

CHAIN VALLEY COLLIERY

Consolidation Project

SCOPING REPORT

MARCH 2021



CHAIN VALLEY COLLIERY CONSOLIDATION PROJECT SCOPING REPORT

Scoping Report

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Delta Coal

Project Director: **David Holmes**
Project Manager: **Penelope Williams**
Report No. **20170/R02**
Date: **March 2021**



Newcastle

75 York Street
Teralba NSW 2284

T | 1300 793 267
E | info@umwelt.com.au

www.umwelt.com.au



This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

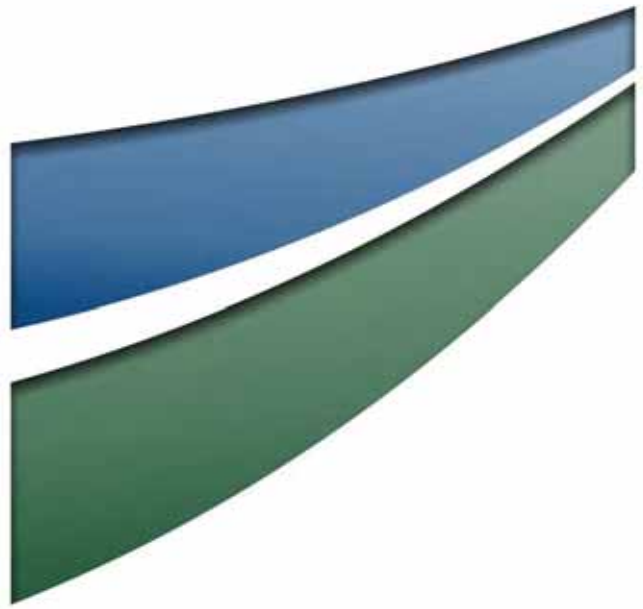
Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Penelope Williams	25/03/2021	David Holmes	25/03/2021

Executive Summary



Chain Valley Colliery (CVC) and Mannering Colliery (MC) are underground coal mines, owned and operated by Great Southern Energy Pty Ltd (trading as Delta Coal). Delta Coal is a wholly owned subsidiary of Delta Electricity Pty Ltd. Existing operations are undertaken in accordance with CVC's Development Consent SSD-5465 (as modified), and MC's Project Approval MP 06_0311 (as modified). Both operations are approved to carry out mining operations to 31 December 2027. Delta Coal operates CVC and MC as an integrated operation with access to the underground mining areas by employees at both sites.

The operations supply the Vales Point Power Station (VPPS) also owned and operated by Delta Electricity Pty Ltd. Coal for the VPPS is and has historically been supplied from local and regional coal mines transported via rail, road and overland conveyor.

Delta Electricity and Delta Coal are seeking to maximise the use of the Delta Coal assets to supply coal to the VPPS. The current approvals under the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) for Delta Coal assets do not extend to all of the resource areas available in mining authorities held by Delta Coal or that are potentially available to Delta Coal.

The Chain Valley Colliery Consolidation Project (the Project) would provide for the consolidation of the existing operations and associated development consent and project approval under one approval. The Project would also provide for underground mining within the Eastern Mining Area and the extension of the life of mine to 2029. A full Project Description is provided in **Section 3.0**.

The Project is State significant development as defined under the *State Environmental Planning Policy State and Regional Development 2011* and will require development consent under Part 4 of the EP&A Act.

Delta Coal are seeking the NSW Department of Planning, Industry and Environment Secretary's Environmental Assessment Requirements for the environmental impact statement (EIS) being prepared for the Project.

A stakeholder engagement strategy has been developed for the Project and engagement with key stakeholders has commenced. The consultation undertaken to date is outlined in **Section 6.0** and **Appendix A**. The results of the stakeholder engagement undertaken to date, constraints analysis, past environmental and social impact assessments for CVC and MC, and for other projects in the area and ongoing environmental monitoring have all been considered in the identification of key issues relevant to the Project (refer to **Section 7.1**). These key issues include subsidence, water resources (including groundwater and surface water), noise, air quality, biodiversity and greenhouse gas. The proposed approach to the assessment of the identified issues is outlined in **Sections 0** and **7.3**.

The EIS will accompany a development application for the Project and will include relevant detailed technical studies to confirm the environmental and socio-economic impacts of the Project.

Table of Contents

Executive Summary	i
1.0 Introduction	1
1.1 Project Summary	1
1.2 The Proponent	4
1.3 Purpose of the Document	4
1.4 Structure of Report	4
2.0 Existing Operations	5
2.1 Existing Delta Coal Operations	5
2.1.1 Chain Valley Colliery	5
2.1.2 Mannering Colliery	7
2.1.3 Historical Mining Operations	7
2.1.4 Approved Development	9
2.1.5 Environmental Protection Licences	12
2.1.6 Mining Authorities	12
2.1.7 Water Access Licences	14
2.1.8 Existing Environmental Management and Monitoring	16
3.0 Proposed Project	20
3.1 Project Summary	20
3.2 Mining	26
3.2.1 Mining Areas	26
3.2.2 Mining Methods	26
3.2.3 Production Rate	29
3.2.4 Subsidence	29
3.3 Coal Handling, Infrastructure and Transport	29
3.3.1 Coal handling	29
3.3.2 Coal transport	30
3.3.3 Site Access	30
3.3.4 New Mining Related Infrastructure	30
3.3.5 Water Management	30
3.4 Workforce and Hours of Operation	32
3.4.1 Operational workforce	32
3.4.2 Operating Hours	32
3.5 Construction Activities	32
3.6 Alternatives and Rationale	32
3.6.1 Project Alternatives	32
3.6.2 Project Justification	33

4.0	Strategic Context	34
4.1	Market Context	34
4.2	Physical Context	34
4.2.1	Climate	34
4.2.2	Topography	36
4.2.3	Geological Context	38
4.2.4	Soils	41
4.2.5	Hydrology	41
4.2.6	Hydrogeology	43
4.2.7	Ecology	43
4.3	Social Context	45
4.3.1	Land Use	45
4.3.2	Infrastructure	48
5.0	Statutory Context	50
5.1	NSW Approval Pathway	50
5.1.1	Permissibility	50
5.1.2	Voluntary Surrender of Development Consent	50
5.1.3	Gateway Process	52
5.1.4	Other State Approvals	52
5.2	Commonwealth Legislation	54
5.2.1	Environment Protection and Biodiversity Act 1999	54
5.2.2	Native Title Act 1993	54
6.0	Stakeholder Engagement	55
6.1	Stakeholder Engagement	55
6.1.1	Preliminary Stakeholder Identification	55
6.2	Phase 1 Stakeholder Engagement	56
6.3	Phase 2 Stakeholder Engagement	61
6.4	Agency Engagement	63
7.0	Preliminary Environmental Assessment	65
7.1	Preliminary Environmental Risk Assessment	65
7.2	Key Issues	66
7.2.1	Subsidence	66
7.2.2	Water Resources	68
7.2.3	Noise	70
7.2.4	Air Quality	71
7.2.5	Biodiversity	72
7.2.6	Greenhouse Gas Emissions	73
7.3	Other Issues	74
7.3.1	Aboriginal Cultural Heritage	74

7.3.2	Historic Heritage	75
7.3.3	Economic Impacts	75
7.3.4	Social Impacts	75
7.3.5	Hazards	76
7.3.6	Traffic and Transport	77
7.3.7	Visual Amenity	77
7.3.8	Waste	77
7.3.9	Soil and Land Resources	77
7.3.10	Decommission and Rehabilitation	78

8.0 References 79

Figures

Figure 1.1	Locality and Site Context	3
Figure 2.1	Existing CVC Operations	6
Figure 2.2	Existing MC Operations	8
Figure 2.3	Existing Mining Leases & Exploration Licences	15
Figure 2.4	Environmental Monitoring Networks	19
Figure 3.1	Consolidation Project Overview	27
Figure 3.2	Conceptual Mine Plan	28
Figure 3.3	Proposed Infrastructure	31
Figure 4.1	Mean Minimum and Maximum Temperature Lake Macquarie AWS 2008-2020	35
Figure 4.2	Average rainfall and Evaporation for Project Area	36
Figure 4.3	Topography and Hydrology	37
Figure 4.4	Stratigraphic Column	39
Figure 4.5	Surface Geology	40
Figure 4.6	Soil Landscapes	42
Figure 4.7	Vegetation Communities and Sea Grass Beds.	44
Figure 4.8	Historical Mining	46
Figure 4.9	Land Ownership	47
Figure 4.10	Roads and other Significant Infrastructure	49
Figure 5.1	Zoning Map	51
Figure 6.1	Preliminary Stakeholder Groups	55
Figure 6.2	Summary Issues Raised by the Community and the Perceived and Likely Social Impacts	60
Figure 7.1	SIA program	76

Tables

Table 2.1	Overview of Existing Operations	9
Table 2.2	Chain Valley Colliery Consent – Modification History	11
Table 2.3	Mannering Colliery Project Approval – Modification History	11
Table 2.4	Environmental Protection Licences	12
Table 2.5	Mining Authorities	13
Table 2.6	Water Access Licences	14
Table 2.7	CVC Current Environmental Monitoring Network Overview	17
Table 2.8	Mannering Colliery Current Environmental Monitoring Network Overview	18
Table 3.1	Overview of Existing Operations and Consolidation Project	22
Table 5.1	NSW Legislation	52
Table 6.1	Identification of Preliminary Stakeholders	56
Table 6.2	Engagement Mechanisms	58
Table 6.3	Consultation Statistics – Scoping Phase	59
Table 6.4	Strategies Identified by Participants During the Scoping Phase to Address Key Project Impacts	61
Table 6.5	Engagement Mechanism – Phase 2	62
Table 7.1	CVC Subsidence Impact Performance Measures	66

Appendices

Appendix A	SIA Scoping Report
Appendix B	Risk Assessment

1.0 Introduction

Chain Valley Colliery (CVC) and Mannering Colliery (MC) are underground coal mines located on the southern shore of Lake Macquarie, NSW. The operations are located approximately 60 kilometres (km) south of Newcastle, within the Lake Macquarie and Central Coast local government areas (LGAs) (refer to **Figure 1.1**). Underground mining at both CVC and MC commenced in the 1960s.

The CVC and MC operations are owned and operated by Great Southern Energy Pty Ltd (trading as Delta Coal). In April 2019, Delta Coal acquired Lake Coal's CVC and MC assets. Existing operations are undertaken in accordance with CVC's Development Consent SSD-5465 (as modified), and MC's Major Project Approval MP 06_0311 (as modified), both issued under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The CVC and MC Pit Top facilities are located at Mannering Park and Doyalson North respectively with approved mining areas within both the Lake Macquarie and Central Coast LGAs. Delta Coal operates CVC and MC as an integrated operation with access to the underground mining areas by employees from both pit tops.

CVC has previously extracted coal from the Wallarah, Great Northern and Fassifern seams while MC has included extraction within both the Great Northern and the Fassifern seams. Both operations are currently approved to carry out mining operations to 31 December 2027.

Sunset Power International Pty Ltd, trading as Delta Electricity (DE), own and operate the Vales Point Power Station (VPPS) located at Mannering Park on the southern extent of Lake Macquarie adjacent to the CVC and MC Pit Top facilities. VPPS is a coal fired power station which commenced operations in the 1960s and has historically been supplied with coal from local and regional coal mines including CVC and MC. Coal is transported to the VPPS via rail, road or overland conveyor.

The owners of both Delta Coal and Delta Electricity are seeking to maximise the use of the Delta Coal assets to supply coal to the VPPS.

1.1 Project Summary

The Chain Valley Colliery Consolidation Project (the Project) provides for the consolidation of the existing operations at CVC and MC under a single development consent under the EP&A Act. The Project would also provide for:

- underground mining within the Eastern Mining Area
- the extension of the life of mine (LOM) to 2029
- improved alignment of the approvals with mining leases held by or subleased by Delta Coal.

A detailed description of the Project is provided in **Section 3.0**.

The key objectives of the Project include:

- Consolidation of the existing Delta Coal consents to streamline regulatory requirements for both Delta Coal and government regulators.
- Alignment of the Delta Coal approved extraction and production rate to the requirements of the VPPS.

- Provide access to high quality coal resources from the Great Northern Seam within the proposed Eastern Mining Area
- Provide flexibility of operations through the continued concurrent operation of both the CVC and MC Pit Tops.
- Provide for emergency coal transport arrangements from MC to VPPS.
- Provide for an option for the potential to transport coal from CVC to VPPS via an overland conveyor system.

The Project is State significant development (SSD) as defined under *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and will require development consent under Part 4 of the EP&A Act.

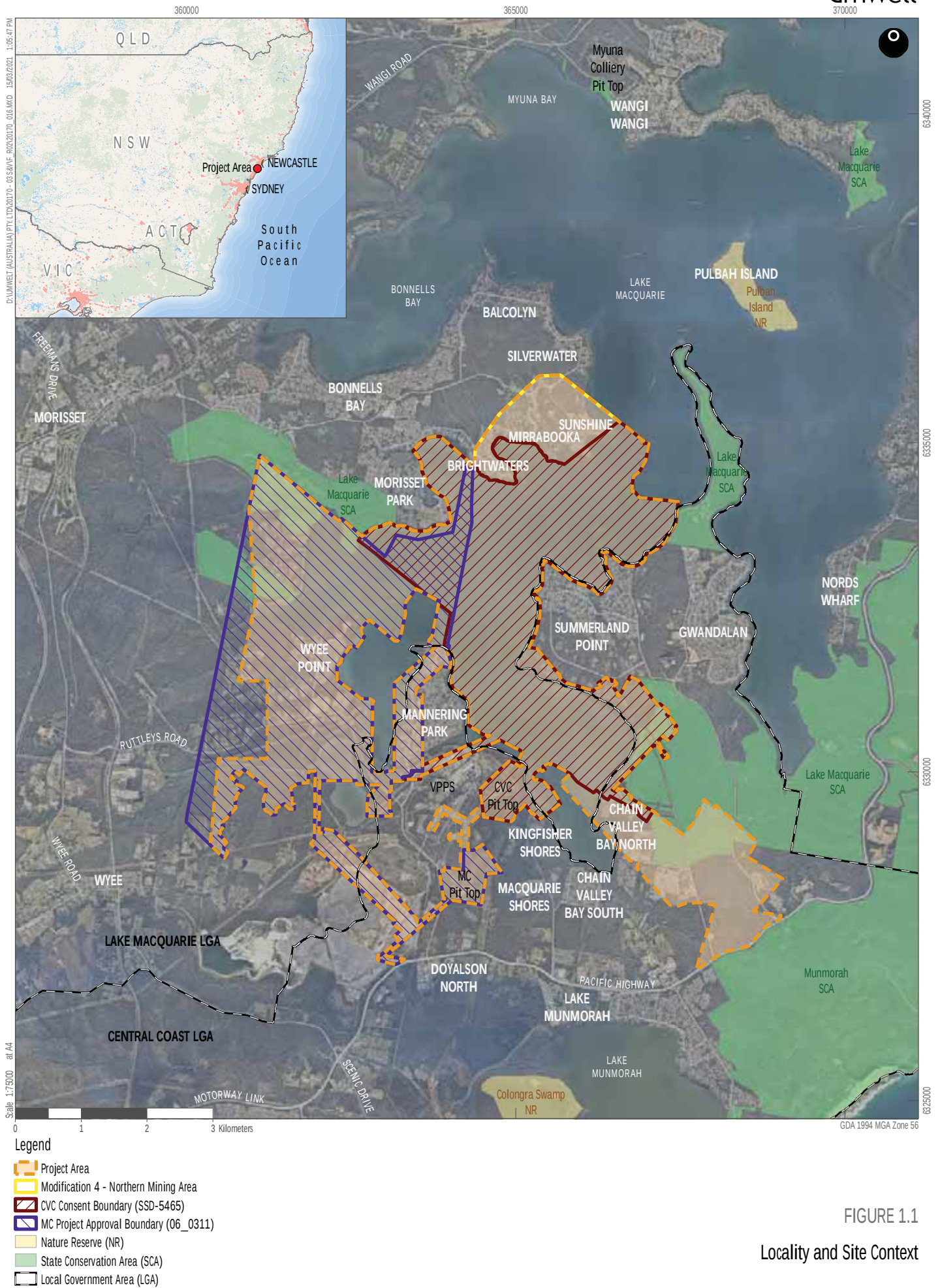


FIGURE 1.1

Locality and Site Context

1.2 The Proponent

Great Southern Energy Pty Ltd trading as Delta Coal, as the owner of the CVC and MC assets will be the proponent for the development application (DA). The Proponent is referred to as Delta Coal in this Report.

Further information on Delta coal and its operations can be found at: <https://www.deltacoal.com.au/>

1.3 Purpose of the Document

As SSD, an environmental impact statement (EIS) will be prepared to accompany the DA for the Project. This Scoping Report has been prepared to provide a description of the Project to key State regulatory agencies to inform the preparation of the Secretary's Environmental Assessment Requirements (SEARs) in accordance with clause 3 of Schedule 2 of the NSW *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). In addition to matters prescribed for consideration by the EP&A Act, the SEARs will identify specific assessment considerations relevant to the Project that must be addressed in the EIS.

This document has also been prepared in consideration of the *Mine Application Guideline* (NSW Government, 2015) and *Preparing a Scoping Report: State Significant Development Guide (Exhibition Draft)* (NSW Department of Planning, Industry and Environment (DPIE), 2020).

1.4 Structure of Report

An overview of the structure of the report is provided below.

Section 1.0 introduces the Project and the proponent and outlines the purpose and structure of the document.

Section 2.0 contains a detailed description of the existing Delta Coal operations.

Section 3.0 contains a detailed description of the Project, including an overview of alternatives considered and justification for the Project.

Section 4.0 outlines the strategic context for the Project, including a summary of the locality in which the Project is undertaken and background environmental conditions.

Section 5.0 summarises the relevant State and Commonwealth statutory context applicable to the approval process for the Project.

Section 6.0 describes the proposed stakeholder engagement program and identifies the environmental and social issues identified during the scoping phase for further consideration in the EIS.

Section 7.0 contains an analysis of the environmental and social issues relevant to the Project and the proposed assessment to be completed as part of the EIS.

Section 8.0 References.

2.0 Existing Operations

2.1 Existing Delta Coal Operations

2.1.1 Chain Valley Colliery

CVC is an underground coal mine with two surface facility areas:

- the CVC Pit Top surface facilities located approximately 200 m from the south-western shore of Chain Valley Bay, and
- the Upcast Ventilation Shaft Compound approximately 2.2 km to the north-east of the CVC Pit Top at Summerland Point.

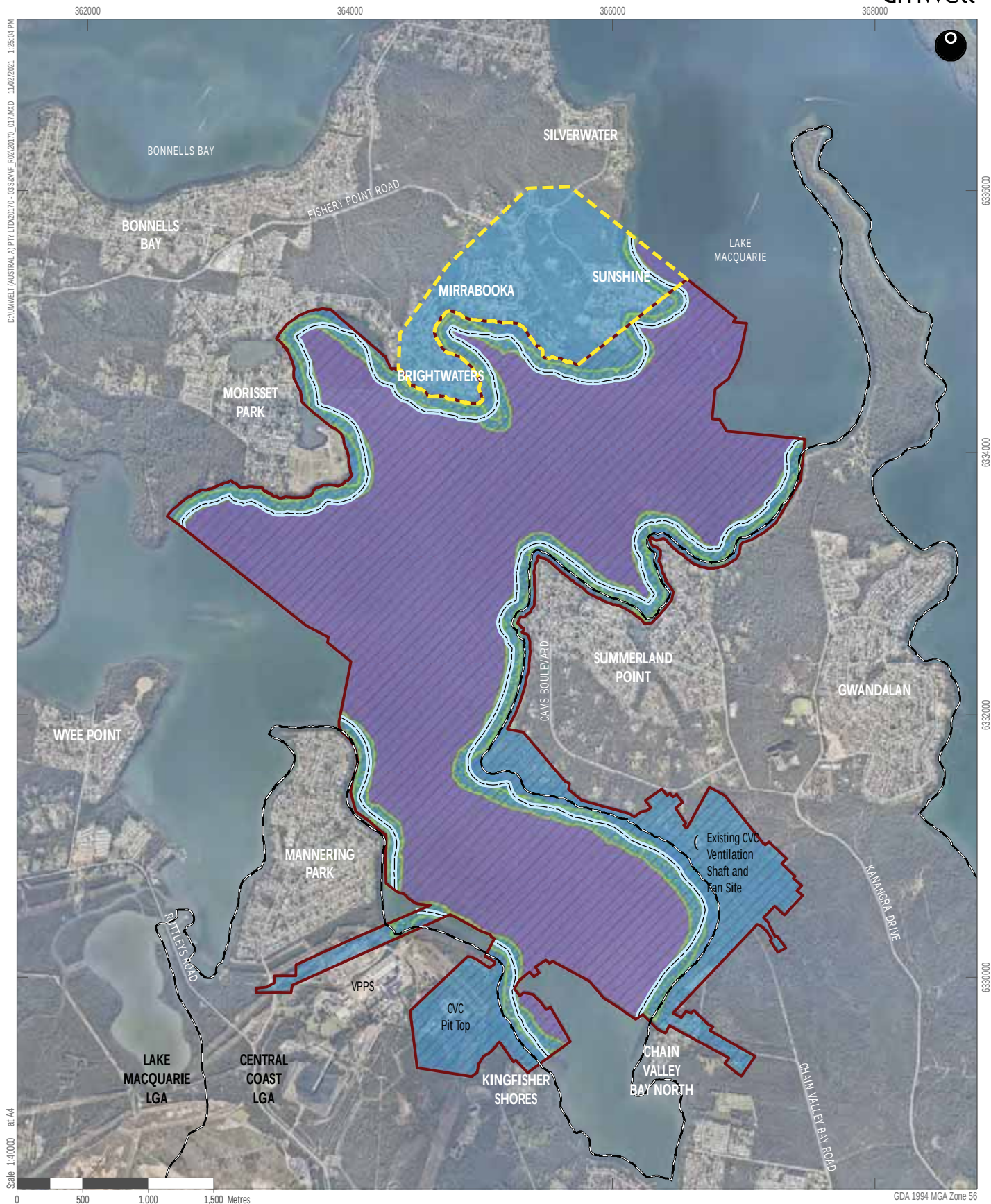
CVC commenced operations in 1962 and has involved extraction within the Wallarah, Great Northern and Fassifern seams.

CVC currently operates pursuant to Development Consent SSD-5465 granted on 23 December 2013 (CVC Consent). The CVC Consent has been modified on three occasions since it was granted, and a fourth modification application (CVC Mod 4) is currently under assessment. CVC is currently approved to carry out mining operations to 31 December 2027.

Under the CVC Consent (including changes proposed under CVC Mod 4), extraction is currently limited to the Fassifern Seam using a combination of miniwall and bord and pillar mining techniques. Miniwall mining and other secondary extraction mining methods are only permitted under certain areas under Lake Macquarie. Extraction under land and near shore areas is limited to bord and pillar mining methods which enable mining to be managed to achieve subsidence impacts of less than 20 millimetres (mm). The approved CVC mining area and surface facilities are shown in **Figure 2.1**.

CVC is approved to produce up to 2.1 million tonnes per annum (Mtpa) of run-of mine (ROM) coal. All of this is approved to be transferred to the surface at the MC pit top facilities via an underground linkage, however the CVC Pit Top itself is limited to only 1.5 Mtpa of ROM coal handling. At present, all coal mined at CVC is brought to the surface via the MC Pit Top.

All approved coal haulage from the CVC Pit Top is via road. All ROM coal produced is currently used by VPPS. CVC is approved to transfer up to 660,000 tonnes per annum (tpa) to the Port of Newcastle by road for export and up to 180,000 tpa to other domestic sources by road. CVC ROM Coal was predominantly exported prior to 2013 at greater tonnages than the existing export limits.



- Legend
- CVC Consent Boundary (SSD-5465)
 - Approved CVC Mining Area
 - Modification 4 - Northern Mining Area
 - Seagrass Protection Barrier
 - High Water Mark Subsidence Barrier
 - Zone A - Maximum 20 mm subsidence
 - Zone B - Maximum 780 mm subsidence
 - Local Government Area (LGA)

FIGURE 2.1

Existing CVC Operations

2.1.2 Mannering Colliery

MC is an underground coal mine which also began production in the early 1960s in conjunction with the adjacent VPPS. The MC Pit Top is located to the south of the CVC Pit Top (refer to **Figure 1.1**). Extensive mining (first workings and secondary extraction) has taken place in both the Great Northern and Fassifern seams. MC has historically only supplied coal to the VPPS. The approved MC mining area and surface facilities are shown in **Figure 2.2**.

MC operates pursuant to Project Approval MP 06_0311 granted on 12 March 2008 (MC Project Approval). The MC Project Approval has been modified on 5 occasions since the original grant. MC is currently approved to carry out mining operations to 31 December 2027.

Under the MC Project Approval, up to 1.1 Mtpa ROM coal is currently approved to be extracted from the Fassifern Seam using bord and pillar (first workings only) mining method. There is currently no extraction of coal from within the approved MC mining area however coal extracted from the CVC mining area is transferred to the surface at the MC Pit Top via an underground roadway which connects the two operations.

Coal is only approved to be transferred from MC to VPPS by conveyor up to 2.1Mtpa. There is no approved coal haulage from MC to any other sources and the MC Project Approval does not permit road haulage of coal.

2.1.3 Historical Mining Operations

The general area around the CVC and MC operations has a long history of past mining that includes mining in the Wallarah, Great Northern and/or Fassifern seams as part of the following mining operations:

- Newvale Colliery
- Myuna Colliery
- Endeavour Colliery
- Munmorah Colliery
- Wallarah Colliery
- Moonee Colliery, and
- Mandalong Mine.

Of the above, only Myuna Colliery and Mandalong Mine remain operating. These operations are discussed further in **Section 4.3.1.1**.

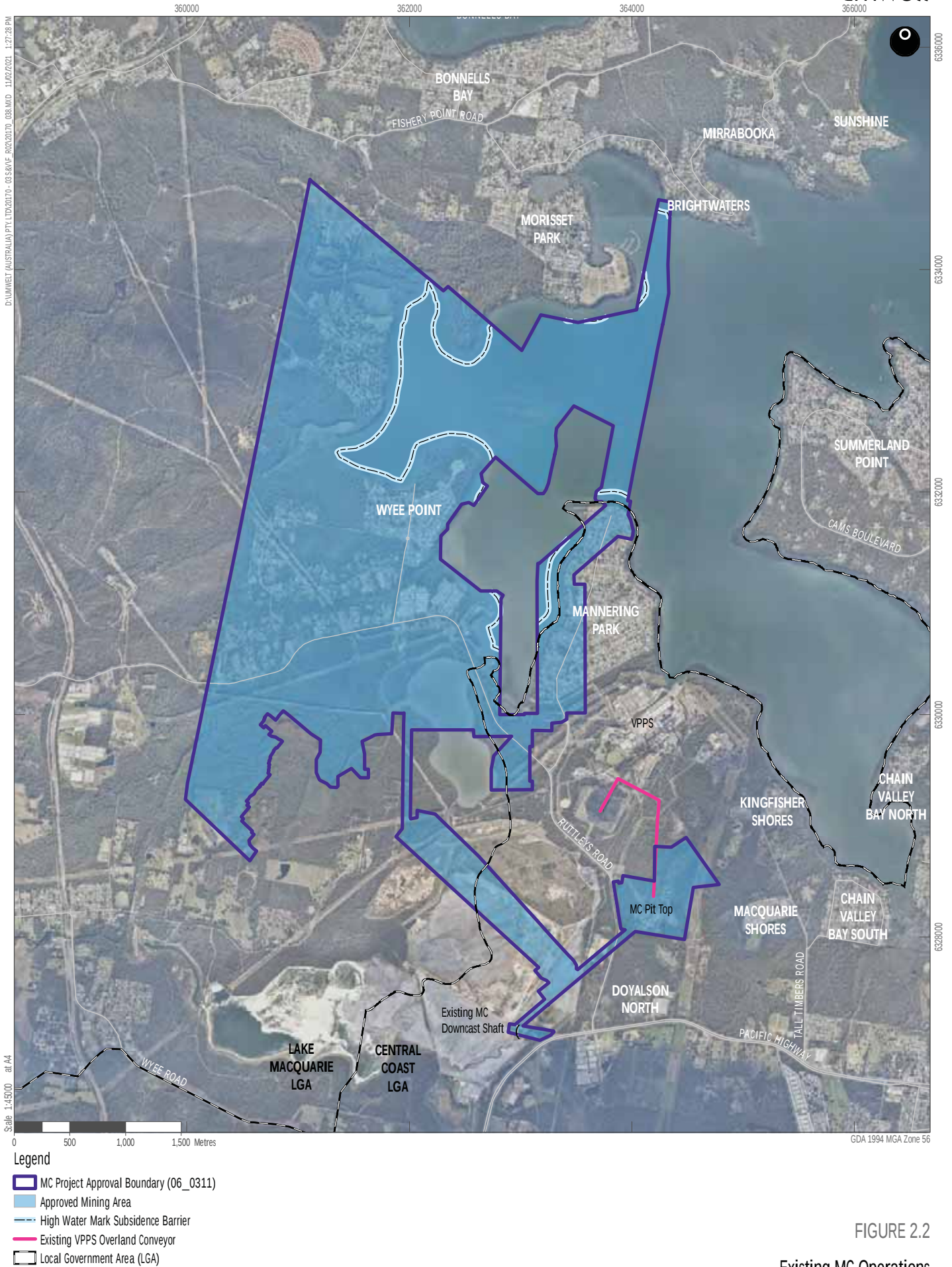


FIGURE 2.2

Existing MC Operations

2.1.4 Approved Development

Table 2.1 summarises the key aspects to the currently approved development under the CVC Consent and MC Project Approval. The table assumes that CVC MOD 4 (**Table 2.2**), which is currently being assessed, is approved.

Table 2.1 Overview of Existing Operations

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved Operations
Project Area	Refer to Figure 2.1	Refer to Figure 2.2
Mine Life	Mining operations are approved until 31 December 2027	Mining operations are approved until 31 December 2027
Coal Extraction	Extraction of up to 2.1 Mtpa of ROM coal	Extraction of up to 1.1 Mtpa of ROM coal
Annual Surface Handling	Up to 1.5 Mtpa ROM coal	Up to 2.1 Mtpa ROM coal
Resource	Fassifern Seam	Fassifern and Great Northern seams
Mining Method	Continuous miner (bord and pillar and pillar extraction) and miniwall mining methods Pillar extraction and miniwall mining only under lake and subject to 20 mm vertical subsidence limits on sea grass beds and foreshore areas	First workings only, including use of a herringbone bord and pillar configuration
Underground Mining Areas	Refer to Figure 2.1, consistent with Appendix 2 CVC Consent Note – CVC MOD 4 proposes to amend the consent boundary to include the Northern Mining Area	Refer to Figure 2.2 , consistent with Appendix 2 of MC Project Approval
Subsidence Limits	Zone A – Maximum of 20 mm (High Water Mark Subsidence Barrier (HWMSB) and Seagrass Protection Barrier (SPB)) Zone B - Maximum 780 mm Chain Valley Bay Mining Area multi-seam feasibility	Maximum of 20 mm subsidence
Mine Infrastructure	Personnel-and-material drifts, ROM coal conveyor drift to MC Upcast and downcast ventilation shaft and fans Coal handling facilities for breaking, crushing, sizing and storing product coal Administration and workshop facilities Water management infrastructure	Underground coal crushing facility Upcast and downcast ventilation shaft and fans Coal handling facilities for breaking, crushing, sizing and storing product coal Overland conveyor (from MC Pit Top to VPPS) Underground link road to CVC Administration and workshop facilities Water management infrastructure
Coal Processing	Screening and ROM coal crushing, no coal rejects are generated	Screening and ROM coal crushing, no coal rejects are generated Surface Rotary Breaker decommissioned

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved Operations
Product Coal Handling and Transportation	Product coal to VPPS via truck on private roads Product coal to VPPS via truck on public roads in an emergency (with approval from Planning Secretary) Transport product coal to MC via the existing underground linkage of up to 2.1 Mtpa, for subsequent delivery to VPPS via conveyor A maximum of 660,000 tpa of product coal on public roads to Port Waratah Coal Services (PWCS) at Port of Newcastle for export A maximum of 180,000 tpa of product coal on public roads to domestic customers (other than VPPS) Seasonal and daily trucking transport restrictions to VPPS	Up to 2.1 Mtpa ROM coal via overland conveyor to VPPS
Hours of Operation	24 hours per day/7 days per week	24 hours per day, 7 days per week
Site Access	Existing road access via Construction Road off Ruttleys Road	Existing road access directly from Ruttleys Road
Rehabilitation	Surface infrastructure will be decommissioned and the site rehabilitated following mine closure	Surface infrastructure will be decommissioned and the site rehabilitated following mine closure
Workforce (Operations)	Approximately 220 full time equivalent (FTE) personnel (including approximately 40 FTE contractors) Note – CVC MOD 4 currently contemplates cap of 390 FTE personnel across two operations	170 FTE personnel Note – CVC MOD 4 currently contemplates cap of 390 FTE personnel across two operations
Workforce (Construction)	N/A	N/A
Exploration	Exploration activities subject to Exploration Activities and Minor Surface Infrastructure Management Plan (currently being drafted for DPIE approval)	Exploration activities subject to Exploration Activities and Minor Surface Infrastructure Management Plan (currently being drafted for DPIE approval)

Table 2.2 and **Table 2.3** provide a summary of the history of the modifications to the current CVC Consent and MC Project Approval since they were granted.

Table 2.2 Chain Valley Colliery Consent – Modification History

Reference	Title	Details	Approval Granted	Expiry
SSD-5465	Development Consent	Continuation of mining at CVC	23/12/2013	31/12/2027
SSD-5465 MOD 1	Chain Valley Colliery Modification 1	Construction of an underground linkage between CVC and MC within the Fassifern Seam workings	27/11/2014	31/12/2027
SSD-5465 MOD 2	Chain Valley Colliery Modification 2	Increase coal production from 1.5 to 2.1 Mtpa and reorient miniwall panels in the northern mining area	16/12/2015	31/12/2027
SSD-5465 MOD 3	Chain Valley Colliery Modification 3	Increase transport of coal from CVC to Mannering Colliery via the existing underground linkage from 1.3 to 2.1 Mtpa and allow flexibility to use either miniwall or bord and pillar mining methods throughout the approved mining area	26/6/2020	31/12/2027
SSD-5465 MOD 4 (in assessment phase)	Chain Valley Colliery Modification 4 (in assessment phase)	Extend CVC's mining operations in the Fassifern Seam into an area of the recently purchased Myuna lease holding, and increase the number of employees reporting to the CVC Pit Top by 110 FTE employees (from approximately 220 to approximately 330 FTE employees)	(Submitted to DPIE for assessment in November 2020)	31/12/2027

Table 2.3 Mannering Colliery Project Approval – Modification History

Reference	Title	Details	Approval Granted	Expiry
MP 06_0311	Project Approval	Continuation of mining at MC	12/3/2008	31/3/2018
MP 06_0311 MOD 1	Mannering Colliery Modification 1	Extend underground mining operations within the Fassifern Seam and increase employment to 170 FTE employees	25/10/2012	31/3/2018
MP 06_0311 MOD 2	Mannering Colliery Modification 2	Development and use of up to four first working headings in the Fassifern Seam to connect MC and CVC Installation and use of an underground conveyor and ancillary services to enable ROM coal to be transported between CVC and MC Utilisation of MC existing infrastructure to transport coal between CVC underground to VPPS	27/11/2014	31/3/2018

Reference	Title	Details	Approval Granted	Expiry
MP 06_0311 MOD 3	Mannering Colliery Modification 3	Extension of the life of mine by four years (to 30 June 2022) Minor vegetation clearing adjacent to main infrastructure at MC to enable the establishment of Asset Protection Zones for bushfire management Utilisation of existing infrastructure to handle and transport directly to VPPS via overland conveyor	16/12/2015	30/6/2020
MP 06_0311 MOD 4	Mannering Colliery Modification 4	Administrative modification to clarify the use of the rotary breaker at MC as part of ongoing operations	18/8/2016	30/6/2022
MP 06_0311 MOD 5	Mannering Colliery Modification 5	Increase the handling and transport of ROM coal up to the approved extraction rate at CVC (2.1 Mtpa), to be transported directly to VPPS via overland conveyor for domestic power generation Extension to the life of mine to 31 December 2027	26/6/2020	31/12/2027

2.1.5 Environmental Protection Licences

Both CVC and MC operate under separate environment protection licences (EPLs) issued pursuant to the NSW *Protection of the Environment Operations Act 1997* (POEO Act), detailed in **Table 2.4**.

Table 2.4 Environmental Protection Licences

Operation	Environmental Protection Licence	Grant/Anniversary Date
CVC	Environmental Protection Licence 1770 (EPL 1770)	10 November 2000
MC	Environmental Protection Licence 191 (EPL 191)	6 April 2000

CVC has a current licensed daily water discharge of up to 12.161 megalitres per day (ML/day), and MC 4ML/day.

2.1.6 Mining Authorities

Delta Coal holds various mining leases under which operations at CVC and MC are conducted. **Table 2.5** details the mining leases and exploration licences (collectively referred to as authorities) relevant to each operation. The mining titles are shown on **Figure 2.3**.

Table 2.5 Mining Authorities

Operation	Authority Type	Number	Current Holder	Grant / Anniversary Date	Expiry Date
Chain Valley Colliery	Consolidated Coal Lease	707	Great Southern Energy Pty Ltd	3/7/1989	30/12/2023
	Consolidated Coal Lease	706 (part)	Great Southern Energy Pty Ltd	24/1/1990	29/4/2022
	Mining Lease	1051	Great Southern Energy Pty Ltd	7/7/1941	7/7/2022
	Mining Lease	1052	Great Southern Energy Pty Ltd	7/7/1941	7/7/2022
	Mining Lease	1308	Great Southern Energy Pty Ltd	4/5/1965	4/5/2022
	Mining Lease	1370	Centennial Myuna Pty Limited – Part Transfer to Great Southern Energy Pty Ltd application pending	26/9/1995	7/3/2033
	Mining Lease	1632 (part sublease)	Centennial Myuna Pty Limited – Part Transfer to Great Southern Energy Pty Ltd application pending	13/4/2013	13/10/2022
	Mining Purposes Lease	1349	Great Southern Energy Pty Ltd	5/10/1967	5/10/2028
	Mining Purposes Lease	337	Great Southern Energy Pty Ltd	30/1/1973	30/1/2037
	Mining Purposes Lease	1389	Great Southern Energy Pty Ltd	14/5/1970	14/5/2031
	Mining Purposes Lease	1400	Great Southern Energy Pty Ltd	6/11/1970	6/11/2031
	Consolidated Coal Lease	719 (part sublease)	Centennial Mannering Pty Ltd – Part Transfer to Great Southern Energy Pty Ltd application pending	3/7/1989	22/10/2020 (Renewal application pending)
	Consolidated Coal Lease	721 (part sublease)	Centennial Mannering Pty Ltd – Part Transfer to Great Southern Energy Pty Ltd application pending	28/6/1989	29/7/2026

Operation	Authority Type	Number	Current Holder	Grant / Anniversary Date	Expiry Date
	Consolidated Coal Lease	722	Centennial Munmorah Pty Limited – Part Transfer to Great Southern Energy Pty Ltd application pending	28/6/1989	5/7/2019 (Renewal application pending)
	Exploration Licence	8428	Great Southern Energy Pty Ltd	7/12/2015	7/12/2020
Mannering Colliery	Consolidated Coal Lease	719 (part sublease)	Centennial Mannering Pty Ltd – Part Transfer to Great Southern Energy Pty Ltd application pending	28/6/1989	5/7/2019
	Consolidated Coal Lease	721 (part sublease)	Centennial Mannering Pty Ltd – Part Transfer to Great Southern Energy Pty Ltd application pending	28/6/1989	29/7/2026
	Exploration Licence	6639	Centennial Mannering Pty Ltd	5/5/2008	31/7/2017
	Authorisation	383	Centennial Mannering Pty Ltd – Transfer to Great Southern Energy Pty Ltd application pending	21/3/1988	21/3/2021

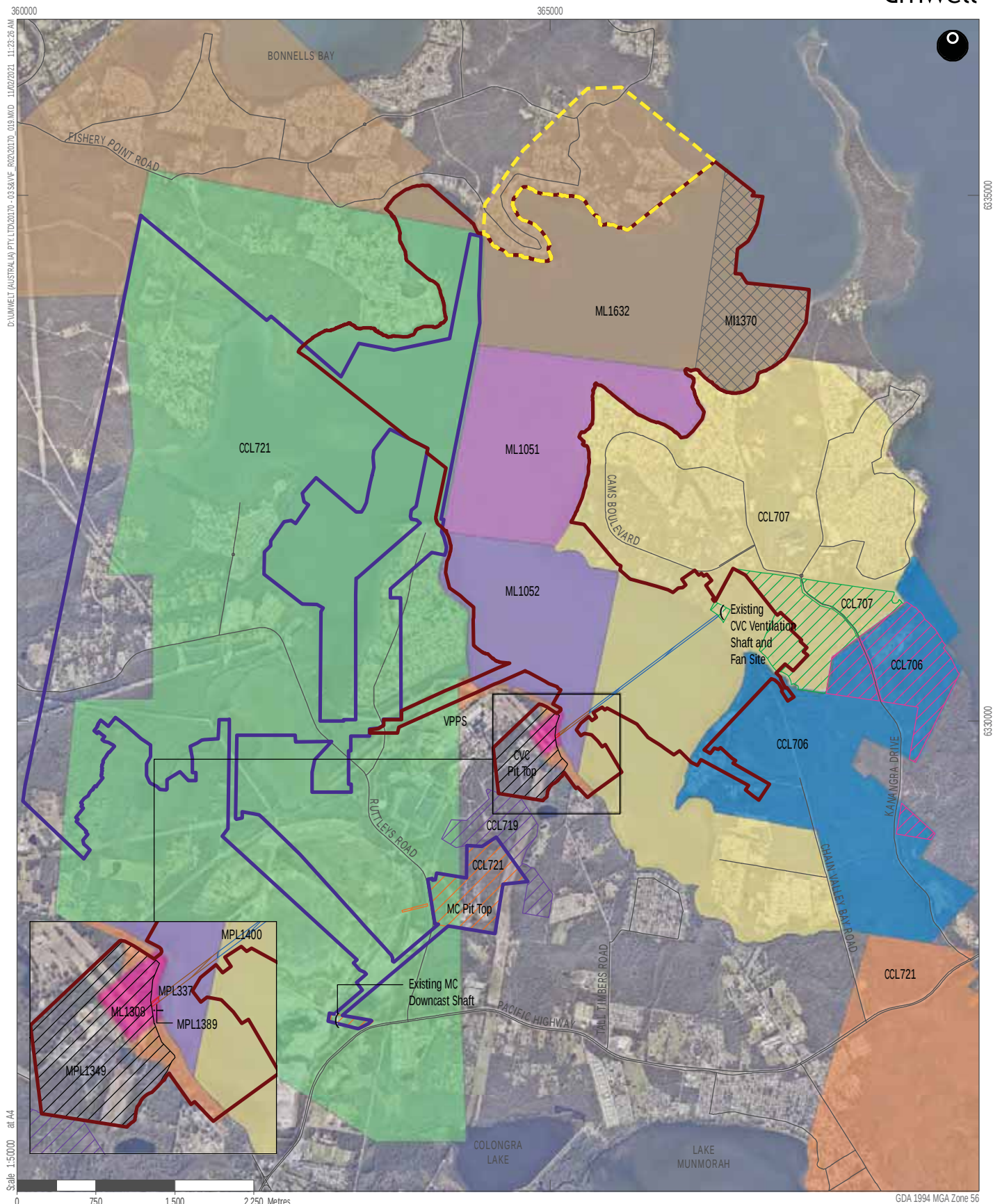
2.1.7 Water Access Licences

Great Southern Energy holds two water access licences (WALS) issued under the NSW *Water Management Act 2000* (WM Act), under which conditions of water access entitlements at CVC and MC are undertaken.

Table 2.6 details the WALs relevant to each operation.

Table 2.6 Water Access Licences

Operation	Licence Number	Water Source	Share Components (ML)
CVC	41508	Sydney Basin-North Coast Groundwater Source	4,443
MC	40461		450



Legend

- CVC Consent Boundary (SSD-5465)
- MC Project Approval Boundary (06_0311)
- Modification 4 - Northern Mining Area
- CCL706, Underground
- CCL707, Underground
- CCL719, Underground
- CCL721, Underground
- CCL722, Lease
- ML1051, Lease
- ML1052, Lease
- ML1308, Lease
- ML1632, Lease
- CCL706, Surface Lease
- CCL707, Surface Lease
- CCL719, Surface Lease
- CCL721, Surface Lease
- ML1370, Lease
- MPL1349, Surface Lease
- MPL1389, Surface Lease
- MPL1400, Surface Lease
- MPL337, Surface Lease

FIGURE 2.3

Mining and
Exploration Titles

2.1.8 Existing Environmental Management and Monitoring

Operations at CVC and MC are currently undertaken in accordance with separate environmental management systems (EMSs) which incorporate a range of environmental management and monitoring plans for each site covering specific issues. The management and monitoring plans were developed to address key environmental issues relevant to the operations and have been prepared to meet the requirements of the relevant development consent, project approval and EPL conditions. The environmental management plans and monitoring programs for CVC and MC are available on the Delta Coal website (<https://www.deltacoal.com.au/>).

CVC management and monitoring plans include:

- Traffic Management Plan
- Air Quality Management Plan
- Heritage Management Plan
- Noise Management Plan
- Public Safety Management Plan
- Built Features Management Plan
- Rehabilitation Management Plan
- Biodiversity Management Plan
- Benthic Communities Management Plan
- Seagrass Management Plan
- Subsidence Monitoring Program
- Water Management Plan (surface water and groundwater).

Miniwall and other secondary extraction mining operations are also undertaken in accordance with extraction plans which cover specific panels and secondary extraction areas under Lake Macquarie.

MC management and monitoring plans include:

- Aboriginal Cultural Heritage Management Plan
- Non-indigenous Heritage Management Plan
- Air Quality and Greenhouse Gas Management Plan
- Land Management Plan
- Rehabilitation Management Plan
- Noise Management Plan (incorporating Noise Monitoring Program)
- Water Management Plan (surface water and groundwater).

A number of the above plans have been updated following recent modifications to the existing consents and the updated plans are currently under review by DPIE. Delta Coal has drafted a single, combined EMS applicable to both the CVC and MC operations, which is also under review by DPIE.

As part of its EMS, Delta Coal conducts environmental monitoring and auditing on a regular basis to gauge performance, monitor compliance with regulatory requirements, and to minimise impacts on the surrounding community and the environment. Routine review of environmental performance is provided in both the CVC and MC Annual Reviews (prepared for each consent) and Annual Returns (prepared for each EPL).

In addition, the conditions of the CVC Development Consent and MC Project Approval require Great Southern Energy Pty Ltd to commission an independent environmental audit by the end of February 2022 (and every three years after). The results of the independent audits will be made available following completion in 2022.

The Annual Reviews for the operations are available to the public via the Delta Coal website. The plans are reviewed and updated regularly in response to the Annual Review recommendations, environmental monitoring, community concern and other company requirements.

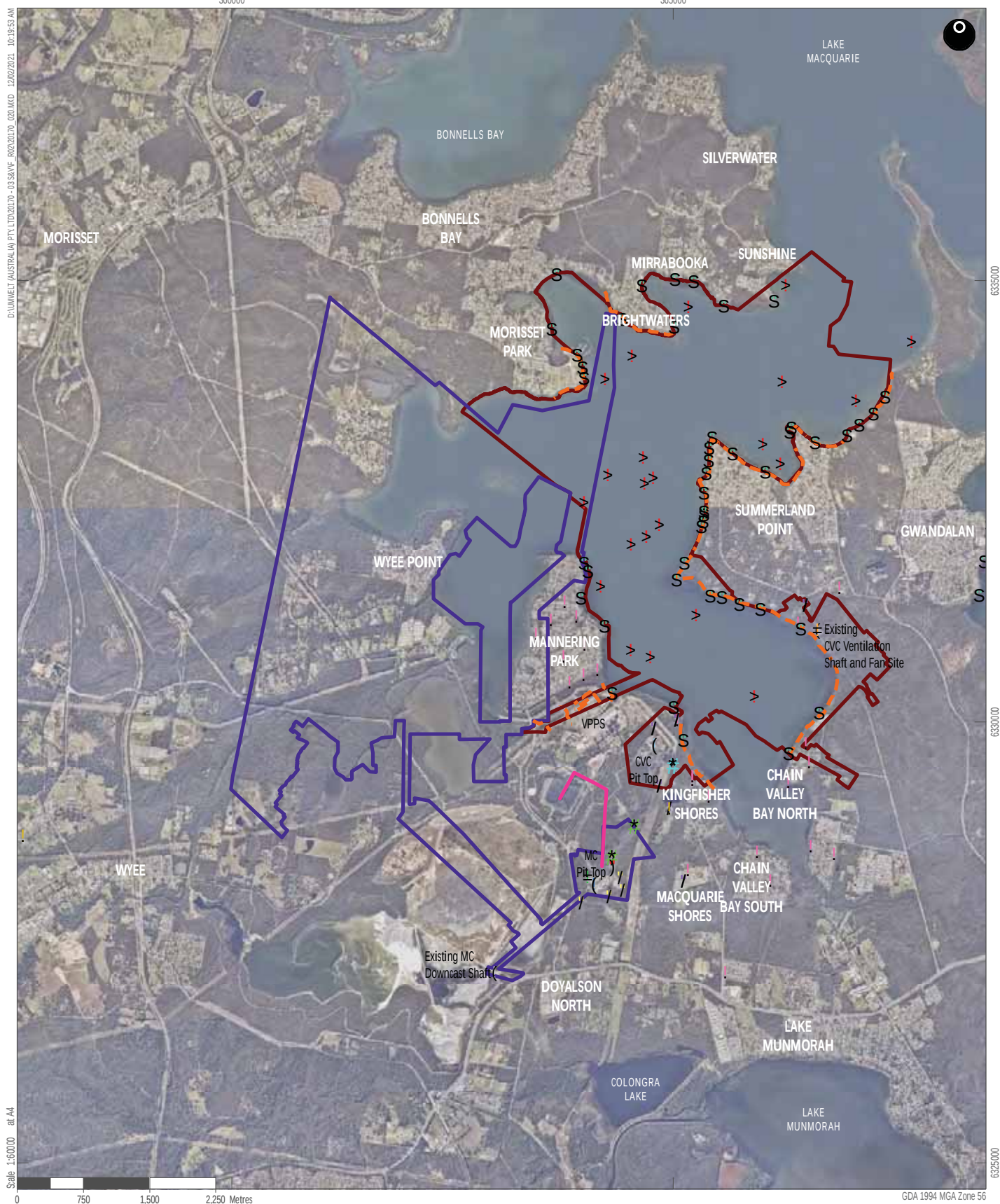
Table 2.7 and **Table 2.8** provide a summary of the existing environmental monitoring network at CVC and MC. The location of key monitoring points is shown in **Figure 2.4**.

Table 2.7 CVC Current Environmental Monitoring Network Overview

Environmental Aspect	Monitoring Scope
Noise	Attended (compliance monitoring) quarterly monitoring at nine representative locations surrounding CVC.
Air Quality	Continuous monitoring of depositional dust at six locations using dust deposition gauges, and particulate matter with a diameter of 2.5 micrometres or less (PM _{2.5}) at one location and particulate matter with a diameter of 10 micrometres or less (PM ₁₀) at one location using a tapered element oscillating microbalance (TEOM) instrument. Greenhouse gas monitoring from the ventilation shaft.
Benthic Communities	Ongoing seasonal monitoring of benthic species in control and impact sites by conducting species counts, sediment analysis and water quality profiles.
Seagrass	Monitoring of species in control and impact sites by conducting species counts, density, subsidence monitoring and water quality analysis.
Surface Water	Routine surface water quality and volume monitoring undertaken at CVC.
Groundwater	Routine monitoring of groundwater flow discharged from underground workings undertaken at CVC.
Meteorological	Monitoring of conditions undertaken at the meteorological monitoring station at the adjacent MC.
Subsidence	Monitoring of the shoreline is via installation and monitoring of fixed reference marks surveyed at regular intervals. Subsidence monitoring of the lakebed is also proposed via bathymetric survey over the current mining area in order to validate the subsidence prediction model.
Biodiversity	Annual terrestrial monitoring program undertaken in areas surrounding pit top and ventilation shaft area to assess condition of Swamp Oak Forest, vegetation adjacent to infrastructure, and distribution of weeds and feral animals.
Road Haulage	Road haulage tonnages (CVC to public roads and CVC to private roads) monitored weekly.

Table 2.8 Mannering Colliery Current Environmental Monitoring Network Overview

Environmental Aspect	Monitoring Scope
Noise	Attended (compliance monitoring) monthly monitoring at three representative locations surrounding MC.
Air Quality	Continuous monitoring of depositional dust at five locations using dust deposition gauges, PM _{2.5} at one location and PM ₁₀ at one location using a TEOM.
Surface Water	Routine surface water quality and volume monitoring undertaken at MC and downstream of MC.
Groundwater	Routine monitoring of groundwater discharged from underground workings undertaken at MC based on discharge from the licenced discharge point as MC.
Meteorological	Monitoring of conditions undertaken at one meteorological monitoring station at MC.



Legend

- | | | |
|--|--|---|
| CVC Consent Boundary (SSD-5465) | ! Noise Monitoring | ! Noise Monitoring |
| MC Project Approval Boundary (06_0311) |) Meteorological Station | * Water Monitoring |
| Existing VPPS Overland Conveyor | * Water Monitoring | x Benthic Monitoring |
| MC Monitoring | CVC Monitoring | S Seagrass Monitoring |
| / Air Quality Monitoring | / Air Quality Monitoring | — Subsidence Monitoring |
| (Dewatering Point | (Dewatering Point | |
| + Greenhouse Gas Monitoring | + Greenhouse Gas Monitoring | |

FIGURE 2.4

Environmental Monitoring

3.0 Proposed Project

3.1 Project Summary

As discussed in **Section 1.1**, the key objectives of the Project include:

- Consolidation of the existing Delta Coal consents to streamline regulatory requirements for both Delta Coal and government regulators.
- Alignment of the Delta Coal approved extraction and production rate to the requirements of the VPPS.
- Provide access to high quality coal resources from the Great Northern Seam within the proposed Eastern Mining Area
- Provide flexibility of operations through the continued concurrent operation of both the CVC and MC Pit Tops
- Provide for emergency coal transport arrangements from MC to VPPS and transport coal from CVC to VPPS via overland conveyor system

The Project seeks the consolidation of the approved mining operations at CVC and MC under a single development consent. The Project also seeks to provide consistency in the approvals relevant to the underground mining operations approved at CVC and MC and provide for the extension of mining (first workings only) into the Great Northern Seam to the south and east of the former CVC Great Northern Seam workings, within the proposed Eastern Mining Area (refer to **Figure 3.1**). All proposed mining operations would be undertaken within existing Delta Coal mining lease areas (refer to **Table 2.5**).

All mining under land areas would be limited to bord and pillar mining methods which would be designed to be long term stable with negligible (≤ 20 mm) subsidence impacts. Secondary extraction would be limited to the approved MC and CVC mining areas under Lake Macquarie where subsidence impacts are unlikely to have a significant impact on surface features or sensitive marine sea grass areas. Mining will continue to be managed to ensure subsidence impacts to sea grass beds and foreshore areas will be limited to a maximum of 20 mm vertical subsidence. These subsidence limits are consistent with existing CVC Consent limits. The Project would enable secondary extraction by either pillar extraction or miniwall mining methods in some areas of the currently approved MC mining area below Lake Macquarie which are not presently approved for secondary extraction.

Delta Coal would retain the ability to bring coal to the surface at either the CVC or MC Pit Top with the overall production capped at 2.8 Mtpa ROM coal. Whilst this is an increase in approved production levels for each Pit Top, there is a reduction from the approved, combined production and extraction limits across CVC and MC.

No changes are proposed to approved coal transport arrangements other than the inclusion of an option to transfer coal from CVC to VPPS via conveyor and the ability to use trucks for coal haulage to VPPS on a temporary basis in emergencies from MC to VPPS via an internal haul road.

The existing infrastructure at CVC and MC will continue to be utilised, with upgrades to surface facilities proposed to support extended life of mine and the increase to ROM throughput (refer to **Section 3.3.4**). Coal handling infrastructure recently demolished at CVC will also be replaced as required.

The Project would extend the life of mining operations at CVC and MC by two years to the end of 2029. On the assumption that CVC MOD 4 is approved, no change is proposed to the operational workforce levels across the two operations of approximately 390 FTE employees. Both CVC and MC operations are not currently operating at full production rates the proposed construction and operational workforce required for the Continuity Project will not exceed existing workforce levels.

The existing CVC Consent and MC Project Approval (SSD-5465 and MP 06_0311, respectively) would be surrendered should the Consolidation Project be approved (i.e. the new development consent would replace the current CVC Consent and MC Project Approval).

The existing environmental management plans and monitoring network (**Section 2.1.8**) would also be reviewed and updated should the Project be approved subject to the outcomes of specialist studies undertaken during EIS development.

Table 3.1 provides a comparison of the Project with the approved CVC and MC operations.

Table 3.1 Overview of Existing Operations and Consolidation Project

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved operations	Consolidation Project
Project Area	Refer to Figure 2.1	Refer to Figure 2.2	Consolidated Project boundary to align with adjusted MC mining tenement boundary and the inclusion of the Eastern Mining Area - refer to Figure 3.1
Mine life	Mining operations are approved until 31 December 2027	Mining operations are approved until 31 December 2027	Mining operations approved to 31 December 2029
Annual Coal Extraction	Extraction of up to 2.1 Mtpa of ROM coal	Extraction of up to 1.1 Mtpa of ROM coal	Extraction of up to 2.8 Mtpa total from all mining areas
Annual Surface Handling	Up to 1.5 Mtpa ROM coal (all production at CVC beyond the 1.5 Mtpa ROM coal surface cap to be sent to VPPS via MC).	Up to 2.1 Mtpa ROM coal	Combined handling of up to 2.8 Mtpa ROM coal from CVC or MC with the ability to handle 2.8 Mtpa ROM coal at either facility
Resource	Fassifern Seam	Fassifern and Great Northern seams	Fassifern and Great Northern Seams
Mining Method	Continuous miner (bord and pillar and pillar extraction) and miniwall mining methods Pillar extraction and miniwall mining only under lake and subject to 20 mm vertical subsidence limits on sea grass beds and foreshore areas	First workings only, including use of a herringbone bord and pillar configuration	First workings only under land areas Pillar extraction and miniwall mining limited to areas under Lake Macquarie and subject to 20 mm vertical subsidence limits on sea grass beds and foreshore areas
Underground Mining Areas	Refer to Figure 2.1, consistent with Appendix 2 CVC Consent Note – CVC MOD 4 proposes to amend the CVC consent boundary to include the Northern Mining Area	Refer to Figure 2.2 , consistent with Appendix 2 of MC Project Approval	Consolidation of MC and CVC approved Mining Areas Extension of mining into the Great Northern Seam to the east of previous CVC mining areas – within the Eastern Mining Area – Refer to Figure 3.1

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved operations	Consolidation Project
Subsidence Commitments	Zone A – Maximum of 20 mm (HWM/MSB and SPB) Zone B - Maximum 780 mm Chain Valley Bay Mining Area multi-seam feasibility	Maximum of 20 mm subsidence	Zone A – Maximum of 20 mm subsidence Zone B – Maximum 780 mm Refer to Figure 3.1
Mine Infrastructure	Personnel-and-material drifts, ROM coal conveyor drift to MC Upcast and downcast ventilation shaft and fans Coal handling facilities for breaking, crushing, sizing and storing product coal Administration and workshop facilities Water management infrastructure	Coal crushing facility upcast and downcast ventilation shaft and fans Coal handling facilities for breaking, crushing, sizing and storing product coal Overland conveyor (from MC Pit Top to VPPS) Underground link road to CVC Administration and workshop facilities Water management infrastructure	Continued use of existing MC infrastructure Continued use of CVC infrastructure Minor upgrades to surface facilities proposed to support extended LOM and the increase to ROM throughput (including water management structures, surface to seam boreholes within the pit top area and use of temporary stockpile areas during emergencies). Construction of conveyor from CVC to VPPS. Coal handling infrastructure recently demolished at CVC will also be replaced as required. Infrastructure associated with emergency truck haulage to VPPS via internal roads and Construction Road, including road upgrades
Coal Processing	Screening and ROM coal crushing, no coal rejects are generated	Screening and ROM coal crushing, no coal rejects are generated Surface Rotary Breaker to be decommissioned	Screening and ROM coal crushing, no coal rejects are generated ROM coal to be brought to the surface at CVC or MC
Product Coal Transportation	Product coal from CVC Pit Top to VPPS via truck on private roads only (up to 1.5Mtpa)	N/A	Up to 2.8 Mtpa product coal transport from CVC to VPPS via conveyor (except during emergencies and until construction of conveyor when haulage will be via private road)

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved operations	Consolidation Project
	Transport product coal from approved CVC mining area to MC via the existing underground linkage up to 2.1 Mtpa, for subsequent delivery to VPPS via conveyor	Up to 2.1 Mtpa ROM coal via overland conveyor to VPPS	Up to 2.8 Mtpa product coal transport from MC to VPPS via conveyor (except during emergencies when haulage will be via private road)
	A maximum of 660,000 tpa of product coal from CVC Pit Top on public roads to the Port of Newcastle for export		No change
	A maximum of 180,000 tpa of product coal from CVC Pit Top on public roads to domestic customers (other than VPPS)		No change
Hours of Operation	24 hours per day, 7 days per week	24 hours per day, 7 days per week	No change
Site Access	Existing road access via Construction Road off Ruttleys Road	Existing road access directly from Ruttleys Road	No change to existing arrangements
Rehabilitation	Surface infrastructure will be decommissioned and the site rehabilitated following mine closure	Surface infrastructure will be decommissioned and the site rehabilitated following mine closure	No change
Workforce (Operations)	Approximately 220 FTE personnel (including approximately 40 full time equivalent contractors) Note – CVC MOD 4 currently contemplates up to 330 FTE personnel at CVC within an overall CVC/MC workforce of approximately 390.	170 FTE personnel	No change to overall Approximately 390 FTE personnel across the two operations
Workforce (Construction)	N/A	N/A	Managed within approved operational workforce limits
Water Discharge Requirements	Licensed daily discharge of up to 12.161 ML/day (EPL)	Licensed daily discharge of up to 4 ML/day (EPL)	No change

Project Component	CVC Approved Operations (assumes CVC MOD 4 approved)	MC Approved operations	Consolidation Project
Water Supply and Demand	Potable water utilised for surface facilities and underground operations (160 ML per annum) supplied by Central Coast Council from potable water supply mains	Potable water utilised for surface facilities and underground operations supplied by Central Coast Council via metered pipeline	Potable water utilised for surface facilities and underground operations supplied by Central Coast Council Additional minor water management infrastructure including pipeline linkages (potable) between VPPS and pit top facilities along existing infrastructure easements
Exploration	Exploration activities subject to Exploration Activities and Minor Surface Infrastructure Management Plan	Exploration activities subject to Exploration Activities and Minor Surface Infrastructure Management Plan	No change

The Project will consolidate the existing approved CVC and MC consent areas with minor adjustments to align boundaries with Delta Coal lease areas, the proposed Eastern Mining Area and cover the conveyor and emergency coal haulage routes to the VPPS (collectively referred to as the Project Area). The Project Area will also be limited to subsurface areas below areas of the Lake Macquarie State Conservation Area (excludes areas from the surface to 20 m below ground level (bgl)) and land owned by the Darkinjung Local Aboriginal Land Council (excludes areas from the surface to 15.24m and 30.48m bgl depending on the land parcel).

The following sections provide further details regarding particular aspects of the Project. **Section 3.6** discusses the various alternatives considered as part of the Project design and the justification for the Project.

3.2 Mining

3.2.1 Mining Areas

The Project will maintain the same mining areas as currently approved under the CVC Consent (including the proposed Northern Mining Area (CVC Mod 4)) and MC Project Approval subject to the following changes:

- extension of mining into the Great Northern Seam in the Eastern Mining Area and
- minor reduction in approved MC Project Approval mining areas to align with Delta Coal mining lease areas.

The approved and proposed mining areas are shown on **Figure 3.1**.

The extension of mining in the Great North Seam (Eastern Mining Area) will be accessed via the existing CVC underground workings with coal being taken to the surface at either the CVC Pit Top or the MC Pit Top via the CVC-MC underground linkage.

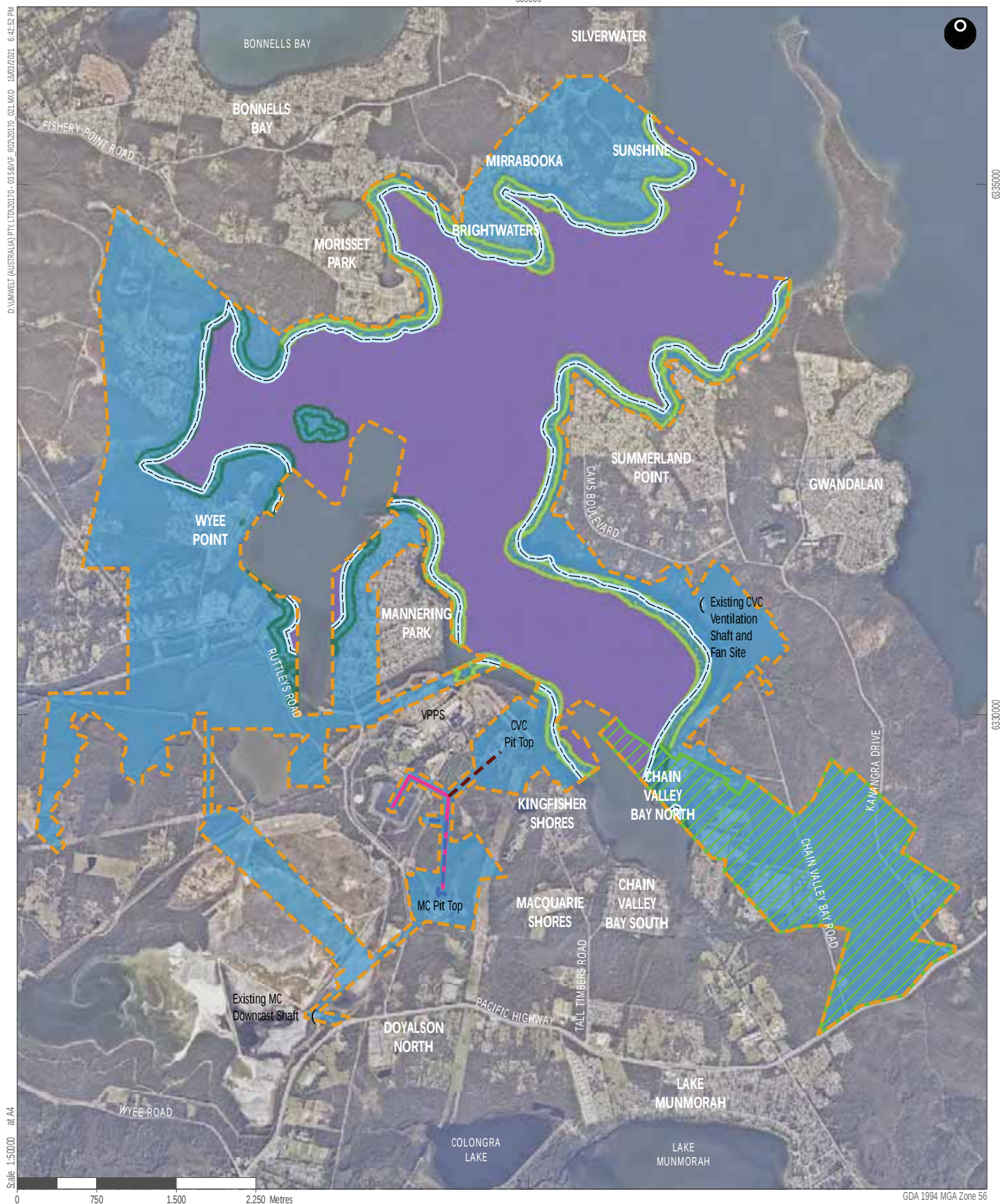
3.2.2 Mining Methods

Mining methods would remain consistent with those currently in place at CVC:

- bord and pillar mining methods only will be used under all land areas and near shore areas with pillar design to be long term stable (Zone A)
- bord and pillar, pillar extraction and miniwall mining will be used in areas under Lake Macquarie (Zone B).

The bord and pillar methods used in both Zone A and Zone B (refer to **Figure 3.1**) include different layout variants on this method such as the herringbone layout currently approved at MC.

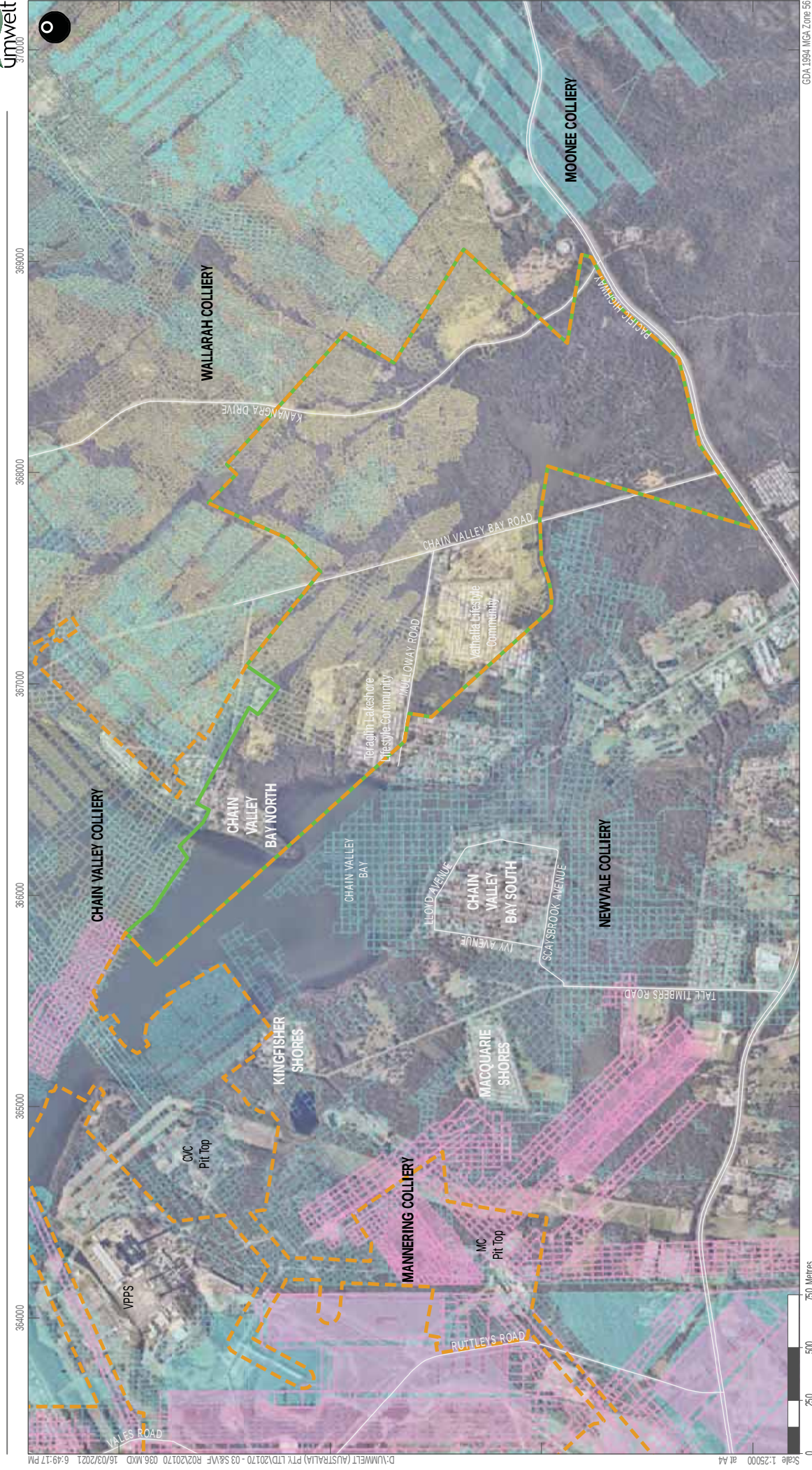
A plan for the Eastern Mining Area with adjacent surface and historical workings is shown in **Figure 3.2**.



- Legend**
- Project Area
 - Proposed Eastern Mining Area
 - Seagrass Protection Barrier
 - Indicative Seagrass Protection Barrier
 - High Water Mark Subsidence Barrier
 - Zone A - Maximum 20 mm subsidence
 - Zone B - Maximum 780 mm subsidence
 - Existing VPPS Overland Conveyor
 - Proposed CVC Conveyor Connection
 - Proposed Mannering Emergency Haulage Route to Construction Road

FIGURE 3.1

Consolidation Project
Overview



Scale 1:25000 at A4
GDA 1984 MGA Zone 56

FIGURE 3.2
Conceptual Mine Plan
- Eastern Mining Area

3.2.3 Production Rate

Total ROM production from the Project would be capped at 2.8 Mtpa. This represents a reduction from the currently approved combined ROM production cap of 3.2 Mtpa across the two operations.

3.2.4 Subsidence

The current CVC Consent allows for a 'subsidence management zone' approach to the approved operations, with zones based on current approved subsidence levels and performance measures. The prescribed subsidence limits in these zones are:

- Zone A: no more than 20 mm vertical subsidence (i.e. imperceptible subsidence.)
- Zone B: up to a maximum of 780 mm of vertical subsidence.

The CVC Consent subsidence management zone approach will be carried through to the Project.

All mining under land areas (including those parts of the Eastern Mining Area under land) will be limited to bord and pillar mining methods which would be designed to be long term stable with negligible (<20 mm) subsidence impacts (Zone A). Zone A also extends to the near shore areas to ensure that subsidence impacts do not impact on shoreline areas.

Secondary extraction under the Project would be limited to the approved CVC and MC mining areas under Lake Macquarie where subsidence impacts are unlikely to have a significant impact on surface features or sensitive marine sea grass areas. Subsidence impacts to sea grass beds in Zone B will be limited to a maximum of 20 mm vertical subsidence consistent with existing CVC Consent limits. The Project will extend the area of permitted secondary extraction activities to parts of the currently approved MC mining area below Lake Macquarie. The subsidence commitments in this extended area of proposed secondary extraction are identical to those currently approved in Zone B at CVC.

Proposed subsidence zones are illustrated on **Figure 3.1**.

3.3 Coal Handling, Infrastructure and Transport

Total combined handling of ROM coal would be limited to 2.8 Mtpa across both CVC and MC pit tops with the ability to handle the total 2.8 Mtpa at either pit top. This represents a decrease in the overall combined ROM production capacity of 3.2 Mtpa across the two operations currently approved under the CVC Consent (2.1 Mtpa) and MC Project Approval (1.1 Mtpa) but an increase in potential coal handling rates at each of the pit tops relative to existing approved limits (refer to **Table 3.1**).

3.3.1 Coal handling

Consistent with the approved operations, screening, crushing and ROM coal crushing will continue to be undertaken at both CVC and MC with no coal rejects to be generated.

However, as part of the Project, to reduce noise impacts associated with the operations, crushing will only be undertaken underground.

3.3.2 Coal transport

The Project will continue to utilise the existing approved underground linkage between the approved CVC and MC mining areas to enable coal to be transferred to VPPS via the existing MC Pit Top and conveyor. The CVC surface facilities would be upgraded to enable increased ROM coal through put and the transfer coal to VPPS via an overland conveyor directly from the CVC Pit Top (refer to **Figure 3.1**). All ROM coal transferred to the VPPS would usually be via conveyor except during emergencies when truck haulage would be permitted.

The ability to haul up to 600,000 tpa of coal from CVC to the Port of Newcastle by road from the CVC Pit Top would be retained.

The Project would include the ability to use truck haulage from the MC Pit Top to the VPPS during emergencies. Emergency haulage would only be utilised when conveyors are unavailable due to prolonged unplanned maintenance, fire or other failure. The ability to undertake road haulage in such circumstances allows the CVC and MC operations to continue and avoids the need to stand-down employees. Emergency haulage from CVC to VPPS would be via the existing CVC Access Road and Construction Road. Emergency haulage from MC would be via proposed internal service road and Construction Road. The proposed internal haul road alignment partially includes the use of an existing service road, which will require upgrading, refer to **Figure 3.3**. Emergency haulage routes would not include the use of Ruttleys Road.

All coal transported via road would be loaded onto trucks via front end loader from product coal stockpile areas consistent with existing approved arrangements at CVC.

3.3.3 Site Access

The CVC surface facilities are accessed via Ruttleys Road and Construction Road, a private road which services CVC and VPPS. The MC surface facilities and pit top are accessed directly from Ruttleys Road. The Project does not change these existing access arrangements.

3.3.4 New Mining Related Infrastructure

Existing infrastructure at CVC and MC will continue to be utilised, with upgrades to surface facilities proposed to support extended LOM and the increase to ROM throughput (including water management structures, surface to seam boreholes within the pit top area and use of temporary stockpile areas during emergencies). Coal handling infrastructure recently demolished at CVC will also be replaced as required. An additional conveyor to link the CVC Pit Top to the VPPS is also proposed (refer to **Figure 3.3**).

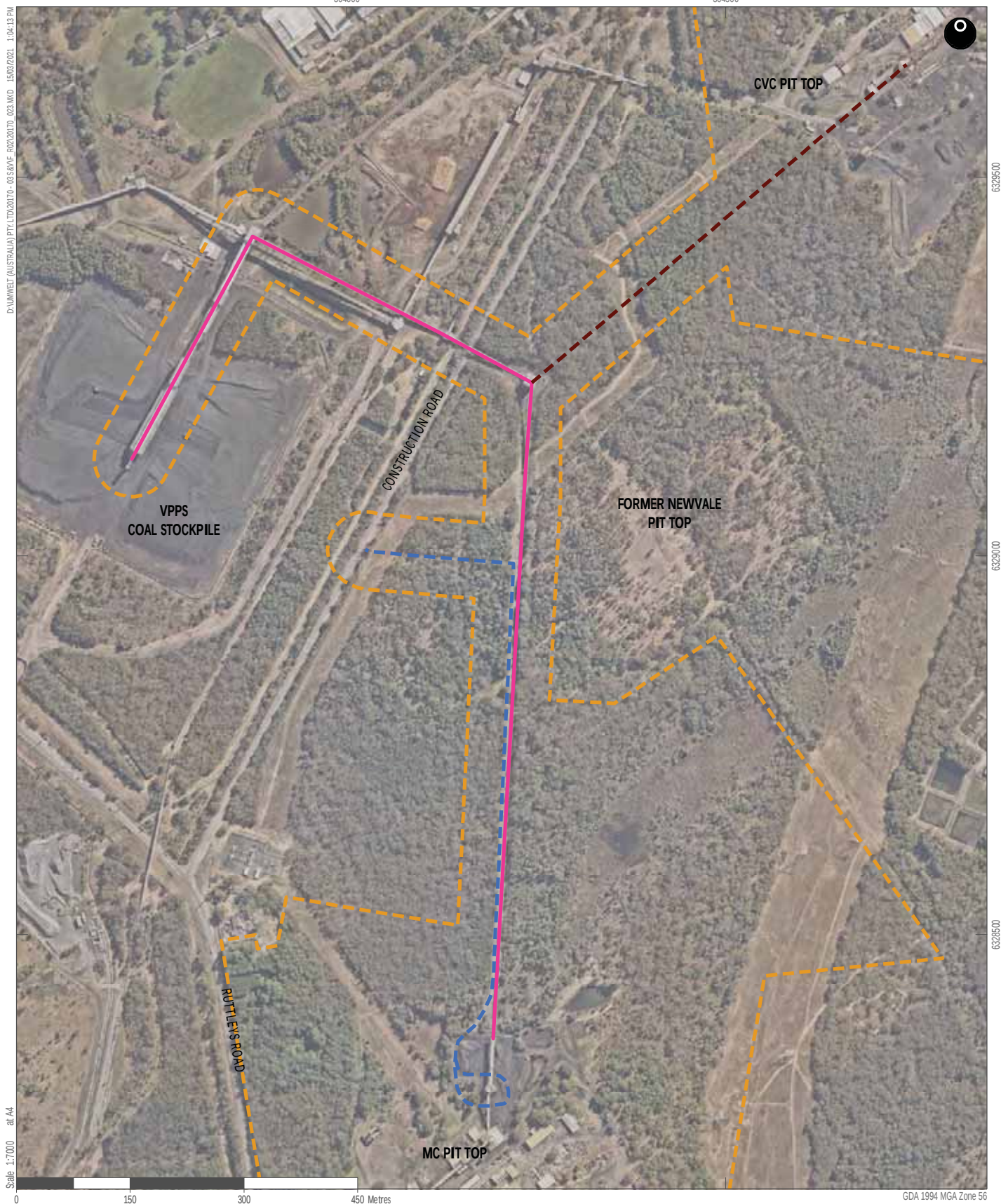
Other than the construction of the CVC to VPPS conveyor and upgrade to the MC service road for the emergency haulage route, the Project will not require any increase to existing disturbance areas.

3.3.5 Water Management

Additional minor water management infrastructure may be installed, including pipeline linkages (potable) between VPPS and the pit top facilities along existing infrastructure easements.

The Project will not require any change to the existing licensed daily discharge limits (up to 12,161ML/day at CVC and 4 ML/day at MC).

Potable water utilised for surface facilities and underground operations are currently supplied by Central Coast Council.



- Legend**
- Project Area
 - Existing VPPS Overland Conveyor
 - Proposed CVC Conveyor Connection
 - Proposed Mannering Emergency Haulage Route to Construction Road

FIGURE 3.3
Proposed Infrastructure

3.4 Workforce and Hours of Operation

3.4.1 Operational workforce

The Project will require a total workforce of up to approximately 390 FTE personnel (including contractors), across both operations, which is consistent with total workforce numbers across the existing approved CVC and MC operations.

3.4.2 Operating Hours

The hours of operation will also be unchanged, continuing at 24 hours, 7 days per week.

3.5 Construction Activities

Construction works associated with the Project include:

- the upgrade/construction of internal haul road from MC to VPPS
- construction of coal handling infrastructure and conveyor between CVC and VPPS (if necessary)
- installation of potable water supply linkages between VPPS and the MC and CVC pit tops (if necessary)
- installation of surface to seam boreholes and
- general maintenance activities at the sites, including the upgrade/replacement of equipment (including recently demolished infrastructure) where necessary.

3.5.1.1 Construction workforce

The CVC and MC operations are not currently operating at full production rates and the construction activities would be required to facilitate this increased production. Accordingly, the construction workforce numbers can be managed within the current approved operational workforce numbers.

3.5.1.2 Construction Hours

All construction works are intended to be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009) (ICNG) recommended standard work hours (being 7 am to 6 pm on weekdays, and 8 am to 1 pm on Saturdays).

Any construction activities undertaken outside these periods would be managed to ensure noise impacts do not exceed relevant operational noise criteria.

3.6 Alternatives and Rationale

3.6.1 Project Alternatives

Alternatives considered as part of the Project scoping phase include mining area, scale, mining method and not undertaking the Project. A general overview of these alternatives is provided below. Further consideration of the project alternatives including required environmental management would be undertaken as part of the comprehensive environmental and social impact assessment to support the EIS.

As detailed earlier, a key objective of the Project is to provide a cost effective and reliable supply of coal to the VPPS to 2029. Not proceeding with the Project would require VPPS to source additional coal from other sources, beyond the current mine life of 2027. Coal sourced from other operations would be less suited to the design specifications of the VPPS operations which were specifically designed around the use of coal from the Wallarah, Great Northern and Fassifern coal seams. The use of externally sourced coal would require additional rail movements between mines in NSW and the VPPS rail handling facilities. This would also expose the VPPS to cost fluctuations and potential supply uncertainty in the event of supply chain disruptions. The improved operational efficiencies associated with the management of the CVC and MC operations as a single operation with flexibility in production rates between the two pit tops significantly reduces supply risks for VPPS. The ability to supplement extraction from the Fassifern Seam with better quality coal from the Great Northern Seam also reduces VPPS reliance on externally sourced coal.

The scale of the Eastern Mining Area has been restricted through providing only a minor extension of mine life (2 years) and to reduce associated environmental impact. The proposed Eastern Mining Area will involve mining under fewer residences and less infrastructure than would occur if mining were to progress to the northwest into unmined areas currently within the Delta Coal mining lease holdings. The extension of mining into the Delta Coal lease areas further to the east would also be facilitated by mining in the Eastern Mining Area should this be warranted in the future.

No change is proposed to mining methods within the approved CVC and MC mining areas under land areas. There is potential for secondary extraction under land areas within the Project Area but has not been progressed due to a desire to maintain consistency with existing CVC consent limits on subsidence and avoid subsidence impacts to residential areas and surface infrastructure.

The Project includes the ability to undertake some secondary extraction in the approved MC mining areas below Lake Macquarie. This proposed change would be subject to the existing subsidence impact restrictions and performance measures which applies to mining in the CVC Zone B area. This change increases the potential resource recovery in this area. Given the shape of the extended area and constraints presented by sea grass beds and shoreline areas, it is likely that any secondary extraction in this area would be limited to pillar extraction only.

Centralising pit top facilities to either CVC or MC has been contemplated and remains an option. CVC remains the most efficient point of entry for personnel to the active CVC mining areas within the Fassifern Seam. The CVC Pit Top is likely to be the most efficient pit top facility for the extraction and handling of coal mined in the Eastern Mining Area due to the existing underground linkages associated with historical CVC workings. The CVC coal handling plant was largely removed in 2020 so due to the operation's lifespan this capital expense may be prohibitive. MC is currently the most efficient site for handling of coal mined at MC and the current CVC Fassifern Seam mining area due to the existing underground infrastructure currently installed to service mining in the Fassifern Seam. Realigning this infrastructure to handle all Fassifern Seam coal at the CVC Pit Top would involve additional capital expense.

3.6.2 Project Justification

The Project would provide for the consolidation of the existing consents which will streamline administrative arrangements for both Delta Coal and Government regulators. A consolidated consent would also contemporise the environmental protection provisions applicable to the operations.

Extraction of coal from the Great Northern Seam would provide for an additional 5.6 millions tonnes of mineable coal reserves providing for the continuation of mining until December 2029. This extension aligns the LOM for the CVC and MC operations with the current operational requirements of the VPPS. The Project will also provide improved supply security to the VPPS. This is achieved with negligible additional environmental impacts relative to the approved operations due to the mining methods proposed.

4.0 Strategic Context

This section provides an overview of the strategic constraints and opportunities relevant to the Project.

4.1 Market Context

Delta Coal currently have approval to supply coal for both domestic and export markets, although, due to location (in close proximity to VPPS) and common ownership, all of the coal produced at CVC and MC is currently supplied to the VPPS. Coal resource from the Fassifern and Great Northern seams, mined at CVC and MC is known to have a low sulphur content, making it a preferable supply for power generation.

Delta Coal are seeking to ensure the continuity of coal supply for the VPPS with reduced reliance on external parties. The Project will allow for the extension of the LOM for the combined operations for a further 2 years (end 2029) which will align with the current projected requirements of the VPPS.

4.2 Physical Context

4.2.1 Climate

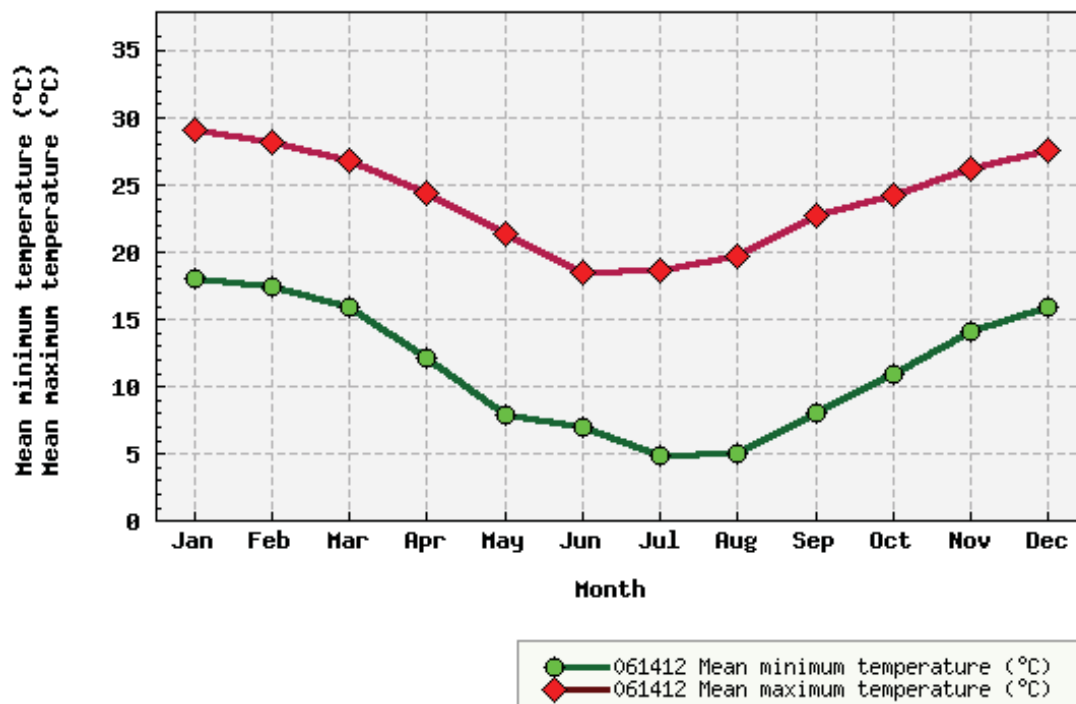
The climate of the Project Area is borderline oceanic/humid subtropical with warm summers, mild winters and heavy precipitation in late autumn and early winter (Bureau of Meteorology (BoM), 2020).

4.2.1.1 Temperature

Temperature data for the Lake Macquarie area is available from the Cooranbong (Lake Macquarie AWS) site which has been in operation from 2008 to present. The mean minimum and maximum temperatures of the Lake Macquarie AWS site over the period 2008 to 2020 are shown in **Figure 4.1**.

The highest recorded temperature at the Lake Macquarie AWS site was 45.2°C recorded on 18 January 2013. The lowest temperature recorded was -3.4°C recorded on 16 July 2018.

Location: 061412 COORANBONG (LAKE MACQUARIE AWS)



Australian Government
Bureau of Meteorology

Created on Thu 17 Dec 2020 16:43 PM AEDT

Figure 4.1 Mean Minimum and Maximum Temperature Lake Macquarie AWS 2008-2020

© Umwelt, 2020

4.2.1.2 Rainfall

Climate data were obtained as SILO Patched Point Data from the Science Division of the Queensland Government's Department of Environment and Science. SILO Patched Point Data is based on historical data from a particular BoM station with missing data "patched in" by interpolating with data from nearby stations.

SILO data were obtained for a grid point located within the Project Area (-33.15 N, 151.55 E). Average monthly climate data for this point is shown in **Figure 4.2**. The data indicates evaporation varies seasonally, with higher values recorded in summer compared to winter and average monthly rainfall exceeds evaporation between March and July.

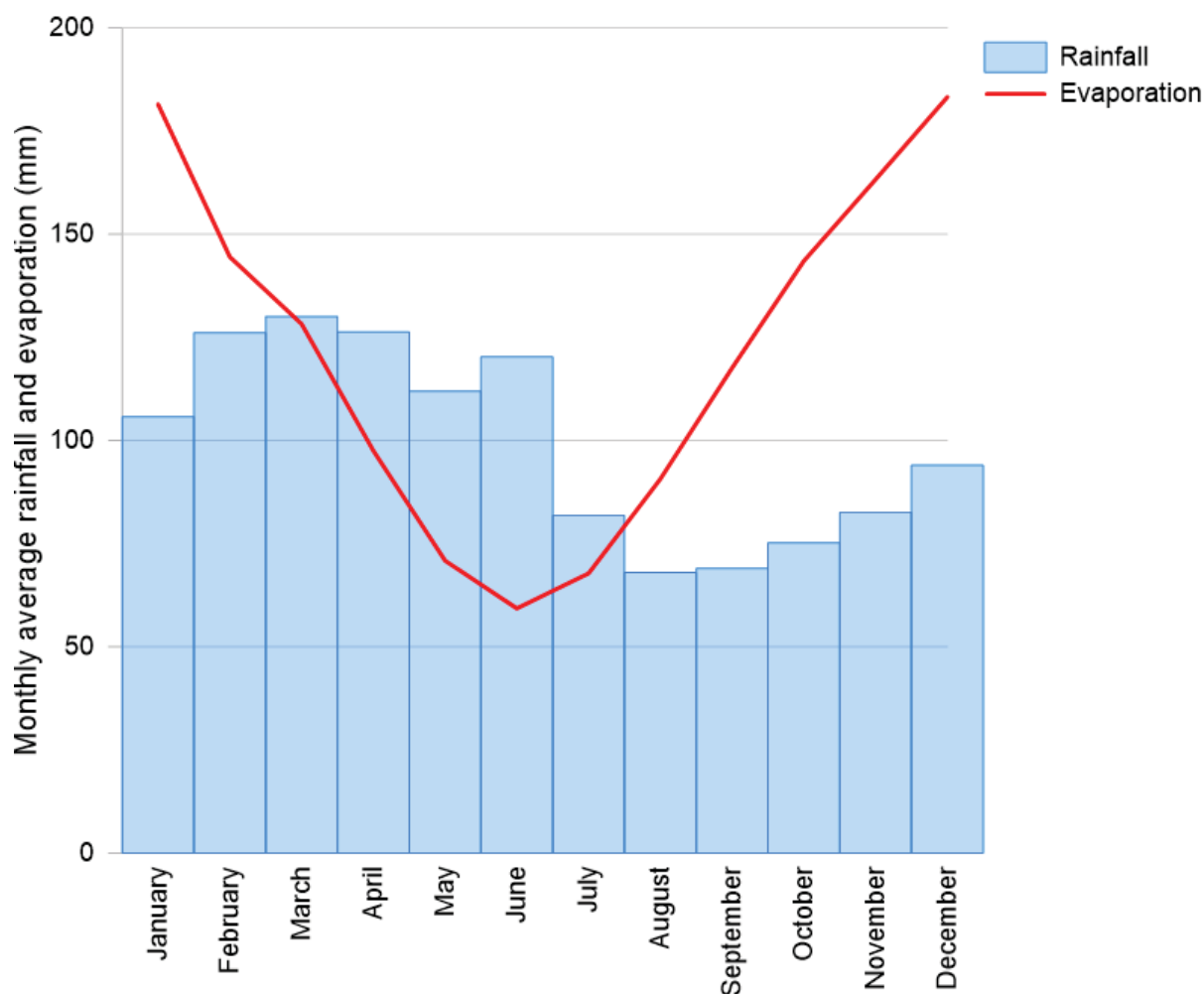


Figure 4.2 Average rainfall and Evaporation for Project Area

© GHD, 2020,

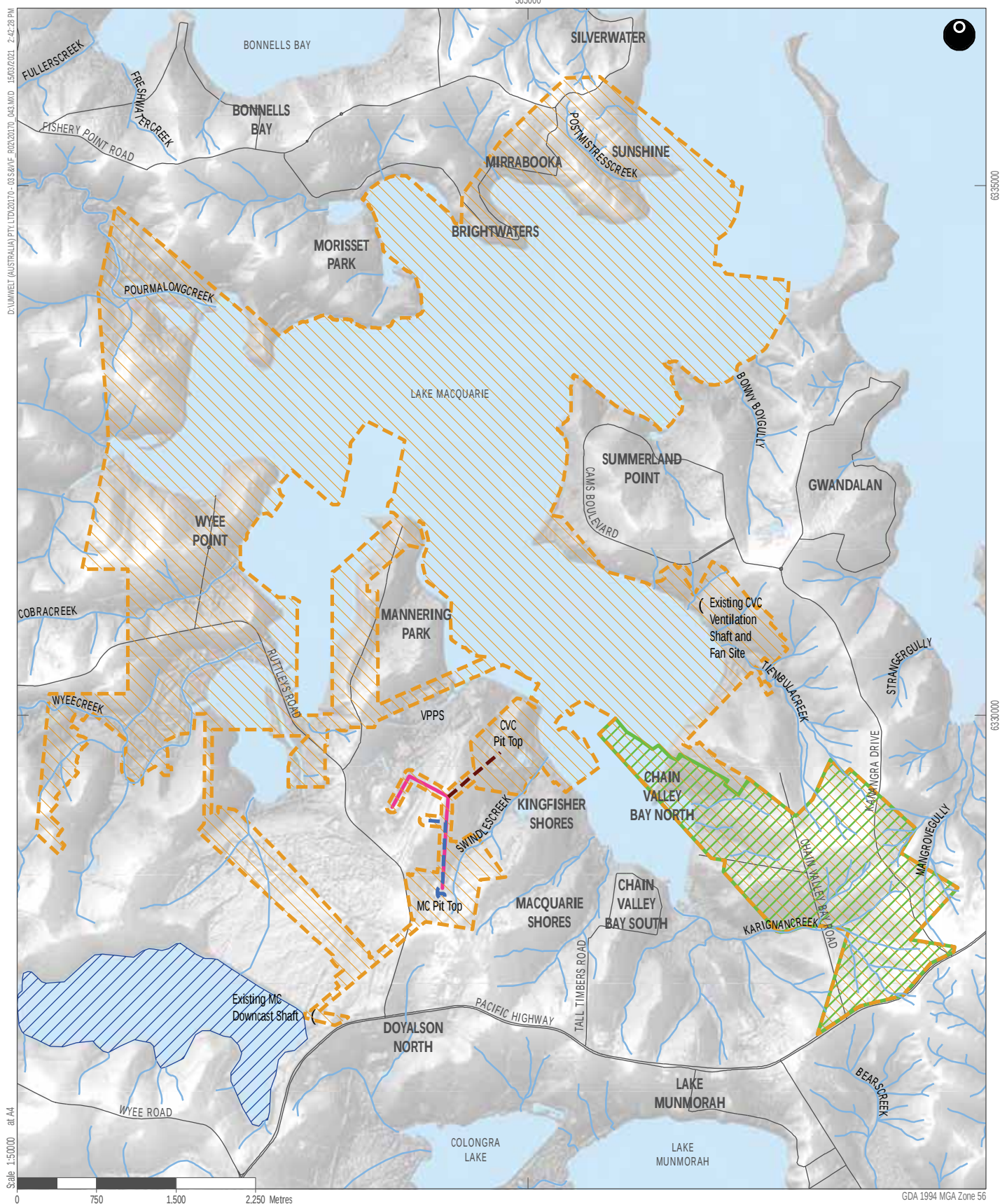
Annual rainfall statistics associated with the SILO data are summarised below:

- Minimum rainfall – 605 mm in 1944
- Median rainfall – 1,156 mm
- Average rainfall – 1,189 mm
- Maximum rainfall – 2,037 mm in 1950.

Annual rainfall was below the annual average in recent years (from 2016 – 2019).

4.2.2 Topography

The CVC and MC operations occur mainly within 10 metres (m) of sea level, with the topography of the surrounding area ranging from 10 m Australian Height Datum (AHD) to 70-80 m AHD (DPIE, 2017). Refer to **Figure 4.3**.



- Legend
- Project Area
 - Proposed Eastern Mining Area
 - Existing VPPS Overland Conveyor
 - Proposed CVC Conveyor Connection
 - Proposed Manning Emergency Haulage Route to Construction Road
 - Ash Dam

FIGURE 4.3

Topography and Hydrology

4.2.3 Geological Context

The Project Area is located within the Newcastle Coalfields within the northern portion of the Sydney Basin. The stratigraphy of the region is summarised in **Figure 4.4** and consists predominantly of Triassic and Permian strata.

Triassic rocks of the Narrabeen Group outcrop in the vicinity of the Project Area, as shown in **Figure 4.5**. The Narrabeen Group comprises variable sequences of interbedded claystones, siltstones, fine to very-coarse grained sandstones and conglomerates. It includes the Munmorah conglomerate, which is a low permeability sandstone and conglomerate dominated formation (GHD, 2020).

Quaternary alluvial deposits overlay the bedrock in some areas. The main alluvial deposits in the vicinity of the Project Area occur to the west and are associated with Wyee and Pourmalong creeks. The thickness of the sediment beneath the waters of Lake Macquarie ranges from 6 to 20 m (GeoTerra, 2013).

The Triassic rocks are underlain by the Permian Newcastle Coal Measures, which subcrop to the east and northwest of the Project Area. The strata of the Newcastle Coal Measures gently dip to the south / south-west.

The target seams for mining in the areas within and surrounding the Project Area are, from shallowest to deepest, the Wallarah Seam, Great Northern Seam and Fassifern Seam. The depth of cover above the Fassifern Seam within the Project Area ranges from approximately 150 to 230 m. The depth of cover range above the Great Northern Seam in the Eastern Mining Area is between 140 m and 195 m.

To date mining at CVC has occurred within the Wallarah, Great Northern and Fassifern Seams with mining at MC limited to the Great Northern and Fassifern Seams (refer to **Figure 4.4**). Current mining activities at both CVC and MC occur within the Fassifern Seam only.

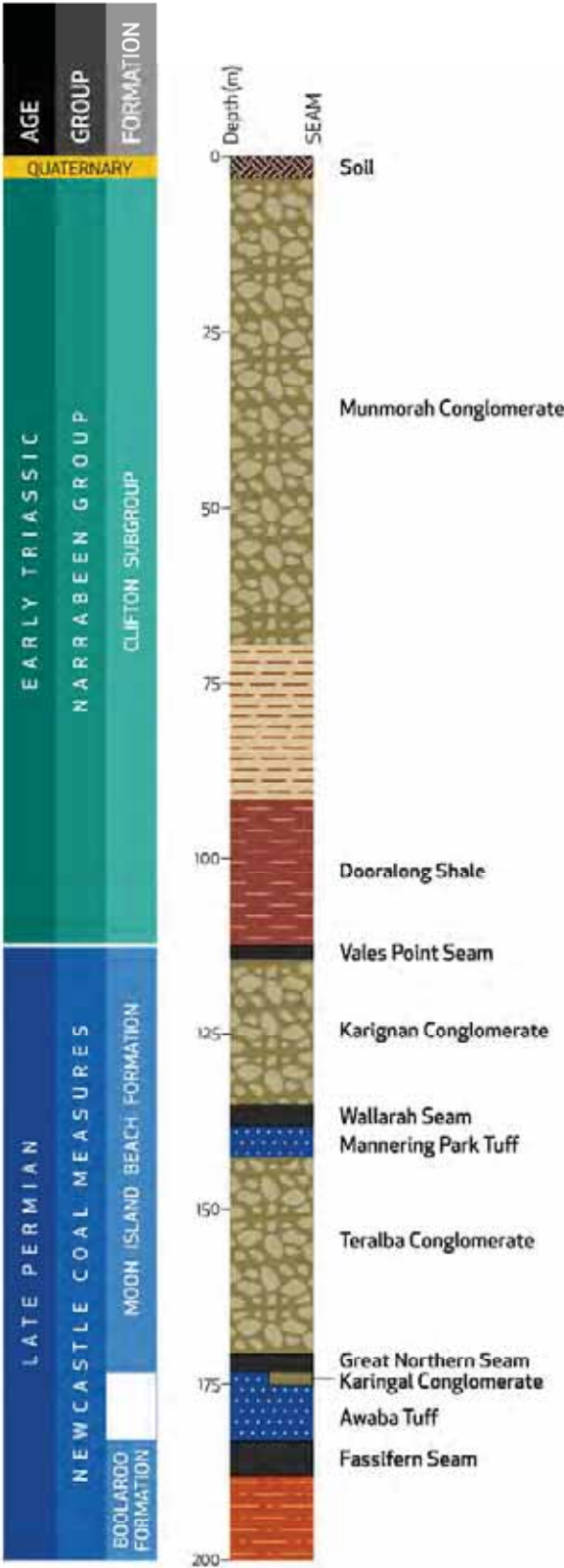


FIGURE 4.4
Stratigraphic Column



Legend

- Project Area
- Proposed Eastern Mining Area
- Existing VPPS Overland Conveyor
- Proposed CVC Conveyor Connection
- Proposed Mannering Emergency Haulage Route to Construction Road

Surface Geology

- Aeolian deposits
- Alluvial sand and gravel
- Anthropogenic deposits
- Coastal deposits- barrier lake facies (subaqueous)
- Coastal deposits- lagoon facies (subaqueous)
- Munmorah Conglomerate
- Tuggerah Formation

FIGURE 4.5
Surface Geology

4.2.4 Soils

The majority of the CVC and MC mining operations occur below Lake Macquarie. Soil profiles of the surrounding land areas are largely comprised of Wyong, Awaba and Doyalson soil landscapes with smaller areas of Gorokan and Tacoma Swamp soil landscapes. The properties of the main soil landscapes are:

- **Wyong:** Landscape is made up of quaternary sediments (sand, silt gravel and clay), forming generally poorly drained deltaic floodplains and alluvial flats with low fertility, and high limitations for urban development due to high flooding hazard. Small areas of Tacoma Swamp soil landscape occur on the floodplain.
- **Awaba:** Landscape comprises both Munmorah Conglomerate Formation (pebbly sandstone, siltstone varieties and claystone) and Newcastle Coal Measures conglomerate subgroups Moon Island, Boolaroo and Adamstown (sandstone, tuff, siltstone, claystone and black coal conglomerate). Moderately inclined to occur on steep slopes (up to >25%), with low to very low fertility and moderate limitations for urban development capability due to moderate foundation hazard (though in localised areas of slopes >20%, mass movement hazards are applicable and therefore severe urban development limitations are present).
- **Doyalson:** Landscape contains the Munmorah Conglomerate Formation (pebbly sandstone, siltstone varieties and claystone), with small areas of quartz sandstone at the base of Tuggerah Formations included. Small areas of Gorokan soil landscape have been included in the southern locations of the Doyalson soil landscape. Urban development capability is moderate, due to generally low foundation hazards with isolated high plasticity areas forming high foundation hazard. Soil fertility of the Doyalson landscape is generally very low.

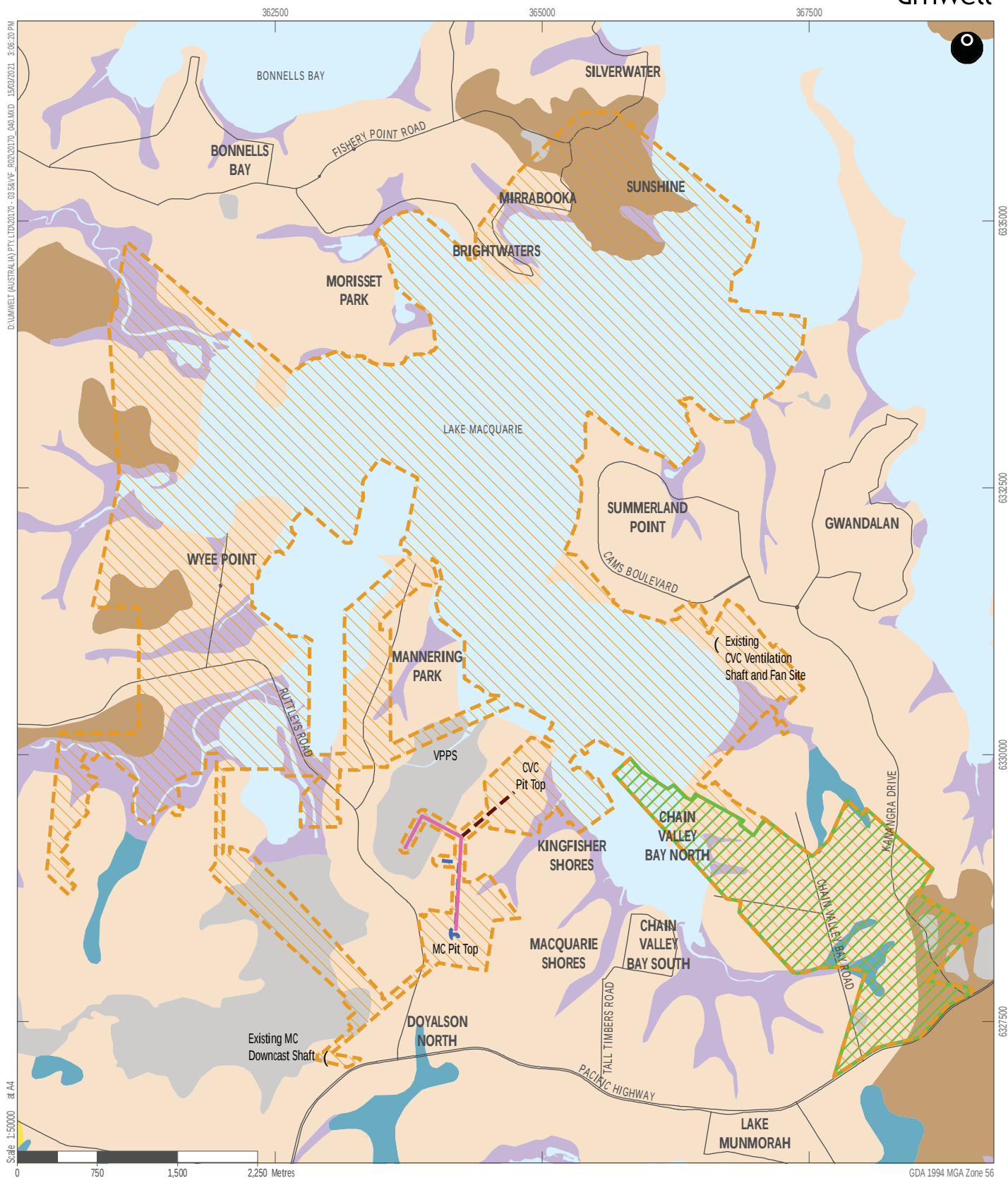
The locations of these soil landscapes are shown in **Figure 4.6**.

4.2.5 Hydrology

The Project Area is located within the southern catchment area of Lake Macquarie to the south of the Dora Creek catchment. The main creek systems in the vicinity of the Project Area include Wyee Creek, Cobra Creek and Pourmalong Creek to the west, Karignan Creek to the south, Bonny Boy Gully and Tiembula Creek to the east and Postmistress Creek to the north of the Project Area. A number of unnamed tributaries also exist in the vicinity of the Project. Watercourse locations within the Project Area are shown in **Figure 4.3**. In general, creeks are ephemeral upstream of the tidal zone. Within the tidal zone there is permanent water in creeks including Wyee and Pourmalong Creeks.

The CVC and MC Pit Tops are located within the catchment of Swindels Creek which flows to the north into Lake Macquarie adjacent to the CVC Pit Top (refer to **Figure 4.3**). Licensed discharges from both sites flow into Swindels Creek.

A number of estuarine lakes exist to the south of the Project Area, including Lake Munmorah and Budgewoi Lake.



Legend

- Project Area
- Proposed Eastern Mining Area
- Existing VPPS Overland Conveyor
- Proposed CVC Conveyor Connection
- Proposed Mannering Emergency Haulage Route to Construction Road

Soil Landscapes

- Awaba
- Disturbed Terrain
- Doyalson
- Gorokan
- Tacoma Swamp
- Wyong

FIGURE 4.6

Soil Landscapes

4.2.6 Hydrogeology

The groundwater sources in the vicinity of the CVC consent boundary are generally low yielding and predominately within the Quarternary alluvium, marine/estuarine, alluvial/colluvial aquifer system weathered and/or underlying Triassic and Permian strata with low permeability interburden units and low to moderately permeable coal seams (GHD, 2020).

The coal seams generally have a low primary or inter-granular porosity and permeability, with bedding planes, joints, fractures and cleating imparting an enhanced secondary permeability.

The Triassic and Permian rock system aquifers and alluvial/colluvial aquifers within the Project Area at the site are classed as less productive under the NSW Aquifer Interference Policy (AIP) based on the groundwater salinity being in excess of 1,500 milligrams per litre (mg/L) and/or bore yields lower than 5 litres per second (L/sec).

Historical and ongoing underground mining in the Permian Coal Measures around Lake Macquarie has created a significant groundwater sink and generated a regional zone of depressurisation within the Permian Coal Measures.

4.2.7 Ecology

The Project Area contains two land-based areas that include remnant native vegetation, including the CVC and MC Pit Top areas and the CVC ventilation shaft and fans at Summerland Point. The latter lies within a large bushland block that adjoins vegetated land and the Lake Macquarie State Recreation Area. The pit top areas, though primarily cleared for buildings, laydown and other hardstand areas, coal stockpiles and miscellaneous infrastructure, contain patches of remnant vegetation.

Figure 4.7 shows regional mapping of vegetation communities within and surrounding the Project Area.

Lake Macquarie is a large barrier estuarine lake with an open water area of 115 square kilometres (km²), an average depth of 7 m and a relatively flat floor characterised by fine soft silt/mud sediments. The Lake is a wave-dominated estuary with a high sediment trapping efficiency, naturally low turbidity and partially mixed circulation where there is likely to be sedimentation (Cardno 2011).

The benthic communities in the mud basin zone of Lake Macquarie, within which the Project Area is located, are dominated by polychaetes and bivalve molluscs, with other benthic organisms present at various times in smaller numbers (The Ecology Lab 2007; Laxton 2020)

Four species of seagrass occur in Lake Macquarie: eel grass (*Zostera capricorni*); paddle weed (*Halophila ovalis*); *Ruppia* sp.; and strapweed (*Posidonia Australia*) which is listed as an endangered species under the NSW *Fisheries Management Act 1994* (FM Act). Seagrass distribution within estuaries is naturally influenced by light penetration, depth, salinity, nutrient status, bed stability, wave energy, estuary type, and the evolutionary stage of the estuary. Light is a major limiting factor for the growth of seagrasses and the effects of shading either by artificial structures or increased turbidity associated with sediment re-suspension are common light reducing factors in estuaries (BioAnalysis 2008). Mapped Areas of seagrass within the existing approved CVC and MC mining areas is shown in **Figure 4.7**.

Past records of marine fauna (endangered and non-endangered species) in Lake Macquarie include 232 species of fish, four species of turtle, and various reports of prawns, crabs, jellyfish, sharks, rays, eels and octopus.

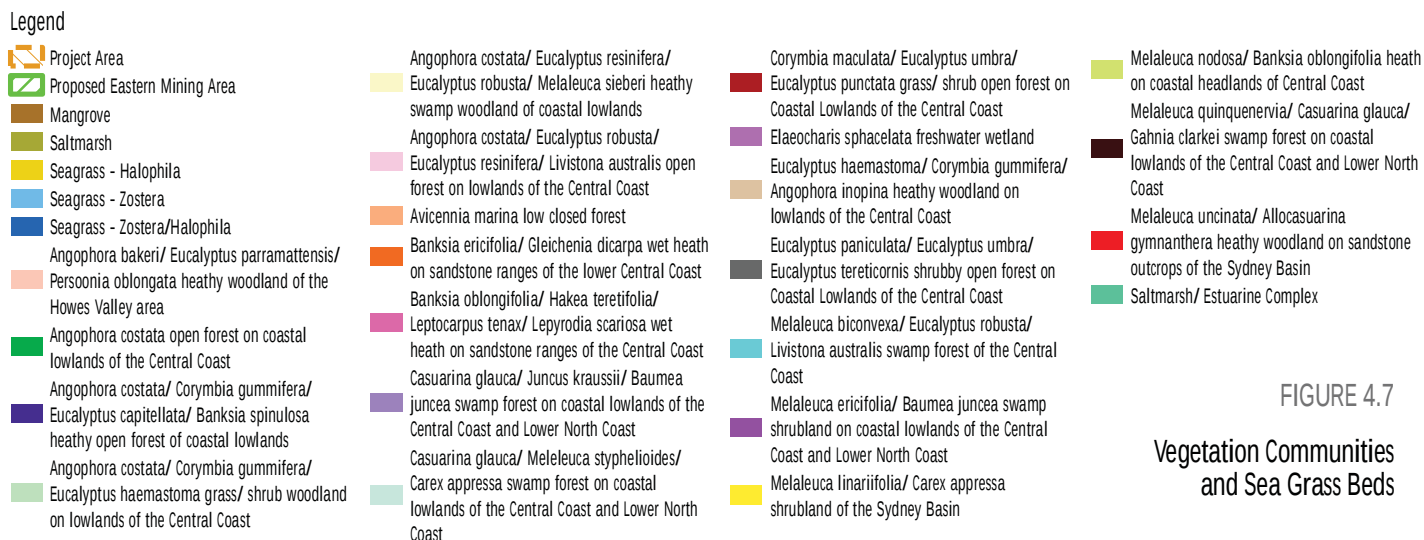
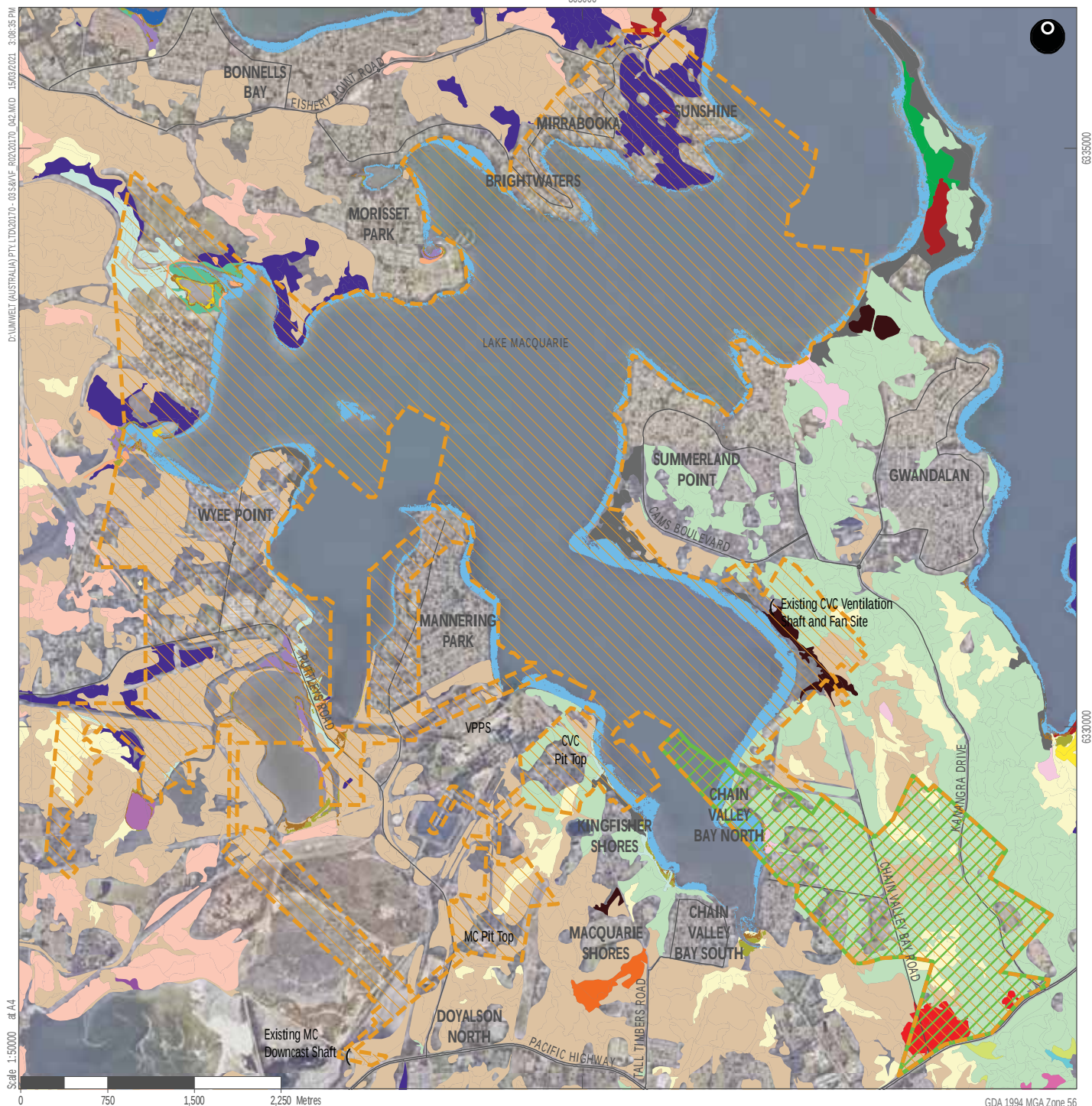


FIGURE 4.7

Vegetation Communities and Sea Grass Beds

4.3 Social Context

4.3.1 Land Use

4.3.1.1 Approved and Historical Mining

As discussed in **Section 1.1**, the local areas within the Lake Macquarie and Central Coast LGAs have a long history of coal mining which has been historically linked to the several power stations located in the Lake Macquarie and Central Coast area. The area within and surrounding the Project Area has been subject to extensive historical underground mining in the Wallarah, Great Northern and Fassifern Seams. Other mining operations in the general area include Myuna Colliery (still operating), Mandalong Mine (still operating), Wallarah Colliery, Moonee Colliery and Newvale Colliery.

The approved CVC and MC mining areas include mining below the suburbs of Mannering Park and Wyee to the north west and parts of Morisset Park, Brightwaters, Sunshine, Mirrabooka and Silverwater to the north. Parts of the suburbs of Chain Valley Bay to the east and Summerland Point and Gwandalan to the north east have previously been undermined by mining undertaken at CVC and Newvale Colliery. This past mining, particularly mining at Newvale Colliery in the Great Northern Seam, included mining that involved pillar extraction that resulted in significant subsidence impacts in the Chain Valley Bay area (1986-1987). **Figure 4.8** shows the location of currently approved mining areas and historical mining in and around the Project area.

4.3.1.2 Surrounding Land Use

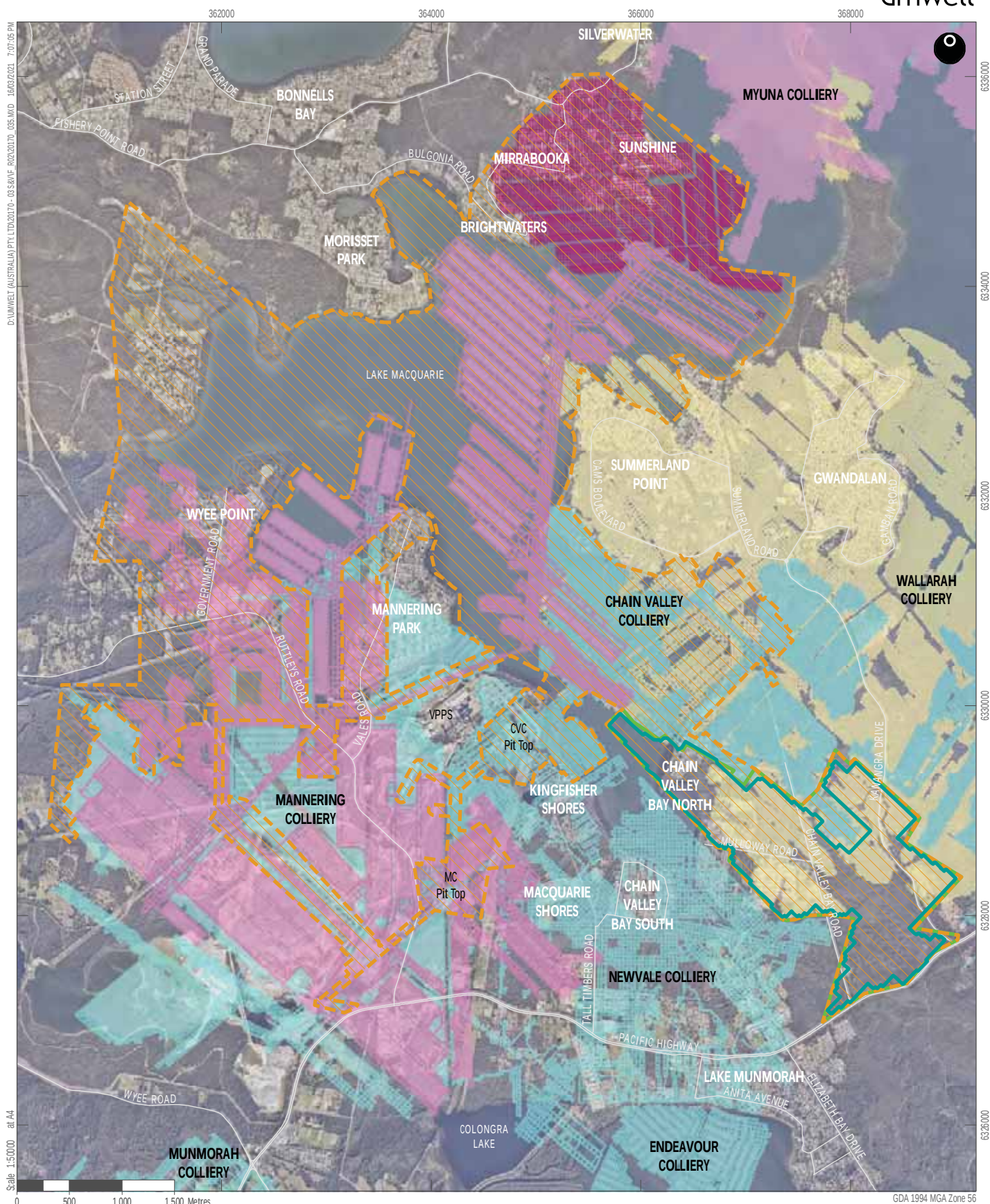
The CVC surface facilities are accessed via Ruttleys Road and Construction Road, a private road which services CVC and VPPS. The MC surface facilities and pit top are accessed directly from Ruttleys Road. Land surrounding the pit tops primarily supports industrial uses and fragmented areas of vegetation.

The areas surrounding CVC and MC Pit Top facilities are mainly comprised of power generation, industrial development, vegetation and residential land uses. The area between the CVC and MC Pit Tops includes the site of the former Newvale Colliery surface facilities which has been rehabilitated.

The closest residential areas to the CVC and MC Pit Top facilities include Kingfisher Shores, Macquarie Shores home village and Chain Valley Bay. CVC's ventilation fan site is located at Summerland Point, north-east of the CVC Pit Top area to the north of Chain Valley Bay North.

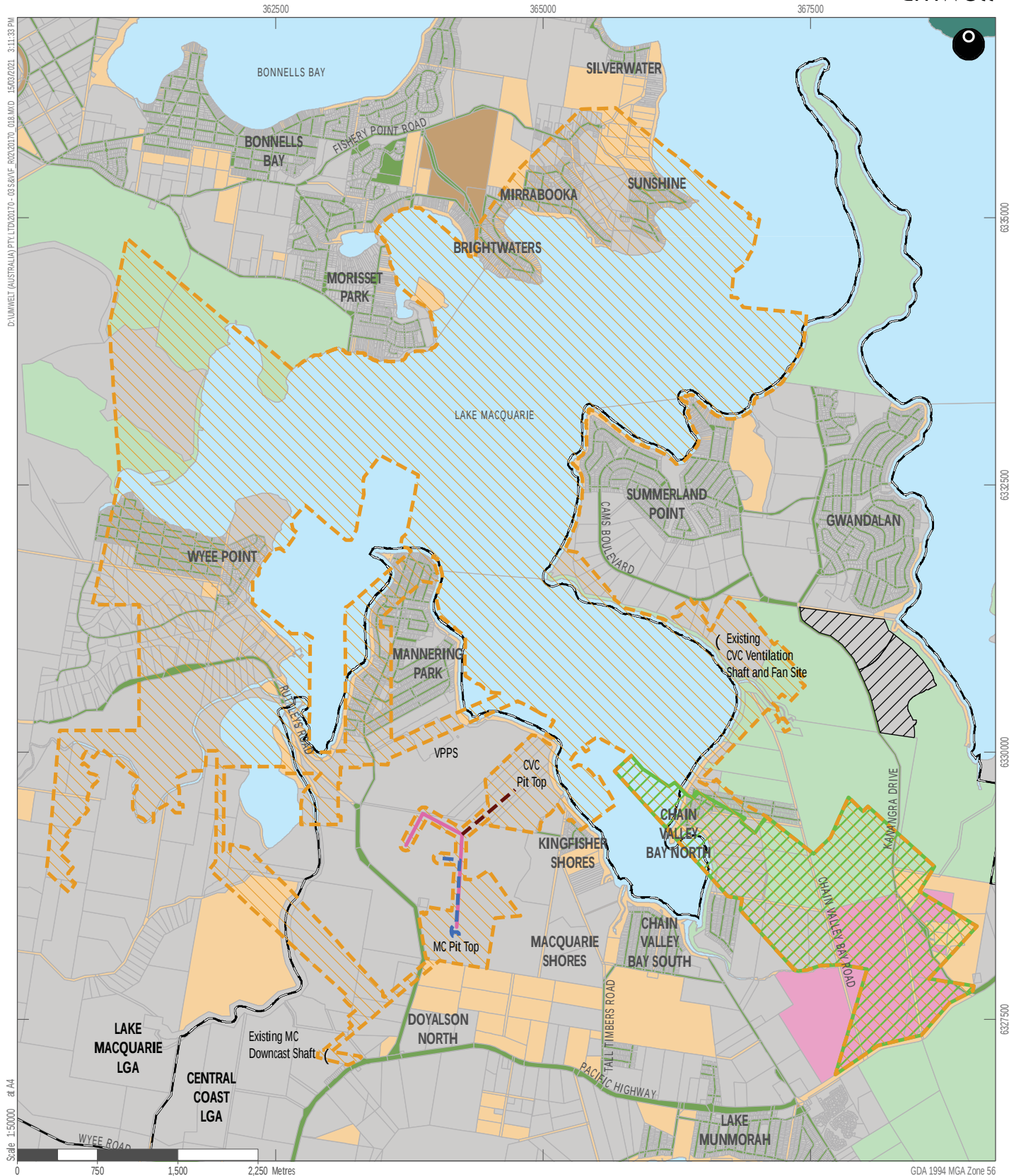
Land ownership within the existing Delta mining leases is predominately privately owned residential with the Munmorah State Conservation Area to the south-east (refer to **Figure 4.9**). There is no agricultural production within the proposed Eastern Mining Area with the land currently subject small residential/rural-residential holdings and the remainder covered with vegetation. There is a horticulture business located on Carters Road however this is located outside both the approved and proposed mining area.

An undeveloped area of land above the eastern extent of the Eastern Mining Area along the Pacific Highway is owned by the Darkinjung Aboriginal Land Council (Darkinjung LALC). The Darkinjung LALC have indicated an intention to develop this land in the future. An extension to the Valhalla Residential Village which is located above the Eastern Mining Area is also planned.



- Legend**
- Project Area
 - Proposed Eastern Mining Area
 - Existing Wallarah Seam Workings
 - Existing Great Northern Seam Workings
 - Existing Fassifern Seam Workings
 - Proposed Workings (Great Northern Seam)
 - Proposed Fassifern Seam Workings (CVC Consent including Mod 4)

FIGURE 4.8
Historical Mining



Legend

- | | |
|---|--|
| Project Area | Crown |
| Proposed Eastern Mining Area | Water |
| Existing VPPS Overland Conveyor | Darkinjung Local Aboriginal Land Council |
| Proposed CVC Conveyor Connection | Private |
| Proposed Mannering Emergency Haulage Route to Construction Road | Local Government Authority |
| Local Government Area (LGA) | NSW Government |
| Crangan Bay Development Area | Nature Reserve |
| | State Conservation Area |

FIGURE 4.9
Land Ownership

4.3.2 Infrastructure

4.3.2.1 Roads

The road network within and surrounding the Project Area is shown in **Figure 4.10**. Access to the CVC and MC infrastructure areas is via Ruttleys Road with MC being accessed directly off Ruttleys Road and CVC accessed via Construction Road which runs between CVC and MC infrastructure areas and the VPPs.

4.3.2.2 Electricity Infrastructure

The Project Area is located adjacent to the VPPS and aspects of the high voltage transmission network pass over the Project Area.

Local electricity distribution networks are also located within the Project Area, including over surface areas approved to be mined.

Key aspects of the high voltage network within the Project Area are shown in **Figure 4.10**.

4.3.2.3 Other Infrastructure

Other infrastructure present in the Project Area includes:

- potable water reticulation pipeline
- sewerage infrastructure, including sewerage treatment facilities (both those operated by Council as well as private systems)
- telecommunications infrastructure such as cabling and mobile phone towers.

Key infrastructure features within and close to the Project Area are shown in **Figure 4.10**.



Legend

- Project Area
- Proposed Eastern Mining Area
- Existing VPPS Overland Conveyor
- Proposed CVC Conveyor Connection
- Proposed Mannering Emergency Haulage Route to Construction Road
- 132kV Powerline
- 330kV Powerline
- 33kV Powerline
- Pipeline

- Water Tank
- Urban Area

FIGURE 4.10

Roads and other
Significant Infrastructure

5.0 Statutory Context

5.1 NSW Approval Pathway

The EP&A Act is the primary instrument which regulates the environmental impact assessment and approval process for development in NSW.

The Project will require development consent under Part 4 of the EP&A Act¹. Being development for the purpose of coal mining, the Project is declared to be SSD under the provisions of the SRD SEPP. The DA will be lodged with the Secretary of DPIE.

This Scoping Report supports the request for SEAR's for the EIS, which must accompany the DA for the Project.

5.1.1 Permissibility

The existing CVC and MC operations are subject to the *Lake Macquarie Local Environment Plan 2014* (Lake Macquarie LEP) and the *Wyong Local Environmental Plan 2013* (Wyong LEP). The majority of CVC's underground mining areas fall within the Lake Macquarie LGA with the mining areas that fall underneath the lake zoned by the Lake Macquarie LEP as W1 – Natural Waterways. The Northern Mining Area is also subject to R2 – Low Density Residential, E2 – Environmental Conservation, E3 – Environmental Management, E4 – Environmental Living, RE1 – Public Recreation, RE2 – Private Recreation, RU2 – Rural Landscape, RU4 – Primary Production Small Lots and RU6 – Transition.

The key features of the Project including the existing pit top areas and the proposed Eastern Mining Area fall within the Central Coast LGA and subject to the Wyong LEP. The existing pit top areas are subject to the SP2 – Infrastructure zoning. The proposed Eastern Mining Area is subject to R2 – Low Density Residential, RE1 – Public Recreation, RE2 – Private Recreation, E2 – Environmental Conservation and E3 – Environmental Management. Underground mining is not a permitted development under any existing zoning provisions under the Lake Macquarie and Wyong LEPs. Notwithstanding this, clause 7 (1)(a) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) provides for underground mining to be carried out on any land with development consent. This states:

(1) *Mining Development for any of the following purposes may be carried out only with development consent—*

(a) *underground mining carried out on any land,*

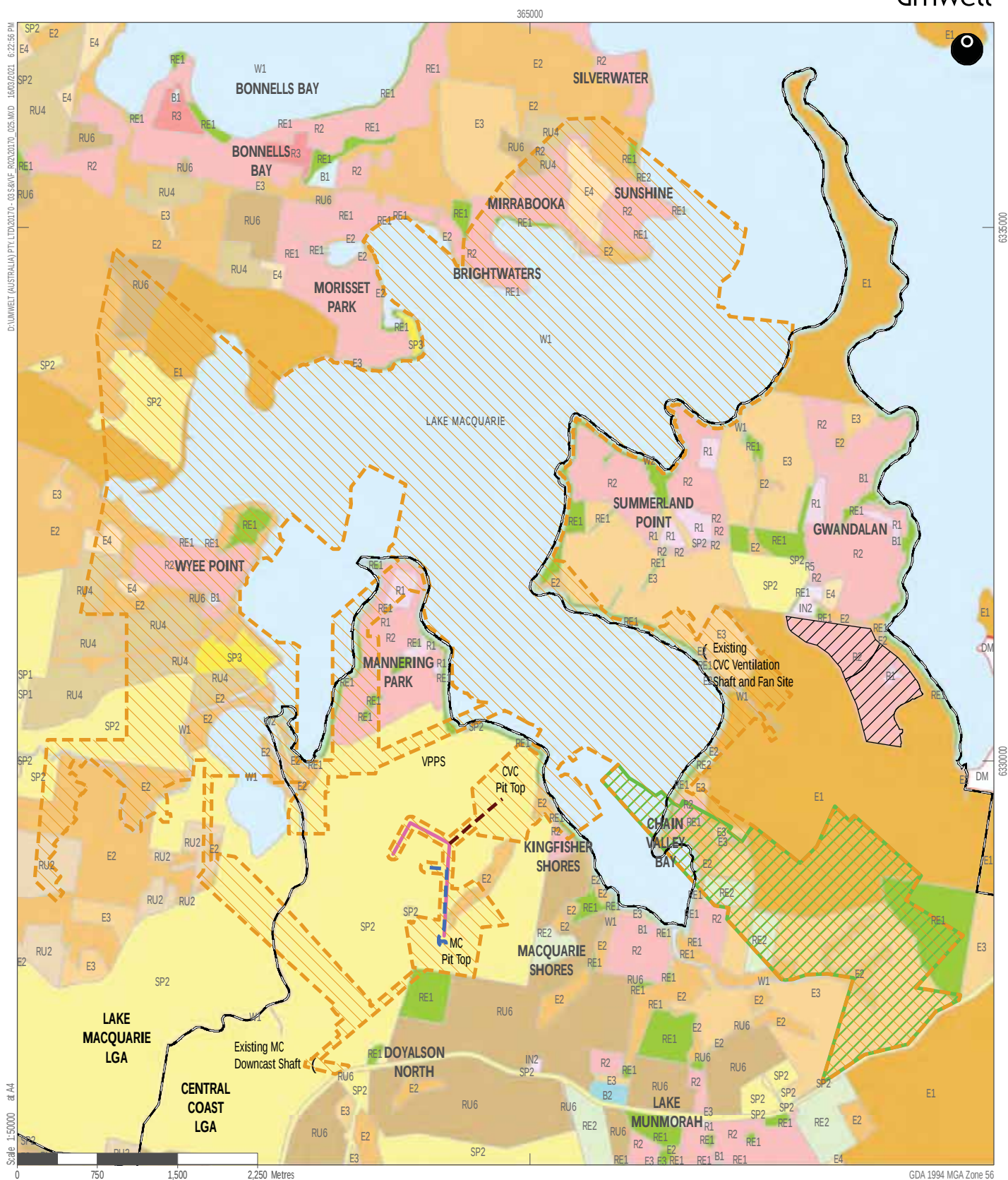
....

5.1.2 Voluntary Surrender of Development Consent

As discussed in **Section 3.0** the Project seeks a single development consent to cover the ongoing operations at both CVC and MC. Should the Project be approved, The CVC Development Consent SSD-5465 (as modified), and MC Major Project Approval MP 06_0311 would be surrendered as per Section 4.63(3) of the EP&A Act.

The environmental assessment to be undertaken to support the preparation of the EIS will focus specifically on the changes proposed to the approved operations without reassessment of the aspects of the approved operations which could continue under the existing approvals. This is discussed further in **Section 7.0**.

¹ A modification of one of the two consents to consolidate the approvals was discounted on the basis that both the combined operations and proposed extension into the Great Northern Seam did not satisfy the 'substantially the same development test' under s.4.55 required for modification applications.



Legend

- | | | |
|---|-------------------------------|-----------------------------------|
| Project Area | E2 Environmental Conservation | RU4 Primary Production Small Lots |
| Proposed Eastern Mining Area | E3 Environmental Management | RU6 Transition |
| Existing VPPS Overland Conveyor | E4 Environmental Living | SP1 Special Activities |
| Proposed CVC Conveyor Connection | IN2 Light Industrial | SP2 Infrastructure |
| Proposed Manning Emergency Haulage Route to Construction Road | R1 General Residential | SP3 Tourist |
| Local Government Area (LGA) | R2 Low Density Residential | W1 Natural Waterways |
| Craggan Bay Development Area | R3 Medium Density Residential | W2 Recreational Waterways |
| Zoning | R5 Large Lot Residential | DM Deferred Matter |
| B1 Neighbourhood Centre | RE1 Public Recreation | |
| B2 Local Centre | RE2 Private Recreation | |
| E1 National Parks and Nature Reserves | RU2 Rural Landscape | |

FIGURE 5.1
Zoning

5.1.3 Gateway Process

Part 4A of the Mining SEPP together with Clause 50A of the EP&A Regulation provides for the implementation of the NSW Government's Strategic Regional Land Use Plans (SRLUPs). The 'gateway process' applies to proposed mining development located on Biophysical Strategic Agricultural Land (BSAL) and Critical Industry Cluster Land (CIC land) (as defined by the regional mapping presented in the Mining SEPP) outside of existing mining lease areas. A process that triggers the gateway process must obtain a Gateway Certificate.

All aspects of the Project that require a mining lease (including the proposed Eastern Mining Area) are covered by existing mining leases, and therefore the Gateway Process is not applicable to the Project.

5.1.4 Other State Approvals

Table 5.1 identifies the applicability of other NSW legislation and policies to the Project.

Table 5.1 NSW Legislation

Legislation	Applicability to the Project
<i>Biodiversity Conservation Act 2016 (BC Act)</i>	The general purpose of the BC Act is to maintain a healthy, productive, and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development (ESD). The EIS will contain a Biodiversity Development Assessment Report (BDAR) consistent with the requirements of the BC Act.
<i>Coal Mine Subsidence Compensation Act 2017 (CMSC Act)</i>	The CMSC Act provides a scheme for the payment of compensation for damage caused by subsidence in connection with the extraction of coal and related purposes. Subsidence and subsidence related impacts will be assessed within the EIS to determine whether compensation is likely to be incurred by Delta Coal because of the Project. While operations at CVC and MC remain active, Delta Coal will be liable to pay compensation in relation to damage caused by subsidence arising from the operations.
<i>Crown Land Management Act 2016 (CLM Act)</i>	The CLM Act provides for a consistent approach to management, facilitation of community involvement and future use of Crown land, with consideration of the environmental, social, cultural heritage and economic factors and the spiritual, social and cultural importance of Crown land to Aboriginal people. The Project does not require access to any Crown lands and therefore no further assessment is required.
<i>Dams Safety Act 2015 (DS Act)</i>	The objectives of the DS Act are to promote transparency in regulation of dam safety, encourage proper and efficient management of dam safety and ensure that any risks relating to dams are within a level acceptable to the community. The Project does not propose the establishment of any dams. Notwithstanding this, the EIS will include consideration of the Project's potential impacts on any prescribed dams located in the vicinity of the Project Area (noting that no adverse impacts are expected).

Legislation	Applicability to the Project
<i>Workplace Health and Safety (Mines and Petroleum Sites) Act 2012 (WHS Mining Act)</i>	The WHS Mining Act and its regulation) (collectively referred to as the WHS Mining Legislation) secures the health, safety and welfare of people in connection with coal operations (including all places of work where coal is mined and certain other places). The WHS Mining Legislation includes specific requirements for the development of principal hazard management plans which include risks related to subsidence and inrush. While safety focussed, the controls in these management plans have significant cross-over to management measures to be implemented as part of the Extraction Plan processes for second workings which is designed to manage environmental and social impacts associated with subsidence. Delta Coal will continue to operate in accordance with the WHS Mining Legislation and the management measures required under this legislation will be considered as part of the suite of controls applicable to management of impacts associated with the underground mining proposed as part of the Project.
<i>Mining Act 1992</i>	Under section 380AA of the <i>Mining Act 1992</i>, a DA to mine for coal cannot be made or determined unless the applicant is the holder of an authority that is in force in respect of coal and the land where mining for coal is proposed to be carried out. Delta Coal is the holder (or is in the processes of becoming the holder) of all authorities required for the Project. The requirements of section 380AA will be satisfied at the time the DA is formally lodged.
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	The POEO Act sets out the general obligations for environmental regulation in NSW. Both CVC and MC currently operate under their respective EPLs which contain conditions relating to emission and discharge limits, environmental monitoring and reporting. If approved, the EPLs for the two operations would be consolidated, with one EPL covering both operations.
<i>Roads Act 1993 (Roads Act)</i>	The Roads Act sets out the rights of the public, adjoining landowners, opening and closing, classification and the distribution of function in relation to public roads. No changes are proposed to be made to the existing public road network as part of the Project, and as such, no further approval under the Roads Act is required.
<i>Water Management Act 2000</i>	The WM Act provides for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations, and apply principles of ecologically sustainable development, protect, enhance and restore water sources and associated ecology and recognise and foster the significant social and economic benefits that result from the sustainable and efficient use of water. Under section 4.41(1)(g) of the EP&A Act, if the Project is approved as a SSD, water use approvals under section 89, water management work approvals under section 90, or activity approvals (excluding aquifer interference approvals) under section 91 of the WM Act, would not be required. Water access licences under section 91 will be required for all 'take' associated with the operation of the Project. The EIS would include consideration of the Project against the water management principles and access licence dealing principles under the WM Act. The EIS would also identify access licences required for each water source associated with the Project.

5.2 Commonwealth Legislation

5.2.1 Environment Protection and Biodiversity Act 1999

The EPBC Act prescribes the Commonwealth's role in the environmental assessment of impact, management and protection of areas of national significance and biodiversity conservation. The EPBC Act is administered by Department of Agriculture, Water and the Environment (DAWE).

Under the EPBC Act, the approval of the Commonwealth Minister for the Environment is required for any action that may have a significant impact on matters of prescribed national environmental significance (MNES). The MNES are identified as:

- World Heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Threatened species and communities listed under the EPBC Act
- Migratory species listed under the EPBC Act
- Nuclear actions
- Marine areas or reserves
- A water resource, in relation to coal seam gas development and large coal mining development
- Commonwealth land.

The CVC and MC operations do not currently operate under a Commonwealth EPBC Act approval and no aspect of the existing CVC and MC operations have been referred. Given there is minimal surface impact associated with the Project and no significant impacts (relative to the approved operations) are expected in relation to water resources, the Project is unlikely to have a significant impact to MNES. This decision will be further informed during the initial phase of the specialist assessments to be undertaken during the EIS phase.

5.2.2 Native Title Act 1993

The Commonwealth *Native Title Act 1993* (NT Act) has potential implications for the granting of mining leases under the Mining Act 2 where native title has not been extinguished within the lease application area. No new mining leases are required for the Project and therefore the NT Act is not directly relevant to the approval process for the Project.

6.0 Stakeholder Engagement

6.1 Stakeholder Engagement

Umwelt are preparing a social impact assessment (SIA) to support the EIS. The scoping phase (Phase 1) of the SIA has been conducted in accordance with the draft SIA Guideline (DPIE 2020) and has involved key phases of work to inform Project planning and design process including consultation with relevant stakeholders to identify relevant social impacts/issues relevant to the Project.

The stakeholder engagement program and identification of the relevant stakeholders is summarised in the following sections, further detail in relation to the stakeholder engagement program is provided in the SIA scoping report, refer to **Appendix A**.

6.1.1 Preliminary Stakeholder Identification

As part of the stakeholder engagement program for the Project, several stakeholders have been identified and involved in the program to date (refer to **Figure 6.1**). The process of identifying relevant stakeholders was informed by a range of material including recent approvals processes for the CVC and MC operations, stakeholders identified for assessment processes for other projects (including the Wallarah No. 2 Project) and existing stakeholders associated with the CVC, MC and VPPS operations.

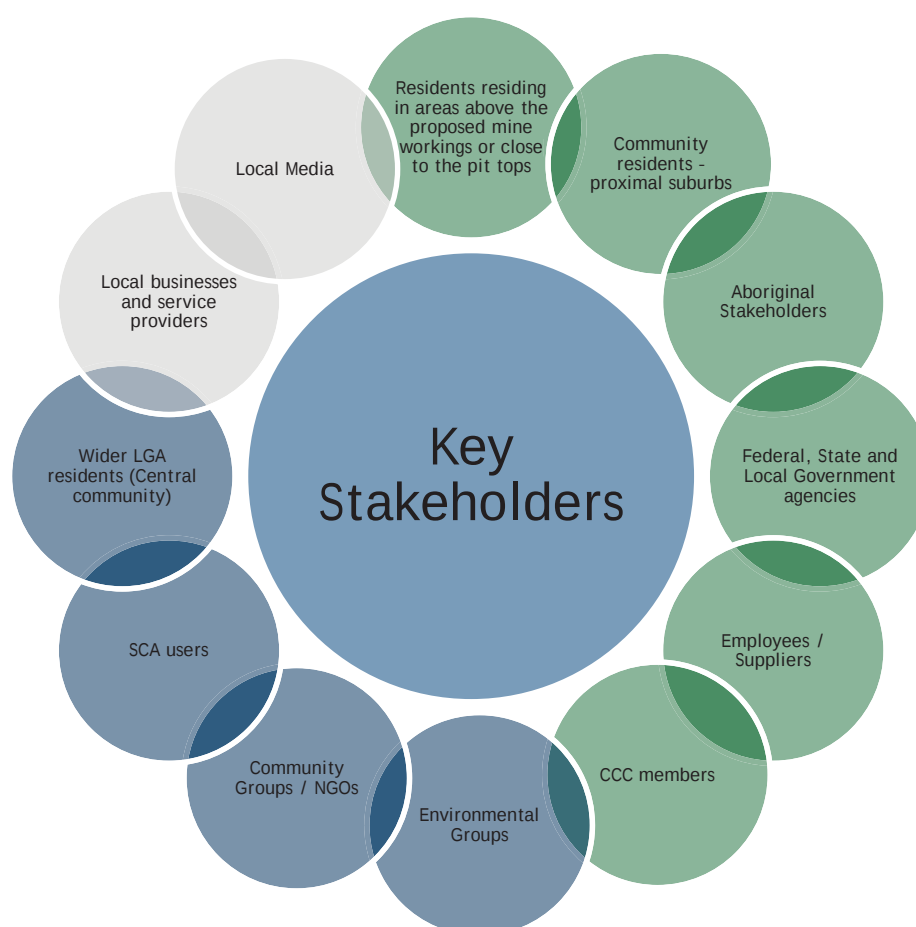


Figure 6.1 Preliminary Stakeholder Groups

© Umwelt, 2021

6.2 Phase 1 Stakeholder Engagement

Phase 1 of stakeholder engagement was undertaken to ascertain stakeholder views and issues of the scoping phase of the Project, including the scoping of the SIA. Key stakeholder groups relevant to the Project are outlined in **Table 6.1**. The stakeholders listed in **bold** were directly invited to be involved in consultation during the scoping phase. Subsequent phases of the SIA will seek broader involvement across the stakeholder groupings noted and will include wider community involvement as part of the broader EIS and SIA assessment process.

Table 6.1 Identification of Preliminary Stakeholders

Stakeholder Category	Stakeholders
Residents residing in the areas above the proposed mine workings	Residents and landholders located within the Eastern Mining Area and potentially directly impacted (undermined) by the Project including: - Part of the Chain Valley Bay (approximately 140 properties) - Valhalla Lifestyle Community - Teraglin Lakeshore Lifestyle Community - Lakeside Lifestyle Community
Residents residing in proximity to the Pit Tops	Residents in closest proximity to the CVC and MC Pit Tops including Macquarie Shores Home Village and Kingfisher Shores
Community residents – proximal suburbs	Residents and landholders in communities surrounding the Project Area including Mannering Park, Chain Valley Bay, Kingfisher Shores, Doyalson North , Lake Munmorah, Summerland Point, Gwandalan and Catherine Hill Bay Residents and management of the Lakeside Lifestyle Community
Local, State and Federal Government agencies	DPIE Central Coast Council Lake Macquarie Council DAWE Resource Regulator Environment Protection Authority (EPA) DPIE Water DPI-Fisheries Mining, Exploration and Geosciences (MEG) Natural Resources Access Regulator (NRAR) Biodiversity Conservation Division (BCD) Heritage NSW NSW National Parks and Wildlife Services (NPWS) Subsidence Advisory NSW Transport for NSW (TfNSW)
Aboriginal stakeholders	Darkinjung Local Aboriginal Land Council (LALC) , provision of community and stakeholder information sheet, phone discussion and meeting January 2020, land rezoning discussions NSW Aboriginal Land Council Traditional Owners (TOs) Registered Aboriginal Parties (RAPs)
Internal stakeholders	Community Consultative Committee (CCC) Delta Coal employees, contractors and suppliers

Stakeholder Category	Stakeholders
Environmental groups	National Parks Association of NSW (Central Coast branch) Hunter Community Environment Centre Hunter Central Coast Coal Ash Community Alliance Community Environment Network (Landcare Wyong, Lake Macquarie and Gosford)
Local community groups/ non-government organisations (NGOS)	Manning Park Amateur Sailing Club Chain Valley Bay Progress Association Chain Valley Bay Hall Committee Country Women's Association First Manning Park Scouts Manning Park Rural Fire Service Manning Park Tidy Towns Group Manno Men's Shed Catherine Hill Bay Surf Life Saving Club Lake Munmorah Progress Association Summerland Point Progress Association Manning Park Precinct Committee Manning Park Progress Catherine Hill Bay Progress Association Gwandalan and Summerland Point Peninsula Improvement Group (GASPPIG)
Munmorah State Conservation Area (SCA) users	Community members who use or value the Munmorah SCA
Wider community	Community members in Central Coast and Lake Macquarie LGAs
Local and Regional businesses and services	Businesses and service providers in the LGAs including: Accommodation and Housing Education Health Tourism Community services Local Businesses
Local media	Central Coast Community News Central Coast Express Advocate Newcastle Herald COAST FM 96.3 ABC Radio Central Coast ABC Radio Newcastle

A range of mechanisms have been utilised to obtain the input of various stakeholder groups in the scoping phase and are defined in **Table 6.2**.

Table 6.2 Engagement Mechanisms

Mechanisms	Description	Targeted Stakeholder Group
Project Briefings	Targeted meetings and briefings with key local, state and Commonwealth government agencies as required, including: • DPIE • Central Coast Council • Lake Macquarie Council • DAWE	Local Government State Government Commonwealth Government
Key stakeholder meetings	Meetings and project briefings with key stakeholder groups including: • CCC members • Darkinjung LALC • RAPs	CCC Aboriginal Stakeholders
Project Information Sheet (No.1) (November 2020)	Development and distribution of a Project information sheet detailing the Project and providing contact details for the project team. Delivered to mailboxes in the Gwandalan, Lake Munmorah, Mannering Park, Summerland Point, Chain Valley Bay, Doyalson North, Kingfisher Shores, Brightwaters, Mirrabooka, and Sunshine suburbs.	Wider community (10,640 households)
Interviews/ personal meetings	Individual meetings, held via telephone, utilising a semi-structured interview guide. Participants were invited to be involved in interviews through the following: • Information Sheet requesting that residents contact the Project team if they had any questions or would like to be involved in the SIA engagement program • Proactive calls to key stakeholders (including 7 CCC members and 2 Community Groups / NGOs) • Email invitation (including 10 Community Groups/ NGOs)	CCC members Local community groups/NGOs Residents residing in areas above the proposed mine workings or close to the Pit Tops
Drop-in Community Information Session	A drop-in community information session has held on the 9 th of December 2020 to provide stakeholders with an overview of the Project and to gather community feedback related to current and future mitigation/enhancement strategies. Participants were invited to attend the session via: • Letter invitation delivered to all households in Chain Valley Bay, Kingfisher Shores, Macquarie Shore Home Village, Valhalla Lifestyle community, Teraglin Lakeshore lifestyle community, Lakeside lifestyle community (approximately 1,600 households) • Post on Chain Valley Bay What's Up and Kingfisher Shores Facebook pages The session included a poster board display of current Project information.	Residents residing in areas above the proposed mine workings or close to the Pit Tops Community residents – proximal suburbs

Mechanisms	Description	Targeted Stakeholder Group
Surveys	A survey instrument was used to capture community feedback on Project for incorporation into the SIA Scoping report. The survey was offered to participants to complete at the community information session. In addition, informal interviews were also completed at the information session for those participants who did not want to complete the survey themselves.	Residents residing in areas above the proposed mine workings or close to the Pit Tops Community residents – proximal suburbs Local community groups / NGOs

Quantitative and qualitative information collected through the engagement process has been analysed to inform the preliminary analysis of social impacts associated with the Project. **Table 6.3** provides a summary of the number of stakeholders engaged during the scoping phase (November – December 2020).

Table 6.3 Consultation Statistics – Scoping Phase

Stakeholder Group	Number contacted via telephone call, email or letter invitation	Number consultations (meetings undertaken/ surveys completed)
Residents residing in areas above the proposed mine workings	140 households	1
Residents in proximity to the pit tops (Macquarie Shores Home Village and Kingfisher Shores)	292 households	4
Community residents – proximal suburbs	Approximately 1,170 households	7
CCC members	7	7
Local community groups/NGOs	10	2
TOTAL	1,619	21

The scoping phase has identified key issues of relevance to near neighbours and key stakeholders in relation to the Project. The key issues raised by the community and the perceived and likely impacts identified by the scoping SIA will be considered as part of the broader SIA/EIS assessment (refer to **Figure 6.2**). Key issues raised by the community to be addressed as part of the EIS phase for the Project include subsidence, noise, air quality, climate change, biodiversity, heritage and economic impacts. Further detail in relation to the issues raised during the stakeholder engagement and analysis of the potential social impacts is provided in the Social Scoping Report, refer to **Appendix A**.

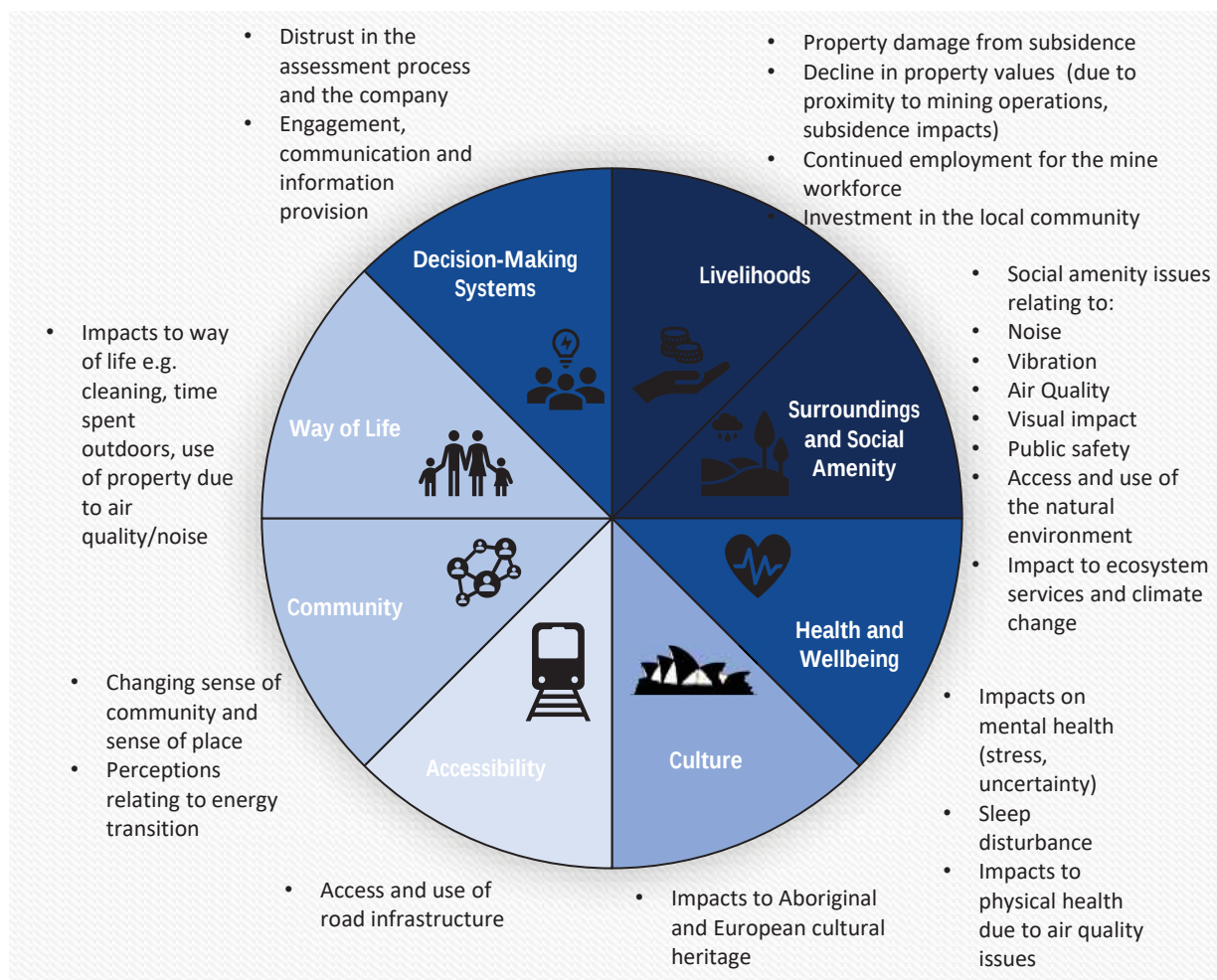


Figure 6.2 Summary Issues Raised by the Community and the Perceived and Likely Social Impacts

© Umwelt, [YYYY]

During the early engagement process, a number of suggested strategies for addressing potential impacts have been proposed by stakeholders and are summarised in **Table 6.4**. These will be further explored in subsequent phases of the SIA and EIS.

Table 6.4 Strategies Identified by Participants During the Scoping Phase to Address Key Project Impacts

Impact/Opportunity Area	Strategies
Social amenity	Underground conveyors and coal crushing to reduce impact
Public safety and road access and use	Remove option for road haulage
Access and use of natural environment	Limit mining under the foreshore
Impacts to ecosystem services and climate change	- Detailed commitment to rehabilitate areas associated with Delta Coal and VPPS including the ash dam - Return mining area to natural bushland - Progressive decommissioning and removal of infrastructure - Limit to existing life of mine agreement - Increase use of renewables (solar and wind)
Livelihood	- No mining under residential areas, with full extraction in areas without houses (including bushland) - Support for local initiatives – like the community garden - Compensation e.g. subsidised electricity or solar panels - Purchase of properties within the Eastern Mining Area - Guarantee no subsidence/damage for properties within the Eastern Mining Area
Health and wellbeing	Provide monitoring results and data relating to air quality impacts
Engagement and Decision-Making Systems	- Profile CCC members in newsletter to increase community awareness of CCC and its role - Advertise community fund - Provide community with information relating to: - outcomes of environmental assessments - more positive news relating to the Project, Delta Coal and coal mining in general - air monitoring data and monitoring locations - air quality mitigation strategies - historical examples of property damage and remediation works that were undertaken - updates on the progress of the EIS and SIA - extraction plans - information on subsidence modelling and mitigation - further detail on the conveyor that will be constructed and subsequent noise impacts for residents

6.3 Phase 2 Stakeholder Engagement

Phase 2 of the stakeholder engagement will utilise a combination of social research methodologies to gather further information and undertake further key stakeholder and broader community engagement to inform evaluation and prediction of social impacts relating to the Project. These impacts will be documented and assessed in the SIA which will support the EIS.

A range of mechanisms have been selected to facilitate and afford meaningful participation. The implementation of these mechanisms will be subject to NSW COVID restrictions at the time.

The proposed work plan for Phase 2 of stakeholder engagement is outlined in **Table 6.5**.

Table 6.5 Engagement Mechanism – Phase 2

Mechanism	Description	Target Stakeholder Group/s	Materials
Community Information Sheet No. 2	Distribution of a second project related community information sheet to provide an update on the Project including summary of specialist assessment outcomes and contact details for the project team.	Wider community - to be delivered to mailboxes in the Gwandalan, Lake Munmorah, Mannering Park, Summerland Point, Chain Valley Bay, Doyalson North, Kingfisher Shores, Brightwaters, Mirrabooka, Silverwater and Sunshine suburbs. Residents residing in areas above the proposed mine workings and close to the Pit Tops Community residents – proximal suburbs Community Groups/NGOs	Project Information Sheet No. 2
Telephone calls/ door knocking/ letter invitation	Proactive contact to those stakeholders to invite them to participate in an interview for the SIA Scheduling of personal interviews (face-to-face or telephone)	Residents residing in areas above the proposed mine workings and close to the Pit Tops Community groups/NGOs Community members who were interviewed in the first round of engagement or have showed interest in the Project	Project Information Sheet No. 2 Interview guide Q&A sheet
Personal interviews	Personal interviews used to identify Project issues and to inform Project mitigation and enhancement.	Residents residing in areas above the proposed mine workings and close to the Pit Tops Community residents – proximal suburbs	Interview guide Project Information Sheet No. 2 Q&A sheet
Project briefings	Informal and formal briefings to key government agencies as well as any key community groups, local business groups or political stakeholders that express an interest during the scope phase, to outline the Project and the objectives of engagement.	Employees Aboriginal stakeholders Environmental groups	Interview guide, Project Information Sheet No. 2 Briefing materials
Community Information Session	Informal interactive forum to communicate the progress of the Project and provide assessment outcomes. Provide an opportunity for community members to ask questions and provide feedback on the Project	Residents residing in areas above the proposed mine workings and close to the Pit Tops Community residents – proximal suburbs Community Groups/NGOs	Poster board displays Project Information Sheet No. 2 Survey/ Interview guide

Mechanism	Description	Target Stakeholder Group/s	Materials
Employee and Supplier Survey	Survey distributed to Delta Coal employees and suppliers that aims to: - demonstrate the contribution of operational project workforces and associated supplier value chains - demonstrate the socio-economic contribution of operational workforces to local communities and the broader region and state as a result of operational presence in an area	Employers and suppliers	Survey
Random Community Survey	Random community survey conducted via telephone to obtain the views of the broader regional community in relation to the Project	Wider community	Survey
Website update	Regular updates to the Delta Coal website	Wider community	Project Information Sheet No. 2 Q&A sheet

6.4 Agency Engagement

The engagement program to inform the scoping phase for the Project has included initial briefings with relevant government agencies. These meetings included an overview of the project, discussed the approvals process and sought feedback on relevant issues considered to be relevant to the EIS. The following NSW Government agencies have been briefed on the Project:

- MEG – Conceptual Project Development Plan (CPDP) meeting June 2020
- Regional NSW - Resources Regulator - provision of community and stakeholder information sheet, invitation and provision of CPDP presentation, meeting in July 2020, phone discussion in December 2020
- DPIE – Resource Assessments pre-scoping meeting October 2020
- Central Coast Council – meeting November 2020, provision of community and stakeholder information sheet, council member on combined Chain Valley Colliery and Mannering Colliery Community Consultative committee
- Lake Macquarie Council – phone discussion November 2020 and provision of community and stakeholder information sheet and council member on combined Chain Valley Colliery and Mannering Colliery Community Consultative committee
- NSW National Parks Wildlife Service – provision of community and stakeholder information sheet, ongoing consultation in relation to the project for access to National Parks land for assessment purposes and landowners consent
- Heritage NSW – provision of community and stakeholder information sheet, phone discussion and emails

- Biodiversity, Conservation Division – provision of community and stakeholder information sheet, phone and email
- Subsidence Advisory NSW (SA NSW) – provision of community and stakeholder information sheet, attendance at Community Consultative Committee meetings in November 2020 and February 2021
- DPI-Fisheries – provision of community and stakeholder information sheet
- DPIE Water - provision of community and stakeholder information sheet
- NRAR – provision of community and stakeholder information sheet
- TfNSW - provision of community and stakeholder information sheet

During the preparation of the EIS, the agencies listed above will continue to be consulted on the impact assessment findings. Additional government agencies that will be consulted include:

- DAWE
- EPA
- NRAR
- DPIE Water
- BCD
- Heritage NSW
- Subsidence Advisory NSW (SA NSW)
- DPI-Fisheries
- Transport for NSW (TfNSW).

7.0 Preliminary Environmental Assessment

7.1 Preliminary Environmental Risk Assessment

A preliminary risk assessment has been prepared to identify the key issues associated with the Project, in general accordance with the principles outlined in Australian Standard AS/NZS ISO 31000:2009 (refer to **Appendix B** for further detail). The environmental and social risks associated with the Project have been categorised with a risk ranking of high to low; there were no critical risks (regional environmental impact/ecosystem damage/impact causing mine or business closure) identified in the analysis.

Key Issues are those which have a reasonable likelihood that the Project will have a material impact on the matter, and detailed assessment is required to fully understand and identify measures to avoid, minimise and mitigate the potential impacts of the Project. The consideration of stakeholders' views obtained from consultation undertaken to date was also considered in the identification of key issues. Based on the risk assessment, the identified as key issues include:

- subsidence (medium risk)
- water resources (including groundwater and surface water) (medium risk)
- noise (medium risk)
- air quality (medium risk)
- biodiversity (medium risk)
- greenhouse gas (medium risk).

Technical specialists have been engaged to conduct assessments for the key issues outlined in **Section 0** with peer reviews to be conducted for the subsidence and groundwater studies.

“Other Issues” are issues where the Project:

- does not change impacts relative to approved operations the Project is unlikely to have a material impact on the matter (either as a result of the Project directly or cumulatively) or
- includes measures to manage the impact. These measures are well understood and are routinely used on similar projects and
- there is no significant stakeholder concern regarding the matter and the Project.

Section 7.3 addresses the matters which, based on the Preliminary Risk Assessment (refer to **Appendix B**), are considered to be ‘Other Issues’ for the purposes of the Project. It is proposed that these measures will be dealt with as sections of the EIS and or/other specialist studies for key issues.

7.2 Key Issues

7.2.1 Subsidence

Potential subsidence related impacts have been identified by the community as one of the key issues of concern in relation to the Project. This concern is largely based on historical mining at Newvale Colliery in the late 1980s which resulted in subsidence impacts to properties in the Chain Valley Bay area. Development of the conceptual mine plan for the Project has included key design objectives to minimise subsidence impacts, including a commitment to effectively avoid subsidence impacts (<20 mm vertical subsidence) under the foreshore and land areas through the use of long term stable bord and pillar mining methods.

As previously discussed, the current approval boundaries of CVC and MC operations are located in an area with an extensive history of underground mining. This past mining has greatly improved the ability to predict subsidence impacts and inform mine design.

As discussed in **Section 3.2.4**, subsidence commitments are proposed to be maintained as per the current approvals at CVC, being:

- Zone A: long-term stable mining systems generating up to 20 mm surface subsidence (i.e. areas of imperceptible subsidence).
- Zone B: mining systems generating up to a maximum of 780 mm of vertical subsidence (i.e. areas where either first or secondary workings would be undertaken).

The Project Area includes a number of natural and built features, including the existing Delta Infrastructure, industrial infrastructure, VPPS, private residences, local roads, utilities and services, jetties, navigational markers, boat moorings and vegetation.

The approved and proposed mine design is based on a number of performance measures specified in Conditions 1, 2 and 4 of Schedule 4 of the current CVC Consent. The key subsidence impact performance measures for the approved CVC operations are presented in **Table 7.1**.

Table 7.1 CVC Subsidence Impact Performance Measures

Aspect	Performance Measures
Biodiversity	
Threatened species or endangered populations	Negligible environmental consequences
Seagrass beds	Negligible environmental consequences including: • negligible change in the size and distribution of seagrass beds • negligible change in the functioning of seagrass beds • negligible change to the composition or distribution of seagrass species within seagrass beds.
Benthic communities	Minor environmental consequences, including minor changes to species composition and/or distribution.

Aspect	Performance Measures
Mine Workings	
First workings under an approved Extraction Plan beneath any feature where performance measures in this table require negligible environmental consequences	To remain long-term stable and non-subsiding
Second workings	To be carried out only in accordance with an approved Extraction Plan.
Built Features	
Trinity Point Marina Development Other built features	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired, replaced or fully compensated.
Public Safety	
Public Safety	Negligible additional risk.

The Project does not propose any change to these subsidence impact performance measures which would be extended to all mining areas within the Project Area.

A subsidence assessment will be undertaken to support the Project. The subsidence assessment will include:

- review of baseline data
- provision of subsidence predictions applicable to the proposed mine plans, including the cumulative movements due to previously extracted areas of the site
- provision of subsidence predictions for natural and built features in the mining areas
- assessment of the impacts, in conjunction with other specialist consultants, on natural and built features
- identification of recommended management strategies and monitoring requirements.

The subsidence assessment will focus on the proposal Northern Mining Area. Consistent with section 4.63 of the EP&A Act, the EIS will not include a re-assessment of impacts associated with existing approved CVC and MC Mining Areas. Impacts associated with any future mining within the extended Zone B area which involves secondary extraction will be considered as part of the Extraction Plan Approval Process for such works.

The subsidence impact assessment will be independently peer reviewed as part of the preparation and finalisation of the assessment.

7.2.2 Water Resources

7.2.2.1 Groundwater

The groundwater sources in the vicinity of the CVC consent boundary are generally low yielding and predominantly within the Quaternary alluvium, weathered and/or fractured sandstone and coal seams. They would be classified as 'less productive', in accordance with the NSW AIP, as yields are generally less than 5 L/s and/or the total dissolved solids (TDS) concentration is typically greater than 1500 mg/L (due to the close proximity to Lake Macquarie) (GHD, 2020).

Within the MC Project Approval boundary, the hydrogeology includes a Quaternary terrestrial and marine/estuarine alluvial/colluvial aquifer system and underlying Permian strata with low permeability interburden units and low to moderately permeable coal seams (EMM, 2014).

The terrestrial alluvial aquifers are recharged by rainfall and hydraulically independent of the deeper Permian Coal aquifers. Due to the historical and ongoing mining in the immediate area of Lake Macquarie, the Permian Coal Measures operate as a significant groundwater sink which have generated a regional zone of depressurisation.

There is potential for there to be an increase in groundwater inflows relative to the approved operations associated with the proposed mining in the Great Northern Seam. However, the likelihood is considered to be low given the existing depressurisation of the Great Northern Seam in this area associated with historical mining and mining in the lower Fassifern Seam.

A groundwater impact assessment (GWIA) will utilise the groundwater model recently developed for the CVC Mod 4 project, with relevant updates made to reflect the Project and any outcomes resulting from the Peer Review process. The groundwater modelling and assessment will be undertaken in accordance with the following guidelines:

- *Australian Groundwater Modelling Guidelines* (Commonwealth of Australia, 2012)
- *The Matters of National Environmental Significance: Significant Impact Guidelines* (DoE) 2013)
- *Independent Expert Committee (IESC) on Coal Seam Gas and Large coal Mining Developments Information Guideline* (2018).

The numerical groundwater model will provide a quantitative estimate of:

- groundwater inflow to the mining area
- the level and rate of drawdown at specific locations
- the potential for any impact on alluvial aquifers and surface water
- areas of potential risk where groundwater impact mitigation/control measures may be necessary
- potential impacts to groundwater dependent ecosystems (GDEs) and stygofauna habitats
- cumulative impacts from the Project along with other surrounding mining operations
- identification and assessment of potential post mining groundwater impacts.

The GWIA will be independently peer reviewed as part of the preparation and finalisation of the assessment.

The GWIA will assess the ability of the Project to comply with government policy related to groundwater (including the NSW AIP) and identify any necessary measures relating to the management of the groundwater resource and groundwater flow and inform licensing requirements.

7.2.2.2 Surface Water

The management of surface water at CVC is comprised of a number of water management components including underground de-watering, oil water separation, effluent management and operation of pollution treatment ponds.

All water currently utilised by CVC for underground mining purposes is potable water supplied by Central Coast Council and is used for amenities, dust suppression, and washdown. All excess water from the underground workings is pumped to the Great Northern Seam sump, which is then pumped to the surface and discharged to the CVC and MC pollution control dams. Runoff from the pit top areas is managed in accordance with the CVC and MC Water Management Plans.

As detailed in the Mannering Colliery Water Management Plan, potable water at both CVC and MC is currently supplied by Central Coast Council via a direct-metered pipeline. Potable water is used for ablutions, cleaning, hosing, dust suppression and firefighting supply. Operational water demands are met by external water supply due to the high salinity of groundwater making it unsuitable for use within the mine supply system.

The Project includes an option for connecting the CVC and MC Pit Top facilities to the VPPS potable water supply system in the event that the Central Coast Council connection becomes unavailable or use is restricted. This connection would be installed along an existing easement alignment.

Routine monitoring of water discharged from underground workings is undertaken at both CVC and MC and will continue to be undertaken for the ongoing operations.

CVC and MC operations currently implement water management practices in accordance with the Water Management Plans applicable to each site. The Project is unlikely to require any substantial changes to this existing management system other than the option of linking to the VPPS for potable supplies.

A surface water impact assessment (SWIA) will be undertaken for the Project in accordance with the following guidelines:

- *Matters of National Environmental Significance: Significant Impact Guidelines* (DoE 2013)
- IESC Information guidelines (2018)
- *The Australian and New Zealand Guideline for Fresh and Marine Water Quality* (ANZG 2018)
- *The NSW Water Quality and River Flow Objectives* (DECCW 2006)
- *ANZECC Guidelines and Water Quality Objectives in NSW* (DEC 2006)
- *The Australian Guidelines for Water Quality and Water Quality Objectives in NSW* (DEC 2000)
- *Approved Methods for Sampling and analysis of Water Pollutants in NSW* (DEC 2004)
- *Managing Urban Stormwater: Soils and Construction Volume 1* (Blue Book: Landcom 2004)
- *The Floodplain Development Manual and The Floodplain Risk Management Guidelines* (DPNIR 2005)

The assessment will include:

- characterisation of existing surface water resources potentially impacted by the Project, including water quality, water quantity, water users, flooding, site water and soil management
- review of and, where necessary, recommendations for updating of the surface water management for pit top facilities
- updating the site water balance for the combined operations including identification of likely discharge arrangements
- consideration of climate change scenarios in site water balance monitoring
- identification of any required management and monitoring measures applicable to the Project.

Consistent with section 4.63 of the EP&A Act, the EIS will not include a re-assessment of impacts associated with discharges where the assessment indicates no material change from existing approved discharge arrangements.

7.2.3 Noise

Noise impacts from the MC Pit Top facilities have been the primary source of complaints received by Delta Coal over the past 3 years. There was a considerable reduction of complaints related to noise impacts at CVC since coal handling was transferred to the MC Pit Top. If the CVC Pit Top facilities reintroduced surface coal handling this would result in an increase in noise levels to areas immediately adjacent to these areas. However the upgrade of surface facilities, the commitment to underground crushing and the use of conveyors to transfer coal to the VPPS rather than road haulage is likely to result in lower noise impacts relative to the approved operations, which could recommence under the existing CVC Consent.

The only change to the MC Pit Top arrangements which may result in increased noise levels is the use of road haulage during emergencies.

The potential increase in maximum coal handling throughput at each of CVC and MC Pit Tops is unlikely to have any impact on predicted noise levels as this does not require any additional plant to be installed but rather contemplates increased utilisation of the existing plant.

The Project does not include any changes to predicted employee numbers or public road coal haulage arrangements. As such, the Project is not predicted to result in any increase in road noise levels relative to the approved operations.

The Project does not include any use of rail facilities.

A noise impact assessment (NIA) will be undertaken to support the Project in accordance with:

- The *Noise Policy for Industry* (NPfI)
- The *Interim Construction Noise Guideline* (EPA 2009) (ICNG)
- *NSW Road Noise Policy* (DECCW 2011) (RNP)

The assessment will include:

- measurement and determination of the existing background and ambient noise levels in the locality of the Projects including:
 - identification of the nearest potentially affected residential receivers and the noise-sensitive localities
 - monitoring existing background noise levels
 - a detailed assessment of prevailing weather conditions in accordance with the NPfI using all the available meteorological data (to be completed in conjunction with the air quality specialist)
- determination of the project-specific noise levels based on the existing intrusive and amenity noise levels as required under the NPfI applicable to CVC Pit Top and MC Pit Top running concurrently and individually
- discussion of the findings of the predictive noise modelling and the potential noise impacts at the nearest affected noise sensitive receivers for the Project in accordance with regulatory and legislative requirements and expectations
- consideration of feasible and reasonable noise mitigation strategies where the project-specific noise levels are exceeded (if required)
- review of existing monitoring and reporting programs to determine the effectiveness of mitigation and to verify predictions, including provisions for proactive mitigation strategies
- an assessment of the cumulative noise impacts from the Project and other relevant nearby industrial operations
- an assessment of the construction noise impacts of the Project in accordance with relevant assessment procedures.

The NIA will include consideration of the noise impacts from both operations as a single Project rather than assess impacts from each operation as a discrete activity.

7.2.4 Air Quality

At CVC, continuous monitoring of depositional dust is undertaken at six locations using dust deposition gauges, and PM₁₀ at one location using a TEOM. At MC, continuous monitoring of depositional dust is undertaken at five locations using dust deposition gauges, PM_{2.5} at one location and PM₁₀ at one location using a TEOM.

The following Project elements have the potential to change air quality impacts relative to existing approved operations:

- increased maximum ROM throughput at both pit top facilities
- reduced overall maximum ROM throughput
- commitment to underground crushing
- CVC conveyor transfer arrangements rather than road haulage
- short term emergency coal haulage from CVC and MC (temporary impacts)
- extended life of mine.

As the Project will bring the operation of both mines under a single consent, this will necessitate the assessment of the air quality impacts of the Project as a whole rather than discrete operations. These Project changes are considered unlikely to result in any significant changes to air quality relative to the approved operations.

An air quality impact assessment (AQIA) will be undertaken to support the Project, in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2016)* (Approved Methods) which will include:

- a review of air quality monitoring data
- identification of the potentially affected sensitive receivers
- identification of all sources of dust/air pollution such as processing, handling, storage, transport operations and rehabilitation
- assessment of the Project's impact on local and regional ambient air quality, including the level of impact, potential exceedance levels and frequency having regard to standards and limits
- determination of the project-specific air quality levels including operation of the CVC Pit Top and MC Pit Top separately and concurrently
- assessment of cumulative air quality impacts of the Project, including cumulative emissions of TSP, PM_{2.5}, PM₁₀ (including 24-hour PM₁₀) and depositional dust from the Project, and other approved surrounding sources
- consideration of other potential air quality pollutants including nitrous oxides (NO_x) and diesel particulates
- review of the existing air quality monitoring and management programs to determine the effectiveness of mitigation and to verify predictions and provision of recommendations regarding any changes or improvements required to this existing system.

7.2.5 Biodiversity

7.2.5.1 Terrestrial Ecology

The only aspects of the Project that have potential to directly impact on terrestrial ecology is the construction the internal emergency haul road and conveyor in the vicinity of the CVC and MC Pit Tops. The haul road will be constructed partially along an existing infrastructure alignment, however some disturbance and re-disturbance of vegetation will be required. The conveyor will be partially constructed along existing cleared areas however will also require the clearance of some vegetation.

Mining will be managed to ensure vertical subsidence impacts below land areas is <20 mm. This level of subsidence is unlikely to have any perceptible terrain or groundwater impacts that would indirectly impact on terrestrial flora and fauna.

A BDAR will be prepared for the Project in accordance with the BC Act. The BDAR will include the following:

- assessment of biodiversity values and their condition within the Project Area including native vegetation, habitat for threatened species and GDE's
- assessment of direct and indirect impacts to biodiversity values, identifying any areas of high ecological sensitivity, identification of prescribed impacts and any serious and irreversible impacts

- assessment of impacts on communities, habitat and species listed under relevant legislation and associated guidance particularly in relation to subsidence impacts
- recommendations related to avoidance, minimisation and mitigation measures
- overview of the Biodiversity Offset Strategy to address any relevant offsetting requirements.

7.2.5.2 Aquatic Ecology

As the Project will include operations underlying Lake Macquarie, there is potential for aquatic ecology to be impacted by subsidence associated with mining activities. The Project does not contemplate any significant changes to pit top activities that would result in changed impacts to aquatic communities relative to the existing approved operations. Consistent with section 4.63 of the EP&A Act, the EIS will not include a re-assessment of impacts associated with discharges where the assessment indicates no material change from existing approved discharge arrangements.

Seagrass and benthic community monitoring stations have been established since 2014 to monitor effects of the approved CVC mining operations on the composition and abundance of organisms making up the benthos of the mud basin. Monitoring to date has not detected any adverse impacts to benthic community diversity or abundance directly associated with mine subsidence. The Project does not result in any changes to approved mining activities under Lake Macquarie other than the extension of Zone B to parts of the lake are in the approved MC Mining Area. It is considered unlikely that there will be any change to potential impacts on aquatic flora and fauna associated with mining activities below the lake in these areas and any potential impacts would be considered as part of the detailed Extraction Plan process if secondary extraction is to be undertaken in this area.

These impacts have previously been assessed for all approved mining areas other than the area within the Approved MC Mining Area where Zone B will be included. Any potential impacts on benthic flora and fauna and seagrass beds associated with secondary extraction in this area will be considered as per of the Extraction Plan Approval Process for such workings.

7.2.6 Greenhouse Gas Emissions

A greenhouse gas and energy assessment (GHGEA) will be undertaken as part of the EIS to determine the projected energy consumption and greenhouse gas (GHG) emissions as a direct result of the Project. The GHGEA will be undertaken in accordance with the following policies and guidelines:

National Greenhouse Accounts (NGA) Factors 2018 (DoEE 2018)

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI and WBCSD 2004)

National GHG Inventory: Analysis of Recent Trends and GHG Indicators (AGO 2007)

The GHGEA will include:

- estimation of scope 1, 2 and 3 emissions associated with proposed construction activities
- estimation of scope 1 and 2 LOM emissions generated by the proposed mining operations. Emission sources will include fugitive emissions and energy use
- estimation of scope 3 LOM emissions associated with the operation of the Project, including product transport and use

- estimation of scope 1, 2 and 3 emissions associated with decommissioning and closure of the Project
- an evaluation of the impact of the Projects emissions on State, National and International greenhouse gas emissions targets, including consideration of applicable State and National policies, programs or guidelines where appropriate
- assessment of the relevant reasonable and feasible mitigation measures to reduce the impact of the Project.

The assessment will include a quantification of the incremental greenhouse gas emissions associated with the Project relative to the existing approval operations.

7.3 Other Issues

7.3.1 Aboriginal Cultural Heritage

Aboriginal Cultural Heritage is managed at CVC and MC in accordance with the Delta Coal Heritage Management Plan.

The proposed haul road and conveyor are located partially within areas of previous disturbance therefore there is potential for the construction and operation of these components to impact on previously identified and unidentified sites.

All mining undertaken under land areas will be designed to be long term stable with negligible (≤ 20 mm) subsidence impacts. Accordingly, mining operations are considered unlikely to have any impact on Aboriginal sites.

An Aboriginal cultural heritage assessment (ACHA) will be undertaken to support the Project in accordance with:

Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)

Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010)

Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010)

Specifically the assessment will include:

- Consultation with Registered Aboriginal Parties
- Site survey of proposed emergency haul route and conveyor alignments.
- Identification and assessment of scientific/archaeological significance of the Project Area and any sites it contains.
- An assessment of likely harm to areas of Aboriginal Cultural value as a result of the Project.
- Identification of management strategies to avoid harm and where it cannot be avoided, to minimise or mitigate harm.

7.3.2 Historic Heritage

Historic Heritage at CVC and MC is managed in accordance with the Delta Coal Heritage Management Plan. There are no listed heritage items within the vicinity of the proposed infrastructure or the proposed Eastern Mining Area.

A historic heritage assessment (HHA) will be prepared to support the project and will include:

- Review of all existing archaeological, historical and heritage reports applicable to the Project Area.
- Field inspection of the Project Area to further investigate sites which may be of historical archaeological significance/heritage value.
- Preparation of a combined historical and archaeological context to assess the significance of any potential historical archaeological resource or heritage item present within (or within the vicinity of) the Project Area.
- Preparation of an assessment of the significance of any identified sites in the Project Area, according to established significance assessment criteria outlined by the Heritage Branch, OEH's Assessing Heritage Significance guidelines.
- Identification of management strategies to avoid harm and where it cannot be avoided, to minimise or mitigate harm.

7.3.3 Economic Impacts

An assessment of the economic impacts of the Project on a regional and State scale will be completed for the EIS, including consideration of the benefits and costs associated with the Project. The assessment will be undertaken with the following relevant guidelines:

Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (NSW Government 2015)

Technical Notes Supporting the Economic Guidelines (NSW Government 2018)

The Assessment will include:

- a cost benefit analysis that measures the net benefits of the Project to the State
- a Local Effects Analysis that measures the net benefits of the Project to the local community
- a regional economic impact assessment.

7.3.4 Social Impacts

As noted in **Section 6.0**, an SIA is being prepared to support the EIS and further assess and predict the likely consequences and opportunities of the Project in social terms. Consistent with the SIA guideline requirements, the SIA process for the Project involves three key phases (refer to **Figure 7.1**). Engagement is a key component affording input from near neighbours and local and regional stakeholders at all SIA phases, but has commenced early to inform social impact prediction up front in the project scoping phase.

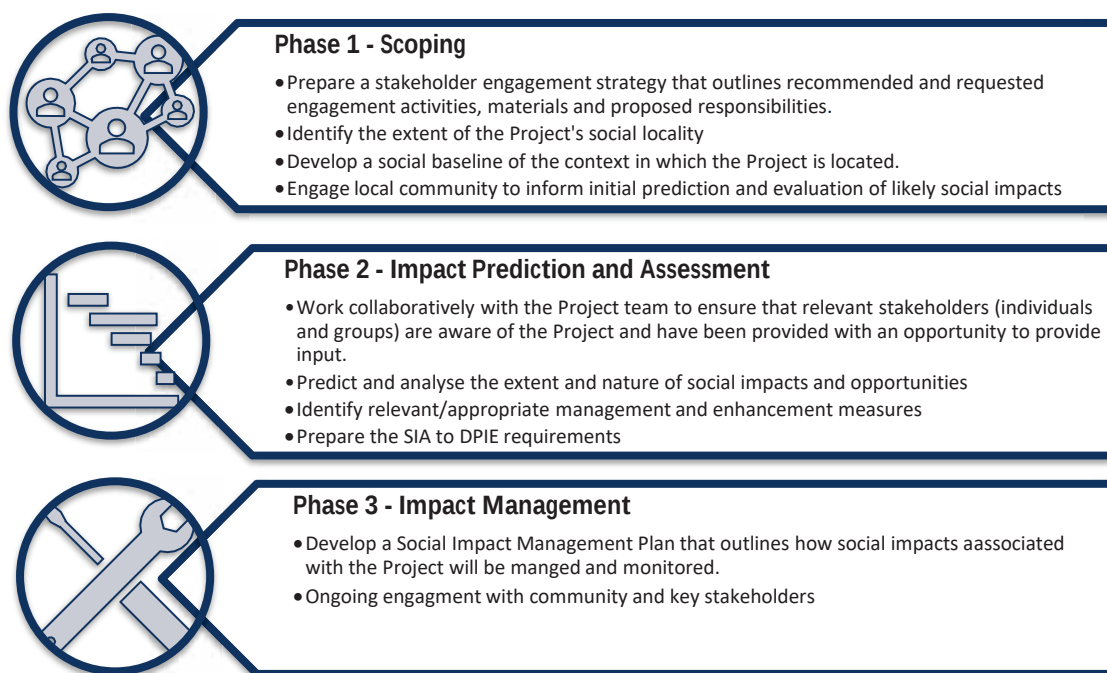


Figure 7.1 SIA program

© Umwelt, 2021

Stakeholder engagement will inform the SIA process. The broader SIA will also include a comprehensive assessment and prediction of impacts and the development of relevant strategies to mitigate any negative social impacts and will outline opportunities to enhance positive impacts associated with the Project. Consideration of how social impacts will be monitored will also be included in the final SIA.

7.3.5 Hazards

7.3.5.1 Hazard

As there will be no change to mining methods or any increase in the storage and use of dangerous goods, no further hazard assessment is required.

7.3.5.2 Slope Stability

The mine plan has been designed to avoid impacts to these areas (first workings only) will be subject to the Subsidence Zone A (maximum 20 mm). As such, the Project is unlikely to have any impacts in terms of slope instability or increase inundation risk. Notwithstanding, the subsidence assessment (refer to **Section 7.2.1**) will consider any impacts on slope instability.

7.3.5.3 Bushfire

The Project is not considered to increase bushfire risk. Proposed infrastructure and infrastructure upgrades will be designed to meet relevant bushfire protection standards. The EIS will include an assessment of the Project in accordance with *Planning for Bushfire Protection 2019*.

7.3.6 Traffic and Transport

Construction-related traffic (in addition to employee traffic) associated with the Project will not exceed current employee numbers. Laden truck numbers (given only minor infrastructure proposed) associated with construction deliveries will not exceed approved truck movements associated with the approved operations).

CVC Mod 4 proposes a combined workforce of approximately 390 FTE and contractors. No change to existing workforce numbers is proposed as part of the Project.

There is unlikely to be any change to employee and truck impacts to road traffic other than that associated with the extended life of mine and impacts associated with natural traffic growth. Scheduling of shifts and road haulage will aim to avoid peak traffic periods, detailed mine design will ensure road and intersection design and capacity is sufficient, and all management will continue to be undertaken as per the Traffic Management Plan.

Given the short duration of proposed extension to the life of mine and all other road traffic impacts remaining consistent with the impacts assessed on the CVC Mod 4 application, no further modelling of the impacts is proposed nor required due to the operation of section 4.63 of the EP&A Act.

7.3.7 Visual Amenity

Given the location of the proposed infrastructure (within the existing infrastructure areas) there is unlikely to be any impact to visual amenity as a result of the Project, relative to existing approved operations under the consents to be surrendered.

A qualitative assessment of potential visual impacts will be included in the EIS.

7.3.8 Waste

It is anticipated that there will be only minor increased waste generation as a result of the construction phase of the Project given only minor infrastructure is proposed. An increase in waste will occur relative to approved operations associated with the extended life of mine.

The existing waste management systems in place at both CVC and MC will continue to be implemented in accordance with the requirements of the existing project approvals and EPL licences.

A detailed assessment of waste management is not considered to be warranted with potential impacts able to be managed under conditions similar to those applicable under existing consents.

7.3.9 Soil and Land Resources

There is limited potential for impacts on soil and land resources as a result of subsidence due to the proposed mine design.

Surface disturbance impacts on soils are likely to be limited to the construction of the conveyor and the emergency haul road. Such impacts will be managed in accordance with the existing erosion and sediment control and rehabilitation measures under the Mining Operations Plan.

The Project is unlikely to have any impacts on agricultural production.

Due to the nature of the soils present in the area, the Project is considered unlikely to impact on any BSAL.

7.3.10 Decommission and Rehabilitation

Decommissioning and rehabilitation following closure of operations will continue to be undertaken in accordance with the combined CVC and MC MOP. Mine closure and rehabilitation will be undertaken in accordance with relevant consent conditions consistent with existing approved operations.

8.0 References

Bureau of Meteorology (BoM), 2020)

Cardno Ecology Lab, 2011. *Mannering Colliery Extension of Mining – Aquatic Ecology Assessment*

Delta Coal, 2020a, *Mannering Colliery – Annual review (AEMR) 2019*.

<https://www.deltacoal.com.au/environment/mannering-colliery/mannering-colliery-annual-and-audit-reporting/mannering-colliery-annual-and-audit-reports>

Delta Coal, 2020b, *Chain Valley Colliery – Annual Review (AEMR) 2019*.

<https://www.deltacoal.com.au/environment/chain-valley-colliery/chain-valley-colliery-annual-and-audit-reporting/chain-valley-colliery-development-consent-reports>

Department of Environment & Climate Change NSW (DECC), 2009. *Interim Construction Noise Guideline*

Department of Environment, Climate Change and Water NSW, 2011. *NSW Road Noise Policy*

Department of Planning and Environment, 2017a, *Scoping and Environmental Impact Assessment: Draft Environmental Impact Assessment Guidance Series*

Department of Planning and Environment, 2017b. *Peer Review: Draft Environmental Impact Assessment Guidance Series June 2017*

Department of Planning and Environment, 2018. *NSW LiDAR mapping*

Department of Primary Industries, Office of Water, 2012. *NSW Aquifer Interference Policy*

EMM, 2014. *Mannering Colliery – Modification 2 Environmental Assessment – Section 75W Modification to MP06_0311*

Environment Protection Authority (EPA), 2016. *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*

Environment Protection Authority (EPA), 2017. *Noise Policy for Industry (NPfI)*

GeoTerra Pty Ltd, 2013. *Chain Valley Colliery Mining Extension 1 Project – Groundwater Assessment*. Report prepared for LakeCoal Pty Limited March 2013

GHD, 2020. *Chain Valley Colliery Modification 4 Groundwater Assessment*

Laxton, 2020. *Lake Macquarie Benthos sampling*

The Ecology Lab, 2007. *Concept plan for Trinity Point Marina and Mixed Use Development: Aquatic Ecological Investigations*

Umwelt (Australia) Pty Ltd, 2020. *Chain Valley Colliery Modification 4 Statement of Environmental Effects*