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Illawarra Coal



Appin Area 9

Appin Area 9 Longwalls 901 to 904 Extraction Plan
Annex G – Public Safety Management Plan, 31 October 2013

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Review History

Revision	Description of Changes	Date	Approved
A	New Document	12 September 2011	
B	Final Draft – Revised with comments from BHPBIC	8 February 2012	
C	Final Draft– Updated with BHPBIC comments and new Mine Plan	6 June 2012	
D	Final – Updated with Agency Comments	31 October 2013	

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

BHP Billiton Illawarra Coal (BHPBIC) operates the Bulli Seam Operations (BSO) (Appin and West Cliff Collieries) extracting hard coking coal used for steel production.

On 22 December, 2011 the Planning and Assessment Commission (PAC), under delegation of the Minister for Planning, approved BSO (MP 08_0150) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to continue these mining operations until 31 December 2041.

This Public Safety Management Plan (PMP) supports the Longwalls 901 to 904 Extraction Plan for mining of coal from Longwalls 901 to 904 in Appin Area 9 (AA9). The relationship between this PMP and the other components of the Extraction Plan is shown in Figure 1 of the Extraction Plan.

1.2 SCOPE

This PMP has been prepared by Cardno on behalf of BHPBIC in accordance with the BSO Approval *Condition 5 (l), Schedule 3* as follows:

5. *The Proponent shall prepare and implement an Extraction Plan for first and second workings within each longwall mining domain to the satisfaction of the Director-General. Each extraction plan must...*

(l) *include a Public Safety Management Plan, which has been prepared in consultation with DRE, to ensure public safety in the mining area.*

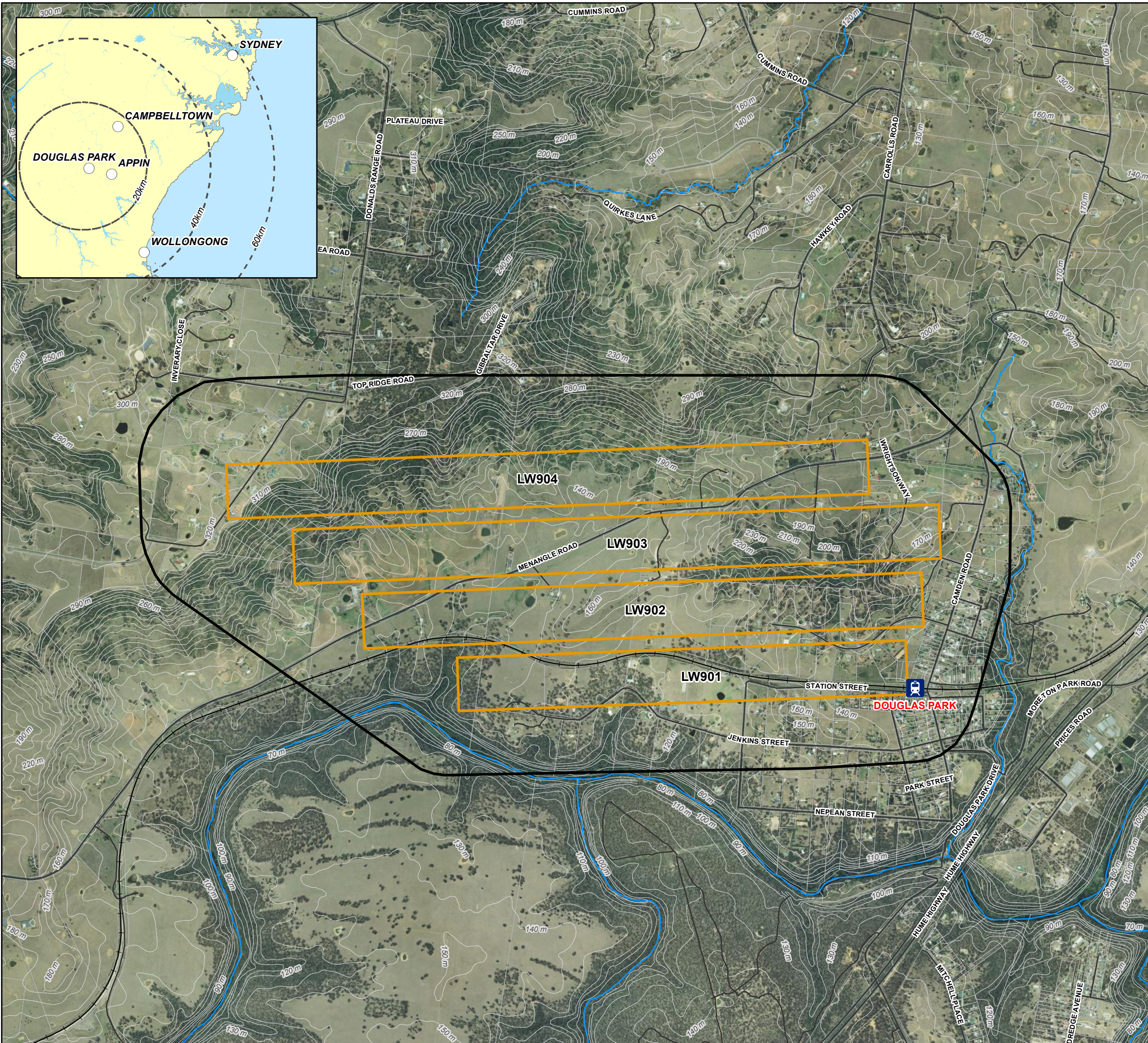
The Study Area for the Extraction Plan (**Figure 1**) is defined in accordance with MSEC (2012) as *the surface area predicted to be affected by the proposed mining of Longwalls 901 to 904 and encompasses the areas bounded by the following limits:-*

- *A 35° Angle of Draw line from the maximum depth of cover, which equates to a horizontal distance varying between 345 metres and 510 metres around the limits of the proposed extraction areas proposed for Longwalls 901 to 904, and*
- *The predicted limit of vertical subsidence, taken as the 20 mm subsidence contour, resulting from the extraction of the proposed Longwalls 901 to 904.*

Additionally, features potentially sensitive to far field movements, which includes horizontal, valley closure and upsidence movements that may be outside the 20 mm subsidence zone or 35° Angle of Draw line have been assessed.

1.3 OBJECTIVES

The objectives of this PMP are to identify areas of risk within the Longwall 901 to 904 Study Area and to provide management measures aimed at ensuring public safety within the mining area.



**Appin Area 9
(LW 901- 904)
Study Area**

- Legend**
- Railway Stations (LPI)
 - Local Roads (LPI)
 - Railway (LPI)
 - 10m Contours (LPI)
 - Watercourses (LPI)
 - Cadastre (LPI)
 - AA9 Longwall Layout
 - Longwalls 901-904 Study Area

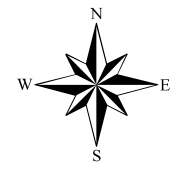
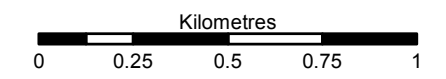


FIGURE 1

Scale 1:20,000 (at A3)



Map Produced by Cardno Wollongong
Date: 31/10/2013
Coordinate System: GDA 1994 MGA Zone 56
Project: 109012-03
Map: 1801_AppinArea9_LW_StudyArea.mxd 07
Aerial imagery supplied by BHPBIC (2009)

1.4 DISTRIBUTION

This PMP will be developed in consultation with the Department of Primary Industries Division of Resources and Energy (DRE) and relevant stakeholders from the community, relevant authorities and infrastructure owners. The finalised PMP will be distributed to:

- Department of Planning and Infrastructure (DP&I)
- Division of Resources and Energy (DRE)
- Wollondilly Shire Council (WSC)
- Roads and Marine Services (RMS)
- Australian Rail Track Corporation (ARTC)
- Infrastructure owners (e.g. Endeavour Energy and Douglas Park service station).

BHPBIC will make the PMP and other relevant environmental documentation publicly available on the BHPBIC website (*Condition 11, Schedule 6*).

2 STATUTORY REQUIREMENTS

Extraction of coal from Longwalls 901 to 904 will be in accordance with the conditions set out in the BSO Approval, applicable legislation as detailed in **Section 2.2** and the requirements of relevant licenses and permits (including conditions attached to mining leases).

2.1 BSO APPROVAL

Condition 5 (l), Schedule 3 of the BSO Approval requires the preparation of a PMP to ensure public safety in the mining area (refer **Section 1.2**).

This PMP also addresses the requirements detailed in *Condition 6, Schedule 3* and *Condition 2, Schedule 6* of the BSO Approval as shown in **Table 2.1**.

Table 2.1 – Management Plan Requirements

<i>Project Approval Condition</i>	<i>Relevant PMP Section</i>
<p><i>Condition 6 – Schedule 3</i></p> <p>The Proponent shall ensure that the management plans required under Condition 5 (g)-(l) above include:</p> <ul style="list-style-type: none"> a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval; b) a detailed description of the measures that would be implemented to remediate predicted impacts. 	<p style="text-align: center;">Section 4</p> <p style="text-align: center;">Section 7</p>

Project Approval Condition	Relevant PMP Section
<p>Condition 2 – Schedule 6</p> <p>The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p> <p>(b) a description of:</p> <ul style="list-style-type: none"> - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; <p>(c) a description of the measures that would be implemented to comply with the relevant statutory, limits, requirements or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> - impacts and environmental performance of the project; - effectiveness of any management measures (see c above); <p>(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the project over time;</p> <p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and <p>(h) a protocol for periodic review of the plan.</p>	<p>Section 3</p> <p>Section 2</p> <p>Section 4</p> <p>Sections 4 to 7</p> <p>Sections 4 to 7</p> <p>Section 5</p> <p>Section 7</p> <p>Section 9</p> <p>Section 8</p> <p>Section 9</p>

Due consideration has been given to all BSO Approval Conditions in the preparation of this PMP, including those relating to auditing, rehabilitation and environmental management.

2.2 LEGISLATION AND GUIDELINES

This PMP has given consideration to the requirements of the relevant Acts which may be applicable to the works undertaken and advisory documents and guidelines including:

- *Coal Mine Health and Safety Act, 2002*
- *Contaminated Land Management Act, 1997*
- *Dangerous Goods Act, 1975*
- *Mining Act, 1992*
- *Noxious Weeds Act, 1993*

- *Rail Safety Act, 2002*
- *Road and Rail Transport (Dangerous Goods) Act, 1997*
- *Roads Act, 1993*
- *Protection of the Environment Operations Act, 1997*
- *Energy and Utilities Administration Act, 1987*
- *Water Management Act, 2000*
- BHPBIC Surface Induction
- BHPBIC Surface Emergency Management Plan
- Guidelines from relevant infrastructure owners especially regarding the safety of working in and around their assets.
- Relevant licenses or approvals acquired under the aforementioned Acts

2.3 RELEVANT LEASES AND LICENCES

The following leases and licences may be applicable to BHPBIC's operations in AA9.

- Mining Leases as per **Table 2.2**.
- Environmental Protection Licence (EPL) 2504 which applies to BSO, including Appin and West Cliff Mines. A copy of the licence can be accessed at the EPA website via the following link <http://www.epa.nsw.gov.au/prpoeo/index.htm>.
- BSO Mining Operations Plan (MOP) 1/10/2012 to 30/09/2019 (V1).
- All relevant OH&S and HSEC approvals.
- Any additional leases, licences and approvals resulting from the BSO Approval.

Table 2.2 – Appin Mine Leases, Licences and other Reference Documents

Mining Lease - Document Number	Issue Date	Expiry Date/ Anniversary Date
CCL 767	29/10/1991	08/07/2029
CL 388	22/1/1992	21/01/2013 Renewal Pending
ML 1382	20/12/1995	19/12/2016
ML 1433	24/7/1998	23/07/2019

3 BASELINE ASSESSMENT

Baseline data in relation to the potential consequences of mining is provided in the Extraction Plan and supporting reports. These reports of relevant to public safety include:

- Subsidence Predictions and Impact Assessment Report (Annex A of the Extraction Plan) which describes the potential subsidence impacts to natural and built features.
- Land Management Plan (LMP) (Annex E of the Extraction Plan) which describes potential consequences on cliffs, overhangs, steep slopes and land in general.
- Built Features Management Plan (Annex H of the Extraction Plan) which describes potential consequences for the following surface infrastructure:

- Main Southern Rail Line (ARTC)
- Hume Highway and Twin Bridges (RMS)
- Public roads (WSC)
- Electricity assets (Endeavour Energy)
- Water mains (Sydney Water)
- Telecommunications (Optus, NextGen, Telstra, PowerTel)

3.1 LAND MANAGEMENT PLAN

3.1.1 Cliffs and Overhangs

A description and location of the cliffs and overhangs within the Study Area are provided by MSEC (2012). The LMP provides a summary of the baseline data compiled by MSEC as well as an assessment of the potential for environmental consequences on cliffs and overhangs from longwall extraction in the Longwalls 901 to 904 Study Area.

A description of the cliffs and overhangs within the Study Area and nearby is summarised below:

- The cliffs within the Study Area are generally located within the valley of the Nepean River and associated tributaries.
- The cliffs within the valley of Harris Creek located just outside the general Study Area have also been included in the assessments as they overhang Douglas Park Drive.
- Rock outcrops are primarily located along the Razorback Range and within the Nepean River valley and associated tributaries.
- The cliffs are located outside the extents of longwall mining, at a minimum distance of 60 m from the proposed longwalls.
- Cliffs within the Study Area have formed from the Hawkesbury Sandstone Sedimentary Group.
- There have been very few recorded cliff instabilities outside the extracted goaf areas of longwall mining in the Southern Coalfield (MSEC, 2012).

3.1.2 Harris Creek Cliffs

Harris Creek is an incised tributary of the Nepean River. Cliffs along Harris Creek have been described by MSEC (2012) and GHD (2012).

The cliffs along Harris Creek are 650 m south east of Longwall 901 at their closest point to the proposed longwalls. Whilst it is outside the general Study Area there is potential for Harris Creek to be affected by non-conventional subsidence and therefore it has been included in the subsidence assessment, the EP and this PMP

Hazard and mechanism features have been identified and photographed along Douglas Park Drive. Key cross sections for a series of embankment traverses along the length, and perpendicular to the road alignment have been developed and two quantitative slope risk assessments of features either above or below the road have been undertaken by GHD (2012).

3.1.3 Nepean River Gorge

The Nepean River valley within the Study Area is up to 60 m high and is steeply sided, comprising cliffs and talus slopes in a number of locations. Most of the significant cliff lines within the Study Area are located along the Nepean River.

Based on subsidence predictions MSEC (2012) consider that significant subsidence effects are not expected for the cliffs due to the offset of the longwalls by at least 60 m.

Although mining is unlikely to destabilise cliffs and steep slopes within the Nepean River gorge, the cliffs in the area are already inherently unstable. Consequently there is the possibility that a rock fall associated with the cliffs may occur naturally during or following the period of mining.

BHPBIC has developed a Cliff and Steep Slope Management Plan which has been implemented for Longwalls 701 to 710 in Appin Area 7 to manage the potential impacts on the cliffs in the Nepean River gorge. The Management Plan addresses monitoring, response action, reporting and public safety. This Management Plan will be reviewed and, where required, revised to include the proposed Longwalls 901 to 904.

3.1.4 Steep Slope Stability

Steep slopes within the Study Area were identified by MSEC (2012). Slope instability has historically occurred along Razorback Range and Douglas Park Ridge as part of the natural processes that occur in the region.

A slope stability assessment was therefore undertaken at these locations by Coffey (2013) to assess the potential effects of longwall mining on the known hazards at these slopes. The results of these studies are provided in the LMP.

Mass movement of steep slopes is unlikely to be induced by the proposed mining activities. Notwithstanding, BHPBIC will develop and implement ongoing monitoring in consultation with potentially affected landowners through the Property Subsidence Management Plan (PSMP) process. Any mitigation or management measures would also be developed and implemented in consultation with the affected landowner through this process.

3.1.5 General Land - Non- Conventional Ground Movements

Longwall mining can result in deformation such as surface cracking, heaving, buckling and stepping at the ground surface. The extent and severity of these deformations are dependent on a number of factors such as mine geometry, depth of cover, overburden geometry, jointing in the bed rock, and the presence of near surface geological structures.

The factors contributing to the extent and severity of ground deformation have been carefully considered and incorporated into the final design of the proposed longwalls.

The depth of cover to the Bulli Seam within the Study Area varies between a minimum of 430 m and a maximum of 750 m. Where the depth of cover above the mined goaf is greater than 400 m the cracking of soils as a result of systematic subsidence has not commonly occurred.

Any cracking observed has generally been isolated to steeper areas and is of a minor nature (MSEC, 2012). This is also expected to be the case for Longwalls 901 to 904.

3.2 BUILT FEATURES MANAGEMENT PLAN

The management of private assets and infrastructure items will be addressed in the Built Features Management Plans (BFMPs), PSMPs and associated agreements between BHPBIC and the relevant infrastructure or property owners as shown in **Table 3.1**.

It is intended that these Plans will be submitted to DP&I separately from this application prior to the commencement of mining in AA9.

Table 3.1 – Built Features Monitoring and Reporting

Asset Type	Management Mechanism
Houses	PSMP to be negotiated with property owner.
Farm dams	PSMP to be negotiated with property owner.
Roads	Generally - Update existing Public Road Management Plan to include Longwalls 901 to 904. Hume Highway and associated bridges– Update existing management plans and agreements with the RTA. Local Roads – Update existing management plans and agreements with Wollondilly Shire Council. Local Road Bridges – Update existing management plans and agreements with RTA and WSC.
Rail	Main Southern Railway – Update existing agreement with ARTC. This agreement will also cover other features associated with the rail line such as culverts, level crossings, signalling systems and the Douglas Park Station.
Electrical Infrastructure	Update existing Integral Energy Structure Monitoring and Management Plan.
Telecommunications Infrastructure	Incorporate infrastructure in study area into existing management plans with relevant infrastructure owners.
Culverts	Under Roads – Update existing Public Road Management Plan to include Longwalls 901 to 904.
Water Mains	Update existing agreements with Sydney Water.
SCA Infrastructure	To be subject to visual inspections.
Other buildings and infrastructure	To be negotiated with property/asset owner.

4 PERFORMANCE MEASURES AND INDICATORS

The BSO Approval provides Subsidence Impact Performance Measures (*Condition 3, Schedule 3*) for a range of factors that may influence public safety as per **Table 4.1** below.

These include the performance criteria for Land and Built Features. For Public Safety directly, the requirement is for negligible additional risk. “*Negligible*” is defined within the Project Approval as “*small and unimportant, such as not to be worth considering*”.

Table 4.1 – Subsidence Impact Performance Measures (BSO Approval)

Land (Condition 1 Schedule 3)	
Cliffs of ‘Special Significance’ (i.e. cliffs no longer than 200 m and/or higher than 40 m; and cliff-like rock faces higher than 5 m that constitute waterfalls).	Negligible environmental consequences (that is occasional rock falls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs within any longwall mining domain).
Other cliffs flanking the Nepean River	Negligible environmental consequences (that is occasional rock falls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 0.5% of the total face area of such cliffs within any longwall mining domain).
Other cliffs.	Minor environmental consequences (that is occasional rock falls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 3% of the total face area of such cliffs within any longwall mining domain).

Built Features (Condition 3 Schedule 3)	
Key public infrastructure: <ul style="list-style-type: none"> • Main Southern Railway; • Hume HWY; and • Key SCA Infrastructure (Nepean Tunnel, Cataract Tunnel, Upper Canal, Broughtons Pass Weir and other weirs). 	Always safe and serviceable. Damage that does not affect safety or serviceability must be fully repairable, and must be fully repaired.
Other public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads trails and associated structures). Houses, industrial premises, swimming pools, farm dams and other built features or improvements	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired or fully compensated, or else the damaged built feature or damaged infrastructure component must be replaced.
Public Safety (Condition 3 Schedule 3)	
Public Safety	Negligible additional risk

Note: Not all of the above mentioned features are present in the LW 901 to 904 Study Area as the subsidence impact performance measures in Schedule 3 relate to the entire BSO Area.

It is considered that the above factors represent the principal sources of risk to persons and built features within the Study Area and surrounding cliff lines. Management and mitigation strategies in relation to the hazards identified are provided in **Section 6**.

5 MONITORING AND REPORTING

5.1 MONITORING PROGRAM

5.1.1 Cliffs and Overhangs, Steep Slopes and Land

BHPBIC will implement monitoring programs within the Study Area. The monitoring is designed in consideration of surveys undertaken prior to mining, discussions with landholders and infrastructure owners as well as studies by Coffey (2013) and in accordance with the LMP. Monitoring will be undertaken at the Harris Creek cliff lines, Nepean River gorge and where built features are located near steep slopes that may be susceptible to failure. Monitoring implemented on private property will be undertaken in consultation and with the agreement of the landowner.

The following stages of monitoring will be undertaken:

- *Stage 1* – Monitoring prior to mining. Background environment and geotechnical data will be collected to assess the current range of conditions at nominated locations.
- *Stage 2* – Monitoring during mining. Including the documentation of environmental conditions such as natural variations based on the weather (temperature, wind, rainfall etc.) and possibly any variations induced by mining.
- *Stage 3* – Monitoring of any mitigation and rehabilitation following mining.

A number of monitoring options are available for the recording of environmental and geotechnical conditions within the Study Area. These are described below:

Surface Monitoring

- *Survey* – a series of survey lines or pegs would be established at nominated locations. Survey pegs extend up to 1 m into the ground or to refusal to ensure

shrink-swell seasonal type ground displacements are minimised. Survey points are also established on fixed surface features such as buildings, concrete pavements, trees and other stable points.

- *Global Navigation Satellite Systems (GNSS) or Global Positioning System (GPS) monitoring.*
- *Synthetic Aperture Radar (SAR) Satellite remote monitoring* - A SAR analysis including the Razorback area will be trialled by BHPBIC.
- *Repeat ALS survey to develop a new DEM* - Airborne Laser Scan data points were collected by AAM Hatch in 2007 and a second set of ALS points to cover a western zone was appended in mid-2009. The point datasets were imported into the ESRI ArcGIS software and converted to a number of GRID Digital Elevation Model (DEM) files at 1 m, 2 m and 10 m pixel resolutions.
- *Installation of Piezometers* - Piezometers would be used to monitor groundwater level within and/or downhill of identified slopes that present an increased risk to property. The inclinometer casing is installed in boreholes drilled through the soil mass and rock. Groundwater levels would be recorded by data loggers with regular downloads of recorded information, or alternatively by real time monitoring. Groundwater levels would then be plotted against rainfall and mine subsidence to assess whether slope instability is increasing and presenting a risk to property.
- *Monitoring of slope stability by Inclinometer* - This would involve the installation of inclinometer casing in boreholes and at the toe of steep slopes near and buildings or between the head of any earth slide and buildings. Inclinometers would be monitored at regular intervals before the commencement of mining and during the anticipated period of subsidence. In conjunction with the above monitoring methods this will provide information on the rate of movement and depth of any slide.

Inspections will also be undertaken by BHPBIC prior to and during mining at nominated locations. On ground inspections will include recording the following details by an experienced geotechnical engineer familiar with slope behaviour:

- The date of inspection.
- The location of longwall extraction.
- The location of any cliff instability (i.e. freshly exposed rock face and debris scattered around the base of the cliff or overhang) relative to the cliff face or overhang.
- The nature of any cliff instability.
- Other aspects such as water seepage (which can indicate weaknesses in the rock).
- Whether actions are required (e.g. implementation of management measures initiation of the relevant Contingency Plan, incident notification, implantation of appropriate safety controls, review of public safety, etc.).
- Any other relevant information.

5.1.2 Built Features

Details of monitoring to ensure the performance measure of 'safe' in relation to the infrastructure is detailed in the relevant asset agreements, PSMPs and the BFMPs.

The relevant process for each feature or type of feature within the Study Area is documented in **Table 3.1** with these agreements to be in place prior to the commencement of mining.

With regards to the monitoring and mitigation of impacts to built features, the Mine Subsidence Board shall also be involved as required.

5.2 REPORTING

The results of regular monitoring will be provided to infrastructure and asset owners in accordance with the individual agreements between the owners and BHPBIC. In some cases this may include regular reporting to steering and/or technical committees in addition to BHPBIC's regular reporting.

Results from the monitoring program will be reported in the Annual Environmental Management Report (AEMR). This report will: detail the outcomes of monitoring undertaken; provide results of visual inspections; determine whether performance indicators have been exceeded; and whether Corrective Management Actions (CMAs) are required.

Monitoring results will be reviewed monthly by the BHPBIC Subsidence Management Committee. However, if the findings of monitoring are deemed to warrant an immediate response the Manager Approvals will initiate the requirements of the LMP TARP and the actions detailed in the PSMP's and BFMP's.

Monitoring results will be made publicly available in accordance with BSO Approval *Condition 8 & 11, Schedule 6* and will also be included in the Annual Reporting *Condition 4, Schedule 6*.

6 MANAGEMENT AND MITIGATION STRATEGIES

Management and mitigation strategies will be undertaken as appropriate, or required following the results of monitoring and in consultation with the landowner as discussed in **Section 5**, the LMP and individual BFMPs. These management and mitigation measures will be implemented in conjunction with the following safety controls.

Controls that apply to the safety hazards identified in **Section 4** are discussed below:

- Signs shall be prominently displayed at any rock, cliff face or steep slope that has been identified as susceptible to failure. Signposts will warn specifically of the danger. Where they are to be installed on private or public property this will only be done with the agreement of the landholder or relevant authority.
- The location of all signs, fences, and other remedial or warning provisions established shall be marked on a Plan. This Plan shall be maintained as a record of any remedial measures instituted during mining.

6.1 LIMITATIONS

While it is the intention of BHPBIC to maintain safety at all times, there are certain limitations that need to be recognised, despite the fact that mining induced cliff and slope instability is considered to be unlikely within AA9. Limitations include:

- There is natural instability associated with the cliff faces and edges in the area.
- The interaction of mining induced movements on the natural instability of cliff faces and overhangs cannot be fully quantified.
- Results from inspections, photographing and monitoring cliff faces and steep slopes in more heavily vegetated areas, such as within the Nepean River gorge will not be as precise as non-vegetated areas.
- In the absence of information to the contrary, it has been assumed that the effects of mining will be similar in nature and magnitude to those associated with previous longwalls located in similar areas and the initial controls implemented will be based on this assumption.

- It is difficult to quantify the risks associated with rock falls and while the probability of resultant injuries may be remote, the potential consequences are severe. Controls will be implemented on this basis.
- At the request of and with the approval of landholders, warning signs will be prominently displayed at areas of risk. It is expected that observational monitoring will be undertaken from the river.

7 CONTINGENCY AND RESPONSE PLANS

In the event the Performance Measures detailed in **Section 4** of this PMP are considered to have been exceeded, or are likely to be exceeded, BHPBIC will implement a Contingency Plan to manage any unpredicted impacts and their consequences.

This would involve:

- Capture photographic record.
- Notify relevant stakeholders soon as practicable.
- Notify relevant agencies and specialists soon as practicable.
- Offer site visits with stakeholders.
- Contract specialists to investigate and report on changes identified.
- Provide incident report to relevant agencies.
- Undertake a condition assessment to record impacts.
- Weekly monitoring until stabilised.
- Updates from specialists on investigative process and progress.
- Inform relevant agencies and stakeholders of results of investigation.
- Develop site CMA in consultation with key stakeholders if required and seek approvals.
- Implement CMA as agreed with stakeholders following approvals.
- Conduct initial follow up monitoring and reporting within of CMA completion.
- Review Management Plan.
- Report in regular reporting and AEMR.

BHPBIC will consult with appropriate specialists and relevant agencies in order to devise an appropriate response in respect to any identified exceedance.

The development and implementation of contingency measures will be designed to address the specific circumstances of the exceedance and assessment of consequences. Any public or private safety risk to persons will be isolated and addressed as soon as practicable.

If the contingency measures implemented by BHPBIC fail to remediate or mitigate the impact or the Director-General determines that it is not reasonable or feasible to remediate the impact BHPBIC will provide a suitable offset to compensate for the impact to the satisfaction of the Director-General of DP&I in accordance with the BSO Approval *Condition 2, Schedule 3*.

All incidents will be reported internally through BHPBIC's Incident Procedure and related records will be maintained in accordance with the Records Management Procedure (refer **Section 9.4**).

8 INCIDENTS, COMPLAINTS, EXCEEDANCES AND NON-CONFORMANCES

8.1 INCIDENTS

BHPBIC will notify DP&I and any other relevant agencies of any incident associated with the BSO as soon as practicable after BHPBIC becomes aware of the incident. BHPBIC will provide DP&I and any relevant agencies with a detailed report on the incident within seven days of confirmation of any event.

In relation to impacts to Built Features the assets owner and the Mine Subsidence Board will also be notified as soon as practicable so the appropriate mitigation and management can be undertaken.

8.2 COMPLAINTS HANDLING

BHPBIC will:

- Provide a readily accessible contact point through a 24 hour toll-free Community Call Line (1800 102 210). The number will be displayed prominently on BHPBIC sites in a position visible by the public as well as on publications provided to the local community.
- Respond to complaints in accordance with the BHPBIC Community Complaints and Enquiry Procedure.
- Maintain good relations and communication lines between the community members, infrastructure owners, Council and BHPBIC staff.
- Keep a register of any complaints, including the details of the complaint with information such as:
 - Time and date.
 - Person receiving the complaint.
 - Complainant's contact name and phone number.
 - Description of the complaint.
 - Work area where complaint relates to.
 - Details of any verbal response.
 - Details of any written response where appropriate.
 - Details of any corrective actions.

8.3 NON CONFORMANCE PROTOCOL

The requirement to comply with all approvals, plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with the BSO. Regular inspections, internal audits and initiation of any remediation/rectification work in relation to the Extraction Plan will be undertaken by the Manager Approvals.

Non-conformities, corrective actions and preventative actions are managed in accordance with the BHPBIC *Non-Conformance, Preventative and Corrective Action Procedure (IHP0107)*. This procedure details the processes to be utilised with respect to the identification of non-conformances, the application of appropriate corrective actions(s) to address non-conformances and the establishment of preventative actions to avoid non-conformances. The key elements of the process include:

- Identification of non-conformance and/or non-compliances.
- Recording of non-conformance and/or non-compliance.

- Evaluation of the non-conformance and/or non-compliance to determine specific corrective and preventative actions.
- Corrective and preventative actions to be assigned to responsible person
- Management review of corrective actions to ensure the status and effectiveness of the actions.

An Annual Review will be undertaken to assess BHPBIC's compliance with all conditions of the BSO Approval, mining leases and all other approvals and licences.

An independent environmental audit will also be undertaken (*Condition 9, Schedule 6*) to review the adequacy of strategies, plans or programs under these approvals and if appropriate, recommend actions to improve the environmental performance of the BSO. The independent environmental audit will be undertaken by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General of DP&I.

9 PLAN ADMINISTRATION

This PMP will be administered in accordance with the requirements of the Appin Environmental Management System (EMS) and the BSO Approval Conditions. A summary of the administrative requirements is provided below.

9.1 ROLES AND RESPONSIBILITIES

All statutory obligations applicable to the AA9 operations are identified and managed via an online compliance management system (TICKIT). The online management system can be accessed from the following link <https://illawarracoal.tod.net.au/login>.

The overall responsibility for the implementation of this PMP resides with the Manager Approvals who shall be the PMP's authorising officer.

Parties responsible for environmental management at Appin and the implementation of the PMP include:

Head of External Affairs

- Ensure that the requisite personnel and equipment are provided to enable this PMP to be implemented effectively.

Manager Approvals

- Authorise the PMP and any amendments thereto.
- Delegate to an appropriately qualified person the responsibility to document any changes to the PMP, recognising the potential for those changes to affect other aspects of the PMP.
- Provide regular updates to BHPBIC on the results of the PMP.
- Arrange information forums for key stakeholders as required.
- Prepare any report in accordance with the PMP. Maintain records required by the PMP.
- Organise and participate in assessment meetings called to review mining impacts.
- Within 24 hours, respond to any queries or complaints made by members of the public in relation to mining effects.

- Organise audits and reviews of the PMP.
- Address any identified non-conformances, assess improvement ideas submitted and implement if considered appropriate.
- Arrange for the implementation of any agreed actions. Responses or remedial measures.
- Ensure surveys required by this PMP are conducted and record details of instances where circumstances prevent these from taking place.

Environmental Field Team Coordinator

- Instruct suitable person(s) in the required standards for inspections, recording and reporting and be satisfied that these standards are maintained.
- Investigate significant subsidence impacts.
- Identify and report any non-conformances with PMP.
- Participate in any other assessment meetings called to review subsidence impacts in the area affected by mining.

Survey Coordinator

- Collate survey data and present in an acceptable form for review at assessment meetings.
- Bring to the attention of the Manager Approvals any findings indicating an immediate response may be warranted.
- Bring to the attention of the Manager Approvals any non-conformances identified with the Plan provisions or ideas aimed at improving the PMP.

Technical Experts

- Conduct the roles assigned to them in a competent and timely manner to the satisfaction of the Manager Approvals and formally provide expert opinion as requested.

Person(s) Performing Inspections

- Formally bring to the attention of the Environment Field Team Coordinator any non-conformances identified with the Plan, or ideas aimed at improving the Plan.
- Conduct inspections in a safe manner.

9.2 RESOURCES REQUIRED

The head of External Affairs provides resources sufficient to support this PMP. Equipment will be needed for the monitoring provisions of this PMP. Where this equipment is of a specialised nature, it will be provided by the supplier of the relevant service. All equipment is to be appropriately maintained, calibrated and serviced as required in operation manuals.

It shall be the responsibility of the Manager Approvals to ensure that personnel and equipment are provided as required to allow the provisions of this Plan to be implemented.

9.3 TRAINING

All staff and contractors working on BHPBIC sites are required to complete the BHPBIC training program which includes:

- An initial site induction (including all relevant aspects of environment, safety and community).
- Safe Work Methods Statements and Job Safety Analyses, Toolbox Talks and Pre-shift communications.
- On-going job specific training and re-training (where required).

All training records are maintained by the BHPBIC Safety and Training Department (STAX database system), which can be accessed via the iPick system.

It shall be the responsibility of the Manager Approvals to ensure that all persons and organisations having responsibilities under this Plan are trained and understand their responsibilities.

The person(s) performing regular inspections shall be under the supervision of the Environment Field Team Coordinator and be trained in observation and reporting. The Environment Field Team Coordinator shall be satisfied that the person(s) performing the inspections are capable of meeting and maintaining this standard.

9.4 RECORD KEEPING AND CONTROL

Environmental records are maintained in accordance with the BHPBIC procedure *records Management (ICHP0108)*.

9.5 DOCUMENT CONTROL

The BHPBIC *Document Control procedure (ICHP0103)* outlines the method for control of defined 'business critical' documentation for all BHPBIC operations. The system has been designed in such a manner to ensure that:

- Documents are approved for adequacy by authorised personnel prior to use.
- Obsolete documents are promptly removed from circulation.
- Documents are reissued, or made available, to relevant persons in a timely fashion after changes have been made and the authorisation process is complete.

The PMP and other relevant documentation will be made available on the BHPBIC website (*Condition 11, Schedule 6*).

9.6 MANAGEMENT PLAN REVIEW

A comprehensive review of the objectives and targets associated with the BSO is undertaken on an annual basis via the BHPBIC Balanced Planning (1 year outlook) and Balanced Strategy (5 year outlook) processes. These reviews, which include involvement from senior site management and other key site personnel, assess the performance of the mine over the previous year and develop goals and targets for the following period.

An annual review of the environmental performance of BSO will also be undertaken in accordance with *Condition 4, Schedule 6*. More specifically this PMP will be subject to review (and revision if necessary, to the satisfaction of the Director-General) within three months of:

- The submission of an annual review under *Condition 4, Schedule 6*.
- The submission of an incident report under *Condition 7, Schedule 6*.
- The submission of an audit report under *Condition 9, Schedule 6*.
- Any modification to the conditions of this approval.

If deficiencies in the EMS and/or PMP are identified in the interim period, the plans will be modified as required. This process has been designed to ensure that all environmental documentation continues to meet current environmental requirements, including changes in technology and operational practice, and the expectations of stakeholders.

10 REFERENCES

Coffey Geotechnics, 2013. *Landslide Risk Assessment from Mine Subsidence Effects - Appin Area 9 Proposed Longwalls, Razorback Range, Douglas park, NSW*. Report prepared for BHP Billiton Illawarra Coal.

GHD Geotechnics, 2012. *Harris Creek Cliff Lines, Douglas Park*. Report prepared for BHP Billiton Illawarra Coal.

Mine Subsidence Engineering Consultants, 2012. *Appin Colliery – Longwalls 901-904. Subsidence Predictions and Impact Assessments for the Natural Features and Surface Infrastructure in support of the Extraction Plan: Report Number: MSEC448 Revision 3*. A report to BHPBIC.