



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**


Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022



WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

NARRABRI MINE

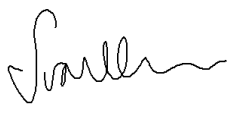

EXTRACTION PLAN

PANELS 201 - 202

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Name of Applicant	Narrabri Coal Operations Pty Ltd
Development consent / Project Approval #	Project Approval 08_0144
Mining Authorisation	ML 1609
Title	Narrabri Mine Extraction Plan - Panels 201 to 202
Date	30 March 2022
Reference #	Narrabri Mine EP Panels 201-202
Name of Authorised Representative	Brent Baker
Title of Authorised Reporting Officer	Manager HSE - Narrabri Mine
Signature	
Date	30 March 2022
Name of General Manager	Gerald Linde
Signature	
Date	31 March 2022
Revision	0


Prepared by:

Title	Name	Signature	Date
Senior Environmental Manager	S. van der Meulen Onward Consulting		30 March 2022
Director	Mark Vile Onward Consulting		30 March 2022

This document has been prepared by Onward Consulting to comply with the conditions of the Narrabri Mine project approval and has relied upon the relevant information available at the time of writing and all findings, conclusions or recommendations contained herein are based thereon. This document is for the use of Narrabri Coal Operations Pty Ltd and no responsibility will be taken for its use by other parties. Narrabri Coal Operations Pty Ltd may, at its discretion, use this document to inform regulators and the public.




Onward document number:
NCO-004A-0 PLN

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Acronyms and abbreviations

Acronym	Description
°	degree
AHD	Australian Height Datum
AIP	Aquifer Interference Policy
AoD	angle of draw
AR	Annual Review
BCS	The Biodiversity Conservation and Science Directorate within DPI
BFMP	Built Features Management Plan (as Appendix D to this Extraction Plan)
BMP	Biodiversity Management Plan (as Appendix H to this Extraction Plan)
BOA	Biodiversity Offset Area
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
CoA	Conditions of Approval
CRRP	Coal Resource Recovery Plan (as Appendix A to this Extraction Plan)
DAWE	The Commonwealth Department of Agriculture, Water and Environment
DGS	Ditton Geotechnical Services
DPE	NSW Department of Planning and Environment
DPE Water	The Water group within DPE
EA	Environmental Assessment
EES	Environment, Energy and Science
EMP	Environmental Management Plan
EMS	NCOPL's Environmental Management System
EPA	The NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPL	environment protection licence under the POEO Act
ESCP	erosion and sediment control plan
FFD	far-field displacement
ha	hectare
HMP	Heritage Management Plan (as Appendix J to this Extraction Plan)
km	kilometre
km ²	square kilometre
L	litre
LMP	Land Management Plan (as Appendix I to this Extraction Plan)
LiDAR	light detection and ranging
LSMP	Landscape Management Plan (as Appendix F to this Extraction Plan)

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Acronym	Description
LW	longwall panel
m	metre
MCP	Mine Closure Plan (as Attachment 2 of Appendix F to this Extraction Plan)
MG	maingate (i.e. MG1 = maingate 1)
ML	mining lease
mm	millimetre
mm/m	millimetre per metre
MOP	Mining Operations Plan
MPa	megapascal
Mt	million tonnes
Mtpa	million tonnes per annum
NCOPL	Narrabri Coal Operations Pty Ltd
NSC	Narrabri Shire Council
OEH	The former NSW Office of Environment and Heritage
PED	personal emergency device (communications system)
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
POEO Regulation	Protection of the Environment Operations (General) Regulation 2009
PSMP	Public Safety Management Plan (as Appendix E to this Extraction Plan)
RMP	Rehabilitation Management Plan (as Attachment 1 of Appendix F to this Extraction Plan)
ROM	run of mine
SMP	Subsidence Monitoring Program (as Appendix C to this Extraction Plan)
SoC	Statement of Commitments
SRP	subsidence reduction potential
TARP	trigger action response plan
TG	tailgate (i.e. TG1 = tailgate 1)
U95%CL	upper 95 % confidence level
UCS	unconfined compressive strength
WAL	water access licence
W/H	width to height (ratio)
WHC	Whitehaven Coal Limited
WM Act	<i>Water Management Act 2000</i> (NSW)
WMP	Water Management Plan (as Appendix G to this Extraction Plan)
WSP	water sharing plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table of contents


1. Introduction.....	1
1.1 Background	1
1.2 Purpose and scope	3
1.3 Objective	3
1.4 Consultant suitability and endorsement	4
1.5 Narrabri Mine site description	4
1.6 Risk assessment	5
1.7 Plans	7
1.8 Document structure	7
1.9 Consultation and approval	9
1.10 Access to information	9
2. Statutory requirements	10
2.1 Project Approval	10
2.1.1 Mine plan adjustment	10
2.1.2 Modification 7	12
2.1.3 Statement of Commitments	13
2.2 EPBC approval	13
2.3 Mining lease	13
2.4 Work health and safety legislation	13
2.5 Environment protection licence	14
3. Subsidence assessment.....	15
3.1 Subsidence predictions	15
3.2 Surface cracking.....	15
3.2.1 Review of observed surface cracking	15
3.2.2 Predicted surface cracking.....	16
3.3 Sub-surface cracking	16
3.4 Slope instability and erosion	17
3.5 Valley closure and uplift	17
3.6 Ponding and drainage lines.....	18
3.7 Potential environmental consequences	18
4. Subsidence monitoring and management.....	19
4.1 Subsidence monitoring.....	19
4.2 Subsidence management	19

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

4.3	Contingency response and adaptive management.....	21
5.	Plan implementation	22
5.1	Roles and responsibilities	22
5.2	Reporting.....	23
5.2.1	Incident and non-compliance reporting.....	23
5.2.2	Regular reporting	23
5.2.3	Annual Review	23
5.2.4	Independent environmental audits.....	24
5.3	Evaluation and review	24
5.4	Complaint management and dispute resolution.....	24
6.	References	26
7.	Glossary	27
Attachment 1	DPE endorsement and consultation correspondence.....	29
Attachment 2	Plans 1 to 8.....	44
Attachment 3	Applicable approval and compliance conditions	45
Appendix A	Coal Resource Recovery Plan	55
Appendix B	Subsidence Predictions.....	56
Appendix C	Subsidence Monitoring Program.....	57
Appendix D	Built Features Management Plan.....	58
Appendix E	Public Safety Management Plan	59
Appendix F	Landscape Management Plan	60
Appendix G	Water Management Plan.....	61
Appendix H	Biodiversity Management Plan	62
Appendix I	Land Management Plan	63
Appendix H	Heritage Management Plan	64
Appendix K	Subsidence Risk Assessment	65


Tables

Table 1.1 - Extraction Plan development experts.....	4
Table 1.2 - Extraction Plan appendices.....	8
Table 2.1 - Summary of Project Approval modifications	10
Table 2.2 - Longwall panel naming convention changes	11
Table 2.3 - Longwall panel sequence and mining direction	12
Table 4.1 - Summary of environmental consequences and performance measures.....	20
Table 5.1 - Roles and responsibilities.....	22

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Figures

Figure 1.1 - Narrabri Mine regional location	2
Figure 1.2 - Underground mining layout for Panels 201 to 202.....	6

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

1. Introduction

1.1 Background

The Narrabri Mine is an existing underground coal mining operation situated in the Gunnedah Coalfield. It is located approximately 25 kilometres (km) south-east of Narrabri and approximately 60 km north-west of Gunnedah, within the Narrabri Shire Council (NSC) Local Government Area in New South Wales (NSW) (refer to Figure 1.1). The Narrabri Mine includes an underground coal mine, a coal handling and preparation plant (CHPP), an associated rail siding and various surface infrastructure components.

The Narrabri Mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL), on behalf of the Narrabri Mine Joint Venture, which consists of Whitehaven Coal Limited (WHC) wholly owned subsidiaries Narrabri Coal Pty Ltd (NCPL) (70 per cent [%]) and Narrabri Coal Australia Pty Ltd (7.5%), Upper Horn Investments (Australia) Pty Ltd (7.5%), J-Power Australia Pty Limited (7.5%), Posco International Narrabri Investment Pty Ltd (5%) and Kores Narrabri Pty Limited (2.5%). The underground mine is covered by Mining Lease (ML) 1609 across an area of 5,298 hectares (ha) for the predominant purpose of mining for coal from the Hoskissons Coal Seam.

Stage 1 of the Narrabri Mine was approved in November 2007 (as PA 05_0102) under Part 3A of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. Development of Stage 1 including site establishment and the construction of coal processing infrastructure commenced in 2008, with production using continuous miner mining methods up to 2.5 million tonnes per annum (Mtpa) commencing in 2010. Following the determination of the Stage 2 Environmental Assessment (RW Corkery & Co) (EA) and the issue of Project Approval 08_0144 for Stage 2 (as modified) (Project Approval) in July 2010, PA 05_0102 for Stage 1 was surrendered on 2 August 2011. Approval EPBC 2009/5003 under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* was granted in 2011 and the Narrabri Mine converted to a longwall mining operation which commenced in 2012.

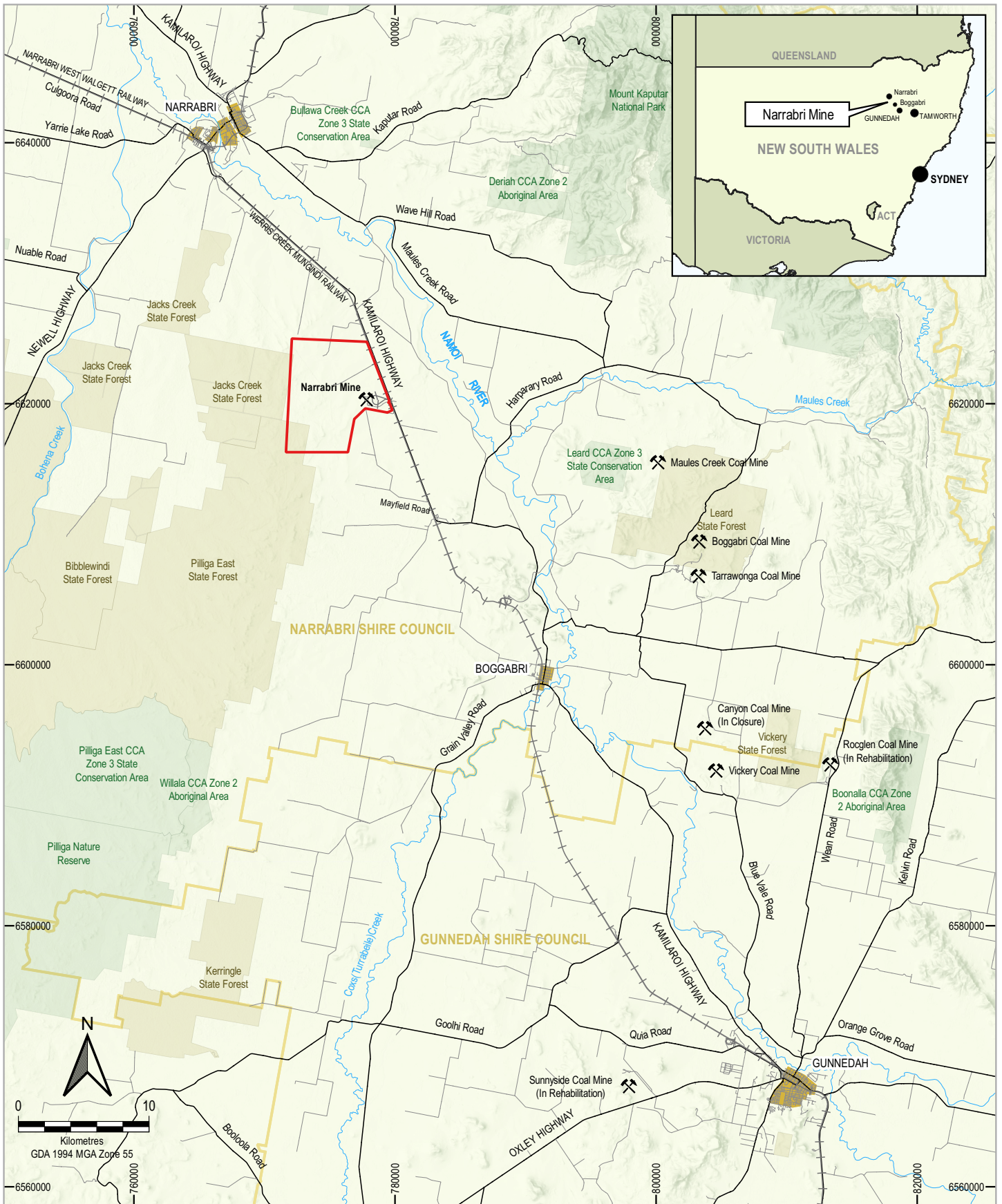
The Project Approval has subsequently been modified on a number of occasions. The environmental assessment for Modification 5 (Resource Strategies, 2015) (MOD 5), approved in December 2015, changed the mine geometry by reducing the number of longwall (LW) panels from 26 to 20, increased some LW panel widths and increased the production to 11 Mtpa of run of mine (ROM) coal until July 2031.

Modification 7, the most recent modification of the Project Approval, was approved on 23 November 2021. The environmental assessment for Modification 7 (Resource Strategies, 2021) (MOD 7) describes the change in mining method within the extent of the previously approved LW 201 and LW 202 and allows for up to 0.7 Mtpa via bord and pillar extraction at pillar reduction panels CF 201 to CF 205¹. The bord and pillar mining will occur concurrently with existing longwall operations, and is scheduled to commence in 2022 for a period of approximately five years. The maximum ROM coal production rate of the concurrent operation remains within the approved limit of 11 Mtpa. The longwall mining commenced in 2012 at LW 101 and has progressed sequentially to LW 109.

This Extraction Plan provides details of the Narrabri Mine operations to date; a consideration of the applicable statutory requirements and the modifications to the Project Approval; and information relevant to the extraction of coal from pillar reduction panels CF 201 to CF 205 (hereafter referred to as **Panels 201 to 202**).



A full historical overview of the various modifications to the Project Approval is provided in section 2.1, together with a detail description of the modifications associated with MOD 7.

¹ The pillar reduction panel naming 'CF' is an acronym for 'cut and flit'.



Source: Geoscience Australia (2011); NSW Spatial Services (2019)


LEGEND

-  NSW Major Operating Mines
-  Mining Lease (ML 1609)
-  Local Government Boundary
-  State Forests
-  State Conservation Area, Aboriginal Area



NARRABRI COAL MINE

Figure 1.1 : Narrabri Mine Regional Location

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

1.2 Purpose and scope

The Project Approval includes a series of conditions of approval (**CoA**) regarding the management of subsidence impacts and environmental consequences of underground coal mining. This includes the preparation and approval of a suite of management plans prior to the commencement of any longwall, mini-wall panel or pillar extraction mining, generally referred to as second workings or secondary extraction. Specifically, Schedule 3 Condition 4 of the Project Approval states that NCOPL must prepare and implement Extraction Plans for any second workings to be mined to the satisfaction of the Secretary.

As required by Project Approval Schedule 6 Condition 2, this Extraction Plan for Panels 201 to 202 has been prepared in accordance with the (former) NSW Department of Planning and Environment *Draft Guidelines for the Preparation of Extraction Plans* (unpublished) (**Extraction Plan Guidelines**) and satisfies the requirements of Schedule 3 Condition 4. As detailed in section 1.1, Panels 201 and 202, previously denoted as LW 201 and LW 202, will now be mined as five pillar reduction panels CF 201 to CF 205, orientated east-west rather than north-south, with each CF panel consisting of two subpanels (A/B to I/J).

As stated in the Extraction Plan Guidelines, the purpose of the Extraction Plan together with the associated sub-plans listed in section 1.8, is to manage subsidence associated with underground coal mining, where that mining has already received approval to take place (i.e., the mine has obtained development consent). An Extraction Plan is not prepared in order to support an environmental impact assessment process or approval but is a management plan, similar in nature and purpose to the other management plans required under the CoA. It is an operational document, primarily for use by NCOPL in conducting its operations and by regulators in ensuring compliance. It provides transparency to the community regarding environmental management and has been framed with these purposes in mind.


It should be noted that where relevant, aspects of the previous Extraction Plans, applicable to LW 101 to LW 110, have been either included or referenced in this Plan or the appendices, e.g. for subsidence monitoring.

1.3 Objective

The objectives of this Extraction Plan are to identify sensitive environmental and built features within the surface area predicted to be affected by the proposed secondary extraction of the approved pillar reduction panels CF 201-CF 205 (**Extraction Plan Area**) and to manage the potential impacts and/or environmental consequences to ensure compliance with the CoA. These objectives will be achieved by:

- implementing the proposed monitoring and management measures to reduce the identified subsidence risks; and
- implementing a review, reporting and auditing process to provide possible feedback on the proposed monitoring and management measures and to allow for continual improvement.

NCOPL will implement all practical measures to prevent and/or minimise any harm to the environment that may result from construction, operation or rehabilitation activities at the Narrabri Mine.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

1.4 Consultant suitability and endorsement

The team responsible for the development and preparation of this Extraction Plan and supporting documents is listed in Table 1.1. In accordance with Schedule 3 Condition 4(a), the development team was endorsed by the Secretary for DPE on 19 July 2021. A copy of the endorsement is provided in Attachment 1.

The appropriate signatures are provided within each document as part of the document completion process.

Table 1.1 - Extraction Plan development experts


Name	Company	Technical expertise / documents
Mark Vile Servaes van der Meulen Alessandro Kennedy Carmen Osborne Ben Lewis	Onward Consulting	Preparation of the Extraction Plan (this document) and the landscape, rehabilitation, closure, biodiversity and land management plans.
Steven Ditton	Ditton Geotechnical Services	Subsidence predictions for Panels 201-202
Keith Phillipson	AGE	Extraction Plan - Water Management Plan (groundwater section)
Greg Roads	WRM	Extraction Plan - Water Management Plan (surface water section)
Dr Matthew Whincop	Whincop Archaeology	Heritage Management Plan

1.5 Narrabri Mine site description

The land within the Extraction Plan Area is exclusively owned by NCOPL and has historically been used for livestock grazing and occasional cereal cropping. The western area is heavily vegetated with woodland areas consisting of dry sclerophyll forest. The Pilliga East State Forest covers the areas to the west. Vegetation includes several stands of native vegetation across the agricultural land use areas and riparian zones along the ephemeral watercourses associated with Kurrajong Creek Tributary 1.

Topographic relief within the ML ranges from 279 m Australian Height Datum (**AHD**) to 340 m AHD. The surface terrain is generally flat to gently undulating, with most slopes ranging from 1 to 5 degrees (°). Slopes increase to 10° to 35° in several rocky 'hillock' locations, including ephemeral creeks and tributaries (or gullies), which drain the Extraction Plan Area towards the north-east. The hillocks have Pilliga Sandstone exposures with local topographic relief and steep rocky slopes ranging between 10 and 15 m above the surrounding plains. The strata bedding generally dips towards the south-west to west at less than 5°. There are no steep rocky slope within the Extraction Plan Area.

Silty sand and sandy clay surface soils to 4 m depth are present in the Extraction Plan Area and are mildly to highly erosive/dispersible. The clayey soils are associated with the outcropping Garrawilla Volcanics and overlying Purlawaugh formation. Sandy alluvial deposits exist along the creek channels with no rock exposures present. The channels are typically incised with steep to very steep banks between 0.5 and 3.5 m high. Sub-surface groundwater aquifers at depths range from 5 to 50 m and are typically of poor quality.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

The Extraction Plan Area includes the approved pillar reduction panels CF201 to CF205 where the previously approved LW 201 and 202 were located. The five pillar reduction panels will be extracted from north to south and from east to west. Each of the CF panels consists of two production panels (A/B to I/J) and will have cover depths ranging from 177 metres (m) to 212 m, with widths ranging from 154 m to 280 m. The panel lengths will range from 155 m to 348 m.

The north-south orientated, intra-panel (gate road) pillars will separate the production panels and include two outside rows (up to 38.5 m wide by up to 39.8 m long) and two inside rows (25 m wide by up to 59 m long). Some of the two inside row pillars may also be extracted on retreat (depending on conditions) to leave residual pillar widths of 13 m. The inter-panel (barrier) pillars between the CF panels will be orientated east-west and 34 m to 64 m wide after second workings. The barrier pillars will have 29.75 m deep stub headings extracted on a centre spacing of 37 m, with one lift left and right on retreat. A five-heading mains panel is proposed between CF 201-CF 205 and the future LW 203. The distance between the pillar reduction and longwall panels will be 266 m. Gate roads will be approximately 3.7 m high and 5.4 m wide, with main headings roadways approximately 5.4 or 6.0 m wide.

There are no dwellings or sheds located above the proposed Panels 201 and 202. The fence lines and grazing areas above Panels 201 to 202 are predicted to be subjected to the maximum predicted subsidence tilt of between 0 to 28 mm/m and impact to fences is likely to include straining, tilting, sagging and loss of gate function.

There are five farm dams for livestock watering that have been assessed in the Extraction Plan Area. The dams are nearly all located within the 20 mm subsidence contour from the proposed Panels 201 to 202. There are no water supply wells or groundwater monitoring bores installed or located within the Extraction Plan Area.

The unsealed gravel access roads and tracks above Panels 201 to 202 are likely to be damaged by cracking and respective shearing or heaving in the tensile or compressive strain zones. Subsidence of sections of contour banks are likely to prevent the banks performing their intended purpose by altering the longitudinal grade, either steepening the grade, or causing a section to pond.

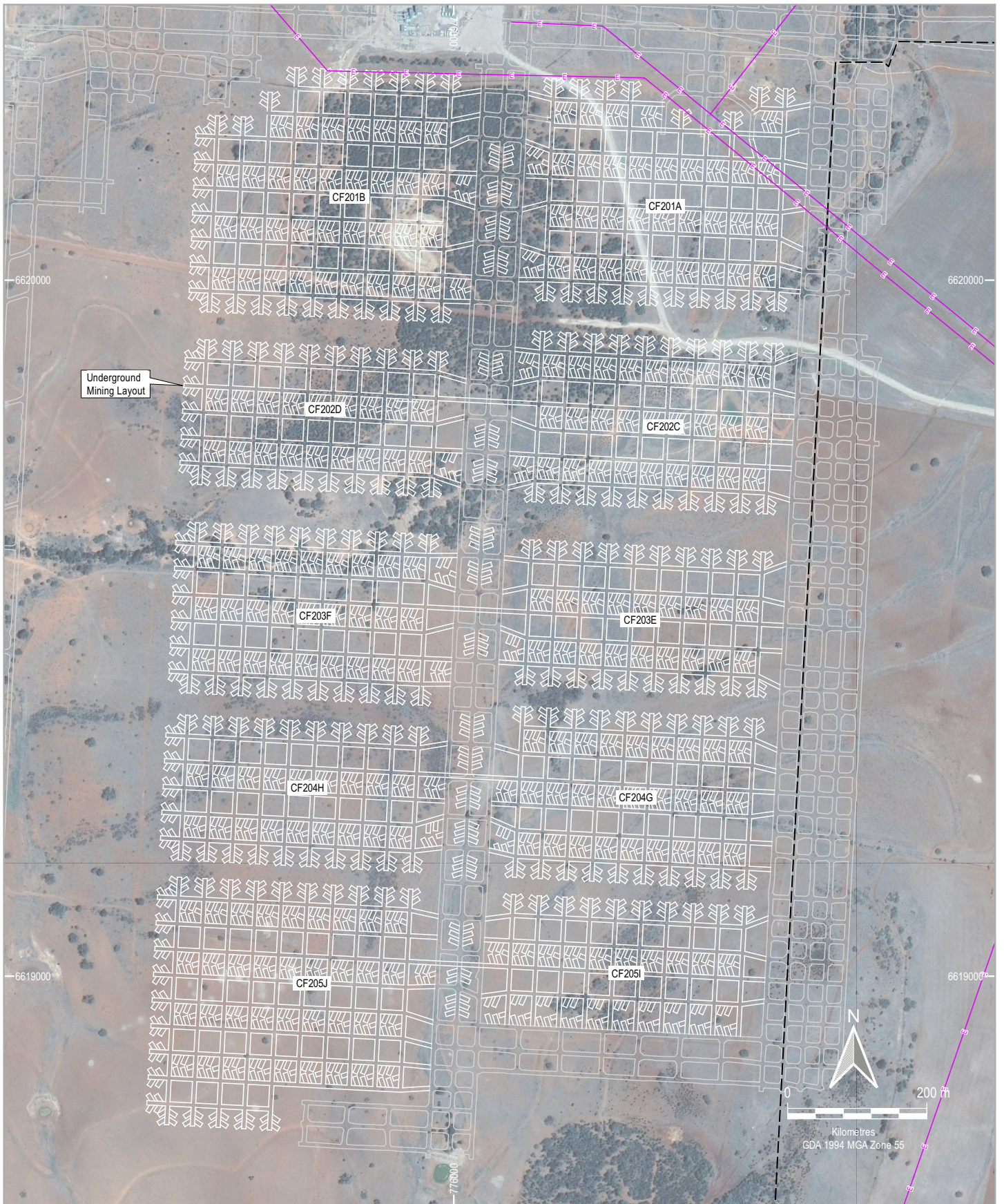
Of the 178 Aboriginal cultural heritage sites identified within the ML, 24 are located in the Extraction Plan Area. This total includes 18 artefact scatters, five isolated artefacts, and one grinding groove site. All 24 sites have been assessed as being of low scientific significance due to disturbed contexts and low artefact densities (<12 artefacts). The 'Claremont' grinding groove has also been assessed as being of low scientific significance due to the presence of only one grinding groove on what appears to be a floating sandstone boulder.

Further details regarding the Narrabri Mine are provided in the environmental impact assessment documents including the EA, MOD 5 and MOD7. The underground mining layout for Panels 201 to 202 is presented in Figure 1.2.

1.6 Risk assessment

A risk assessment for the subsidence associated with the extraction of coal from Panels 201 to 202 was undertaken on 29 September 2021 and all the risks associated with subsidence above Panels 201 to 202 for the Narrabri Mine were assessed as low to moderate. No high-risk items were identified. The Subsidence Risk Assessment is presented in Appendix K.

Where relevant, risks have been further addressed in individual sub-plans to provide further detail on the potential environmental impacts, the consequences and the mitigation measure, both existing and proposed.



Source: Geoscience Australia (2011); NSW Spatial Services (2019)


LEGEND

- — Underground Mine Footprint
- Electricity Transmission Line (Constructed)



NARRABRI COAL MINE

Figure 1.2 : Underground Mining Layout for Panels 201 & 202

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

1.7 Plans

As required by the Extraction Plan Guidelines, the information contained in this Extraction Plan is supported by and presented in a series of A0-size detailed drawings. Reduced-size (A3 format) versions of each of the drawings are provided in Attachment 2. The plans include the following information:

- Plan 1 Existing, proposed and future workings, including dimensions of all voids and pillars;
- Plan 2 All natural and man-made surface features that may be affected by the proposed mining operations and surface contours;
- Plan 3 Overburden thickness, seam thickness, and any known geological structures;
- Plan 4 Existing and/or planned future workings in seams above and/or below the proposed workings;
- Plan 5 Details of mining titles and land ownership;
- Plan 6 Representative geological sections and/or borehole illustrations of the overburden strata;
- Plan 7 Details the subsidence monitoring network, authorised by the registered mine surveyor;
- Plan 8 Existing, proposed and future workings with an aerial background.

1.8 Document structure

This Extraction Plan forms part of Narrabri Mine’s Environmental Management System (**EMS**), which includes the full suite of environmental management plans related to the operation and management of the Narrabri Mine. This Extraction Plan provides a brief overview of the proposed mine plan, associated subsidence and resulting environmental consequences. This Extraction Plan also briefly outlines the proposed monitoring and management measures, which are provided in greater details in the appendices. In summary, this document includes the following information:

- Section 1 provides the background to the Narrabri Mine, a summary of the various approvals and modifications, the requirement for this Extraction Plan and a description of the Narrabri Mine site;
- Section 2 summarises the relevant statutory requirements for the preparation of this document and the management of subsidence impacts, providing cross-referencing to the appropriate section or appendix where a specific requirement is addressed;
- Section 3 summarises the results of recent subsidence assessment and modelling and outlines the predicted environmental consequences;
- Section 4 outlines the performance measures, management and monitoring activities that are proposed to mitigate predicted subsidence impacts and confirm that subsidence and its consequences are within the predicted ranges. This section also sets out the proposed contingency response in the event that subsidence impacts exceed (or are considered likely to exceed) the adopted performance indicators;
- Section 5 details the responsibilities of NCOPL personnel under this Extraction Plan and sets out the reporting, auditing and review requirements as per the Project Approval and the ML; and
- Sections 6 and 7 respectively provide the references and a glossary of terms used in the Extraction Plan.

The Extraction Plan consists of this main document and sub-plans, as summarised in Table 1.2.



	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table 1.2 - Extraction Plan appendices

Plan / Program	Author/s	Section	Description	Consultation
Coal Resource Recovery Plan	Onward Consulting	Appendix A	Provides an analysis of the expected coal recovery from the mining operations associated with Panels 201 to 202.	None
Subsidence Predictions Report	Ditton Geotechnical Services Onward Consulting	Appendix B	Subsidence predictions for Panels 201 to 202 (and for future longwall panels LW 203-LW 205).	None
Subsidence Monitoring Program	Onward Consulting	Appendix C	Provides a subsidence monitoring program to validate the predicted subsidence impacts and analyse the relationship between subsidence effects and impacts.	None
Built Features Management Plan	Onward Consulting	Appendix D	Provides analysis and management of potential subsidence consequences on the built features of the mining area.	None
Public Safety Management Plan	Onward Consulting	Appendix E	Provides for the management of public safety to ensure the safety of the public in the mining area.	None
Landscape Management Plan	Onward Consulting	Appendix F	Revision of the Landscape Management Plan (including the Rehabilitation Management Plan and Mine Closure Plan) in response to the revised subsidence predictions.	DPE Water BCS NSC
Water Management Plan	Onward Consulting AGE Consultants - Groundwater WRM - Surface water	Appendix G	Provides for the management of surface and groundwater issues within the mining area including watercourse consequences and water management features.	EPA DPE Water
Biodiversity Management Plan	Onward Consulting	Appendix H	Analysis of the potential impacts to, and the required management of, the aquatic and terrestrial flora and fauna.	BCS

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Plan / Program	Author/s	Section	Description	Consultation
Land Management Plan	Onward Consulting	Appendix I	Provides analysis and management of impacts to the landscape (ground movement, stability, cracking etc) on the landscape.	Affected public authorities
Heritage Management Plan	Whincop Archaeology Onward Consulting	Appendix J	Provides for the management of the potential environmental consequences of mining and subsidence on the heritage sites and values.	Heritage NSW
Risk Assessment	Onward Consulting	Appendix K	Assesses subsidence risks associated with the extraction of coal from Panels 201 to 202.	None

1.9 Consultation and approval

In accordance with the Project Approval Schedule 3 Condition 4(h), a number of the sub-plans to this Extraction Plan, including the Water Management Plan (Appendix G), Biodiversity Management Plan (Appendix H), Land Management Plan (Appendix I) and Heritage Management Plan (Appendix J) have been prepared in consultation with one or more Government departments, agencies and/or public authorities (refer to Table 1.2). The Landscape Management Plan, required as part of this Extraction Plan under Schedule 5 Condition 3, has also been prepared through a consultative process.

A draft (Revision B) of the Extraction Plan and all sub-plans was submitted for consultation purposes on 3 December 2021. Only NSC provided a comment on the Extraction Plan, relevant to section 4.3 regarding ongoing liaison with Council in relation to any contingency responses and adaptive management measures. The consultation correspondence is provided in Attachment 1, including a reconciliation table provided as Table A1.1 addressing the comment. Applicable consultation records and comment reconciliation tables are also provided in each relevant sub-plan to this Extraction Plan.


The Extraction Plan Guidelines also prescribe consultation with other key stakeholders, such as the owners and/or operators of both publicly and privately-owned land and infrastructure, and with the community through the mine's Community Consultative Committee (**CCC**). Considering the Extraction Plan Area encompasses land exclusively owned by NCOPL, there are no other public or private landholders. MOD 7, which is the trigger for this revised Extraction Plan, was discussed at the CCC meeting in March, June and October 2021.

In accordance with condition 3 of EPBC 2009/5003, a copy of the Extraction Plan will be provided to the Commonwealth Department of Agriculture, Water and Environment (**DAWE**), once approved.

1.10 Access to information

In accordance with Schedule 6 Condition 10 of the Project Approval, once approved this approved Extraction Plan and all appendices, audits and reports, and summaries of all monitoring data (where relevant) will be made publicly available on the WHC website. All information will be kept up to date

Note that any printed copies of the Extraction Plan are uncontrolled.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

2. Statutory requirements

As required by Project Approval Schedule 6 Condition 2, NCOPL will ensure that the management plans required under the Project Approval are prepared in accordance with any relevant guidelines, and include a description of the relevant statutory requirements, including any relevant approval, licence or lease conditions.

This section provides an overview and description of the various approvals, licences, leases and guidelines applicable to this Extraction Plan and the various subplans provided in Appendix A to K, as listed in Table 1.2. To avoid repeat, duplication and potential misunderstanding, unless there are specific conditions and/or guidelines applicable to a particular sub-plan, the sub-plans simply refer back to this section of the Extraction Plan for the overview of the relevant statutory requirements.

2.1 Project Approval


As described in section 1.1, Stage 1 of the Narrabri Mine was approved in November 2007 under Part 3A of the **EP&A Act**. Development of Stage 1, including site establishment and the construction of coal processing infrastructure commenced in 2008, with production using continuous miner mining methods up to 2.5 **Mtpa** commencing in 2010. Stage 2 of the Narrabri Mine was approved in July 2010. Prior to the most recent approval of MOD 7 on 23 November 2021, it was modified on a number of occasions, as detailed in Table 2.1.

Table 2.1 - Summary of Project Approval modifications

Approval	Modification details	Approval date
MOD 1	Updates to subsidence management conditions in the original Project Approval	30 March 2011
MOD 2	Allowed for a one-off road transport of coal to Whitehaven Coal's Tarrawonga Coal Mine	21 December 2011
MOD 3	Emergency road transport of coal (application withdrawn)	N/A
MOD 4	Extension of ROM and product coal stockpiles	22 September 2015
MOD 5	Reduced the number of longwall panels from 26 to 20; increased the longwall panel widths for LW 107 to LW 120 from approximately 295 m to approximately 400 m; extended the western footprint approximately 60 m; and increased the maximum ROM coal processing rate from 8 Mtpa to 11 Mtpa.	9 December 2015
MOD 6	Administrative modification, aligning the reporting period of the Annual Review to a calendar reporting period.	13 January 2017

2.1.1 Mine plan adjustment

In January 2020, prior to the preparation and determination of Modification 7, a modification to the Project Approval was being considered to introduce proposed alterations to the mining sequence and the direction of extraction. However, the modification application was never lodged, as the final interpretation by NCO, in consultation and agreement with DPE, was that the mine plan alterations were 'generally in accordance' with the Project Approval. The correspondence from DPE regarding the adjustments in February 2020 stated that the proposed changes were to be formalised through relevant approvals for the Mining Operations Plan (**MOP**) and under the Extraction Plan process.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

As such, a summary of the alterations that were agreed on is provided below. It should be noted that not all alterations identified remain relevant to this Extraction Plan due to having been modified by MOD 7.

Naming convention for longwall panels

The MOD 5 longwall naming convention has been amended as per Table 2.2.

Table 2.2 - Longwall panel naming convention changes

MOD 5 naming convention	Current naming convention
LW 112	LW 209
LW 113	LW 208
LW 114	LW 207
LW 115	LW 206
LW 116	LW 205
LW 117	LW 204
LW 118	LW 203
LW 119	LW 202
LW 120	LW 201

Southern mining domain

There were a number of changes to the MOD 5 mine plan southern mining domain to ensure the safe and efficient extraction of resources:

- (a) changing the extraction direction of LW 204 to LW 209 for geotechnical reasons (namely to reduce roof falls and maintain safety and productive extraction);
- (b) as a result of the change in the direction of extraction of LW 204 to LW 209, mains roadways are required to be developed along the southern boundary of ML 1609 for conveyors, travel roads and ventilation systems. To facilitate access to the southern mains, the 200 Mains roadways between LW 202 and LW 203 will be developed;
- (c) LW 201 and LW 202 were required to moved east by approximately 200 metres to provide room for the development of the 200 Mains;
- (d) only first workings along:
 - i. the eastern boundary of LW 01 have been developed outside of the boundaries of the 'underground mining footprint' (as shown in the Project Approval); and
 - ii. the south-eastern edge of the 200 Mains will be developed outside of the boundaries of the underground mining footprint;
- (e) the longwall panels themselves remain within the boundaries of the underground mining footprint.

Panel extraction sequencing and direction

The MOD 5 envisaged the extraction of the longwall panels across both the Northern Mining Domain and Southern Mining Domain in sequential order (i.e. LW 101 followed by LW 102, LW 103 and so on) with the direction of extraction in the Northern Mining Domain from north to south and extraction in the Southern Mining Domain from south to north. The current mine plan envisages that the longwall panels will be extracted in the sequence and direction as detailed in Table 2.3.


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table 2.3 - Longwall panel sequence and mining direction

Mining domain	Mining sequence	Mining direction
MOD 5 mining sequence		
Northern	East to west (i.e. downdip) LW 101 to LW 111	North to south
Southern	West to east (i.e. updip) LW 112 to LW 120	South to north
Altered mining sequence		
Northern	East to west (i.e. downdip) LW 101 to LW108a, LW 109 to LW 111	North to south
Southern	Generally east to west i.e. downdip) LW 203 to LW 209, LW 201, LW 202-	South to north - LW 201 to LW 203 North to south - LW 204 to LW 209
Northern	108b	Southern part of LW 108 mined immediately prior to closure

Northern mining domain


There were a number of changes to the MOD 5 mine plan northern mining domain to ensure the safe and efficient extraction of resources:

- (a) increasing depth of cover as the Narrabri Coal Mine progresses towards the west has resulted in a series of roof falls in a number of extracted longwall panels. Consequently, larger barrier pillars are required to provide stability and prevent future roof falls. This has resulted in LW 111 being moved to the west by approximately 27 metres; and
- (b) only first workings along the western boundary of LW 111 will be developed outside of the underground mining footprint. LW 111 itself remains within the boundaries of the underground mining footprint.

2.1.2 Modification 7

The modifications associated with MOD 7 do not include any changes to the existing/approved mine general arrangement and do not require additional surface development areas. The potential changes in subsidence effects, approved surface- and groundwater impacts, or Aboriginal cultural heritage from the altered mining method have been incorporated into the sub-plans provided in the appendices.

The Project Approval was amended and consolidated after the approval of each modification. A full list of the current Project Approval conditions and requirements relevant to the Extraction Plan and where these are addressed is provided in Table A3.1 in Attachment 3. Although Table A3.1 also includes the conditions and requirements relevant to the sub-plans to the Extraction Plan, the respective sub-plans identify where the condition or requirement has been addressed within those documents.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

2.1.3 Statement of Commitments

The Statement of Commitments for Site Operations and Management (**SoC**) is contained as Appendix 3 of the Project Approval, combining all revised environmental commitments from the EA, dated May 2010. There are no commitments directly relevant to this Extraction Plan. Any commitments relevant and applicable to individual sub-plans appended to this Extraction Plan are identified and listed therein.

2.2 EPBC approval

The Narrabri Mine is subject to EPBC 2009/5003 issued under the EPBC Act. Approval Condition 2 of EPBC 2009/5003 requires the development and implementation of an Extraction Plan according to the NSW Secretary's Assessment Report and approval conditions. There are number of other EPBC 2009/5003 conditions and requirements relevant to this Extraction Plan, and to the effective management of subsidence risks. These are summarised in Table A3.2 in Attachment 3, along with a brief summary of where these are addressed in this Extraction Plan and/or the associated sub-plans.

2.3 Mining lease

In accordance with the provisions of Section 239(2) of the *Mining Act 1992*, in 2014 the relevant Minister amended the original ML 1609 Subsidence Management Plan condition to impose an Extraction Plan condition instead. The new condition requires the lease holder to have an approved Extraction Plan in place which provides for the effective management of subsidence risks prior to undertaking underground mining operations that may cause subsidence.

The Mining Lease includes a number of conditions and requirements relevant to this Extraction Plan, and to the effective management of subsidence risks. These are summarised in Table A3.3 in Attachment 3, along with a brief summary of where they are addressed in this Extraction Plan and/or the associated sub-plans.


2.4 Work health and safety legislation

This Extraction Plan has been developed to comply with the NSW work health and safety legislation including but not limited to:

- *Work Health and Safety Act 2011* (NSW);
- Work Health and Safety Regulation 2011 (NSW);
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (NSW); and
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (NSW).

The following sub-plans to this Extraction Plan will be submitted to the Resources Regulator as part of the high-risk activity notification process, required under the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014:

- Coal Resource Recovery Plan;
- Subsidence Monitoring Program;
- Built Features Management Plan;
- Public Safety Management Plan; and
- Landscape Management Plan.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

2.5 Environment protection licence

'Coal works' and 'Mining for coal' are scheduled activities listed in Schedule 1 of the POEO Act. Under Section 48 of this Act, all premise-based scheduled activities are required to hold an environment protection licence (EPL). EPL 12789 is held for coal works and mining for coal to >5 tonne annual handling capacity and >5 tonne annual production capacity. There are no conditions in EPL 12789 that apply specifically to the Extraction Plan or any of the sub-plans. The EPL conditions and requirements predominantly relate to the suite of environmental management plans required under Schedule 4 of the Project Approval, including but not limited to the management of noise, soil and water; air quality, heritage, waste, transport, visual amenity, energy efficiency and greenhouse gas. These management plans do not form part of this Extraction Plan.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

3. Subsidence assessment

The Project Approval for Stage 2 was granted by the then NSW Department of Planning and Environment in 2010 for extraction of coal using longwall methods at the Narrabri Mine. The proposed mine plan is consistent with that presented and assessed as part of MOD 5 and MOD 7.

In accordance with Schedule 3 Condition 4(e) of the Project Approval, the MOD 5 subsidence modelling and predictions have been reviewed and updated for Panels 201 to 202 as presented in full as Appendix B, with the main findings and conclusions reproduced in the sections below.

3.1 Subsidence predictions

The maximum subsidence estimates due to remnant pillar crush within the panel limits after mining is completed ranges from 0.50 to 1.77 m. The timing of subsidence is difficult to predict and may not occur at all or years after mining is completed. Maximum production panel subsidence ranges from 1.42 to 1.77 m (from 34 % of the mining height [h] to 43 %h respectively), with the maximum gateroad access pillar subsidence ranging from 0.50 to 0.73 m (12 %h to 18 %h). The maximum panel tilt ranges from 14 to 36 mm/m, with the maximum panel concave curvatures range from 0.7 per kilometre (km^{-1}) to 3.3 km^{-1} (radii of curvature 1.4 to 0.3 km).

Maximum panel convex curvatures range from 0.7 to 3.1 km^{-1} (radii of curvature 1.4 to 0.32km) with maximum panel compressive strains ranging from 7 to 31 mm/m. Maximum panel tensile strains range from 7 to 33 mm/m.

Detailed subsidence predictions are outlined within the Mine Subsidence Assessment for Panels 201 to 202 provided as Appendix B to the Extraction Plan. The subsidence effects (subsidence, tilt, curvature, horizontal displacements and strains) for the pillar reduction panels have been estimated based on published subsidence data for a broad range of coalfield geometries. Note that the predicted values may be occasionally exceeded (up to 5% of the time) due to discontinuous strata behaviour associated with near surface cracking, joint displacement, geological features (e.g. faults) and/or rapid changes in topography (creek beds).


3.2 Surface cracking

3.2.1 Review of observed surface cracking

The initial surface crack width estimates for LW 107 to LW 111 at the Narrabri Mine ranged from 20 to 250 mm within the limits of extraction (DgS, 2015). These estimates were based on the predicted range of maximum transverse tensile strains for the approximately 409 m-wide longwall panels.

Through the crack monitoring program that records the width, depth and length of cracks prior to rehabilitation, inspections of surface cracking above LW 107 and LW 108 in December 2019 identified the following crack impacts:

- two 400 mm wide and 30 m long arcuate cracks and spaced at 13 m above LW 107 rib side where cover depth was 240 m. The cracks could be measured to a depth of 300 to 600 mm with a tape measure, but likely to have extended deeper than 1 or 2 m;
- two east-west (280°) striking cracks with a width of 400 mm and depth of 1.5 m were observed at the north-east corner of LW 108A where cover depth was 280 m; and

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

- several north-south orientated cracks with widths ranging from 1 to 1.8 m above the chain pillars between LW 107 and LW 108A were observed along a similarly orientated tributary of Pine Creek. The cover depth was 250 m and measured tensile strains were approximately 10 mm/m, so it is feasible the development of cracks was due to mine subsidence. The cracks were 800 mm deep and flat bottomed, suggesting the features were mainly formed by erosion after several storm events.

It was considered likely at that time that significant rain events throughout 2019 had eroded the cracking out to the observed widths. It was noted during the pre-mining inspections that incised erosion to depths of up to 4 m is typical of the geomorphological patterns in the terrain.

Based on those observations, it was decided at that time to increase the crack width estimates for subsequent longwalls by multiplying the predicted strains by an effective peg spacing of cover depth $[H]/20$ or 10 m, whichever is greater. A conservative factor of 2 was also used to allow for strain concentration effects to estimate the upper 95 % confidence level (**U95%CL**) values, which means they may be exceeded 5 % of the time (by definition).

The reports indicate initial crack widths above LW 107 to LW 109 have ranged between 10 to 680 mm with a median of 140 mm, and 95th percentile of 500 mm. As previously indicated, the cracks in sands are affected by erosion with the side walls slumping and infilling the cracks to some degree. Multiple cracks in groups of two to five have also formed and in some instances have coalesced to form a wider area of surface disturbance. The slumped and coalesced cracks have ranged in width from 700 to 2000 mm in areas with a maximum depth of 0.5 m. The full depths of cracking in sandy areas are difficult to measure due to the side wall slumping and has ranged from 0.1 to 2.4 m (median of 0.3 m and 95th percentile of 1.2 m). The length of cracking has ranged from 2 to 994 m (median of 17 m and 95th percentile of 60 m).


3.2.2 Predicted surface cracking

Based on the predicted range of maximum strains and cover depths, the subsidence predictions indicate the maximum surface cracking widths for sandy or loamy soils above the Extraction Plan Area are expected to be between 310-325 mm. Where strain concentrations occur in near-surface rock, these widths may double locally to between 620-650 mm. Crack widths may also exceed the predicted range near steep creek banks along Kurrajong Creek Tributary 1.

3.3 Sub-surface cracking

Based on research to date the following key parameters have been considered when predicting sub-surface fracture heights for the Extraction Plan Area:

- panel width $[W]$;
- average extraction height $[T]$;
- cover depth $[H]$;
- panel criticality (i.e. sub-critical or supercritical);
- presence of massive sandstone or conglomerate strata that may control continuous fracture height development;
- constrained zone lithology and thickness required to control inter-connective cracking between surface and seam, or aquifer and seam; and
- presence of geological structure (faults/dykes/joint swarms) that have an increased level of fracturing and therefore higher secondary conductivity.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Sub-surface fracturing can either be continuous or discontinuous. Continuous fracturing refers to cracking above a longwall panel which would create a hydraulic connection to the workings if a sub-surface aquifer were intersected. This would result in increased water at seam level during longwall extraction. Discontinuous fracturing refers to an increase in horizontal and vertical permeability due to bending or curvature deformation of the rock mass. This type of fracturing can result in surface and sub-surface flow paths being altered, and rock mass conductivity and storage magnitudes being altered, however, groundwater or surface water resources may not undergo significant long-term change.

Direct hydraulic connection to the mine workings due to sub-surface fracturing is estimated to encroach within 27 to 70 m depth below the surface. The continuous fracture zone will likely develop below the surface, with surface to seam connectivity predicted as 'likely' by the SCT and Tammetta (non-Narrabri Coalfield) models. Fracturing above the Extraction Plan Area is predicted to extend to within 49 to 70 m depth.

3.4 Slope instability and erosion

General and localised slope instability (soil and rockslides) along the steep rocky slopes is considered very unlikely to develop due to the predicted cracking and tilting. The rate of soil erosion is expected to increase significantly in areas with exposed dispersive/reactive soils. Slopes less than 10° are expected to have low erosion rate increases, except for the creek channels, which would be expected to re-adjust to any changes in gradient for predicted gradient changes in the Extraction Plan Area of +/- 1.5°.


Erosion along the creek beds would be expected to develop above chain pillars between the panels and on the side where the gradients increase. Sediment would be expected to accumulate where gradients decrease.

3.5 Valley closure and uplift

As detailed in Appendix B, 'valley closure' (or opening) movements can be expected across deep valleys whenever longwalls are mined beneath them. Valley closure can also occur across broader drainage gullies where shallow surface rock is present. When creeks and river valleys are subsided, the observed subsidence in the base of the creek or river is generally less than would normally be expected in flat terrain. This reduced subsidence is due to the floor rocks of a valley floor 'buckling' upwards when subject to compressive stresses generated by surface deformation. This phenomenon is termed 'upsidence' and mostly occurs in the Southern NSW Coalfields.

Survey measurements across Pine Creek Tributary 1 in October 2014 have indicated maximum closure of 148 mm between the 30 m wide creek bank crests, with compressive strain of 6.2 mm/m and uplift of 64 mm. Lines E and G did not detect any valley closure or uplift movements in the creek above the chain pillars due to LW 101 to LW 104. The measured movements are within the predicted range.

As the valleys across the Extraction Plan Area (characterised by the ephemeral creek lines described earlier) are very broad between crests, the development of 'upsidence' and closure along the creek beds above the Extraction Plan Area is likely to be 'negligible'.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

3.6 Ponding and drainage lines

A total of seven potential ponding locations were assessed as part of the Mine Subsidence Assessment. Six of the potential ponding areas already exist along the watercourses and dams. Post-mining pond depths are estimated to range from 0.1 to 5.0 m. Pond depths are estimated to increase by up to 1.3 m or decrease by up to 0.19 m. The maximum changes in pond volume (where positive represents an increase in pond size) are estimated to range from -0.225 to 27.81 megalitres. There are two dams above CF203(F) that may be inundated by post-mining ponding.


Overall, the existing ponds are expected to extend laterally from the watercourses for distances ranging from 50 to 500 m. Ponding can cause water logging resulting in tree stress, canopy die back and occasional tree death, altered drainage patterns, and loss of fauna habitat.

Watercourses that may be impacted are the ephemeral Kurrajong Creek Tributary 1. Surface water flowing to the creeks may pond in areas where it currently does not pond as a result of surface gradients changing. There may be a decrease in the quantity of water reaching the creeks as it ponds and evaporates rather than flowing to the creeks. There may also be a change in water quality as salinity may increase if water ponds over saline soils.

3.7 Potential environmental consequences

As the predicted maximum subsidence presented in the Mine Subsidence Predictions report in Appendix B is consistent with the those in MOD 5, MOD 7 and the Project Approval, the environmental consequences are also expected to be consistent with those presented in these environmental assessment documents. Therefore, a detailed review of environmental consequences has not been conducted for this Extraction Plan.

A summary of potential environmental consequences, the proposed performance measures and the relevant Extraction Plan sub-plan is provided in section 4.2.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

4. Subsidence monitoring and management

4.1 Subsidence monitoring

Proposed survey monitoring across the Extraction Plan area is documented in the Subsidence Monitoring Program, provided in Appendix C. The purpose of the Subsidence Monitoring Program is to quantify subsidence parameters, i.e. vertical movements, ground tilts and strains. The Subsidence Monitoring Program also summarises the monitoring of environmental and built features, as documented in the Built Features Management Plan (Appendix D) and the other sub-plans to this Extraction Plan. The Subsidence Monitoring Program for LW 101 to LW 110 will continue until movement has ceased at which point NCOPL will seek the approval of the Resources Regulator and DPE to remove the associated subsidence monitoring lines.

4.2 Subsidence management

The Project Approval defines several subsidence impact performance measures for the management of natural and built features. It also notes that other performance measures and performance indicators may require further definition under the relevant management plans.

These performance measures require that NCOPL ensure the following:


- Great Artesian Basin: Any loss of water flow into the Great Artesian Basin aquifers will be managed, licensed, or offset.
- flora and fauna: Clearing and disturbance of vegetation above the mining area is minimised.
- built features: any infrastructure affected by subsidence will be maintained as always safe. Where possible, serviceability will be maintained and any loss of serviceability will be compensated. Damage will be fully repaired, or else replaced or fully compensated.
- public safety: No additional public safety risk will be posed as a result of subsidence.

Surface and sub-surface features within the Extraction Plan Area are listed in Table 4.2, along with a brief description of predicted environmental consequences and proposed performance measures. Management actions have been developed that aim to ensure these performance measures are met, and the proposed monitoring is intended to monitor subsidence impacts and confirm that they are within predicted limits. These management and monitoring actions are detailed within the specified management plan.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table 4.1 - Summary of environmental consequences and performance measures


Feature	Environmental consequence(s)	Performance measure / indicator	Management plan
Natural features			
Kurrajong Creek Tributary 1	Change in hydrology or water quality.	Monitoring parameters are in accordance with relevant parameters within ANZECC guidelines.	Water Management Plan
Groundwater resources	Change in level or quality.	Monitoring parameters are in accordance with relevant parameters within ANZECC guidelines.	Water Management Plan
Land prone to flooding or inundation	Changes to flooding regime.	Watercourse survey. Maintain existing flow regimes.	Water Management Plan
Threatened or protected species	Impacts on woodland and riparian vegetation may reduce the habitat resources available to threatened or protected species.	Assess the health and cover of threatened populations or species.	Biodiversity Management Plan
Natural vegetation	Changes to vegetation communities' health, cover, species dominance and weed infestation in disturbance areas.	Assess the health and cover of threatened populations or species.	Biodiversity Management Plan
Farmland and facilities			
Agricultural utilisation or agricultural suitability of farm land	Change in agricultural suitability or capability from current level.	Maintain agricultural capability of farm land above Panel 201-202 after active subsidence.	Land Management Plan
Farm buildings or sheds	Structural or cosmetic damage to buildings.	Vacate, repair or demolish.	Built Features Management Plan
Fences	Damage or breaks in fence lines.	Functionality of fencing after active subsidence.	Built Features Management Plan
Farm dams	Changes to catchments or loss of water through surface or dam wall cracking.	Maintain capacity of existing dams. Examine for impacts to dam walls or water loss through cracking.	Built Features Management Plan
Soil conservation works	Changed flow regimes impacts effectiveness of contour banks.	Examine for deformation.	Built Features Management Plan
Wells or bores	Increased or decreased water availability (aquifer interference).	Monitor water levels in bores.	Water Management Plan
Access tracks	Deformation of access track surface.	Survey access tracks for deformation.	Built Features Management Plan
Industrial, commercial and business establishments			
Mine infrastructure	Structural or cosmetic damage to mine infrastructure.		Built Features Management Plan
Other significant features			
Areas of archaeological and/or heritage significance	Movement of artefacts from existing location or damage to artefacts.	Visual observation of known and marked artefact areas	Heritage Management Plan
State Survey Mark	Loss of function	Update details once subsidence is complete	Built Features Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

4.3 Contingency response and adaptive management

In the event of subsidence impacts that exceed the performance measures limits identified in the relevant management plan, the following process will be implemented:

- report the observation/event to the Environment Superintendent (or delegate) as soon as practicable, ideally within 24 hours;
- assess public safety and where applicable, implement safety measures in accordance with the Public Safety Management Plan or as otherwise necessary to prevent injury or harm to any person;
- report any event to the relevant stakeholders (as identified in each sub-plan to this Extraction Plan) as soon as practicable after NCOPL becomes aware of the event;
- investigate, in consultation with affected stakeholders (where appropriate) to evaluate the contributing factors to the event. The investigation may include (where applicable):
 - re-survey of the relevant subsidence monitoring lines;
 - re-sampling or re-surveying of the applicable environmental monitoring locations (i.e. groundwater bores, surface water monitoring sites);
 - review measured subsidence parameters against the observed impact, and latest subsidence predictions;
 - determine appropriate remedial response;
- implement remedial response and adaptive management measures, dependent on the outcomes of the above investigation. Any such measures will be undertaken in consultation with the relevant stakeholder to the satisfaction of the appropriate government agency and DPE; and
- undertake ongoing liaison with NSC (where relevant) in relation to any if the implemented contingency responses and adaptive management measures.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

5. Plan implementation


5.1 Roles and responsibilities

The General Manager has overall responsibility for ensuring contractors, employees and service providers comply with all laws, regulations, licences, approvals and conditions of the Project Approval. Table 5.1 outlines the responsibilities of personnel at the Narrabri Mine specific to this Extraction Plan. Some additional responsibilities are listed in the sub-plans, and are in addition to those outlined in the Narrabri Mine EMS and the suite of environmental management plans under Schedule 4 of the Project Approval.

Table 5.1 - Roles and responsibilities

Role	Responsibilities
General Manager	<ul style="list-style-type: none"> • Provide adequate resources for NCOPL personnel to undertake the activities required by this Extraction Plan and sub-plans; • Ensure that people who have duties and responsibilities under this Extraction Plan undergo the relevant and appropriate training in and assessment for those duties; and • Communicate with statutory authorities and the community.
Mine Manager	<ul style="list-style-type: none"> • Ensure all contractors, sub-contractors and service-personnel are appropriately qualified, competent and licensed to undertake the required work and have a good environmental performance record; and • Ensure all operations are undertaken in accordance with the requirements of the approved Extraction Plan.
Environmental Superintendent	<ul style="list-style-type: none"> • Ensure that all environmental monitoring and reporting is undertaken in accordance with this Extraction Plan and sub-plans, and is checked, processed and filed appropriately; • Manage and implement the subsidence management actions under this Extraction Plan; • Authorise changes to this Extraction Plan and sub-plans; • Advise on matters identified in all approval, permit, licence and consent documents and ensure all operations are conducted in compliance with those conditions, and all other environmental obligations; • Ensure all rehabilitation is completed as per the approved documents and in a timely manner; and • Receive and respond to complaints in accordance with the EMS.
Registered Mine Surveyor	<ul style="list-style-type: none"> • Coordinate the undertaking of survey monitoring as required under this Extraction Plan and sub-plans; and • Report on any discrepancy between observed and expected data as a result of survey monitoring.

Though retaining the responsibilities identified above, the listed personnel may, at their discretion, delegate specific tasks to suitably qualified and experienced operational personnel or consultants.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

5.2 Reporting

5.2.1 Incident and non-compliance reporting

Each of the sub-plans contained within this Extraction Plan identifies appropriate responses to potential incidents and non-compliances associated with the Narrabri Mine. In general, and in accordance with Schedule 6 Condition 4 of the Project Approval, NCOPL will:

- notify the Secretary in writing via the Major Projects website and any other relevant agencies as soon as practicable after becoming aware of the incident; and
- prepare and submit a detailed report to the Secretary, and any relevant agencies, within 7 days of the date of the incident.

The process for incident reporting is further detailed in the EMS.

5.2.2 Regular reporting


As required by Project Approval Schedule 6 Condition 5, regular reporting on the environmental performance of the Narrabri Mine is placed on the WHC website in accordance with the reporting arrangements or requirements in any plans or programs approved as part of this Extraction Plan and appended sub-plans.

Following the completion of each subsidence survey as required by the Subsidence Monitoring Program (refer to Appendix C), subsidence monitoring data are uploaded to the NSW Resources Regulator's Data Submission Portal in compliance with clause 67(2)(d) of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*.

5.2.3 Annual Review

In accordance with Project Approval Schedule 6 Condition 6, an Annual Review will be prepared and submitted to the Secretary that reviews the environmental performance of the Narrabri Mine. Relevant to this Extraction Plan and to the management of subsidence, this will include:

- (a) works carried out in the past year, and works planned to be carried out in the next year;
- (b) comprehensive review of monitoring results and complaints records over the past year, including a comparison of results to:
 - relevant statutory requirements, limits and performance measures/criteria;
 - baseline data and monitoring results of previous years; and
 - relevant predictions in the EA and Extraction Plan.
- (c) identification of any non-compliance and what actions are being undertaken to ensure compliance;
- (d) discussion of any trends in monitoring data over the life of the Narrabri Mine;
- (e) identification of any discrepancies between predicted and actual impacts of the Narrabri Mine and analyse the potential cause of any significant discrepancies; and
- (f) describe any measures to be implemented over the next year to improve the environmental performance of the Narrabri Mine.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

5.2.4 Independent environmental audits

Prior to 13 September 2010, and every 3 years thereafter, unless the Secretary directs otherwise, NCOPL will commission and pay the full cost of an Independent Environmental Audit (**IEA**) of the operations at Narrabri Mine (Stages 1 and 2), to be conducted in accordance with the requirements under Schedule 6 Condition 7.

The audit team will be led by a suitably qualified auditor and the IEA will be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary.

5.3 Evaluation and review

As required by Schedule 6 Condition 3 of the Project Approval, within three months of any of the following:

- completion of an independent environmental audit (as required by Schedule 6 Condition 7);
- submission of an Incident Report (as required by Schedule 6 Condition 4);
- submission of an Annual Review (as required by Schedule 6 Condition 6); and
- any modification to the conditions of the Project Approval (unless the conditions require otherwise),

NCOPL will the review, and if necessary, revise this Extraction Plan. This is to ensure that the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Narrabri Mine operations. The review history table in the front of this Plan provides the details of each review.

Condition 3 of Schedule 6 further states that if the review determines that the Extraction Plan requires revision, then NCOPL will revise the Extraction Plan to the satisfaction of the Secretary. It is to be noted that in accordance with Condition 3 of EPBC 2009/5003, a copy of the approved Extraction Plan will be provided to DAWE.

5.4 Complaint management and dispute resolution

NCOPL has a documented *Complaint Management Protocol* as part of the EMS that is communicated to all relevant staff members. Complaints can be directed to NCOPL via phone or email 24 hours a day, 7 days a week. Contact details are publicly available on the [WHC website](#).

All complaints are logged on a complaint form which includes the following details:

- date and time of the complaint;
- complainant details;
- details of the issue or complaint;
- actions taken to remediate the issue, if any;
- follow up actions required, if any;
- details of further liaison with complainant, if any; and
- closure date and time of the issue.


In accordance with Project Approval Schedule 6 Condition 10, NCOPL maintains a complaint register which is available on the WHC website. Complaint management is further detailed in each of the sub-plans, and also addressed in the EMS.



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**


Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

6. References


- Department of Planning and Environment (unpublished). *Guidelines for the Preparation of Extraction Plans*.
- Ditton Geotechnical Services (2017) *Mine Subsidence Assessment for the Proposed LW107 to LW110 Extraction Plan at the Narrabri Mine*.
- Ditton Geotechnical Services (2021) *Mine Subsidence Assessment for Pillar Reduction Panels CF201-CF205 (A-J) and Longwalls LW203 to LW205 at the Narrabri Underground Mine*. Prepared for Narrabri Coal Operations Pty Ltd. DGS Report No. NAR-004/8. Prepared for Narrabri Coal Operations Pty Ltd.
- Resource Strategies (2015) *Narrabri Mine Modification 5 - Environmental Assessment*. Prepared for Narrabri Coal Operations Pty Ltd.
- Resource Strategies (2021) *Narrabri Mine Modification 7 - Environmental Assessment*. Prepared for Narrabri Coal Operations Pty Ltd.
- RW Corkery & Co. Pty Ltd (2009) *Environmental Assessment for the Narrabri Coal Mine Stage 2 Longwall Project*, Project Application No:MP08_0144. Prepared for Narrabri Coal Operations Pty Ltd.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


7. Glossary

Term	Definition ²
Angle of draw	The angle between the vertical and the line joining the edge of the mining void with the limit of vertical subsidence, usually taken as 20 mm.
Anomalous subsidence	Normally refers to unexpected subsidence effects and is usually caused by latent geological conditions (joints, faults, dykes)
Chain pillar	The pillar(s) of coal left between adjacent longwall panels. This forms a barrier that allows the goaf to be sealed off and facilitates tailgate roof stability.
Compressive strain	A decrease in the distance between two points on the surface. This can cause shear cracking or steps at the surface if > 3 millimetres per metre (mm/m).
Council	Narrabri Shire Council
Cover depth	The depth of coal seam from the ground surface (metres).
Department	The NSW Department of Planning and Environment (DPE)
Environmental consequences	The environmental consequences of subsidence impacts including: damage to built features; loss of surface flows to the subsurface; loss of standing pools; adverse water quality impacts; development of iron bacterial mats; cliff falls; rock falls; damage to Aboriginal heritage sites; impacts to aquatic ecology; ponding.
Extraction Plan Area	The area predicted to be affected by the proposed secondary extraction of the approved pillar reduction panels CF 201-CF205
Far-field subsidence	Mining-induced movements of the ground surface in areas where vertical subsidence is less than 20mm.
First workings	Development headings created by a continuous mining machine - designed to remain stable during development and longwall extraction. Provide ventilation and services, access for staff and materials, and allow for transportation of raw coal out of the mine (i.e. also referred to as mains headings, gate roads, maingate, tailgate).
Goaf	The mined-out area into which the immediate roof strata breaks.
Groundwater	Water contained in the interconnected pore spaces and voids of the saturated zone of sediments and rocks.
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Material harm	Material harm to the environment is defined in section 147 of the POEO Act
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the Narrabri Mine
MOD 5	Reduced the number of longwall panels from 26 to 20; increased the longwall panel widths for LW 107 to LW 120 from approximately 295 m to approximately 400 m; extended the western footprint approximately 60 m; and increased the maximum ROM coal processing rate from 8 Mtpa to 11 Mtpa.
MOD 7	Describes the change in mining method within the extent of the previously approved LW 201 and LW 202 and allows for up to 0.7 Mtpa via bord and pillar extraction at pillar reduction panels CF 201 to CF 205.

² The majority of the definitions are as provided in Project Approval 08_0144.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Term	Definition ²
Panels 201 to 202	Pillar reduction panels CF 201 to CF 205
Pollution incident	Has the same meaning as in the POEO Act
Project Approval	Development consent (DA_08_0144) issued on 26th July 2010 under Section 75J of the Environmental Planning and Assessment Act 1979 by the Department of Planning & Infrastructure (as modified).
Rehabilitation	The restoration of land disturbed by the development to ensure it is safe, stable and non-polluting over the short, medium and long term
Second workings	Extraction of coal from longwall panels, mini-wall panels, or pillar extraction.
Secretary	Planning Secretary under the EP&A Act, or nominee
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts.
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, including both vertical and horizontal displacement, tilt, strain and curvature.
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs.
Tailgate	Refers to the tunnels or roadways down the side of a longwall block which provides a ventilation pathway for bad or dusty air away from the longwall face. It is usually located on the side of the longwall panel adjacent to extracted panels or goaf.
Tensile strain	An increase in the distance between two points on the surface. This is likely to cause cracking at the surface if it exceeds 2 mm/m. Tensile strains are usually associated with convex (hogging) curvatures near the sides (or ends) of the panels.
Tilt	The rate of change of subsidence between two points (A and B), measured at set distances apart (usually 10m). Tilt is plotted at the mid-point between the points and is a measure of the amount of differential subsidence
Unacceptable risk	The level of risk at which mitigation actions are deemed to be warranted.
Upsidence	Relative vertical upward movements of the ground surface associated with subsidence.
Vertical subsidence	Vertical downward movements of the ground surface caused by underground coal mining.
Watercourse	A river, creek or other stream, including a stream in the form of an anabranch or tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: In a natural channel, whether artificially modified or not, or in an artificial channel that has changed the course of the stream. It also includes weirs, lakes and dams

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Attachment 1 DPE endorsement and consultation correspondence



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



Planning,
Industry &
Environment

Mr Brent Baker
Environment Superintendent
Narrabri Coal Operations
Locked Bag 1002
NARRABRI NSW 2390

19/07/2021

Dear Mr Baker

**Narrabri Coal Mine (08_0144)
Appointment of Experts - Extraction Plan for Longwalls 201-205**

I refer to your request dated 16 June 2021, requesting endorsement of a suitably qualified and experienced team to prepare the Extraction Plan for Longwalls 201-205 for Narrabri Coal Mine, in accordance with Condition 4(a), Schedule 3 of Project Approval 08_0144.

The Department has reviewed the nominations and information you have provided and is satisfied that these experts are suitably qualified and experienced. Accordingly, I can advise that the Planning Secretary approves the appointment of the following team:

- Mrs Megan Martin, Mr Servaes van der Meulen, Mr Alessandro Kennedy and Ms Carmen Osbourne of Onward Consulting to prepare the main Extraction Plan document as well as the administrative and non-specialist management and monitoring plans;
- Mr Mark Vile of Onward Consulting to prepare the rehabilitation and closure management plans;
- Mr Ben Lewis of Onward Consulting to prepare the landscape, biodiversity, and land management plans;
- Mr Steven Ditton of Ditton Geotechnical Services to undertake subsidence modelling and predictions;
- Mr Keith Phillipson, Mr Peter Khor and Mr Pieter Labuschagne of Australasian Groundwater and Environmental Consultants (AGE) to prepare the ground water component of the Water Management Plan;
- Mr Greg Roads of WRM to prepare the surface water component of the Water Management Plan; and
- Dr Matthew Whincop of Whincop Archaeology to prepare the Heritage Management Plan.

If you wish to discuss the matter further, please contact Philip Nevill on 8275 1036.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



**Regional
NSW**

DOC RVF22/403#1
MAAG0013080

Mr Brent Baker
NCO-approval@whitehavencoal.com.au

Via: Major Project Portal / Email

Dear Mr Baker,

Re. Extraction Plan – Narrabri Coal Stage 2

I refer to your request of 3 December 2021 for advice regarding the Narrabri Coal Stage 2 – Extraction Plan. The Resources Regulator has reviewed the request.

Assessment

Based on the review of the Extraction Plan, the variations to the extraction plan and subsidence monitoring program satisfies Condition 8 of Mining Authorisation Number ML1609, and Condition 4 of the Extraction Plan condition in the development consent.

However, the extraction plan consists of a change in mining method (herringbone) which will introduce new hazards requiring new controls. This will be further assessed with when Narrabri coal submit a secondary extraction HRA application.

Based on the information provided the mine operator has developed the management plans required by the Project Approval Condition 4(g).

However, there appears to be powerlines and communication cables that pass across the northern periphery of the panels in question and which would be in the area of subsidence affectation that are not addressed in the Built Features Management Plan. It is not clear from the information provided if this is mine infrastructure. This issue needs to be brought to the attention of DPIE.

The proposed mining will be regulated in relation to subsidence WHS risks under relevant WHS law, in particular as a High Risk Activity notification under Clause 33 and Schedule 3 Clause 16(3)(e) of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

Limitations

The Extraction Plan is assessed and determined by DPIE under the conditions of the development consent. The Resources Regulator provides advice to DPIE to assist in the determination.



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

Regulatory requirements if approved

The authorisation holder is required to ensure that the rehabilitation commitments outlined in any approved Extraction Plan are included in the Mining Operations Plan / Rehabilitation Management Plan regulated by the Resources Regulator under the conditions of the mining lease and the *Mining Act 1992*. The authorisation holder must ensure the Mining Operations Plan / Rehabilitation Management Plan for the area covered by this Extraction Plan is updated where necessary.

The Resources Regulator may undertake assessments of the mine operators' proposed mining activities under the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Regulation as well as other WHS regulatory obligations.

Subsidence associated with the proposed Extraction Plan will be regulated by under relevant provisions of WHS laws in particular Clause 33 and Clause 67 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* relating to High Risk Activities and Subsidence.

Background

The NSW Resources Regulator is responsible for compliance and enforcement of the Extraction Plan is so far as it relates to requirements under the *Mining Act 1992* and Work Health and Safety legislation. This role principally relates to rehabilitation, workplace safety and public safety.

The Mining Act Inspectorate within the Resources Regulator undertake risk-based compliance and enforcement activities in relation to obligations under the *Mining Act 1992*. This includes undertaking assessment and compliance activities in relation to mine rehabilitation activities and determination of security deposits.

The Mine Safety Inspectorate within the Resources Regulator is responsible for ensuring the mine operators' compliance with the Work Health and Safety (WHS) legislation, in particular the effective management of risks associated with the principal hazards as specified in the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*.

Contact

Should you require any further information or clarification, please contact the Office of the Executive Director (ED.ResourcesRegulator@planning.nsw.gov.au)

Yours sincerely,

**Peter Day
Executive Director
Resources Regulator**

23 February 2022



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



DOC21/1079998-2
20 December 2021

Planning and Assessment Division
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Mr Phillip Nevill – via Major Planning Portal

No Comment to Planning Advice Request

Dear Mr Neville

Thank you for the request for advice from Public Authority Consultation (PAE-32929973), requesting input from the NSW Environment Protection Authority (EPA) on the Water Management Plan for the Narrabri Coal – Stage Modification 7, as required by Project Approval 08_0144.

The EPA has briefly reviewed the Water Management Plan to ensure consistency with Environment Protection Licence 12789 (EPL). References to the EPL are generally consistent with the current requirements of the EPL. Please note there are several automated reference source errors in the plan, and these should be corrected for clarity.

The EPA encourages licensees to develop management plans as tools to ensure environmental impacts from the approved activity are minimised as far as possible. Management Plans can also assist licensees in meeting requirements of the EPL. As such, the EPA does not endorse or approve management plans.

If you have any questions about this request, please contact Daniel Stokes on 4908 6804 or via email at info@epa.nsw.gov.au.

Yours sincerely

LINDSAY FULLOON
Manager Regional Operations
Regulatory Operations Regional West

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
ABN 43 692 285 758

Locked Bag 5022
Parramatta
NSW 2124 Australia

4 Parramatta Square
12 Darcy St, Parramatta
NSW 2150 Australia

info@epa.nsw.gov.au
www.epa.nsw.gov.au



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



**Planning,
Industry &
Environment**

Our ref: DOC21/1096933

Mr Brent Baker
Narrabri Coal Operations
approval@whitehavencoal.com.au

Dear Brent

Narrabri Coal Mine – Panels 201-202 – Extraction and Biodiversity Management Plans

Thank you for your e-mail dated 3 December 2021 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning, Industry and Environment inviting comments on the Extraction and Biodiversity Management Plans for panels 201-202.

BCS has reviewed the plans and our comments are provided in **Attachment A**.

Please note that BCS no longer has responsibility for Cultural Heritage matters. As discussed over the phone the Heritage Management Plan will need to be referred to Department of Premier and Cabinet, Heritage Division at heritagemailbox@environment.nsw.gov.au.

If you require any further information regarding this matter, please contact Michelle Howarth, Senior Conservation Planning Officer, via michelle.howarth@environment.nsw.gov.au or (02) 6883 5339.

Yours sincerely

Samantha Wynn
Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

17 December 2021

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			



Planning,
Industry &
Environment

Attachment A

BCS's comments and recommendations

Narrabri Mine – Panels 201 - 202 – Extraction Plan and Biodiversity Management Plan

Reference in Plan	BCS Comments	BCS Recommendations
Table 7.1 of BMP 'Threatened fauna'	The trigger detailed in Table 7.1 for threatened fauna 'greater than 10% decrease in recorded fauna numbers' has a response of 'no action required'. This is not an adequate response.	A decrease of greater than 10% could be considered a significant change and therefore an appropriate action must be identified to respond to this.
Table 6.1 of BMP 'Threatened fauna populations' And Table 7.1 of BMP 'Threatened fauna'	The performance criteria for 'Threatened fauna populations and habitat are maintained' in table 6.1 states 'threatened fauna and their habitat do not experience adverse impacts, including reduction in habitat area, hollow-bearing trees and woody debris' However, in table 7.1 the level 1 trigger for threatened fauna states 'loss of habitat presence, hollow bearing trees and woody debris' and the level 1 action is 'no action required. This is not an adequate response.	The trigger should identify targets that adhere to the SMART principles (specific, measurable, achievable, realistic and timely). Given that there is no specific loss targets identified for this trigger, an appropriate response is required if any loss is detected.

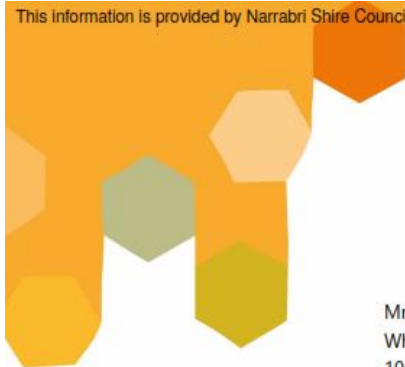


**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

This information is provided by Narrabri Shire Council



Our Reference: DLA:MH: 1954336
Your Reference: PAE-34658815
Contact Name: Donna Ausling

Mr. Brent Baker
Whitehaven Coal Ltd
10 Kurrajong Creek Road
Baan Baa NSW 2390

VIA EMAIL: BrentBaker@whitehavencoal.com.au



Friday, 11 February 2022

Re: Narrabri Mine Extraction Plan (Panels 201-202) - Post Approval Consultation-PAE-34658815

Dear Mr Baker,
Thank you for the opportunity to provide feedback on the draft Narrabri Mine Extraction Plan for Panel 201-202, comprising a draft Landscape and Rehabilitation Management Plans.

It is acknowledged that the objectives of the draft Extraction Plan are to identify sensitive and environmental built features within the affected by the proposed secondary extractions of the approved pillar reduction panels CF201 – CF205 and to manage the potential impacts and/or environmental consequences to ensure compliance with the terms of the approval. It is noted that these objectives are intended to be achieved by:

- Implementing the proposed monitoring and management measures to reduce the identified subsidence risks; and
- Implementing a review, reporting, and auditing process to provide possible feedback on the proposed monitoring and management measures and to allow for continual improvement.

In relation to the draft *Extraction Plan*, Council generally concurs with the contents of the draft Plan. In relation to Section 4.3 (p.28) of this Plan ongoing liaison with Council (as appropriate) should be undertaken in relation to any contingency responses and adaptive management measures.

Council raises no specific concerns in relation to the draft *Landscape Management Plan* as presented which is required to be prepared in consultation with Narrabri Shire Council under the terms of the project approval.

In relation to the draft *Rehabilitation Management Plan*, Council generally concurs with the contents of the Plan. Ongoing consultation with Council in the development and delivery of weed management programs, as detailed in section 7 of the draft Plan, is considered appropriate and necessary and this mechanism should be built into the draft Plan.


Narrabri Shire Council
46 - 48 Maitland Street
PO Box 261, Narrabri NSW 2390


P. (02) 6799 6866
F. (02) 6799 6888


E. council@narrabri.nsw.gov.au
www.narrabri.nsw.gov.au



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

This information is provided by Narrabri Shire Council

Thank you for the opportunity to provide feedback. Should you require any additional information or clarification you are invited to contact the undersigned on (02) 6799 6886 or by emailing council@narrabri.nsw.gov.au.

Yours faithfully,

Donna Ausling
Manager Strategic Planning



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



Department of Planning and Environment

Brent Baker

Contact: DPE Water Assessments

Email: NCO-approval@whitehavencoal.com.au

Email: water.assessments@dpie.nsw.gov.au

Our ref: OUT22/1844

16 March 2022

Dear Mr Baker

Re: Extraction Plan 201-202 – Water Management Plan for Narrabri Coal Mine – Stage 2 – MP08_0144-PA-23

I refer to your email request to the Department of Planning and Environment (DPE) Water about the above matter.

Department of Planning and Environment - Water (DPE Water) has reviewed the Extraction Plan 201-202 – Water Management Plan (WMP) and has a number of recommendations to further understand the management of water. Please see **Attachment A** for more detail.


Should you have any further queries in relation to this submission please do not hesitate to contact DPE Water Assessments at water.assessments@dpie.nsw.gov.au.

Yours sincerely,

Liz Rogers

Manager, Assessments, Knowledge Division

Department of Planning and Environment: Water

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Attachment A

Detailed advice regarding the Extraction Plan 201-202 – Water Management Plan for Narrabri Coal Mine – Stage 2 – MP08_0144-PA-23

1.0 Management of water on the pit top area

1.1 Recommendation

- That the proponent summarise the management of water on the pit top area in the WMP.

1.2 Explanation

Details on pit top area water management were not included in the WMP (Section 2.1.2), rather the Site WMP was referenced. Details regarding the management of water on the pit top area should be summarised in the WMP from the Site WMP to make the WMP a standalone document.

2.0 Baseline water quality

2.1 Recommendation

- That the proponent summarise baseline water quality for surface water (Section 5.2) and groundwater (Section 6.3) in the WMP

2.2 Explanation

In Sections 5.2 and 6.3 in the WMP, surface and groundwater baseline quality and/or level information are not included and only the Site WMP is referenced. Baseline data should be summarised in the WMP from the Site WMP to make the WMP a standalone document.

3.0 Trigger Levels

3.1 Recommendation

- That the proponent include all trigger levels in Section 6.5.3 and Tables 6.1 and 7.

3.2 Explanation

In Sections 6.5.3 and Tables 6.1 and 7.1 in the WMP, trigger levels are referenced to the Site WMP and not included in the WMP. All trigger levels should be summarised in the WMP from the Site WMP to make the WMP a standalone document.

4.0 Complaints and Non-Compliances

4.1 Recommendation

- That the proponent include details on responding to complaints and non-compliances with statutory requirements.

4.2 Explanation

Details on responding to complaints and non-compliances with statutory requirements was not presented in the WMP as required by the Project Approval, Schedule 6 Condition 2(g). These details should be included in the WMP.

5.0 Consultation Records

5.1 Recommendation

- That the proponent include consultation records in Attachment 2, as referenced in the WMP.
-



NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

5.2 Explanation

The WMP states that consultation records are supplied in Attachment 2 of the WMP; however, were not included in the WMP version supplied for review. Consultation records should be provided to comply with the Project Approval, Schedule 3 Condition 4(g).

6.0 Reports on Website

6.1 Recommendation

- That the proponent ensure the Extraction Plan, WMP, and all appendices are available on the Whitehaven Coal Limited website

6.2 Explanation

Section 1.7 of the WMP indicates that the Extraction Plan and all appendices, including the WMP, are publicly available on the Whitehaven Coal Limited website as per the Project Approval; however, at the time of this review, these reports did not appear to be present.

7.0 Subsidence Assessment

7.1 Recommendation

- That the proponent include the Subsidence Assessment in Appendix B, as referenced in the WMP.

7.2 Explanation

The full Subsidence Assessment that was undertaken in accordance with Schedule 3 Condition 4(e) of the Project Approval and referenced to be in Appendix B of the WMP, was not attached to the WMP report supplied for review.

8.0 Approval Requirements Reference

8.1 Recommendation

- That the proponent fix reference in Table A1.1 for Approval requirements to Section (h), not (g).

8.2 Explanation

In Table A1.1 in the WMP, the section of the Project Approval that provides details on the WMP is referenced as Schedule 3 Condition 4(g), whereas it should be Schedule 3 Condition 4(h). The reference should be updated to avoid confusion.

9.0 Broken Links/References

9.1 Recommendation

- That the proponent fix broken links/references to figures and/or tables throughout the WMP.

9.2 Explanation

References in various sections of the WMP appear to be incorrectly linked, as the WMP shows "**Error! Reference source not found.**" Instead of the reference to a table or figure. These links should be updated.

End Attachment A



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202



**Premier
& Cabinet**

Our ref: DOC21/1138309-1

Mr. Brent Baker
Environmental Superintendent - Narrabri Mine
Narrabri Coal Operations Pty Ltd

Dear Mr. Baker

Inland Rail - Narrabri to North Star - SSI 7474 - Request for Consultation as part of an Independent Environmental Audit - Project Approval 08_0144 - Whitehaven Coal - Narrabri Coal Operations - Narrabri Mine Extraction Plan - Panels 201 to 202

Thank you for your referral on 9 December 2021, inviting comments from the Heritage NSW on the above SSI proposal with respect to an Independent Environmental Audit, in relation to Aboriginal cultural heritage (ACH).

Heritage NSW has reviewed *Appendix H – Heritage Management Plan - Whitehaven Coal - Narrabri Coal Operations - Extraction Plan - Panels 201 to 202, 25 November 2021*, as requested and makes the following comments.


As per Schedule 3 Condition 4 of the Project Approval, the Narrabri Mine must prepare and implement Extraction Plans for any second workings to be mined to manage subsidence associated with underground coal mining, where mining has already received approval. The Narrabri Mine Project Approval requires that Each Extraction Plan must include a Heritage Management Plan, which is to be prepared in consultation with Heritage NSW and relevant Aboriginal stakeholders, to manage the potential consequences of the proposed second workings on heritage sites or values.

Heritage NSW understands that the Extraction Plan-Heritage Management Plan (EP-HMP) has been prepared as part of the Extraction Plan for Longwalls 201 and 202, in the Hoskissons Seam at the Narrabri Mine. The EP-HMP sets out the management objectives and performance measures proposed to manage potential subsidence impacts to cultural heritage values within the Extraction Plan Area. Heritage NSW notes that consultation with the Narrabri Local Aboriginal Land Council (NLALC) and Gomeroi Narrabri Aboriginal Corporation (GNAC), all the Registered Aboriginal Parties (RAPs) for the Narrabri Mine has been maintained throughout the development of the EP-HMP.

The EP-HMP applies to cultural heritage sites that have been recorded within the Panels 201 to 202 Extraction Plan Area only, and that the purpose of the EP-HMP is to ensure that impacts to these sites are managed in accordance with the Project Approval, which aims to:

1. Provide a precise set of procedures to enable the identification and conservation of physical and cultural heritage sites and artefacts within the Extraction Plan Area.
2. Ensure all personnel are aware of the obligations, responsibilities and the procedures under the *National Parks and Wildlife Act 1974* and *NSW Heritage Act 1977*.

Level 6, 10 Valentine Ave Parramatta NSW 2150 ■ Locked Bag 5020 Parramatta NSW 2124
P: 02 9873 8500 ■ E: heritagemailbox@environment.nsw.gov.au

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

3. Establish a consultation protocol with the RAPs, who are representatives of the local Aboriginal community and to document the location of all recorded Aboriginal sites.

Heritage NSW notes that 178 Aboriginal sites are recorded within the broader Narrabri Mine footprint, and of these, 24 are located within the Panels 201-202 Extraction Plan Area. This includes 18 artefact scatters, five isolated artefacts, and one grinding groove site. All 24 sites have been assessed as being of low scientific significance due to disturbed contexts and low artefact densities (< 12 artefacts). The grinding Groove site (Claremont GG1) has also been assessed as being of low scientific significance due to the presence of only one grinding groove on a floating sandstone boulder.

A risk assessment for the subsidence associated with the extraction of coal from Panels 201 to 202 was undertaken on 29 September 2021. Heritage NSW notes that all risks associated with subsidence above Panels 201 to 202 with respect to Aboriginal cultural heritage were assessed as low to moderate, and there were no high-risk items identified. Heritage NSW has no additional comments or recommendations in relation to the *Appendix H – Heritage Management Plan - Whitehaven Coal - Narrabri Coal Operations - Extraction Plan - Panels 201 to 202, 25 November 2021*.

Should you require any further information with respect to the advice and guidance provided, please contact Nicole Y Davis, Manager - Assessments, Heritage NSW at Nicole.davis@environment.nsw.gov.au

Yours sincerely



Nicole Y Davis

Manager - Assessments

Heritage NSW

Department of Premier and Cabinet

10 January 2022


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table A1.1 - Extraction Plan (Draft Revision B) - comments reconciliation

NSC comments

Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
1	4.3	Contingency response and adaptive management	No specific text reference	In relation to the draft Extraction Plan, Council generally concurs with the contents of the draft Plan. In relation to Section 4.3 (p.28) of this Plan ongoing liaison with Council (as appropriate) should be undertaken in relation to any contingency responses and adaptive management measures.	The following dotpoint has been added to the text: <ul style="list-style-type: none"> undertake ongoing liaison with NSC (where relevant) in relation to any if the implemented contingency responses and adaptive management measures.

Resources Regulator comments

Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
No comments provided by the Resources Regulator on the EP					

BCS comments

Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
No comments provided by the BCS on the EP					

EPA comments


Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
No comments provided by the EPA on the EP					

Heritage NSW comments

Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
No comments provided by Heritage NSW on the EP					

DPE Water comments

Item	Section #	Section heading	Existing text / explanation	Comment / recommendation	Response
No comments provided by DPE Water on the EP					

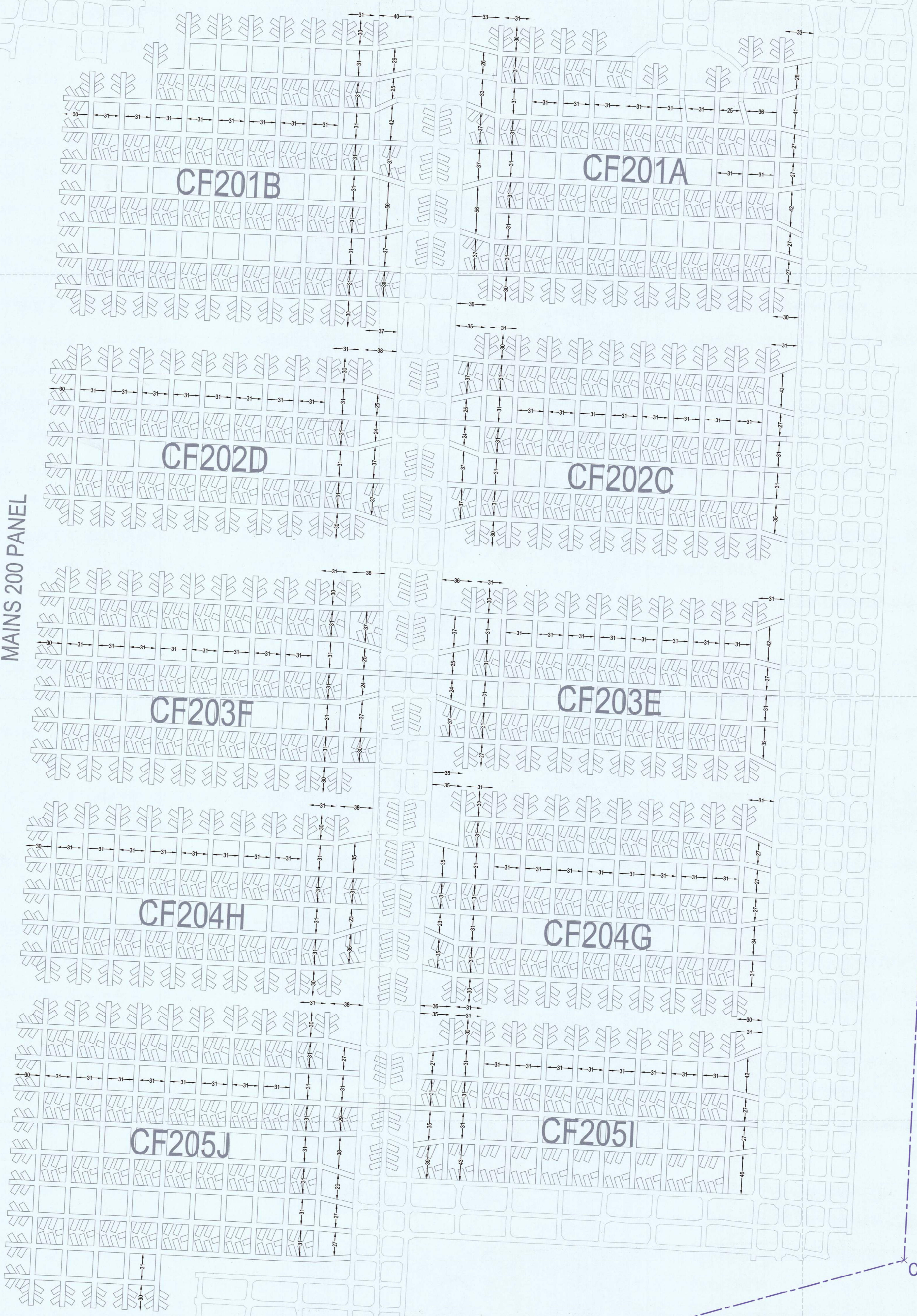
	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Attachment 2 Plans 1 to 8



LONGWALL 203

MAINS 200 PANEL



6 620 000

6 619 500

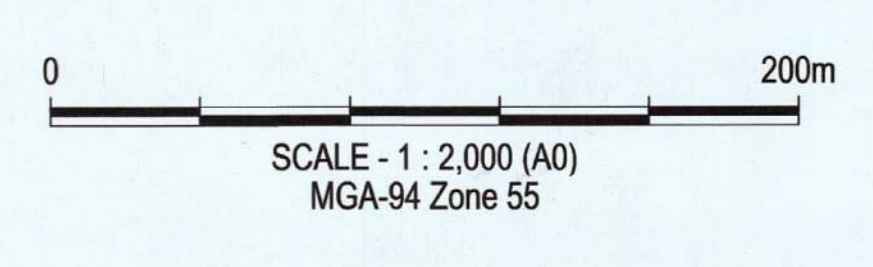
6 619 000

LEGEND:

- CURRENT FIRST WORKINGS
- PROPOSED FIRST WORKINGS (WITH LENGTHS)
- APPLICATION AREA (ANGLE OF DRAW)
- EXTRACTION PLAN BOUNDARY
- ABUTMENT PILLAR DIMENSION

APPLICATION AREA COORDINATES		
POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
- ALL DIMENSIONS IN METRES.
 - COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 - HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 - WORKINGS AS AT 29 OCTOBER 2021.
 - APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 - FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 - FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 - LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 - WORKINGS IN HOSKISSONS SEAM.
 - PROPOSED FIRST WORKINGS LENGTHS MEASURED CENTRE TO CENTRE.
 - ABUTMENT PILLAR DIMENSIONS MEASURED RIB TO RIB.



MANAGER CERTIFICATION
 NAME: James Stewart
 SIGNATURE: [Signature]
 MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

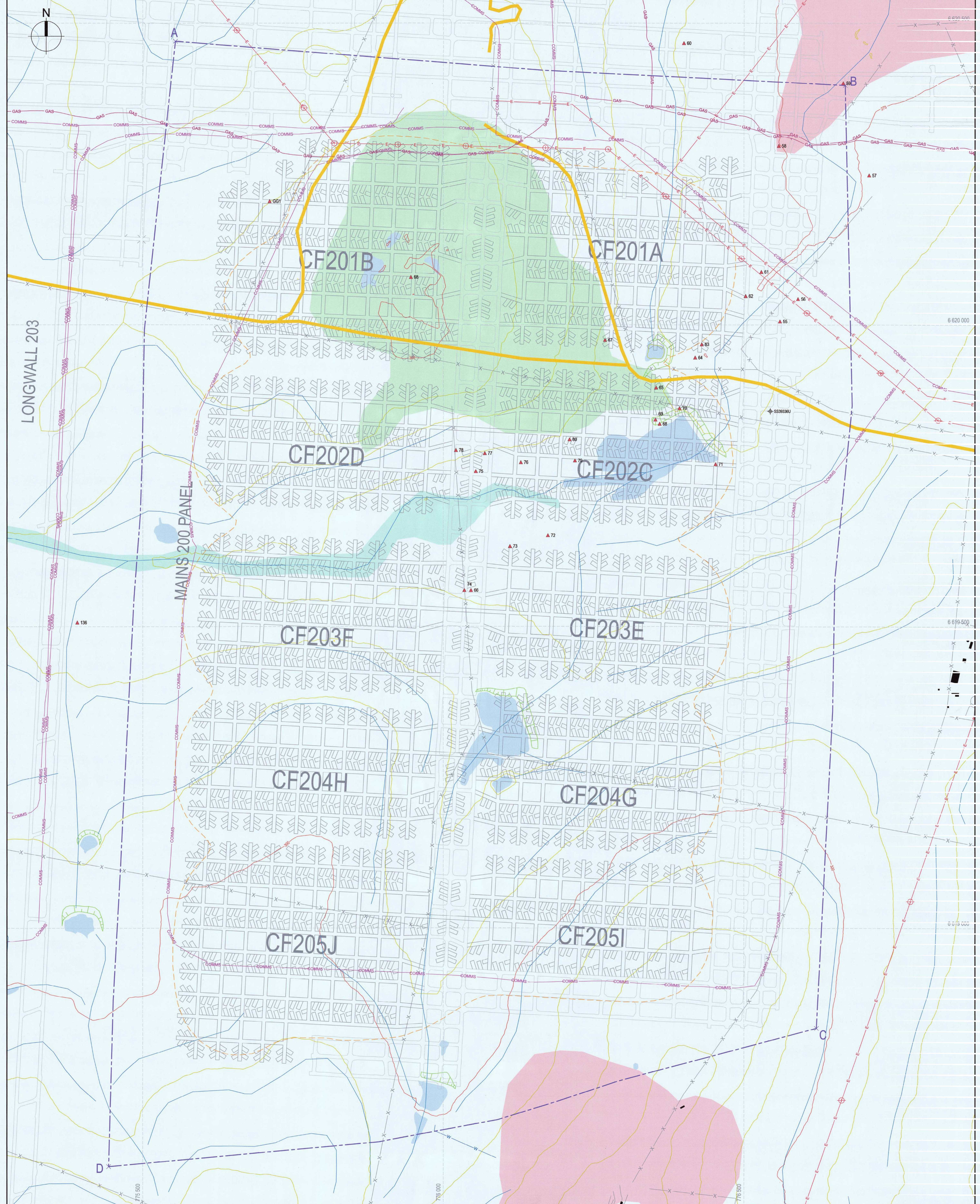
REFERENCE	DRG No.	TITLE

HORIZONTAL DATUM:			VERTICAL DATUM:			
REV	DATE	DESCRIPTION	DRN	CHK	ENG	APP
B	15.11.21	REVISED MINING PLAN				
A	15.10.21	ISSUED FOR REVIEW				

CLIENT DRG No.			
-			

NARRABRI COAL MINE EXTRACTION PLAN - PLAN 1 EXISTING AND PROPOSED WORKINGS PANELS 201 & 202	
SCALE 1:2,000	ONWARD DRG No. 21025-201

REFERENCE DRG No.	TITLE	REVISIONS REV DATE DESCRIPTION	VERTICAL DATUM DRN CHK ENG APP	CLIENT DRG No. -	SCALE 1:2,000	ONWARD DRG No. 21025-201	REV B
----------------------	-------	-----------------------------------	-----------------------------------	---------------------	------------------	-----------------------------	----------



LEGEND:

	CURRENT FIRST WORKINGS		MINE COMMUNICATIONS LINE		BUILDING
	PROPOSED FIRST WORKINGS		PREDICTED -0.020m SUBSIDENCE CONTOUR		SURVEY CONTROL MARK
	APPLICATION AREA (ANGLE OF DRAW)		UNSEALED ROAD / TRACK		CULTURAL HERITAGE SITE
	POWERLINE / POWER POLE		SURFACE CONTOURS - MAJOR / MINOR	VEGETATION COMMUNITY:	
	WATER PIPELINE		CONTOUR BANK AND DRAIN		CALLITRIS FOREST
	GAS PIPELINE		WATER COURSE - RURAL DAM		INLAND GREY BOX WOODLAND
	FENCE				RIPARIAN FOREST

APPLICATION AREA COORDINATES

POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
- ALL DIMENSIONS IN METRES.
 - COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA84).
 - HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 - WORKINGS AS AT 29 OCTOBER 2021.
 - APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 - FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 - FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 - LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 - WORKINGS IN HOSKISSONS SEAM.
 - SURFACE CONTOURS GENERATED FROM LIDAR DATA AND ARE POST SUBSIDENCE IN AREAS EXTRACTED AT TIME OF FLIGHT.
 - PREDICTED SUBSIDENCE CONTOURS SUPPLIED BY EXTERNAL CONSULTANTS.
 - SURFACE DETAILS DERIVED FROM AERIAL AND TERRESTRIAL SURVEYS.

MANAGER CERTIFICATION

NAME: James Stearns

SIGNATURE: [Signature]

MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

DRG No.	TITLE

REVISIONS		HORIZONTAL DATUM:	VERTICAL DATUM:
REV	DATE	DESCRIPTION	
B	15.11.21	REVISED MINING PLAN	DK
A	21.10.21	ISSUED FOR REVIEW	DK

WHITEHAVEN COAL

ONWARD CONSULTING

CLIENT DRG No. _____

NARRABRI COAL MINE
EXTRACTION PLAN - PLAN 2
NATURAL AND MAN MADE FEATURES
PANELS 201 & 202

A0 SCALE 1:2,000 ONWARD DRG No. 21025-202 REV R



LEGEND:

	CURRENT FIRST WORKINGS		PROJECTED WASHOUT
	PROPOSED FIRST WORKINGS		WASHOUT MAPPED
	APPLICATION AREA (ANGLE OF DRAW)		PROJECTED FAULT
	DEPTH OF COVER ISOPACHS		FAULT MAPPED
	SEAM THICKNESS ISOPACHS		JOINT
	POSSIBLE FAULT / STRUCTURE ZONE		STRESS DIRECTION
	PYRITE ZONE		BOREHOLE

APPLICATION AREA COORDINATES

POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
1. ALL DIMENSIONS IN METRES.
 2. COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 3. HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 4. WORKINGS AS AT 29 OCTOBER 2021.
 5. APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 6. FIRST WORKINGS DIMENSIONS 6.2m x 3.2m x 3.5m.
 7. FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 8. LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 9. WORKINGS IN HOSKISSONS SEAM.
 10. GEOLOGICAL DATA SUPPLIED BY GEOLOGY DEPARTMENT, GENERATED FROM EXPLORATION AND INSEAM GAS DRAINAGE DRILLING, TOGETHER WITH DRIVEN ROADWAY MAPPING.



MANAGER CERTIFICATION
 NAME: JAMES STEWART
 SIGNATURE: [Signature]
 MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

REV	DATE	DESCRIPTION
B	15.11.21	REVISED MINING PLAN
A	21.10.21	ISSUED FOR REVIEW

DRG No.	TITLE	DRN	CHK	ENG	APP

WHITEHAVEN COAL

ONWARD CONSULTING

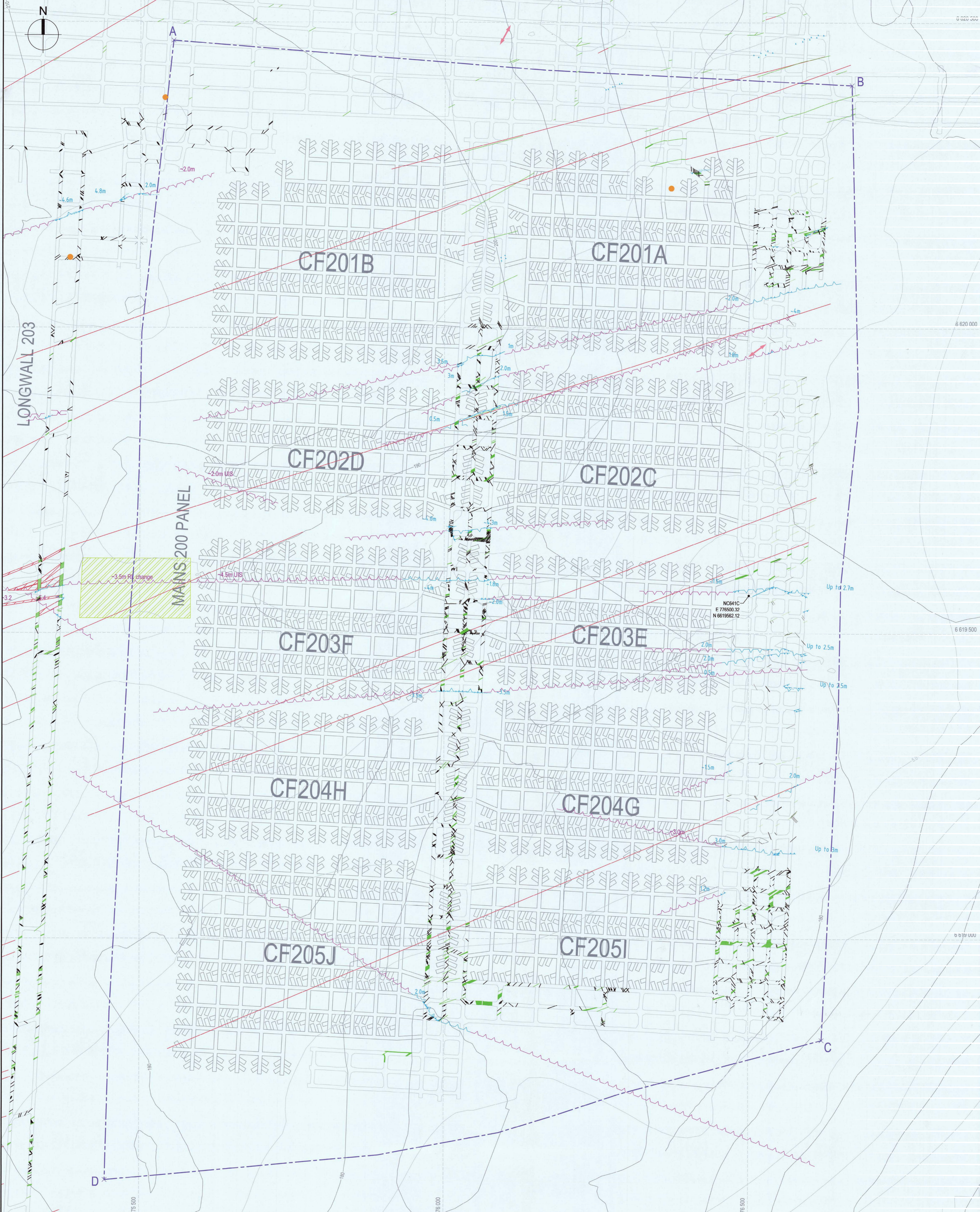
CLIENT DRG No. -

NARRABRI COAL MINE
 EXTRACTION PLAN - PLAN 3
 HOSKISSONS SEAM GEOLOGICAL DATA
 PANELS 201 & 202

ONWARD DRG No. 21025-203

SCALE 1:2,000

REV B



LEGEND:

	CURRENT FIRST WORKINGS		PROJECTED WASHOUT
	PROPOSED FIRST WORKINGS		WASHOUT MAPPED
	APPLICATION AREA (ANGLE OF DRAW)		PROJECTED FAULT
	DEPTH OF COVER ISOPACHS		FAULT MAPPED
	SEAM THICKNESS ISOPACHS		JOINT
	POSSIBLE FAULT / STRUCTURE ZONE		STRESS DIRECTION
	PYRITE ZONE		BOREHOLE

APPLICATION AREA COORDINATES

POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
1. ALL DIMENSIONS IN METRES.
 2. COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 3. HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 4. WORKINGS AS AT 29 OCTOBER 2021.
 5. APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 6. FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 7. FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 8. LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 9. WORKINGS IN HOSKISSONS SEAM.
 10. GEOLOGICAL DATA SUPPLIED BY GEOLOGY DEPARTMENT, GENERATED FROM EXPLORATION AND INSEAM GAS DRAINAGE DRILLING, TOGETHER WITH DRIVEN ROADWAY MAPPING.

0 200m
SCALE: 1:2,000 (A0)
MGA-94 Zone 55

MANAGER CERTIFICATION
 NAME: James Stewart
 SIGNATURE: [Signature]
 MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

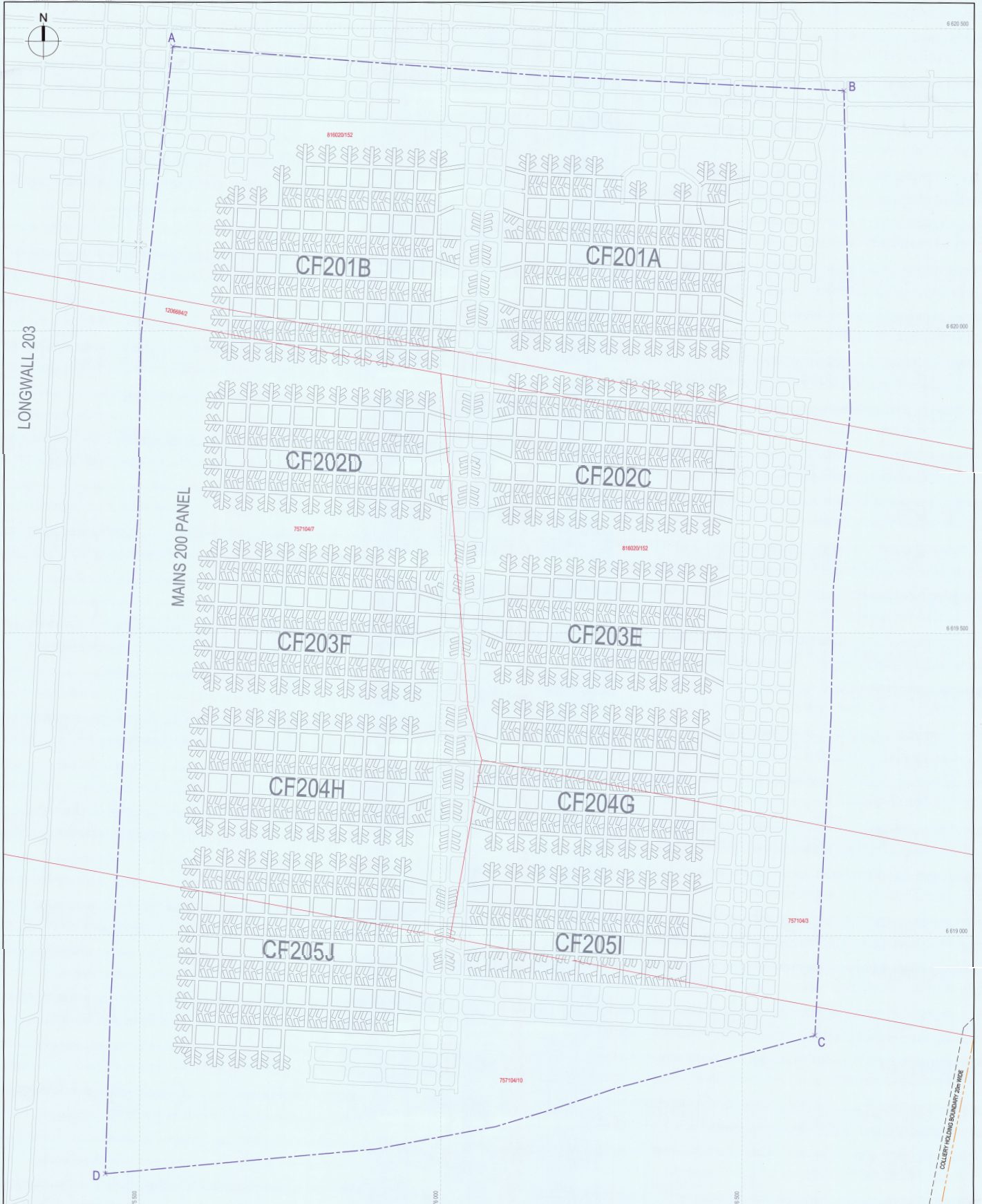
REV	DATE	DESCRIPTION	DRN	CHK	ENG	APP
B	15.11.21	REVISED MINING PLAN				
A	21.10.21	ISSUED FOR REVIEW				

WHITEHAVEN COAL
ONWARD CONSULTING

CLIENT DRG No. -

NARRABRI COAL MINE
EXTRACTION PLAN PLAN 4
GEOLOGICAL AND SEAM DATA
PANELS 201 & 202

A0 FULL SIZE SCALE 1:2,000 ONWARD DRG No. 21025-204 DEV B



LEGEND:

- CURRENT FIRST WORKINGS
- PROPOSED FIRST WORKINGS
- APPLICATION AREA (ANGLE OF DRAW)
- MINING LEASE (ML 1609)
- COLLIERY HOLDING BOUNDARY
- CADASTRAL BOUNDARIES
- DP NUMBER / LOT NUMBER

LEASE NUMBER	DP NUMBER	LOT NUMBER	OWNER	LEASE RIGHTS
	757104	3	NARRABRI COAL OPERATIONS AND JOINT VENTURE PARTNERS	EMBRACES THE STRATA BETWEEN A DEPTH OF 10m BELOW THE SURFACE TO 900m BELOW AHD
ML 1609	757104	7		
	757104	10		
	816020	152		

APPLICATION AREA COORDINATES		
POINT	EASTING	NORTHING
A	775554.36	582870.26
B	778668.37	620797.34
C	779620.48	661884.29
D	775443.30	661884.88

- NOTES:**
- ALL DIMENSIONS IN METRES.
 - COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 - HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 - WORKINGS AS AT 29 OCTOBER 2021.
 - APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 - FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 - FINAL EXTRACTION HEIGHT OF 4.5m (AFTER FLOOR BRUSHING).
 - LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 - WORKINGS IN PROGRESSING SEAM.
 - CADASTRAL DATA DERIVED FROM DCOB.



MANAGER CERTIFICATION

NAME: James Stewart

SIGNATURE: [Signature]

MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE REPRODUCED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

REV	DATE	DESCRIPTION
B	15.11.21	REVISED MINING PLAN
A	29.10.21	ISSUED FOR REVIEW

DRG No.	TITLE	DRN	CHK	ENG	APP

WHITEHAVEN COAL

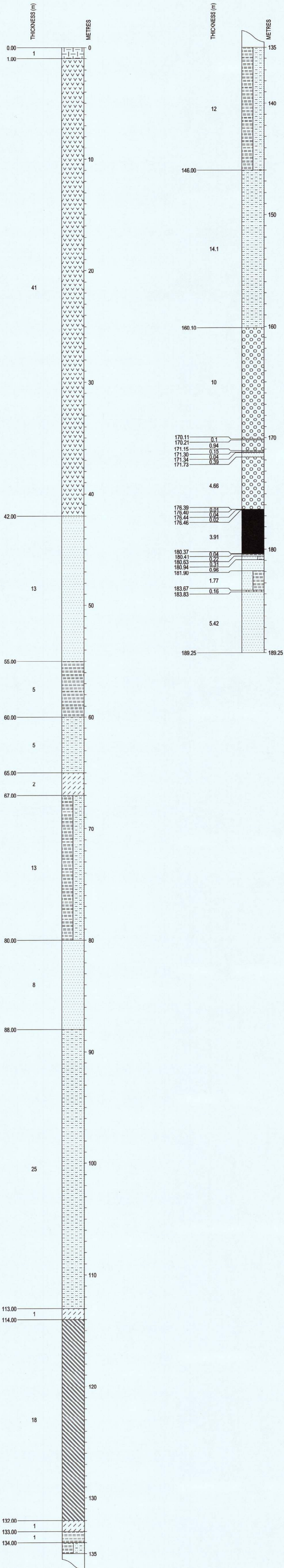
ONWARD CONSULTING

CLIENT DRG No. -

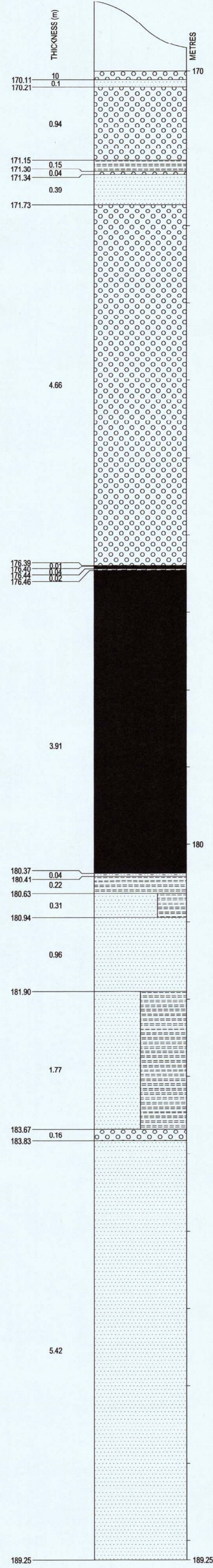
NARRABRI COAL MINE EXTRACTION PLAN - PLAN 5 MINING TITLES AND LAND OWNERSHIP PANELS 201 & 202

A0 SCALE: 1:2,000 ONWARD DRG No: 21025-205 REV B

SECTION OF STRATA
AT E 776500.32
N 6619562.12
BORE HOLE NC641C



SECTION OF STRATA
AND WORKING SECTION
AT E 776500.32
N 6619562.12
BORE HOLE NC641C

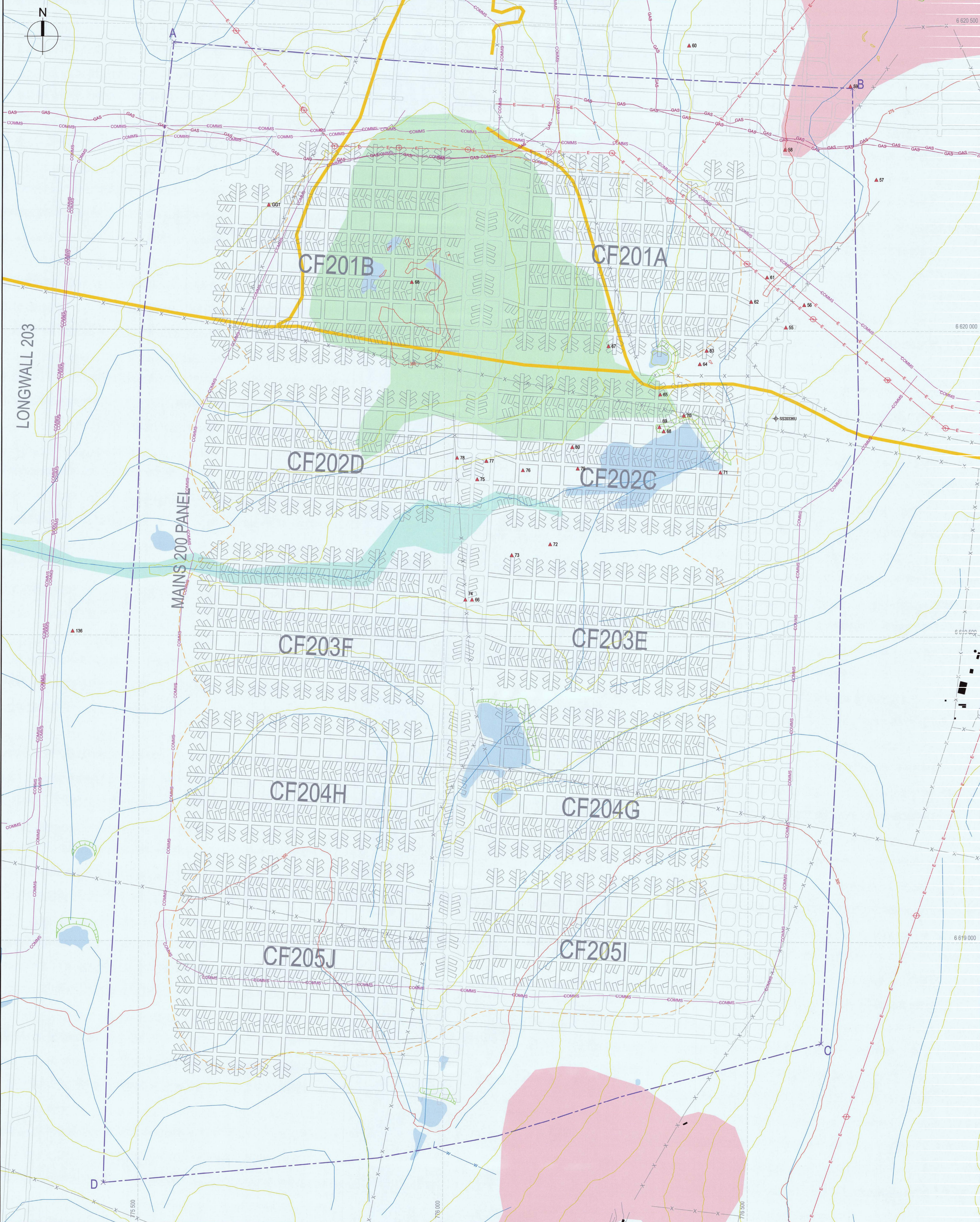


LEGEND:

	SOIL
	BASALT
	SANDSTONE
	SILTSTONE
	MUDSTONE
	CLAYSTONE
	IGNEOUS ROCK
	CONGLOMERATE
	TUFF
	COAL

MANAGER CERTIFICATION
NAME: James Swain
SIGNATURE: [Signature]
MINING ENGINEERING MANAGER DATE: 26.10.21

<p>© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD</p>		<p>HORIZONTAL DATUM:</p>				<p>VERTICAL DATUM:</p>				<p>WHITEHAVEN COAL</p>		<p>ONWARD CONSULTING</p>		<p>NARRABRI COAL MINE EXTRACTION PLAN - PLAN 6 GEOLOGICAL SECTIONS PANELS 201 & 202</p>	
<p>REFERENCE</p>		<p>REVISIONS</p>		<p>DRN</p>		<p>CHK</p>		<p>ENG</p>		<p>APP</p>		<p>CLIENT DRG No. -</p>		<p>ONWARD DRG No. 21025-206</p>	
DRG No.	TITLE	REV	DATE	DESCRIPTION	DRN	CHK	ENG	APP	<p>SCALE A0 FULL SIZE AS SHOWN</p>		<p>REV A</p>				



LEGEND:

	CURRENT FIRST WORKINGS		MINE COMMUNICATIONS LINE		BUILDING
	PROPOSED FIRST WORKINGS		PREDICTED -0.020m SUBSIDENCE CONTOUR		SURVEY CONTROL MARK
	APPLICATION AREA (ANGLE OF DRAW)		UNSEALED ROAD / TRACK		CULTURAL HERITAGE SITE
	POWERLINE / POWER POLE		SURFACE CONTOURS - MAJOR / MINOR		VEGETATION COMMUNITY:
	WATER PIPELINE		CONTOUR BANK AND DRAIN		CALLITRIS FOREST
	GAS PIPELINE		WATER COURSE - RURAL DAM		INLAND GREY BOX WOODLAND
	FENCE				RIPARIAN FOREST

APPLICATION AREA COORDINATES

POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
- ALL DIMENSIONS IN METRES.
 - COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 - HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 - WORKINGS AS AT 29 OCTOBER 2021.
 - APPLICATION AREA DETERMINED USING 20.5° ANGLE OF DRAW.
 - FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 - FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 - LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 - WORKINGS IN HOSKISSONS SEAM.
 - SURFACE CONTOURS GENERATED FROM LIDAR DATA AND ARE POST SUBSIDENCE IN AREAS EXTRACTED AT TIME OF FLIGHT.
 - PREDICTED SUBSIDENCE CONTOURS SUPPLIED BY EXTERNAL CONSULTANTS.
 - SURFACE DETAILS DERIVED FROM AERIAL AND TERRESTRIAL SURVEYS.

MANAGER CERTIFICATION

NAME: James Stewart

SIGNATURE: [Signature]

MINING ENGINEERING MANAGER DATE: 26.11.21

0 200m
SCALE: 1:2,000 (A0)
MGA-94 Zone 55

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

DRG No.	TITLE

HORIZONTAL DATUM:

REV	DATE	DESCRIPTION
B	15.11.21	REVISED MINING PLAN
A	21.10.21	ISSUED FOR REVIEW

VERTICAL DATUM:

DRN	CHK	ENG	APP

WHITEHAVEN COAL

ONWARD CONSULTING

CLIENT DRG No. _____

**NARRABRI COAL MINE
EXTRACTION PLAN - PLAN 7
SUBSIDENCE MONITORING NETWORK
PANELS 201 & 202**

ONWARD DRG No. **21025-207**

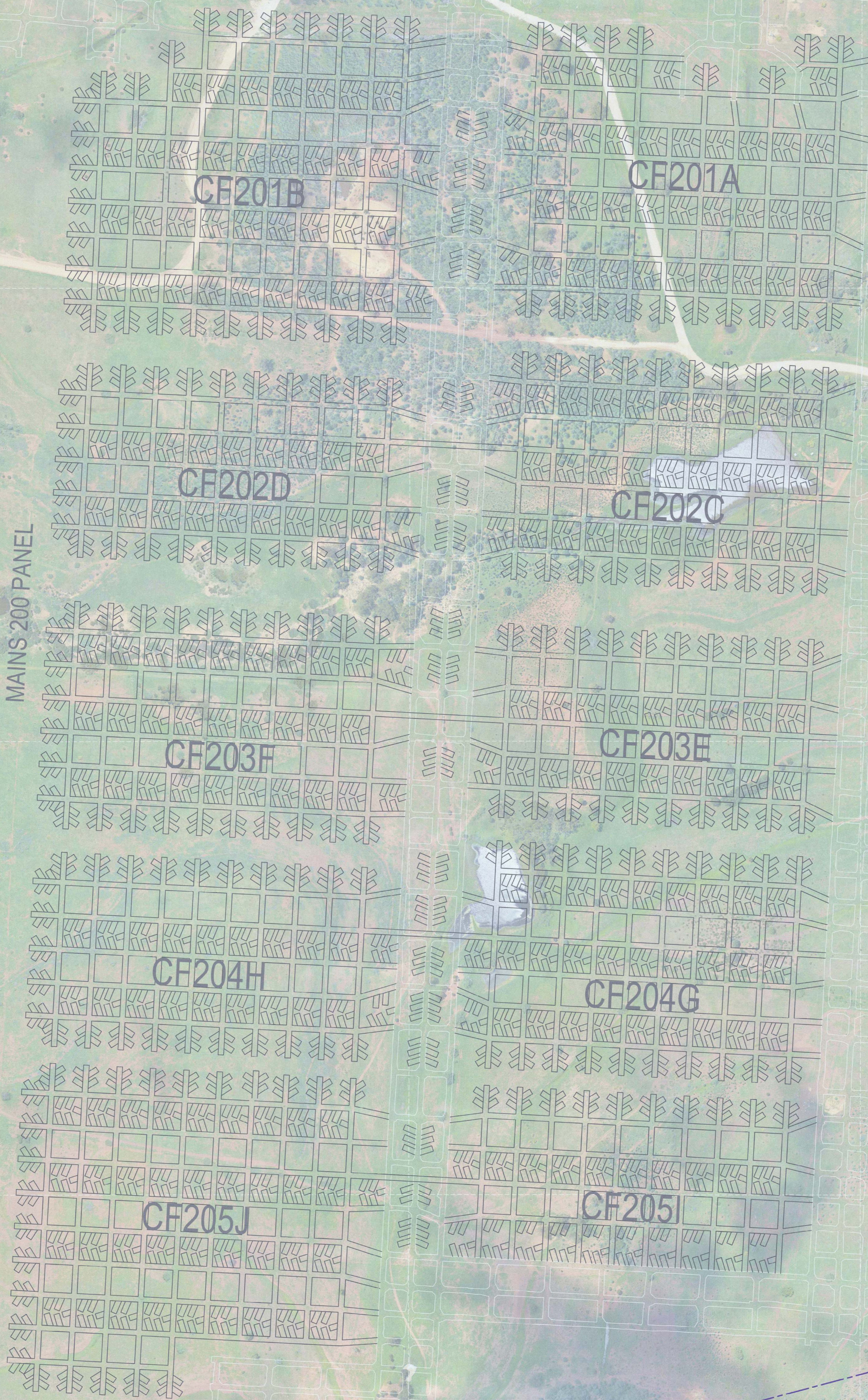
SCALE: 1:2,000

REV **B**



LONGWALL 203

MAINS 200 PANEL

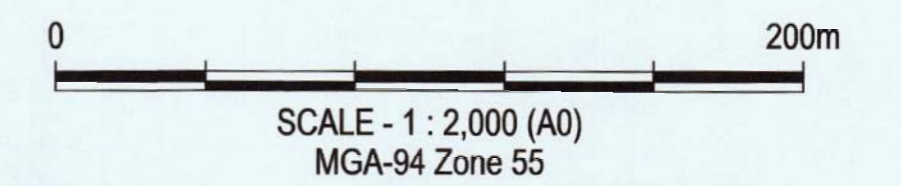


LEGEND:

	CURRENT FIRST WORKINGS
	PROPOSED FIRST WORKINGS
	APPLICATION AREA (ANGLE OF DRAW)

APPLICATION AREA COORDINATES		
POINT	EASTING	NORTHING
A	775554.36	6620470.26
B	776668.37	6620397.34
C	776620.49	6618834.29
D	775443.30	6618604.88

- NOTES:**
1. ALL DIMENSIONS IN METRES.
 2. COORDINATE DATA IN MAP GRID OF AUSTRALIA 1994 (MGA94).
 3. HEIGHT DATA IN AUSTRALIAN HEIGHT DATUM (AHD).
 4. WORKINGS AS AT 29 OCTOBER 2021.
 5. APPLICATION AREA DETERMINED USING 26.5° ANGLE OF DRAW.
 6. FIRST WORKINGS DIMENSIONS 6.2m x 3.2m - 3.5m.
 7. FINAL EXTRACTION HEIGHT OF 4.3m (AFTER FLOOR BRUSHING).
 8. LONGWALL VOID DIMENSIONS INCLUDE THE ADJACENT FIRST WORKINGS.
 9. WORKINGS IN HOSKISSONS SEAM.



MANAGER CERTIFICATION
 NAME: JAMES STEWART
 SIGNATURE:
 MINING ENGINEERING MANAGER DATE: 26.11.21

© THIS DRAWING REMAINS THE PROPERTY OF ONWARD CONSULTING PTY LTD AND SHALL NOT BE DUPLICATED WITHOUT THE WRITTEN CONSENT OF ONWARD CONSULTING PTY LTD

HORIZONTAL DATUM:

VERTICAL DATUM:

DRG No.	TITLE

REV	DATE	DESCRIPTION
B	15.11.21	REVISED MINING PLAN
A	21.10.21	ISSUED FOR REVIEW


DRN	CHK	ENG	APP
DK			
DK			

CLIENT DRG No.



NARRABRI COAL MINE
 EXTRACTION PLAN - PLAN 8
 AERIAL PHOTO W/ EXIST. & PROP. WORKINGS
 PANELS 201 & 202

A0	SCALE 1:2,000	ONWARD DRG No. 21025-208	REV B
----	---------------	--------------------------	-------

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Attachment 3 Applicable approval and compliance conditions


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table A3.1 - Relevant Project Approval 08_0144 requirements

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
Schedule 2 Condition 1	The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.	Section 1.3
Schedule 2 Condition 11	<p>With the approval of the Secretary, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.</p> <p>Note: <i>The conditions of this approval require certain strategies, plans, and programs to be prepared for the project. They also require these documents to be reviewed and audited on a regular basis to ensure they remain effective. However, in some instances, it will not be necessary or practicable to prepare these documents for the whole project at any one time, particularly as these documents are intended to be dynamic and improved over time. Consequently, the documents may be prepared and implemented on a progressive basis, subject to the conditions of this approval. In doing this however, the Proponent will need to demonstrate that it has suitable documents in place to manage the existing operations of the project.</i></p>	There is no staging for the EP for Panels 201-202
Schedule 3 Condition 4	<p>NCOPL shall prepare and implement Extraction Plans for any second workings to be mined to the satisfaction of the Secretary. Each Extraction Plan must:</p> <p>(a) be prepared by a team of suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;</p> <p>(b) be approved by the Secretary before NCOPL carries out any of the second workings covered by the plan;</p> <p>(c) include detailed plans of the proposed first and second workings and any associated surface development;</p> <p>(d) include detailed performance indicators for each of the performance measures in Tables 1 and 2 (as included in Schedule 3 Condition 2 of the Project Approval);</p> <p>(e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this approval;</p>	<p style="background-color: #cccccc;"> </p> <p>Section 1.4</p> <p>No second workings will be commenced in Panels 201 to 202 until approval of this Extraction Plan has been obtained.</p> <p>Coal Resource Recovery Plan (Appendix A)</p> <p>Built Features Management Plan (Appendix D)</p> <p>Public Safety Management Plan (Appendix E)</p> <p>Water Management Plan (Appendix G)</p> <p>Biodiversity Management Plan (Appendix H)</p> <p>Subsidence Predictions (Appendix B)</p>



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**


Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
	(f) describe the measures that would be implemented to ensure compliance with the performance measures in Tables 1 and 2, and manage or remediate any impacts and/or environmental consequences;	Appendices C to J
	(g) include the following to the satisfaction of the Resources Regulator:	
	<ul style="list-style-type: none"> • a Coal Resource Recovery Plan that demonstrates effective recovery of the available resource; 	Coal Resource Recovery Plan (Appendix A)
	<ul style="list-style-type: none"> • a Subsidence Monitoring Program to: <ul style="list-style-type: none"> ▪ provide data to assist with the management of the risks associated with subsidence; ▪ validate the subsidence predictions; and ▪ analyse the relationship between the subsidence effects and impacts under the plan and any ensuing environmental consequences; 	Subsidence Monitoring Program (Appendix C)
Schedule 3 Condition 4 (cont'd)	<ul style="list-style-type: none"> • a Built Features Management Plan to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which: <ul style="list-style-type: none"> ▪ addresses in appropriate detail all items of public infrastructure and all classes of other built features; and ▪ has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; 	Built Features Management Plan (Appendix D)
	<ul style="list-style-type: none"> • a Public Safety Management Plan to ensure public safety in the mining area; and 	Public Safety Management Plan (Appendix E)
	<ul style="list-style-type: none"> • appropriate revisions to the Landscape Management Plan required under Condition 3 of Schedule 5; and 	Landscape Management Plan (Appendix F)
	(h) include a:	
	<ul style="list-style-type: none"> • Water Management Plan, which has been prepared in consultation with EPA and DPE Water, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on surface water resources, groundwater resources and flooding, and which includes: <ul style="list-style-type: none"> ▪ surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality; ▪ a program to monitor and report groundwater inflows to underground workings; and ▪ a program to manage and monitor impacts on groundwater bores on privately-owned land; 	Water Management Plan (Appendix G)

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
	<ul style="list-style-type: none"> Biodiversity Management Plan, which has been prepared in consultation with BCS and the Resources Regulator, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on flora and fauna; 	Biodiversity Management Plan (Appendix H)
	<ul style="list-style-type: none"> Land Management Plan, which has been prepared in consultation with any affected public authorities, to manage the potential impacts and/or environmental consequences of the proposed second workings on land in general; 	Land Management Plan (Appendix I)
	<ul style="list-style-type: none"> Heritage Management Plan, which has been prepared in consultation with Heritage NSW and relevant stakeholders for Aboriginal heritage, to manage the potential environmental consequences of the proposed second workings on heritage sites or values; and 	Heritage Management Plan (Appendix J)
	(i) include a program to collect sufficient baseline data for future Extraction Plans.	Appendix C (provides summary of all subsidence and relevant environmental monitoring)
Schedule 3 Condition 5	<p>NCOPL shall ensure that the management plans required under condition 4(h) above include:</p> <p>(a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval;</p> <p>(b) a detailed description of the measures that would be implemented to remediate predicted impacts; and</p> <p>(c) a contingency plan that expressly provides for adaptive management.</p>	<p>This condition applies to the Water Management Plan, the Biodiversity Management Plan, the Land Management Plan and the Heritage Management Plan.</p> <p>Refer to those plans for more details.</p>
Schedule 5, Condition 3	<p>NCOPL shall revise the Landscape Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with landscape management for the site (Stages 1 and 2) and subsequently implement this revised version of the Landscape Management Plan to the satisfaction of the Secretary and the Resources Regulator. This plan must:</p> <p>(a) be submitted to the Secretary for approval by 30 June 2011;</p> <p>(b) be prepared by suitably qualified expert/s whose appointment/s have been endorsed by the Secretary;</p> <p>(c) be prepared in consultation with DPE Water, BCS and NSC; and</p> <p>(d) include a:</p> <ul style="list-style-type: none"> Rehabilitation Management Plan; and Mine Closure Plan. 	Landscape Management Plan (Appendix F)
Schedule 5,	The Rehabilitation Management Plan must include:	Attachment 3 to the

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Project Approval 08_0144 conditions		Document reference	
Condition	Requirement		
Condition 4	(a) the rehabilitation objectives for the site;	Landscape Management Plan (Appendix F)	
	(b) a strategic description of how the rehabilitation of the site would be integrated with surrounding land use;		
	(c) a general description of the short and long term measures that would be implemented to rehabilitate the site;		
	(d) a detailed description of the measures that would be implemented to remediate predicted subsidence impacts under individual Extraction Plans;		
	<ul style="list-style-type: none"> • managing remnant vegetation and habitat on site; 		
	<ul style="list-style-type: none"> • minimising impacts on fauna; 		
	<ul style="list-style-type: none"> • minimising visual impacts; 		
	<ul style="list-style-type: none"> • conserving and reusing topsoil; 		
	<ul style="list-style-type: none"> • controlling weeds, feral pests, and access; 		Attachment 3 to the Landscape Management Plan (Appendix F)
	<ul style="list-style-type: none"> • managing bushfires; and 		
	<ul style="list-style-type: none"> • managing any potential conflicts between rehabilitation works and Aboriginal cultural heritage. 		
	(e) detailed performance and completion criteria for the rehabilitation of the site;		
	(f) a detailed description of how the performance of the rehabilitation works would be monitored over time to achieve the stated objectives and against the relevant performance and completion criteria; and		
(g) details of who is responsible for monitoring, reviewing and implementing the plan.			
Schedule 5, Condition 5	The Mine Closure Plan must:	Attachment 4 to the Landscape Management Plan (Appendix F)	
	(a) define the objectives and criteria for mine closure;		
	(b) investigate options for the future use of the site;		
	(c) provide a detailed methodology for decommissioning the site's evaporation/storage ponds and the treatment of any accumulated salt within or around those ponds;		
	(d) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local and regional employment levels;		
	(e) describe the measures that would be implemented to minimise or manage the on-going environmental effects of the project; and		
(f) describe how the performance of these measures would be monitored over time.			
Schedule 6, Condition 2	NCOPL shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:		




**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
	(a) detailed baseline data;	Refer to Appendices C to J
	(b) a description of:	
	<ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); 	Section 4.2
	<ul style="list-style-type: none"> • any relevant limits or performance measures/criteria; 	Section 4.2
	<ul style="list-style-type: none"> • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures 	Refer to Appendices C to J
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria:	Section 4.2
	(d) a program to monitor and report on the:	
	<ul style="list-style-type: none"> • impacts and environmental performance of the project; 	Section 5.2
	<ul style="list-style-type: none"> • effectiveness of any management measures (see (c) above); 	Section 4.1
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 4.3
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Section 4.3
	(g) a protocol for managing and reporting any;	Section 5.2
	<ul style="list-style-type: none"> • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and 	
	(h) a protocol for periodic review of the plan.	Section 5.3
Schedule 6 Condition 3	Within 3 months of the submission of an:	
	(a) audit under condition 7 of Schedule 6;	
	(b) incident report under condition 4 of Schedule 6; and	
	(c) annual review under condition 5 of Schedule 6; and	
	(d) any modification to the conditions of this approval (unless the conditions require otherwise),	
	NCOPL shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Secretary.	

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
Schedule 6 Condition 4	The Proponent shall notify the Secretary in writing via the Major Projects website and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Secretary and any relevant agencies with a detailed report on the incident.	Section 5.2.1
Schedule 6 Condition 5	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Secretary.	Section 5.2.2
Schedule 6 Condition 6	By the end of March each year, the Proponent must submit a review of the environmental performance of the project for the previous calendar year to the satisfaction of the Secretary.	Section 5.2.3
Schedule 6 Condition 7	Prior to 13 September 2010, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project (Stages 1 and 2).	Section 5.2.4
Schedule 6 Condition 10	The Proponent shall: <ul style="list-style-type: none"> (a) make copies of the following publicly available on its website: <ul style="list-style-type: none"> • the documents referred to in Condition 2 of Schedule 2; • all current statutory approvals for the project; • all approved strategies, plans and programs required under the conditions of this approval; • a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs; • a complaints register, updated on a monthly basis; • minutes of CCC meetings; • the annual reviews of the project; • any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit; • any other matter required by the Secretary; and 	Section 1.10
	(b) keep this information up-to-date, to the satisfaction of the Secretary.	Section 1.10


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table A3.2 - Relevant EPBC 2009/5003 requirements

EPBC 2009/5003 conditions		Document reference
Condition	Requirement	
Condition 2	In order to mitigate impacts on EPBC Act listed threatened species and communities, by 30 June 2021, NCOPL must:	
	(a) secure at least 933 hectares of offset on the “Kenna” property, comprising the area enclosed by the yellow line labelled ‘Proposed Offset’ shown in Annexure 2 under a legal conservation mechanism that has been agreed to in writing by DAWE, and	Not applicable to this Extraction Plan
	(b) secure at least 422 hectares of offset on-site, comprising the areas enclosed by a yellow line labelled ‘On-site Offset Area (2019)’ shown in Annexure 3, under a legal conservation mechanism that has been agreed to in writing by DAWE.	Not applicable to this Extraction Plan
	Evidence of compliance with this condition must be provided to DAWE within 30 days of finalising the legal conservation mechanism.	Mine Closure Plan (as Attachment 4 to the LSMP, Appendix I)
	The approval holder must report on progress meeting the requirements of a) and b) in each annual compliance report required under condition 8 and as otherwise requested by DAWE.	Not applicable to this Extraction Plan
Condition 3	In order to minimise potential impacts on EPBC Act listed threatened species and communities within the mine site, prior to any Works commencing and in accordance with the NSW Director General’s Assessment Report and approval conditions (26 July 2010), NCOPL must develop and implement an Extraction Plan. The final version of this plan must be submitted to DAWE.	This document and the Biodiversity Management Plan in Appendix H Approval is addressed in Section 1.9
Condition 5	In order to minimise potential impacts on EPBC Act listed threatened species and communities within the mine site, NCOPL must actively manage progressive disturbance of the mine site in accordance with a Rehabilitation Management Plan for the life of the mine. The Rehabilitation Management Plan must be developed and implemented prior to any Works commencing and in accordance with the NSW Director General’s Assessment Report and approval conditions (26 July 2010). The final version of this plan must be submitted to DAWE.	Section 1.6 of the Rehabilitation Management Plan (as Attachment 3 to the LSMP, Appendix I)
Condition 6	Within 12 months prior to the Cessation of Operation of the Action and in accordance with the NSW Director General’s Assessment Report and approval conditions dated 26 July 2010 (including subsequent revisions), NCOPL must submit and implement a Mine Closure Plan. NCOPL must have consideration of matters protected under the EPBC Act at this time and ensure that these matters will not be significantly impacted by the mine closure. The final version of this plan must be submitted to DAWE.	No applicable to this Extraction Plan




	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Table A3.3 - Relevant ML 1609 conditions

Mining Lease 1609 condition		Document reference
Condition	Summary of the requirement	
2	<p>Environmental harm</p> <p>NCOPL shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.</p>	<p>This Extraction Plan and associated sub-plans</p> <p>Other management plans as part of the NCOPL EMS</p>
7	Disturbed land must be rehabilitated to a suitable/agreed end land use to the satisfaction of the Secretary.	Section 5.2
8	<p>Extraction Plan Condition</p> <p>(a) In this condition:</p> <p style="padding-left: 20px;">(i) approved Extraction Plan means a plan, being:</p> <p style="padding-left: 40px;">A. an extraction plan or subsidence management plan approved in accordance with the conditions of the Project Approval and provided to the Secretary; or</p> <p style="padding-left: 40px;">B. (no longer relevant)</p> <p style="padding-left: 20px;">(b) NCOPL must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.</p> <p style="padding-left: 20px;">(c) NCOPL must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under ML 1609.</p> <p style="padding-left: 20px;">(d) NCOPL must notify the Secretary within 48 hours of any:</p> <p style="padding-left: 40px;">(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;</p> <p style="padding-left: 40px;">(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or</p> <p style="padding-left: 40px;">(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:</p> <p style="padding-left: 60px;">A. built features</p> <p style="padding-left: 60px;">B. public safety; or</p> <p style="padding-left: 60px;">C. subsidence monitoring.</p>	All Extraction Plan documents
16	<p>Safety</p> <p>Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations.</p>	Public Safety Management Plan (Appendix E)

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Mining Lease 1609 condition		Document reference
Condition	Summary of the requirement	
18	<p>Prevention of soil erosion and pollution</p> <p>Operations must be carried out in manner that does not cause or aggravate air pollution, water pollution (including sedimentation), or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted MOP. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters.</p>	Water Management Plan (Appendix G) Land Management Plan (Appendix I)
19	<p>Transmission lines, communications lines and pipelines</p> <p>Operations must not interfere with or impair the stability or efficiency of any of these or any other utility on the ML area without the prior written approval of the Secretary, subject to any stipulated conditions.</p>	Built Features Management Plan (Appendix D)
20	<p>Fences and gates</p> <p>Activities on the lease must not interfere with or damage fences without the prior written approval of the owner or the Minister, subject to any stipulated conditions.</p>	Built Features Management Plan (Appendix D)
21	<p>Roads and tracks</p> <p>Operations must not affect any road unless in accordance with an accepted MOP or the prior written approval of the Secretary.</p> <p>The lease holder is liable for any costs incurred by the appropriate road authority for fixing any damage to roads caused by operations.</p>	Built Features Management Plan (Appendix D)
22	<p>Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with relevant specifications.</p>	Rehabilitation Management Plan (as Attachment 1 to Appendix F)
23	<p>(a) The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden</p> <p>(b) The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the <i>Mining Act 1992</i> must comply with the provisions of the <i>Native Vegetation Act 2003</i>.</p> <p>(c) The lease holder must obtain all necessary approvals or licences before using timber from any Crown land within the lease area.</p>	Biodiversity Management Plan (Appendix H)
25	<p>Resource Recovery</p> <p>NCOPL shall recover the minerals which the ML entitles NCOPL to mine and which are economically recoverable from the ML area or which for environmental reasons are necessary to be recovered</p>	Coal Resource Recovery Plan (Appendix A)
28	<p>Trigonometrical stations and survey marks</p> <p>A person must not remove, damage, destroy, displace, obliterate or deface any marks in connection with any trigonometrical station, permanent mark or survey mark unless authorised to do so by the Surveyor-General.</p>	Built Features Management Plan (Appendix D)

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Appendix A Coal Resource Recovery Plan




**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202


Appendix B Subsidence Predictions

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


Appendix C Subsidence Monitoring Program

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


Appendix D Built Features Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


Appendix E Public Safety Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


Appendix F Landscape Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			


Appendix G Water Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Appendix H Biodiversity Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Appendix I Land Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Appendix H Heritage Management Plan

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_EXTRACTION PLAN - PANELS 201 - 202			

Appendix K Subsidence Risk Assessment