - Narrabri Coal Mine (Stage 2)**

**Title:** Post-mining Surface Levels and Gradient Changes above Longwalls LW1-26 for Case 3 (Non-Spanning Garrawilla Volcanics and Minimum Chain Pillar Subsidence) and 4.2m Mining Height

**Key:**
- Post-mining Levels
- Main Creeks
- Fences
- Unsealed Roads/Tracks
- Farm Dams
- Buildings
- Orchards

**Engineer:** S. Ditton
**Drawn:** S. Ditton
**Date:** 25.03.08
**Client:** Ditton Geotechnical Services Pty Ltd

**Scale:** 1:60,000
**Figure No:** 47
Narrabri Coal Operations - Narrabri Coal Mine (Stage 2)

Title: Post-mining Surface Levels (1 m contours) above Longwall Layout B for Case 3 Potential Ponding Location Analysis and 4.2 m Mining Height

Ditton Geotechnical Services Pty Ltd

Engineer: S.Ditton
Drawn: S.Ditton
Date: 25.03.08

Client: Narrabri Coal Operations - Narrabri Coal Mine (Stage 2)

NAR-001/1

Scale: 1:60,000

Figure No: 48
Pre-mining and Predicted Post-Mining Surface Profiles Along Pine Creek above Longwall LWs 1 to 13 due to Mine Subsidence Cases 1 to 3

Engineer: S. Ditton
Client: Narrabri Coal Operations Pty Ltd - Narrabri Coal Mine (Stage 2)
Drawn: S. Ditton
Date: 16.03.09
Title: Pre-mining and Predicted Post-Mining Surface Profiles Along Pine Creek above Longwall LWs 1 to 13 due to Mine Subsidence Cases 1 to 3

Scale: NTS
Figure No: 49a
Engineer: S.Ditton  
Client: Narrabri Coal Operations Pty Ltd - Narrabri Coal Mine (Stage 2)  
Drawn: S.Ditton  
Date: 16.03.09  
Title: Pre-mining and Predicted Post-Mining Surface Gradients Along Pine Creek above Longwall LWs 1 to 13 due to Mine Subsidence Cases 1 to 3  
Scale: NTS  
Figure No: 49b
Pre-mining

Post-mining: Case 1

Post-mining: Case 2

Post-mining: Case 3

Dam3

Reduced Level (AHD, m)

Chain (m)

Pre-mining and Predicted Post-Mining Surface Profiles Along Pine Creek Tributary 3 above Longwalls LW 1 to 13 due to Mine Subsidence Cases 1 to 3

Figure No: 50a
Engineer: S.Ditton
Client: Narrabri Coal Operations Pty Ltd - Narrabri Coal Mine (Stage 2)
Drawn: S.Ditton
Date: 16.03.09
Title: Pre-mining and Predicted Post-Mining Surface Gradients Along Pine Creek Tributary 3 above LWs 1 to 13 due to Mine Subsidence Cases 1 to 3

Ditton Geotechnical Services Pty Ltd
Scale: NTS

- Post-mining: Case 1
- Post-mining: Case 2
- Post-mining: Case 3
- Dam3

Creek Bed Gradient Change (degrees)

Chain (m)
Pre-mining and Predicted Post-Mining Surface Profiles Along Kurrajong Creek above Longwalls LW 14 to 26 due to Mine Subsidence Cases 1 to 3
Engineer: S.Ditton
Client: Narrabri Coal Operations Pty Ltd - Narrabri Coal Mine (Stage 2)
Drawn: S.Ditton
Date: 16.03.09
Title: Pre-mining and Predicted Post-Mining Surface Gradients Along Kurrajong Creek above Longwalls LW 14 to 26 due to Mine Subsidence Cases 1 to 3

Chain (m)

Creek Bed Gradient Change (degrees)

-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0

0 1000 2000 3000 4000 5000 6000 7000

-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0

14 15 16 17 19 19 20 21 22 23 24 25 26

Figure No: 51b
Engineer: S. Ditton
Client: Narrabri Coal Operations Pty Ltd - Narrabri Coal Mine (Stage 2)
Drawn: S. Ditton
Date: 08.08.08
Title: Combined Empirical Far-Field Displacement Prediction Models for Longwall Panel Sides, Ends and Corners.

Newcastle Coalfield Data
Panel Widths: W = 150 - 193 m
Cover Depths: H = 85 - 210 m
Panel W/H = 0.65 - 2.27

\[ y = 0.0267e^{-1.3527x} \]
\[ R^2 = 0.7923 \]
\[ y = 0.0558e^{-1.3759x} \]
\[ R^2 = 0.9598 \]
\[ y = 0.1489e^{-1.6335x} \]
\[ R^2 = 0.9902 \]

Horizontal Displacement/Maximum Panel Subsidence (u/S_{max})
Distance from Longwall Extraction Limits/Cover Depth (z/H)

Figure No: 52
Mean $y = 0.8000 e^{-3.0291x}$

$U_{95\% CL} y = 1.4622 e^{-1.9201x}$

$U_{99\% CL} y = 2.0200 e^{-1.8018x}$

Newcastle Coalfield Data
Panel Widths: $W = 150 - 193$ m
Cover Depths: $H = 85 - 210$ m
Panel $W/H = 0.65 - 2.27$
Newcastle Coalfield Data
Panel Widths (W): 150 - 193m
Cover Depths (H): 110-250m
Panel W/H: 0.6 - 1.45