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WEST WALLSEND COLLIERY CONTINUED OPERATIONS PROJECT

ENVIRONMENTAL ASSESSMENT

Umwelt
Environmental Consultants

JULY
2010

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Appendices 1-5A (Part 1)

Environmental Assessment
West Wallsend Colliery
Continued Operations Project

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Oceanic Coal Australia Limited

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Executive Summary

Background

West Wallsend Colliery (WWC) is an underground coal mine that has been operating since 1969 and is located in Western Lake Macquarie, within the Newcastle Coalfield of New South Wales (NSW). Due to a recent change in planning legislation, WWC is required to obtain an updated planning approval for the continuation of the existing mining operations within a portion of the existing mine leases. WWC has taken this opportunity to seek to consolidate all approvals for WWC into one updated and contemporary approval. Continued operations will maximise the use of existing operations and surface facilities, with limited changes proposed to the existing operations.

WWC is operated by Oceanic Coal Australia Pty Limited (OCAL) on behalf of the Macquarie Coal Joint Venture (MCJV). OCAL is the major joint venture participant of MCJV with 70 per cent ownership. Other participants include Marubeni Coal Pty Ltd (17 per cent), OCAL Macquarie Pty Ltd (10 per cent) and JFE Minerals (Aust) Pty Ltd (3 per cent). OCAL, which also owns OCAL Macquarie Pty Ltd, is wholly owned by Xstrata Coal Pty Limited (Xstrata Coal).

The WWC pit-top is located approximately 1 kilometre east of Killingworth and approximately 1.25 kilometres south-west of Barnsley. Underground mining has previously extended to the north and south of the pit-top, using both bord and pillar and longwall mining methods. Mining has previously, and continues to be, undertaken beneath the Sugarloaf State Conservation Area (SSCA) in accordance with current approvals and implementation of management measures incorporated in the Subsidence Management Plan (SMP) approved in 2007.

Whilst the need for a new approval relates only to two small areas within WWC's continued mining areas, the overall objective of the Project Application is to provide WWC with one updated approval for the remaining operations of WWC. Therefore this Project not only assesses these two small areas but also covers the entire Life of Mine (LOM) coal reserves for WWC, the existing pit top and other related ancillary surface facilities, including the proposed mining services facility. It is important to note that no significant changes to the existing underground mining or associated surface operations are proposed as part of this Project, the future operations will continue as per the current operations. Coal haulage and coal preparation are covered by existing separate approvals, to which no changes are proposed as a part of the Project.

The Project is classed as a 'Major Project' and requires approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The project application is required to be accompanied by an Environmental Assessment (EA) report, and this EA has been prepared by Umwelt (Australia) Pty Limited for that purpose. The NSW Minister for Planning is the consent authority for the Project.

The Project

The Project includes:

- longwall mining of the proposed continued underground mining area, including modifications to minimise potential impacts on significant features such as Aboriginal archaeological sites and areas of low depth of cover;

- the continued use of the existing WWC infrastructure including the existing pit-top facilities, No. 2 Vent shaft, No. 3 Vent shaft and ballast borehole; and

- construction and use of new surface facilities and ancillary activities to support the abovementioned operations.

The conceptual mine plan involves underground mining of the West Borehole Seam. Underground mining will continue for the life of the mine, estimated at 10 to 12 years. It is proposed to produce up to 5.5 million tonnes per annum (Mtpa) of run of mine (ROM) coal.

Proposed underground mining will be undertaken as a continuation of the existing mining operations. The existing No. 2 Vent shaft and No. 3 Vent shaft and ballast borehole facility will continue to be used for the continued operations at WWC. WWC currently mines the West Borehole coal seam using longwall mining techniques, up to a height of 4.8 metres. The majority of coal from WWC is washed and loaded onto trains at the Macquarie Coal Processing Plant (MCPP) to be transported to Newcastle Port for export. Continued underground mining at WWC is proposed to be undertaken in two main areas, referred to as the Western and Southern domains. Mining is currently being undertaken in Longwall 38 in the Western domain.

New surface facilities, namely the mining services facility, the water re-use project infrastructure and demountable training building, will be constructed to support WWC operation. Existing ancillary services will be utilised or modified where possible to minimise the surface disturbance associated with constructing new infrastructure.

Consultation

Consultation with the community and government agencies is a key component of the EA process. The consultation program, building on the community engagement programs under the existing Social Involvement Plan (SIP), commenced early in the project planning phase. The consultation program aimed to facilitate an appropriate definition of the scope of the EA and to enable the Project to be responsive to community concerns.

Key aims of the consultation process were to inform stakeholders about the Project, identify any issues of concern or interest to be investigated and addressed during the EA process and to provide an opportunity for input to the Project assessment and management process. A further phase of consultation was carried out following the substantial completion of the EA studies and aimed to inform stakeholders and the community in more detail of the Project and how it will potentially impact on the community and environment. This was undertaken in the form a newsletter, seeking feedback from members of the community. A third newsletter was distributed to the local community outlining key outcomes of the EA.

A range of mechanisms was used to engage the community and other stakeholders, and to seek feedback on this information. Community consultation mechanisms included individual meetings with landholders within the continued underground mining areas, community newsletters, presentations to stakeholder and community groups and two briefings to the Westside Community Consultative Committee. Other stakeholders consulted included the

Aboriginal community, West Wallsend Chamber of Commerce, OCAL employees and local service providers.

Agency consultation included Project briefings with all key government agencies at various stages of the Project to discuss key issues and proposed management measures. These agencies included the Department of Planning (DoP), Lake Macquarie City Council (LMCC), Cessnock City Council, Mine Subsidence Board (MSB), Department of Environment, Climate Change and Water (DECCW), NSW Office of Water (NOW) and the Department of Industry and Investment (DI&I) (formerly Department of Primary Industries).

Key Environmental and Community Issues

This EA has comprehensively addressed the potential environmental and community impacts likely to be associated with the Project. A range of management and mitigation measures are proposed to minimise the environmental and social impacts of the Project. An overview of the outcomes of the detailed assessments of the key issues is provided below.

Subsidence

A subsidence impact assessment has been undertaken which includes detailed predictions of likely subsidence associated with the Project and assessment of the potential impacts of subsidence on the built and natural environment.

The assessment defines the area affected by subsidence from the Project. This area generally extends above and immediately adjacent to the underground mining footprint. The subsidence predictions for the Project are consistent with previous subsidence levels experienced at WWC.

Subsidence as a result of the Project has the potential to impact on a range of both natural and man-made features as discussed further below. Potential subsidence impacts on water resources, Aboriginal archaeological features, ecology and historic heritage have all been assessed in the EA and are discussed below.

Detailed SMPs (or extraction plans) will be prepared for each stage of the Project, specifying the monitoring requirements and subsidence management measures to be implemented for each mining area.

Water Resources

Groundwater

A comprehensive groundwater assessment has been undertaken by Aurecon to predict the potential impacts of the Project. The assessment found that there was no significant groundwater aquifer located within the continued underground mining area. Following significant medications to the mine it is unlikely that significant connective cracking will occur.

The current usage of groundwater within the continued underground mining area is negligible with the potential for future usage of weathered rock aquifers and fractured rock aquifers also considered negligible due to their generally poor yield, quality and continuity. Further, the hydrogeological assessment determined that it is highly unlikely that alluvium within the continued underground mining area contains aquifers which would provide a significant groundwater source

WWC is proactively managing its impact on water resources and will continue to maintain a groundwater monitoring network and also undertake regular analysis of groundwater monitoring data to compare predicted and actual groundwater impacts.

Surface Water

The surface water assessment of the predicted subsidence impacts indicates that the catchment boundaries of the creek systems to be undermined will not change significantly. It is also considered unlikely that any significant increase in ponding or storage of surface runoff will occur. A series of monitoring points have been identified to monitor potential surface water impacts.

Sediment and erosion control measures are proposed to ensure that there will be no significant impact on downstream water qualities if subsidence remediation works are required. Erosion and sediment controls will also be implemented during construction activities associated with the Mining Services Facility.

Detailed water balance investigations for the Project consider variations in rainfall, runoff and on site demands. WWC is a gross water surplus site prior to discharge and transfer, with surplus water being generated within the underground workings and the surface facilities at the WWC pit top.

The proposed remediation and monitoring protocols will be included in the SMP/Extraction Management Plan (EMP) or equivalent process throughout the life of the Project to minimise surface water impacts.

Ecology

An ecological survey and assessment has been undertaken by Umwelt to assess the impact of the Project on threatened flora and fauna species, endangered populations, threatened ecological communities (TEC) and their habitats. Ecological surveys have recorded two threatened flora species and 17 threatened fauna species within the continued underground mining area. Two TECs, River-flat Eucalypt Forest on Coastal Floodplains and Swamp Sclerophyll Forest on Coastal Floodplains, were recorded within the continued underground mining area.

A relatively minor portion of the continued underground mining area will be subject to surface disturbance for the construction of the mining services facility. No direct clearing of vegetation is required for the Project. Subsidence is not expected to impact the structure or floristic composition of vegetation communities, although some subsidence cracking is likely to occur in vegetated areas. The assessment concluded that the Project will not result in a significant impact on threatened species, endangered populations or TECs or their habitats within the continued underground mining area.

A range of mitigation measures will be implemented to reduce potential impacts through amendments to the existing West Wallsend Colliery Biodiversity and Land Management Plan.

Aboriginal Archaeology

A comprehensive Aboriginal cultural heritage and archaeological assessment was undertaken for the Project in consultation with the registered Aboriginal stakeholder groups. The principal aims of the Aboriginal cultural heritage assessment were to identify and record the Aboriginal cultural heritage and archaeological values of the continued underground mining area and to assess the significance and any potential impacts of the proposal on these values. The Aboriginal stakeholder groups were involved in all facets of the assessment including consultation during development of the survey strategy and participation in field survey, site identification and recording and provision of advice to WWC which was taken into account in the early mine planning stage. The registered stakeholders

participated in the preparation of the assessment report and their comments and advice have been incorporated directly into the text at a working draft and final draft stage.

The survey methodology was prepared in consultation with the Aboriginal stakeholders and undertaken with their participation over a period of 21.5 days. The survey located a total of 62 Aboriginal archaeological sites in or within close proximity to the proposed continued underground mining area. The sites included: grinding grooves; a rockshelter with artefacts and potential archaeological deposits; artefact scatters; isolated finds (single artefacts); scarred trees and stone arrangements. During the survey the Aboriginal stakeholders also identified 17 landscape features of cultural value.

Overall the continued underground mining area and the identified landscape features and Aboriginal archaeological sites it contains were assessed as having high to extremely high Aboriginal cultural significance.

All 62 Aboriginal archaeological sites were assessed for their Aboriginal cultural and archaeological significance and were also assessed for potential to be impacted directly or indirectly by subsidence or subsidence remediation works. The 17 landscape features identified as having cultural value were also assessed for their Aboriginal cultural significance and their potential to be impacted directly or indirectly by subsidence or subsidence remediation works.

Based on both the cultural significance and potential subsidence impacts, WWC has developed a multi-faceted management strategy for the Project, including the following:

- undertaking significant mine plan modifications to protect several sites of both Aboriginal cultural and archaeological significance. These mine plan changes have resulted in the sterilisation of approximately 2 million tonnes of coal resource;

- provision of $200,000 over the life of the project to assist in the management of Aboriginal cultural and archaeological sites/values within the SSCA;

- in consultation with the Aboriginal stakeholders developing a program of monitoring and reporting of subsidence impacts on landscape features of Aboriginal cultural value and Aboriginal archaeological sites;

- funding a program of additional survey within the SSCA in consultation with the Aboriginal stakeholders and the NPWS/DECCW, in order to be able to demonstrate Intergenerational equity in relation to seven the Bangalow Creek Grinding Grooves;

- providing each of the registered stakeholders additional further stakeholder requested offset packages; and

- preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) for the project that is consistent with the Aboriginal cultural and archaeological management commitments made in this report.

Historic Heritage

A Historic Heritage Assessment was undertaken for the Project. Several trees with potential historical wounds, scars or surveyor's marks were the only potential historical heritage sites identified within the continued underground mining area.

Four heritage sites were recorded within the continued underground mining area. Three of these sites were considered to be of nil to low local significance with nil to low research potential. Tree 6/Diega Creek ST3 is considered to be of local significance, as the wound

identified was likely made by timber getters for food storage and was assessed as potentially dating to the late nineteenth century when railway expansion in NSW was at its peak. It is also believed this site has potential associations with interactions between the timber getters and the local Aboriginal people.

Air Quality

To assess the potential air quality impacts associated with the Project a detailed air quality assessment was completed. The assessment includes the direct and cumulative air quality impacts associated with the Project. Results of the air quality assessment have identified that the Project will meet the relevant air quality criteria at all residential receiver locations as modelled dust emissions are relatively small due to coal production being sourced from underground operations.

The cumulative air quality impact assessment concluded that, based on results of the predictive air quality modelling, the proposed Project will readily meet the DECCW cumulative air quality goals at all sensitive receiver locations. Monitoring records show that up to three exceedances of the daily average PM_{10} goal have been recorded in Wakefield in previous years. The air quality assessment analysed project-related emissions in combination with background PM_{10} concentrations and found that the predicted project-related 24-hour PM_{10} concentrations are not expected to result in any additional exceedances of the DECCW goal.

A range of dust controls will continue to be implemented, including dust controls on coal handling equipment, spray systems for dust suppression and ongoing dust monitoring and reporting of results.

Noise

A detailed noise assessment was undertaken which included the direct and cumulative noise impacts associated with the Project.

The modelling indicates that the existing WWC pit top facilities have the potential to exceed the target Project Specific Noise Levels in both Killingworth and Barnsley under meteorological conditions that propagate noise from WWC towards these receiver areas. The magnitude of the exceedances is up to 6 dB under the worst case meteorological conditions considered by the INP (EPA, 2000). To address this predicted exceedance, WWC is committed to mitigating the noise impact from the coal breaker, the No. 2 vent fan and other key noise contributors.

From modelling undertaken, the predicted cumulative noise levels are less than the recommended acceptable noise levels at all the potential receiver locations in the region surrounding WWC.

WWC is committed to mitigating the noise impact from the coal breaker by enclosing the existing coal breaker or, should it became economically feasible, replacing the existing coal breaker with a new, quieter style of crusher or by employing an alternative process. Following the completion of this work, the Project Specific Noise Levels should be met at Killingworth and Barnsley. WCC will also investigate whether there are any feasible opportunities for further noise reduction at Killingworth.

WWC is also committed to managing the noise impact from the No. 2 Vent Shaft through the installation and maintenance of appropriate noise control measures on the vent shaft fan and motor room and, as appropriate, through negotiation with the adjacent affected landowner. The selection and installation of noise mitigation controls on the No. 2 Vent Fan will be dependent on the future operational requirements of the No. 2 Vent Fan and performance of

the vent fan against the target Project Specific Noise Levels (PSNLs) for each of the receiver locations in the surrounding region. The performance/noise impacts of the No. 2 Vent Fan will be assessed if the operational requirements of No. 2 Vent Fan change as a result of changes in ventilation needs the WWC underground workings or as a result of the No. 3 Vent Fan undergoing maintenance.

Traffic and Transport

A comprehensive assessment of the traffic impacts associated with the Project was undertaken by Stapleton Transportation & Planning Pty Ltd. This assessment considered both the traffic associated with the existing WWC pit top facility, No. 3 Vent shaft and ballast borehole facility and the potential traffic impacts of the proposed mining services facility.

The assessment determined that the Project is not expected to generate additional long term access, traffic or parking demand issues at WWC. The Project is not expected to generate additional vehicle movements at the pit top site. Notwithstanding, the mining services facility will generate a very minor amount of daily traffic and access to the mining services facility has been carefully designed following discussions with LMCC and the Roads and Traffic Authority (RTA) to ensure appropriate safety and efficiency of movement.

Traffic modelling and general traffic assessment indicates that the Project would have no impact on the operation of local roads and intersections. Specifically, the modelling indicates that there is no predicted significant change to the operation of the local intersections over a 10 year forecast period, and no change to average delays and levels of service.

Visual Amenity

A visual assessment was undertaken for the Project to determine potential impacts on visual amenity. The proposed mining services facility is the only addition to the existing visual environment.

The visual assessment concluded that the proposed mining services facility will not significantly impact on the visual amenity of the surrounding area. Due to existing vegetation and topography, views of the proposed mining services facility are significantly restricted to the immediate area. Furthermore, visual impacts to road commuters will be short in duration and are not considered inconsistent with the current visual amenity.

Greenhouse Gas and Energy Assessment

A detailed greenhouse gas and energy assessment was undertaken to consider the greenhouse gas emissions from the Project itself and from the end use of the coal produced. The annual direct and indirect emissions (including the end use of coal) of greenhouse gas from the Project equate to approximately 1.478 per cent of Australia's national greenhouse inventory. This is equivalent to 0.03 per cent of annual global greenhouse gas inventory.

Xstrata Coal believes that access to an affordable, reliable and secure energy supply is fundamental to economic and social development but, at the same time, fully recognises its role and responsibility to help address climate change. The company believes that emission reductions resulting from the production and use of coal are both required and achievable. Increased energy efficiencies within the built environment, industrial and power generation sectors, together with carbon capture and storage and other low emission power generation technologies, will enable the deep cuts in greenhouse emissions to be realised.

WWC, as part of Xstrata Coal, also acknowledges that climate change is a major challenge and that accelerated action is required to stabilise greenhouse gas concentrations in the atmosphere at levels guided by the research of the United Nations Intergovernmental Panel

on Climate Change. WWC will implement a number of management measures to mitigate its greenhouse gas emissions and energy usage at the site level.

Ongoing Community Involvement

WWC is committed to an ongoing Social Involvement Plan. Should the Project be approved, WWC will continue to engage the community in consultation for the purposes of providing the community with information relating to the Project and operations in general and to gain feedback. This will also enable the community to provide feedback to WWC and raise and issues or concerns.

Justification for the Project

This EA provides a detailed assessment of the potential environmental and social impacts associated with the Project including the principles of Ecologically Sustainable Development (ESD) as required by the EP&A Act. The EA concludes that the Project is consistent with the principles of ESD.

Since the commencement of mining, WWC has undertaken both bord and pillar and longwall mining activities under a number of consents within areas encompassed by Consolidated Coal Leases and Mining Leases. WWC seeks project approval to provide one updated approval for the remaining operations of WWC, namely, the entire Life of Mine (LOM) coal reserves, existing pit top and other related ancillary surface facilities.

WWC provides substantial economic benefits at Federal, State and local levels whilst maintaining a good relationship with the community and implementing sound environmental management practices. The proposed Project will build on these attributes of the existing operations. Some of the key benefits of the Project are outlined below:

- ongoing employment of approximately 390 people, with many more indirect jobs created through flow-on effects;
- recovery of approximately 36 million tonnes (Mt) of ROM coal over the life of the Project;
- average annual economic contribution of $448 million to the regional economy during mining operations;
- average annual economic contribution of $644 million to the NSW economy during mining operations;
- payment of significant royalties ($29.5 million during 2008 and 2009) to the State of NSW;
- significant export earnings for Australia; and
- significant economic benefits to the local community through ongoing local employment, purchase of goods and services, and local expenditure both directly and through employee wages.

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section 1.0

Introduction

1.0 Introduction

West Wallsend Colliery (WWC) is an underground coal mine that has been operating since 1969 and is located in Western Lake Macquarie, (refer to **Figure 1.1**), within the Newcastle Coalfield of New South Wales (NSW). Due to a recent change in planning legislation, WWC is required to obtain an updated planning approval for the continuation of the existing mining operations within a portion of the existing mine leases. WWC has taken this opportunity to seek to consolidate all approvals for WWC into one updated and contemporary approval. Continued operations will maximise the use of existing operations and surface facilities, with limited changes proposed to the existing operations.

This Environmental Assessment (EA) for the West Wallsend Colliery Continued Operations Project ('the Project') has been prepared as part of the Part 3A approval process under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) (refer to **Section 1.5**).

1.1 Background

WWC is operated by Oceanic Coal Australia Pty Limited (OCAL) on behalf of the Macquarie Coal Joint Venture (MCJV). OCAL is the major joint venture participant of MCJV with 70 per cent ownership. Other participants include Marubeni Coal Pty Ltd (17 per cent), OCAL Macquarie Pty Ltd (10 per cent) and JFE Minerals (Aust) Pty Ltd (3 per cent). OCAL, which also owns OCAL Macquarie Pty Ltd, is wholly owned by Xstrata Coal Pty Limited (Xstrata Coal).

The WWC pit top is located approximately 1 kilometre east of Killingworth and approximately 1.25 kilometres south-west of Barnsley (refer to **Figure 1.2** and **1.3**). Underground mining has previously extended to the north and south of the pit top, using both bord and pillar and longwall mining methods. Longwall mining is currently progressing beneath areas of bushland west of the F3 Freeway, as shown in **Figure 1.3**.

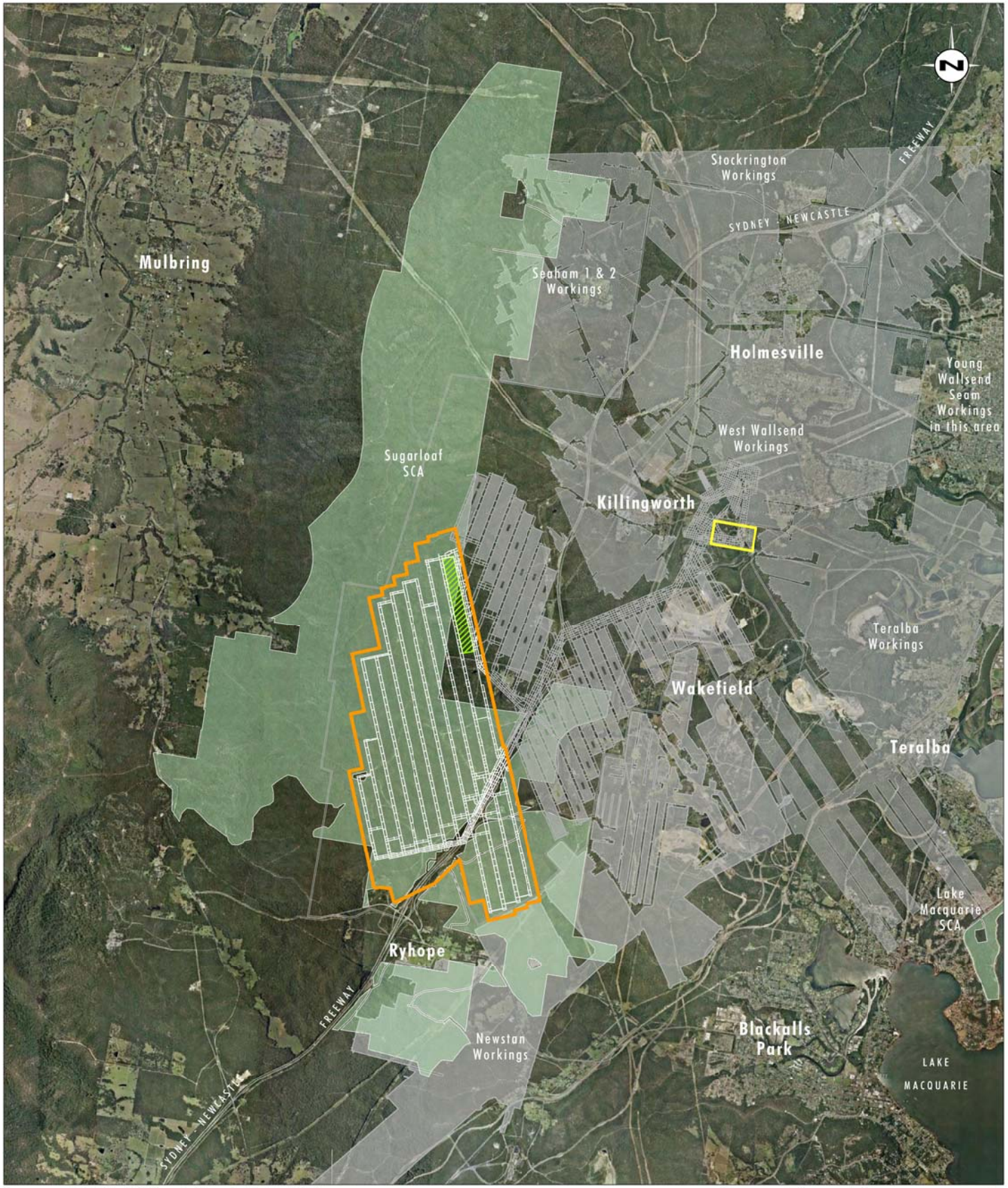
Mining has previously, and continues to be, undertaken beneath the Sugarloaf State Conservation Area (SSCA) (refer to **Figure 1.2**), in accordance with current approvals and with the implementation of management measures incorporated in the WWC Subsidence Management Plan approved in 2007. As discussed in **Section 1.4**, the SSCA was formerly Awaba and Heaton State Forests, and the declaration as a State Conservation Area in 2007 specifically provided for the co-existence of conservation and underground mining activities.

As well as WWC, OCAL currently operates an open-cut coal mine (Westside Mine) and a coal preparation plant (Macquarie Coal Preparation Plant (MCPP)). Westside Mine is located adjacent to the southern boundary of the WWC pit top, whilst the MCPP is located approximately 3 kilometres to the east of the pit top. All coal from WWC is transferred to the MCPP via an existing private haul road. A second underground coal mine owned by the MCJV at Teralba is presently on a care and maintenance program, while potential options for future mining are evaluated. The locations of the WWC Colliery Holding and other facilities operated by the MCJV in the Lake Macquarie Local Government Area (LGA) are shown on **Figure 1.3**.

A new planning approval is required for two small portions of the continued underground mining area at WWC, as shown in **Figure 1.4**. The current approval for mining in these areas relies on the savings provisions of the Lake Macquarie Local Environmental Plan (LEP, 2004), which enables underground mining to be undertaken, without development consent, where an existing mining lease (ML) is related to an existing mining operation. The savings provisions expire in December 2010 and hence WWC will require a new approval for mining within these areas.

FIGURE 1.1

Location of West Wallsend Colliery



Source: DECCW 2009 and Google Earth 2009

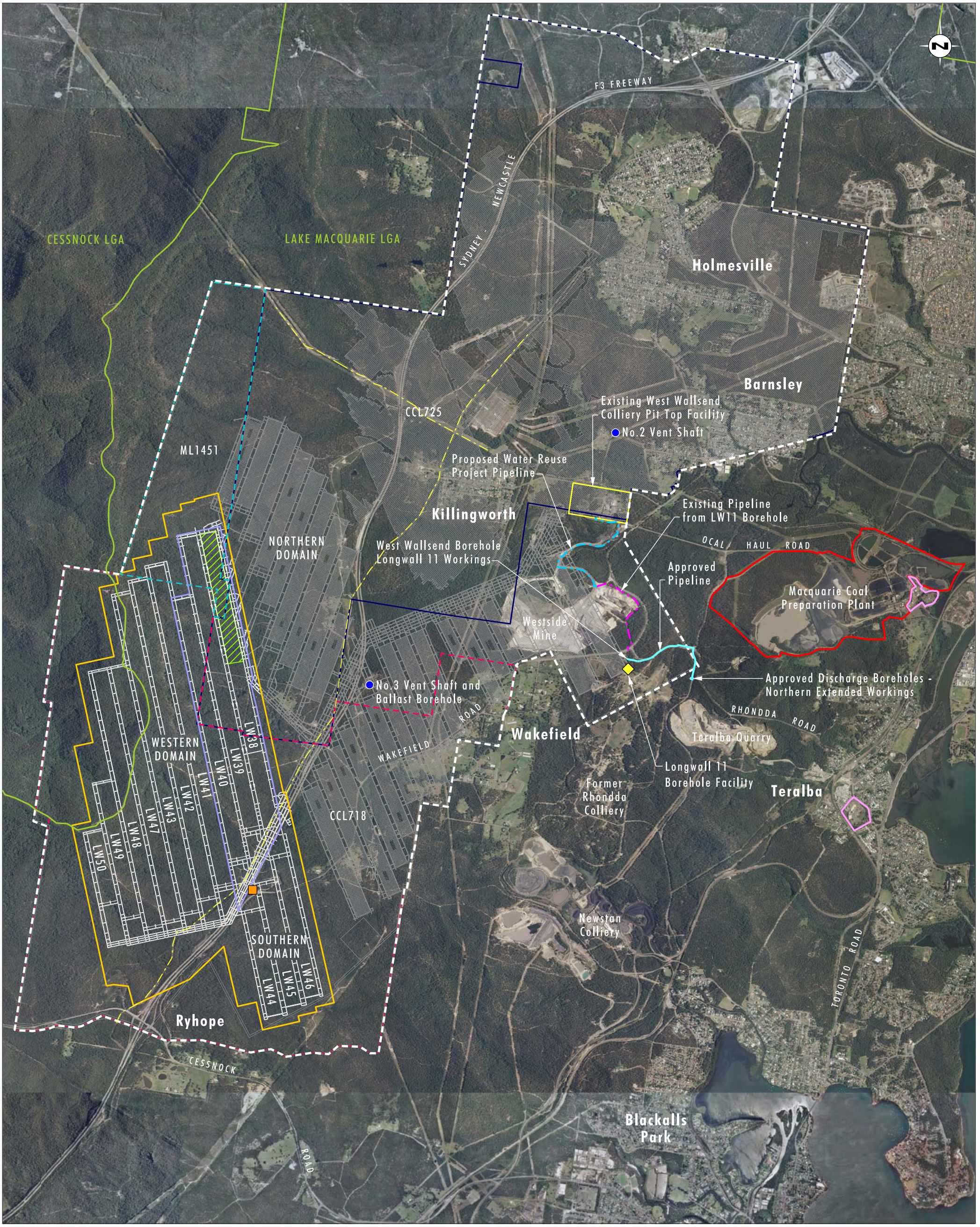
0 1.0 2.0 4km
1:80 000

Legend

- Existing West Wallsend Colliery Pit Top Facilities
- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Sugarloaf State Conservation Area

FIGURE 1.2

Local Setting



Source: OCAL, Google Earth 2008

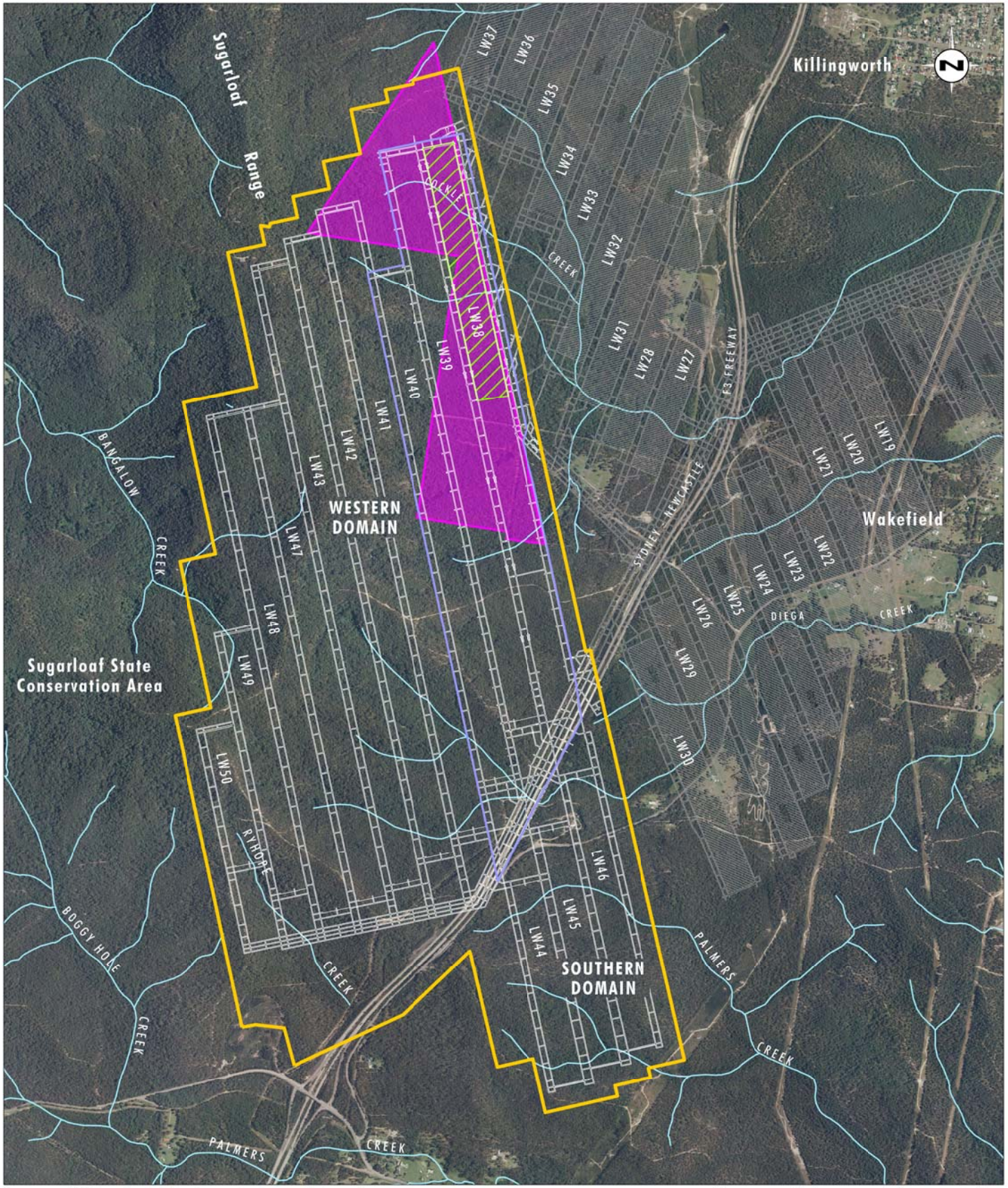
0 0.5 1.0 2.0km
1:40 000

Legend

- CCL725
- CCL718
- ML1451
- Existing West Wallsend Colliery Pit Top Facilities
- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Approved SMP Area
- Teralba Colliery Areas
- Local Government Area
- Project Application Area
- Proposed Mining Services Facility
- Longwall 11 Borehole Facility
- Services Easement

FIGURE 1.3

West Wallsend Colliery Continued Operations Project Area



Source: OCAL - Aerial Photograph, Longwall Layout
LPI - Drainage Lines

0 0.5 1.0 1.5km
1:30 000

Legend

- Continued Underground Mining Area
- Area of Existing ML Requiring Updated Project Approval
- Approved SMP Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Drainage Line

FIGURE 1.4

Current Mining Areas Requiring Updated Project Approval

File Name (A4): R08_V1/2553_257.dgn

Whilst the need for a new approval relates only to two small areas within WWC's continued underground mining areas, the overall objective of the Project Application is to provide WWC with one updated approval for the remaining operations of WWC. Therefore this project not only assesses these two small areas but also covers the entire Life of Mine (LOM) coal reserves for WWC, the existing pit top and other related ancillary surface facilities, including the proposed Mining Services Facility (refer to **Figure 1.3**). It is important to note that no significant changes to the existing underground mining or associated surface operations are proposed as part of this Project. Coal haulage and coal preparation are covered by existing separate approvals, to which no changes are proposed as a part of the Project and are not part of this Project Application.

The Project is classed as a 'Major Project' under Part 3A of the EP&A Act (refer to **Section 1.5**), requiring the preparation of an EA report. The NSW Minister for Planning is the consent authority for the project.

A Major Projects Application for the project was lodged with the Department of Planning (DoP) in November 2009. The Project Application Area (project area) is shown on **Figure 1.3**. The schedule of lands within the project area is contained in **Appendix 1**.

This EA has been prepared by Umwelt (Australia) Pty Limited (Umwelt) on behalf of WWC in accordance with the Director-General's Requirements (DGRs) for the project issued by DoP (refer to **Section 3.3**). This EA includes a description of the project, a discussion of the planning and environmental context, a detailed environmental impact assessment, identifies the required management and mitigation measures, and contains a statement of commitments to be implemented as part of the project.

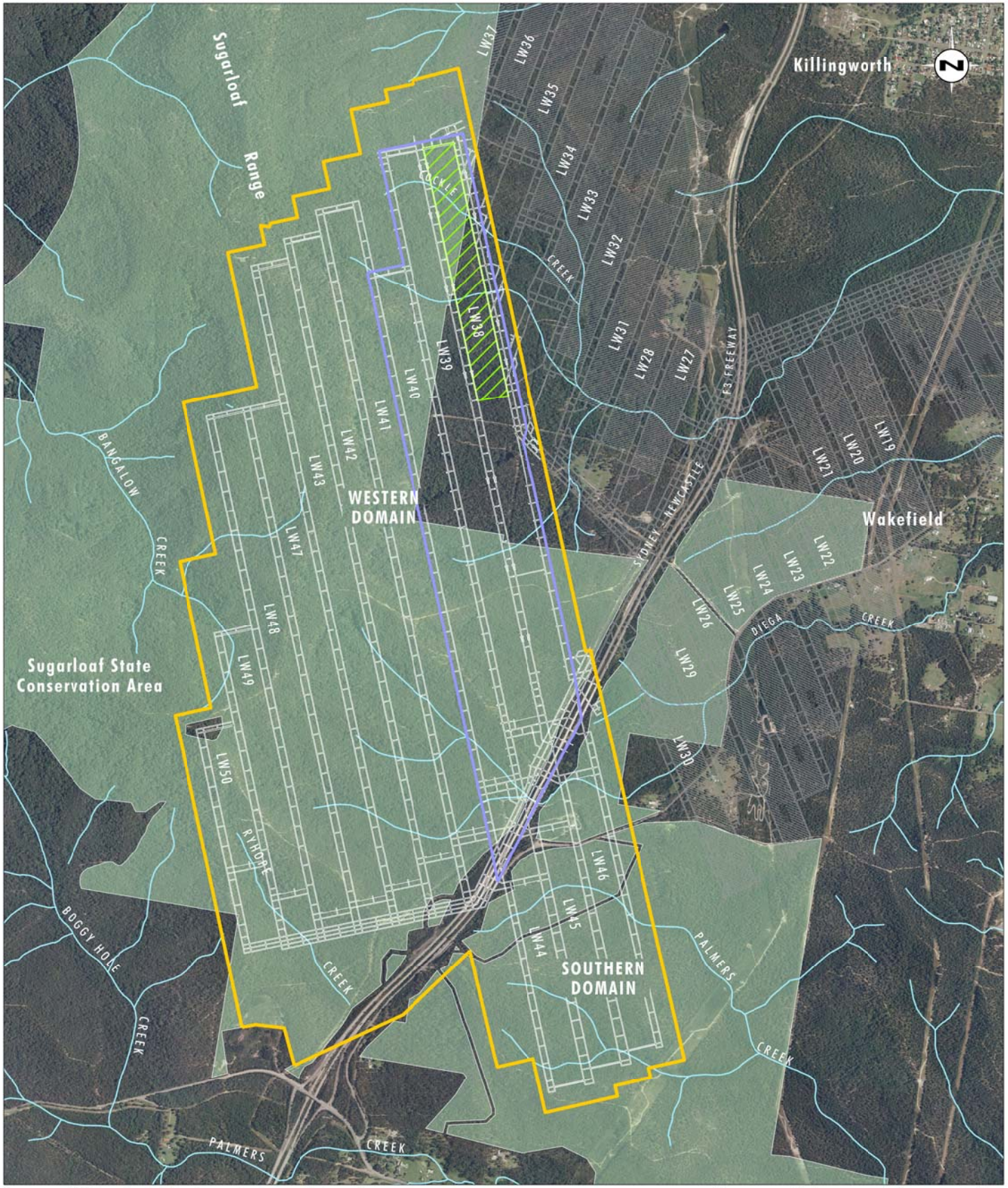
1.2 History of Mining Operations at West Wallsend Colliery

WWC has a long history of mining in the Lake Macquarie area, commencing in 1969. Prior to longwall operations, which commenced in 1987, WWC operated as a bord and pillar mining operation. Longwall mining has been undertaken in areas to the north and south of the pit top (refer to **Figure 1.3**). In recent years, longwall mining has been undertaken in Longwalls 27, 28 and 31 to 37, in an area referred to as the Northern domain. Longwall mining is currently being undertaken in the Western domain, in Longwall 38, (refer to **Figure 1.3**). WWC currently operates under a number of existing development consents, existing mining leases and an approved Subsidence Management Plan (SMP), discussed in further detail below.

The original development consent for the WWC pit top facilities and the No. 2 ventilation fan was granted in 1969 and is referred to as the 1969 consent (DA B66-69). The existing No. 3 ventilation fan has been constructed under the Lachlan/Wakefield Colliery Consent (DA-90-0725). Refer to **Section 2.2.2** for a full review of the current WWC approvals.

Longwall mining at WWC is currently undertaken in two main areas, referred to as the Western and Southern domains as shown in **Figure 1.5**. The majority of mining within these two domains is encompassed within Consolidated Coal Lease (CCL) 718. Mining within CCL 718 has current development consent under the 1981 Stockton Borehole Consent (the 1981 Consent) granted by the then NSW Department of Environment and Planning. However, two small portions of mining in the Western domain are located within CCL 725 and Mining Lease (ML) 1451, as shown on **Figure 1.4**, which are not covered by the 1981 consent.

Mining within CCL 725 and ML 1451 is currently being undertaken under a Part 5 Approval granted by the Department of Industry and Investment (DI&I) (previously Department of Primary Industries). This approval is based on the savings provisions of the Lake Macquarie



Source: OCAL - Aerial Photograph, Longwall Layout
LPI - Drainage Lines

0 0.5 1.0 1.5km
1:30 000

Legend

- Continued Underground Mining Area
- Approved SMP Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Sugarloaf State Conservation Area
- Drainage Line

File Name (A4): R08_V1/2553_246.dgn

FIGURE 1.5

Proposed Continued Mining Area for West Wallsend Colliery

LEP, which enable underground mining to be undertaken, without development consent, where an existing ML is related to an existing mining operation.

The savings provisions under the Lake Macquarie LEP will expire in December 2010. After December 2010 all mining within CCL 725 and ML 1451 will require a new Project Approval under the EP&A Act. This requirement is being addressed by the project with all continued mining proposed to be conducted under a single Project Approval granted under Part 3A of the EP&A Act.

1.3 Overview of the Project

The main aim of the Project is to provide for continuation of mining operations and related surface infrastructure in CCL 718, 725 and ML 1451, for the continued operation of the existing surface facilities, the construction of the proposed Mining Services Facility and to enable continued operations under one consolidated approval that will cover the remaining operations of WWC.

The key features of the Project are outlined below in **Table 1.1**.

Table 1.1 – Key Features of the Project

Major Project Components/Aspects	Proposed Operations
Limits on Extraction	Up to 5.5 Mtpa Run of Mine (ROM)*
Estimated Mine Life	Approximately 12 to 15 years of mining
Operating Hours	24 hours per day, 7 days per week
Number of Employees	Approximately 390 full time equivalents
Mining Methods	Underground Mining – longwall method
Mining Areas	All existing and proposed mining within CCL 718, 725 and ML 1451
Infrastructure	Existing West Wallsend Pit Top infrastructure Existing No. 2, No. 3 Vent Shafts and existing ballast borehole Existing Longwall 11 borehole facility Proposed future ventilation infrastructure and minor surface infrastructure Proposed Mining Services Facility

* Allows for variations in production schedule

It is important to note that no current limits exist for coal production at WWC. As outlined in **Table 1.1**, the peak potential production rate for the Project is 5.5 million tonnes per annum (Mtpa).

At this stage, there will be no major modification to the existing WWC pit top facilities as a result of the Project. Minor surface facility upgrades may be required over time as mining progresses. At this stage, this includes the addition of a proposed demountable training building, additional service boreholes, minor works associated with the water re-use project and noise mitigation measures.. The proposed Mining Services Facility seeks to improve efficiency of delivery of materials to the underground operations by reducing the travel distance underground. It is proposed to be located approximately 6 kilometres south-west of the existing pit top facilities close to Wakefield Road, as shown on **Figure 1.3**. The Mining Services Facility will be comprised of a 20 metre by 35 metre compound housing the facility and a constructed access road off Wakefield Road. It will be located in an existing disturbed area between Wakefield Road and the F3 Freeway, currently comprised of an access area

and regrowth vegetation. The Mining Services Facility is proposed to be used for a range of services including a ballast and concrete borehole (providing materials for use underground) and for the provision of solcenic oil for use underground. Power to the services facility will be provided by an extension of the existing powerline which is adjacent to Wakefield Road.

As underground mining progresses additional ancillary surface infrastructure associated with continued mining operations may also be required, including the installation of additional ventilation infrastructure and potential gas injection infrastructure. The locations of this infrastructure will be determined as mining progresses, with appropriate planning, to minimise environmental impacts, consultation and management strategies to be implemented for each new facility. Further details on the proposed ancillary surface infrastructure are provided in **Section 2.3.3.4**.

Whilst no further coal mining in the former workings of WWC is proposed as part of this Project, the former workings have been included in the project application boundary to provide a consolidated approval for all workings within the WWC holding, as requested by DI&I. This will provide for any future works required in those existing mining areas, such as ongoing maintenance works and work associated with mine closure.

As a result of the detailed environmental studies for this Project, significant changes have been made to the original project design. These changes relate to noise control improvements at the WWC pit top and substantial modifications to the continued underground mining area to avoid significant Aboriginal archaeological features and areas with low depth of cover that may have resulted in adverse groundwater impacts. The details of these significant project changes are discussed further in **Section 2.3.2**.

1.4 Overview of the Existing Environment

1.4.1 Project Area and Regional Context

The project area is located within the Newcastle Coalfields on the Western side of Lake Macquarie, as shown in **Figure 1.1**. The project area is located in both the Lake Macquarie and Cessnock LGAs.

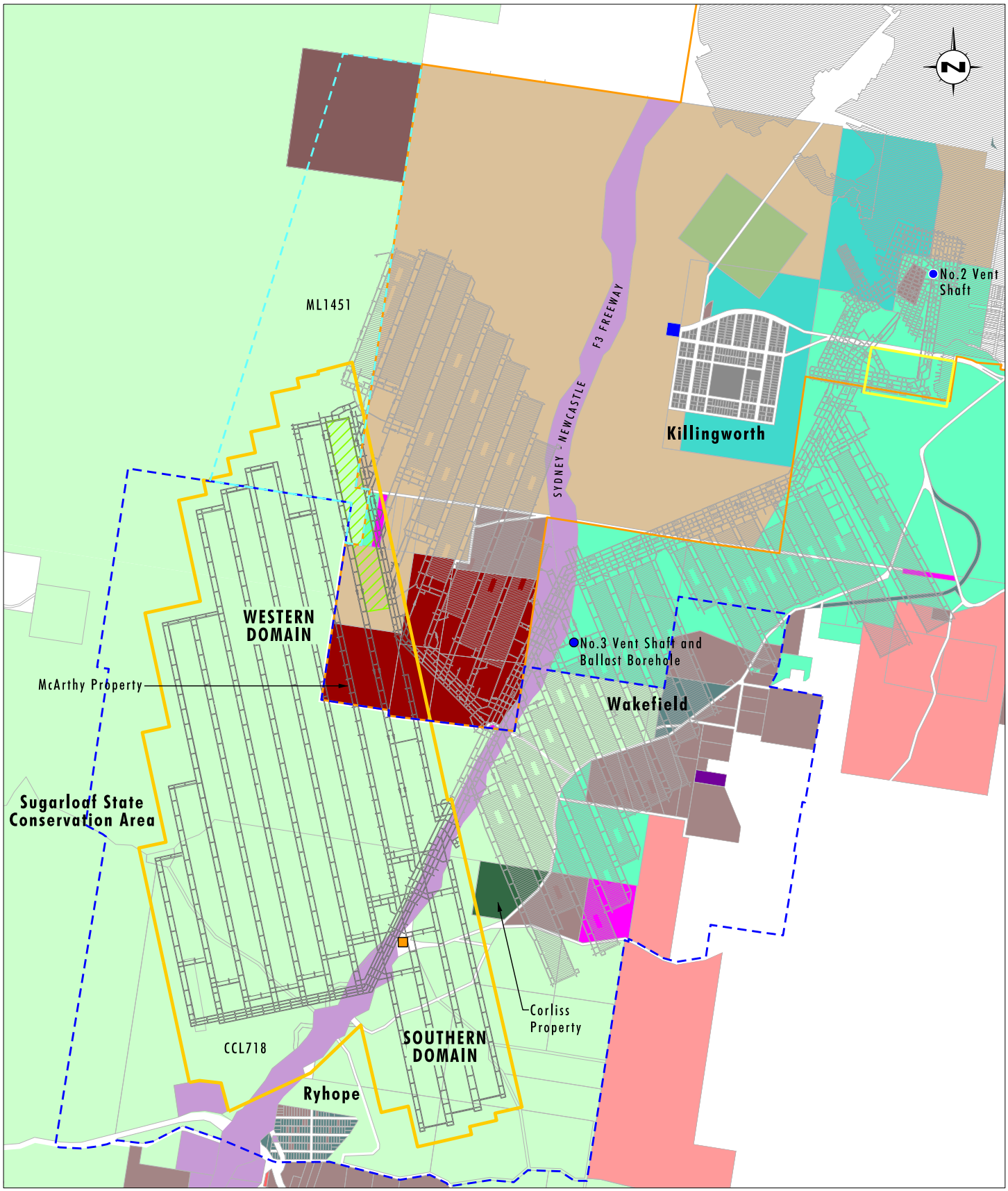
The majority of the surface land within the continued underground mining area is undeveloped bushland in undulating terrain with several ridges and gullies, located to the West and South of the F3 Freeway. This bushland, formerly Awaba and Heaton State Forests, is now part of the SSCA.

Two rural residential properties also exist above the continued underground mining area, as shown on **Figure 1.6**, with one residence (Corliss) including a residential dwelling (which is outside the subsidence affectation zone).

1.4.2 Land Ownership

The ownership of land above the continued underground mining area and at the site of the proposed Mining Services Facility is provided on **Figure 1.6** and detailed in the Schedule of Land in **Appendix 1**.

All existing surface infrastructure, the WWC pit top and both ventilation shafts, are located on land owned by the MCJV. The land surrounding the WWC pit top is predominantly owned by OCAL, with the residential areas of Killingworth, and Barnsley, approximately 1 kilometre to the west and 1.25 kilometres to the north-east respectively.



Source: Department of Lands (2009)

0 0.5 1.0 2km
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Legend

- CCL725
- CCL718
- ML1451
- Existing West Wallsend Colliery Pit Top Facilities
- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Proposed Mining Services Facility

Land Ownership Status:

- Crown Land
- LMCC
- Macquarie Memorial Park Pty Ltd
- Millfence Pty Ltd
- Hunter Development Corporation
- Mine Owned - MCJV
- Mine Owned - Other
- State of NSW
- Hunter Water Corporation
- Private/Other
- RTA
- State Conservation Area
- Reference Not Held
- Transgrid
- Commercial
- AGL Gas Networks Limited
- Residence
- McArthy Property
- Corliss Property

FIGURE 1.6

Land Ownership

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The proposed Mining Services Facility is located on land owned by Lake Macquarie City Council (LMCC). In principle agreement has been reached with LMCC in relation to the construction of the facility and a lease arrangement will be developed prior to construction.

Approximately 86 per cent of the surface land above the continued underground mining area is part of the SSCA, formerly managed by Forests NSW and now managed by the Department of Environment, Climate Change and Water (DECCW). As discussed in **Section 4.2.1** underground mining and associated ancillary activities are permissible in the SSCA.

Two private rural landholdings are also located above the continued underground mining area, these private landholders are the McArthy property in the Western domain and the Corliss property in the northern most section of the Southern domain, as shown in **Figure 1.6**. WWC has established long term relationships with both private landholders and both have been consulted in detail regarding the Project.

Other landowners within the continued underground mining area include the Roads and Traffic Authority (RTA) (F3 Freeway), the Hunter Development Corporation (HDC), the various service easement stakeholders (Telstra, Nextgen, Optus Caltex and Jemena) have an easement which runs parallel to the F3 Freeway and LMCC (Wakefield Road). An area of Crown Land is also located in the north-eastern portion of the Western domain.

1.4.3 Land Use

The land use surrounding the WWC pit top, as shown in **Figure 1.7**, is mainly vacant land owned by OCAL. The residential areas of Killingworth and Barnsley are located approximately one kilometre to the west and 1.25 kilometres to the north-east, of the WWC pit top.

The land use within and surrounding the continued underground mining area, as shown in **Figure 1.7**, includes other coal mines, the SSCA, the F3 Freeway and services easement, local roads, rural residential holdings and the residential areas of Killingworth, Barnsley, Wakefield and Ryhope. No residential areas are within the continued underground mining area and residential areas will therefore not be impacted by mine subsidence.

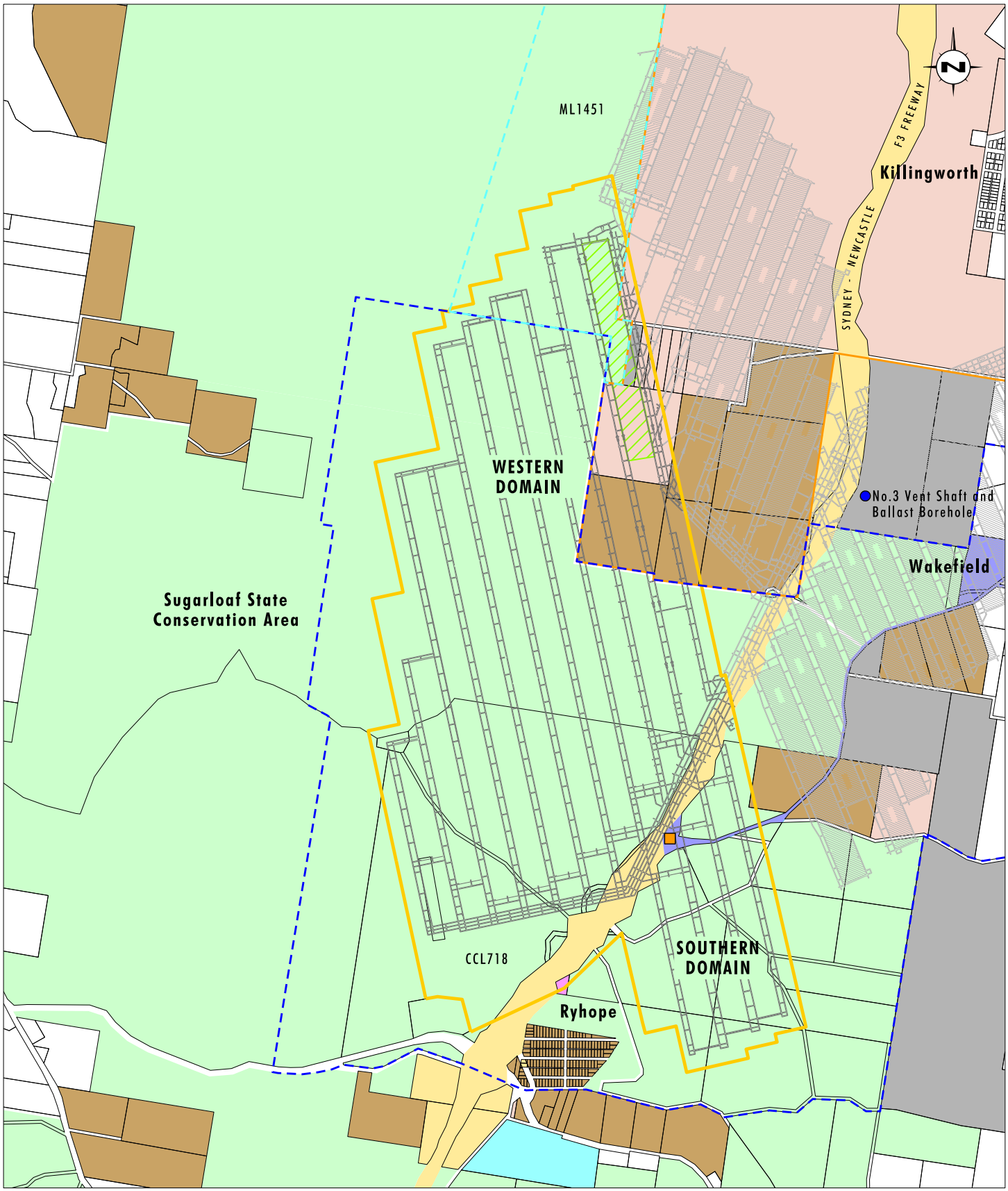
Other land uses within the proposed underground mining area include two small private properties zoned for agricultural purposes. The properties are not currently used for significant agricultural production and are used mainly for rural residential purposes with no commercial crops or significant livestock activities at either property.

The major land use within the continued underground mining area is encompassed by the SSCA, managed by DECCW. This area is accessed by various stakeholders mainly for recreational purposes, such as bushwalking and recreational vehicle use.

The SSCA, formerly Awaba and Heaton State Forests, was formed as part of the implementation of the Lower Hunter Regional Strategy (Regional Strategy) and Lower Hunter Regional Conservation Plan (Conservation Plan) in 2007.

The Conservation Plan clearly provides for underground mining, as outlined below:

> The State Conservation Area category under the *National Parks and Wildlife Act* will be used in areas that retain potential for underground mining (or for current operations). This category recognises that mining may generate some surface impacts (mainly of a temporary nature) including subsidence and where ventilation or access infrastructure is required. The Government's intent has been to ensure that the new reserves do not



Source: Department of Lands (2009)

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Legend

- CCL725
- CCL718
- ML1451
- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Proposed Mining Services Facility
- Crown Land
- LMCC - road reserve and easement
- Mining
- Rural Residential
- State Conservation Area
- RTA
- Crematorium
- Unknown

FIGURE 1.7

Land Use within the Continued Underground Mining Area

File Name (A4): R08_V1/2553_276.dgn

> sterilise economic mineral and coal resources that can be extracted through underground methods. Page 35 Lower Hunter Regional Conservation Plan 2007

As outlined in the Conservation Plan, the purpose of classifying areas as a SCA is to allow for the co-existence of conservation and underground mining activities. This demonstrates that mining beneath the SCA was envisaged at the time the SCA was implemented. Section 47(J) of the *National Parks and Wildlife Act 1974* allows for this outcome.

Section 47(J) defines 'mining interests' as any ML under the *Mining Act 1992*. The provisions of Section 47(J), which are relevant to WWC include:

- a mining interest shall not be granted in respect of lands within a SCA without the concurrence in writing of the Minister; and

- a renewal of, or extension of the term of, a mining interest in respect of lands within a SCA (other than an existing interest) shall not be granted under the *Mining Act 1992* without the concurrence in writing of the Minister.

These provisions require that should WWC wish to apply for a new ML or renew an ML, the concurrence of the Minister for Environment and Climate Change will be required. No new mining leases will be required for the Project. The *National Parks and Wildlife Act 1974* does not apply any restrictions to the depth of mining within an SCA.

As shown on **Figure 1.3**, the F3 Freeway and adjacent services easement also bisects the continued underground mining area in a north-south orientation. The services easement is comprised of oil product and gas pipelines and fibre optic cables. As discussed in **Section 2.3.2**, the underground mine plan has been specifically designed to avoid impacts on the F3 Freeway and the associated services easement.

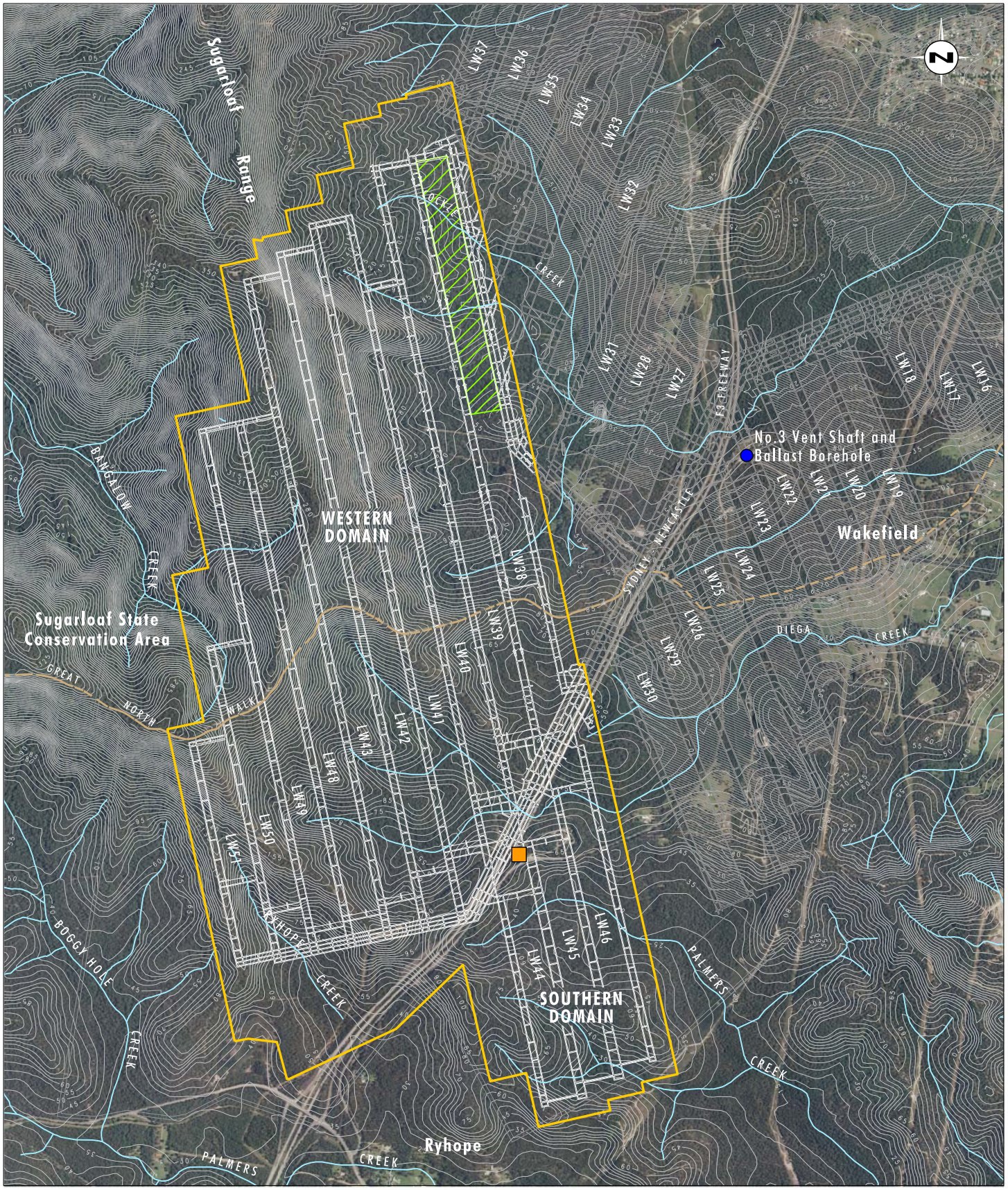
1.4.4 Overview of Environmental Features

The project area is formed on sandstones, shales, conglomerates, and tuffs of the Permian Newcastle Coal Measures. The Sugarloaf Range is capped by Narrabeen Group rocks (quartz sandstone, lithic sandstone and conglomerate, with vari-coloured shales, younger than Permian). The resultant bedload of creeks has a high sand content, with occasional gravel (sandstone fragments).

The landscape of the continued underground mining area can be classified into three main landscape types. These are:

- Steep upper slopes of the Sugarloaf Range – these steep slopes generally vary in elevation between 100 and 300 metres above sea level. Gradients are generally more than 30 per cent (0.3 m/m). Valleys are generally steep and bedrock confined with cascades, waterfalls, and pools. The majority of this landscape is uncleared and consists of open forest. The creeks within the continued underground mining area originate in this landscape, with the upper reaches of Cockle, Diega and Bangalow Creeks. As shown in **Figure 1.8**, these areas exist in the western portion of the continued underground mining area.

- Lower slopes and foothills of the Sugarloaf Range – this landscape is characterised by east-west oriented spurs stemming from the main Sugarloaf Range ridge. The elevation of the spurs is generally between 60 and 100 metres above sea level. The valleys between spurs are around 20 metres above sea level and vary in width between 10 metres (upper catchment) to 400 metres (mid catchment). The upper section of this landscape is generally uncleared and consists of open forest. However, there are numerous four wheel drive tracks and cleared powerline easements which display severe



Source: OCAL, Department of Lands (2006)
Note: Contour Interval 5m

0 0.5 1.0 1.5km
1:30 000

Legend

- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Proposed Mining Services Facility
- Ventilation Shaft and Ballast Borehole
- Drainage Lines
- Great North Walk

File Name (A4): R08_V1/2553_277.dgn

FIGURE 1.8

Topography and Drainage of the Continued Underground Mining Area

erosion and contribute increased sediment load to creeks. As shown in **Figure 1.8**, these areas exist in the area east of the Sugarloaf Range and to the west of the F3 Freeway.

1.4.5 Existing OCAL Environmental Management System

The OCAL Environmental Management System (EMS) applies to the four OCAL mining operations, including WWC. WWC is committed to strong environmental management, sound environmental performance and transparent community liaison.

The EMS has been developed to meet Xstrata Coal requirements and is generally in accordance with ISO 14001, the international standard for EMSs. The EMS provides a risk based platform on which relevant environment and community controls, procedures and management plans have been established and are regularly reviewed.

The EMS contains management plans and procedures to minimise, monitor and report the overall performance of WWC. Environmental management plans include but are not limited to the following:

- Biodiversity and Land Management Plan;
- Aboriginal Cultural Heritage Management Plan;
- Product Stewardship Management Plan; and
- Social Involvement Plan.

Operational procedures are also developed to appropriately manage environmental aspects and impacts, with relevant site personnel trained in relation to these procedures. Where appropriate, existing procedures will continue to be implemented throughout the Project, with additional procedures developed specifically for the new operations, as required.

As part of its EMS, WWC conducts regular environmental monitoring and auditing to gauge performance, compliance with regulatory requirements, and to minimise impacts on the surrounding community and the environment. Environmental monitoring currently undertaken includes the following:

- water quality monitoring;
- noise monitoring;
- dust monitoring;
- extensive subsidence monitoring of previous and current underground mining areas; and
- biodiversity monitoring.

1.4.6 Existing WWC Subsidence Management Plan

The current WWC SMP covering the Western domain (Longwalls 38 to 40) was submitted to the then DPI and approved in November 2007. The SMP covers subsidence predictions, identifies natural and manmade features, provides detailed subsidence management measures that are implemented as part of the ongoing operations, and monitoring strategies for the approved SMP application area. Subsidence management strategies for Longwalls 38 to 40 are being implemented in accordance with the SMP and associated approval conditions.

Detailed stakeholder subsidence management processes have been established with each of the identified stakeholders within the approved SMP application area. These processes specify subsidence predictions and specific management measures for natural and man-made surface features. These existing processes will continue to be used and updated for the management of subsidence for the remaining longwall mining areas.

Further details of subsidence management are discussed in **Section 5.2**.

1.5 Overview of the Planning and Approval Process

A detailed discussion of the planning context for the Project is included in **Section 4.0**.

The Project requires approval under Part 3A of the EP&A Act as it is of a class of development listed in Schedule 1 of the State Environmental Planning Policy (SEPP) (Major Development) 2005. The Minister for Planning is the consent authority for the Project.

If the Project Approval is granted under Part 3A of the EP&A Act, various approvals, licences and permits will also be required for certain activities associated with the Project. These include:

- approval under the *Coal Mine Health and Safety Act 2002* for secondary extraction. WWC currently holds all relevant approvals under the *Coal Mine Health and Safety Act 2002* for existing operations. Further approval will be required for future operations as discussed further in **Section 4.0**;

- a modification to the existing Environment Protection Licence (EPL) under the *Protection of the Environment and Operations Act 1997* (PoEO Act). WWC currently holds EPL 1360 for the existing operations. The WWC EPL will need to be varied if the Project is approved, mainly related to the proposed construction of the Mining Services Facility;

- approval under s138 of the *Roads Act 1993* to undertake road works associated with the proposed Mining Services Facility; and

- WWC currently holds a number of licences under the *Water Act 1912,* primarily associated with the extraction of mine water and monitoring bores. Further approvals will need to be obtained for future operations.

No modifications will be required under the Project for the existing MLs, CCL 718, 725 and ML 1451. A new surface mining lease will be required for the proposed mining services facility, refer to **Section 4.2.2**.

The current Project Application pursuant to Part 3A of the EP&A Act seeks to provide for one consolidated approval that covers all of the existing and future activities for the underground and surface operations at WWC.

WWC currently has an approved SMP for the mining of Longwalls 38 to 40. It is proposed to continue mining within the area approved under the SMP in accordance with current development consents whilst this project is being determined. On completion of underground mining of the currently approved SMP area, WWC will seek to surrender all other development consents that relate to activities that are adequately covered in the new Project Approval.

Section 4.0 contains further details of the planning context for the Project.

1.6 Project Team

This EA was prepared by Umwelt on behalf of OCAL. A number of organisations undertook specialist studies as part of the EA process, including:

- Aboriginal Heritage Assessment – Umwelt;
- Air Quality Assessment – Environ Australia Pty Ltd;
- Ecological Impact Assessment – Umwelt;
- Economic Impact Assessment – Gillespie Economics;
- European Heritage Assessment – Umwelt;
- Greenhouse Gas and Energy Assessment – Umwelt;
- Groundwater Assessment – Aurecon;
- Noise Impact Assessment – Umwelt;
- Surface Water Assessment – Umwelt;
- Subsidence Assessment – Ditton Geotechnical Services (DGS) Pty Ltd; and
- Traffic Assessment – Stapleton Consulting.

Further details of the Project Team are provided in **Appendix 1**.

1.7 Environmental Assessment Structure

This EA has been prepared in accordance with the EP&A Act and the Environmental Planning and Assessment Regulation 2000 (refer to the EA Statement of Authorship in **Appendix 1**). An overview of the structure of this EA is provided below.

The **Executive Summary** provides a brief overview of the Project and the major outcomes of the EA.

Section 1.0 introduces the Project, provides an overview of the environmental and community context, outlines the background and existing operations, provides a summary of the key details, outlines the EA project team and the EA structure.

Section 2.0 contains a detailed description of the Project.

Section 3.0 contains a description of the stakeholder consultation program and the environmental and community issues identified as part of this process for consideration in the EA.

Section 4.0 describes the planning and environmental context for the Project, including the applicability of Commonwealth and state legislation.

Section 5.0 contains a description of the existing environment and a comprehensive analysis and assessment of the key EA issues relevant to the Project, including the project specific and cumulative impacts.

Section 6.0 details the Statement of Commitments proposed to be adopted throughout the life of the Project in order to mitigate impacts.

Section 7.0 contains a conclusion.

Section 8.0 contains a list of references cited in the EA.

Section 9.0 provides a list of abbreviations and a glossary of technical terms.

section 2.0

Description of Continued Operations

2.0 Description of Continued Operations

2.1 Need for the Project

As discussed in **Section 1.1**, WWC is an underground mine that has been operating since 1969, with longwall mining used to extract coal since 1987. Longwall mining is currently being undertaken in Longwall 38, in the area referred to as the Western domain, refer to **Figure 1.3**. Mining is currently being undertaken under existing planning approvals, MLs and other relevant mining and environmental approvals. However, due to changes in planning legislation, an updated approval is required for the continuation of underground mining operations. Whilst the updated approval is only required for two small portions of the continued mining areas, as shown in **Figure 1.4**, WWC is using this opportunity to consolidate and update the approvals for all existing mining areas and surface facilities to provide a modern, comprehensive approval for future mining at WWC.

Xstrata Coal considers that the continuation of operations at WWC is essential in maintaining the positive contributions of WWC to the community and economy. WWC, as part of the broader Xstrata Coal group, provides substantial economic benefits at federal, state, regional and local levels whilst maintaining a good working relationship with the local community and implementing sound environmental management practices. The Project will build on these attributes of the existing operations and will provide the following key benefits:

- ongoing employment of approximately 390 people, with many more indirect jobs created through flow-on effects;
- recovery of approximately 36 million tonnes (Mt) of ROM coal over the life of the Project;
- average annual economic contribution of $448 million to the regional economy during mining operations;
- average annual economic contribution of $644 million to the NSW economy during mining operations;
- payment of significant royalties ($29.5 million during 2008 and 2009) to the State of NSW;
- significant export earnings for Australia; and
- significant economic benefits to the local community through ongoing local employment, purchase of goods and services, and local expenditure both directly and through employee wages.

2.2 Existing and Approved Operations

2.2.1 Existing Operations

Proposed underground mining will be undertaken as a continuation of the existing mining operations. Currently coal is transferred from the mining areas via conveyors within existing underground roadways. Coal is then transferred to the existing WWC surface facilities via the personnel and materials drift. Coal is then conveyed to the Bradford breaker where the coal is initially sized and waste rock removed. From the Bradford breaker, coal is conveyed via a surface conveyor to the 2000 tonne storage bin. From the 2000 tonne storage bin coal is

then deposited to coal haul trucks which transfer the coal to the nearby MCPP, via the existing private haul road.

The locations of the existing WWC pit top, Longwall 11 borehole facility, No. 2 and No. 3 ventilation fans and ballast borehole are shown in **Figure 1.3**. An overview of the layout of the existing WWC pit top is shown in **Figure 2.1**.

The existing pit top facilities are located at The Broadway, east of Killingworth, and are comprised of infrastructure required to support the operation of the mine. This infrastructure includes the main car park, administration buildings, stores, workshops, the main drift and shaft which provide access for personnel and materials into the mine, the Bradford breaker for coal crushing, surface conveyors, emergency coal stockpiles, pipelines, water management infrastructure, utilities, the 2000 tonne coal storage bin and the haul road loop, as shown in **Figure 2.1**

The No. 2 and No. 3 fans shafts and the existing ballast borehole facility, as shown in **Plates 2.1**, **2.2** and **2.3**, are existing facilities that will continue to be used for the continued operations at WWC. No major modifications are proposed to these existing installations.

WWC currently mines the West Borehole coal seam using longwall mining techniques, up to a height of 4.8 metres. Continued underground mining at WWC is proposed to be undertaken in two main areas, referred to as the Western and Southern domains as shown in **Figure 1.5**. Mining is currently being undertaken in Longwall 38 in the Western domain. The continued WWC operations using existing facilities as described further in **Section 2.3**, form part of this application.

The majority of coal from WWC is washed and loaded onto trains at the MCPP to be transported to Newcastle Port for export. A minor percentage of coal mined from West Wallsend has been periodically transported from MCPP to Eraring Power Station via coal haul trucks on a private coal haul road, in accordance with existing approvals. In addition, a small percentage of coal is also transported to Wollongong for use in steel making. The transport of coal is covered by existing development consents (refer to **Section 2.2.2**), which do not form part of this project application.

2.2.2 Current OCAL Approvals

WWC currently operates under numerous development consents and other approvals. The existing development consents relating to mining, associated works and facilities that form part of the project application are listed in **Table 2.1**. Also listed in **Table 2.1** are other key approvals that are related to the existing mining operations.

Table 2.1 - Existing Mining and Ancillary Approvals applicable to the Project

Approval	Description	Approval Authority	Approval Date
Consent B/66-69	Approval of WWC pit top	LMCC	1969
Lachlan/Wakefield (DA-90-0725)	No. 3 Vent Shaft	LMCC	1990
DA 2434/2005	Longwall 11 Borehole Facility	LMCC	2005
DA 1221/2007	Saline Water Transfer pipeline	LMCC	2009
Environment Protection Licence (EPL)	EPL 1360 for OCAL Consolidated Premises – WWC, MCPP and Teralba	DECCW	Ongoing
SMP Approval and subsequent variations	Mining within Western and Southern domains, includes Part V approval for mining with CCL 725 and ML 1451	Former NSW DPI (now DI&I)	2007

Source: West Wallsend, Date of Photograph 16/01/2008

0 100 200 250m
1:5000

Legend

- West Wallsend Colliery Pit Top Facility
- Sediment Dams
- Proposed Water Reuse Project Pipeline
- Proposed Water Storage and Mixing Facility

FIGURE 2.1

West Wallsend Colliery Existing Pit Top Surface Facilities

PLATE 2.1
No.2 Vent Shaft

PLATE 2.2
No.3 Vent Shaft

PLATE 2.3
Ballast Borehole Facility

Table 2.2 outlines existing development consents relating to coal transport and preparation that do not form part of the current project application.

Table 2.2 – Existing Mining and Ancillary Approvals not applicable to the Project

Approval	Description	Approval Authority	Approval Date
Stockton Borehole Consent (MCPP)	Construction and operation of the Stockton Borehole Colliery and mining within Southern/Western domains (CCL 718) Covers the MCPP and transport of product coal from MCPP	Former Department of Environment and Planning	1981
Conveyor/Haul Road (DA-89-0012)	WWC to MCPP haul road	LMCC	1989

No modifications to the existing coal haulage (DA-89-0012) or coal preparation activities at MCPP (1981 Stockton Borehole Consent) are sought as part of this project. No expiry dates exist for these approvals.

The current Project Application pursuant to Part 3A of the EP&A Act seeks to provide a consolidated approval that covers all of the existing and future mining operations and surface facilities of WWC. WWC currently has an approved SMP for mining of Longwalls 38 to 40. It is proposed to continue mining within the area approved under the SMP in accordance with current development consents whilst this project application is being determined. On completion of underground mining of the currently approved SMP area, WWC will seek to surrender all other development consents that relate to activities that are adequately covered in the new Project Approval.

2.3 The Project

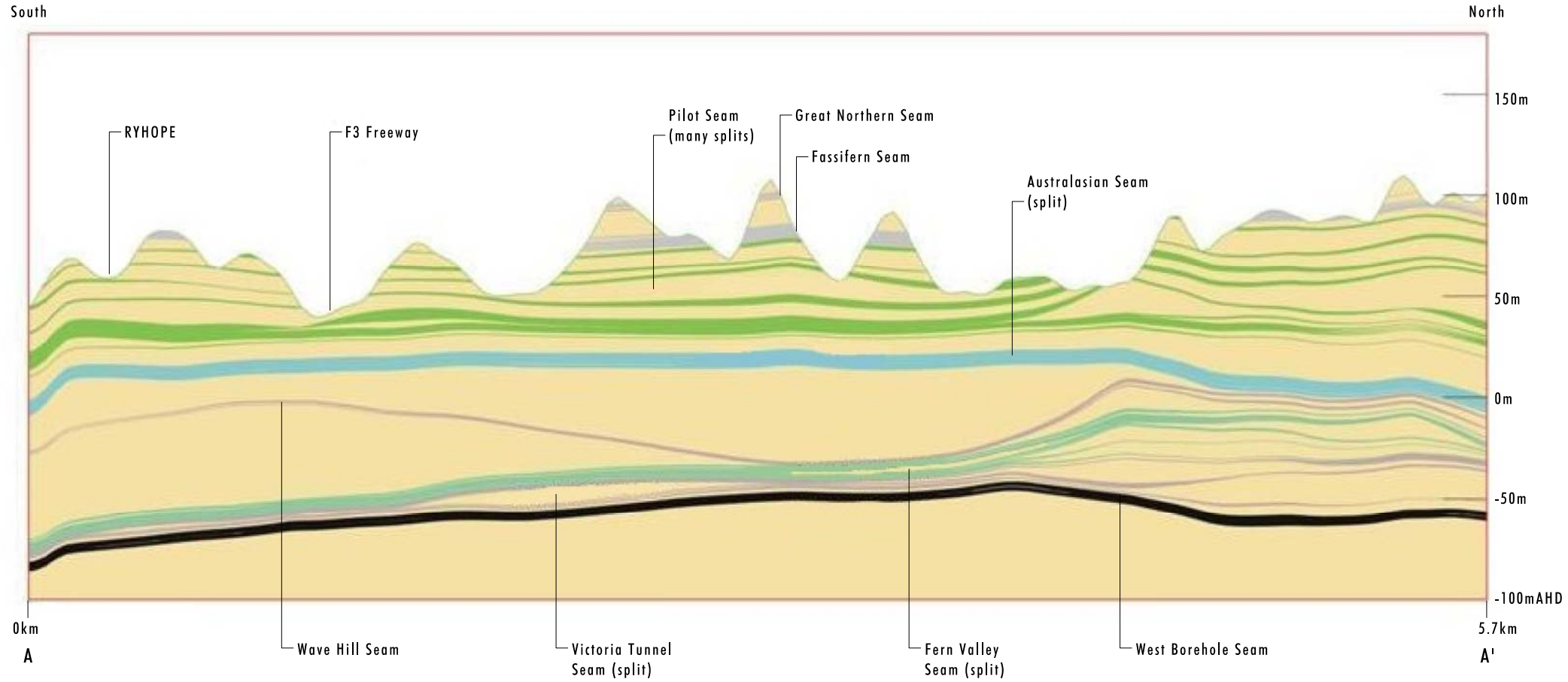
2.3.1 Resource Description and Geology

2.3.1.1 Resource Description

The target coal resource is part of the Newcastle Coal Measures. In the western area of the continued underground mining area the relatively steep Sugarloaf Range is the dominant topographic feature in the area, which is formed by the overlying resistive Triassic sandstones and conglomerates of the Lower Narrabeen Group.

Current and future underground mining resources for the project are in the West Borehole Seam. The seam is up to 5 metres thick and is formed by the coalescence of seams that occur in the eastern part of the Colliery Holding, where mining was conducted in the past. A generalised stratigraphic section through the north and south domains has been included to show the location of the West Borehole Seam in relation to the surface and other coal seams (refer to **Figure 2.2**).

There has been no indication or evidence of spontaneous combustion from either pillar extraction or longwall extraction, during the operations of WWC. Similarly, there has been no occurrence of acid mine drainage issues related to mining within the West Borehole Seam. The characteristics of the proposed mining areas are consistent with the previously mined areas and therefore no issues relating to spontaneous combustion or acid mine drainage are expected.



Note: Refer to Figure 2.4 for Section Line location

FIGURE 2.2

Representative Stratigraphic Long Section A-A' of the Project Area

Source: West Wallsend Colliery SMP (2007)

File Name (A4): R08_V1/2553_203.dgn

The stratigraphy of this area, as in many other parts in the Newcastle coalfields, is marked by rapid lateral variations in inter-seam sediment thicknesses/intervals, resulting from the deposition of sandstone and conglomerate channels. **Figure 2.3** provides a representative stratigraphic column for both the Western and Southern domains.

The deposition of the Newcastle Coal Measures was strongly influenced by the presence of the Lochinvar Anticline to the west. The entire coal measure sequence thins from in excess of 400 metres east of Lake Macquarie to less than 100 metres in the western part of the WWC Holding.

The target coal resource includes a range of coal types from export coking to export thermal and domestic thermal.

The surface terrain above the target coal resource is formed by the Moon Island Beach Sub-Group of the Newcastle Coal Measures. Sandstone and conglomerate of the Teralba Conglomerate Formation dominate the ridges within the project area. Tuffaceous claystone (Awaba Tuff), siltstone and coal seams (Fassifern Seam) generally underlie the near surface conglomerate units.

2.3.1.2 Geological Structures

Geological structures, such as faults and dykes, have the potential to impact on and limit the feasibility of mining. Such structures impact upon the ability to safely or economically mine the coal resource.

Proven and inferred structural features are shown on **Figure 2.4**. Surface outcrops of faults and dykes are uncommon in the project area. Extensive exploration work has been completed to assist in defining the geological structures, with substantial information also gathered from the existing mining operations. Excavations for the F3 Freeway have also revealed some structures; other sources of information are adjacent workings, geophysical surveys, in-seam drilling and, to a lesser extent, surface boreholes. Geophysical surveys have included an aeromagnetic survey, several phases of ground-magnetic surveys and a trial Mini-Sosie seismic survey.

Several dykes have been intersected or projected from the above sources. Two generations of dykes are apparent from a regional perspective, one set trending east/west and the other, more common set, trending north-west/south-east.

There are several dykes shown on **Figure 2.4**. Most dykes are emplaced in a north-west/south-east direction, which is the dominant structural trend in the area, and throughout the coalfield. Each dyke requires better delineation at seam level, to determine the exact location, thickness and hardness parameters necessary for detailed mine planning. This assessment will be conducted as part of mine plan refinement as the project progresses. The mine layout may change due to the location of geological structures that may be encountered during development.

Based on current data, there is one major fault, (i.e. >10 metres displacement), within the planned future underground mining area, and possibly only one zone where faulting is likely to exceed 5 metres throw.

These geological structures have been considered during development of the conceptual mine plan outlined in this EA.

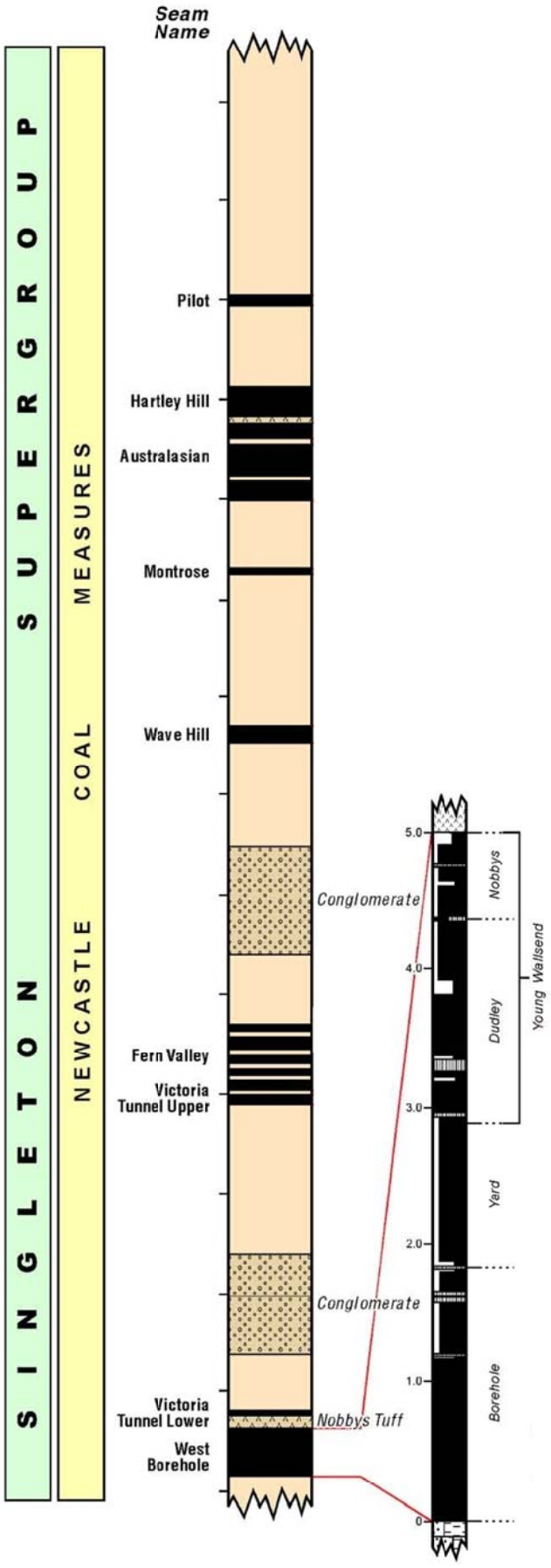
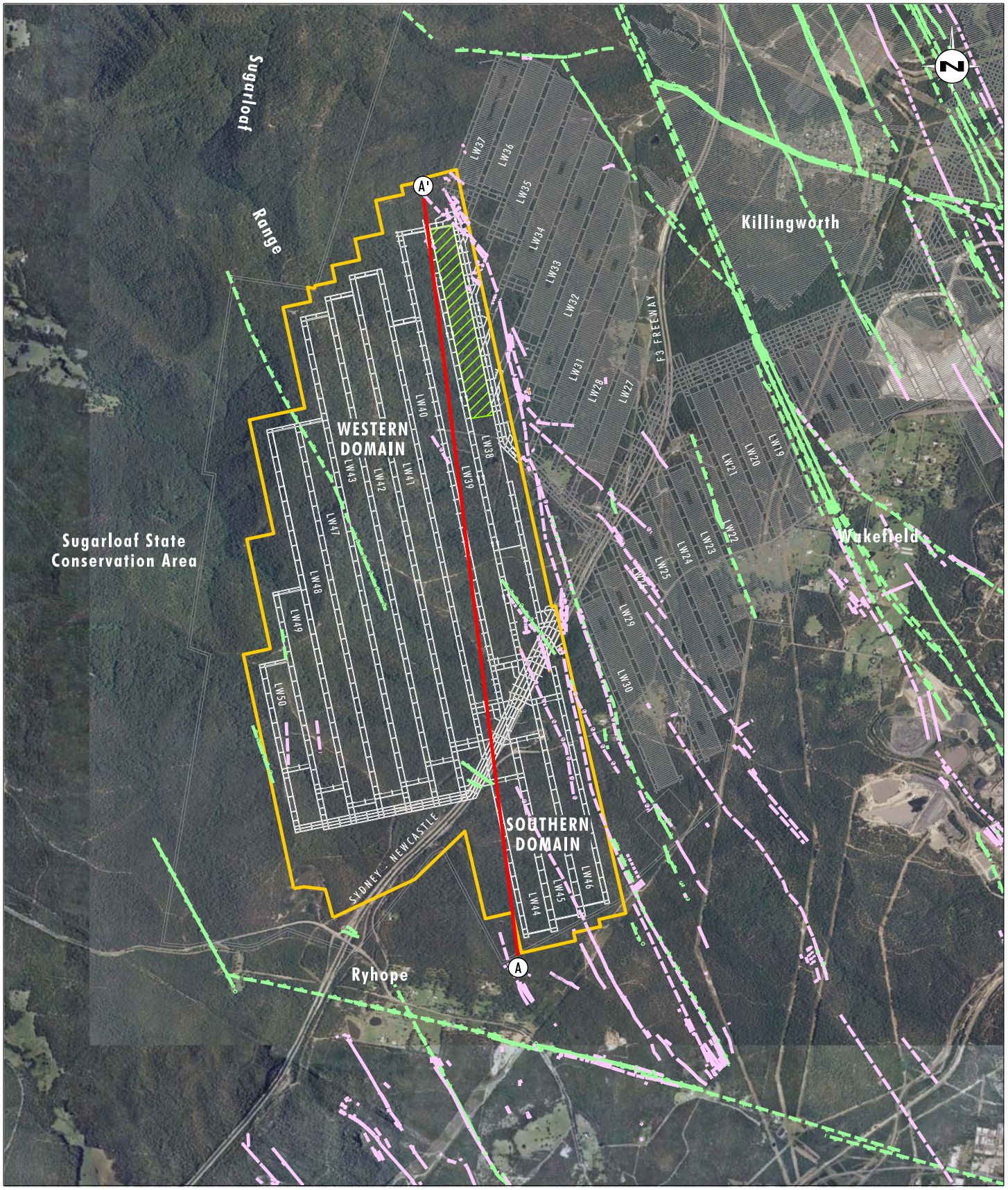


FIGURE 2.3

Typical Stratigraphic Section - West Borehole Seam

Source: West Wallsend Colliery SMP (2007)

File Name (A4): R08_V1/2553_204.dgn



Source: OCAL, Google Earth 2008
Note: For Long Section details, refer to Figure 2.2

0 0.5 1.0 2km
1:40 000

Legend

- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Faults
- Dykes

FIGURE 2.4

Geological Structures and Long Section A-A'

2.3.2 Conceptual Mine Plan

The Project will involve the continued use of the longwall retreating system of mining. This method has been successfully used for the extraction of the previous longwall panels of WWC since 1987 and is currently being used for the extraction of Longwall 38, within the project area. The longwall face equipment has been designed for thick seam extraction allowing cutting heights of up to 5.0 metres. The existing and proposed longwalls are approximately 180 metres wide, including development roadways, with an average cutting height of approximately 4.8 metres expected in the proposed longwall area.

The conceptual mining layout of the longwall blocks in the Western and Southern domains, as shown in **Figure 1.5** was initially designed in consideration of a number of factors and sensitive surface features, these include:

a) the location of the F3 Freeway and adjacent easement which runs north to south through the WWC proposed longwall area and contains several utilities of significant importance;

b) the alignment of previously mined longwall blocks and mains development;

c) the major geological structures which intersect the coal seam to be mined, as described in **Section 2.3.1**;

d) the predicted economic limit of mining to the north and west of the longwall blocks;

e) the colliery holding boundary; and

f) to minimise the risk of impact on the Palmers Creek alluvium.

Following the completion of preliminary studies as part of this environmental assessment process significant changes have been made to the proposed mining layout. These changes have included:

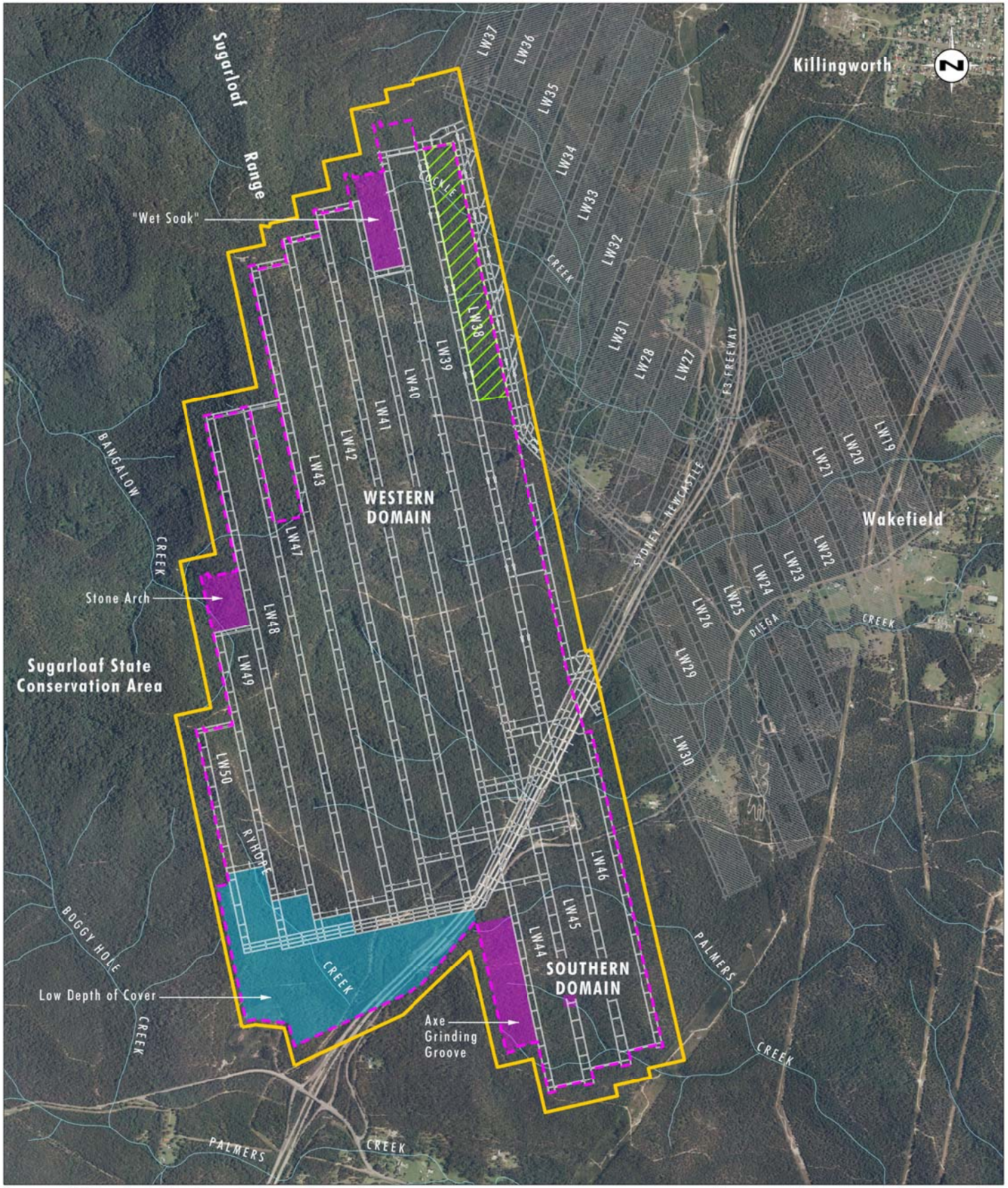
- following extensive consultation with the registered Aboriginal stakeholders, significant changes have been made to the proposed mine plan in order to protect several sites of high cultural significance, as shown on **Figure 2.5**. The modifications to the mine plan to protect these significant archaeological features have resulted in a net loss of approximately 2.04 Mt of coal resource; and

- changes to the mine plan to minimise potential impact on the low depth of cover areas in the vicinity of Ryhope Creek, which were considered to have a high potential risk for connective cracking, has resulted in a loss of approximately 2.4 Mt of coal resource. WWC and Xstrata Coal believe that these changes will ensure that future mining is able to be managed in such a way as to meet current community and environmental expectations.

The modifications to the mine plan to address the above factors, have been made following extensive consultation and with careful consideration to developing a mine plan which is both economically feasible but also sensitive to the surface features above the proposed longwall mining area.

2.3.3 Mine Infrastructure

The Project has been designed to utilise the existing WWC infrastructure including the existing pit top facilities, Longwall 11 borehole facility, ballast borehole and No. 2 and No. 3 Vent shafts. Whilst no changes to this existing surface infrastructure are proposed as part of



Source: OCAL - Aerial Photograph, Longwall Layout
LPI - Drainage Lines

0 0.5 1.0 1.5km
1:30 000

Legend

- Continued Underground Mining Area
- Proposed Underground Workings in the West Borehole Seam
- Longwall Progression as of 1st March 2010
- Former Underground Workings
- Previously Approved Longwall Layout Boundary in Western and Southern Domains
- Drainage Line
- Revised Layout for Aboriginal Cultural Heritage Constraints
- Revised Layout for Low Depth of Cover Constraints

FIGURE 2.5

Conceptual Mine Plan

File Name (A4): R08_V1/2553_205.dgn

the Project, a new mining services facility, potential ventilation and minor borehole infrastructure are also proposed to be constructed, as discussed in **Section 2.3.3.3** and **2.3.3.4**.

2.3.3.1 Pit Top Facilities and Vent Shafts

The existing pit top facility is located on The Broadway, Killingworth, as shown in **Figure 2.1** and is approximately 1 kilometre east of Killingworth and 1.25 kilometres south-west of Barnsley.

The No. 2 and No. 3 ventilation shafts and the existing ballast borehole facility are existing infrastructure of WWC, which will continue to be used as part of this project. **Plates 2.1**, **2.2** and **2.3** show the infrastructure and the locations are shown in **Figure 1.3**. The ventilation shafts are accessed by existing access roads.

The existing Longwall 11 borehole facility will continue to be utilised as part of the Project. The Longwall 11 borehole facility was constructed to enable transfer of saline mine water to the nearby Metromix Quarry for re-use in operations. The facility consists of two mine water pipelines, one from the dewatering borehole intersecting the former Longwall 11 workings of West Wallsend and one from Westside Mine. **Plate 2.4** shows the Longwall 11 borehole facility and **Figure 1.3** indicates the location of the facility.

The existing pit top is currently serviced by Hunter Water Corporation (HWC) mains supply for potable water and the pit top and ventilation shafts by mains electricity supply from Energy Australia.

There will be no major modification to the existing WWC pit top facilities as a result of the Project. Minor surface facility upgrades may be required over time as mining progresses. At this stage, this includes the addition of a proposed demountable training building, additional service boreholes, minor works associated with the water re-use project and noise mitigation measures.

Further investigations into the potential for the re-use of mine water may identify the need for additional pipelines and associated infrastructure for this purpose, as discussed in **Section 5.5**.

2.3.3.2 Coal Handling, Preparation and Stockpiles

At WWC coal handling comprises transfer of coal via a drift conveyor from underground, to the Bradford breaker for initial sizing and delivery to a 2000 tonne storage bin via enclosed surface conveyors. The coal is then loaded to haul trucks for transfer to the nearby MCPP, via a private haul road. As previously discussed in **Section 2.2.2,** coal haulage is covered, by a separate approval.

An emergency storage pad exists within the WWC haul road loop, this storage area is used during emergency periods or when production exceeds the 2000 tonne bin storage capacity.

Further coal handling, preparation, stockpiling and emplacement of reject and tailings are managed at MCPP under separate development consents, the Stockton Borehole Consent (1981) and the 2003 Westside Southern Extension approval. Sufficient capacity exists at both MCPP and Westside Mine for the Life of Mine volumes of fine and coarse reject.

PLATE 2.4
Longwall 11 Borehole Facility

2.3.3.3 Proposed Mining Services Facility

The proposed mining services facility (located as shown on **Figure 1.3**) will be developed to transfer essential services to the continued underground operations of WWC. The facility will be a constructed compound and provide the following services for the underground operations:

- a ballast and concrete delivery borehole, used for the provision of materials to maintain underground roadways and construct underground concrete structures;
- solcenic oil storage tanks, which will supply a pre-mixed water and oil emulsion via a borehole to the underground operations for use in the longwall roof supports;
- power to the proposed site will be obtained from the existing power supply in the vicinity of Wakefield Road; and
- telemetry communication devices for the Mining Services Facility.

The conceptual layout of the facility is shown in **Figure 2.6**. The facility is proposed to be constructed on land owned by LMCC. The site has been previously disturbed by the construction of both Wakefield Road and the F3 Freeway. The area of the proposed facility is currently comprised of a disturbed access area from Wakefield Road and some re-growth Eucalypts and invasive weed species, mainly lantana. The construction process will involve disturbance of an area in the order of 20 metres by 35 metres, with a service road entering the site from Wakefield Road, as shown in **Figure 2.6**. The proposed site is also in close proximity to a large disturbed area which was used by the RTA during the construction of the F3 Freeway.

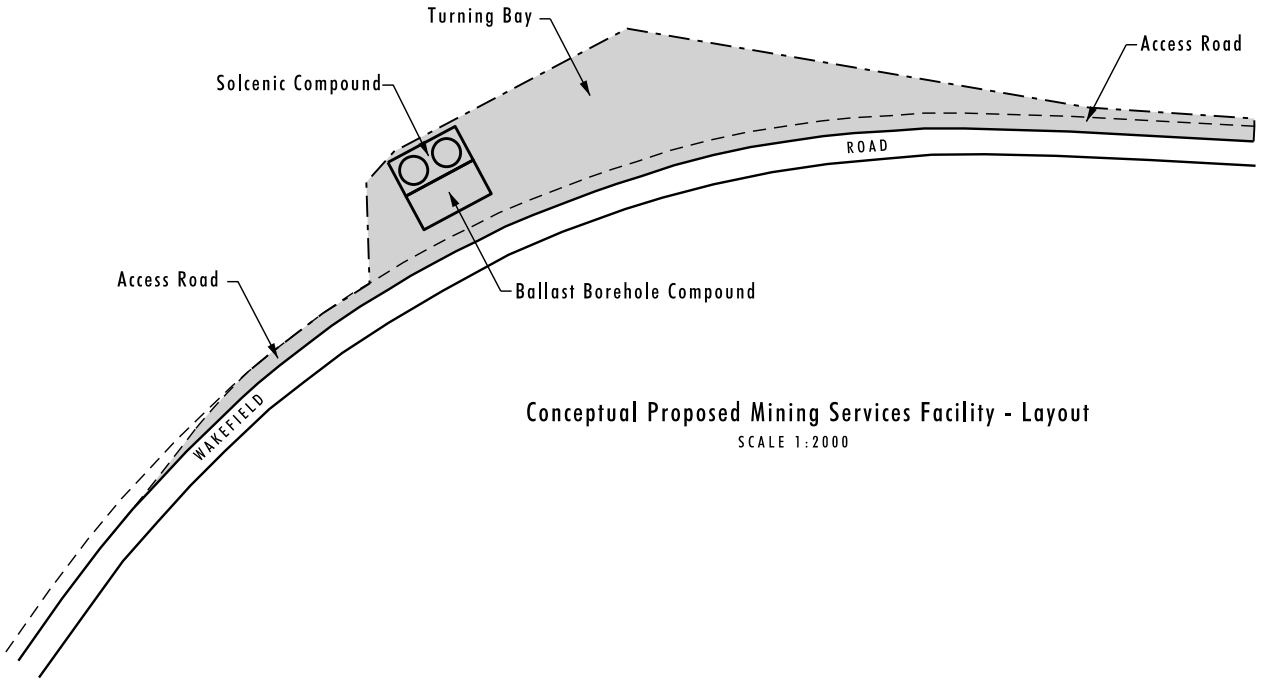
2.3.3.4 Other Ancillary Surface Infrastructure

A range of potential other minor ancillary mining infrastructure will be required above the continued underground mining area including access tracks, service boreholes and gas drainage and flaring facilities. The exact location and number of these minor facilities will be determined as the project progresses, depending on operational needs, coal seam gas make, geological conditions, safety considerations and other mining and environmental variables. The final locations will be determined as part of the detailed mine planning process for each set of panels and will be included in the Mining Operations Plan (MOP) and SMP provided to DI&I prior to their construction. The final locations will avoid known archaeological sites, threatened species and threatened ecological communities (TECs).

Prior to construction of the proposed ancillary infrastructure, a detailed due diligence assessment process will be undertaken. This due diligence assessment process will include the following steps:

- the location of the proposed ancillary infrastructure will firstly seek to minimise potential environmental impacts by minimising the area of disturbance, utilising existing access tracks (where possible) and avoiding drainage lines;
- a detailed inspection of the potential environmental constraints associated with the proposed ancillary infrastructure areas, typically in the order of 30 metres by 30 metres, will then be completed. This inspection will include assessment of the potential environmental constraints such as Aboriginal archaeological sites, ecological constraints such as threatened species and general environmental issues such as drainage, erosion and sediment control;

Proposed Mining Services Facility - Locality
SCALE 1:400



Conceptual Proposed Mining Services Facility - Layout
SCALE 1:2000

Source: OCAL, 2009

0 5 10 20m
1:400

0 25 50 100m
1:2000

Legend
Proposed Mining Services Facility

FIGURE 2.6

Conceptual Proposed Mining Services Facility
Location and Layout

- the proposed infrastructure will then be located, where possible, to avoid the potential environmental constraints identified during the inspection; and

- the inspections will be completed by suitably qualified experts and undertaken in consultation with the relevant stakeholders, including the registered Aboriginal stakeholders.

2.3.4 Water Management and Use

The water management strategy developed for WWC includes:

- restriction of clearing to the minimum area necessary for surface infrastructure;

- diversion and collection of runoff from surface infrastructure areas where water may come into contact with contaminants;

- maximising re-use of water generated on the site for dust suppression and fire control;

- treatment of water with flocculant to improve sedimentation prior to discharge; and

- re-use of mine water to reduce potable water usage.

There are four main components to the West Wallsend Water Management System. These are the:

- potable water supply from HWC;

- management of water that accumulates in the underground coal workings; and

- the treatment of surface water runoff on the colliery pit top.

2.3.4.1 Water Supply and Demand

Potable water is supplied to WWC by HWC. During 2009, HWC provided approximately 217 ML of potable water for use at WWC.

2.3.4.2 Underground Mine Water Management

As mining progresses, groundwater seeps into the mined areas from the coal seam and any surrounding aquifers. In order to provide for safe mining operations and prevent flooding of the underground workings, water is pumped to an underground storage area in the previously mined Longwall 11, as shown on **Figure 1.3**. This area provides retention time for the effective settlement of suspended particles, prior to water being pumped to the surface. Currently, mine water that is pumped to the surface is piped to Westside Mine, where it is discharged to Cockle Creek via the Westside EPL. This is a temporary arrangement which has been established as part of the long term water transfer project with Metromix Quarry.

The water transfer project, approved by LMCC in November 2009 (DA 1221/2007) and included as part of the Project, will consist of two mine water pipelines which will transfer excess mine water to Metromix Quarry to be re-used for operational purposes. The pipeline route will commence at the Longwall 11 borehole, and continue along the road reserve of Rhondda Road for approximately 1.1 kilometres. The two pipelines, one of which will run from the dewatering borehole at Longwall 11 and the other from Westside Mine, will be buried side by side within a single trench along the entire route, with the exception of the point at which the pipelines cross a tributary of Cockle Creek. The pipelines will end at two

discharge boreholes adjacent to Metromix Quarry, which will be drilled to provide access to the previously mined Northern Extended Colliery workings. The mine water will then be discharged to the Northern Extended workings in the Fassifern coal seam, from where it will be gravity fed through the Northern Extended workings under Metromix Quarry. Metromix will then draw the water from a dam adjacent to their licensed discharge point where groundwater from the Northern Extended workings surfaces. The location of the water transfer pipeline is shown on **Figure 1.3**.

Discussions are currently being held with DECCW, Metromix and Rhondda Colliery (who hold the licensed discharge point where the mine water will surface) to arrange for the appropriate EPL variations that will be required to operate the transfer system. Following the approval of these licence variations, construction of the water transfer project will commence.

When operating, this system will result in the reduction of saline mine water discharges to Burkes and Cockle Creeks.

WWC is currently investigating a mine water re-use project which, when implemented, will have the benefit of reduced potable water usage and reduced offsite discharge volumes. The current mine water discharge pipeline extends from the Longwall 11 borehole facility to Westside Mine for discharge. It is proposed to extend the current pipeline from Westside Mine to the WWC pit top. The mine water will be mixed with potable water in a mixing facility which will consist of a main holding tank and associated pumps, flow meters and control systems. The mixed water will be sent underground via the existing pipe network for use in the underground operations. The conceptual water re-use project layout is shown on **Figure 1.3**.

2.3.4.3 Pit Top Surface Water Management

At present, the majority of surface water generated at the pit top facility is diverted into the sediment control dams, prior to being discharged via EPA Point 2, generally after pro-longed rainfall periods. Runoff from the vegetated areas of the site, located within a clean water catchment, is diverted from the pollution control system.

Surface water generated from the operational areas on the pit top is divided into two components. These include:

- Area 1 – workshop, surface storage area, car park, roof water from the workshop and liquid store; and

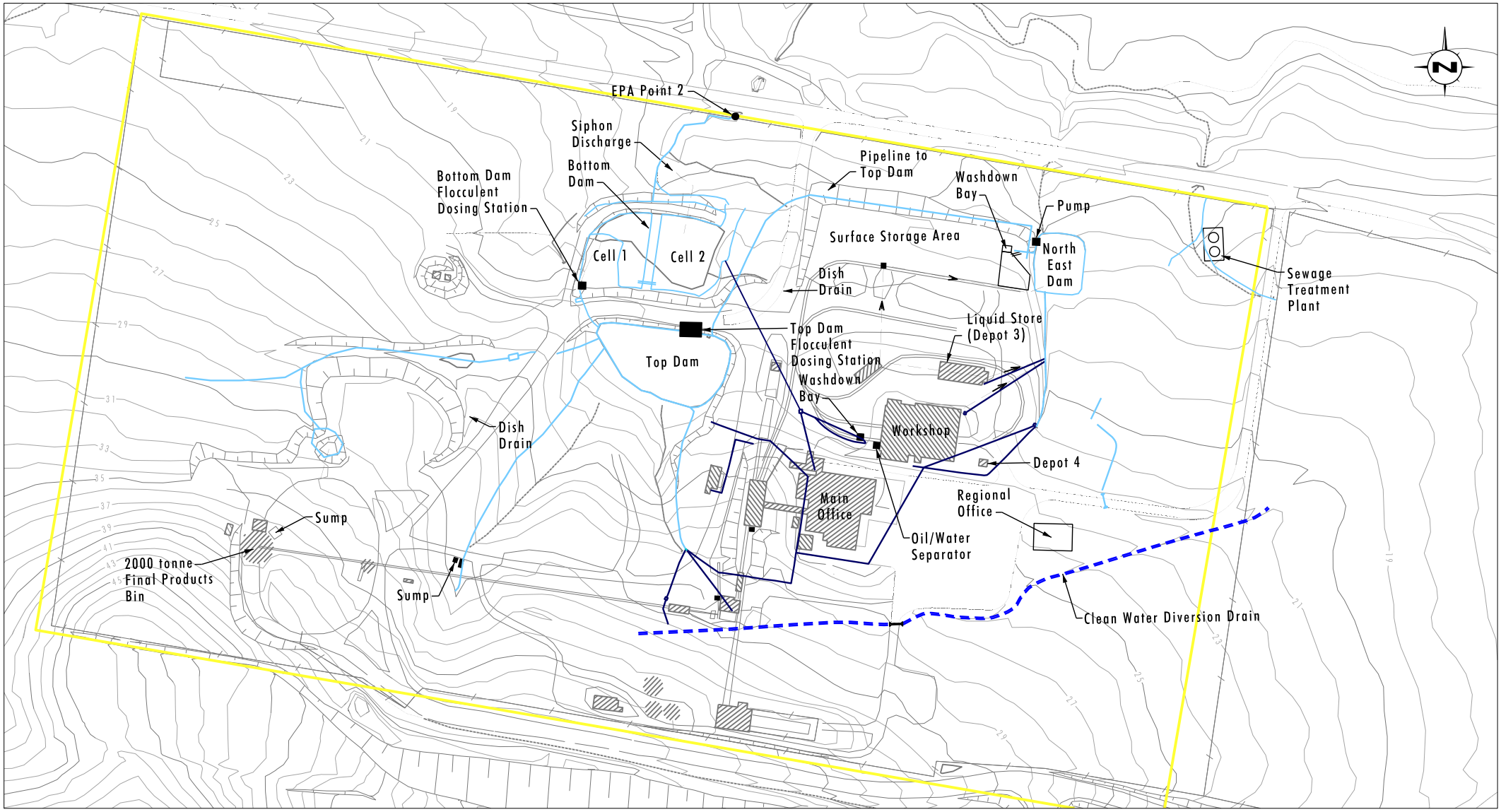
- Area 2 – the ROM coal handling area and associated facilities, emergency coal stockpile area, coal loading facility and truck loop, service roads as well as the dirty areas of the bathhouse.

The layout of the surface water management structures is shown in **Figure 2.7** and further discussed in **Section 5.5**.

2.3.5 Ongoing Exploration Activities

WWC is currently undertaking exploration drilling to determine the nature and extent of the coal resource. The exploration drilling is undertaken with the SSCA. The environmental impact and management of these activities has been assessed and a licence obtained from DECCW to undertake the current drilling program.

To allow for further activities to occur, a review of the potential environmental impacts from exploration activities will be completed, prior to any works to ensure that the activities are



Source: OCAL
Note: Contour Interval 1m

0 50 100 150m
1:3 000

Legend

- West Wallsend Colliery Pit Top Facility
- Pipeline
- Diversion Drain
- Drainage Line

FIGURE 2.7

West Wallsend Colliery Pit Top Water Management System

located and designed, as far as practical, to have minimal environmental impact. This review will be undertaken in accordance with the assessment process previously discussed in **Section 2.3.3.4**. Following the environmental assessment of the proposed disturbance footprint, these areas will be prepared using small earthmoving equipment to allow for the work to be undertaken safely and in a manner that minimises environmental impacts. These works will continue to comply with the licence requirements of DECCW.

Following the completion of exploration activities, boreholes will be decommissioned in accordance with DI&I requirements. All disturbed areas including access tracks, drill pads and survey lines will be rehabilitated in consultation with DECCW and relevant stakeholders.

2.3.6 Subsidence Management Activities

Subsidence management encompasses those activities involved in the identification of features to be impacted, subsidence prediction mitigation, monitoring, assessment and remediation of potential subsidence impacts. Subsidence management activities, including, surveying, inspections and surface crack remediation, have been undertaken at WWC for a period of 20 years. Through this extensive experience WWC has developed effective mechanisms to monitor and remediate potential subsidence impacts with minimal environmental and community impacts. An overview of subsidence management activities is provided below and further details on the potential subsidence impacts and management strategies are discussed in **Section 5.2**.

2.3.6.1 Surveying

Survey lines will be required to assess and monitor the potential impacts of subsidence on both natural and constructed features. Prior to installation of survey marks, detailed descriptions of the survey marks and their location will be forwarded to the relevant stakeholders, including DECCW and DI&I.

The survey lines typically involve the clearing of an area of approximately 1-1.5 metres in width. Establishment of the survey lines will not involve any excavation of the ground surface. The survey lines range in length depending on the feature or area being monitored, with the survey marks being spaced at approximately 10 metres. Where possible the line will be moved to avoid larger trees, reducing the extent of vegetation clearing required. An example of a typical survey line is shown in **Plate 2.5**.

It is also proposed to use aerial surveying techniques to monitor the surface above the longwall extraction areas. Aerial monitoring techniques will be useful in areas where the surface is difficult to access and will also potentially eliminate the need for clearing of vegetation to establish survey marks. The aerial surveying will also provide a large amount of information on the post mining surface landform.

2.3.6.2 Inspections

Subsidence monitoring inspections will be undertaken in accordance with the existing Public Safety SMP (PSSMP). The existing PSSMP sets out how WWC will monitor and remediate potential subsidence impacts in areas which can be accessed by the public. The aim of the PSSMP is to reduce the potential for public safety incidents to occur as a result of subsidence impacts.

Subsidence inspections are a key component of the PSSMP, the purpose of the inspections is to assess any potential impacts from subsidence, so as to allow for the appropriate remediation to be undertaken. The most critical component of these inspections is the clear

PLATE 2.5
Typical Survey Line

demarcation of any identified surface cracking to minimise the potential for public safety issues and allow for remediation to be undertaken in a timely manner.

2.3.6.3 Surface Crack Remediation

Surface cracking may occur as a result of mine subsidence from the extraction of the longwall panels. Further details of the nature of surface cracking are provided in **Section 5.2**.

Remediation of surface cracks will be required above the continued underground mining area, mainly in publicly accessible areas. The surface cracks, which will be identified during the subsidence inspections, will be remediated where a significant risk to public safety exists, typically on access tracks within the SSCA.

The remediation will be undertaken in accordance with the existing PSSMP and Subsidence Crack Remediation procedure. Typically the remediation involves the backfilling with inert fill and compaction of the affected area. Furthermore appropriate rehabilitation strategies, including the use of endemic species and erosion/sediment control measures will be employed in the remediation works, where necessary.

2.3.6.4 Due Diligence Assessments for Subsidence Management Activities

Where subsidence remediation activities have the potential to impact upon sensitive environmental features, due diligence assessments will be undertaken to assess the best approach to implementing the required subsidence management activities. This will include a review of the management approaches required to minimise potential impacts related to cultural and historical heritage, ecology and general environmental issues such as erosion and sediment control.

Where due diligence assessments are required, they will be undertaken in consultation with the relevant stakeholders, prior to commencement of the works.

2.3.7 Workforce and Hours of Operation

At full production, the project will continue to employ approximately 390 full time equivalent employees.

Mining operations are planned to continue to be undertaken 24 hours per day, seven days per week, as per the existing operations.

No significant changes to the existing workforce numbers or hours of operation are proposed as part of the Project.

2.4 Alternatives to the Project

The main alternatives considered in relation to the Project, relate to the conceptual mine plan, as presented in **Section 2.3.2**. The originally proposed mining layout has been significantly varied based on the outcomes of the extensive stakeholder consultation and the specialist assessments undertaken as part of this EA.

As shown in **Figure 2.5**, approximately 2 Mt of coal have been sterilised to protect several Aboriginal cultural features, including the Wet Soak, the Stone Arch, Palmers Creek grinding grooves 1 and 2 and reduced potential impacts to Palmers Creek Grinding Groove 3. A full description of these sites is included in **Section 5.9**.

A further 2.4 Mt of coal have been sterilised to reduce the potential impacts in areas with a low depth of cover, as shown in **Figure 2.5**. This modification to the mine plan has been undertaken to reduce the probability for connective cracking to occur in areas of low depth of cover and therefore reduce the potential for surface water impacts.

In total these changes have resulted in the net sterilisation of approximately 4.4 Mt of coal.

The modifications to the mine plan to address the above factors, have been made following extensive consultation and with careful consideration to developing a mine plan which is both economically feasible but also sensitive to the surface features above the proposed longwall mining area.

The proposed mine plan is also constrained by existing natural features such as geological features, discussed in **Section 2.3.1**, constructed features such as the F3 Freeway and the existing mine layout.

Alternate locations for the Mining Services Facility, previously discussed in **Section 2.3.3.3**, have also been considered as part of the Project. Originally the facility was proposed within the SSCA managed by DECCW, however due to the objective to reduce potential disturbance within the SSCA, the location was reassessed. The currently proposed location of the Mining Services Facility, as shown in **Figure 1.3**, was selected based on the previously disturbed nature of the site in order to minimise the potential for environmental impacts. The site has also been selected due to its location in relation to the underground workings and provides ready access to Wakefield Road.

The alternative of not proceeding has also been considered, however this option is not considered appropriate as it is expected that the environmental and social impacts of the project can be effectively managed (refer to **Section 5.0**) and not proceeding would result in the loss of the substantial economic and social benefits of the project as discussed in **Section 2.1**.

section 3.0

Stakeholder Consultation

3.0 Stakeholder Consultation

A comprehensive consultation program has been undertaken for the Project and as part of the completion of this EA, building on the community engagement programs currently implemented by WWC under the existing Social Involvement Plan (SIP).

Consultation with relevant stakeholders commenced during the planning phases of the Project in 2008 and has continued throughout all stages of the Project. Relevant stakeholders included affected landholders, the surrounding community, relevant government agencies, service providers and Aboriginal groups. The key aims of the consultation process were to inform stakeholders about the Project, identify any issues of concern or interest to be investigated and addressed during the EA process and to provide an opportunity for input to the Project assessment and management process. The consultation program has been based on the existing relationships that have been developed with relevant stakeholders over the long history of mining at WWC.

The details of the authority consultation program are outlined in **Section 3.1**, with consultation with the community and other stakeholder groups outlined in **Section 3.2**. An outline of the key issues identified during the consultation process is included in **Section 3.3**.

3.1 Authority Consultation

The authority consultation process for the project commenced with initial briefing meetings with a number of government agencies including LMCC and Cessnock City Council. The initial briefing meetings included:

- a brief introductory presentation regarding the project to DoP in December 2008;
- ongoing consultation with DI&I (formerly the Department of Primary Industries) throughout the project planning phase including a Conceptual Mine Plan meeting held in February 2009;
- discussions with LMCC and Cessnock City Council in June and July 2009 respectively, to discuss the project and the proposed assessment methodology;
- a meeting with DECCW regarding the assessment and management of underground mining in the SSCA (August 2009) and a meeting with the Regulatory division, regarding potential modifications to the existing surface operations and the EPL (March, 2009);
- a meeting with the former Department of Water and Energy (now NSW Office of Water (NOW)) in March 2009 regarding the surface and groundwater issues and proposed monitoring and remediation strategies;
- a meeting with LMCC Councillors in August 2009, to provide an introduction to WWC and Xstrata Coal and also an overview of the Project and the environmental assessment process;
- a meeting with LMCC, the land owner of the proposed mining services facility site, in September 2009 to discuss the proposed facility; and
- a meeting with the Mine Subsidence Board (MSB) (July 2009) to discuss the range of surface infrastructure within the proposed underground mining area and the proposed subsidence mitigation strategies.

Following on from this initial consultation, the Preliminary Environmental Assessment (PEA) was lodged with DoP in October 2009, with the DGRs for the EA provided by DoP in December 2009 (refer to **Section 3.3**).

Following the completion of specialist studies and during finalisation of this EA, there was further agency consultation to discuss the assessment findings and the proposed management and mitigation measures. This consultation included meetings with the following agencies:

- DECCW (SCA) – meeting undertaken in February 2010;
- DECCW (Cultural Heritage division) – meeting undertaken in February 2010; and
- NOW – meeting undertaken in November 2009.

There will be ongoing consultation with the relevant service organisations, including Telstra, Optus, NextGen, Gencom and Jemena, during the continued operations of WWC regarding management of subsidence impacts on infrastructure. WWC has a long history of effective consultation with these service providers.

As discussed in **Section 4.1.1**, based on the assessments undertaken for this EA, the Project is unlikely to significantly impact on any Matters of National Environmental Significance and therefore the Project is not considered to require the approval of the Commonwealth Minister for the Environment, Heritage and the Arts. A referral will be made to the Department of the Environment, Water, Heritage and the Arts (DEWHA) to confirm this conclusion.

3.2 Other Stakeholder Consultation

3.2.1 Community Consultation

Face to face meetings have been held with the two private landholders within the continued underground mining area. The residents did not raise any concerns about the Project and were generally satisfied with the planned approach.

Briefings on the Project were provided to the Westside Community Consultative Committee in both June 2009 and December 2009. The Community Consultative Committee is comprised of community representatives from Barnsley, Killingworth and Wakefield. These areas are the main residential areas surrounding the surface operations of WWC. The Community Consultative Committee members raised queries about the approvals process and assessment details but were generally satisfied with the planned approach. Specific issues raised included management of subsidence impacts including creeklines. WWC will continue to discuss the Project with the Westside Mine Community Consultative Committee.

The details of the Project were provided to the community and feedback on the Project was sought as part of the OCAL Community Newsletters in May 2009 and February 2010 (refer to **Appendix 2**). The OCAL Community Newsletter is delivered to all residents of Barnsley, Killingworth, Wakefield, Teralba and parts of Boolaroo. No feedback relating to the Project has been received to date.

A presentation was provided to the West Wallsend Chamber of Commerce in December 2009. The presentation provided an overview of the Project. The Chamber of Commerce was appreciative of the information provided and no concerns were raised.

3.2.2 Aboriginal Community Consultation

Five Aboriginal stakeholder groups who registered an interest in the Project or who were previously known to have an interest in the project area were consulted regarding the Aboriginal archaeology assessment completed for the Project. The following Aboriginal stakeholders were consulted with and participated in the Aboriginal archaeology assessment:

- Awabakal Descendants Traditional Owners Aboriginal Corporation (ADTOAC);
- Awabakal Local Aboriginal Land Council (ALALC);
- Awabakal Traditional Owners Aboriginal Corporation (ATOAC);
- Cacatua Culture Consultants (CCC); and
- Koompahtoo Local Aboriginal Land Council (KLALC).

Extensive consultation was undertaken during the survey and assessment process in accordance with relevant DECCW guidelines and is discussed further in **Section 5.9**.

All participating Aboriginal stakeholders highlighted the very high cultural significance and sensitivity of the Sugarloaf Range area within which a large part of the proposed continued underground mining area is located. Major issues raised by the registered Aboriginal stakeholders included:

- the potential for undermining to impact the grinding groove sites located within the continued underground mining area;
- details of survey coverage of the proposed continued underground mining area;
- need for improved management of Aboriginal cultural heritage sites within the SSCA;
- the nature of offsets proposed by WWC;
- past and future levels of Aboriginal stakeholder consultation in relation to Aboriginal archaeological site and landscape feature management.

3.3 Identification of Key Issues

Feedback on relevant issues identified during the initial consultation period was noted in the Preliminary Environmental Assessment. The key issues for the Project as raised by the relevant government agencies were provided in the DGRs. The DGRs for the EA report are provided in **Table 3.1**, which also notes the relevant section of the EA that addresses each requirement. A full copy of the DGRs is included in **Appendix 3**.

Table 3.1 – Director-General's Requirements Checklist

Requirement	Relevant Section
General Requirements	
The EA of the Project must include:	
• an executive summary;	Executive Summary
• a detailed description of: - historical mining operations; - existing and approved mining operations/facilities, including any statutory approvals that apply to these operations/facilities; and - the existing environmental management and monitoring regime;	 Section 1.2 Section 2.2 Section 1.4.5
• a detailed description of the Project, including the: - need for the project; - proposed modifications or upgrades to activities or infrastructure; - alternatives considered; - various components and stages of the project; - likely interactions between existing and approved operations; - between the project and other land uses in the vicinity of the site; and - plans of any proposed building works;	Section 2.0
• a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment;	Section 5.1
• a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: - a description of the existing environment, using sufficient baseline data; - an assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below); and - a description of the measures that would be implemented to avoid, minimise, mitigate rehabilitate/remediate, monitor and/or offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment;	Section 5.0
• a Statement of Commitments, outlining all the proposed environment management and monitoring measures;	Section 6.0
• a conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning and Assessment Act 1979;* and	Section 7.0
• a signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.	Appendix 1

Table 3.1 – Director-General's Requirements Checklist (cont)

Requirement	Relevant Section
Key Issues:	
• **Subsidence** – including: - baseline assessment of the surface features above underground mining areas; - accurate predictions of subsidence effects using best available predictive formulae, and a sensitivity analysis of these predictions; - a detailed assessment of the potential impacts of these subsidence effects on both the natural and built environment, paying particular attention to significant features of this environment such as the steep slopes of the Sugarloaf State Conservation Area (SCA), cliff lines, groundwater aquifers, alluvial aquifers and groundwater dependent ecosystems; and - details of the proposed subsidence management, monitoring, reporting and remediation processes;	Section 5.2
• **Biodiversity** – including: - baseline flora and fauna surveys, describing vegetation communities, habitat types and species assemblages present; - assessment of the potential direct and indirect impacts on threatened species, their habitats, populations and ecological communities and a description of any measures taken to avoid and/or mitigate potential impacts; - assessment of the potential impacts on the SSCA; and - details of any measures to avoid or mitigate potential biodiversity impacts and, in instances where impacts cannot be avoided, appropriate details on offset habitat packages or strategies;	Section 5.3
• **Surface and Groundwater** – including: - a detailed assessment of potential and cumulative surface and groundwater impacts; - a detailed assessment of water supply, water interception and water extraction with reference to the provisions of the Hunter Unregulated Rivers and Alluvial Water Sharing Plan; - a detailed site water balance; - details of proposed erosion, sedimentation and pollution control measures and any other measures proposed to avoid and/or mitigate impacts to surface and ground water; and - details of the proposed surface and ground water monitoring program;	Section 5.4 and Section 5.5
• **Air Quality** – including a detailed air quality impact assessment which takes into account the cumulative impacts of the project;	Section 5.6
• **Noise** – including a comprehensive noise assessment of the existing environment, potential impacts and proposed noise amelioration measures;	Section 5.7
• **Greenhouse Gases** – including a comprehensive assessment of the predicted Scope 1, 2 and 3 greenhouse gas emissions;	Section 5.8
• **Heritage** – both Aboriginal and non-Aboriginal;	Section 5.9 and Section 5.10
• **Traffic & Transport;**	Section 5.11
• **Visual;**	Section 5.12
• **Waste;**	Section 5.13

Table 3.1 – Director-General's Requirements Checklist (cont)

Requirement	Relevant Section
• **Social & Economic;** and	Section 5.14
• **Rehabilitation** – including a conceptual mine closure plan and a detailed description of the proposed rehabilitation strategy for the mine, taking into consideration any relevant strategic land use planning or resource management plans or policies;	Section 5.15
References:	
The environmental assessment of the key issues listed above must take into account relevant guidelines, policies, and plans. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this project;	Section 8.0
Consultation:	
During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • Department of Environment, Climate Change and Water; • Office of Water of Department of Environment, Climate Change and Water; • Department of Industry and Investment; • Lake Macquarie City Council; • Cessnock City Council; • Roads and Traffic Authority; and • Mine Subsidence Board. The consultation process and the issues raised must be described in the Environmental Assessment.	Section 3.0

section 4.0

Planning Considerations

4.0 Planning Considerations

This section provides details of the relevant Commonwealth, State and local planning provisions and a discussion of the application of these provisions to the Project.

4.1 Commonwealth Legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), approval of the Commonwealth Minister for the Environment, Heritage and the Arts (Commonwealth Minister) is required for any action that may have a significant impact on matters of national environmental significance. These matters are:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- cetaceans, migratory species, threatened species, critical habitats or ecological communities listed by the EPBC Act;
- Commonwealth land, marine areas or reserves; and
- nuclear actions.

If an *'activity'* is likely to have a significant impact on a matter of national environmental significance then it may be a *'controlled action'* and should be referred to the Commonwealth Minister for consideration.

The provisions of the EPBC Act which are relevant to this Project are those which relate to potential impacts on migratory species, threatened species, or ecological communities listed under the EPBC Act.

There are four flora species, three fauna species and four migratory species listed in the Schedules of the EPBC Act which were recorded within the continued underground mining area. The ecological impact assessment conducted as part of this EA concluded that the Project is not likely to have a significant impact on these matters of national environmental significance listed under the Schedules of the EPBC Act (refer to **Section 5.3**). Therefore the Project does not require the approval of the Commonwealth Minister.

None of the other listed triggers for assessment under the EPBC Act are relevant to the Project.

4.1.2 Native Title Act 1993

The Commonwealth *Native Title Act 1993* (Native Title Act) is administered by the National Native Title Tribunal. The Tribunal is responsible for maintaining a register of native title claimants and bodies to whom native title rights have been granted. These native title holders and claimants must be consulted prior to the granting of a ML over land to which the native title claim or right applies. This process is designed to ensure that Indigenous people who have identified an interest in the land (or any part thereof) have the opportunity to

express this interest formally, and to negotiate with the government and the applicant about the proposed grant or renewal of an ML, or consent to access native title land. The Native Title Act prescribes that native title can be extinguished under certain circumstances, including the granting of freehold land.

The NSW *Mining Act 1992* must be administered in accordance with the Native Title Act. As such, native title holders and claimants must be provided with the 'right to negotiate' in relation to the grant and some renewals of exploration and mining titles.

There are currently no native title claims within the continued underground mining area or mining services facility site and therefore the provisions of the Native Title Act are not relevant to the Project at this time. Refer to **Section 5.9** for further details of the searches completed in this regard.

The Part 3A Project Approval process under the EP&A Act does not trigger the 'right to negotiate' provisions in the Native Title Act. However, should any Native Title Act claims be made in the future, the relevant provisions of the Act will be followed in relation to the granting and renewal of any additional mining tenements for the Project.

4.2 New South Wales Legislation

4.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act defines the approval process for proposed developments in NSW. The objectives of the Act relevant to the Project are:

(a) to encourage:

i. the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

ii. the promotion and co-ordination of the orderly and economic use and development of land,…

iii. the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

iv. ecologically sustainable development, and

(b) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

It is considered that the Project meets these objectives as it relates to planning for the safe and economic recovery of the state's coal resource whilst effectively managing impacts on the environment and community. A detailed stakeholder engagement program has also been undertaken for the Project, providing the community with an opportunity to be involved in the planning and assessment process for the Project.

Part 3A of the EP&A Act provides an approval process for major developments which are either declared to be a major development by a SEPP or by order of the Minister published in the Gazette.

Major Developments

Schedule 1 of the SEPP (Major Development) 2005 describes development which requires approval under Part 3A of the EP&A Act. In particular, Schedule 1, Group 2 (mining, petroleum production, extractive industries and related industries) of the SEPP (Major Development) 2005 provides that 'mining' is a class of development to which Part 3A of the EP&A Act applies. The listing in Schedule 1 of the SEPP that applies to this Project is:

5 Mining

(1) Development for the purpose of mining that:

(a) is coal or mineral sands mining, or
(b) is in an environmentally sensitive area of State significance, or
(c) has a capital investment value of more than $30 million or employs 100 or more people

As this Project relates to 'coal mining' it satisfies the requirements of the SEPP (Major Development) 2005 and is therefore classed as a major development. Therefore the Project is required to be assessed and approved under Part 3A of the EP&A Act. As the Project Application is made under Part 3A of the EP&A Act, the Minister for Planning will be responsible for determining the Project. The Director-General of DoP provided the assessment requirements for the EA, as discussed in **Section 3.3**.

Application of Environmental Planning Instruments

The Project is located primarily within the Lake Macquarie LGA, with a minor portion of the Western domain falling within the Cessnock LGA, as shown in **Figure 4.1**. Hence the Lake Macquarie LEP 2004 and Cessnock LEP 2004 are relevant to the permissibility of this Project.

The land zonings applicable to the Project are provided in **Table 4.1**.

Table 4.1 – Lake Macquarie and Cessnock City Council Land Zonings for Lands Applicable to the Project

Lake Macquarie LEP Zoning	Classification
1(1)	Rural (Production) Zone
1(2)	Rural (Living) Zone
2(1)	Residential Zone
2(2)	Residential (Urban Living) Zone
3(1)	Urban Centre (Core) Zone
3(2)	Urban Centre (Support) Zone
4(1)	Industrial (Core) Zone
4(2)	Industrial (General) Zone
4(3)	Industrial (Urban Services) Zone
5	Infrastructure Zone
6(1)	Open Space Zone
6(2)	Tourism and Recreation Zone
7(1)	Conservation (Primary) Zone
7(2)	Conservation (Secondary) Zone
7(3)	Environmental (General) Zone
7(5)	Environmental (Living) Zone

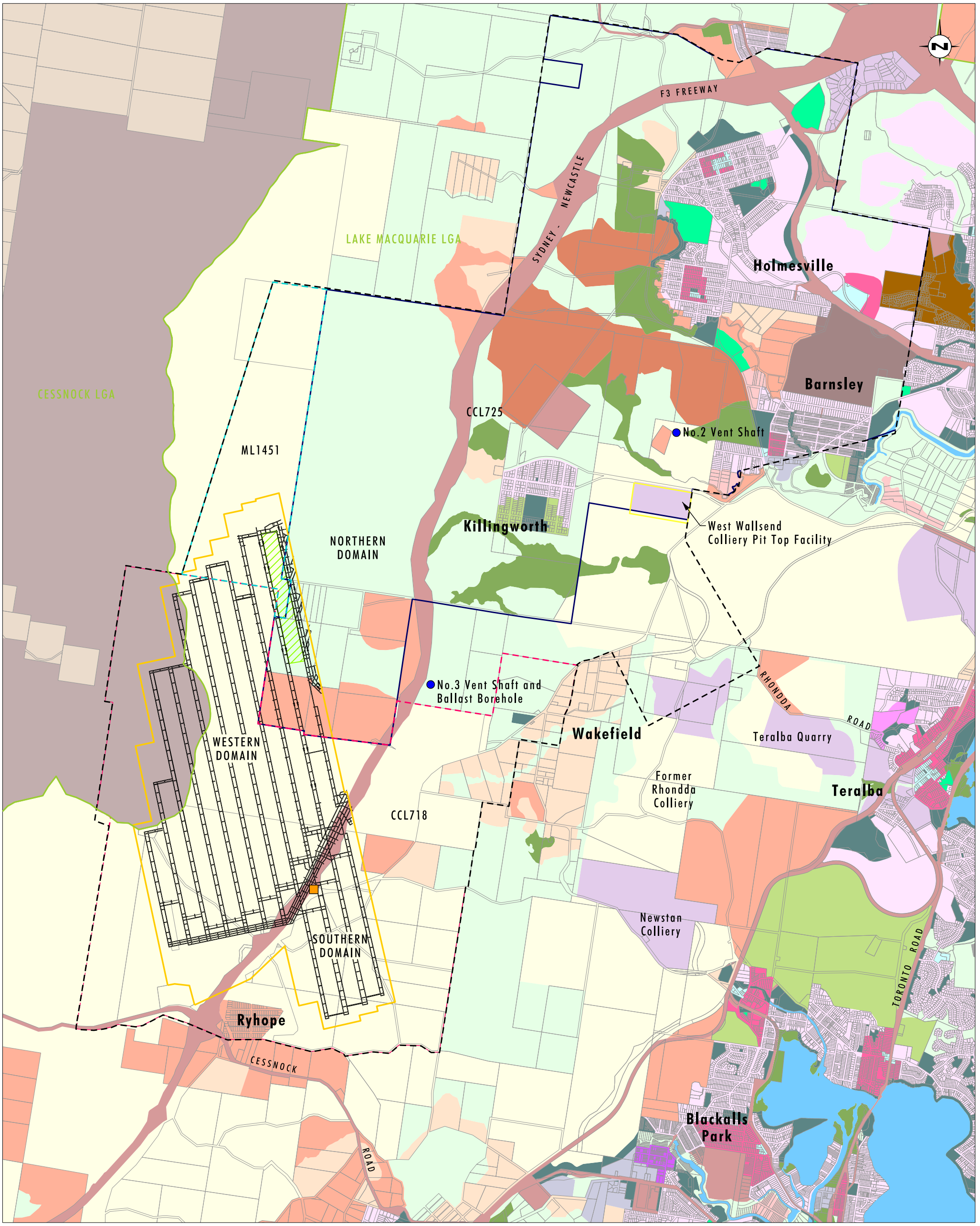


FIGURE 4.1

Zoning

File Name (A3): R08_V1/2553_274.dgn

Table 4.1 – Lake Macquarie and Cessnock City Council Land Zonings for Lands Applicable to the Project (cont)

Lake Macquarie LEP Zoning (cont)	Classification
8	National Park Zone
9	Natural Resources Zone
10(a to d)	Investigation Zone
11	Lakes and Waterways Zone
Cessnock LEP Zoning	**Classification**
1(a)	Rural "A"
1(f)	Rural Forestry

Section 75R of the EP&A Act provides that environmental planning instruments, other than SEPPs, do not apply to Major Developments assessed under Part 3A of the Act, other than in regards to permissibility as detailed below.

Permissibility

Section 75J(3) of the EP&A Act and clause 8N of the EP&A Regulation provide that the Minister cannot approve the carrying out of a project that would be wholly prohibited under an environmental planning instrument that would not (because of section 75R) apply to the approved project. Hence, if a project is wholly prohibited by an LEP then the Minister cannot approve the project, except where provided for by another environmental planning instrument such as a SEPP (refer to **Section 4.3.2**).

The permissibility provisions of SEPP (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) are relevant to this Project. The Mining SEPP specifies that 'underground mining carried out on any land' is permissible with development consent. Consequently, the Project is permissible with development consent under the Mining SEPP, and the Minister may approve the Project regardless of permissibility under the relevant LEPs.

The Mining SEPP also specifies that mining may be carried out with development consent:

- on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or
- on land that is, immediately before the commencement of this clause, the subject of a mining lease under the *Mining Act 1992* or a mining licence under the *Offshore Minerals Act 1999*, or
- on land that is reserved as a state conservation area under the *National Parks and Wildlife Act 1974*.

As discussed previously, the continued underground mining is located within mining leases that have been in place for over several decades and is primarily located beneath the SSCA.

Lake Macquarie LEP 2004

As discussed above, the Project is permissible under the provisions of the Mining SEPP regardless of any provisions in the Lake Macquarie LEP. However, it is also noted that under the LEP the continued underground mining area is zoned 5 Infrastructure, 7(2) Conservation (Secondary), 7(3) Environmental (General) and 9 Natural Resources. The

majority of the continued underground mining area is zoned 9 Natural Resources under the Lake Macquarie LEP (refer to **Figure 4.1**). The LEP specifies that mining is permissible with development consent within areas zoned 9 Natural Resources. However, Clause 19 of the Lake Macquarie LEP 2004 provides that:

> 19 Development for the Purpose of a Mine
>
> Nothing in this plan prevents a person, with development consent, from carrying out development for the purpose of a mine:
>
> (a) on any land to which this plan applies, if the mine is underground.

Therefore, the Project is also permissible under the Lake Macquarie LEP.

Cessnock LEP 1989

The portion of the continued underground mining area within the Cessnock LGA is zoned 1(f) Rural (Forestry) under the Cessnock LEP. Mining is permissible in this zone with development consent. Therefore, the Project is also permissible under the Cessnock LEP.

Approvals That Do Not Apply

Under section 75U of the EP&A Act if the Project is granted approval under Part 3A of the Act, the following authorisations, which may otherwise have been relevant, will not be required to carry out the Project (refer to **Table 4.2**).

Table 4.2 - Authorisations That Do Not Apply

Act	Authorisations
Fisheries Management Act 1994	Permit for works or structures within a waterway.
Heritage Act 1977	Disturbance to an item listed on State Heritage Register or Interim Heritage Order; Excavation permit.
National Parks & Wildlife Act 1974	s87 preliminary research permit; s90 consent to destroy relics.
Native Vegetation Act 2003	Consent for the clearing of native vegetation.
Water Management Act 2000	Approvals for water use, water management work or an activity.

Approvals Legislation to be Applied Consistently

If the Project is granted approval under Part 3A of the EP&A Act, the following authorisations, which will be required for the Project, must not be refused by the relevant approval authority and must be substantially consistent with the terms of the Project approval (refer to **Table 4.3**).

Table 4.3 - Approvals Legislation to be Applied Consistently

Act	Approval	Authority
Mine Subsidence Compensation Act 1961	Development within Mine Subsidence District	Mine Subsidence Board
Mining Act 1992	Mining Lease	Department of Industry and Investment
Protection of the Environment Operations Act 1997	Environment Protection Licence	Department of Environment, Climate Change and Water
Roads Act 1993	Permit to impact on a public road	LMCC or RTA

4.2.2 Mining Act 1992

The NSW *Mining Act 1992* (Mining Act) is administered by the DI&I on behalf of the Minister for Mineral Resources and, amongst other legislative instruments, places controls on methods of exploration and mining, the disposal of mining waste, land rehabilitation, and environmental management activities.

A ML granted under the Mining Act 1992 entitles the leaseholder to mine coal from a deposit. OCAL currently holds MLs (CCL 718, CCL 725 and ML 1451) over the entire continued underground mining area. Details of existing mining leases are provided in **Table 4.4**. With an appropriate Project Approval in place over the entire planned mining area, these MLs will provide for the mining of the target coal resource in the continued underground mining area.

Table 4.4 – Existing Mining Titles

Type of Title	No.	Surface Exception	Commencement	Expiry
Consolidated Coal Lease	CCL 725	Various	1991	2010*
Consolidated Coal Lease	CCL 718	Various	1991	2010*
Mining Lease	ML 1438	20 metres	1999	2020
Mining Lease	ML 1451	30 metres	1999	2020

* Renewals have been lodged.

A new surface mining lease will be required for the proposed Mining Services Facility. The proposed facility is located within an existing underground mining lease and a surface mining lease will be required for this area. Renewal applications were lodged with DI&I for CCL725 and CCL 718.

OCAL currently operates under an approved MOP and SMP for the existing operations. As mining progresses, new MOPs and SMPs, or any other future relevant management requirements under the Mining Act, will also be prepared and submitted to the DI&I for approval, in accordance with the conditions of the relevant MLs.

4.2.3 Protection of the Environment Operations Act 1997

The PoEO Act is administered by the DECCW. The Act establishes, amongst other things, the procedures for issuing of licences for environmental protection on aspects such as waste, air, water and noise pollution control.

The owner or occupier of a premise that is engaged in scheduled activities is required to hold an EPL and comply at all times with the conditions of that licence.

OCAL currently holds EPL No. 1360 which applies to the OCAL complex, including WWC but excluding Westside Mine. Should the Project be approved, OCAL will seek to vary the existing EPL to incorporate the Project.

4.2.4 Roads Act 1993

The *Roads Act 1993* is administered by the NSW RTA, local Council or the Department of Lands (DoL). The RTA has jurisdiction over major roads, local Council over minor roads and the DoL over road reserves or Crown roads.

Under Section 138, Part 9, Division 3 of the Act, a person must not:

(a) erect a structure or carry out a work in, or over a public road, or

(b) dig up or disturb the surface of a public road, or

(c) remove or interfere with a structure, work or tree on a public road, or

(d) pump water into a public road from any land adjoining the road, or

(e) connect a road (whether public or private) to a classified road,

otherwise than with the consent of the appropriate roads authority.

As discussed in **Section 2.3.3.3**, the proposed mining services facility site is to be located on land owned by LMCC, adjacent to Wakefield Road. A service road is proposed as part of the MSF, allowing access from Wakefield Road. As a result, road works will be required on Wakefield Road, to establish entry and exit ramps. A permit will be required under the *Roads Act 1993* from LMCC to undertake these works.

The Project also has the potential to impact on local and Crown roads and road reserves, including Wakefield Road, due to subsidence and approval under Section 138 of the Act will be required prior to any roadworks associated with subsidence remediation.

4.2.5 Coal Mine Health and Safety Act 2002

The *Coal Mine Health and Safety Act 2002* replaced the *Coal Mines Regulation Act 1982.* The principal aim of the *Coal Mine Health and Safety Act 2002* is to secure the objectives of the *Occupational Health and Safety Act 2000* (OH&S Act) in relation to coal operations. It does this by imposing certain specific safety requirements on coal mines. This includes the requirement to comply with minimum barriers for underground mining workings and the requirement to obtain consent from the Minister for Mineral Resources for the establishment of emplacement areas.

Clause 88 of the Coal Mine Health and Safety Regulation 2006 imposes a requirement to obtain approval for secondary workings (including extraction by underground methods) as that which existed previously in Section 138 of the *Coal Mines Regulation Act 1982*. WWC will require an approval under Clause 88 for the extraction of coal by longwall methods in the continued underground mining area.

Approval is required under Section 100 of the Act for the establishment of reject emplacement areas. However, as discussed in **Section 2.2**, the processing of all coal from the Project will be undertaken at MCPP in accordance with existing approvals. Therefore, an approval is not required under Section 100 for the Project.

4.2.6 Mine Subsidence Compensation Act 1961

Under the *Mine Subsidence Compensation Act 1961*, the approval of the MSB is required for the erection or alteration of improvements within a mine subsidence district. The continued underground mining area is located within the Killingworth/Wallsend Mine Subsidence District and approval under s15 of the Act will be required for the construction of any new surface infrastructure, including the proposed mining services facility.

4.2.7 Water Management Act 2000

The *Water Management Act 2000* (WM Act) is administered by NOW and regulates the use and interference with surface water and groundwater in NSW. The WM Act applies to water sources which are governed by a water sharing plan (WSP). Under Part 3 of the WM Act, a WSP may be prepared for the management of water resources in a specified area.

The Hunter Unregulated and Alluvial Water Sources Water Sharing Plan (Hunter Unregulated and Alluvial WSP) commenced on 1 August 2009 and applies to the 'Water Sources', as defined in the Hunter Unregulated and Alluvial WSP within the continued underground mining area. Therefore, the surface waters and any alluvial waters within the continued underground mining area are governed by the WM Act, whilst the groundwater associated with the hard rock aquifers (i.e. coal seams) remain governed by the *Water Act 1912* (Water Act) (refer to **Section 4.2.8**).

The Project will not require a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the WM Act due to the operation of section 75U of the EP&A Act, as described in **Section 4.2.1**.

4.2.8 Water Act 1912

The Water Act is administered by NOW. The licensing provisions of the Water Act remain in force except where replaced by enacted provisions in the Water Management Act. Under the provisions of the Act, which remains in force, a permit and/or licence must be obtained to extract groundwater (Part 5 of the Act).

Groundwater that flows into the underground mine will continue to be pumped from the mine under the existing Part 5 licence held under the Water Act. A variation to the existing Part 5 licence is currently being sought to cater for existing and planned extraction of predicted groundwater inflows as discussed is **Section 5.4**.

4.2.9 Environmentally Hazardous Chemicals Act 1985

DECCW is granted power under the *Environmentally Hazardous Chemicals Act 1985* to assess and control certain chemicals by making a Chemical Control Order (CCO). A CCO can prohibit specified activities or require them to be licensed, prohibit activities that don't comply with the conditions of the order, or permit an activity unconditionally. None of the chemicals or chemical wastes listed under the Act will be required or produced as a result of the Project. Approval will not therefore be required under this Act.

4.2.10 Crown Lands Act 1989

The *Crown Lands Act 1989* provides for the administration and management of Crown land in the eastern and central divisions of the state. Crown land may not be occupied, used, sold, leased, dedicated, reserved or otherwise dealt with unless authorised by this Act or the *Crown Lands (Continued Tenures) Act 1989*.

The Minister may grant a 'relevant interest', such as a lease, licence or permit, over Crown land for the purpose of any infrastructure, activity or other purpose that the Minister thinks fit. The approval of the DoL will be required for any works within crown road reserves.

A number of Crown road reserves are located within the southern portion of the continued underground mining area. Subsidence remediation works may be required in Crown road reserves within the continued underground mining area and approval would be required for any works. Any required approvals would be obtained prior to such works being undertaken.

4.2.11 National Parks and Wildlife Act 1974

Approvals for impacting on Aboriginal sites under Sections 87 and 90 of the of the *National Parks and Wildlife Act 1974* (NP&W Act) are not required for projects approved under Part 3A of the EP&A Act due to the exemptions outlined under section 75U of the EP&A Act (refer to **Section 4.2.1**). However, due to the presence of the SSCA above the continued underground mining area, the provisions of Section 47(J) of the NP&W Act are relevant to the Project.

Section 47(J) defines 'mining interests' as any ML under the *Mining Act 1992* and specifies that:

- a mining interest shall not be granted in respect of lands within a SCA without the concurrence in writing of the Minister; and
- a renewal of, or extension of the term of, a mining interest in respect of lands within a SCA (other than an existing interest) shall not be granted under the *Mining Act 1992* without the concurrence in writing of the Minister.

These provisions require that should WWC wish to apply for a new ML or renew an ML, the concurrence of the Minister for Environment, Climate Change and Water will be required. As discussed in **Section 4.2.2**, WWC currently hold the MLs required for continued mining operations within the SCA. However, a surface mining lease will be required for the proposed mining services facility which is located outside the SCA.

4.3 State Environmental Planning Policies

SEPPs are environmental planning instruments created by the state government. The SEPPs that are potentially relevant to the Project are discussed below.

4.3.1 State Environmental Planning Policy (Major Development) 2005

SEPP (Major Development) 2005 identifies developments to which the development assessment and approval process under Part 3A of the EP&A Act apply. As discussed in **Section 4.2.1**, the Project is listed under Schedule 1 of the SEPP and will therefore be assessed under Part 3A of the EP&A Act.

4.3.2 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) was gazetted in February 2007.

The Mining SEPP aims to:

(a) provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State;

(b) facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources; and

(c) establish appropriate planning controls to encourage ESD through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.

With regard to coal mining, the Mining SEPP provides that development for the purpose of mining may be carried out only with development consent. The Mining SEPP also defines mining developments that are prohibited, exempt or complying developments. These provisions do not affect the requirement for approval under Part 3A of the EP&A Act for the Project.

The Mining SEPP requires the consent authority to consider the current land use of the continued underground mining area. Whilst these provisions do not strictly apply to applications for project approval under Part 3A of the EP&A Act, they have been considered for the sake of completeness. Clause 14 of the SEPP requires the consent authority to apply consent conditions, where necessary, that ensure the Project is undertaken in an environmentally responsible manner. In addition, the consent authority must also consider resource recovery, waste minimisation, transportation of material via the public road system and rehabilitation needs associated with the Project.

Under the Mining SEPP, the consent authority must consider an assessment of the greenhouse gas emissions, including downstream emissions, of the development. The determination must be made in regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions. A full greenhouse gas and energy assessment, including a quantitative analysis of the Scope 1, 2 and 3 emissions from the Project, and a qualitative assessment of the impacts of these emissions, has been undertaken for the Project (refer to **Section 5.8**).

4.3.3 State Environmental Planning Policy 33 – Hazardous and Offensive Development

SEPP 33 (Hazardous and Offensive Development) (SEPP 33) requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or a potentially offensive industry. A hazard assessment is completed for potentially hazardous developments to assist the consent authority to determine acceptability.

Given that WWC's existing operations are not classed as hazardous development and that the Project is essentially a continuation of existing land use and will not result in significant changes to the existing infrastructure and hazardous materials storage areas, the Project is not considered a hazardous industry. A detailed hazard assessment is therefore not required.

DoP (Department of Planning, 1994) states that if an EPL can be obtained for a development, the development is not considered to be an 'offensive industry' and is permissible under SEPP 33. OCAL currently holds an EPL for its activities at WWC and only minor modifications will be required to this EPL to accommodate the Project. Hence, the Project is not considered an offensive industry under SEPP 33.

4.3.4 State Environmental Planning Policy 44 – Koala Habitat Protection

SEPP 44 (Koala Habitat Protection) (SEPP 44) applies to the extent that in any LGA which is listed in the SEPP, the relevant council is restricted from granting development consent for proposals on land identified as core koala habitat without the preparation of a plan of management. Lake Macquarie LGA and Cessnock LGA are listed in Schedule 1 of the SEPP and therefore the SEPP is relevant to this Project. Whilst this SEPP does not strictly apply to the applications for project approval under Part 3A of the EP&A Act, it has been considered for the sake of completeness.

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation that provides habitat for koalas to ensure permanent free-living populations over their present range and to reverse the current trend of population decline. Under Part 1 (5) of the Policy (Land to which this Policy Applies), it is stated that the policy does not apply to land dedicated or reserved under the *National Parks and Wildlife Act 1974,* which includes the SSCA.

A koala habitat assessment was completed as part of the ecological assessment for this Project and core koala habitat was identified within the continued underground mining area (refer to **Section 5.3**). Therefore a koala plan of management is required for the Project.

4.3.5 State Environmental Planning Policy 55 – Remediation of Land

SEPP 55 (Remediation of Land) (SEPP 55) aims to provide a state wide planning approach to the remediation of contaminated land and to reduce the risk of harm to human health and the environment by consideration of contaminated land as part of the planning process. Under SEPP 55, a consent authority must not consent to the carrying out of development on land unless the consent authority has considered any potential contamination issues.

A search of the DECCW contaminated land public record was undertaken for the project application area. No potential contamination issues have been identified within the continued underground mining area. Land use within the continued underground mining area is dominated by forested State Conservation Area with the F3 Freeway running through the southern portion of the continued underground mining area. Existing mining activities at WWC have been undertaken in accordance with strict environmental controls to prevent land and water contamination. OCAL will continue to implement controls to prevent contamination and the storage and handling of chemicals will be undertaken in accordance with Australian Standards and DECC guidelines.

A conceptual closure and decommissioning strategy will be developed for the closure and decommissioning of the Project in consultation with DI&I (refer to **Section 5.15**).