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E02/00865

Ashton Coal Project
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6 September 2002

By Fax: 02 9762 8722

Mr Sam Haddad
Executive Officer
PlanningNSW
Henry Deane Building
20 Lee Street
SYDNEY NSW 2000

*Mark Andrews
For urgent attention
pls.
SHaddad
13/9.*

Sam
Dear Mr Haddad

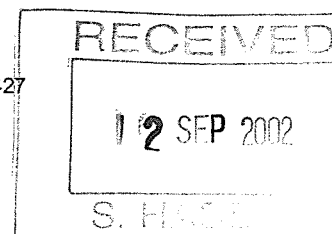
ASHTON COAL PROJECT

We wish to provide our response arising as a consequence of the option detailed in your letter dated 28 August 2002 and our follow-up meeting of 3 September 2002. We acknowledge that the option results in positive environmental outcomes and respectfully request that PlanningNSW consider the benefits of the attached alternate underground mine layout.

As confirmed in the meeting by PlanningNSW, we can mine beneath Bowmans Creek and its associated alluvials provided no connective cracking results. The alternate mine plan recognises that some coal could be sterilised in the upper seams where the depth of cover is limited. This option also includes for some make-up coal resources available through the area previously occupied by the creek diversion to the west and in the north-west segment of the DA area.

The alternate mine layout for each seam is shown on the attached plans.

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We understand that the Department of Mineral Resources would approve underground longwall extraction through the Section 138 process in consultation with PlanningNSW and other Government agencies. As such, the program of monitoring and assessment of longwall panels 1, 2 and 3 will enable determination of depth of cover limitations where connective cracking would occur. Those areas would be eliminated from subsequent longwall mining.

We are pleased to work with you to move our development application forward. We would like to see the draft approval to confirm our acceptance prior to your taking the recommendation to the Minister on 20 September 2002.

Yours faithfully

A handwritten signature in cursive script that reads "Ian Callow".

IAN CALLOW
Project Manager

Encl



WHITE MINING LIMITED

ASHTON COAL MINE PROJECT

**DESCRIPTION OF ALTERNATE MINE
LAYOUT FOR UNDERGROUND MINE
(Option 4)**

Distribution:

Matt Andrews
PlanningNSW

Brian Gardoll
DLWC

Scott Carter
NSW Fisheries

Mitch Bennett
EPA

1. INTRODUCTION

White Mining Limited (WML) has given consideration to alternate mining scenarios that would prevent connective cracking between the longwall operations in the proposed underground mine and the alluvial groundwater associated with Bowmans Creek. This will obviate the potential for an increase in the salinity levels of Bowmans Creek and the Hunter River that was predicted under the "worst-case" scenarios presented in previous reports. This report evaluates those alternate mining scenarios and puts forward a further mine plan (Option 4) that meets those requirements. It also presents a monitoring strategy to ensure that connective cracking will not occur. The environmental and socio-economic impacts of the proposal are also assessed.

2. INTERCONNECTION OF SURFACE CRACKS AND THE MINE WORKINGS

The issue of mining under bodies of water has received significant attention overseas and locally. It was the subject of detailed scrutiny at the Reynolds Inquiry into Mining Under Stored Waters in 1975 (Report of the Commissioner Justice Reynolds – Coal Mining Under Stored Water). The NSW Dams Safety Committee has also paid close attention to the issue of ground cracking and connectivity to mine workings for many years. It has an extensive bibliography of reports on this topic.

It is important to appreciate that the visible surface effects of subsidence do not necessarily represent connective cracking to the underground mine workings. Surface cracking as a result of coal extraction by longwall methods extend only a short distance from the surface downwards. For convenience, it is usually regarded as similar to the depth of weathering of the near surface rock strata, which is commonly 12 to 15 metres in the Hunter Valley. This zone has more jointing that can promote ground cracking as a result of the normal weathering processes. The fresh rock beneath is commonly less jointed and provides a less permeable barrier to water flows. Experience within the Hunter Valley indicates that ground strains of less than 4mm/m are unlikely to cause surface cracking of significance.

The cracking that occurs in the roof strata of a mined out area is also limited in its vertical extent. The zone of active strata collapse is commonly regarded as 30 metres for a 2 metre thick seam. Above this strata the rock will bend and settle, but with considerably less cracking.

To achieve the objective, WML will ensure that sufficient sound rock is available between the two different forms of cracking to provide a barrier to water transfer. This barrier (as a measurement), is provided as the depth of cover between the mine workings and the surface. In selecting the most appropriate depth of cover for mining under water bodies, the following examples have been referred to in previous reports:

- In the United Kingdom, a minimum cover thickness of 105m is required for a maximum seam thickness of 1.7 metres and a maximum tensile strain of 10mm/m;
- Japan sets 60m for 0.8m seams;
- Chile sets 150m as a minimum depth cover and 5mm/m as maximum tensile strain; and
- Canada sets a greater depth of 213m for thicker seams of 2.7m.

The standards differ from country to country because the geology and experience of water entry differ.

On a more local basis, the nearby Cumnock Mine is extracting the Pikes Gully seam over previous Liddell Seam extraction with a 210m longwall face, with no evidence of connective cracking to the base of Davis Creek, at only 70m of cover. A number of mines are operating longwall mines under Lake Macquarie at depths of 100m without connective cracking.

It was therefore concluded in previous reports that a depth of cover of 150 metres is very conservative by both Australian and international standards and will prevent connective cracking.

3. EVALUATION OF ALTERNATE MINE PLANS

A number of different mine plans have been evaluated. These are detailed in the following table:

SCENARIO	DESCRIPTION	COMMENTS
Base Case	<ul style="list-style-type: none"> As per EIS • 6 longwall panels over 4 seams 	<ul style="list-style-type: none"> • 50.33Mt of ROM coal recovered from Mine • Mine life 18 years • 1,314 man years of employment • \$70.8M in royalty payments
Option 1	<ul style="list-style-type: none"> • No diversion to Bowmans Creek • No mining under alluvials • Shorten longwall panels 5 & 6 over all seams 	<ul style="list-style-type: none"> • 11.72Mt of coal sterilised • Value of lost coal \$588M • Mine life shortened by 4 years • 292 man years of employment lost • \$16.8M reduction in royalty
Option 2	<ul style="list-style-type: none"> • First workings only under alluvium 	<ul style="list-style-type: none"> • 4.4Mt of coal sterilised • Value of lost coal \$220M • 109 man years of employment lost • \$6.3M reduction in royalty • Cost of contract drivage exceeds revenue, thereby making option uneconomic
Option 3	<ul style="list-style-type: none"> • Existing mine plan • Only mine seams deeper than 150 metres 	<ul style="list-style-type: none"> • 2.8Mt of coal sterilised • Value of lost coal \$140M • 70 man years of employment lost • \$4.0M reduction in royalty
Option 4	<ul style="list-style-type: none"> • Reduce longwall to 210m to reduce strains • Mine 7 panels in lieu of 6 • Only mine under alluvium where depth of cover exceeds 150m • Extend panels 5, 6 and 7 where practicable to the north and south 	<ul style="list-style-type: none"> • Coal sterilised under alluvium replaced by coal in northwest corner & southern area • Nil loss of employment • Nil reduction in royalty • Additional 20% development drivage

The option to preclude mining under the alluvium (Option 1) reduces the recoverable coal by 23% and makes the project uneconomic.

The option to conduct first workings only under the alluvium (Option 2) is precluded by the high cost of contract drivage, which exceed the cost of revenue.

Option 3 requires the same amount of contract drivage as the base case, but significantly less coal is available for extraction by the longwall. This significantly reduces the economic viability of this option.

Option 4 represents the only option that retains economic benefit. The cost of contract drivage of gate roads is increased by 20%, however the longwall coal lost as a consequence of the 150 metres restriction under the alluvium is replaced by coal previously sterilised in the northwest corner of the mine lease area. A southern extension of longwall panels 5, 6 and 7 is limited to a 200 metre off-set from the Hunter River alluvium as defined in previous reports.

4. DESCRIPTION OF OPTION 4

Option 4 is presented in the attached mine plans. It includes the following variations:

- The width of the longwall panel is reduced from 250 metres to 210 metres, thereby reducing the tensile strains generated within the overlying rock strata;
- Seven longwall panels are mined in each seam, compared with six in the base case option;
- The reduced width of the longwall panels enables four complete longwall panels to be placed between the eastern limit of the alluvium and the ridgeline near the eastern extremity of the mine lease;
- No extraction by longwall methods is planned under the alluvium where the depth of cover is less than 150 metres. Sections of the Pikes Gully and Upper Liddell seams that do not meet these criteria will not be extracted. This will preclude the potential for inter-connective cracking between the longwall mining operations and the alluvial groundwater;
- The subsidence impact on the oxbow and the northern ends of panels 5 & 6 is potentially halved;
- The main gate roads are extended in a westerly direction under the highway;
- Coal is extracted in the northwest corner and the western side of the lease; and
- The southern limit of longwall panels 5, 6 and 7 is defined by a 200m offset from the Hunter River alluvium.

This option requires seven longwall panels in lieu of the six panels that were previously planned and limits coal extraction under the alluvium to gate road development, which is fully supported and will not induce cracking. Approximately 47km of additional drivage of gate roads will be required, with a further five longwall change-outs, also being necessary. The requirement for the diversion to Bowmans Creek and the need for substantial salinity offsets are removed. The cost impact to WML is therefore significant, but the project retains its economic viability. There will be minimal effect on project timelines (see Section 7).

- (a) Subsidence impacts will remain similar to those previously addressed in the May 2002 report entitled "Description of Proposed Diversion – Option 2", with the exception that the extent of subsidence under the oxbow region of Bowmans Creek will be significantly reduced as the Pikes Gully and Upper Liddell seams will remain in place. The edge of longwall 7 will affect approximately 600 metres of Bowmans Creek downstream of the DLWC gauging station, as opposed to the 200 metres zone of affectation presented in the previous option. However, the degree of affectation will be lower as only the three lower seams will be mined in this zone.
- (b) The potential for inter-connective cracking between the longwall panels and the groundwater associated with the alluvium in Bowmans Creek has been precluded, so the groundwater inflows into the mine will be reduced. No provision will be required for the on-site storage of alluvial groundwater within the mine water management system.
- (c) The reduction in the width of the longwall panels will reduce ground strains and will limit the extent of surface cracking thereby minimising impacts on surface water runoff characteristics. The number of swales and the extent of surface remediation works will be reduced.
- (d) There will be no additional changes to the impact on land use or agricultural suitability resulting from Option 4.
- (e) The ecological impact on Bowmans Creek will be lower as there will be no requirement for the previously proposed diversion.
- (f) Cultural heritage sites located in the northwest corner of the DA area will not be disturbed, whilst the integrity of the sites above other longwall panels will be enhanced through the lowering of ground strains.
- (g) The socio-economic benefits of the project will be retained as there are minimal changes to resource recovery or mine life.

5. ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

This proposal has a number of outcomes that provide positive environmental impacts when compared to the worst-case scenarios presented in the EIS. These include:

- The absence of connectivity puts in place a safeguard on groundwater and salinity, with no change in the salinity profile of Bowmans Creek and its associated alluvium;
- The elimination of the partial diversion of Bowmans Creek will:
 - Reduce the physical impact on the landscape and the physical environs;
 - Remove any potential for unintended long-term environmental issues;
 - Remove any potential for sedimentation and erosion to migrate from the diversion;
 - Obviate noise and air emissions that would have occurred during the construction period;

- The level of subsidence in the oxbow region of Bowmans Creek will be reduced as the Pikes Gully and Upper Liddell seams will remain in place;
- Aboriginal artefacts in the northwest will not be disturbed by the diversion and will be left insitu. The requirement to undertake subsurface archaeological investigations associated with the diversion is removed. The impact on other sites will be significantly reduced by the lowering of ground strains;
- There is reduced impact on the downstream side of the Waterhole archaeological site as it will no longer be necessary to utilise the existing rock outcrop to divert stream flows;
- The current salt contribution to the catchment will remain unchanged, thereby removing the need for salinity off-sets;
- The flooding regimes will remain essentially the same;
- The access to the Bowman property will remain the same;
- The arrangements negotiated with DLWC, the Common Trust Management Committee and the Hunter Rural Lands Protection Board for the land swap area will not be affected; and
- There will be no impact on the final rehabilitation of reject placement areas.

Some sections of subsidence will occur along Bowmans Creek, but these will be similar in nature to those expected under the previously presented "Diversion – Option 2". The removal of the potential for connective cracking will result in deep pools of water that will provide refuge for aquatic fauna in times of drought, whilst the overall vertical grade of the creek between the highway and the river will be unchanged, thereby maintaining the current level of fish passage. The strategies contained in the Land Management Plan will be refocussed to encourage appropriate riparian vegetation growth and bank stability along Bowmans Creek. The long-term impact on the riverine habitat will be reduced as a consequence of proceeding with this option.

The option will result in no loss of royalties or employment opportunities and, whilst there may be minor socio-economic reductions associated with not constructing the diversion, these will be out-weighed by the positive benefits to be accrued by the community and the environment.

6. MONITORING PROGRAM

The underground mine proposed under this option will comprise seven longwall panels. The four eastern panels in the Pikes Gully seam will be mined first and will have no affect on the alluvium associated with Bowmans Creek.

The first stage of the monitoring program will address the site-specific geology encountered in the first three of these panels. This will provide ample opportunity to measure ground strains and monitor cracking and water table movements at depths up to 125m. This will confirm whether or not the ground strains can be contained to an acceptable level. It will also ensure that localised jointing or faulting patterns will not provide substantial paths for water flows. Mining under Dam G (refer EIS Figure 4.18) at a depth of cover of 90 metres will verify the results of these investigations.

The results of this monitoring will enable determination of the appropriate depth of cover necessary to prevent connective cracking between the mine workings and the alluvium associated with Bowmans Creek. This information would be presented as part of the application to seek approval for secondary workings in panels 5, 6 and 7 in accordance with Section 138 of the Coal Mines Regulation Act.

We also envisage a monitoring program over the subsided area of Bowmans Creek. A program to enhance the riparian corridor through which Bowmans Creek flows will be established as part of the Land Management Plan, which will ensure that drainage patterns are maintained and that appropriate tree planting is undertaken. Bank stabilisation works will be undertaken in consultation with DLWC under a Part 3A permit. These works are consistent with the proposals included in the EIS and subsequent documentation.

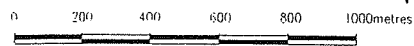
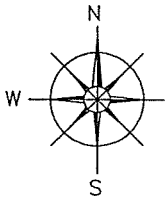
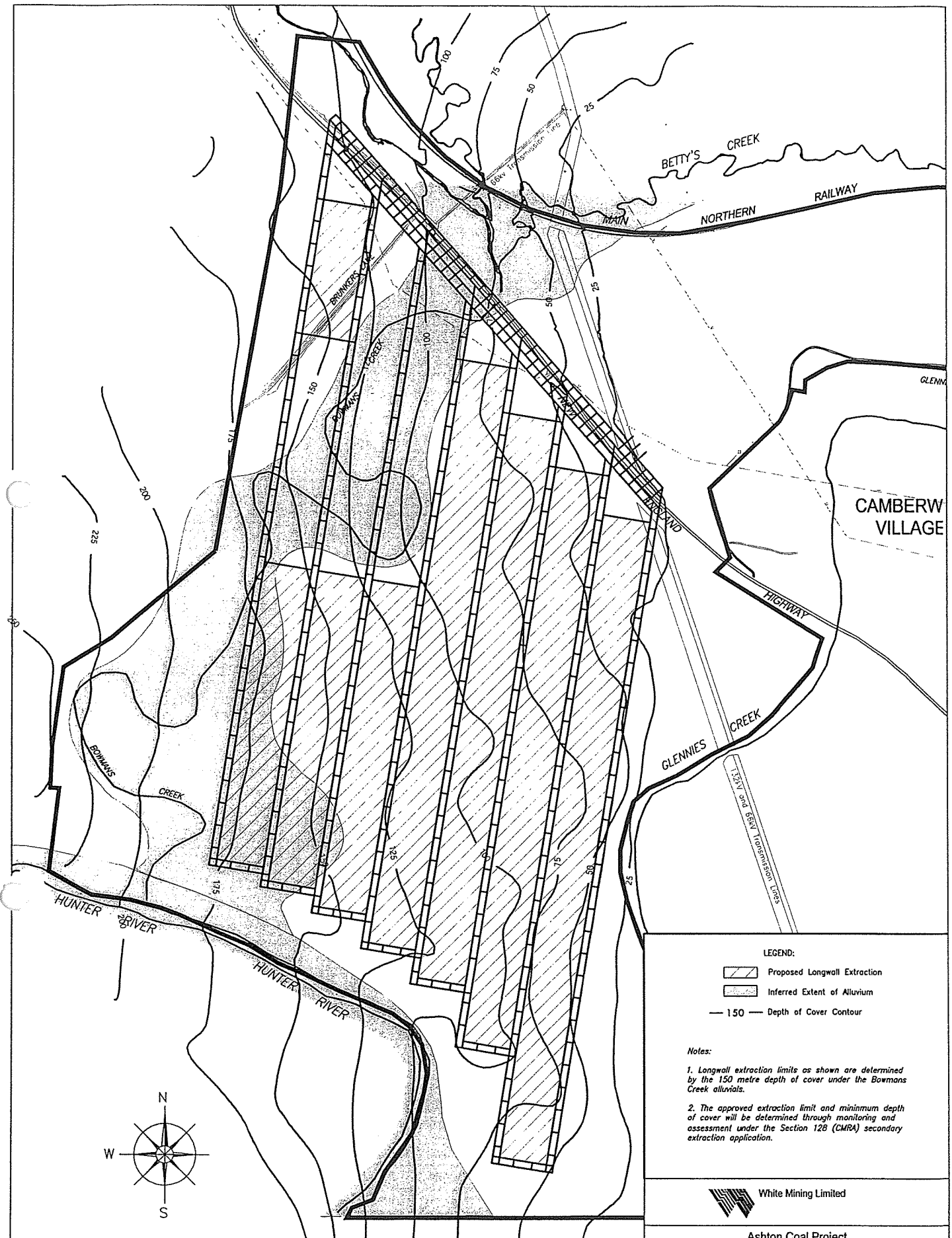
7. PROJECT TIMELINES

Description of Activities	Years from Project Commencement
Commencement of Open Cut Mine	0
Commencement of UG Mine gate road development	2
Commencement of UG Mine longwall operations	3.5
Completion of Longwall 3 – S138 application for LW panels 5,6 & 7	5.5
Mining approaches oxbow (but not beneath)	6.5
Pikes Gully seam	8.5
ULD seam	
Mining under oxbow: - ULLD seam	12.3 – 13.9
-LB seam 16.1 – 17.7	
Complete Mining	20
Mine rehabilitation and sealing	20 – 21

8. CONCLUSION

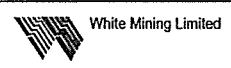
A reasonable mine plan can be developed that will ensure that sufficient depth of cover is available to prevent connective cracking between the longwall panels and the overlying alluvium associated with Bowmans Creek. The mine plan will preserve the water quality of Bowmans Creek and the Hunter River and remove any uncertainty about potential burdens on future generations. The attached mine plan (Option 4) provides significant environmental, ecological and cultural heritage benefits whilst retaining the socio-economic benefits at the same level as the previous proposal. The cost impact of Option 4 to WML is significant, but the project remains viable from an economic perspective.

A monitoring program will be established within Longwall panels 1-3 to determine the depth of cover necessary to prevent connective cracking and the results will be incorporated in the application for secondary extraction in longwall panels 5 – 7 in accordance with Section 138 of the Coal Mines Regulation Act.



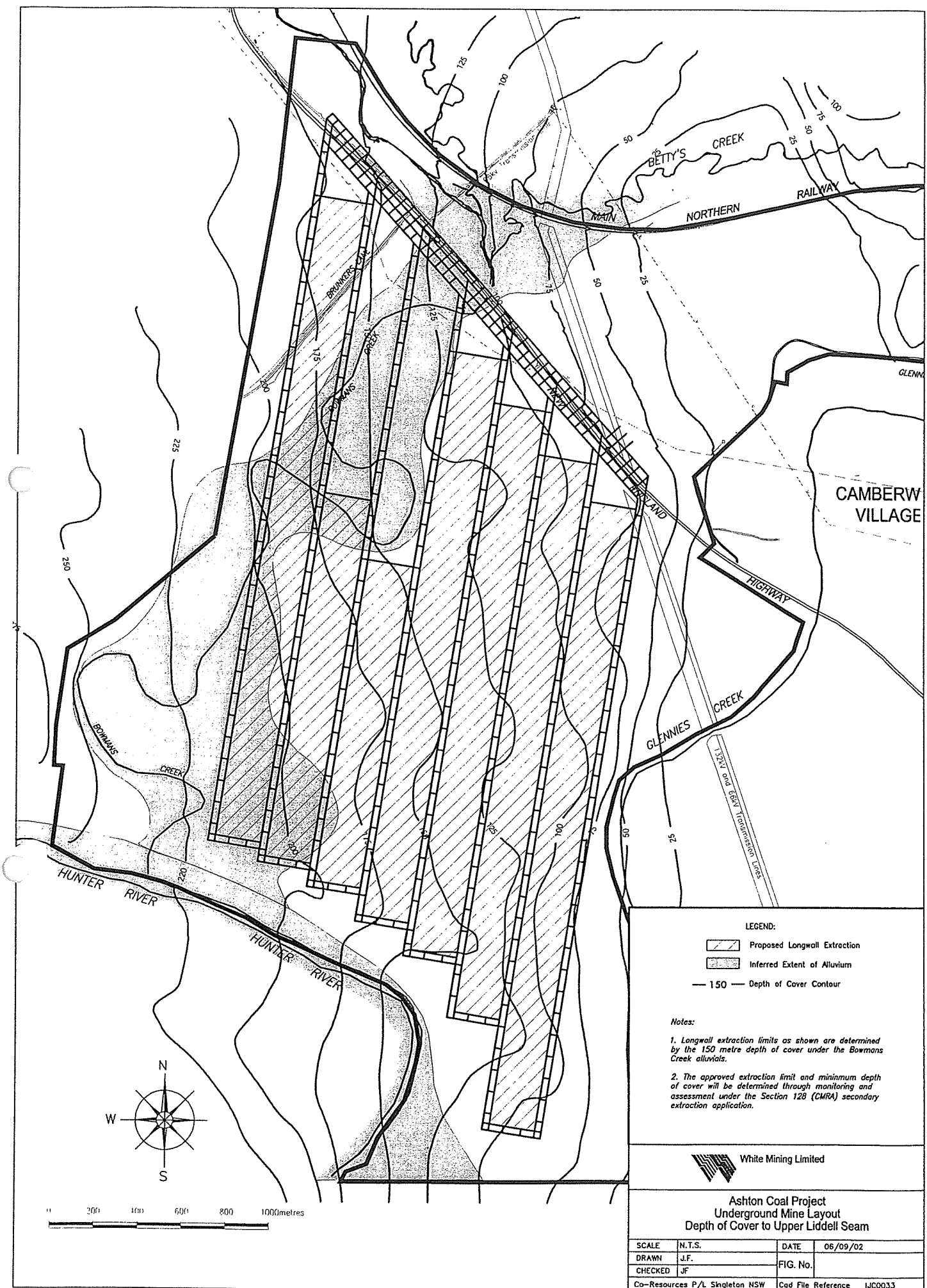
- LEGEND:**
- Proposed Longwall Extraction
 - Inferred Extent of Alluvium
 - 150 — Depth of Cover Contour

- Notes:**
1. Longwall extraction limits as shown are determined by the 150 metre depth of cover under the Bowmans Creek alluvials.
 2. The approved extraction limit and minimum depth of cover will be determined through monitoring and assessment under the Section 12B (CMRA) secondary extraction application.






**Ashton Coal Project
Underground Mine Layout
Depth of Cover to Pikes Gully Seam**

SCALE	N.T.S.	DATE	06/09/02
DRAWN	J.F.	FIG. No.	
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Co-Resources P/L Singleton NSW		Cad File Reference	UC0034




LEGEND:

-  Proposed Longwall Extraction
-  Inferred Extent of Alluvium
-  150 — Depth of Cover Contour

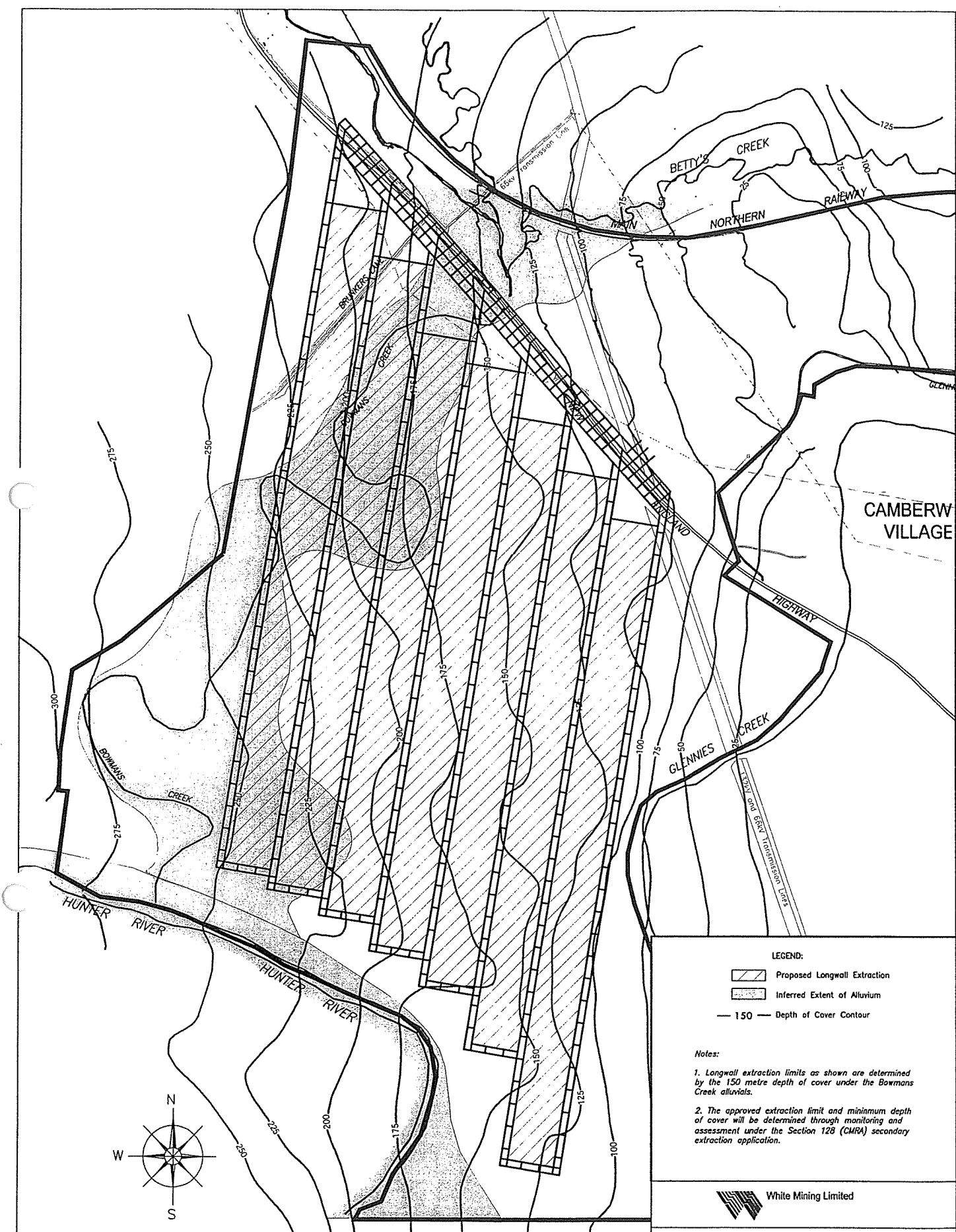
Notes:

1. Longwall extraction limits as shown are determined by the 150 metre depth of cover under the Bowmans Creek alluvials.
2. The approved extraction limit and minimum depth of cover will be determined through monitoring and assessment under the Section 128 (CMRA) secondary extraction application.

 White Mining Limited

**Ashton Coal Project
Underground Mine Layout
Depth of Cover to Upper Liddell Seam**

SCALE	N.T.S.	DATE	06/09/02
DRAWN	J.F.	FIG. No.	
CHECKED	JF		
Co-Resources P/L Singleton NSW		Cad File Reference	IJC0033



LEGEND:

- Proposed Longwall Extraction
- Inferred Extent of Alluvium
- 150 — Depth of Cover Contour

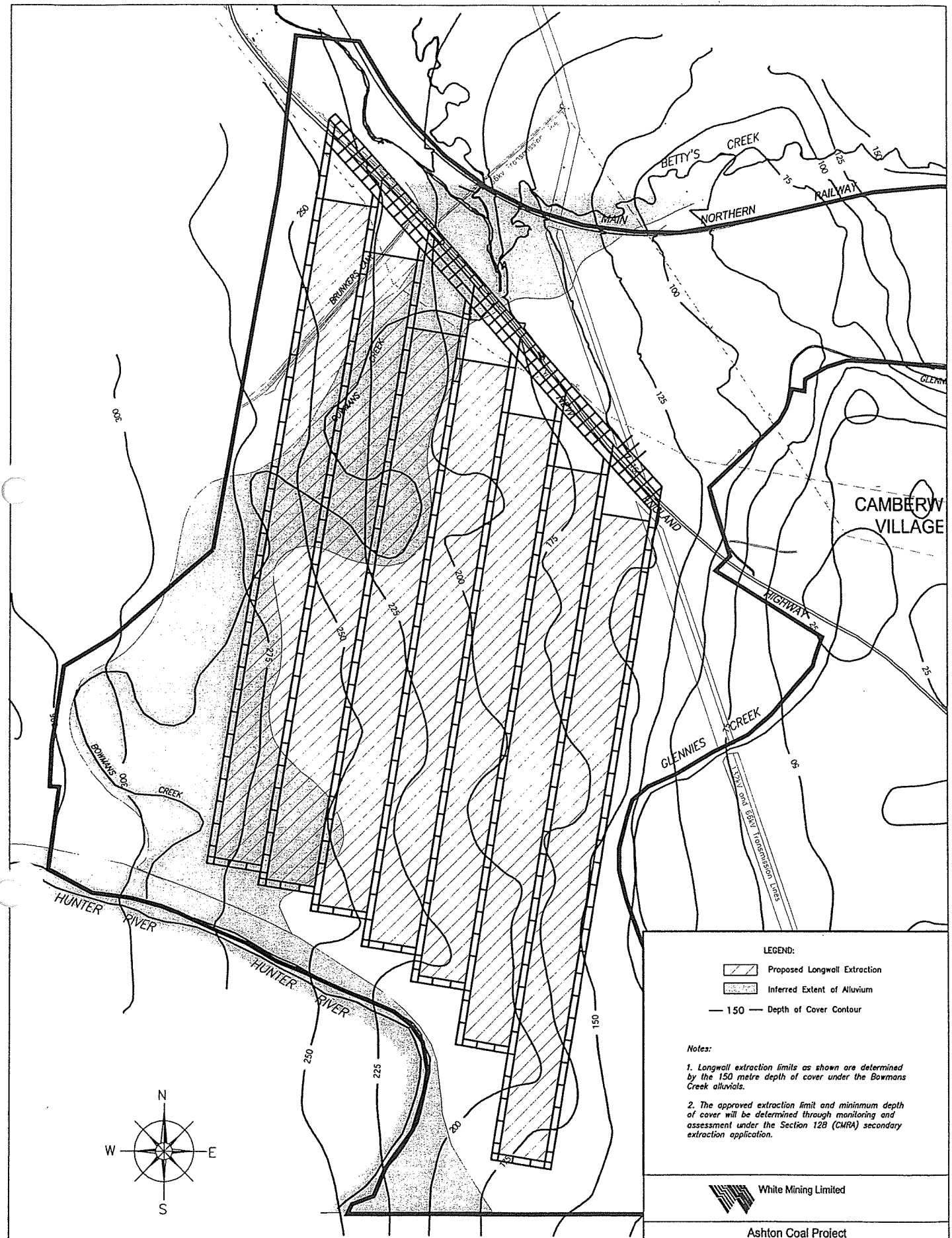
Notes:

1. Longwall extraction limits as shown are determined by the 150 metre depth of cover under the Bowmans Creek alluvials.
2. The approved extraction limit and minimum depth of cover will be determined through monitoring and assessment under the Section 128 (CMRA) secondary extraction application.

White Mining Limited

**Ashton Coal Project
Underground Mine Layout
Depth of Cover to Upper Lower Liddell Seam**

SCALE	N.T.S.	DATE	06/09/02
DRAWN	J.F.	FIG. No.	
CHECKED	JF		
Co-Resources P/L Singleton NSW		Cad File Reference IJC0032	



LEGEND:

- Proposed Longwall Extraction
- Inferred Extent of Alluvium
- 150 — Depth of Cover Contour

Notes:

1. Longwall extraction limits as shown are determined by the 150 metre depth of cover under the Bowmans Creek alluvials.
2. The approved extraction limit and minimum depth of cover will be determined through monitoring and assessment under the Section 12B (CMRA) secondary extraction application.

White Mining Limited

**Ashton Coal Project
Underground Mine Layout
Depth of Cover to Lower Barrett Seam**

SCALE	N.T.S.	DATE	06/09/02
DRAWN	J.F.	FIG. No.	
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the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office for National Statistics 2000).

There is a growing awareness of the need to address the needs of older people, and the need to ensure that the health care system is able to meet the needs of older people. This has led to a number of initiatives, including the development of the National Health Service (NHS) and the establishment of the Department of Health. The NHS is a public health care system that provides a range of services, including primary care, hospital care, and community care. The Department of Health is responsible for the overall management of the NHS and for setting the health care policy agenda.

One of the key challenges facing the NHS is the need to ensure that it is able to meet the needs of older people. This is because the number of older people is increasing, and the needs of older people are different from those of younger people. Older people are more likely to have chronic conditions, and they are more likely to need long-term care. This means that the NHS needs to be able to provide a range of services, including primary care, hospital care, and community care, in order to meet the needs of older people.

One of the ways in which the NHS is addressing the needs of older people is through the development of the National Health Service for Older People. This is a new initiative that is designed to provide a range of services, including primary care, hospital care, and community care, specifically for older people. The NHS for Older People is being developed in a number of ways, including the development of new services, the expansion of existing services, and the development of new models of care.

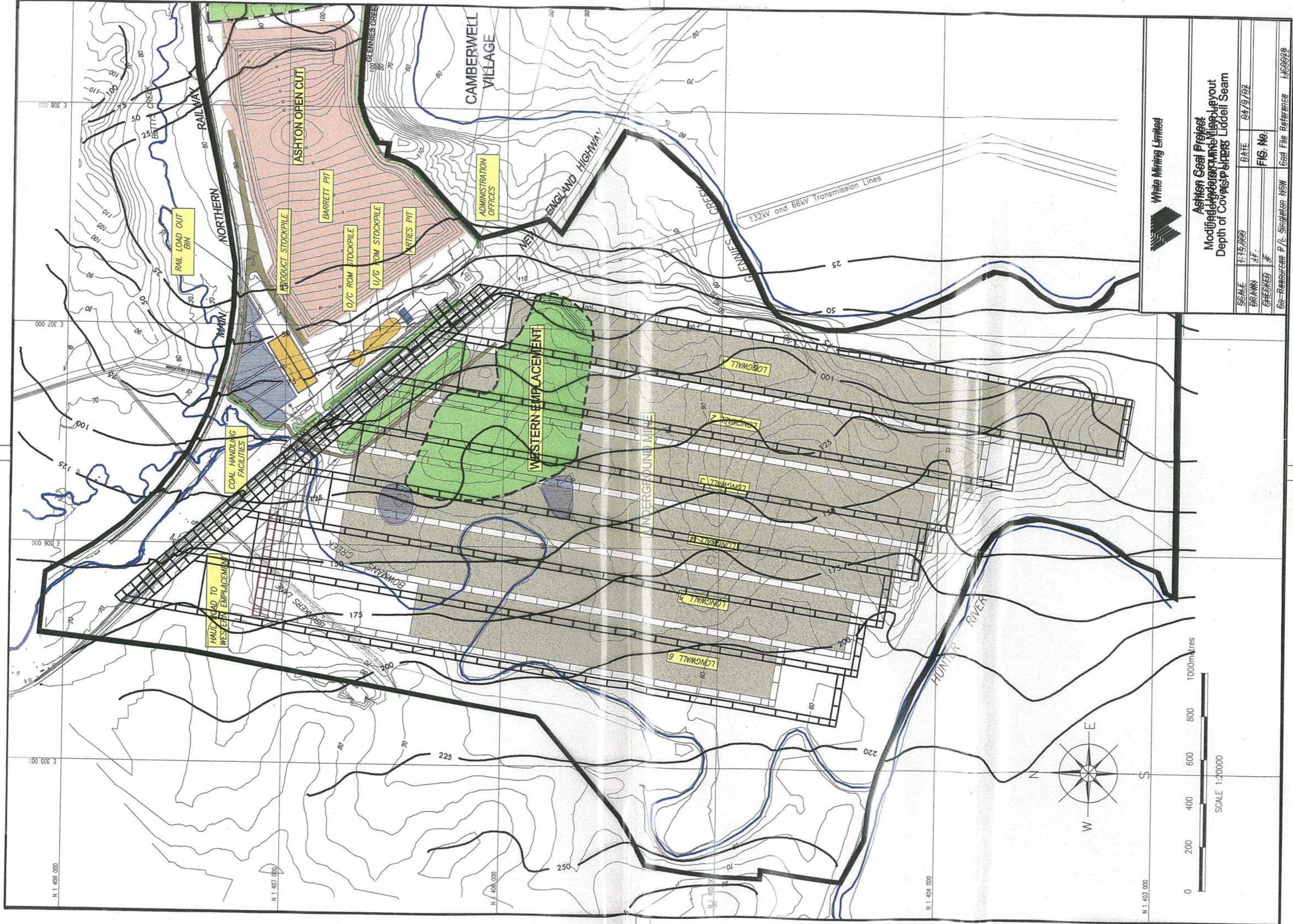
One of the key areas of focus for the NHS for Older People is the development of new services. This includes the development of new primary care services, new hospital services, and new community care services. The NHS for Older People is also focusing on the expansion of existing services, and on the development of new models of care. This includes the development of new models of primary care, new models of hospital care, and new models of community care.

One of the key challenges facing the NHS for Older People is the need to ensure that it is able to meet the needs of older people. This is because the number of older people is increasing, and the needs of older people are different from those of younger people. Older people are more likely to have chronic conditions, and they are more likely to need long-term care. This means that the NHS for Older People needs to be able to provide a range of services, including primary care, hospital care, and community care, in order to meet the needs of older people.

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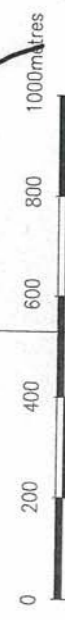
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Ashton Coal Project
 Modified Coal Seam Layout
 Depth of Cover at Blowers Liddell Seam

SCALE	1:15,000	DATE	04/19/82
DRAWN	J.F.	FIG. No.	
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Ge-Resources P/L Singleton NSW		Geol File Reference 1300028	



SCALE 1:20000

CAMBERWELL VILLAGE

WESTERN EMPACEMENT

UNDERGROUND MINE

ASHTON OPEN CUT

PRODUCT STOCKPILE

O/C ROM STOCKPILE

U/G ROM STOCKPILE

ARTIES PIT

COAL HANDLING FACILITIES

HAUL ROAD TO WESTERN EMPACEMENT

RAIL LOAD OUT BIN

ADMINISTRATION OFFICES

LONGWALL 1

LONGWALL 2

LONGWALL 3

LONGWALL 4

LONGWALL 5

LONGWALL 6

132kV and 66kV Transmission Lines

NEW ENGLAND HIGHWAY

NORTHERN RAILWAY

HUNTER RIVER

GLENIES CREEK

BOMMANS CREEK

GRIMMERS LAKE

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N 1 407 000

N 1 406 000

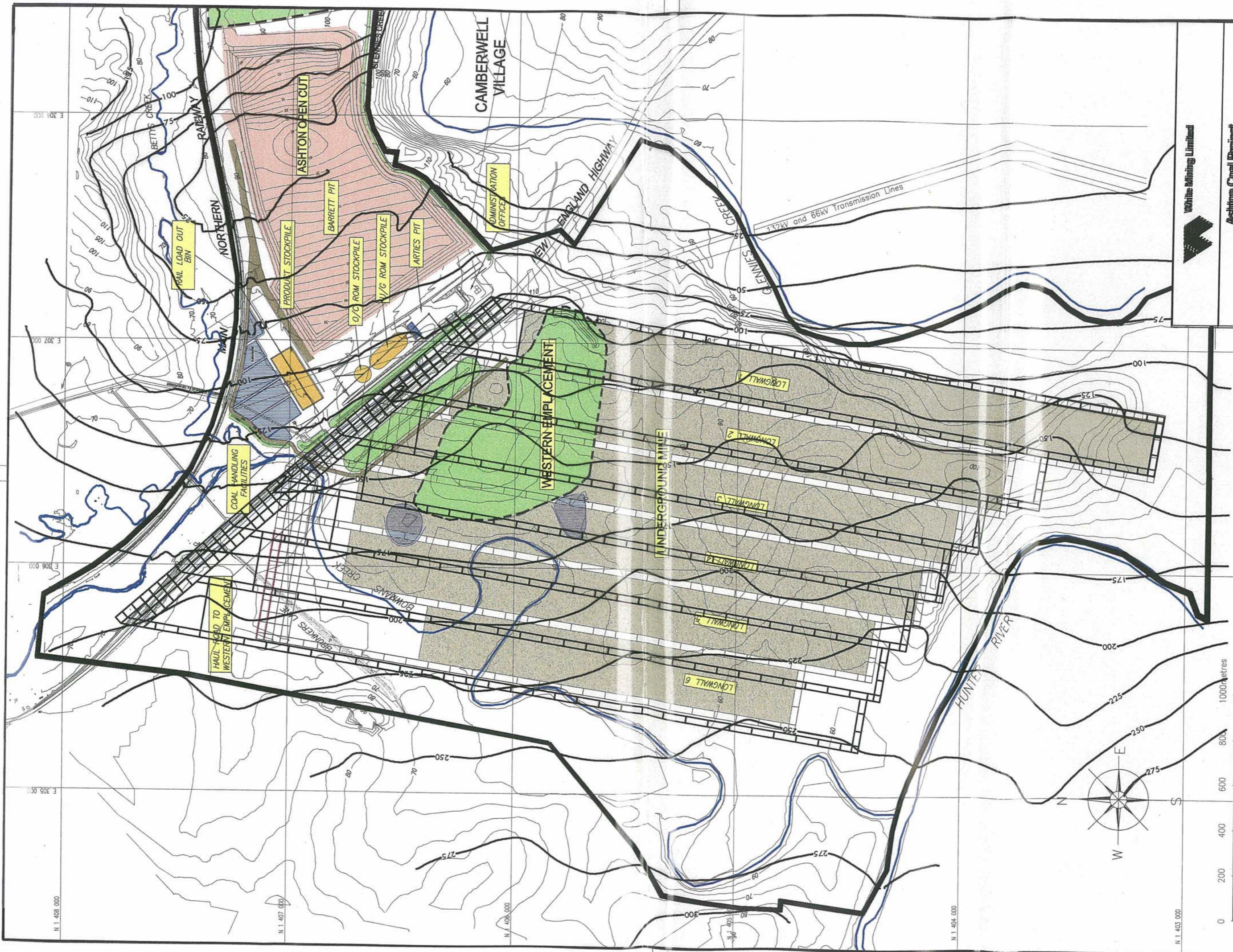
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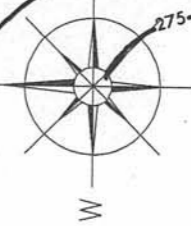
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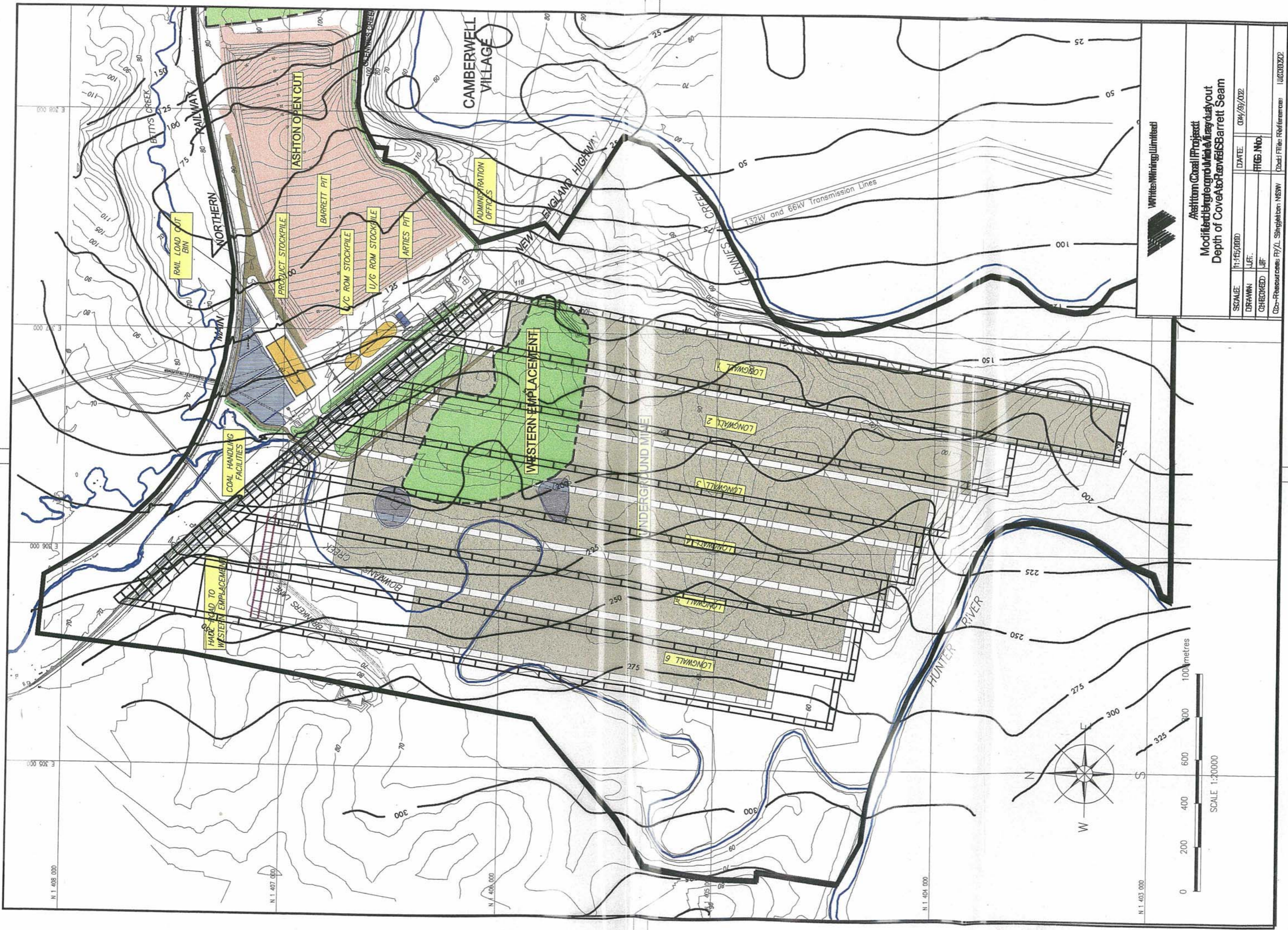


Ashtom Coal Project
Modification of the Mine Layout
Depth of Cover to the Elbow Liddell Seam

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Co-Resources Pty/L. Singleton NSW	Coal Files Reference:	LUC000292	

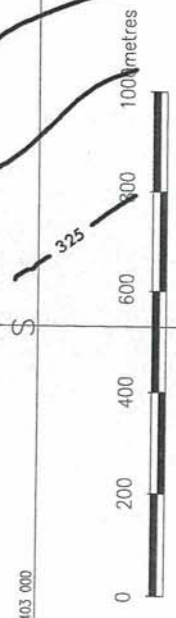
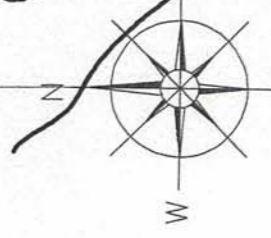


SCALE 1:20000

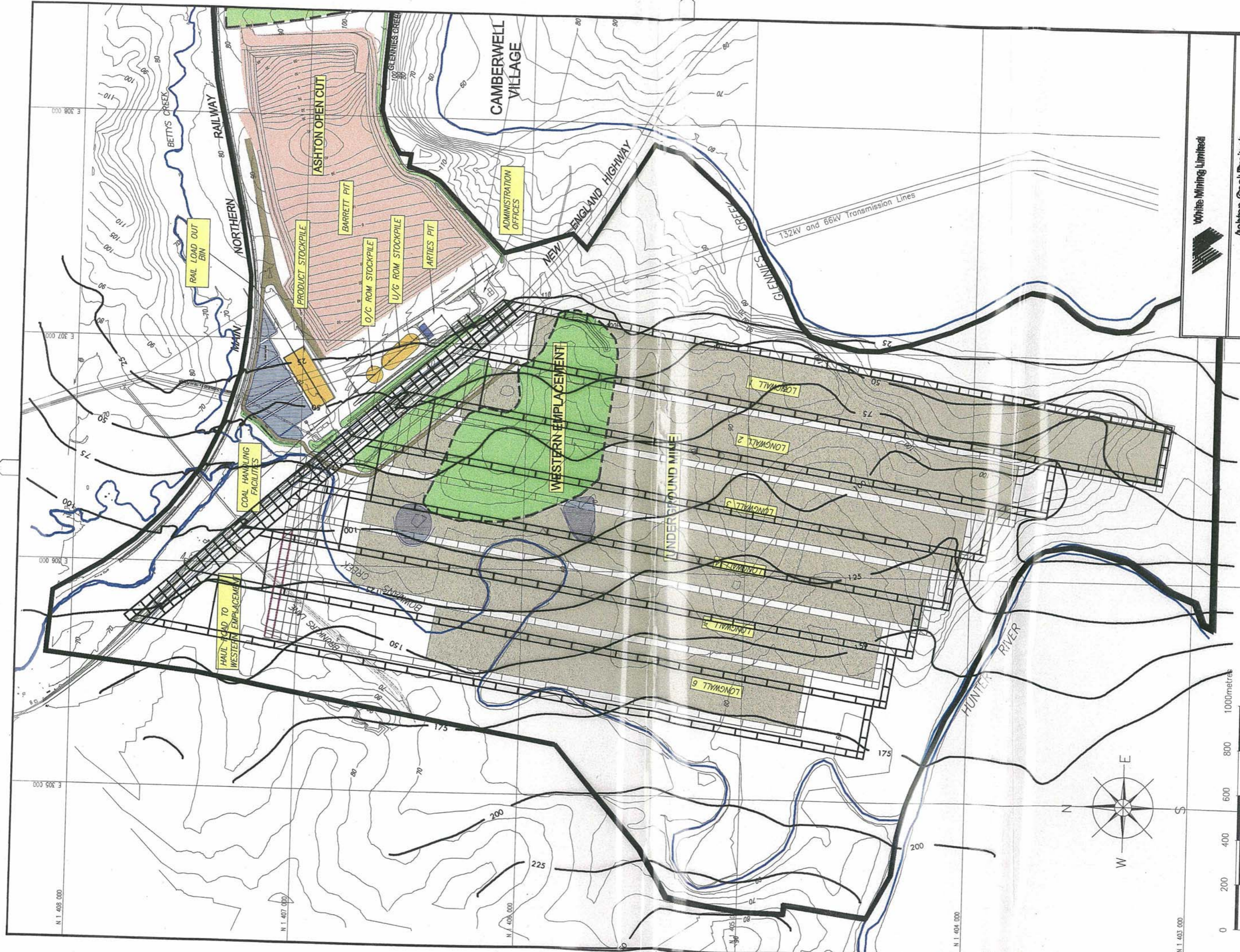


**Ashton Coal Project
 Modified Longwall Mining Layout
 Depth of Cove to Barrett Seam**

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CHECKED	JIF		
Doc Resources	RYL, Singleton NSW	Doc Files Reference	10000302

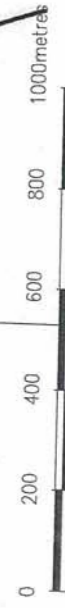


SCALE 1:20000



Ashton Coal Project
Modification of the Mine Layout
Depth of Coves to Pit at Gully Seam

SCALE	1:15,000	DATE	04/09/02
DRAWN	JUF	FIG. No.	
CHECKED	JUF		
Geo-Resources Pty/L. Singleton, NSW		Doc File Reference: 14000022	



SCALE 1:20000

N 1 408 000
 N 1 407 000
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