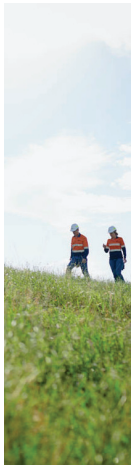





MTW / HVO
Lemington Underground Mine
Water Storage Project

Modification Report

MAIN TEXT

YANCOAL
兖煤澳大利亚有限公司

EXECUTIVE SUMMARY

Background

Hunter Valley Operations (HVO) and Mount Thorley Warkworth (MTW) Operations are neighbouring open cut coal mining operations situated in the Sydney Basin within the Singleton Local Government Area, in the Hunter Valley region of New South Wales (NSW).

MTW comprises the Mount Thorley Operation (MTO) and Warkworth Mine. MTW is majority owned and operated by subsidiaries of Yancoal Australia Ltd (Yancoal). While MTW is managed as one operation, MTO and Warkworth Mine each have separate planning approvals. MTO is approved and operates under State Significant Development (SSD) Consent SSD-6465. Warkworth Mine is approved and operates under State Significant Development Consent SSD-6464.

HVO is a joint venture between subsidiaries of Yancoal and Glencore. HV Operations Pty Ltd is the appointed manager of the joint venture and operator of HVO. While HVO is managed as one operation, HVO North and HVO South each have separate planning approvals. HVO North operates under Development Consent DA 450-10-2003 and HVO South operates under Project Approval 06_0261.

Up until 2017, both MTW and HVO were majority owned and operated by Coal & Allied (Rio Tinto). As a result of this common ownership, various management functions (including water management) were integrated between the two mining complexes.

Due to the interrelated nature of water management at the sites, modifications to both Development Consent SSD-6464 (Warkworth Mine) and Project Approval 06_0261 (HVO South) are being sought in parallel under section 4.55(1A) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Modification Overview

MTW and HVO currently extract water from the former Lemington Underground Mine void via the existing licensed Lemington Underground Bore (LUG Bore), which is supported by a network of pipelines and pumping infrastructure (including access tracks and powerlines).

The Modification would involve (Figure ES-1):

- construction of bores and associated infrastructure (e.g. pumps and power supplies) at three transfer sites to access the Lemington Underground Mine void;
- use of the bores at these three transfer sites and existing LUG Bore to transfer water from MTW into and out of the former Lemington Underground Mine void;
- development of supporting infrastructure (e.g. pipelines and powerlines); and
- construction of a new Ultra Class Truck Workshop adjacent to the existing workshop at MTW.

Assessment of Impacts

The Warkworth Mine (as modified) would continue to comply with existing environmental limits and performance measures described in Development Consent SSD-6464. Warkworth Mining Limited would operate the Warkworth Mine, as modified, in accordance with the existing environmental management plans and environmental monitoring programs.

Warkworth Mining Limited has undertaken a review of the potential environmental impacts of the Modification in the Modification Report.

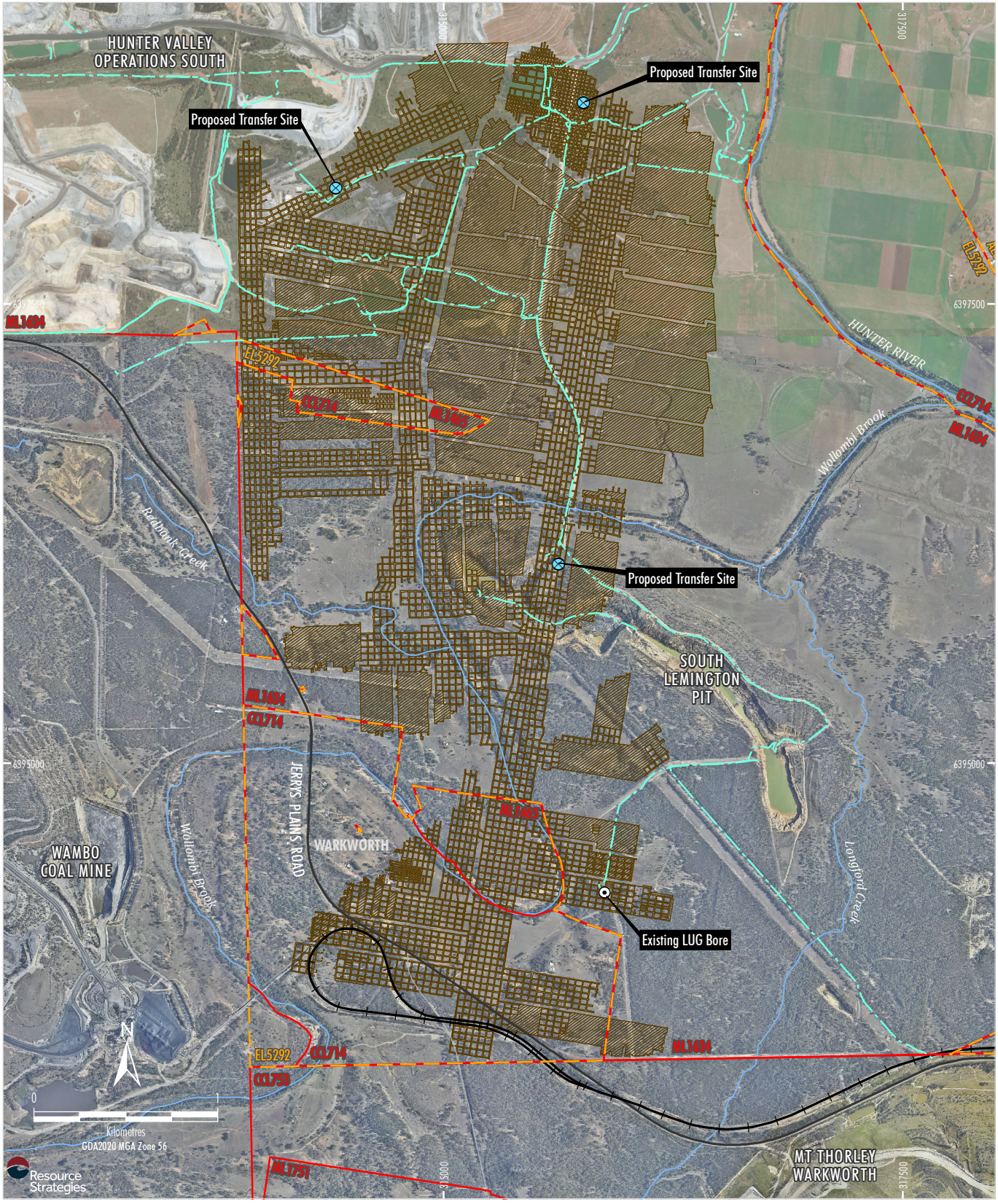
Justification for the Modification

The Modification would:

- enable more water to be stored on-site for later reuse, increasing water supply security and supplementing external water supplies such as the Hunter River;
- reduce the reliance on off-site discharges to the Hunter River during periods of higher rainfall as there would be greater storage capacity on-site;
- reduce operational disruption associated with storage of surplus water in active mining areas, thereby facilitating efficient recovery of approved resources; and
- avoid the loss of water through evaporation that occurs in open water storages.

The modified Warkworth Mine would be “substantially the same” as the approved Warkworth Mine and the Modification would involve minimal environmental impact as defined under section 4.55(1A) of the EP&A Act.

In weighing up the main environmental impacts (costs and benefits) assessed and described in this Modification Report, the Modification is, on balance, considered to be in the public interest of the State of NSW.



LEGEND

- Exploration Licence Boundary (EL, AL)
- Mining and Coal Lease Boundary (CCL, CL, ML)
- Existing Lemington Underground Mine Workings
- Existing Pipeline
- Existing LUG Bore
- Proposed Transfer Site

Source: HVO(2021); NSW Spatial Services (2021)
Aerial Imagery: MTW (2020); NSW Spatial Services (2020)

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LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Project General Arrangement

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1 INTRODUCTION

Hunter Valley Operations (HVO) and Mount Thorley Warkworth (MTW) Operations are neighbouring open cut coal mining operations situated in the Sydney Basin within the Singleton Local Government Area (LGA), in the Hunter Valley region of New South Wales (NSW) (Figure 1).

MTW comprises the Mount Thorley Operation (MTO) and Warkworth Mine. MTW is majority owned and operated by subsidiaries of Yancoal Australia Ltd (Yancoal). While MTW is managed as one operation, MTO and Warkworth Mine each have separate planning approvals. MTO is approved and operates under State Significant Development (SSD) Consent SSD-6465. Warkworth Mine is approved and operates under State Significant Development Consent SSD-6464.

HVO is a joint venture between subsidiaries of Yancoal and Glencore. HV Operations Pty Ltd is the appointed manager of the joint venture and operator of HVO. While HVO is managed as one operation, HVO North and HVO South each have separate planning approvals. HVO North operates under Development Consent DA 450-10-2003 and HVO South[1] operates under Project Approval 06_0261.

Up until 2017, both MTW and HVO were majority owned and operated by Coal & Allied Operations Pty Limited (Coal & Allied) (Rio Tinto). As a result of this common ownership various management functions (including water management) were integrated between the two mining complexes.

Due to the interrelated nature of water management at the sites, modifications to both Development Consent SSD-6464 (Warkworth Mine) and Project Approval 06_0261 (HVO South) are being sought in parallel under section 4.55(1A) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

To support the modification applications, separate Modification Reports have been prepared for HVO South and the Warkworth Mine. This Modification Report has been prepared to support an application to modify the Warkworth Development Consent SSD-6464. A separate modification application has been prepared for HVO South.

The reports are largely identical, however this report describes and assesses some additional components to be modified in the Warkworth Development Consent SSD-6464 that are not described in the HVO South report.

[1] HVO South was gazetted as an SSD on 30 November 2018.

1.1 APPLICANT DETAILS

The Applicant is:

Warkworth Mining Limited
Putty Road
Mount Thorley
NSW 2330

1.2 OVERVIEW OF THE APPROVED PROJECTS

1.2.1 Mount Thorley Warkworth

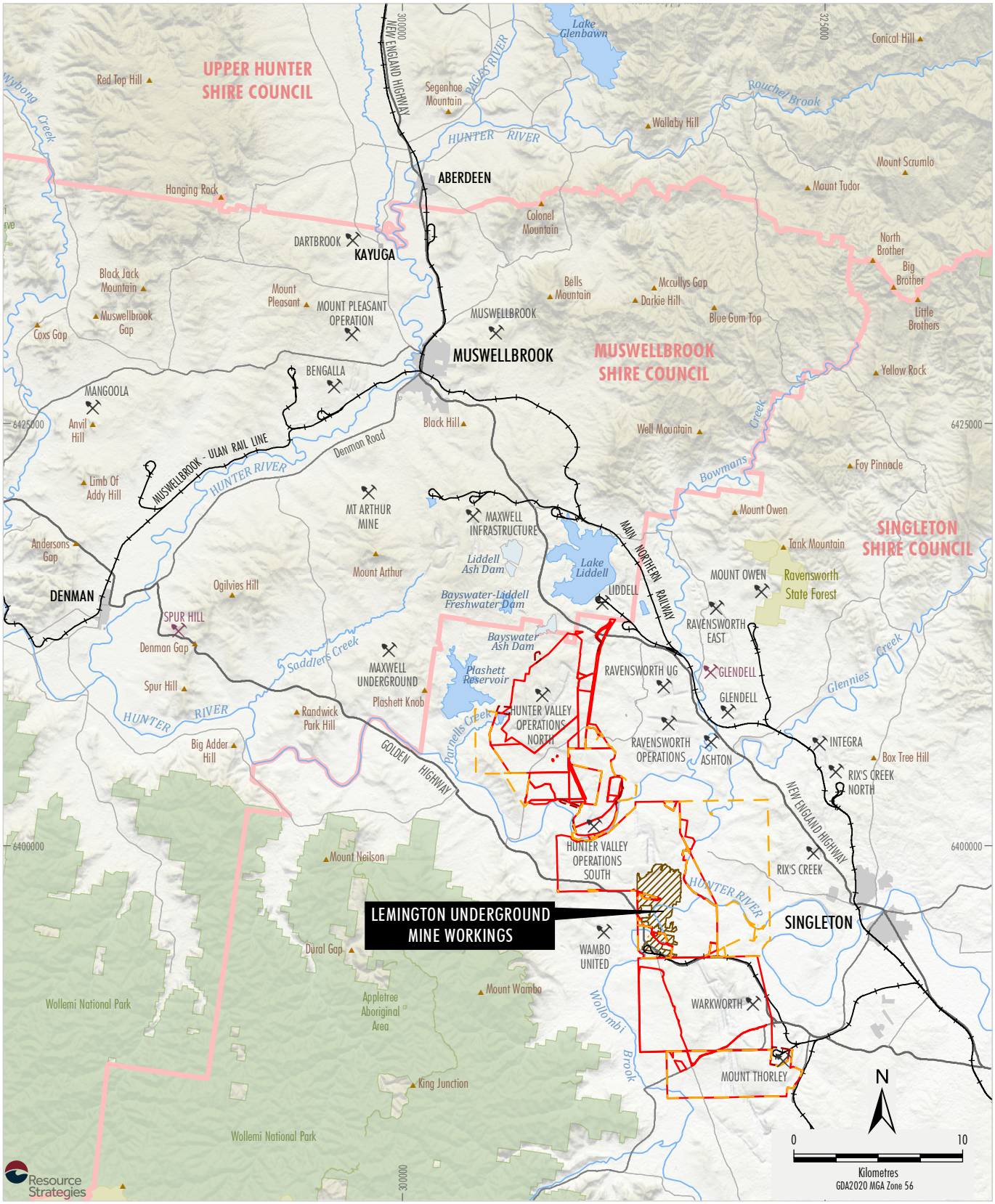
MTW is an existing open cut coal mining complex located approximately 14 kilometres (km) south-west of the township of Singleton and approximately 75 km north-west of the city of Newcastle (Figure 1).

Operations at MTO and Warkworth Mine commenced in 1981. The area immediately surrounding MTO and Warkworth Mine is dominated by coal mines and associated infrastructure and other industry. HVO and the United-Wambo Mine are to the north and north-west, respectively, and the Bulga Coal Complex is to the south. The village of Bulga and the Wollemi and Yengo National Parks are to the west and south-west, and Mount Thorley Industrial Estate is to the east.

Since 2004, MTO and Warkworth Mine have integrated at an operational level and are known as MTW, with a single management system and team responsible for the operations.

MTO and Warkworth Mine are approved to extract coal at a rate of up to 10 and 18 Million tonnes per annum (Mtpa) of run-of-mine (ROM) coal, respectively. Mining operations are undertaken 24 hours per day, seven days per week.

Coal extraction at MTO's Loders Pit was completed in 2021, with operational areas (such as voids, overburden emplacements and water storages) and MTO infrastructure continuing to be used to support ongoing activities at the Warkworth Mine. Mining operations at both MTO and Warkworth Mine are approved until 2037, with coal extraction currently focused at the Warkworth Mine.



LEGEND

- Mining Operation
- Proposed Mining Operations (Application Lodged)
- Exploration Licence Boundary (EL, AUTH, AL)
- Mining and Coal Lease Boundary (CCL, CL, CML, ML, MPL)
- Mining Lease Application Area (MLA)
- Railway
- Local Government Area
- State Forest
- National Parks and Wildlife Estate

Source: NSW Spatial Services (2021)

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LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Regional Location

Figure 1

1.2.2 Hunter Valley Operations

HVO is an existing open cut coal mine located approximately 24 km north-west of the township of Singleton. Run as a single operation, the mine is geographically divided into HVO North and HVO South by the Hunter River (Figure 1). HVO South is located approximately 6 km to the north-northwest of Warkworth Mine.

Operations first commenced at HVO approximately 70 years ago, in 1949. The area immediately surrounding HVO North and HVO South consists of other coal mines, power stations and farming land. MTW and the United-Wambo Mine are to the south and south-west, respectively, and the Liddell Coal Operations and Ravensworth Operations are located to the north-east and east, respectively.

HVO North and HVO South are integrated at an operational level, with a single management system and team responsible for the operations.

HVO North and HVO South are approved to extract coal at a rate of up to 22 and 20 Mtpa of ROM coal, respectively. Mining operations are undertaken 24 hours per day, seven days per week.

Mining operations at HVO North and HVO South are currently approved until 2025 and 2030, respectively.

1.2.3 Former Lemington Underground Mine

The Lemington Underground Mine operated from 1971 to 1992 using bord and pillar mining methods in the Mount Arthur Seam, with areas of longwall extraction. The former Lemington Underground Mine was acquired and merged into HVO South in 2001. The underground workings are located south-east of the current mining areas at HVO South, below the South Lemington Pit 1, and north-west of Warkworth Mine (Figure 2).

The Mount Arthur Seam floor in the former workings ranges from approximately 40 metres Australian Height Datum (mAHD) to approximately -205 mAHD, generally dipping from the north-east to the south-west.

MTW and HVO currently extract water from the Lemington Underground Mine void via the existing licensed Lemington Underground Bore (LUG Bore), which is supported by a network of pipelines and pumping infrastructure (including access tracks and powerlines) (Figure 2).

1.2.4 Integrated Water Management

Established by the previous owners, water is managed across the MTW and HVO mining complexes in an integrated manner. This includes use of available open cut voids at HVO for the storage and reuse of water across both sites. Transferring of water between the sites is undertaken in accordance with their planning approvals and approved Water Management Plans. In particular:

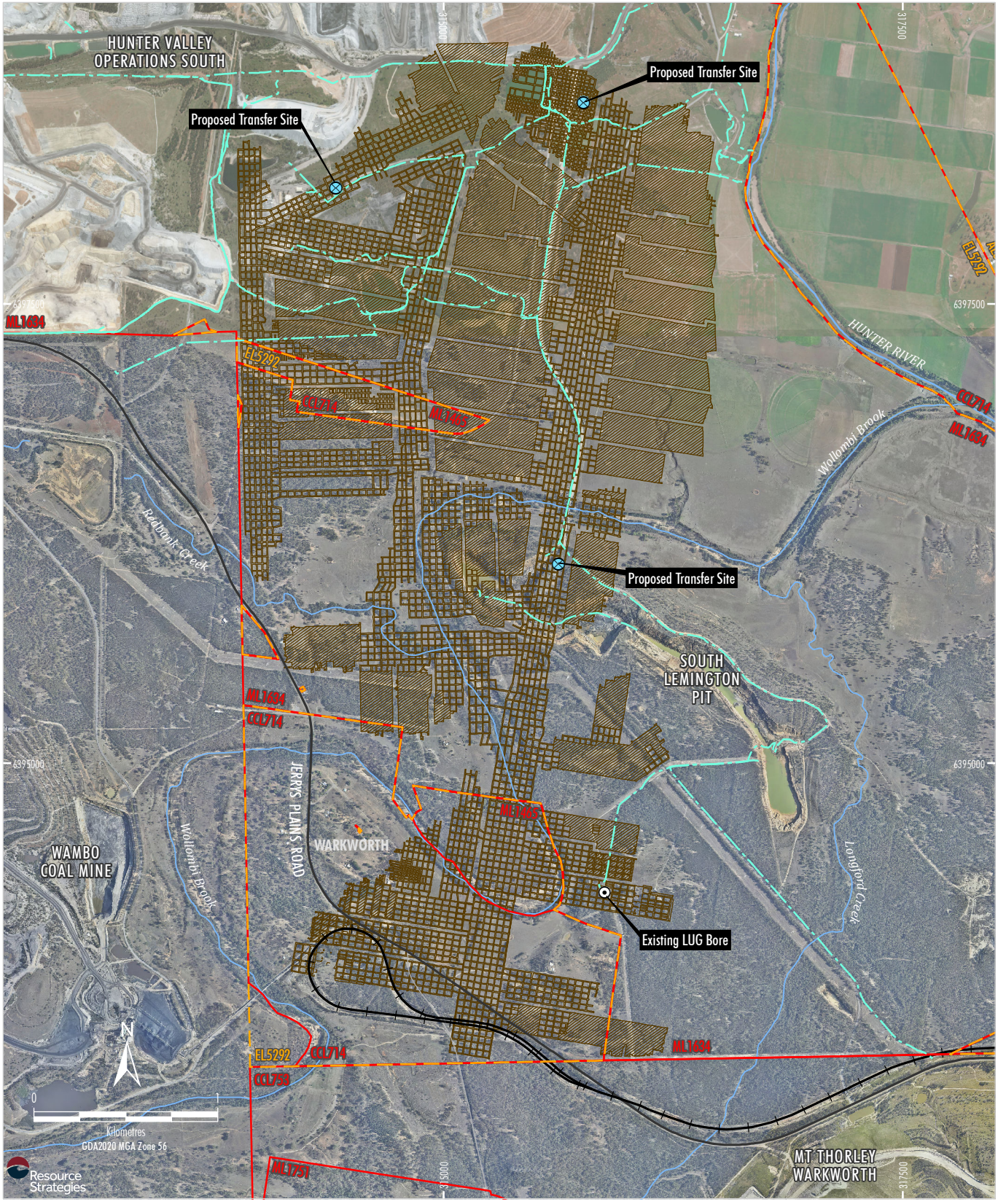
- Condition 25, Schedule 3 of the Warkworth Development Consent SSD-6464 permits Warkworth Mine to receive water from, and transfer water to, MTO, HVO, Bulga Mine and Redbank Power Station (currently in care and maintenance).
- Condition 23, Schedule 3 of the MTO Development Consent SSD-6465 permits MTO to receive water from, and transfer water to, Warkworth Mine, HVO, Bulga Mine and Redbank Power Station (currently in care and maintenance).
- Condition 26C, Schedule 3 of the HVO South Project Approval 06_0261 permits HVO South to receive water from, and transfer water to, neighbouring mines including HVO North, MTW and Wambo Mine.
- HVO North is permitted to receive water from, and transfer water to, HVO South, through Condition 26C, Schedule 3 of the HVO South Project Approval 06_0261.

1.3 OVERVIEW OF THE MODIFICATION

To provide greater flexibility in site water management, MTW and HVO are seeking to augment their existing approved water management infrastructure to enable the transfer and storage of water into the existing Lemington Underground Mine void for later extraction and reuse at MTW and HVO.

Warkworth Mining Limited (WML) is also seeking to modify the Warkworth Development Consent SSD-6464 to allow for the construction of a new Ultra Class Truck Workshop adjacent to the existing workshop at the Warkworth Mine (Figure 3).

The works described above are herein referred to as the Modification.



LEGEND

- Exploration Licence Boundary (EL, AL)
- Mining and Coal Lease Boundary (CCL, CL, ML)
- Existing Lemington Underground Mine Workings
- Existing Pipeline
- Existing LUG Bore
- Proposed Transfer Site

Source: HVO(2021); NSW Spatial Services (2021)
Aerial Imagery: MTW (2020); NSW Spatial Services (2020)

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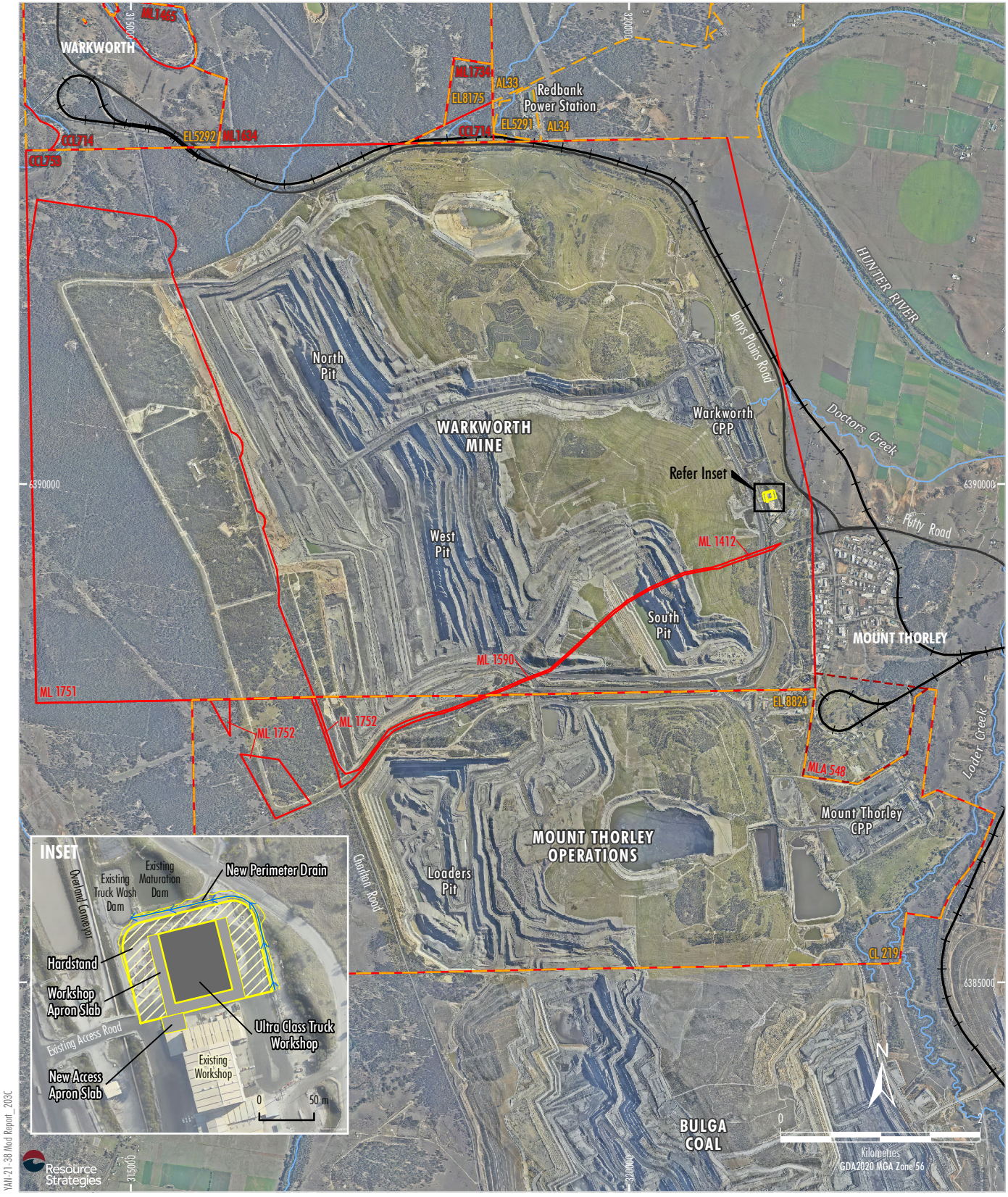
LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Project General Arrangement

Figure 2



LEGEND

- Exploration Licence Boundary (EL, AL)
- Mining and Coal Lease Boundary (CCL, CL, ML)
- Indicative Ultra Class Truck Workshop Layout

Source: Yancoal (2020); HVO(2021); NSW Spatial Services (2021)
Aerial Imagery: Yancoal (2020); NSW Spatial Services (2020)

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LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Indicative Ultra Class Truck Workshop Location

Figure 3

1.3.1 Need for the Modification

Mining operations at HVO and MTW are constrained by water management. During higher than average rainfall periods, the operations are constrained by available surface water storage capacity and strict discharge rules. This results in surplus water being directed to active pits causing significant interruption to operations. Similarly, during lower than average rainfall (drought) periods, there is greater demand from external water supplies, such as the Hunter River, to support operations.

Available water storage capacity is only expected to further decline as mining progresses through existing water storages, such as the South Lemington Pit. Additional water storages are required to alleviate these current and upcoming constraints and to avoid major interruptions to mining operations.

The Lemington Underground Mine void has been identified as a suitable water storage that could supplement the existing surface water storages at MTW and HVO.

MTW has implemented a program to update its haul truck fleet, replacing a number of older haul trucks with new, more efficient ultra class trucks. Due to the increased size of the new ultra class trucks, they cannot be serviced in the existing workshop. A new workshop, adjacent to the existing heavy vehicle workshop is therefore required to provide the necessary servicing facilities for the ultra class trucks.

1.3.2 Consideration of Alternative Water Management Options

Alternative options to the proposed Modification would either require the construction of additional surface water storage capacity and associated infrastructure, or development and use of water treatment facilities to enable off-site discharge coupled with a greater reliance on external water sources (such as the Hunter River) for operational purposes.

Construction of a new surface water storage or water treatment facilities would also result in significant capital costs and would take a significant amount of time to develop compared to the proposed Modification. The use of water treatment facilities would also be energy intensive and require the disposal of brine produced during the treatment process.

The Modification was selected as being the preferred option on the basis that it:

- makes use of an existing historic mining void;
- is on land approved for mine development within current mining leases;
- would avoid disturbance of additional areas (i.e. by limiting disturbance to previously cleared areas);
- provides for more efficient water storage and management by reducing evaporative losses that would otherwise occur from open water storages;
- would avoid the significant capital costs and development time associated with the construction of a new water storage or water treatment facilities; and
- supplements external water sources (such as the Hunter River) for operational purposes.

2 STRATEGIC CONTEXT

2.1 REGIONAL CONTEXT

MTW is located within the Hunter Coalfield. The Hunter Coalfield and adjacent Newcastle Coalfield in the Sydney-Gunnedah Basin form the target resource of major coal developments in the Hunter region.

Coal mining operations in the region have been occurring for many decades, with operations commencing at HVO and MTW in 1949 and 1981, respectively. Coal mining has close ties with regional communities in the Hunter region.

In the Singleton LGA, the mainstays of the economy are coal mining, agriculture, manufacturing and retail. The *Hunter Regional Plan 2036* states that coal mining will remain significant in the region (NSW Government, 2016).

Coal from the Upper Hunter is transported via the Hunter Valley rail network (Figure 1), which provides access to domestic coal customers (i.e. primarily electricity production) and international markets via the Port of Newcastle.

In the Upper Hunter Valley, mining employs almost 8,000 people in the Muswellbrook and Singleton LGAs alone (NSW Government, 2016).

2.2 PROJECT CONTEXT

MTW is located in the Singleton LGA, approximately 14 km south-west of the township of Singleton in the Upper Hunter Valley (Figure 1). MTW is located within a recognised mining precinct, with HVO South located to the north, the United-Wambo Mine located to the north-west and Bulga Coal Complex to the south.

Land uses other than mining in the vicinity of MTW comprise a combination of agricultural land uses and the commercial, industrial and residential areas of the village of Bulga.

Management of water on-site is of strategic importance to MTW. The ability to maintain safe access to active mining areas (e.g. avoiding potential inundation of pits) is critical to efficient mining operations at MTW. Maintaining a reliable water supply by storing water captured on-site is also critical to support the operation (e.g. to meet water demands for coal preparation and dust suppression) and reduces reliance on the Hunter River as a significant water supply source.

MTW and HVO have approval and infrastructure in place to transfer water between the sites, share certain water storages and extract water from the former Lemington Underground Mine via the existing licenced LUG Bore. The current water sharing interactions between the two sites have helped alleviate some of the water management constraints. Notwithstanding, water storage capacity and availability at both sites remains an ongoing operational constraint.

WML has identified the potential for the Lemington Underground Mine void to be used as an additional water storage (similar to use of existing non-active mine voids as water storages), providing increased storage capacity and further flexibility in site water management across the MTW and HVO operations.

The proposed Modification is, therefore, important to MTW given it would:

- enable more water to be stored on-site for later reuse, increasing water supply security and supplementing external water supplies such as the Hunter River;
- reduce the reliance on off-site discharges to the Hunter River during periods of higher rainfall as there would be greater storage capacity on-site;
- reduce operational disruption associated with storage of surplus water in active mining areas, thereby facilitating efficient recovery of approved resources; and
- avoid the loss of water through evaporation that occurs in open water storages.

Additionally, the new Ultra Class Truck Workshop infrastructure proposed as part of the Modification is required to service a fleet of new ultra class haul trucks.

2.3 KEY STRATEGIC PLANNING DOCUMENTS

The *Strategic Statement on Coal Exploration and Mining in NSW* outlines how the NSW Government will continue to support responsible resource development for the benefit of the State (NSW Government, 2020). The *Strategic Statement on Coal Exploration and Mining in NSW* recognises the value of coal production to the NSW economy, including:

- The long history of coal mining in NSW and its close ties with regional communities in the Hunter region.
- The potential for coal production to provide significant benefits to local communities, including jobs and investment.
- Coal production's significant contributions to export earnings as the State's biggest single export earner.

The Modification would provide for the ongoing safe and efficient extraction of significant coal resources at MTW that State and Commonwealth Governments have approved to be mined, subject to the conditions of the relevant State and Commonwealth approvals.

The Modification would not materially change the scale or nature of the approved MTW Complex, and MTW would continue to align with the objectives of the *Strategic Statement on Coal Exploration and Mining in NSW*.

3 MODIFICATION DESCRIPTION

The relevant development consent to be modified is the Warkworth Mine's Development Consent SSD-6464.

The Modification would include (Figure 2):

- construction of bores and associated infrastructure (e.g. pumps and power supplies) at three transfer sites to access the Lemington Underground Mine void;
- use of the bores at these three transfer sites and existing LUG Bore to transfer water from MTW into and out of the former Lemington Underground Mine void;
- development of supporting infrastructure (e.g. pipelines and powerlines); and
- construction of a new Ultra Class Truck Workshop adjacent to the existing workshop.

A comparison of the key components of the approved and modified Warkworth Mine is provided in Table 1.

HVO South has sought a parallel modification to also construct new co-located bores at the same transfer sites and at the existing LUG Bore site. Separate bores for each operation will simplify management and maintenance responsibilities and minimise interactions. Co-location of the bores and supporting infrastructure is proposed to minimise the surface footprint such that all infrastructure can be located on previously disturbed land.

3.1 WATER MANAGEMENT SYSTEM CONSTRUCTION

Bores would be installed from the surface to the former Lemington Underground Mine void at three transfer sites (Figure 2). These bores would be installed using standard drilling equipment and would generally require a construction pad of approximately 90 metres (m) by 90 m (or equivalent approximate area). The construction pads would be minimised as far as practicable.

The new bores would require supporting infrastructure including access tracks, powerlines and pipelines.

Development associated with the Modification would be limited to previously disturbed areas (predominantly utilising existing access tracks and easements) and no additional disturbance is required.

3.2 WATER MANAGEMENT SYSTEM OPERATION

MTW and HVO would continue to manage their site water inventories and demands by transferring water between the sites, in accordance with their planning approvals and approved Water Management Plans.

The volume of water within the void in the Lemington Underground Mine Mount Arthur Seam workings (at the date of this report) is estimated to be 6,800 megalitres (ML). Under the Modification, water would be stored in the Lemington Underground Mine void up to an overall level of approximately 30 mAHD. Based on the maximum fill level of 30 mAHD and the estimated level of existing saturation, there is currently approximately 2,400 ML of available storage capacity out of an estimated 9,200 ML total void volume. Additional water over and above the currently available 2,400 ML may be transferred to the void under the Modification should further capacity become available in the future (e.g. following licensed extraction of existing stored water via the LUG bore during a dry period).

Water from MTW would be stored in the Lemington Underground Mine void as required when there is surplus water on-site over the remaining life-of-mine.

MTW would maintain records of the volume of water stored/extracted, the water level in the underground void (in mAHD), and the results of monitoring the following groundwater quality parameters:

- physio-chemical indicators – pH, Electrical Conductivity (EC) (quarterly); and
- Total Dissolved Solids (TDS) and speciation (annually).

MTW's Water Management Plan would be updated to include monitoring of groundwater quality and levels in the area.

HVO and MTW already have commercial agreements, data sharing arrangements and communication protocols in place to support water sharing between the sites and these would be extended to include co-use of the Lemington Underground Mine void as a shared water storage.

Table 1
Summary Comparison of Approved and Modified Project

Project Element	Warkworth Mine (SSD-6464)	
	Approved Project[1]	Modified Project
Approval period	21 years from commencement of development under Development Consent SSD-6464 (15 February 2016).	Unchanged.
Mining method	Open cut mining.	Unchanged.
ROM coal extraction rate	Extraction of up to 18 Mtpa of ROM coal.	Unchanged.
ROM coal transportation	ROM coal may be transported between Warkworth and MTO for processing at either Coal Processing Plant (CPP).	Unchanged.
ROM coal processing	Up to 13 Mtpa of ROM coal at Warkworth.	Unchanged.
Product coal transport	Product coal may be loaded out via the Mt Thorley Coal Loader or transported to the Redbank Power Station.	Unchanged.
Overburden emplacement	Disposal at in-pit and out-of-pit emplacements within MTW.	Unchanged.
Coarse rejects	Coarse reject produced at the Warkworth CPP is co-disposed within overburden emplacement areas within MTW.	Unchanged.
Tailings	Tailings produced at the Warkworth CPP is disposed at Tailings Storage Facilities within MTW.	Unchanged.
Water management	Integrated water management with MTO. Receipt of water extracted from the existing LUG Bore.	Construct additional bores (and associated infrastructure) at three transfer sites to facilitate transfer of water into the former Lemington Underground Mine void and/or extraction of water from the void. Continued extraction of water via the existing LUG Bore and transfer to MTW.
Water transfers between mines	Permitted to receive water from, and transfer water to, MTO, HVO, Bulga Mine and Redbank Power Station (currently in care and maintenance).	Unchanged.
Infrastructure	Includes: workshops; vehicle washing facilities; bulk oil and fuel storages; water management infrastructure; coal bed methane gas wells and ancillary infrastructure; storage hoppers and crushers; coal stockpiles; CPP; erection pads; bathhouse; general stores; office building; and other facilities and incidental activities.	Construction and operation of an Ultra Cass Truck Workshop, adjacent to the existing workshop facility.
Operating hours	Continuous operations, 24 hours per day, seven days per week.	Unchanged.
Employee numbers	Approximately 1,300 (combined numbers across MTW).	Unchanged.
Rehabilitation	Progressive rehabilitation. Final land use and final landform as described in a number of approval documents.	Unchanged.
Final void	One final void in the western pit.	Unchanged.
Schedule of Land	As per Appendix 1 of the Warkworth Development Consent.	Addition of land to Warkworth Mine Schedule of Lands covering the proposed water transfer infrastructure.

[1] As per the consent granted on 26 November 2015.

3.3 ULTRA CLASS TRUCK WORKSHOP

A new Ultra Class Truck Workshop would be constructed to the north of and adjacent to the existing heavy vehicle workshop within the Warkworth infrastructure area. An indicative layout for the new workshop is shown on Figure 3.

The Ultra Class Truck Workshop would be located in a previously disturbed area currently designated for infrastructure and used as a laydown area. The proposed Ultra Class Truck Workshop would (Figure 3):

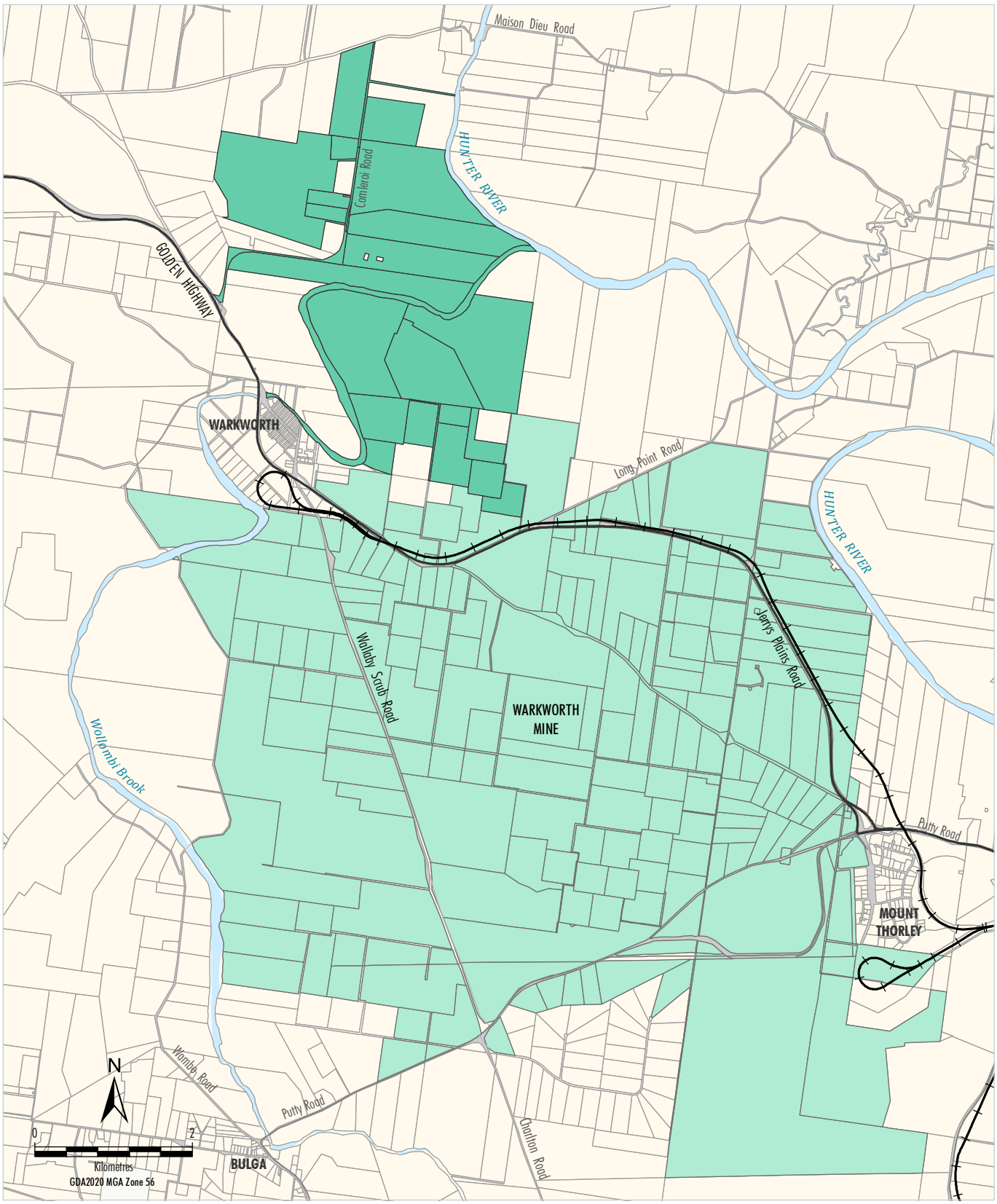
- cover an area of approximately 65 m by 54 m;
- include eight bays suitable for ultra class sized trucks;
- be surrounded by an approximately 10 m wide concrete apron and an approximately 25 m wide hardstand area to the west, north and east;
- require the conversion of a portion of the existing workshop into a new access apron slab;
- require the connection of supporting services, including power, water and sewage; and
- require the construction of a new perimeter drain around the northern and eastern edges of the hardstand area, which would flow to the existing surface water management system.

Construction of the Ultra Class Truck Workshop would occur over a period of approximately 12 months.

3.4 CONDITIONS TO BE MODIFIED

The definition of 'Environmental Impact Statement (EIS)' as referred to in Condition 2, Schedule 2 of Development Consent SSD-6464 would need to be revised to refer to this Modification Report to enable the proposed works to be undertaken.

The Modification necessitates an extension to the land covered by Development Consent SSD-6464. Figure 4 shows the extent of the Development Application Area for SSD-6464 and the proposed extension to incorporate the Modification. Figure 4 should replace the plan shown in Appendix 1 of Development Consent SSD-6464 and the additional parcels of land described in Section 4.1.2 should be added to the table in Appendix 1.



LEGEND

- Lot Boundary
- Land to which SSD-6464 Applies
- Proposed Extension to the Development Application Area

Source: Yancoal (2020); NSW Spatial Services (2021)

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LEMINGTON UNDERGROUND MINE
WATER STORAGE PROJECT

Development Application Area

Figure 4

4 STATUTORY CONTEXT

This section outlines the statutory requirements relevant to the assessment of the Modification.

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The EP&A Act and *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) set the framework for planning and environmental assessment in NSW.

4.1.1 Applicability of Section 4.55(1A) of the EP&A Act

The Warkworth Continuation Project was approved under Part 4 of the EP&A Act by the then NSW Minister for Planning on 26 November 2015 (SSD-6464).

Approval for the proposed Modification has been sought under section 4.55(1A) of the EP&A Act.

Section 4.55(1A) of the EP&A Act states:

> ***4.55 Modifications of consents-generally***
>
> ***…***
>
> ***(1A) Modifications involving minimal environmental impact*** *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—*
>
> *(a) it is satisfied that the proposed modification is of minimal environmental impact, and*
>
> *(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all), and*
>
> *(c) it has notified the application in accordance with—*
>
> *(i) the regulations, if the regulations so require, or*
>
> *(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*
>
> *(d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.*
>
> *Subsections (1), (2) and (5) do not apply to such a modification.*

The Warkworth Mine has demonstrably remained an open cut coal mining operation. This would also clearly continue to be the case if the Modification was approved as the overall scale and nature of the development including intensity, production rates, mining method, mine life, hours of operation and severity of impacts would remain unchanged (Table 1). Therefore, the consent authority can be satisfied that the Warkworth Mine incorporating the Modification would remain "substantially the same".

This Modification Report is a Statement of Environmental Effects that has been prepared in support of the application to modify Development Consent SSD-6464.

As outlined in the *State Significant Development Guidelines* (Department of Planning, Industry and Environment [DPIE], 2021), Attachment 1 provides a detailed statutory compliance table for the Warkworth Mine incorporating the Modification that identifies all the relevant statutory requirements and the relevant sections in this Modification Report that address these requirements.

4.1.2 Development Application Area

The Modification necessitates an extension to the land covered by Development Consent SSD-6464 to include the proposed water management infrastructure. The lands listed in Table 2 would be added to the Schedule of Lands presented in Appendix 1 of Development Consent SSD-6464. The additional land to be added to the Warkworth Development Consent is already included in the HVO South Schedule of Lands.

Table 2
Schedule of Lands to be added to Warkworth Development Consent (SSD-6464)

Lot	Deposited Plan	Ownership
1	48592	Coal & Allied Operations Pty Limited
1	105943	Coal & Allied Operations Pty Limited
4	113342	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
1	129808	Coal & Allied Operations Pty Limited
1	182139	Coal & Allied Operations Pty Limited
13	247239	Coal & Allied Operations Pty Limited
14	247239	Coal & Allied Operations Pty Limited
16	247239	Coal & Allied Operations Pty Limited
1420	586339	Coal & Allied Operations Pty Limited
1	592598	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
1	657394	Coal & Allied Operations Pty Limited
2	719879	Coal & Allied Operations Pty Limited
5	720643	Coal & Allied Operations Pty Limited
141	753792	Coal & Allied Operations Pty Limited
108	755267	Coal & Allied Operations Pty Limited
119	755267	Coal & Allied Operations Pty Limited
121	755267	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
122	755267	Coal & Allied Operations Pty Limited
145	755267	Coal & Allied Operations Pty Limited
194	755267	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
3	783484	Coal & Allied Operations Pty Limited
4	783484	Coal & Allied Operations Pty Limited
5	783484	Coal & Allied Operations Pty Limited
1	822177	Coal & Allied Operations Pty Limited
146	970755	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
1	997228	Coal & Allied Operations Pty Limited and HVO Resources Pty Ltd
1	1103396	Coal & Allied Operations Pty Limited
Any unidentified historical title residues located within, between or adjacent to the above Parcels of Land.		

4.2 RELEVANT NSW LEGISLATION

In addition to the EP&A Act, the following NSW legislation may be applicable to the Warkworth Mine, incorporating the Modification:

- *Biodiversity Conservation Act 2016* (BC Act);
- *Mining Act 1992;*
- *National Parks and Wildlife Act 1974;*
- *Protection of the Environment Operations Act 1997* (PoEO Act); and
- *Water Management Act 2000.*

Relevant licences or approvals required under these Acts would continue to be obtained for the Warkworth Mine incorporating the Modification.

4.2.1 Mining Act 1992

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ecologically sustainable development.

The Modification does not involve development which requires a mining lease to be issued to enable the development to be carried out. Therefore, there would be no need for the amendment or variation of the existing authorities or the issue of new authorities under the *Mining Act 1992*.

The *Mining Act 1992* regulates environmental protection and rehabilitation of all mining leases, including the requirement for the submission of a Mining Operations Plan (MOP) or Rehabilitation Management Plan.

4.2.2 National Parks and Wildlife Act 1974

The Modification does not seek to change the approved surface development extent (Section 3) and therefore would not involve additional potential impacts on Aboriginal cultural heritage to those previously assessed.

4.2.3 Biodiversity Conservation Act 2016

The BC Act provides the approach to be followed for conducting an assessment of a development's impacts on threatened species and ecological communities.

Under the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, a biodiversity development assessment report is not required to be submitted with a modification if the authority or person determining the application for modification (or determining the environmental assessment requirements for the application) is satisfied that the modification would not increase the impact on biodiversity values.

The Modification does not require additional surface disturbance (Section 3) and would therefore not increase the impact on biodiversity values, including threatened species and ecological communities.

Biodiversity values require consideration in accordance with section 7.17(2)(c) of the BC Act. Clause 1.4 of the *Biodiversity Conservation Regulation 2017* provides a description of the biodiversity values requiring consideration. These biodiversity values and a description of how these values have been considered for the Modification is provided in Table 3.

Accordingly, with reference to section 7.17(2)(c) of the BC Act and the *Threatened Species Test of Significance Guidelines* (State of NSW and Office of Environment and Heritage, 2018), no Biodiversity Development Assessment Report is required for the Modification as the Modification would not increase impacts on biodiversity values.

4.2.4 Water Management Act 2000

The *Water Management Act 2000* contains provisions for the licensing, allocation, capture and use of water resources.

Under the *Water Management Act 2000*, water sharing plans are being introduced (and many have commenced) for water sources. Water sharing plans establish rules for sharing water between different users and between the various environmental sources (namely rivers or aquifers). Water sharing plans relevant to the Warkworth Mine are:

- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.*
- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.*
- *Water Sharing Plan for the Hunter Regulated River Water Source 2016.*

Table 3
Biodiversity Values Consideration

Biodiversity Value	Modification Consideration
(a) threatened species abundance—being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site,	The proposed water management infrastructure for the Modification would be located on previously disturbed land. Some of these areas have partially regenerated with exotic grasses and some trees. Existing access tracks, easements and disturbed areas would be used for the supporting infrastructure (e.g. pipelines and powerlines) and no additional disturbance is required. Therefore, there is no impact on threatened species abundance anticipated.
(b) vegetation abundance—being the occurrence and abundance of vegetation at a particular site,	No additional disturbance is required for the Modification, therefore there is no impact on vegetation abundance anticipated.
(c) habitat connectivity—being the degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range,	No additional disturbance is required for the Modification, therefore there is no impact on habitat connectivity anticipated.
(d) threatened species movement—being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle,	No additional disturbance is required for the Modification, therefore there is no impact on threatened species anticipated.
(e) flight path integrity—being the degree to which the flight paths of protected animals over a particular site are free from interference,	The proposed Ultra Class Truck Workshop would be located within an already industrialised area of the site adjacent to the existing Heavy Vehicle Workshop (Figure 3). The proposed bores and supporting infrastructure (e.g. pumps) would have a low profile and be located in previously cleared areas. Above and below ground powerlines required to connect the pumps to nearby existing powerlines would make use of existing access tracks, easements and disturbed areas. Given the above, there is no impact on flight path integrity anticipated.
(f) water sustainability—being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.	The outcomes of the water resources studies conducted for this Modification demonstrate that the Modification would not impact on surface water resources and would not change the beneficial use or environmental values of groundwater resources.

Consideration of the Modification against the water management principles and access licence dealing principles of the *Water Management Act 2000* is provided in Section 6.1.

4.2.5 Protection of the Environment Operations Act 1997

The PoEO Act and the NSW *Protection of the Environment Operations (General) Regulation 2009* set out the general obligations for environmental protection for industry in NSW, which is regulated by the NSW EPA.

Operations at the Warkworth Mine are currently undertaken in accordance with existing Environment Protection Licence (EPL) 1376 issued under the PoEO Act.

Operations at HVO South are currently undertaken in accordance with existing EPL 640 issued under the PoEO Act.

The accountability for the transferred water would be agreed between WML and HVO and addressed as part of an EPL variation in discussion with the NSW Environment Protection Authority (EPA).

4.3 RELEVANT NSW ASSESSMENT POLICIES

Aquifer Interference Policy

The *Aquifer Interference Policy* (AIP) (NSW Government, 2012) has been developed by the NSW Government as a component of the NSW Government's *Strategic Regional Land Use Policy.* The AIP applies State-wide and details water licence and impact assessment requirements.

The stated purpose of the AIP is to ensure equitable water sharing between various water users and proper licencing of water taken by aquifer interference activities, such that the take is accounted for in the water budget and water sharing arrangements.

The *Water Management Act 2000* defines an aquifer interference activity as that which involves any of the following:

- *the penetration of an aquifer;*
- *the interference with water in an aquifer*
- *the obstruction of the flow of water in an aquifer;*
- *the taking of water from an aquifer in the course of carrying out mining or any other activities prescribed by the regulations; and*
- *the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.*

The Groundwater Assessment (Appendix A) has been prepared in consideration of the AIP for the Modification and the results are described in Section 6.1.2.

4.4 ENVIRONMENTAL PLANNING INSTRUMENTS

State environmental planning policies of relevance to the Project were described in the Warkworth Continuation Project EIS (Coal & Allied, 2014). Detail on potential Modification requirements under the key environmental planning instruments is included in the statutory compliance table provided in Attachment 1.

4.5 COMMONWEALTH LEGISLATION

4.5.1 Environment Protection and Biodiversity Conservation Act 1999

The objective of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance (MNES).

Proposals that are likely to have a significant impact on a MNES are defined as a controlled action under the EPBC Act. A proposal that is, or may be, a controlled action is required to be referred to the Commonwealth Department of Agriculture, Water and Environment to determine whether or not the action is a controlled action.

The Warkworth Mine operates in accordance with EPBC Act approvals EPBC 2002/5566 (granted on 17 February 2004) and EPBC 2009/5081 (granted on 9 August 2012).

The Modification does not require additional disturbance; therefore, it was concluded that the Modification would not have a significant impact on MNES for the following reasons:

- The Modification would not have a significant impact on listed threatened species and ecological communities and/or migratory species.
- The Modification would not have a significant impact on wetlands of international importance.

- The Modification would not have a significant impact on world heritage properties or national heritage places.
- The Modification would not impact the Great Barrier Reef Marine Park and/or Commonwealth marine areas.
- The Modification is not a nuclear action.

The potential impacts of the Modification on water resources have been assessed in the Groundwater Assessment (Appendix A) and summarised in Section 6.1. Appendix A indicates that there would be no significant impact on water resources as a result of the Modification.

5 ENGAGEMENT

Consultation for the Modification has been conducted by Yancoal (including MTW) with key State Government agencies, local council, the Community Consultative Committee (CCC) and neighbouring HVO during the preparation of this Modification Report. A summary of consultation to date is provided below. Consultation will continue during the assessment of the Modification.

5.1 NSW GOVERNMENT AGENCIES

NSW Department of Planning, Industry and Environment

Yancoal held a meeting with DPIE on 5 August 2021 to provide an overview of the Modification, the supporting environmental assessments to be undertaken, and the proposed approval process and timing.

On 5 August 2021, Yancoal provided a letter to DPIE regarding the Modification, proposed approval pathway and the proposed scope of the environmental assessment.

DPIE subsequently responded to Yancoal on 26 August 2021, confirming the proposed approval pathway and outlining the environmental assessment matters to be considered as part of the Modification. These matters have been considered in this Modification Report.

NSW Resources Regulator

Yancoal provided a briefing letter to the NSW Resources Regulator on 11 August 2021 providing an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal offered additional engagement to the NSW Resources Regulator on the proposal should it require it, and invited the NSW Resources Regulator to provide any comments or feedback on the proposal. In reply, the NSW Resources Regulator indicated it did not require a meeting with Yancoal as the Modification has minimal implications for rehabilitation.

NSW Division of Mining, Exploration and Geoscience

Yancoal provided a briefing letter to the NSW Division of Mining, Exploration and Geoscience on 13 August 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken.

NSW Department of Planning, Industry and Environment – Water

Yancoal provided a briefing letter to DPIE – Water on 13 August 2021 providing an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal offered additional engagement to DPIE – Water on the proposal should it require it, and invited DPIE – Water to provide any comments or feedback on the proposal. DPIE – Water indicated it would not comment on the proposal prior to the application being made and publicly exhibited.

NSW Natural Resources Access Regulator

Yancoal provided a briefing letter to the NSW Natural Resources Access Regulator on 13 August 2021 providing an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal offered additional engagement to the NSW Natural Resources Access Regulator on the proposal should it require it, and invited the NSW Natural Resources Regulator to provide any comments or feedback on the proposal. The NSW Natural Resources Access Regulator indicated it would not comment on the proposal prior to the application being made and publicly exhibited.

NSW Environment Protection Authority

MTW (and HVO) provided a briefing letter and held a videoconference with the EPA on 18 August 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken. The EPA raised the consideration of accountability for groundwater seepage and impacts on groundwater quality during the meeting.

5.2 SINGLETON COUNCIL

MTW is located within the Singleton LGA (Figure 1).

MTW (and HVO) provided a briefing letter and held a videoconference with the Singleton Council on 19 August 2021 to provide an overview of the Modification and outline the approach to assessing potential environment impacts associated with the Modification. No issues with the proposed Modification were raised by the Singleton Council.

5.3 COMMUNITY CONSULTATION

Community Consultative Committees

The MTW CCC was established in accordance with Development Consents SSD-6464 and SSD-6465. The HVO CCC was established in accordance with Project Approval 06_0261 and DA 450-10-2003. The CCCs provide a mechanism for ongoing communication between the mines and the local community. Membership of the CCCs include representatives of the local community, the Singleton Council, and Operators (MTW and HVO), with meetings held quarterly.

The MTW CCC was provided an overview of the Modification and proposed scope of environmental assessment during meetings on 26 May 2021 and 25 August 2021. MTW CCC members indicated groundwater should be a key consideration regarding the proposed underground storage.

The HVO CCC was provided an overview of the Modification and proposed scope of environmental assessment during meetings on 19 May 2021 and 26 August 2021. HVO CCC members indicated groundwater should be a key consideration regarding the proposed underground storage.

Public Consultation

The MTW website provides up to date information on MTW, and provides access to relevant environment and community information, including compliance reports and approval documents. The MTW complaints hotlines (1800 656 892) allows members of the public to contact MTW with enquiries or complaints.

WML will provide public notification of this Modification as required by clauses 49 and 115(2) of the EP&A Regulation, and will make this Modification Report available on the MTW website.

6 ASSESSMENT OF IMPACTS

WML has undertaken a review of the potential environmental impacts of the Modification to identify key potential environmental issues requiring assessment.

The key environmental matters are identified and addressed in Sections 6.1 to 6.4 and Appendices A and B.

6.1 GROUNDWATER

As described in Section 3, the Lemington Underground Mine void would be operated as an additional water storage under the Modification, similar to how existing surface water storages are being operated at MTW and HVO. Duplicate infrastructure (e.g. bores, pipelines) would be constructed at each transfer site to allow for MTW and HVO to separately transfer water into, and from, the Lemington Underground Mine void. MTW would also continue to use the existing LUG Bore.

A Groundwater Assessment for the Modification has been undertaken by AGE (2021) (Appendix A). Potential impacts of the Modification on groundwater resources are described below.

6.1.1 Background

Lemington Underground Mine

Mining in the Lemington Underground Mine commenced in 1971 via two box cuts and targeted the Mount Arthur Seam. Coal extraction occurred by both bord and pillar and longwall mining methods in different parts of the workings (Figure 2). Coal extraction in the Lemington Underground Mine was completed in 1992.

Extraction of the Mount Arthur Seam commenced from the north and generally progressed towards the south. The working section height across both the bord and pillar and longwall mining areas was approximately 2 m.

The Mount Arthur Seam floor in the former workings ranges from approximately 40 mAHD to approximately -205 mAHD, generally dipping from the north-east to the south-west.

As shown in Figure 2, the Hunter River flows from north-west to south-east around 300 m east of the Lemington Underground Mine. The Lemington Underground Mine workings are partially overlain by the Hunter River alluvium, and are located between 40 m and 100 m below the base of the alluvium.

The Lemington Underground Mine extends beneath Wollombi Brook, which flows from south-west to north-east over the former workings reaching a confluence with the Hunter River approximately 1.5 km to the east. The alluvium underlying the Wollombi Brook is separated from the Lemington Underground Mine workings by between 105 m and 230 m of rock strata comprising coal seams and interburden units.

During the operation of the Lemington Underground Mine, the maximum groundwater drawdown within the Mount Arthur Seam would have been approximately -205 mAHD in the vicinity of the south-west corner of the workings (i.e. the minimum elevation of the workings), which is approximately 270 m below surface level.

Existing LUG Bore Extraction

In 2008, HVO installed a groundwater bore (the LUG Bore) to enable the extraction of accumulated water within the Lemington Underground Mine workings (Figure 2).

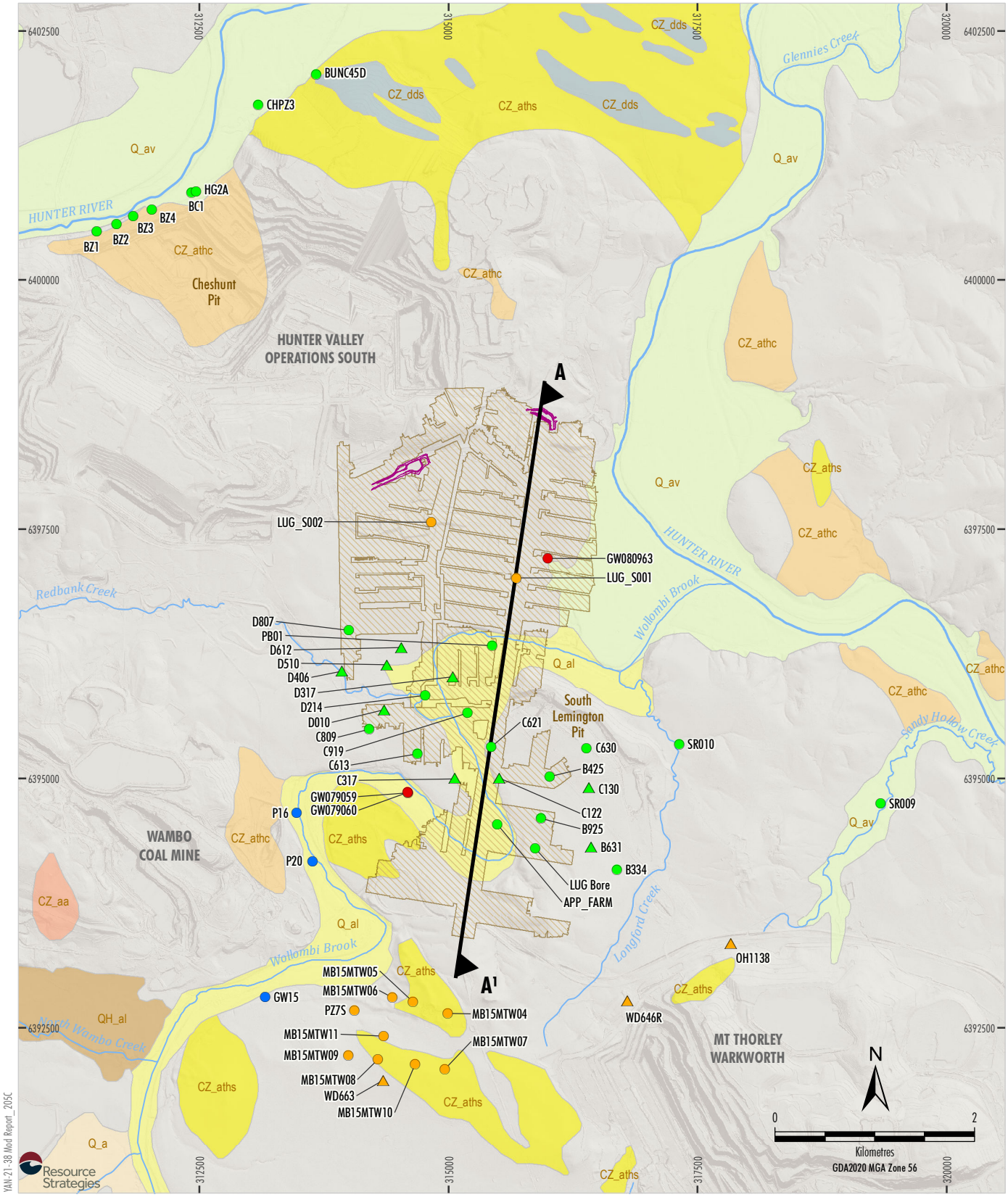
Extraction via the LUG Bore commenced in October 2013. From 2013 to 2020, MTW extracted a total of 5,520 ML of water from the LUG Bore. There has been no extraction of water via the LUG Bore by HVO.

The minimum groundwater level observed at the LUG Bore was approximately -58.7 mAHD in May 2020 which aligned with an extended period of relatively dry, below average rainfall conditions from 2016 to 2020 and higher annual licenced extraction from the LUG Bore.

Groundwater Monitoring and Conceptual Groundwater Model

Groundwater monitoring is undertaken at a number of locations overlying and surrounding the Lemington Underground Mine, which has been considered by AGE (Figure 5). Groundwater level measurements were also taken from two recent bores (LUG_S001 and LUG_S002) drilled in July and August 2021 to verify the current groundwater level in the Lemington Underground Mine void. The available monitoring data indicates that the Lemington Underground Mine void is currently saturated up to approximately -22 mAHD. This equates to a current estimated available storage capacity of 2,400 ML (Appendix A).

A conceptual cross-section of the Lemington Underground Mine is shown on Figure 6.



LEGEND

- Completed Lemington Underground Mine Workings
- Historical Boxcut

Groundwater Monitoring Network

- HVO (Nested)
- HVO
- Water NSW
- United Wambo
- MTW (Nested)
- MTW

SURFACE GEOLOGY

Cenozoic

- Q_a - Alluvium
- CZ_aa - Polymictic Gravel
- CZ_athc - Alluvial Terrace Deposits
- CZ_aths - High-level Sand and Sandstone
- QH_al - Fluvially Deposits
- Q_al - Overbank Deposits
- Q_av - Alluvial Valley Deposits
- CZ_dds - Aeolian Deposits

Source: AGE (2021); HVO(2021); NSW Spatial Services (2021); Geoscience Australia (2006)

Refer Figure 6 for Cross Section.

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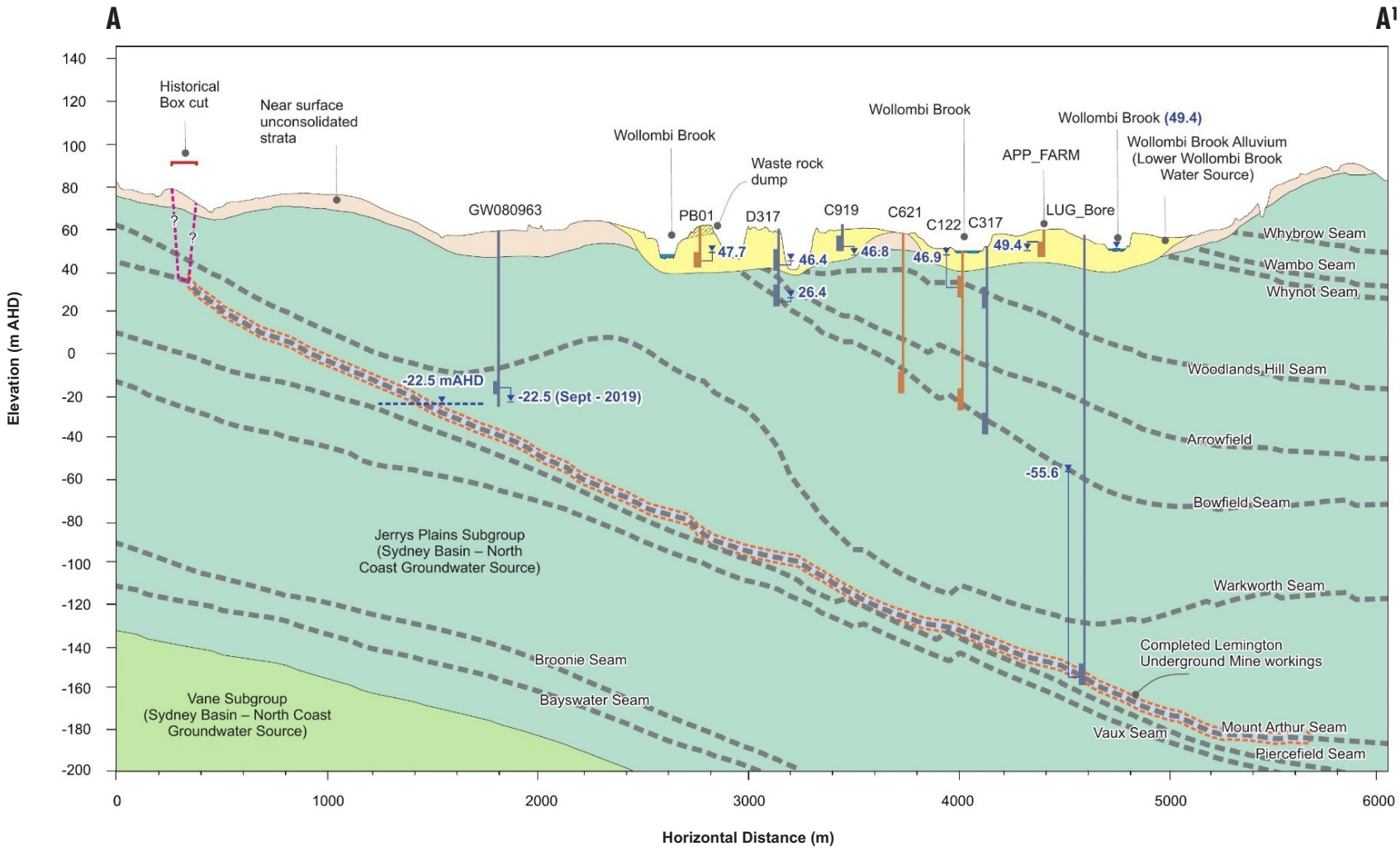
LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Groundwater Level Monitoring Locations

Figure 5



Source: AGE (2021)

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Resource Strategies

LEGEND

- Completed Lemington Underground Mine Workings
- Modelled Permian Coal Seam Elevation (AGE, 2017)
- Water Level Monitoring Bore within 200 m
- Water Level Monitoring Bore from 200 - 600 m
- Standpipe/VWP Location
- -55.6 Standpipe/VWP Water Level (m AHD)
- Water Level (m AHD)

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LEMINGTON UNDERGROUND MINE WATER STORAGE PROJECT

Conceptual Hydrogeological Cross Section A - A1

Figure 6

Groundwater level and surface water flow data collected during nine years of operating the LUG Bore indicates that there have been no impacts on either groundwater levels in the Wollombi Brook alluvium (located approximately 105 to 230 m above the Lemington Underground Mine workings) or flows in the Wollombi Brook (Appendix A).

There are currently no groundwater monitoring locations in the Hunter River alluvium close to the Lemington Underground Mine void (which is located approximately 40 m to 100 m below the Hunter River alluvium in the north-east areas of the workings [Figure 5]). While the Mount Arthur Seam is thought to subcrop beneath the alluvium, the location of Lemington Underground Mine workings within the seam are vertically offset from the alluvium (i.e. there is no direct connection between the workings and the alluvium). No significant historic impacts on the groundwater levels in the Hunter River alluvium or flows in the Hunter River are likely to have occurred due to approved operations.

Lemington Underground Mine Water Quality

AGE reviewed water quality data from samples at the LUG Bore, recently drilled saturated bore (LUG_S001) and other Mt Arthur Seam groundwater sites. Water quality in samples from the LUG Bore is similar to water quality in samples from LUG_S001, and has been taken to be representative of water within the Lemington Underground Mine void. LUG_S002 bore was unsaturated so was not considered in the analysis.

The data indicates that the water pumped from the LUG Bore is characterised by relatively high EC (median of 8,470 microSiemens per centimetre [µS/cm]) and TDS (median of 4,870 milligrams per litre [mg/L]), compared to other Mount Arthur Seam samples collected from bores approximately 3 km to the north-west in areas where the seam subcrops beneath Hunter River alluvium to the north of the Cheshunt Pit (Figure 5).

Conversely, observed pH at the LUG Bore is typically within the range observed at other Mt Arthur Seam groundwater monitoring sites.

Metal concentrations at the LUG Bore and LUG_S001 are generally several orders of magnitude below *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian and New Zealand Environment and Conservation Council [ANZECC] and Agriculture and Resource Management Council of Australia and New Zealand [ARMCANZ], 2000) livestock (cattle) drinking water quality guidelines.

MTW Surface Water Quality

AGE reviewed water quality data for the main water storages at MTW (i.e. Dam 1N, Dam 6S, South Lemington Void, South Pit Void) (and HVO). These storages are considered to be representative of the water quality that may be transferred to the Lemington Underground Mine void for storage.

A summary of the key water quality parameters (EC, pH and TDS) for the main water storages and LUG Bore is provided in Table 4.

Table 4
Statistical Summary of Water Quality in Main MTW Storages

Hydrochemical Constituent	Statistical Parameter	Dam 1N	Dam 6S	South Lemington Void	South Pit Void	LUG Bore
EC (µS/cm)	Count	45	112	1	1	28
	Minimum	2,330	3,610	-	-	7,530
	Median	5,540	6,955	6,700	6,650	8,470
	Maximum	9,520	9,540	-	-	8,730
pH	Count	45	112	1	1	28
	Minimum	8.1	8.4	-	-	7.0
	Median	8.9	9.0	9.1	8.6	7.2
	Maximum	9.2	9.2	-	-	9.3
TDS (mg/L)	Count	25	15	1	1	7
	Minimum	1,490	3,710	-	-	2,360
	Median	3,510	4,380	4,460	4,700	4,870
	Maximum	5,580	5,700	-	-	5,150

For the two MTW storages for which time series data are available (Dam 1N and Dam 6S), EC and TDS concentrations are variable and typically lower than those observed in the LUG Bore and hence in the Lemington Underground Mine void (Appendix A), while pH in Dam 1N and Dam 6S is within the pH range for the LUG Bore.

The water quality data indicates only relatively subtle differences between the major ion chemistry of the surface water storage dams, voids and the Lemington Underground Mine bores chemistry (Appendix A).

Groundwater Dependent Ecosystems

Potential groundwater dependent ecosystems (GDEs) in the vicinity of the Lemington Underground Mine include:

- River Red Gums along the Hunter River and Wollombi Brook (Umwelt, 2016);
- stygofauna in alluvium along the Hunter River and Wollombi Brook and may also occur in shallow fractured rock up to 35 m deep (Stygoecologia, 2016); and
- Warkworth Sands Woodlands (AGE, 2014).

6.1.2 Potential Impacts

The Groundwater Assessment (Appendix A) has evaluated the potential impacts of the Modification on groundwater resources.

The Modification seeks approval for the transfer of water from surface water storages into the Lemington Underground Mine void hence providing additional water storage capacity. A number of additional water transfer locations are also proposed.

Groundwater Levels

The Modification proposes the transfer, and storage, of surface water into the Lemington Underground Mine void. This water would later be transferred out of the void for operational use. Groundwater levels within the Lemington Underground Mine void would therefore rise and fall as water is transferred in and out during the course of MTW and HVO operations.

Interactions with the Surface Water

The Lemington Underground Mine workings are located at least 40 m below the Hunter River alluvium. This means that there is unlikely to be migration of water from the Lemington Underground Mine void towards the Hunter River. Notwithstanding, to prevent any potential migration of groundwater from the void towards the Hunter River alluvium, the transfer of water into the void would cease at 30 mAHD (i.e. well below the minimum elevation of the Hunter River alluvium).

Under this management approach, no seepage would flow from the Lemington Underground Mine void towards the Hunter River or Wollombi Brook and, as such, the Modification is not expected to result in any significant impacts on the Hunter River or Wollombi Brook.

Groundwater Quality Impacts

AGE has assessed potential impacts on groundwater quality using a mass balance mixing modelling approach and conservatively assuming that all of the available free storage in the workings is filled using water transferred from the existing MTW and HVO surface water storages (Appendix A). The modelling has assumed chemically conservative behaviour during mixing (e.g. no chemical reactions) between the transferred surface waters and groundwater within the Lemington Underground Mine void.

Table 5 presents the predicted water quality within the Lemington Underground Mine void following modelled transfer of surface water from HVO and MTW storages. The modelling shows that the Modification would not result in any impact to the beneficial use or environmental values of groundwater in the surrounding strata.

Notwithstanding the above, there would be no interaction of the transferred water with surface water sources, GDEs or any non-mine licensed groundwater bore, in any case.

Table 5
Predicted Water Quality Impacts

Parameter	Expected Concentration in Surface Water Transferred into the Workings	Existing Concentration in Lemington Underground Workings	Predicted Concentration in Workings Post Transfer	ANZECC & ARMCANZ (2000) Livestock (Cattle) Drinking Water Quality Guidelines
pH (Median)	8.9	7.2	7.3	NA
EC (µS/cm)	5,370	8,470	7,760	5,970
Aluminium (mg/L)	0.32	0.01	0.09	5
Copper (mg/L)	0.002	0.001	0.0012	1
Cadmium (mg/L)	0.0001	0.0001	0.0001	0.01
Lead (mg/L)	0.001	0.001	0.001	0.1
Nickel (mg/L)	0.007	0.001	0.003	1
Selenium (mg/L)	0.009	0.006	0.006	0.02

NA = Not applicable

Groundwater Dependent Ecosystems

Since no additional drawdown is proposed and there would be no migration of groundwater from the void towards the Hunter River alluvium, no additional impacts are expected to occur to local GDEs including River Red Gums along the Hunter River and Wollombi Brook, stygofauna within shallow alluvium strata or the Warkworth Sands Woodlands.

Aquifer Interference Policy

An assessment of the Modification against the minimal impact considerations in the AIP (NSW Government, 2012) has been conducted and is presented in Appendix A.

There would be no drawdown or additional take from alluvial groundwater sources, or drawdown at any non-mine licensed groundwater bore or base flow losses to surface water sources.

The management of water levels in the Lemington Underground Mine void to a maximum of 30 mAHD would ensure no potential for impact on the Hunter River and its connected alluvial groundwater source. There would be no impacts on water quality in the surrounding strata, on nearby water users or on GDEs.

Further details of the assessment of the Modification against the AIP are provided in Appendix A.

6.1.3 Mitigation Measures

The transfer of water into the Lemington Underground Mine void would cease once the groundwater level reaches 30 mAHD. Therefore, water from the Lemington Underground Mine void would not migrate towards the Hunter River alluvium.

To augment the existing groundwater monitoring regime, additional monitoring points would be installed:

- at two further locations within the Lemington Underground Mine void to monitor operational groundwater levels and water quality; and
- in the Hunter River alluvium, with piezometers in one or more underlying coal seams close to the north-east corner of the workings and to the west of the Hunter River.

This would enable ongoing monitoring of water transfers into the Lemington Underground Mine.

WML would continue to implement the existing Water Management Plan at the modified Warkworth Mine. The Water Management Plan would be reviewed and revised to incorporate the proposed management and monitoring (subject to any modified Development Consent conditions) for the Modification.

6.2 SURFACE WATER

A Site Water Balance Review for the Modification has been undertaken by WRM Water and Environment Pty Ltd (WRM) (2021) (Appendix B). A separate Site Water Balance Review for the corresponding HVO South modification has been prepared and is appended to the HVO South application modification report (Engeny, 2021).

6.2.1 Background

MTW and HVO have approval and infrastructure in place to transfer water between the sites, share certain water storages and extract water from the former Lemington Underground Mine via the existing licenced LUG Bore. Currently, the use of the LUG Bore increases water supply security and supplements external water supplies such as the Hunter River, particularly during periods of lower than average rainfall.

Management and Monitoring

Surface water management at MTW is conducted in accordance with the MTW Water Management Plan. The Water Management Plan incorporates the Water Management System, Site Water Balance, Surface Water Management Plan, and Groundwater Management Plan.

Previous Assessments

A surface water assessment was undertaken by WRM as part of the Warkworth Continuation Project EIS (WRM, 2014).

6.2.2 Potential Impacts

A Site Water Balance Review has been undertaken by WRM (2021) (Appendix B) to assess the performance of the MTW water management system, incorporating the Modification.

The Modification would include the construction of additional infrastructure to facilitate access to an additional water storage for use by MTW and HVO, and the construction of an Ultra Class Truck Workshop. As the proposed infrastructure would be located on previously disturbed land, the Modification would not impact on surrounding surface water sources.

WRM concluded that the Modification would result in no negative impact to the MTW surface water management system (and surface receiving environment).

Further information regarding the potential surface water impact as a result of the Modification is provided in the subsections below.

Water Containment

The Modification would provide additional storm buffer volume for future rainfall events and wet seasons. The provision of this additional storage capacity would improve the overall site water balance for MTW.

The Modification would reduce the risk of active pits being required to store excess mine water following heavy rainfall periods, which can cause significant interruptions to mining operations. It would also provide an efficient means to store water captured on site for later reuse thereby supplementing external water sources (such as the Hunter River) for operational purposes in the future.

Water Supply Security

The proposed Modification would have the following benefits to water supply security:

- Creates a centrally located surplus water storage accessible to both MTW and HVO allowing each site to operate independently of each other.
- Avoids evaporative losses that would otherwise be significant from an open water storage. This increases long-term water availability for MTW and HVO and maximises water reuse opportunities.
- Supplements external water sources (such as the Hunter River) during periods of low water inventory.

Proposed Workshop

The proposed Ultra Class Truck Workshop would be located adjacent to the existing workshop, on previously disturbed land. A new perimeter drain would be constructed around the northern and eastern edges of the hardstand area to direct runoff from the workshop to the existing mine water management system. Any surface water related impacts associated with runoff from the workshop would be negligible.

6.2.3 Mitigation Measures

WML would continue to implement the existing MTW Water Management Plan, and would review and revise it where necessary (subject to any modified Development Consent conditions) for the Modification.

6.3 OTHER ENVIRONMENTAL CONSIDERATIONS

6.3.1 Biodiversity

The proposed water management infrastructure for the Modification would be located on previously disturbed land primarily within the HVO mining complex. Some of these areas have partially regenerated with exotic grasses and some trees (Plate 6-1 to 6-3). Existing access tracks, easements and disturbed areas would be used for the supporting infrastructure (e.g. pipelines and powerlines) and no additional disturbance is required.

The Ultra Class Truck Workshop would be located adjacent to the existing workshop on previously disturbed land designated for infrastructure and currently used as a laydown area (Figure 3).

The MTW Biodiversity Management Plan (MTW, 2018) includes a Ground Disturbance Permit (GDP) process that must be completed and approved prior to any clearing at MTW. The GDP process ensures that all appropriate approvals and mitigation measures are in place prior to any ground disturbance. WML would continue to implement the existing Biodiversity Management Plan at the Warkworth Mine.

The development of the new infrastructure, final decommissioning and rehabilitation of relevant areas would also be managed in accordance with the MTW MOP (or Rehabilitation Management Plan).

Given the above, there would be no potential biodiversity impacts (i.e. no material impacts to threatened species, their population and ecological communities or their habitats as part of the Modification).

Plate 6-1 North-west Transfer Site

Plate 6-2 North-east Transfer Site

Plate 6-3 Southern Transfer Site

6.3.2 Construction Noise

Construction Activities

The Modification would include construction activities consisting of the following:

- construction of new bores and associated supporting infrastructure (e.g. pumps and power supplies) at three transfer sites to access the Lemington Underground Mine void; and
- construction of a new Ultra Class Truck Workshop adjacent to the existing heavy vehicle workshop.

The construction of the new bores and associated infrastructure would be undertaken using drill rigs and small earthwork machinery. Each bore and associated infrastructure would take approximately one month to construct.

The construction of the new Ultra Class Truck Workshop would be undertaken using cranes, small excavators and earthworks machinery, hand tools and equipment and other minor fleet/equipment, as required. The construction works would occur over a period of approximately 12 months.

Construction activities would be undertaken up to 24 hours per day, seven days per week.

Past Assessments

Noise impacts associated with the construction of the NOOP Dam and Putty Road Underpass were considered as part of the Warkworth Continuation Project Noise and Vibration Assessment (EMGA Mitchell McLennan Pty Ltd [EMM], 2014a). EMM concluded:

> *Noise from these construction activities would be significantly less than that from mining operations and would therefore not contribute to the total overall received noise at surrounding assessment locations.*

Potential Impacts and Management Measures

The nearest privately-owned dwellings to the proposed construction activities are located more than 1 km away and, therefore, would have a low potential to be impacted by the noise generated during the construction activities.

Notwithstanding, WML would manage the construction activities to ensure noise levels comply with the relevant operational noise criteria in Development Consent SSD-6464.

Construction activities associated with the Modification would be undertaken in accordance with the MTW Noise Management Plan (MTW, 2019). WML would continue to implement the noise monitoring program outlined in the MTW Noise Management Plan during the construction activities to ensure noise levels comply with the relevant operational noise criteria in Development Consent SSD-6464.

6.3.3 Operational Noise

Water Extraction

MTW and HVO currently extract water from the Lemington Underground Mine void via the existing LUG Bore, which is supported by a network of pipelines and pumping infrastructure (including access tracks and powerlines) (Figure 2).

Water would be transferred through a pipeline network comprising existing and additional pipelines using electric powered pumps. Pumps would be operated at each of the new bore transfer sites (Figure 2).

The closest privately-owned dwellings are located over 2 km from the new bore transfer sites (Figure 2). At this distance, the operational noise generated from pumps would be indistinguishable from other operational noise at MTW and HVO South.

Haul Truck Fleet

In accordance with the requirements of the Development Consent SSD-6464, and the MTW Noise Management Plan (MTW, 2019), new heavy mining equipment purchased by MTW is sound attenuated before being used on-site.

6.3.4 Road Transport

The current MTW workforce currently consists of approximately 1,275 employees and contractors.

Construction activities proposed under the approved Warkworth Continuation Project EIS (including modifications to existing surface infrastructure) were considered to effectively be part of continuation of normal mining operations along with ongoing maintenance activities (EMM, 2014b). Traffic associated with the proposed upgrades, including contractor and truck traffic, were considered part of MTW's normal operational traffic movements, similar to those which were already occurring (EMM, 2014b).

The Modification would result in a temporary demand (approximately 12 months) for approximately 40 employees/contractors during construction of the new water management infrastructure and Ultra Class Truck Workshop. This temporary increase of in total MTW employee and contractor vehicle movements to site is unlikely to be outside of existing seasonal and daily variations in traffic movements on the surrounding public road network.

There would be no material change in the vehicle movements associated with consumable deliveries (e.g. diesel) to MTW associated with the Modification.

Given the above, it is considered the Modification would not result in any material changes to the approved road transport impacts of MTW.

6.3.5 Visual

The landscape character of the local area is dominated by moderate to gently sloping hills with several locally dominant ridges (Coal & Allied, 2014). Rehabilitated overburden emplacement areas are a feature of the existing landscape including areas within Warkworth Mine, MTO, Bulga Coal Complex and United-Wambo Mine (Coal & Allied, 2014).

The additional surface infrastructure proposed for the Modification should be viewed in the context of the existing/approved Warkworth Mine and surrounding mining precinct.

The proposed water management infrastructure and Ultra Class Truck Workshop would be located on MTW-owned and HVO-owned land and there would be limited views available from private land.

The visual prominence of the proposed Modification infrastructure would be minor in comparison to the surrounding MTW and HVO operations.

There are no privately-owned dwellings with potential views of the Modification infrastructure. Some potential limited views of the new Ultra Class Truck Workshop would be available from Jerrys Plains Road (a public road adjacent to the existing workshop). These views would largely be shielded by existing vegetation and landforms. Warkworth would ensure all fixed external lighting associated with the Ultra Class Truck Workshop complies with *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*, as required by Condition 52, Schedule 3 of the Warkworth Development Consent SSD-6464.

Although the new Ultra Class Truck Workshop would be visible to users of Jerrys Plains Road, similar views of the existing workshop and mining infrastructure are already available along Jerrys Plains Road, in the locality. As such, views of the new Ultra Class Truck Workshop are considered to be typical of current views and it is, therefore, likely that the resulting visual impact of the new Ultra Class Truck Workshop would be low.

6.3.6 Air Quality

There is unlikely to be any increase in air quality impacts at sensitive receptors as there would be no change to the approved mining operations at the Warkworth Mine.

The proposed construction works would be undertaken in accordance with the MTW Air Quality Management Plan. This would include implementing dust management measures such as the watering of construction areas during construction activities and reapplication of water, as required.

6.3.7 Aboriginal Cultural Heritage

There are no Aboriginal Heritage Sites in the vicinity of the proposed infrastructure locations.

6.3.8 Social and Economic

As the Modification would not change the Warkworth Mine's approved ROM coal production or employment numbers, there are unlikely to be any social or economic impacts.

6.3.9 Other Matters

As the Modification would not change the Warkworth Mine's approved surface development extent, no new assessments of the following potential impacts have been carried out for the Modification:

- potential soil impacts; or
- potential impacts to agricultural land.

These matters will continue to be managed in accordance with Warkworth Mine's existing State and Commonwealth approval conditions and relevant management plans, where appropriate.

7 JUSTIFICATION OF THE MODIFIED PROJECT

The Warkworth Continuation Project was approved by the then NSW Minister for Planning on 26 November 2015 (Development Consent SSD-6464).

The approved Warkworth Continuation Project includes (among other things) an extensive water management system and mine infrastructure and support facilities to enable the efficient operation of the mine.

The Modification would augment the approved water management system at MTW to allow for the storage of water in, and the extraction of water from, the existing Lemington Underground Mine void. Additionally, the new Ultra Class Truck Workshop infrastructure proposed as part of the modification would provide adequate and suitable servicing facilities for a fleet of new ultra class trucks.

The Modification would not change the following components of the approved Warkworth Mine:

- mining method, operating hours and mine life;
- operational employee numbers;
- approved open cut footprint (i.e. no surface extension to, or change in the approved depth of the open cut);
- ROM coal extraction rate and total volume of coal produced over the life of the mine;
- coal handling and preparation;
- product coal transport;
- waste rock management; and
- reject management.

The Modification can be implemented in accordance with the existing environmental limits and performance measures for MTW, and with no additional disturbance required.

This Modification Report has been prepared in consideration of relevant legislation. WML would make revisions to plans, licences, and agreements to incorporate changes from the Modification as necessary.

7.1 STAKEHOLDER ENGAGEMENT

Yancoal (including MTW) has consulted with the following stakeholders during the development of this Modification report:

- DPIE;
- NSW Resources Regulator;
- NSW Division of Mining, Exploration and Geoscience;
- DPIE – Water;
- Natural Resources Access Regulator;
- NSW Environment Protection Authority;
- Singleton Council;
- HVO; and
- the MTW and HVO CCCs.

Key comments and issues raised during consultation have been considered and addressed in the preparation of this Modification Report.

7.2 CONSOLIDATED SUMMARY OF ASSESSMENT OF IMPACTS

WML will operate the Warkworth Mine incorporating the Modification in accordance with the existing environmental management plans and environmental monitoring programs.

WML has undertaken a review of the potential environmental impacts of the Modification to identify key potential environmental issues requiring assessment. The key environmental issues identified are summarised in Table 6.

In consideration of the assessment of impacts in Section 6, the Modification would involve minimal environmental impact as defined under section 4.55(1A) of the EP&A Act.

Table 6
Key Outcomes of Environmental Review for the Modified Warkworth Continuation Project

Environmental Aspect	Summary of Key Environmental Review Conclusions
Surface Water Resources	The Modification would result in an improvement in the site water balance (in comparison to the approved Project), including overall water balance, reducing the risk of significant operational disruption and supplementing external water sources (such as the Hunter River) during periods of low water inventory. The transfer of water into the Lemington Underground Mine void would be managed to prevent any potential migration of groundwater from the void towards the Hunter River alluvium.
Groundwater Resources	There is no additional groundwater drawdown as a result of the Modification. The transfer of water into the Lemington Underground Mine void is not expected to result in any impact to the beneficial use or environmental values of groundwater in the surrounding strata.
Other Aspects	The Modification would result in negligible or no change in potential impacts on other environmental, social and economic considerations.

7.3 CONSIDERATION OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

7.3.1 Objects of the Environmental Planning and Assessment Act 1979

Section 1.3 of the EP&A Act describes the objects of the EP&A Act as follows:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) to promote the orderly and economic use and development of land,

(d) to promote the delivery and maintenance of affordable housing,

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) to promote good design and amenity of the built environment,

(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The Modification is considered to be generally consistent with the objects of the EP&A Act, because it is a Modification that:

- involves the orderly and economic use of land as the Modification area is the minimum amount of land required to accommodate the Modification; and
- is an application under section 4.55(1A) of the EP&A Act that would be determined by the NSW Government.

7.4 JUSTIFICATION FOR THE MODIFICATION

To provide greater flexibility in site water management, WML is seeking to augment their existing water management infrastructure to enable the transfer and storage of water into the existing Lemington Underground Mine void for later extraction and reuse at MTW and HVO.

The Modification would provide additional storm buffer volume for future rainfall events and wet seasons. The provision of this additional storage capacity would improve the overall site water balance for MTW.

The Modification would reduce the risk of active pits being required to store excess mine water following heavy rainfall periods, which can cause significant interruptions to mining operations.

The proposed Modification would have the following benefits:

- it would enable more water to be stored on-site for later reuse, increasing water supply security and supplementing external water supplies such as the Hunter River;
- it would reduce the reliance on off-site discharges to the Hunter River during periods of higher rainfall as there would be greater storage capacity on-site;
- it would reduce operational disruption associated with storage of surplus water in active mining areas, thereby facilitating efficient recovery of approved resources; and
- it would avoid the loss of water through evaporation that occurs in open water storages.

MTW has implemented a program to update its haul truck fleet, replacing a number of older haul trucks with new, more efficient ultra class trucks. Due to the increased size of the new ultra class trucks they cannot be serviced in the existing workshop. A new workshop, adjacent to the existing heavy vehicle workshop is therefore required to provide the necessary servicing facilities for the ultra class trucks.

7.5 CONCLUSION

The modified Warkworth Mine would be “substantially the same” as the approved Warkworth Mine.

The Warkworth Mine (as modified) would continue to comply with existing criteria, performance measures and limits described in Development Consent SSD-6464.

WML would also continue to operate the Warkworth Mine (as modified) in accordance with the existing management and monitoring regime described in Development Consent SSD-6464.

In consideration of the assessment of impacts in Section 6, the Modification would involve minimal environmental impact as defined under section 4.55(1A) of the EP&A Act.

In weighing up the main environmental impacts (costs and benefits) assessed and described in this Modification Report, the Modification is, on balance, considered to be in the public interest of the State of NSW.

8 REFERENCES

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

Australasian Groundwater and Environmental Consultants Pty Ltd (2014) *Warkworth Continuation 2014 – Groundwater Assessment.*

Australasian Groundwater and Environmental Consultants Pty Ltd (2021) *Lemington Underground Water Storage – Groundwater Assessment.*

Coal & Allied Operations Pty Limited (2014) *Warkworth Continuation 2014 Environmental Impact Statement.*

Department of Planning, Industry and Environment (2021) *State Significant Development Guidelines.*

EMGA Mitchell McLennan Pty Ltd (2014a) *Warkworth Continuation 2014 – Noise and Vibration Study.*

EMGA Mitchell McLennan Pty Ltd (2014b) *Warkworth Continuation 2014 and Mount Thorley Operations 2014 – Traffic and Transport Study.*

Engeny (2021) *HVO Site Water Balance Review for MTW/HVO Lemington Underground Water Storage Modification*

Mount Thorley Warkworth (2018) *Biodiversity Management Plan.*

Mount Thorley Warkworth (2019) *Noise Management Plan.*

Mount Thorley Warkworth (2020) *Mining Operations Plan.*

New South Wales Government (2012) *Aquifer Interference Policy.*

New South Wales Government (2016) *Hunter Regional Plan 2036.*

New South Wales Government (2020) *Strategic Statement on Coal Exploration and Mining in NSW.*

State of NSW and Office of Environment and Heritage, (2018) *Threatened Species Test of Significance Guidelines*.

Stygoecologia (2016) *United Wambo Open Cut Coal Mine Project – Baseline Stygofauna Assessment. Appendix E of Appendix 12 in United Wambo Open Cut Coal Mine Project – Environmental Impact Statement.*

Umwelt (2016) *United Wambo Open Cut Coal Mine Project – Environmental Impact Statement.*

WRM Water and Environment Pty Ltd (2014) *Mount Thorley Operations 2014 and Warkworth Continuation 2014 – Surface Water Assessment.*

WRM Water and Environment Pty Ltd (2021) *HVO/MTW Lemington Underground Water Storage Modification – Site Water Balance Review.*

Attachment 1
Detailed Statutory Compliance Reconciliation Table

Table A1-1
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
Environmental Planning and Assessment Act 1979 (EP&A Act)				
section 1.3	Relevant objects of the EP&A Act: • Promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources. • Facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment. • Promote the orderly and economic use and development of land. • Protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats. • Promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage). • Promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State. • Provide increased opportunity for community participation in environmental planning and assessment.	Section 7.2.2 of the EIS	Section 7.3.1	✓
section 4.15	Relevant environmental planning instruments: • *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP). • *State Environmental Planning Policy (SEPP) No 33: Hazardous and Offensive Development* (SEPP 33). • *State Environmental Planning Policy No.55 – Remediation of Land* (SEPP 55). • *State Environmental Planning Policy (Koala Habitat Protection) 2021* (Koala SEPP). • *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP). • *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). • *Singleton Local Environmental Plan 2013* (Singleton LEP). • Any planning agreement or draft planning agreement that a developer has entered into under section 7.4 of the EP&A Act. • The EP&A Regulation. The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality; the suitability of the site for the development; any submissions made in accordance with the EP&A Act or the EP&A Regulation; the public interest.	Section 7.2.3 of the EIS	No change.	✓

Table A1-1 (Continued)
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
EP&A Regulation				
clause 115	An application for the modification of a development consent under sections 4.55(1), (1A) or (2) or 4.56(1) of the EP&A Act must contain information outlined in clause 115(1) and must satisfy clause 115(1A). Clause 115(2) also provides the notification requirements of clause 49 of the EP&A Regulation apply.	Sections 2, 4, 6 and Appendix A of the EIS	Sections 1, 3, 4 and 6	✓
Roads Act 1993				
section 138	The Project would require necessary consents under section 138 of the *Roads Act 1993* associated with the construction of an underpass beneath Putty Road and for the connection of private access roads to the Golden Highway. In accordance with section 4.42(1)(f) of the EP&A Act, as the Project was approved as State Significant Development, the grant of a consent under section 138 of the *Roads Act 1993* cannot be refused if that consent is necessary for the carrying out of the Project and is to be substantially consistent with the Development Consent.	Sections 7.2.5 and 7.3.4 of the EIS	No change.	✓
Mining Act 1992				
section 380AA	An application for development consent 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 for the relevant land, or the applicant has the written consent of the holder of such an authority to make the application.	Section 7.3.1 of the EIS	No change.	✓
Biodiversity Conservation Act 2016				
section 7.14(2)	The consent authority is to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR.	-	Sections 4.2.3 and 6.3.1	✓
section 7.16(3)	If the consent authority is of the opinion that the Project is likely to have serious and irreversible impacts on biodiversity values, the consent authority is required to: • take those impacts into consideration; and • determine whether there are any additional and appropriate measures that will minimise those impacts if consent or approval is to be granted.	-	Sections 4.2.3 and 6.3.1	✓
Protection of the Environment Operations Act 1997 (PoEO Act)				
section 43	The Project currently operates under EPL 1376, granted under the PoEO Act, which allows for coal works and mining for coal as scheduled activities. The EPL contains conditions that relate to emission and discharge limits, environmental monitoring and reporting.	Section 7.3.2 of the EIS	No change.	✓

Table A1-1 (Continued)
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
Water Management Act 2000				
sections 89, 90 and 91	As the Project is an approved State Significant Development, water use approvals under section 89, water management works approvals under section 90, or activity approvals (excluding aquifer interference approvals) under section 91 of the *Water Management Act 2000* would not be required for the Project. Appropriate licences under the *Water Management Act 2000* would be sought and obtained in consultation with WaterNSW, the NSW Natural Resources Access Regulator and the DPIE (or the relevant government agencies at the time).	Sections 7.2.5, 7.3.6, 16 and 17 of the EIS	Sections 4.2.4 and 6.1	✓
Dams Safety Act 2015				
section 48(4)	A consent authority must, before granting Development Consent for mining operations within a notification area of a declared dam, refer the application to Dams Safety NSW and take into consideration any matters raised by Dams Safety NSW.	Section 7.3.5 of the EIS	No change.	✓
National Parks and Wildlife Act 1974 (NPW Act)				
section 90	As the Project is an approved State Significant Development, an Aboriginal heritage impact permit under section 90 of the NPW Act would not be required for the Project.	Sections 7.2.5 and 7.3.7 of the EIS	No change.	✓
Heritage Act 1977				
section 139	No items of historic heritage would be directly disturbed by surface development for the Project (as modified). Notwithstanding, as the Project is an approved State Significant Development, an approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977* would not be required for the Project.	Section 7.2.5 of the EIS	No change.	✓

Table A1-2
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
State and Regional Development SEPP				
clause 3	Clause 3 of the State and Regional Development SEPP outlines the aims, that includes identifying development that is State significant development. The Project falls within Item 5 of Schedule 1 of the State and Regional Development SEPP as it is development for the purpose of mining that is coal mining. Under clause 8 of the State and Regional Development SEPP, the Project is, therefore, State Significant Development for the purposes of the EP&A Act.	Section 7.2.3 of the EIS	No change.	✓
Mining SEPP				
clause 12	Before determining an application for consent for the purposes of mining the consent authority must: (a) consider – (i) the existing uses and approved uses of land in the vicinity of the development, and (ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and (iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and (b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a)(i) and (ii), and (c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii).	Section 7.2.3 of the EIS	No change.	✓
clause 12A	Before determining an application for consent for the purposes of mining the consent authority must consider relevant provisions of the *Voluntary Land Acquisition and Mitigation Policy* (NSW Government, 2018).	Section 7.2.3 of the EIS	No change.	✓
clause 13	Before determining an application for development in the vicinity of mining, petroleum or extractive industry, the consent authority must (among other things) consider whether or not the development is likely to have a significant impact on current or future extraction or recovery of minerals, petroleum or extractive materials (including by limiting access to, or impeding assessment of, those resources), and any ways in which the development may be incompatible with any of those existing or approved uses or that current or future extraction or recovery.	Section 7.2.3 of the EIS	No change.	✓

Table A1-2 (Continued)
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
Mining SEPP (Continued)				
clause 14	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner (including conditions to ensure that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable, that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable, and that greenhouse gas emissions are minimised to the greatest extent practicable). This includes considering an assessment of greenhouse gas emissions (including downstream emissions) having regard to any applicable State or national policies, programs of guidelines concerning greenhouse gas emissions.	Sections 7.2.3, 11, 12 and 16 and Appendices G, H and K of the EIS	No change.	✓
clause 15	Before determining an application for consent for the purposes of mining the consent authority must consider the efficiency of the development in terms of resource recovery and whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resources recovery and the reuse or recycling of material.	Section 7.2.3 of the EIS	No change.	✓
clause 16	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions regarding transport of materials.	Sections 7.2.3 and 20 and Appendix O of the EIS	No change.	✓
clause 17	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions regarding rehabilitation, including the particular considerations set out in clause 17(2).	Sections 7.2.3 and 13 and Appendix Q of the EIS	No change.	✓
SEPP 33				
clause 13	A consent authority must consider current circulars or guidelines published by the DPIE relating to hazardous or offensive development, whether to consult with relevant public authorities regarding any environmental or land use safety requirements, a preliminary hazard analysis prepared by the applicant, feasible alternatives to the development and likely future use of surrounding land.	Section 7.2.3 of the EIS	No change.	✓
SEPP 55				
clause 7(1)	A consent authority must consider whether the land is contaminated and be satisfied that, if the land is contaminated, the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose of the Project.	Section 7.2.3 of the EIS	No change.	✓

Table A1-2 (Continued)
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the Project EIS	Relevant Section in Modification Report	Modified Project Compliance Status
Infrastructure SEPP				
clause 45(2)	Before determining a development application (or an application for modification of a consent) for development to which this clause applies the consent authority must give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks and take into consideration any response to the notice that is received within 21 days after the notice is given.	-	No change.	✓
clause 85(2)	Before determining a development application for development to which this clause applies, the consent authority must within 7 days after the application is made, give written notice of the application to the rail authority for the rail corridor, and take into consideration: (i) any response to the notice that is received within 21 days after the notice is given, and (ii) any guidelines that are issued by the Secretary for the purposes of this clause and published in the Gazette.	-	No change.	✓
Singleton LEP				
clause 2.3	A consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within that zone.	Section 7.2.3 of the EIS	No change.	✓
clause 5.10(4)	If applicable, a consent authority must, before granting consent under clause 5.10 in respect of a heritage item of heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned.	Section 19 and Appendix N of the EIS	No change.	✓
clause 5.10(8)	If applicable, a consent authority must, before granting consent under clause 5.10 to the carrying out of development in an Aboriginal place of heritage significance, consider the effect of a proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment.	Section 18 and Appendix M of the EIS	No change.	✓
clause 7.6	If applicable, a consent authority must, before granting development consent for earthworks, consider the effect of proposed earthworks on drainage patterns, soil stability, quality of fill, likely amenity impacts, likelihood of disturbing relics and proximity to and potential impacts on water courses.	Sections 14, 16 and 17 and Appendices I, K and L of the EIS	No change.	✓