Clay Preshaw - RE: Wallarah 2 Coal Project - Response to Submissions

From: John Brown <JBrown@artc.com.au>
To: "Clay.Preshaw@planning.nsw.gov.au" <Clay.Preshaw@planning.nsw.gov.au>
Date: 10/1/2013 3:58 PM
Subject: RE: Wallarah 2 Coal Project - Response to Submissions
CC: Paul Purcell <PPurcell@ARTC.com.au>, Teena Renes <TRenes@ARTC.com.au>

Hi Clay,

ARTC are satisfied there are no outstanding issues relating to Wallarah 2 Coal Project submission.

Please do not hesitate to contact me if you wish to discuss further.

Regards,

John Brown
Third Party Works Officer

P – 02 4978 9880
F – 02 4978 9995
M – 0467 800 363
E – jbrown2@artc.com.au

Australian Rail Track Corporation Ltd.
Locked Bag 1, Broadmeadow NSW 2292

From: Clay Preshaw [mailto:Clay.Preshaw@planning.nsw.gov.au]
Sent: Tuesday, 17 September 2013 12:39 PM
To: Ash Tamhane; Darren Clarke; David Green; David Lovell; Greg Cashin; Greg Cole-Clark; landuse.enquiries@industry.nsw.gov.au; Lin Armstrong; Lucy Moore; Mark Jenkins; Mark Ozinga; Paul Purcell; Peter Lewis; planning.matters@environment.nsw.gov.au
Cc: Bill Talbot; Carolyn McNally; Denise Lo; Emily Goodworth; Greg Paine; Jude Parr; Julie Moloney; Kylie Spratt; Liz Rogers; Mahani Taylor; Mitchell Isaacs; Peter Jamieson; Regina Fogarty; Richard Bath; Vincent Sicari; Wayne Jones
Subject: Wallarah 2 Coal Project - Response to Submissions

Dear all,

Please be advised that the applicant has submitted a formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974). The document is available to download via the following link:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

The Department is now finalising its assessment of the proposal.

If you wish to provide any comments on the Response to Submissions, including comments about whether it has addressed the issues raised in your agency's submission, please do so by **COB Tuesday 1 October 2013.**

If you have any questions, please feel free to call me.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

F2006/01080
October 2 2013

NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Clay Preshaw

Dear Sir

COMMENTS RE WALLARAH 2 COAL PROJECT RESPONSE TO SUBMISSIONS REPORT

In response to your email of 17 September to Greg Cashin seeking comments on the proponents formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974), the following is provided.

The Central Coast region has a significant population currently in excess of 320,000 and likely to increase to over 400,000, however has limited local water resources. As such, any activity that threatens or places at risk either the water quantity or quality available for town water supply is of great concern to the region.

The EIS and subsequent response submission by the proponent presents arguments that the proposal will have limited impacts on the water resources of the Central Coast. Whilst these may be the findings of the EIS, there is the potential that the assessments could be incorrect and the proposal could have impacts on the local water resources. There appears to be limited recognition of this possibility with minimal mitigation measures and compensatory proposals presented in the event impacts do occur.

The submissions report does not appear to adequately recognise or consider *Table 12 Guidance for further assessment / validation and monitoring* contained in the report by PMS which was a key and emphasised element of our submission (a copy of Table 12 is attached for reference).

From a water supply perspective we are keen to ensure that the water resources are protected and in the event that they are affected that appropriate monitoring, mitigation and compensatory procedures are in place to protect the interests of the Central Coast community (water supply customers).

If the proposal was to proceed, we consider that the associated approval conditions would need to include a rigorous monitoring and evaluation process to identify impacts together with agreed and secured compensation measures established prior to the proposal commencing.

It is considered essential that the risk of the impacts associated with the mining proposal are borne by the proponent and not shifted to third parties. To this point it is considered appropriate that the risk burden is held by the proponent with the principle that the benefit of doubt falls in favour of those adversely impacted by the proposal.

Specific, measurable and agreed targets/ triggers for monitoring need to be established prior to any underground works proceeding in order to allow all stakeholders certainty about what the aims of any adaptive management programme are.

These targets/ triggers should be based on the results of a comprehensive quantitative risk assessment and possibly cost/benefit assessment. Targets/ triggers may include loss of stream flows, lowering of water levels/pressures in monitoring bores and levels of subsidence.

The monitoring and response process must be credible, independent and subject to legal sanctions.

Further, the targets/triggers must be accompanied by agreed responses otherwise the management system could be reduced to an impotent or frustrating process. Agreed responses may be as minor as "continue to monitor / watch" to as strong as "cease mining" or to quarantine sensitive areas from mining.

It may be considered that it may not be possible to sufficiently confirm through monitoring the level of streamflow loss. In that case it may be that a proportion of the mine inflow water is deemed to be from streams and an agreed method and distribution of this proportion of mine water is treated and repatriated to streams, users/residents

Should further information or clarifications be required my contact details are Garry Casement, Manager Headworks, 16 Hely Street, Wyong, NSW, 2259 and can be contact by phone 4350 5158 or by email Garry.Casement@wyong.nsw.gov.au.

Yours faithfully

Garry Casement

Manager Headworks
Central Coast Water Supply

TABLE 12
GUIDANCE FOR FURTHER ASSESSMENT / VALIDATION AND MONITORING

ITEM / AREA OF UNCERTAINTY	IMPORTANCE (Low, Medium and High)	MEASURES
Subsidence	High	Accurate measurement of surface subsidence is expected to be undertaken by the mine if and when mining occurs. This must be calibrated against an accurate map of conditions prior to mining. The record must also include detailed survey of all properties, infrastructure and structures that may be affected by subsidence along with comprehensive dilapidation assessments. Agreement with all stakeholders and landowners must be gained as to the extent and infrastructure to be assessed for impact due to subsidence.
Subsidence Model	High	A hold point after an agreed number (possibly 5) of longwalls have been extracted and the SCT and MSEC models validated and recalibrated as necessary.
Subsidence – potential variability in modelling results.	Medium	The influence of UCS – Sonic correlation UCS – modulus correlation and stress regime on the prediction of subsidence must be validated – as is proposed by the EIS.
Subsidence – impact of pillar yielding on subsidence and the ability to validate predictions	Medium	A comparison of impacts with and without the influence of pillar yielding. A program of pillar performance measurement including convergence measurements and extensometer readings.
Mine Plan	Medium	It is likely, or even inevitable that the Mine Plan and layout of longwall panels will change during the life of the mine. This is particularly so after the process of validation of the subsidence modelling has been completed following initial mining of the first longwall panels (minimum of 4). Modification to the Mine Plan and longwall panel layout will alter the extent and location of subsidence and the location of impacts on flooding, access routes and stream flows. A clear process must be setout for the assessment and approval of revised mine plans and must include Council. Assessments of the impacts of Mine Plan change include subsidence magnitude and extent, potential impact on groundwater modelling, impact on flooding and stream flows/ponding.

TABLE 12
GUIDANCE FOR FURTHER ASSESSMENT / VALIDATION AND MONITORING (Cntd)

ITEM / AREA OF UNCERTAINTY	IMPORTANCE (Low, Medium and High)	MEASURES
Sampling of rock mass – impacts on groundwater modelling	High	In order to confirm the EIS assumption and reduce uncertainty on the extent and connectivity (tortuous) of the defect system within the "aquatard" which is relied upon in the modelling factual data should be provided. If this data is not available then within the existing mine database, or other sources additional exploration cored boreholes drilled at an angle to the horizontal plane of say 60° should be implemented. Drilling would need to be undertaken in the Dooralong Valley and in the lower reaches of the Yarramalong Valley to target rocks below the alluvial soils. Drill holes to extend to at least the base of the "constrained zone" from subsidence modelling. The location and number of such holes is not recommended here, but should be of sufficient number to provide confidence in the result when used in conjunction with other available data. These angled holes could also be used to undertake further in-situ permeability testing by means such as Packer or Constant Head testing.
Permeability of Patonga Claystone – impacts on groundwater modelling	High	Specific testing of the permeability of the rock mass below the alluvial soils in the valleys be undertaken to confirm EIS assumptions, or otherwise. The assumptions, and hence impacts of the EIS groundwater modelling must be confirmed prior to mining below any alluvial areas. Testing to be in inclined, cored boreholes. Holes must be logged to allow permeability testing to be carefully targeted to allow assessment of vertical and horizontal defects. Possible methods to test the rock mass permeability comprise; • Packer testing. • In-situ Constant Head testing. • Full scale in-situ pump testing targeting the impacts of dewatering below the Patonga Claystone formation. We acknowledged that these tests are expensive and time consuming and alternate methods may be appropriate. We recommend the former two methods be employed as a first phase of testing. Testing should comprise a suitable number of locations and successful tests to be meaningful. The final number is likely to be subject to the results of the works at the time. A minimum of 6 test holes is suggested.

TABLE 12
GUIDANCE FOR FURTHER ASSESSMENT / VALIDATION AND MONITORING (Cntd)

ITEM / AREA OF UNCERTAINTY	IMPORTANCE (Low, Medium and High)	MEASURES
Impact on Groundwater Levels	High	Should the mine be approved a comprehensive system and regime of groundwater level monitoring must be implemented. This will require a robust system of new and existing monitoring wells and/or piezometers that are able to survive the predicted subsidence impacts. Monitoring points must be read on a frequent basis and compiled into a central database which is not only open for access by Council, but the data must be reviewed and assessed for its 'meaning' on a regular basis. This system should be augmented by measurement of levels and yields from water bores in the valleys.
Impact on Stream Flows	High	Monitoring of streamflow and inputs that influence alluvial lands water table recharge must be ascertained to allow assessment of the impact of groundwater leakage/loss. Aspects that must be monitored include: • Rainfall and runoff across the catchment area for Wyong River and Jilliby Jilliby Creek, • Stream Flows – measured at multiple points along the various streams. As a minimum this must comprise ○ Jilliby Jilliby Creek upstream of the mine area, upstream and downstream of the confluence with Little Jilliby Jilliby Creek and just upstream of the confluence with Wyong River. ○ Wyong River upstream of the mine area - say at Duffy's Point, just upstream and downstream of the volcanic intrusion along the southern edge of the mine – say about 500m upstream of Chandlers Creek and about 700/800m upstream of Kidmans Lane, just upstream and downstream of the confluence with Jilliby Jilliby Ck. ○ Little Jilliby Jilliby Creek just upstream of the confluence with Jilliby Jilliby Creek and say just as the creek enters the upper forested area. These points could also be used to monitor water quality as necessary.

TABLE 12
GUIDANCE FOR FURTHER ASSESSMENT / VALIDATION AND MONITORING (Cntd)

ITEM / AREA OF UNCERTAINTY	IMPORTANCE (Low, Medium and High)	MEASURES
Flood Remediation to Access Roads	Medium	The impact of potential remedial works to access roadways must be understood prior to undertaking such works with regard to the impacts on future flood levels. Models for the 1%AEP and 20% AEP must be developed, assessed and agreed. Further, the method and design of remedial works and the maintenance implications for the future must be understood and agreed with Council.
Stream Stability (and ecology)	Medium	Specific and measurable/quantifiable targets must be agreed and established concerning stream stability and the impacts on erosion (as well as flora and fauna) so all parties understand where they stand if the mine is approved. This is particularly so given the very difficult nature of assessment of what is adverse and what is not as a result of the mine.
Risk Assessment	High	A detailed and comprehensive risk assessment must be undertaken to provide a framework against which reasonable adaptive management programmes can be developed, and assessed.
Adaptive Management	High	Specific, measurable and agreed targets or levels from monitoring MUST be established prior to any underground works to allow all stakeholders certainty about what the aims of any adaptive management programme are. These should be based on the results of a comprehensive quantitative risk assessment and possibly cost/benefit assessment. Targets may include loss of stream flows, lowering of water levels/pressures in monitoring bores and levels of subsidence. Further, the targets must be accompanied by agreed responses otherwise the management system would be reduced to an impotent and disingenuous process. Agreed responses may be as minor as "continue to monitor / watch" to as strong as "cease mining" or to quarantine sensitive areas from mining. It may be considered that it is not possible to sufficiently confirm through monitoring the level of streamflow loss. In that case it may be that a proportion of the mine inflow water is deemed to be from streams and an agreed method and distribution of this proportion of mine water is treated and repatriated to streams, users/residents and areas of significant flora.

TABLE 12
GUIDANCE FOR FURTHER ASSESSMENT / VALIDATION AND MONITORING (Cntd)

ITEM / AREA OF UNCERTAINTY	IMPORTANCE (Low, Medium and High)	MEASURES
Independent Impact Monitoring Authority	Medium	An independent body be established to install, monitor and maintain all the groundwater, surface water and surface level impacts of the mine both during and after operation – this is particularly so given the EIS stated length of impact on groundwater and uncertainty on the speed with which pillar yield may impact subsidence. This body must be guaranteed funding to not only establish the monitoring system, but to maintain it as the impacts of subsidence and the long mine life will require significant repairs and timely replacement of equipment and monitoring points/instruments. Indeed, replacement of instrument/monitoring points should not take longer than say 2 months to maintain continuity of measurements. It is also recommend the monitoring authority be given either a direct, or at the least oversight role in the assessment of impacts and on the assessment of compensation for damage/loss or the development of remedial works/measures to control/limit the impacts of the mine – judged against the specific targets of the Adaptive Management Plan – and as such must be able to undertake, or direct the mine to undertake additional investigations and/or assessments with regard to subsidence, groundwater and surface water. The records and recommendations of the authority should be available on the public record.

Clay Preshaw - RE: Wallarah 2 Coal Project - Response to Submissions [SEC=UNCLASSIFIED]

From: "Jenkins, Mark" <Mark.Jenkins@environment.gov.au>
To: 'Clay Preshaw' <Clay.Preshaw@planning.nsw.gov.au>
Date: 10/4/2013 11:19 AM
Subject: RE: Wallarah 2 Coal Project - Response to Submissions [SEC=UNCLASSIFIED]

Clay

The department does not have any comments to make regarding the Wallarah 2 Coal Project - Response to Submissions Report other than that on page 74 of Attachment B "Consolidated Submission Issues" comment 733 incorrectly lists the Glossy Black Cockatoo, Yellow Bellied Glider and NSW population of the Masked Owl as being EPBC listed threatened species, which they are not.

regards

Mark

From: Clay Preshaw [mailto:Clay.Preshaw@planning.nsw.gov.au]
Sent: Tuesday, 17 September 2013 12:39 PM
To: Ash Tamhane; Darren Clarke; David Green; David Lovell; Greg Cashin; Greg Cole-Clark; landuse.enquiries@industry.nsw.gov.au; Lin Armstrong; Lucy Moore; Jenkins, Mark; Mark Ozinga; Paul Purcell; Peter Lewis; planning.matters@environment.nsw.gov.au
Cc: Bill Talbot; Carolyn McNally; Denise Lo; Emily Goodworth; Greg Paine; Jude Parr; Julie Moloney; Kylie Spratt; Liz Rogers; Taylor, Mahani; Mitchell Isaacs; Peter Jamieson; Regina Fogarty; Richard Bath; Vincent Sicari; Wayne Jones
Subject: Wallarah 2 Coal Project - Response to Submissions

Dear all,

Please be advised that the applicant has submitted a formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974). The document is available to download via the following link: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

The Department is now finalising its assessment of the proposal.

If you wish to provide any comments on the Response to Submissions, including comments about whether it has addressed the issues raised in your agency's submission, please do so by **COB Tuesday 1 October 2013.**

If you have any questions, please feel free to call me.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

NSW GOVERNMENT | Department of Primary Industries

- 3 OCT 2013

OUT13/28387

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39, Sydney NSW 2001

clay.preshaw@planning.nsw.gov.au

Dear Mr Preshaw

Thank you for your letter of 17 September 2013 concerning the response to submissions regarding the proposed Wallarah 2 Coal Project.

The Office of Agricultural Sustainability & Food Security (O AS&FS) has reviewed the response to submissions provided by Hansen Bailey (16 September 2013). Specific issues are included in Attachment 1. A brief summary follows:

The responses have adequately covered the agricultural production issues. A condition should be included to require the proponents to develop a Property Management Subsidence Plan negotiated with potentially affected property owners that addresses remediation of any damage to agricultural infrastructure such as buildings, water bores, fencing, dams and turf growing and horse establishments.

This advice from the O AS&FS is forwarded directly to the Department of Planning & Infrastructure in accordance with agreed arrangements for mining applications that affect agricultural land.

Additional advice from the other divisions within the Department of Primary Industries may be forwarded by separate letter.

If you wish to discuss the issue further please call Rob Williamson on telephone 02 6391 3642 or by email robert.williamson@dpi.nsw.gov.au

Yours sincerely

Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security

Encl

Attachment 1: Specific Agricultural Issues

Socio-economic assessment of the Wallarah 2 Coal Project
The Response to Submissions adequately addresses most of the socio-economic concerns previously raised in our submission, including the issues relating to the possible conditions of consent that were identified. Further clarification regarding the following issues is required to inform the final approval process.

Issues below are in relation to the DGR's Key Issue - Social and Economic

Management of potential subsidence impacts on agricultural enterprises
The proponent has committed to consultation with the turf farmer and five horse training establishments that may be impacted by subsidence due to the Project (pp.171-174, Section 3.19.2). However, in Table 11 (Ref 10, pp.204-205, Section 4) only consultation with the turf farm operator is indicated, "at least" during the preparation of the Property Subsidence Management Plan (PSMP).

Recommendation in response to this issue:
The proponent should commit to consultation with all agricultural enterprises potentially impacted by subsidence due to the Project. Consultation should be undertaken prior to the preparation of PSMPs and during or following any subsidence event to ensure that affected agricultural enterprises can continue to operate with minimal disruption. Table 11 should be updated to reflect this.

Management of potential subsidence impacts on water resources
The proponent has acknowledged that subsidence due to the Project could impact on 12 registered groundwater bores used for agriculture (p.174, Section 3.19.2). The proponent has committed to consultative management responses with the agricultural enterprises should their bores be impacted by subsidence.

Recommendation in response to this issue:
The proponent should commit to covering the cost of any agreed management responses to restore groundwater supplies to the agricultural enterprises. Section 3.19.2 should be updated to reflect this.

NSW GOVERNMENT | Department of Primary Industries

29 OCT 2013

OUT13/29989

Mr Clay Preshaw
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

clay.preshaw@planning.nsw.gov.au

Dear Mr Preshaw,

Wallarah 2 Coal Project (SSD 4974)
Comment on the Response to Submissions Report

I refer to your email dated 17 September 2013 to the Department of Primary Industries in respect to the above matter.

Comment by NSW Office of Water
The NSW Office of Water advises:

(i) Comment by the Office of Water in relation to exhibition of the environmental assessment included requests that the proponent:
1. undertake a detailed risk analysis that examines the potential impact to the Gosford-Wyong Water Authority, and
2. develop a response and mitigation strategy in the event that vertical leakage, hence the impact on surface water and shallow groundwater, is found to be greater than predicted.

The proponent has not provided details in respect to these two items in the response to submissions.

(ii) The response provided to the Office of Water's submission on groundwater resources is inadequate. Only limited further information has been provided in that:
- assessment against the minimum impact considerations, and some additional information specific to the requirements of the Aquifer Interference Policy (section 3.2 in the main report) is incomplete;
- an examination of technical issues relating to the variability and uncertainty of estimating vertical hydraulic conductivity and its impact on shallow aquifers has been provided. This assessment concluded that leakage from "alluvial lands" would be "low". However, volumes are not given against

water sources, and the link between conclusion and the evidence given is difficult to follow (Appendix D of the response report).

Given the depth of the proposed activity, and the likely low vertical hydraulic conductivity of the strata between, it is conceivable that water impacts closer to the surface will be minimal. However insufficient detail is provided to give confidence in that assessment. A monitoring, response and mitigation strategy will be required in the event that vertical leakage is greater than predicted.

(iii) In summary, the Office of Water reiterates its earlier comments, and requests that the proponent address our earlier submission in a complete and consolidated report.

For further information please contact Hemantha Desilva, Senior Water Regulation Officer (Newcastle office) on 4904 2525, or at: hemantha.desilva@water.nsw.gov.au.

Comment by Fisheries NSW

Fisheries NSW reiterates its earlier comments made in response to exhibition of the environmental assessment:

(i) Prior to mining commencing, the applicant must include details of stream remediation as part of the Surface Water Monitoring Plan in the event that subsidence, vertical leakage, fracturing, change in slope or increased erosion of creek lines occur.

(ii) Fisheries NSW are to be consulted on the development of the Biodiversity Management Plan and Surface Water Monitoring Plan to address monitoring of subsidence impacts on aquatic ecosystems.

For further information please contact Scott Carter, Senior Conservation Manager Port Stephens office) on 4916 3931, or at: scott.carter@dpi.nsw.gov.au.

Comment by Crown Lands

Crown Lands advise its earlier comments made in response to exhibition of the environmental assessment still apply. These are that the surface constructions for the project at Tooheys Road appear to affect Crown public road at the Tooheys Road/F3 intersection. Should this be the case then acquisition of the affected Crown land will be required.

For further information please contact Melanie Osborne, Acting Senior Manager Hunter Area (Maitland office) on 4937 9332, or at: melanie.osborne@lands.nsw.gov.au.

Comment by Office of Agricultural Sustainability & Food Security

In accordance with procedures for mining applications that affect agricultural land, the Office of Agricultural Sustainability & Food Security will respond direct to your Department.

For further information please contact Liz Rogers (Orange office) on 6391 3642, or at: liz.rogers@dpi.nsw.gov.au.

Comment by Forestry Corporation NSW

As advised in this Department's letter of 8 July 2013 Forestry Corporation of NSW is now a separate agency and contact should be made direct.

For further information please contact Jude Parr, Land Administration Officer (Wauchope office) on 6586 9718, or at: jude.parr@fcnsw.com.au.

Yours sincerely

Tony Heffernan
A/Executive Director Business Services

Clay Preshaw - Re: Wallarah 2 Coal Project - Response to Submissions

From: <julie.moloney@industry.nsw.gov.au>
To: <Clay.Preshaw@planning.nsw.gov.au>
Date: 10/3/2013 3:53 PM
Subject: Re: Wallarah 2 Coal Project - Response to Submissions

Hi Clay

DRE has no additional comments.

Regards

Julie

Julie Moloney | Principal Adviser | Industry Coordination
Division of Resources and Energy
Trade & Investment NSW | 516 High St | Maitland NSW 2320 | PO Box 344 | Hunter Region Mail Centre NSW 2310
T: 02 4931 6549 | F: 02 4931 6776 | M: 0407 921 462 | E: julie.moloney@industry.nsw.gov.au
W: www.industry.nsw.gov.au

From: "Clay Preshaw" <Clay.Preshaw@planning.nsw.gov.au>
To: Ash Tamhane <ashish.tamhane@rms.nsw.gov.au>, Darren Clarke <Darren.Clarke@transgrid.com.au>, David Green <david.green@cma.nsw.gov.au>, David Lovell <dlovell@lakemac.nsw.gov.au>, Greg Cashin <greg.cashin@wyong.nsw.gov.au>, "Greg Cole-Clark" <g.cole-clark@minesub.nsw.gov.au>, landuse.enquiries@industry.nsw.gov.au, Lin Armstrong <LJArmstrong@wyong.nsw.gov.au>, "Lucy Moore" <Lucy.Moore@heritage.nsw.gov.au>, "Mark Jenkins" <Mark.Jenkins@environment.gov.au>, Mark Ozinga <Mark.Ozinga@transport.nsw.gov.au>, Paul Purcell <ppurcell@artc.com.au>, "Peter Lewis" <Peter.Lewis1@health.nsw.gov.au>, planning.matters@environment.nsw.gov.au
Cc: Bill Talbot <bill.talbot@dpi.nsw.gov.au>, Carolyn McNally <Carolyn.McNally@transport.nsw.gov.au>, Denise Lo <Denise.Lo@transgrid.com.au>, "Emily Goodworth" <EKGoodworth@wyong.nsw.gov.au>, Greg Paine <greg.paine@industry.nsw.gov.au>, Jude Parr <jude.parr@fcnsw.com.au>, Julie Moloney <julie.moloney@industry.nsw.gov.au>, Kylie Spratt <kspratt@nsccahs.health.nsw.gov.au>, Liz Rogers <liz.rogers@dpi.nsw.gov.au>, Mahani Taylor <mahani.taylor@environment.gov.au>, "Mitchell Isaacs" <Mitchell.Isaacs@water.nsw.gov.au>, "Peter Jamieson" <Peter.Jamieson@epa.nsw.gov.au>, Regina Fogarty <regina.fogarty@dpi.nsw.gov.au>, "Richard Bath" <Richard.Bath@environment.nsw.gov.au>, "Vincent Sicari" <Vincent.Sicari@heritage.nsw.gov.au>, Wayne Jones <wayne.jones@industry.nsw.gov.au>
Date: 17/09/2013 12:42 PM
Subject: Wallarah 2 Coal Project - Response to Submissions

Dear all,

Please be advised that the applicant has submitted a formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974). The document is available to download via the following link:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

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If you have any questions, please feel free to call me.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

PCU048587

Your reference:	SSD4974 Wallarah 2 Coal Project
Our reference:	DOC13/70209, EF13/8250
Contact:	David Bell (02) 49086817
Electronic correspondence to:	hunter.region@epa.nsw.gov.au

NSW Department of Planning and Infrastructure
Mining and Industry Projects
GPO Box 39
SYDNEY NSW 2001
Attention: Mr Clay Preshaw

Dear Mr Preshaw,

Wallarah 2 Coal Project (SSD4974) - Comments re Response to Submissions

Reference is made to your email to the Environment Protection Authority (EPA) dated 17 September 2013 regarding the response by the proponent to submissions following public exhibition of the Environmental Impact Statement (EIS) in respect of the above proposal and inviting the EPA to submit any further comments and recommended conditions of approval.

On 26 June 2013 EPA submitted recommended conditions of approval. The only outstanding matter at that time involved the establishment of suitable discharge limits from the water treatment plant to Wallarah Creek.

EPA notes however at 3.27.5 of the response to submissions by the proponent, it only mentions connection of the Tooheys Road complex to the Wyong Shire Council Sewerage System (the system). EPA understands both the Tooheys Rd and Buttonderry Rd complexes are to be connected to the system and the response to submissions is to clarify that Tooheys Rd complex is definitely to be connected to the system. Part 3.5 of the EIS clearly sets out Buttonderry Road complex is to be connected to the system.

In relation to the discharge limits from the RO Plant into Wallarah Creek the proponent provided directly to the EPA a series of proposed End of Pipe Discharge Limits. EPA has considered that proposal and notes a number of issues set out in annexure A. Annexure A also includes EPA's revised maximum allowable discharge limits from the RO plant including four further elements.

In addition to EPA's previously recommended conditions of approval EPA requests the full table of pollutants to be monitored and the discharge limits attached in Annexure A be included in any conditions of approval.

If you require any further information or wish to discuss the matter please contact David Bell on (02)49086817.

Yours sincerely

9 OCT 2013

MARK HARTWELL
Head Regional Operations Unit – Hunter
Environment Protection Authority

PO Box 488G Newcastle NSW 2300
Email: hunter.region@epa.nsw.gov.au
117 Bull Street, Newcastle West NSW 2302
Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 43 692 285 758
www.epa.nsw.gov.au

Annexure A

The submitted discharge limits Table, together with appropriate sections of the EIS including appendix J on surface water impact assessment, were reviewed to assess the proposed discharge limits. Table 1 is a modified version of the submitted discharge limits Table, shows recommended discharge limits, appropriate ANZECC 2000 guideline trigger values and additional elements for monitoring. The following sub-sections provide further descriptions:

Wallarah Creek Data

- The proponent needs to clarify the percentile level of the data quoted under the column heading "80th Percentile Value" in the preliminary discharge limits table. Same values have been tabulated as 90th percentile in Appendix J, Table 2.11.

Species protection level

- The 99% species protection ANZECC guideline level has been adopted for a few important toxicants and these have been highlighted in Table 1 in Red.

Discharge Limit

The discharge limits have been set to comply with the following two considerations:

1. The discharge limit for any of the toxicants or parameters cannot be worse than the current water quality of the Wallarah Creek.
    - The EIS has clearly stated that the waters discharged would be "…at a similar quality to the existing water quality of the creek." (page 46 of EIS). Also refer to section 4.5.5 and Table 4.3 of appendix J. Since, during the EIS process, it was stated that the discharge water quality will be same or better than water quality of Wallarah Creek, the impact of releasing higher amounts of toxicants has not been assessed.
    - The Wallarah Creek is ephemeral, and may not have visible water flow especially during dry periods. It has been stated on page 57 of appendix J, section 4.5.4 that …"Wallarah Creek is an ephemeral watercourse, and hence, it is likely that treated water discharge may occur at times when there is no natural flow…" Under such circumstances, the discharged water will not experience any mixing or dilution, and downstream water quality would tend to equal discharge water quality.

2. The discharge limit cannot exceed ANZECC trigger value for toxicants listed in the preliminary discharge table provided.

Based on the above two points, for any toxicant the discharge limit can be equal to or lower than the 90th percentile (as per Table 2.11, appendix J) values for Wallarah Creek or the relevant ANZECC trigger value, whichever is the lower value.

Additional elements and toxicants.

The addition of elements/compounds such as aluminium, selenium, carbonate and bicarbonate is required. The discharge limits for these should not exceed concentrations in Wallarah Creek or the ANZECC trigger values, which ever is lower. If data on these species are not currently available for Wallarah Creek, then additional testing may be required.

Table 1 - Discharge Limits RO Plant Wallarah Creek

Parameter	Unit	Wallarah Creek W6 90th%ile	ANZECC Guidelines Default Trigger Value (99% sp. Protection)	Proposed End-of-Pipe Discharge Limit	Revised Maximum Allowable Discharge Limit
Electrical conductivity	uS/cm	516	300	500	300
pH	pH units	5.9 – 6.8	6.5 – 8.5	6.0 – 8.5	6.5-8.5
TSS	mg/L	24	-	25	24
Dissolved Oxygen	% saturation	67.8	85	70	68
Calcium	mg/L	13.6	1,000	40	14
Sodium	mg/L	81.4	115	80	80
Magnesium	mg/l	9.8	2,000	70	10
Potassium	mg/L	3	-	3	3
Sulphate	mg/L	19.9	400	70	20
Chloride	mg/L	141.8	175	140	140
Arsenic	mg/L	0.0005	0.013 (0.0008)	0.0005	0.0005
Barium	mg/L	0.15	1	0.15	0.15
Cadmium	mg/L	0.0001	0.0002 (0.00006)	0.0002	0.00006
Chromium	mg/L	0.001	0.001	0.001	0.001
Copper	mg/L	0.003	0.0014	0.003	0.0014
Lead	mg/L	0.0008	0.0034 (0.001)	0.001	0.0008
Manganese	mg/L	0.105	0.1 (1.9)*	0.1	0.1
Nickel	mg/L	0.002	0.1 (0.011)*	0.002	0.002
Zinc	mg/L	0.097	0.008	0.097	0.008
Iron	mg/L	1.764	0.2 (0.3)*	1.5	0.3
Mercury	mg/L	0.00005	0.0006 (0.00006)	0.0006	0.00005
Ammonia	mg/L	0.06	0.02	0.06	
Nitrate and Nitrite	mg/L	0.052	0.7 (0.3)*	0.05	0.05
Total Phosphorus	mg/L	0.1	0.025 (0.05)*	0.1	0.05
Oil/grease	mg/L	2.5	-	2.5	2.5
Aluminium	mg/L	Data required	0.055		0.055 or **Wallarah Creek W6 90th%ile sampling results which ever is less**
Selenium	mg/L	Data required	0.005		0.005 or **Wallarah Creek W6 90th%ile sampling results which ever is less**
Carbonate	mg/L	Data required	No TV		**Wallarah Creek W6 90th% Sampling result**
Bicarbonate	mg/L	Data required	No TV		**Wallarah Creek W6 90th%ile Sampling result**

*Trigger values quoted by the proponent appears to be erroneous (See Table 3.3.2, Table 3.4.1 and page 8.3-123 of ANZECC 2000 guidelines).

Clay Preshaw - RE: Wallarah 2 Coal Project - Response to Submissions

From: Jude Parr <Jude.Parr@fcnsw.com.au>
To: Clay Preshaw <Clay.Preshaw@planning.nsw.gov.au>
Date: 10/14/2013 10:57 AM
Subject: RE: Wallarah 2 Coal Project - Response to Submissions

No further comments from Forestry.

Jude Parr | Land Administration Officer
Forestry Corporation of NSW | Central Region

Maher Street | PO Box 168 | Wauchope NSW 2447
T: 02 65869718 | F: 02 65852422| M: 0409882922
E: jude.parr@fcnsw.com.au | W: www.forestrycorporation.com.au

Note change of email address

From: Clay Preshaw [mailto:Clay.Preshaw@planning.nsw.gov.au]
Sent: Monday, 14 October 2013 10:42 AM
To: Jude Parr
Subject: Wallarah 2 Coal Project - Response to Submissions

Hi Jude,

As discussed, can you let me know (via email) whether Forestry has any further comments in relation to the Response to Submissions?

FYI - I've attached your original submission.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

>>> Clay Preshaw 9/17/2013 12:38 pm >>>
Dear all,

Please be advised that the applicant has submitted a formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974). The document is available to download via the following link: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

The Department is now finalising its assessment of the proposal.

If you wish to provide any comments on the Response to Submissions, including comments about whether it has addressed the issues raised in your agency's submission, please do so by **COB Tuesday 1 October 2013.**

If you have any questions, please feel free to call me.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

Catchment Management Authority
Hunter-Central Rivers

Mr Clay Preshaw
A/Team Leader
Director, Mining Projects,
Development Assessment Systems & Approvals
Department of Planning and Infrastructure
GPO Box 39,
SYDNEY NSW 2001

Our Ref: Gos395 A1681154
Your Ref: 11/18834

Re: State Significant Development Wallarah 2 Coal Project (SSD 4974)

Response to Submissions

Dear Mr Preshaw,

Thank you for the opportunity to comment on the Response to Submissions for Wallarah 2 Coal Project. The response to the CMA's submission fails to adequately address the CMA's concerns with regards to the clearing of native vegetation and risk of accelerated erosion of the fluvial system as a result of mine subsidence. Detailed comments are provided below.

3.3.5 Subsidence Impacts

The response states (page 67) *"...this 1% change in gradient is the maximum tilt that is predicted to occur at a specific point along Jilliby Jilliby Creek as opposed to the change in the average gradient along the entire length of the creek"*

The response says '1% change in gradient'. This is incorrect. The change in gradient is from 0.13% to 1%; hence the 'change in gradient' is 760%, not 1%.

The 'average' change in stream gradient bears little relationship to the capacity for head-cut propagation and its potential impacts. Head-cuts are most likely to initiate where the most significant changes in bed gradient will occur. The increase in bed gradient causes an increase in erosivity due to increases in flow velocities and stream power.

Irrespective of an 'average' change in channel slope, as clearly indicated in Figure 5.1 (Subsidence Predictions and Impact Assessments), the land-surface (and stream channel) is predicted to subside by up to 1.5 m over distances ranging from 65 m to several hundred metres in association with the extraction of each long wall. For example, 0.8 m of subsidence is predicted to occur between long walls 1S and 2S, representative of around 65 m of channel length (measured from MSEC515-01), imposing a post subsidence channel gradient of 1.2%. The current stream gradient along the channel of Jilliby Jilliby Creek in the vicinity of long walls 1S and 2S (calculated between XS17 and XS24) is

0.07%. As a consequence of mine subsidence, the bed gradient between long walls 1S and 2S will increase by 1763%, or 17.6 times.

Long wall 6N will be the first to be excavated under Jilliby Jilliby Creek. This will induce 1.2 m of subsidence over 220 m of channel length (0.54% gradient), or a 415% increase in bed gradient given an average channel gradient of 0.13%.

The steep channel gradients imposed due to mine subsidence as illustrated from the examples presented will occur from the extraction of all long-walls under Jilliby Jilliby Creek. The increased flow velocities, stream power, and stream erosivity can be expected to induce bed incision and head-cut retreat. Due to the lack of natural bed controls head-cut retreat has the capacity to erode large quantities of sediment within, and upstream, of the mine footprint, including the tributary network.

No quantification of sediment at risk of erosion or bank and bed stability analysis has been undertaken (in the EIS), nor has it been proposed in the response to the CMA's comments to the EIS. Basic calculation demonstrates bed incision along Jilliby Jilliby Creek has the capacity to erode at least 24,000m^3 of sediment within the mine footprint (assuming 1.2 m depth and 2 m average bed width). Actual sediment releases would likely be many times the calculated amount due to additional inputs from bed and bank erosion of side tributaries.

Although the EIS considers riverbank and bed instability due to subsidence a likely occurrence, the measures proposed to mitigate damage are inadequate; a response is triggered only after erosion is observed. Jilliby Jilliby Creek within the mine footprint (and for kilometres upstream) is a laterally unconfined sand-bed stream; there are few (if any) bed controls sufficient to arrest a regrading head-cut. As a consequence, there is the capacity for significant erosion to occur to the bed and banks of Jilliby Jilliby Creek and its tributaries, within and upstream of the mine footprint prior to it being identified or ameliorated.

The CMA is concerned as the issue of bed erosion through head-cut migration was not addressed in the current EIS, despite the CMA identifying the issue in comments submitted on June 2, 2010 relating to the previous Environmental Assessment for Wallarah 2 (attached); and it has not been addressed in the response to the CMA's comments on the current EIS, despite the CMA raising this as a key issue in comments submitted on June 24, 2013.

In summary, subsidence due to mining beneath Jilliby Jilliby Creek has the potential to create a rapidly migrating head-cut, with up to 1.5 m of incision due to a maximum subsidence induced tilt of 1% (or greater), representing a 760% (or greater) increase to the current stream-bed gradient. This has the potential to rapidly erode the bed and banks of Jilliby Jilliby Creek (and tributaries) both within, and upstream of the mine footprint. The measures proposed to mitigate this risk are inadequate.

3.9.5 Clearing of Vegetation and Removal of Habitat for Native Species

The response states (page 110) "...there will be no net loss of biodiversity, which is consistent with the required 'Maintain and Improve' principles of the *Native Vegetation Act* 2003.

The above statement is incorrect. The Biodiversity Offset Package (BOP) and Biodiversity Management Plan (BMP) are ***not*** consistent with the 'improve or maintain' principle of the Native Vegetation Act 2003:

- Offset ratios are inadequate; at less than 3.4:1 these offset ratios do not meet the 'improve or maintain' principle of the NV Act.
- The proposal involves the clearing of 12.2 ha of Endangered Ecological Communities (EECs). The clearing of EECs are not permitted under the NV Act unless in low condition, hence the proposal does not meet the 'improve or maintain' principle of the NV Act.
- The rehabilitation of areas of derived native grassland and exotic grassland to woodland does not meet the 'improve or maintain' principle of the NV Act.

Assessment of this proposal under the NV Act would demonstrate a net loss of biodiversity and failure to meet the 'improve or maintain' principle of the NV Act. As a consequence, the CMA objects to the response claiming to be consistent with the 'improve or maintain' principle of the NV Act.

If you require any further information or to discuss these issues further, please don't hesitate to contact David Green, Team Leader Central Coast on 4352 5114 or by email on david.green@cma.nsw.gov.au

David Green

Team Leader for

Fiona Marshall

General Manager

1st October 2013

Hunter-Central Rivers CMA CATCHMENT MANAGEMENT AUTHORITY

Contact: Anna Ferguson
Phone: 4337 1213
Fax: 4323 3960
Email: anna.ferguson@cma.nsw.gov.au

File: Letter to DoP Wallarah Coal EA.doc

Colin Phillips
Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Your Ref: MP 07_0170
Our Ref: A378299

Dear Mr Phillips

Subject: MP 07_0170 – Wallarah Coal Project

Thank you for the opportunity to comment on the above proposal. The Hunter-Central Rivers Catchment Management Authority (CMA) has reviewed the information provided and offers the following comments for your consideration.

Hunter-Central Rivers Catchment Action Plan (CAP)
The Hunter-Central Rivers CAP is a whole-of government approach to natural resource management which has been endorsed by the NSW Government. The comments below are provided in the context of the impact of the project on the CAP, which is available on the CMA's website http://www.hcr.cma.nsw.gov.au

CAP Guiding Principles
The guiding principles are statements that outline the CMA position on how natural resources should be managed in the Hunter-Central Rivers region. They provide direction for all natural resource managers to achieve ecologically sustainable development and allow organisations to align their activities so that they are compatible with the CAP. This will ensure that the whole community (including government) can work towards a common goal.

The CAP contains specific guiding principles for mining and extractive operations which seeks to '*Minimise the impacts of mining and extractive operations on natural resources and ensure appropriate rehabilitation of affected land'.* The CMA has high expectations of mining and extractive operators and seeks to work with them and regulators to achieve world best practice in natural resource management.

It is noted that the environmental assessment has documented "policy statements from the HCR CAP". However, the report has omitted some significant 'policies' (guiding principles), or not adequately addressed others. These are outlined below.

Native Vegetation
CAP guiding principle; "W*here mining activities significantly impact natural resources, offsets should be considered with the intention of improving or maintaining environmental outcome".*

Regional Significance of Native Vegetation
As documented in the Environmental Assessment, the vegetation to be cleared includes a significant number of hollow bearing trees, at least two endangered ecological communities and several communities of regional and local significance. The loss of this vegetation would have detrimental impact on the environment.

Offsets

The CMA acknowledges the effort by the proponent to find offsets for the loss of native vegetation. Unfortunately, the proposed offsets are not considered adequate to improve or maintain environmental value.

As per the Director General Environmental Assessment Requirements, the offset strategy needs to demonstrate that it will improve or maintain biodiversity conservation value. It is the CMA's position that appropriate offsets for the loss of native vegetation is best determined by using methodology that has been developed for use in assessing native vegetation clearing proposals, that is, either the Environmental Outcomes Assessment Methodology (EOAM) under the *Native Vegetation Regulation, 2005* or the BioBanking calculator.

It is noted that the BioBanking methodology is referred to in the report and that the proponent states that the offsets were determined using similar principles, but this has not been shown. The proposal should also meet the "*Principles for the use of biodiversity offsets in NSW*" (DECCW, 2008), while also utilising one of the two assessment methodologies mentioned above. As per the DECCW's principles;

> 9. *"Offsets must be quantifiable, the impacts and benefits must be reliably estimated…*The methodology must be based on the best available science, be reliable and used for calculating both the loss from the development and the gain from the offset…..
>
> *10. Offsets must be targeted* – they must offset impacts on the basis of like for like or better conservation outcomes… Only ecological communities that are equal or greater in conservation status to the type of ecological community lost can be used for offsets….

The proposed offset of approximately 50ha for a loss of 32 hectares (operational sites and estimated area for rail loop) is less than 1.6:1 ratio. The report documents the type of vegetation to be cleared but does not indicate the type and area of vegetation to be included in the offset area. Given the low ratio and lack of detail, the CMA believes the proposed offset strategy is inadequate.

Surface Water

The CAP guiding principle regarding mining operations and surface water is that, "*Every precaution should be taken to ensure that surface water flows are not lost or diverted due to subsidence or geological cracking caused by extraction. Where surface water is lost or diverted, offsets or mitigating actions should be provided*."

The report indicates that several places along Jilliby Jilliby Creek will deepen due to subsidence and flow will increase. It is then proposed that any impact associated with this will be addressed through rehabilitation. However, the rehabilitation proposed appears to only suggest measures for the banks. Bed lowering has a high risk of causing head cuts and on going bed erosion. This risk has not been adequately addressed in the proposal.

Groundwater

The CAP guiding principle for groundwater is that "*an aquifer's highest beneficial use or an inter-connected GW dependent ecosystem's requirements should not be significantly reduced*".

The Report states that the shallow groundwater aquifers will be reduced, but up to 75% rebound will likely occur within 6 months. The report does not state if the shallow aquifers will ever rebound to 100% - the inference being that the shallow groundwater resources will be decreased by 25%. This could be considered a significant reduction and could result in associated decrease in groundwater dependent ecosystems. The CMA does not support a reduction in the groundwater aquifer of this magnitude.

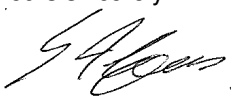
Unacceptable risk

The CMA is concerned that this proposal, as currently outlined in the environmental assessment, would give rise to unacceptable long-term environmental consequences. The CMA recommends that additional information and assessment be provided in response to the issues raised and urges that stringent environmental conditions and monitoring are considered by the Expert Panel and regulators during the assessment process.

In summary, given the significance of native vegetation and ecosystems in the subject area, the CMA objects to the proposed Wallarah Coal Project unless the 'improve or maintain' principle for environmental outcomes is able to be demonstrated using an appropriate and endorsed methodology.

If you require any further information please do not hesitate to contact Anna Ferguson, the CMA's Regional Catchment Coordinator on 4337 1213.

Yours sincerely



Glenn Lyons
Program Manager for
Fiona Marshall
General Manager

2 June 2010

Clay Preshaw - Wallarah 2 Project SSD4974

From: Gary Estcourt
To: Clay Preshaw
Date: 10/2/2013 9:10 AM
Subject: Wallarah 2 Project SSD4974

Clay,

I have been off the last couple of days and this snuck up on me.

I have looked through the PPR and have the following comments if not too late:

- The preparation of a HHMP is considered an appropriate step and this should be conditioned as a part of the consent.
- The HHMP must include stop-works procedures should any unexpected archaeological relics or objects be located. These need to include assessment by an appropriately qualified person and notification to the Heritage Division.
- The map and list in the HHMP needs to include the 13 known and 19 potential heritage items.
- A procedure for the mitigation of impacts on any of these items need to be included in the HHMP to cover any unexpected impacts or works near to these items.

Sorry for delay and happy to discuss.

Thanks

Gary

Gary Estcourt
Heritage Division
Regional Operations and Heritage
Office of Environment and Heritage
NSW Department of Premier and Cabinet
Locked Bag 5020 Parramatta NSW 2124
3 Marist Place Parramatta NSW 2150
T: (02) 9873 8562
F: (02) 9873 8599
W: www.heritage.nsw.gov.au

Lake Macquarie City Council

26 September 2013

DEPARTMENT OF PLANNING AND INFRASTRUCTURE
PO Box 1226
NEWCASTLE NSW 2300

Dear Sir/Madam

Subject: MISC/32/2013 - Wallarah 2 Coal Project

Council has reviewed the Response to Submissions Report in relation to the Wallarah 2 Coal Project (SSD 4974).

The following advice is provided for consideration.

Air Quality

Council is satisfied with the response.

Awaba Rail Loop

The RTS report states that:

"the Rail System Capacity Assessment determined that the construction of passing loops at Awaba would ensure sufficient capacity for the train cycles generated by the Project. The design and construction of the passing loops will be undertaken by the rail authority. The necessary planning approval for this work will also be sought by the rail authority. The Project's contribution to the funding of these upgrades will be determined through ongoing consultation with TfNSW".

Council does not consider this assessment adequate.

The development application should fully explore the environment impacts of the proposed development inclusive of a planned rail loop at Awaba. The application has not undertaken an environmental assessment of the proposed impacts of rail improvements including the proposed Awaba Rail Loop. This is considered to be a significant shortcoming of the proposal, given the operation of the mine is predicated on this piece of infrastructure being undertaken.

Energy Supply and Demand

The RTS refers to the emission trading scheme and carbon tax. There is currently no emission trading scheme in Australia and there is no plan for one while the carbon tax will be dismantled before this project is approved.

126-138 Main Road Speers Point NSW 2284 ● Box 1906 Hunter Region Mail Centre NSW 2310
Phone: 02 4921 0333 ● Fax: 02 4958 7257 ● ABN 81 065 027 868
council@lakemac.nsw.gov.au
www.lakemac.com.au

Without an emission trading scheme, the project will not contribute to the revenue of the scheme. Therefore, the RTS conclusions in this regard are no longer relevant and should be re-addressed to ensure there is no increase in greenhouse gasses from this project.

In the absent of such a market price on carbon the "global social damage cost of carbon of $23/t CO2-e" as estimated by the respondent then the BCA will not accurately reflect the impact of the project. The project should re-exam the proposed mechanism to capture the cost (as estimated ($23/t CO2-e) and redirect them into community funds and projects.

The coal product is proposed to be hauled through the City of Lake Macquarie in fossil fuel powered transport. Therefore, this process will impact on the greenhouse gas footprint of the city. In this regard, it is recommended that the project address how it complies with the Greenhouse Gas Emission Reduction Targets Policy (2008) which sets targets to reduce the City's emissions by 3% per year. The application does not address Council's policy.

The development of an Energy and Greenhouse Strategy within 2 years is not sufficient and would not allow the strategy to be integrated into the design phase of the project. A carbon neutral target should be set. An Energy and Greenhouse Strategy and Action Plan should be developed before approval is given, which is common for other GHG emitting sites such as landfills.

Social Impacts

There are no objections to the proposed development subject to the following measures being incorporated into conditions of consent:

1. ensuring that the local community is kept informed of the project, along with the opportunity to raise concerns and have these addressed - the additional information identified that in order to address people's loss of their attachment or sense of belonging to places and to increase their sense of pride it is important to ensure that they have a sense of control of change occurring;

2. commitments that the project will undertake in contributing to the community (that is, building social capital and social cohesiveness);

3. ensuring that there isn't an impact on housing affordability in the local area due to the influx of additional workers;

4. contributing to improved health and support services to ensure that the proposal does not place increased demand on these services; and

5. how the workforce will be supported and encouraged to actively participate in the local community.

Water Quality

The current plan to monitor and then mitigate surface water impacts, with regard to mine subsidence is considered to be unachievable. Ideally, the applicant should consider this factor in the subsidence risk assessment. If site topography prevents any future mitigation, then this should be factored into the level of risk afforded to that area. Ultimately, a more conservative subsidence limit should be applied to areas of the development where mitigation is not possible, should impacts occur.

Should you require further information, please contact the undersigned on 4921 0197 or by e-mail on dlovell@lakemac.nsw.gov.au.

Yours faithfully

David Lovell
Senior Development Planner
Development Assessment and Compliance

Mr Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

By email: clay.preshaw@planning.nsw.gov.au

Dear Mr Preshaw

Wallarah 2 Coal Project SSD 4974

Thank you for the opportunity to provide comment on the responses provided by the Proponent on previous submissions.

Water

We note the comments of agencies such as NSW Department of Primary Industries (NSW Office of Water), NSW Office of Environment and Heritage and Wyong Shire Council in relation to potential impacts on the drinking water supply. Should the project proceed, it is imperative that appropriate conditions are applied to ensure that the requirements of these agencies are met and to minimise any risk to the drinking water supply.

The proponent will need to obtain all relevant approvals for the water treatment plant and reuse of wastewater, and undertake consultation with the Central Coast Local Health District Public Health Unit on water reuse options.

In our earlier submission, we expressed concern regarding potential impacts on groundwater bores, in particular those used for drinking water supplies. We note the proponent's commitment on this issue, but encourage realistic means of identifying where the project is impacting bores. Should the project proceed, effective protocols are required to identify where bores are affected by the project, and remedy impacts on groundwater bores.

The proponent's response does not address our concern regarding public health risks associated with flooding of onsite waste management systems (for example septic tanks). The proponent should develop and implement effective protocols to identify and mitigate this risk.

Air Quality

Epidemiological studies have been unable to identify a threshold below which exposure to particulate matter air pollution (PM) is not associated with health effects. Therefore, any increase in exposure must be assumed to have an adverse impact, even at levels below the assessment criteria. If the project is approved, the proponent should be required to employ best practice measures to minimise PM emissions (both $PM_{2.5}$ and the coarse particle fraction of PM_{10}) from all sources to ensure that any risk from PM is as low as reasonably practicable.

The predicted increase in PM concentration at the nearest receptors is small and so the associated health risk is also likely to be small. However, the information provided by the proponent in section 3.7.2 of the response to submissions is not sufficient for an objective assessment to be made of the validity of the results presented in table 3. To facilitate objective assessment, the proponent would need to provide clear and detailed information about the inputs to their calculations including:

- The size and age-distribution of the potentially affected population
- The underlying health status (e.g. mortality and hospitalisation rates) of that population
- The predicted change in exposure for that population
- Each concentration-response function
- The assumptions used to simplify the analysis.

Noise

It is noted that the NSW Environment Protection Authority has proposed conditions to be included in any approval to be granted. The noise impact assessment, project specific noise goals and eventual Noise Management Plan must be satisfactory to the NSW Environment Protection Authority.

If you have any questions in relation to these matters, please contact John James, Senior Environmental Health Officer, on 02 4320 9730.

John James
Acting Director
Central Coast Local Health District
Central Coast Public Health Unit

NSW GOVERNMENT | Office of Environment & Heritage

Your reference: SSD-4974
Our reference: DOC13-55745; FIL12/10400
Contact: David Paull, 4908 6837

Mr Clay Preshaw
Team Leader
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Preshaw

RE: REVIEW OF THE RESPONSE TO SUBMISSIONS REPORT FOR THE WALLARAH 2 COAL PROJECT (SSD-4974)

I refer to your email dated the 17 September 2013 seeking comment by the Office of Environment and Heritage (OEH) on the Response to Submissions Report (RTS) for the Wallarah 2 Coal Project, a proposed State Significant Development (SSD-4974).

OEH has previously provided an adequacy review (31 October 2012) and a submission on the exhibited Environmental Impact Statement (EIS) (26 June 2013) to the Department of Planning and Infrastructure (DP&I) in relation to this project. OEH notes that some concerns regarding the impacts of subsidence in Jilliby SCA remain unresolved. A detailed assessment of the RTS in relation to matters under the jurisdiction of OEH is provided in **Attachment 1** and recommended conditions of approval are provide in **Attachment 2.**

If you require any further information regarding this matter please contact David Paull, Regional Biodiversity Conservation Officer, on 4908 6837.

Yours sincerely

1 NOV 2013

RICHARD BATH
A/Regional Manger, Hunter Central Coast
Regional Operations

Enclosure: Attachment 1 & 2 (& Appendix 1 - Maps)

PO Box 488G Newcastle NSW 2300
117 Bull Street, Newcastle West NSW 2302
Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 30 841 387 271
www.environment.nsw.gov.au

ATTACHMENT 1 - OEH REVIEW OF THE RESPONSE TO SUBMISSIONS REPORT FOR THE WALLARAH 2 COAL PROJECT (SSD-4974)

THREATENED BIODIVERSITY

In relation to matters concerning threatened biodiversity OEH has reviewed the relevant sections of the Response to Submissions Report (RTS) by Hansen Bailey (September 2013).

1. Review of Survey Effort

OEH has reviewed the survey methodology update provided in the RTS and notes that additional quadrat surveys have been undertaken to make the total effort consistent with the methodology in terms of targeted surveys for threatened flora species. OEH notes that for *Angophora inopina* and *Melaleuca biconvexa* and other threatened flora species, none have been targeted for specific follow-up surveys. OEH also notes that the vegetation within Jilliby SCA remains unverified in the EIS and RTS, and so OEH has relied on recent mapping by Bell (2002a and 2002b) to be informed in relation to what communities are present in the reserve.

Another deficient area, fauna surveys, OEH notes that the effort undertaken within the Project Boundary still remains a long way short of a minimum standard using state (DECC 2009) or Commonwealth guidelines (DEWHA 2010). Large areas of potentially suitable habitat associated with the Little Jilliby Jilliby, Jilliby Jilliby, Armstrong and Myrtle Creeks remain unsurveyed, despite records of the state and Commonwealth listed species, the Giant Barred Frog *Mixophyes iteratus* and the Stuttering Frog *Mixophyes balbus* known from the Jilliby SCA. The SCA has been subject to a long-term study of both the *Mixophyes* frog species by the University of Newcastle (Prof. M. Mahony pers. comm.). This study demonstrates that these streams, particularly Little Jilliby Jilliby Creek, contain significant and stable populations of both species. *Mixophyes iteratus* also occurs outside of the Jilliby SCA in to the adjacent farmland areas of Jilliby Jilliby Creek (Prof. M. Mahoney, pers. comm.).

2. Review of Impact Assessment

Impacts of subsidence

OEH Regional Operations has had two meetings with respect to this project, one with the proponent (13 August 2013) and one with the Department of Planning and Infrastructure (DP&I) (11 September 2013). Following the review of the RTS, the main issues that are of concern for OEH are related to the risk to threatened biodiversity both within Jilliby State Conservation Area (SCA) and the wider Project Area and potential for permanent damage to aquifers and surface water systems which support this threatened biodiversity a result of mine subsidence.

In relation to this, OEH has new information regarding the water table depth in the Project Area from water table modelling project undertaken jointly by OEH and NSW Office of Water (NOW), (Summerell and Mitchell 2011). This modelling was presented to DP&I on the 11th September and should be regarded as being rigorous as it uses a large bore dataset from across the state. **Map 1** (attached) shows the valleys in Jilliby SCA comprise of shallow groundwater systems which range from 0-12 metres in depth, indicate that they are likely to support both base-flow and terrestrial Groundwater Dependent Ecosystems (GDEs).

In particular, the SCA contains significant stands of the endangered ecological community (EEC) 'Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions' (over 500 ha) mainly associated with the alluvial valleys (**Map 2**). A large proportion of this community lies in the water table zone that is less than eight metres deep and would rely to a large extent upon the unsaturated zone above the water table level which is well within the root depth expected from this type of tree dominated vegetation. This forest type is also present along the Wyong River and Jilliby Jilliby Creek outside the SCA where ground water dependency would be of a similar nature. **Map 3** shows the high probability GDEs present within the Jilliby SCA as mapped by Sivertsen *et al.* (2011).

Matters listed under the *Threatened Species Conservation Act 1995* (TSC Act) which may be affected by subsidence include Subtropical Lowland Rainforest EEC and the habitat of two threatened frog species (Stuttering Frog *Mixophyes balbus,* Giant Barred Frog *Mixophyes iterates*) within Jilliby SCA and the Giant Barred Frog outside the Jilliby SCA. Two more possible threatened frog species also occur in the Project Area (Green-thighed Frog *Litoria brevipalmata* and Littlejohn's Tree Frog *Litoria littlejohni*) due to their occurrence in similar vegetation in the region. In view of the new information presented here, all of these matters can be considered at least moderately groundwater dependent.

Key areas of outstanding disagreement with proponent's subsidence impact assessment

1. Comparison with Southern Coalfields and Sugarloaf SCA

The proponent uses subsidence measurements for mines in the Newcastle and Southern Coalfields to inform the subsidence model for the Wallarah 2 project. The proponent regards the Wallarah 2 Project area as having a geology which is a 'hybrid' between the two, "*allowing the model to satisfactorily predict the surface subsidence associated with the extraction of Southern Coalfield geometries within a Newcastle Coalfield geological environment.*" The modelling of predicted horizontal movement in the Southern Coal fields was used to inform the subsidence impact as the "*subsidence profile for the (Wallarah 2) project is very similar to the profiles for the Southern Coalfields, this (conventional tilt) factor has also been adopted for this assessment".*

However, the proponent has stated at meetings that the subsidence impacts from the Southern Coal fields and Sugarloaf SCA cannot be used to predict impact at Wallarah 2 due to a number factors, as outlined in the RTS:

- the Project depth is stated to be greater than Sugarloaf or Southern Coalfields, however, the Project will involve the longwall extraction of coal at depths of cover in the Jilliby SCA from 395 metres to 690 metres. This is higher by 1.5-3 times than the depths previously mined in the Newcastle Coalfield though when compared to the Southern Coalfields where the depths of cover extend up to 550 metres, is shallower and deeper depending on location
- mines in the Southern Coalfield usually are mined at an extraction thickness of approximately 3.0 metres whereas the Project plans to operate at extraction thicknesses of between 3.0 metres and 4.5 metres. It is unclear to OEH how the mining of a thicker seam would lessen the level of subsidence
- OEH accepts that the Southern Coalfield seams are usually bounded above and below by reasonably strong strata, whereas the near-seam strata within the Extraction Area are relatively weak in comparison. This factor would seem to increase the chances of subsidence in the Extraction Area
- it is stated that in the traditional mining areas of the Newcastle Coalfield, the overburden overlying the mined area often contains thick, strong conglomerate units which tend to reduce surface subsidence. This seems not to be the case in relation to the subsidence impacts experienced in the Sugarloaf SCA. The proponent states that the overburden in the Extraction Area consists of finer grained sandstones and shales with minor conglomerates, suggesting that it would behave more like Southern Coalfield overburden. This is not a particularly useful argument given the surface cracking experienced in the Southern Coalfields and it is unclear in the RTS or the EIS how the fine grained shales in the Extraction Area will behave.

OEH acknowledges that the geological profile in the Project Area varies considerably from a wide river valley with a shallow layer of alluvium to more upland areas within the public lands to the west with a layer of Narrabeen Sandstone (Terrigal Formation) over laying. It is reasonable to say that given the geological differences between the different mining provinces, particular precaution must be exercised when predicting impacts upon surface and shallow aquifer systems.

What is of concern is the lack of comparison with the Mandalong Underground operation only 18 kilometres to the north of the Wallarah 2 Project, an area with a very similar geology.

2. Mine plan and impact minimisation

The proponent proposes that the mining plan will minimise impact on surface ecosystems and their biotic components by proposing a differential longwall mining system - varying the panel width depending on location in the Hue Hue Mining district (125m), the Dooralong Valley district (175m) and the 'forested hills' (255m). OEH's concern is that 'forested hills', wholly within the SCA and Wyong State Forest, also comprise of alluvial valleys (<100m in elevation) which contain the groundwater dependent ecosystems and associated threatened biota. Jilliby SCA is where the highest level of subsidence (2000 mm) is expected and the mine plan does not take the valleys (1st, 2nd and 3rd Order streams) adequately into account.

In relation to the Jilliby SCA it is the collapsing pillars and panel width of the mine design which the proponent states will make any impacts acceptable. The RTS states:

- *"The specific design proposed for mining beneath the Jilliby SCA is that the unmined coal pillars yield as mining progresses. This innovative and industry leading approach will greatly moderate the differential subsidence effects across the mining area. This will further attenuate the surface effects of subsidence, which are already mitigated due to the much greater depth of the mining activity."*

While wider panels and yielding coal pillars are intended to create an even level of subsidence over a larger area, there are two problems with this model, (a) the time lag between the subsidence of one panel to the next may be considerable and may lead to prolonged differential periods of subsidence levels, this is of particular concern under streams; (b) the areas around the edges of the extraction area will remain unsubsided; and (c) the collapsing pillar strategy cannot be guaranteed to be fail-safe, the proponent has envisaged that surface impacts such as 'ponding' are possible.

3. Level of groundwater dependency not accurately identified

The proponent provides ambiguous statements about the level of groundwater dependency in the threatened biota. While the main report of the EIS states that "*in elevated and forested areas the water table is generally predicted to be deep*" and that GDEs in these areas rely on surface water and will not be impacted by subsidence (p. 121). Water table modelled data by OEH and NOW (Summerell and Mitchell, 2011) shows that in the 2nd and 3rd order streams, water table depths would vary between 0-12 metre deep, and are likely to support both baseflow and terrestrial GDEs.

Statements in the main report of the EIS are contradicted in the specialist reports. The Groundwater and Surface Water Impact Assessments undertaken by the proponent identify "*a number of naturally occurring ephemeral ferriginous springs*" associated with the Jilliby Jilliby and Little Jilliby Jilliby Creeks. The Surface Water Impact Assessment states that baseflow comprises 14-28% of the stream flow in the region, while during dry periods this may increase to 100% (p. 38) confirming that in addition to groundwater dependent terrestrial vegetation, springs and baseflow fed rivers are present (by their nature are obligate groundwater dependent). The RTS report clearly shows pools of water along the majority of Little Jilliby Jilliby Creek (p. 62).

The proponent provides this statement in the RTS risk assessment for Jilliby SCA:

- "*Cumberland Ecology has identified a number of groundwater dependent ecosystems within the vicinity of the major and minor drainage systems within the Project Boundary, including areas of the Jilliby SCA. In these areas, the water table within the hard rock strata is predicted to be deep. The trees and plants within the Jilliby SCA are unlikely to draw moisture from the deeper hard rock groundwater systems that are predicted to be affected by the Project. Instead, they are expected to rely upon soil moisture within the unsaturated zone, which is presently sustained by rainfall and runoff and will continue to do so with the Project.*"

OEH considers this analysis of the GDEs in Jilliby SCA to be highly inaccurate and is not supported by the water table and GDE mapping that OEH has used to review the EIS.

4. Impacts on surface ecosystems inadequately addressed

As well as the issues identified above, an uncertainty analysis on the groundwater impacts and subsidence has not been undertaken (NOW submission July 2013) and no groundwater data has been forthcoming from the Jilliby SCA or Wyong State Forest.

(a) Groundwater movement
Updated groundwater modelling (W3) indicates there would be some cracking of the shallow hardrock allowing some water loss from shallow aquifers and also cracking in the fractured zone above the extraction but that these two zones would not meet. While no evidence of significant faulting has been presented in the EIS, similar geological reports indicate that the presence of two linaments intersecting or adjacent to the project area (NOW submission July 2013). This would suggest the degree of certainty that the deep and shallow aquifers will remain separated is questionable.

The modelling indicates that the coal seam will be depressurized for a lateral distance of three kilometres outside the project area and result in seepage of up to 2.5ML/day. This will reduce the rate of upward movement of groundwater into alluviums (extent of which is currently unknown) which is a key mechanism by which these GDEs receive groundwater. Loss of water from the shallow aquifer would affect any ecosystems/species depending on that aquifer. Enhancement in horizontal water conductivity through bed separation is predicted by the proponent.

The proponent states that the total leakage loss from alluvial lands of approximately 0.02 ML/day or approximately 7.3 ML/year and total leakage loss from non-alluvial land within the Project Boundary was calculated to be approximately 0.08 ML/day (or 29.2 ML/annum) from the hardrock groundwater system. The sum of contributions from alluvial and hardrock groundwater systems provides a total leakage loss of 36.5 ML/annum. This is not an insignificant amount, particularly during times of low surface water recharge.

With respect to the zone of complete groundwater drainage, the proponent states that:

- *"It is acknowledged that there will be an increased height of connective cracking for wider longwalls in the western elevated terrain. The zone of complete drainage is predicted to extend to 270 m above the longwall panels in the western area, compared to approximately 200 m for the panels underlying the floodplains. However, the depth of cover in the western forested area approaches 690 m. Therefore, the zone of complete groundwater drainage does not extend as close to the surface as suggested by OEH."*

This is a misleading assertion because as previously stated, the western lands vary in elevation by 200 to 50 metres and the depth of mining varies from 690 to 350 metres, therefore, there is potential to the zone of complete discharge to come relatively close to the surface, increasing the chance of groundwater movement, surface cracking in the Terrigal Formation and loss of groundwater for GDEs.

(b) Permeability of the alluvium layers
The RTS acknowledges that the relatively quick subsidence of panels would cause the water table to drop in adjacent unsubsidised areas due to gravity as water seeps into lower lying areas. This will occur across the SCA as the works progress from east to west and also be significant along the edges of the project area. The proponent states that this will be a slow process due to the low permeability of the unconsolidated alluvium layers in the valleys and floodplains. However, the RTS indicates that the level of permeability varies greatly from 'moderate' to 'low' and thickness will also vary between the floodplain and the incised valleys in the SCA. There are indications that the upper reaches of Little Jilliby Jilliby Creek have very shallow alluvium layers. The impact that lateral leakage will have upon groundwater dependent ecosystems and associated fauna has been given no attention in the RTS or EIS.

(c) Assumptions about recovery of shallow aquifers
The other mechanism by which depleted surface aquifers should recharge is by surface runoff. Modelling in the Groundwater Impact Assessment indicates that on average that this is expected that the water table would fall by 1.4 metres but would rebound by 55-75% within six months of subsidence occurring during low rainfall period (p. 4). However, this does not take away from the fact that six months is a long time for groundwater dependent vegetation/fauna to survive while the watertable/aquifer recovers and recharges and is in fact a low level of re-charge which does not take into account drought conditions (when inflow from rainfall is zero) over extended periods. Coupled with a reduction of upward movement due to cracking, this may have serious consequences for surface groundwater dependent systems.

(d) Channel stability in subsided areas
The EIS states that for vertical surface movement, mining induced surface cracks in the Project Area are expected to be limited to the opening of existing natural joints; or an occasional tension crack located on steeply sloping terrain; or cracking within exposed bedrock in valley floors. However, any impact upon the surface geomorphology is stated to be minor and acceptable for a number of reasons which OEH cannot fully accept. OEH considers the risk assessment undertaken in Table 10 of the RTS to be deficient in its analysis and assumptions outlined below:

- *"The major streams are wide valleys with deep alluvial deposits and, therefore, any fracturing of the bedrock is unlikely to be visible at the surface within the alluvials and any dilation of the bedrock level is likely to become water charged and not result in increased subterranean flows,"*

Both the larger Jilliby Jilliby Creek in the Dooralong Valley where the alluvium is deeper and those streams in the Jilliby SCA are expected to experience ponding. The RTS states that "*Increased ponding of Little Jilliby Jilliby Creek may occur due to subsidence*" though surface signs are unlikely due to alluvium filling any cracks which may occur. OEH notes that the alluvium is considered in the EIS to have a 'low permeability' yet is also able to readily fill cracks, which seems inconsistent.

- *"There are few exposed rock platforms over the steeper sloped areas and along the smaller streams that are located up the sides of the valleys over the Project that retain permanent major pools and aquatic ecological systems".*

This does not seem to be consistent with the data collected in the revised Surface Water Impact Assessment in the RTS which identifies significant rock outcrop and benching in the 1st and 2nd order streams associated with Little Jilliby Jilliby and Myrtle Creeks.

Further it is stated that flows in Little Jilliby Jilliby Creek are unlikely to be affected by cracking of the bedrock because the "*...volume of water that may be diverted into fractures is negligible compared to the flow in the stream, the consequences of bedrock fracturing are not considered severe. Due to the low probability of impacts to stream flows, and the minor consequences even if this does occur, this impact is considered acceptable.*" The risk assessment for Jilliby SCA only considers impacts on fish passage are considered and a closer look at habitat for requirements for the threatened frog species present in the streams are not considered.

(e) Impacts on endangered fauna
The proponent states in the RTS that, "*The potential impacts of subsidence on the Giant Barred Frog are considered to be minor. SEWPaC has not raised any concerns regarding the impacts of subsidence on the Giant Barred Frog.*" Both the *Mixophyes* species that are recorded from this ecosystem are dependent upon sensitive stream geomorphologies, and given the uncertainty identified above in relation to the potential impacts of subsidence on surface hydrology, these may equate to significant impacts upon the habitat of these species if they were to occur.

(f) Impacts of remediation
It is the position of the proponent that in the event that these streams are affected, that successful remediation of disturbance to surface geomorphology can be undertaken. OEH does not support any

remediation action within the Jilliby SCA (or Jilliby Jilliby Creek) due to the difficult nature to alleviate geological and subsequent surface faults. This is a primary reason why OEH supports the principle of avoidance in this instance as the preferred management pathway.

3. Impacts of direct habitat removal and offsets

OEH acknowledges the updated offset analysis undertaken by the proponent using the BioBanking Assessment Methodology. OEH accepts that the offset package proposed is of sufficient magnitude and is sufficiently 'like-for-like' such that it conforms to the Interim Offset Policy (OEH 2011) for a Tier 3 outcome.

There remain questions of potential impact as a result of subsidence. This issue has been dealt with as part of the recommended conditions of consent.

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT

OEH acknowledges that the sites '*WC-OS2*', '*WSF-AG1*', '*WSF-AG2*', '*WSF-AG3*' and '*WSF-AG4*' have been submitted to the AHIMS Register and have been assigned registration numbers.

OEH acknowledges the proponents commitment to develop and implement an Aboriginal Cultural Heritage Management Plan (ACHMP) for the project area in order to support the management of the

potential impacts on Aboriginal cultural heritage. It is also acknowledged that the plan is to be developed in consultation with the registered Aboriginal parties (RAPs) for the project. OEH supports these processes.

OEH refers to Section 7.14.4 of the EIS. It is understood that the proponent proposes to salvage Aboriginal objects associated with site '*WC-OS2*' prior to being directly impacted by the proposal. It is recommended that this process is undertaken in consultation with the RAPs identified for the project. OEH also notes that the objects must be recorded and managed in accordance with the requirements of sections 85A1(c) and 89A of the NPW Act. It is also recommended that these actions/procedures are detailed in the proposed ACHMP.

OEH acknowledges that the proponent proposes to develop protocols for the monitoring of earthworks during construction of the surface facilities. OEH supports this process, however, it is recommended that this procedure is developed in consultation with a suitably qualified cultural heritage specialist and the RAPs. It is also recommended that the proponent provide the RAPs with a fair, reasonable and timely opportunity to participate in this process. Any Work, Health and Safety matters should be addressed prior to implementing the program. Records should be collected of any attendance and results accurately documented in accordance with the requirements of sections 85A1(c) and 89A of the NPW Act. The proposed methodology should also include specific archaeological procedures/triggers in the event that significant archaeological/cultural finds are identified during the investigations. For example, hearths, human remains, knapping floor, rare objects, etc.

The proponent is also reminded that all Aboriginal sites impacted by the project must have an Aboriginal Site Impact Recording Form completed and be submitted to the AHIMS Registrar within three months of being impacted. Please refer to:
www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf)

ATTACHMENT 2: RECOMMENDED CONDITIONS OF APPROVAL

THREATENED BIODIVERSITY

OEH believes there is too much uncertainty in how the proponent has addressed the threats to threatened biodiversity and has not provided a risk assessment that supports the contention that mining can safely proceed in areas where subsidence may permanently impact matters listed under the TSC Act. Therefore, a precautionary approach should be undertaken.

Due to uncertainty of predicted subsidence in the Jilliby SCA, OEH remains concerned about potential impacts on water courses in the Jilliby SCA, particularly with regards to riparian habitats and surface hydrology, threatened ecological communities (particularly the endangered Subtropical Lowland Rainforest – which is also a groundwater-dependent ecosystem) and to the habitat of four threatened frog species, in particular, the Stuttering Frog *Mixophyes balbus* and the Giant Barred Frog *Mixopyes iteratus*.

Preferred Option 1: Staged consent or reduced mine plan

In a meeting with DP&I on the 11 September 2013, OEH also proposed a staged approach to the approval (as per s83B Staged development applications of the EP&A Act) as an option whereby longwall mining under Jilliby SCA in year 20 of the operation be subject to a separate Development Application and Subsidence Management Plan. Stage 2 of the project area would be conditional upon completion and assessment criteria being met for Stage 1. This could also be achieved by a reduced mine plan

Preferred Option 2: Modified Consent

Under this option, the current mine plan is to be modified to avoid possible impacts from subsidence upon all 3rd order and larger streams and groundwater-dependent ecosystems in the Jilliby SCA, taking into account the angle of draw of the longwall panels. This would mean no direct undermining of Little Jilliby Jilliby Creek or other 3rd order streams as currently planned. Specific modifications would include an alteration of the mine layout, including location of long walls, total area, length, width of excavation and pillar areas.

Recommended Conditions of Approval for Threatened Biodiversity

1. ***Provision of geological mapping.*** That the company must make its own geological mapping of the proposed mine area available to OEH. This mapping must show the location of known and inferred locations of faults, fracture zones, dykes and any other planes of weakness that may lead to unexpected mine subsidence within the mining lease. This would enable OEH to better conduct a risk assessment of potential damage to the Jilliby SCA;
2. ***Provision of Baseline biological data.*** OEH notes that sufficient data collection was not undertaken within the Jilliby SCA prior to the submission of the EIS. This was particularly true of the presence/absence of key threatened amphibian species. Prior to any work within the boundary of the Jilliby SCA, baseline data must be collected at a sufficient level in accordance with OEH threatened species survey guidelines that will enable any measured ecological changes in the mined areas to be quantified and understood within a monitoring programme that would include control sites. This would include biological and hydrological markers such as key threatened species presence/absence (*Mixophyes iteratus*, *Mixophyes balbus*), riparian vegetation condition (floristic and vegetative indicators), groundwater dependent ecosystem health (stygofauna), stream geomorphology (pools, benches and riffles), water table depth, stream and spring flow. Baseline biological data and the results of subsequent monitoring, and its analysis, must be freely provided on the proponent's website, or on CD/DVD from the proponent's main office within three (3) months of the data being collected.

OEH has contacted the University of Newcastle who have conducted studies on *Mixophyes iteratus* in the Jilliby SCA in the early 2000s. The approach that has been used is recommended by OEH to form the basis of a baseline study and monitoring programme for both *Mixophyes* species.

Monitoring Programme. Any consent must include a detailed and appropriate monitoring programme to measure any impacts from mining. The monitoring programme must commence well ahead of underground mining and have adequate baseline data before mining takes place. Stream flow, pool levels and groundwater levels should be monitored at least daily. The results of the monitoring programme must be analysed using appropriate statistical measures (such as Before-After-Control-Impact or BACI) to detect adverse impacts on threatened biodiversity and habitat before may become obvious, and thereby to enable adaptive management to be implemented.

3. ***Mitigation Strategy.*** OEH recommends that the mitigation strategy has a:

   - Negligible impact to 2nd Order and above streams in and outside the SCA
   - Negligible impact to Groundwater Dependent Ecosystems in and outside the SCA
   - Negligible impact upon threatened amphibian habitat in the SCA.

   Mitigation strategies must also allow for adaptive management within the Subsidence Management Plan that is to be updated at regular intervals in response to the results of the monitoring programme. The strategy should include mitigation measures to reduce impacts so that impacts above threshold levels are avoided and a response strategy that can be implemented as soon as any unexpected mine subsidence and significant harm to the environment occurs. This should include stop work thresholds and remediation triggers. It is recommended that any subsidence impacts above threshold levels within the Jilliby SCA would entail immediate stop work.

4. ***Offset Strategy.*** Should significant damage occur above threshold levels (e.g. any cracking within stream beds and riparian zones, subsidence on slopes greater than 10 degrees, damage to GDEs) the consent should include the provision of a biodiversity offset that is developed and secured according to the BioBanking Assessment Methodology.

5. **Biodiversity Management Plan.** The progress of all monitoring, mitigation and offset measures shall be implemented according to a Biodiversity Management Plan and be reported as bi-annual notifications to the consent authority and Consultative Committee with community and agency representation. The Committee should commence at the start of operations and remain functional until the cease of operations. The following outstanding issues need to be addressed in the plan:

   a. Ecotoxicology assessments of overflow and reverse osmosis (RO) treated mine water should be undertaken prior to new discharge into Wallarah Creek.
   b. A detailed investigations of reuse options for the treated water in the Wallarah 2 project needs to be undertaken prior to development approval.
   c. A finalised Biodiversity Offset Package final offset strategy detailing the amount of biodiversity credits to be retired, the quantum of the proposed offset package and the conservation mechanism to be implemented prior to development approval.
   d. The extent of impact in the Probable Maximum Flood (PMF) needs to be included in the assessment so that appropriate management measures for this residual risk are included as part of the assessment process prior to development approval.
   e. The proponent work with Wyong Shire Council to identify the properties and update controls in areas impacted by the proposed development prior to development approval.
   f. The results of the Wyong River Catchment Flood Study should be compared to the Wallarah 2 flood study for consistency in results, as Wallarah 2 falls fully within the boundary of the Wyong River Catchment Flood Study.

ABORIGINAL CULTURAL HERITAGE

Recommended Conditions of Approval for Aboriginal Cultural Heritage

1. The proponent must continue to consult with and involve all the registered local Aboriginal representatives for the project, in the ongoing management of the Aboriginal cultural heritage values. Evidence of this consultation must be collated and provided to the consent authority upon request.
2. The proponent must prepare an Aboriginal Cultural Heritage Management Plan (ACHMP) to detail procedures for managing the Aboriginal cultural heritage values associated with the project area. The ACHMP is to be implemented in consultation with the registered Aboriginal parties. The plan must also detail the involvement and responsibilities of the Aboriginal stakeholders in the implementation of all cultural heritage management actions; details of the responsibilities of all other stakeholders; details of all mitigation and management strategies (including monitoring program, further investigations, etc); procedures for the identification and management of previously unrecorded sites (including human remains); details of an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged through the development process; details of the Cultural awareness program for all contractors and personnel associated with construction activities; and compliance procedures in the unlikely event that non-compliance with the ACHMP is identified. This process must be undertaken prior to commencing any ground disturbance or development works subject to the development.
3. In the event that ground disturbance identifies a new Aboriginal object/s within the project area, all works must halt in the in the immediate area to prevent any further impacts to the object(s). A suitably qualified cultural heritage specialist and representatives of the local Aboriginal community must be contacted to determine the nature, extent and significance of the finds. The site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by OEH) and the management outcome for the site included in the information provided to the AHIMS. The proponent must consult with representatives of the local Aboriginal community, and the cultural specialist to develop and implement and appropriate management strategies for all objects/sites. Any management strategy development must also comply with the appropriate legislative provisions.
4. If human remains are located in the event that surface disturbance occurs, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are to be contacted immediately. No action is to be undertaken until the NSW Police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact Environment Line on 131 555 and representatives of the local Aboriginal community. No works are to continue until OEH provides written notification to the proponent.
5. An Aboriginal Cultural Heritage Education Induction Program must be developed as a component of the Land Disturbance Protocol for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the project. The program should be developed and implemented in collaboration with the registered Aboriginal parties.

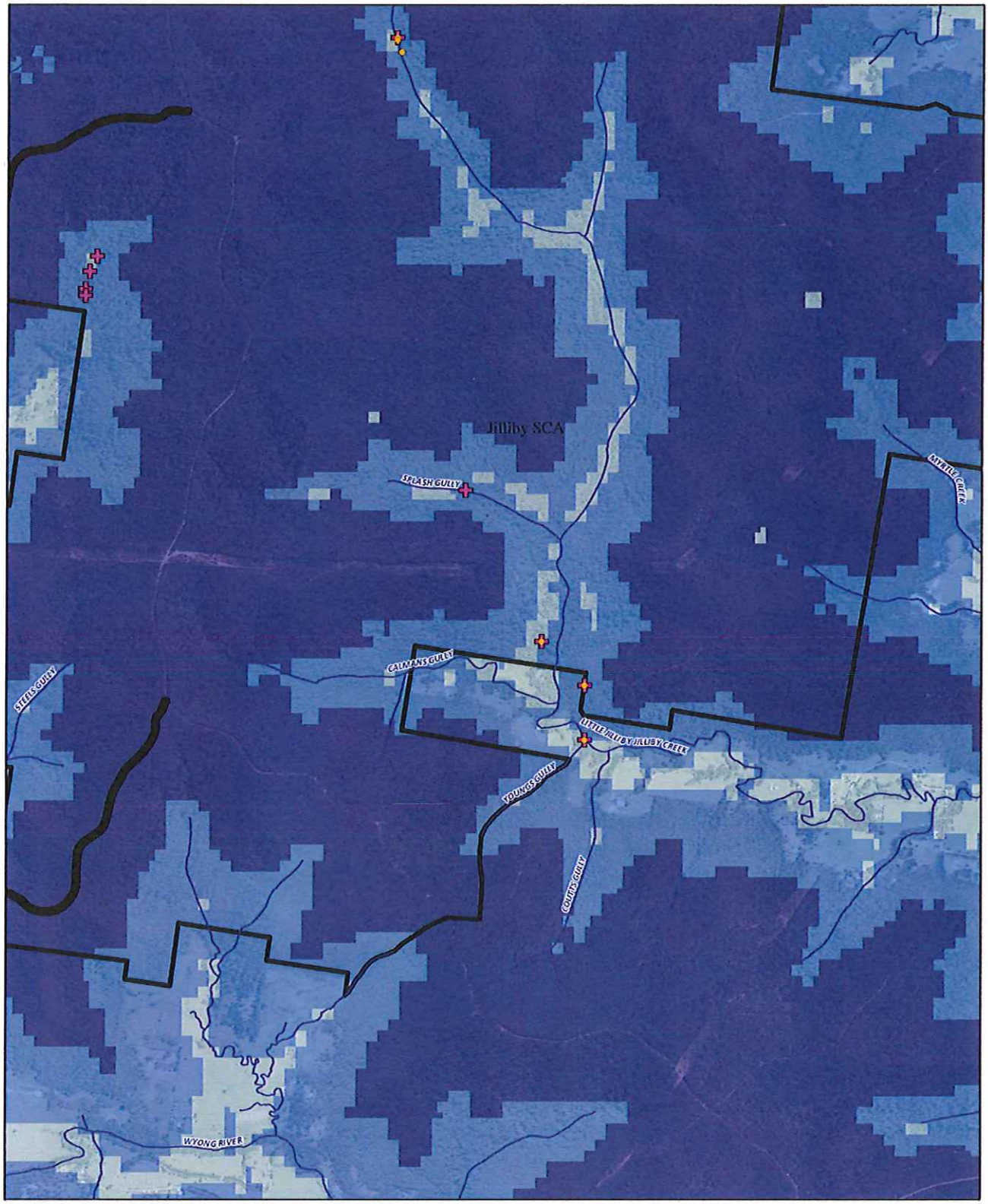
APPENDIX 1: MAPS

Map 1: Water Table depth in project area

Map 2: Distribution of Lowland Rainforest EEC

Map 3: High Probability GDEs in Project Area

Map 1 Modelled Water Table depth in Jilliby State Conservation Area



Streams: 2nd Order or Higher
Jilliby State Conservation Area
Water Table Depth
0-8m
8-12m
12-16m
Threatened Frog Records
Mixophyes balbus
Mixophyes iteratus

Water Table Depth

Jilliby SCA

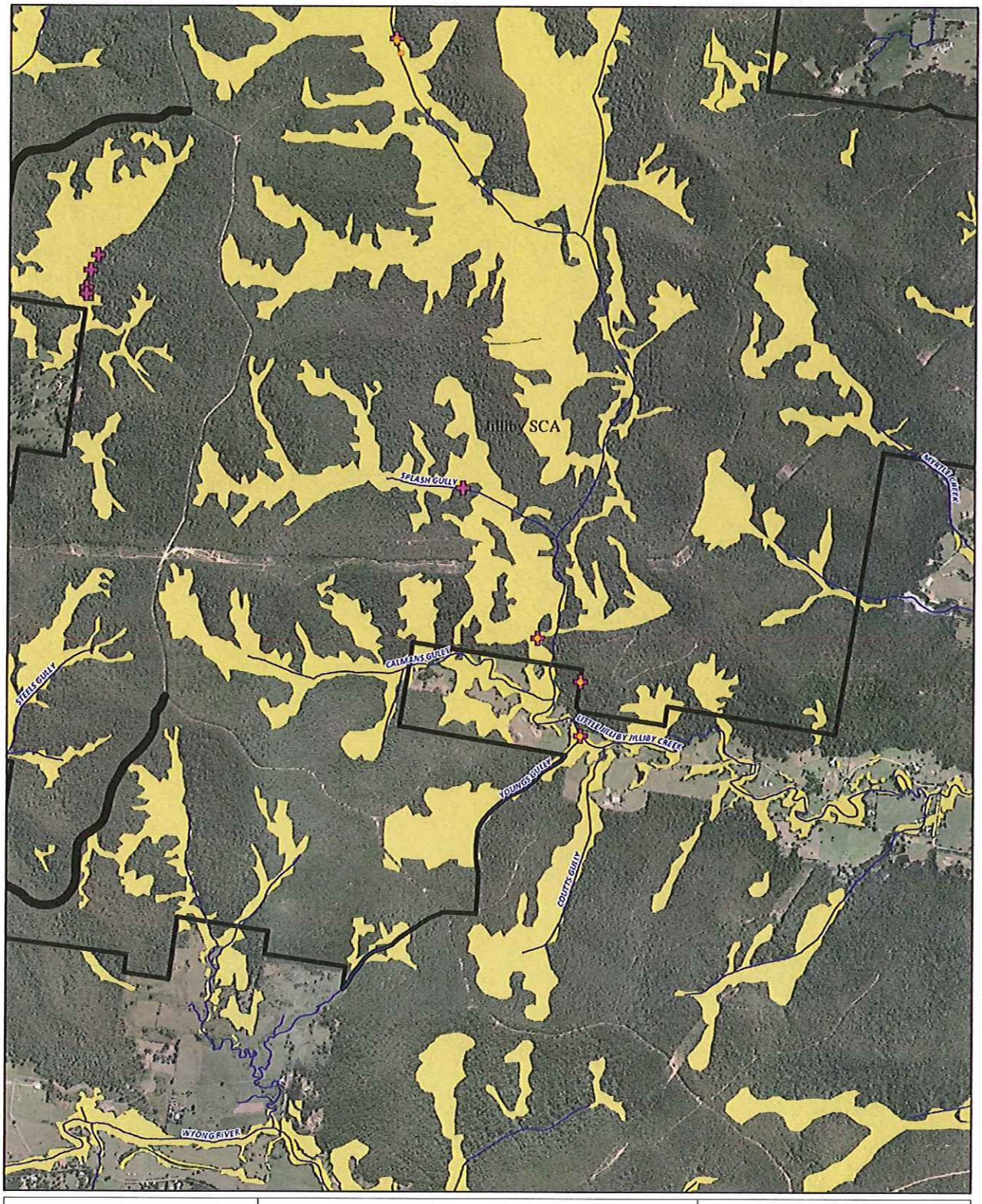
N

0 100 200 300 400 Metres

Datum/Projection: GDA 1994 MGA Zone 56
Printed By:
OEH Newcastle
09 September 2013

NSW GOVERNMENT Office of Environment & Heritage

Map 2: Distribution of Lowland Rainforest EEC



Legend

- Streams: 2nd Order or Higher
- Jilliby State Conservation Area
- Lowland Rainforet

Threatened Frog Records

- *Mixophyes balbus*
- *Mixophyes iteratus*

Ecological Constraints

Jilliby SCA

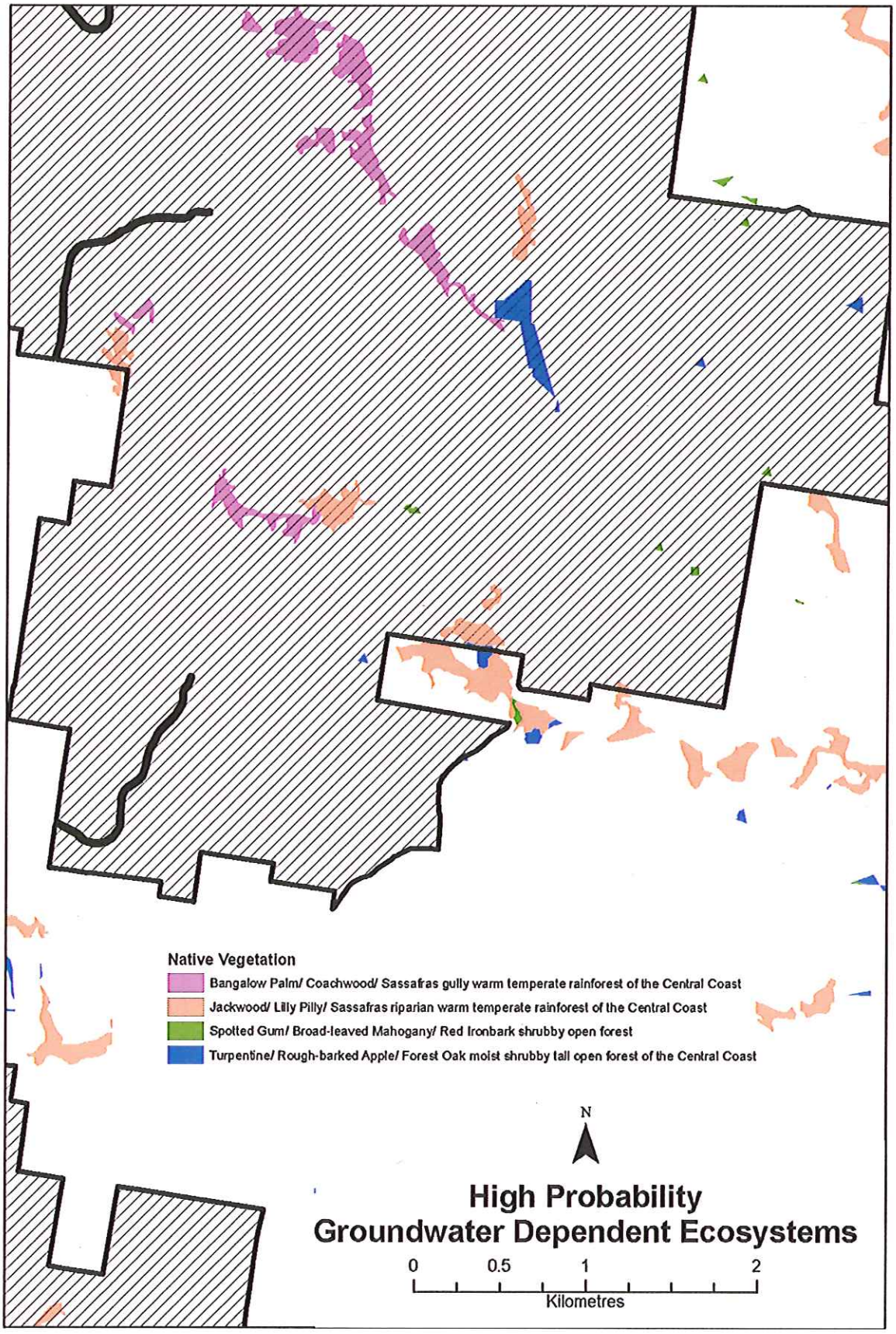
N

0 100 200 300 400 Metres

Datum/Projection: GDA 1994 MGA Zone 56
Printed By:
OEH Newcastle
09 September 2013

NSW GOVERNMENT Office of Environment & Heritage

Map 3: High probability GDEs in Jilliby State Conservation Area



Transport
Roads & Maritime
Services

25 September 2013

SF 2012/045917
CR 2013/006912
MJ

Director, Mining & Industry Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Clay Preshaw

STATE SIGNIFICANT DEVELOPMENT – WALLARAH 2 COAL PROJECT (SSD 4974) - RESPONSE TO SUBMISSIONS REPORT

Dear Mr Preshaw

I refer to your email dated 17 September 2013 regarding the subject Response to Submissions Report forwarded to Roads and Maritime Services (RMS) for comment. I also refer to my letter dated 16 May 2013.

RMS Responsibilities and Obligations

Transport for NSW and Roads and Maritime's primary interests are in the road network, traffic and broader transport issues, particularly in relation to the efficiency and safety of the classified road system, the security of property assets and the integration of land use and transport. With regard to the subject proposal, Roads and Maritime's main concerns are safety, access and traffic generating impacts on the classified road network and its intersections.

In accordance with the Roads Act 1993, RMS has powers in relation to road works, traffic control facilities, connections to roads and other works on the classified road network. Roads and Maritime concurrence is required for works, structures, and disturbances to, in, on, under or over classified roads, under section 138 of the Act, with Council consent. Council is the roads authority for all roads in the area with the exception of the Pacific Motorway (M1).

Additionally, Roads and Maritime has powers under Section 104 of the Roads Act 1993 to direct the removal of any works deemed by to be a traffic hazard.

RMS Response and Requirements

Roads and Maritime has reviewed the subject Response to Submissions Report prepared by Hansen Bailey Environmental Consultants (September 2013). Roads and Maritime advises that the matters raised in my letter dated 16 May 2013 have been addressed in the subject report and it

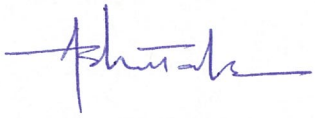
59 Darby Street, Newcastle NSW 2300 | Locked Bag 2030 Newcastle NSW 2300 DX7813 Newcastle
T 02 4924 0688 | **F** 02 4924 0342 | **E Ashish.Tamhane@rms.nsw.gov.au** **www.rmservices.nsw.gov.au | 13 22 13**

has no additional requirements for the project. The matters raised in my letter dated 16 May 2013 still apply.

On the Minister's determination of this matter, it would be appreciated if a copy of the Project Approval is forwarded to Roads and Maritime for record and / or action purposes.

Please contact me on 4924 0688 if you require further advice.

Yours sincerely



Ash Tamhane
A/Manager Land Use
Hunter Region

Cc Mr Robert Rutledge
Transport for NSW

Cc General Manager
Wyong Council

Clay Preshaw - RE: Wallarah 2 Coal Project - Response to Submissions

From: Clarke Darren <Darren.Clarke@transgrid.com.au>
To: Clay Preshaw <Clay.Preshaw@planning.nsw.gov.au>
Date: 10/1/2013 3:22 PM
Subject: RE: Wallarah 2 Coal Project - Response to Submissions
CC: Lo Denise <Denise.Lo@transgrid.com.au>
Attachments: Wallarah 2 Coal Project - Response to Submissions

Hi Clay,

I received your voicemail this afternoon in regards to obtaining further comments relating to the Wallarah 2 Coal Project.

TransGrid advise that we are satisfied with the response provided by Wallarah 2 Coal (in the attached email). We confirm that Wallarah 2 Coal has consulted with TransGrid to address comments previously provided. Whilst all issues have not been addressed at this stage, TransGrid will continue to co-operate with the proponent in determining the feasibility of different options to ensure TransGrid's high voltage electricity network in the vicinity of the project, should it obtain Project Approval, can continue to operate with risk to network safely or reliability.

Regards,

Darren

Darren Clarke
Senior Environmental Officer
Environment, Property and Development Compliance | Capital Program Delivery

TransGrid | 70 - 72 Commonwealth St, Sydney, NSW 2000
T: (02) 8204 6314 **F:** (02) 8204 6370
E: darren.clarke@transgrid.com.au

From: Clay Preshaw [mailto:Clay.Preshaw@planning.nsw.gov.au]
Sent: Tuesday, 17 September 2013 12:39 PM
To: Ash Tamhane; Clarke Darren; David Green; David Lovell; Greg Cashin; Greg Cole-Clark; landuse.enquiries@industry.nsw.gov.au; Lin Armstrong; Lucy Moore; Mark Jenkins; Mark Ozinga; Paul Purcell; Peter Lewis; planning.matters@environment.nsw.gov.au
Cc: Bill Talbot; Carolyn McNally; Lo Denise; Emily Goodworth; Greg Paine; Jude Parr; Julie Moloney; Kylie Spratt; Liz Rogers; Mahani Taylor; Mitchell Isaacs; Peter Jamieson; Regina Fogarty; Richard Bath; Vincent Sicari; Wayne Jones
Subject: Wallarah 2 Coal Project - Response to Submissions

Dear all,

Please be advised that the applicant has submitted a formal Response to Submissions document in relation to the Wallarah 2 Coal Project (SSD 4974). The document is available to download via the following link: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4974

The Department is now finalising its assessment of the proposal.

If you wish to provide any comments on the Response to Submissions, including comments about whether it has addressed the issues raised in your agency's submission, please do so by **COB Tuesday 1 October 2013.**

If you have any questions, please feel free to call me.

Regards

Clay Preshaw
Team Leader
NSW Department of Planning and Infrastructure
GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au

Transport for NSW

Director, Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Clay Preshaw

Wallarah 2 Coal Project (SSD 4974)
Response to Submissions

Dear Mr Preshaw

I refer to your email dated 17 September 2013 requesting Transport for NSW (TfNSW) to review the formal Response to Submissions for the Wallarah 2 Coal Project.

Most issues previously raised by TfNSW appear to be adequately addressed. One additional issue regarding noise (Section 3.8) needs additional consideration:

- **3.8.2 Noise Control Measures:** The 200m radius curves cited for the loading facilities are below what is considered optimum for mitigating wheel squeal. Other mitigation measures may be required.

Please note that the Roads & Maritime Services and RailCorp will be submitting separate responses.

Should you have any questions regarding this matter, please contact Robert Rutledge on 8202 2203 or Robert.Rutledge@transport.nsw.gov.au.

Yours sincerely

1/10/13

Mark Ozinga
Manager, Land Use and Transport Planning
Planning and Programs

Objective Ref: CD13/18366

18 Lee Street Chippendale NSW 2008
PO Box K659 Haymarket NSW 1240
T 8202 2200 F 8202 2209
www.transport.nsw.gov.au
ABN 18 804 239 602

Wallarah 2 Coal Project

Wyong, NSW, Australia

Review of Response to Submissions to the Wyong Shire Council 2013 EIS Review

Prepared for

Wyong Shire Council
CENTRAL COAST

By

EARTH SYSTEMS
Environment | Water | Sustainability

November 2013

EARTH SYSTEMS
Environment | Water | Sustainability

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DOCUMENT REVISION LIST

Revision Status / Number	Revision Date	Description of Revision	Approved By
RevDraft	November 2013	Draft	Nigel Murphy

Executive Summary

Earth Systems was engaged by Wyong Shire Council to review the *Response to Submissions* (2013) provided by Wyong Areas Coal Joint Venture with respect to the findings and recommendations raised by Earth System in its review of the Wallarah 2 Coal Project 2013 EIS.

In the review of the 2013 EIS, Earth Systems concluded that the approach to the EIS deviated from standard practices (i.e. baseline assessment; impact assessment for construction, operations and closure; management and mitigation measures; residual impacts; and monitoring and reporting). In many cases, baseline conditions were inadequately addressed, impact assessments were underdeveloped and management and mitigation measures commonly pointed to management plans that would be developed in the future. These conclusions, in addition to specific data gaps for many components assessed in the EIS, were provided to WACJV in June 2013.

While the WACJV Response to Submission (RTS) acknowledged and responded to each of the issues identified in the 2013 EIS Review, many of the responses were inadequate and do not articulate measures to rectify the gaps identified in the EIS. These gaps render it impossible to determine residual impacts, particularly for the following:

- Air quality (construction and operations phases);
- Groundwater quality;
- Water quality for the controlled discharge point on the tributary to Wallarah Creek; and
- Acid and metalliferous drainage (AMD).

The management and monitoring detail required to properly determine how impacts will be managed is still not provided, which leads to further uncertainty in the prediction of residual impacts.

Residual impacts are anticipated for air quality, however the extent of those impacts cannot be determined based on information from the EIS and RTS. Residual impacts for water quality, noise and vibration, terrestrial habitat, and other criteria assessed cannot be adequately estimated without provision of the management measures that have been proposed for future management plans.

Contents

1 Introduction

Earth Systems was commissioned in November 2013 by the Wyong Shire Council (WSC) to review the Wallarah 2 Coal Project Response to Submissions (RTS) in relation to the Earth Systems' review of the 2013 Environmental Impact Statement (EIS) and provision of recommendations.

The Wyong Areas Coal Joint Venture (WACJV) proposes to develop an underground coalmine known as the Wallarah 2 Coal Project (W2CP) (the Project), which would extract coal from beneath the Dooralong and Yarramalong Valleys in Wyong Shire, New South Wales using longwall mining techniques.

A chronology of the application process of the Project to date is summarised in Table 1-1.

Table 1-1. Summary of the Wallarah 2 Coal Project Application Process.

Date	Outcome
2010	Environmental Assessment (2010; referred to as the 2010 EIS) is submitted to the Director-General of the NSW Department of Planning (DoP) for assessment and approval under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and placed on public exhibition from 31 March to 2 June 2010.
March 2011	Development application for the Project is refused by the Minister for Planning due to: • Uncertainty around subsidence; • Inadequate characterization of potential impacts to surface water quality, ecology (particularly in the wester portion of site), cultural heritage; and • The Project was not considered to be consistent with the principles of sustainable development.
November 2011	WACJV lodges a new application for development consent of a mining lease.
January 2012	NSW Government issues new Director General's Requirements (DGRs) for the Project ('New DGRs') to supplement DGRs issued in 2009. The new DRGs outline issues requiring comprehensive evaluation during the environmental assessment for Project approval.
July 2012	NSW Government issues supplementary DGRs to focus on the assessment of potential Project-related impacts on biodiversity, reinforcing Project obligations under the Environmental Protection and Biodiversity Conservation Act 1999 and the Environmental Protection and Biodiversity Conservation Regulations 2000.
April 2013	WACJV prepares a second Draft EIS (herein the 2013 EIS) to meet the regulatory requirements of EIS in NSW, address issues identified in the 2010 EIS refusal and meet the original and supplementary Director General Requirements.
April 2013	Draft EIS is placed on public exhibition from 26 April 2013 to 21 June 2013.
September 2013	Hansen Bailey on behalf of WACJV prepares a Response to Submissions document (RTS) responding to 748 submissions received during the public exhibition of the 2013 EIS.
October 2013	Hansen Bailey on behalf of WACJV prepares a subsequent Residual Matters Report.

WSC has engaged Earth Systems to review Hansen Bailey's responses on behalf of WACJV to the issues and recommendations identified by Earth Systems in its review of the 2013 EIA. As such, the objectives of this Report are to:

- Determine if the responses provided in the RTS adequately address issues and concerns raised by Earth Systems' review of the 2013 EIS;
- Indicate if the recommendations provided by Earth Systems in its review of the 2013 EIS were considered and addressed in the response; and

- Identify any other areas of uncertainty and or where further investigations and assessments are required prior to Project determination and/or during the construction, operation and closure stages of the Project.

1.1 Project Overview

The Project is located approximately 9 km to the northwest of Wyong township in New South Wales (refer to Figure 1-1). The proposed mining area is located within the declared Wyong Mine Subsidence District and the Hue Hue Mine Subsidence District, which together extend west of the F3 Sydney – Newcastle Freeway.

Figure 1-1 Project Location (Source: Hansen Bailey, 2013a)

Two primary surface facilities are proposed for the Project. The main coal handling and rail loading facility are referred to as the Tooheys Road Site and would be located adjacent the northeast corner of the F3 Freeway and the Motorway Link Road intersection. The Buttonderry Site would include ventilation shafts, office and employee facilities and be located to the south of the Buttonderry Waste Disposal Facility off Hue Hue Road. The majority of the underground extraction area lies beneath the Yarramalong and Dooralong Valleys and Wyong State Forest.

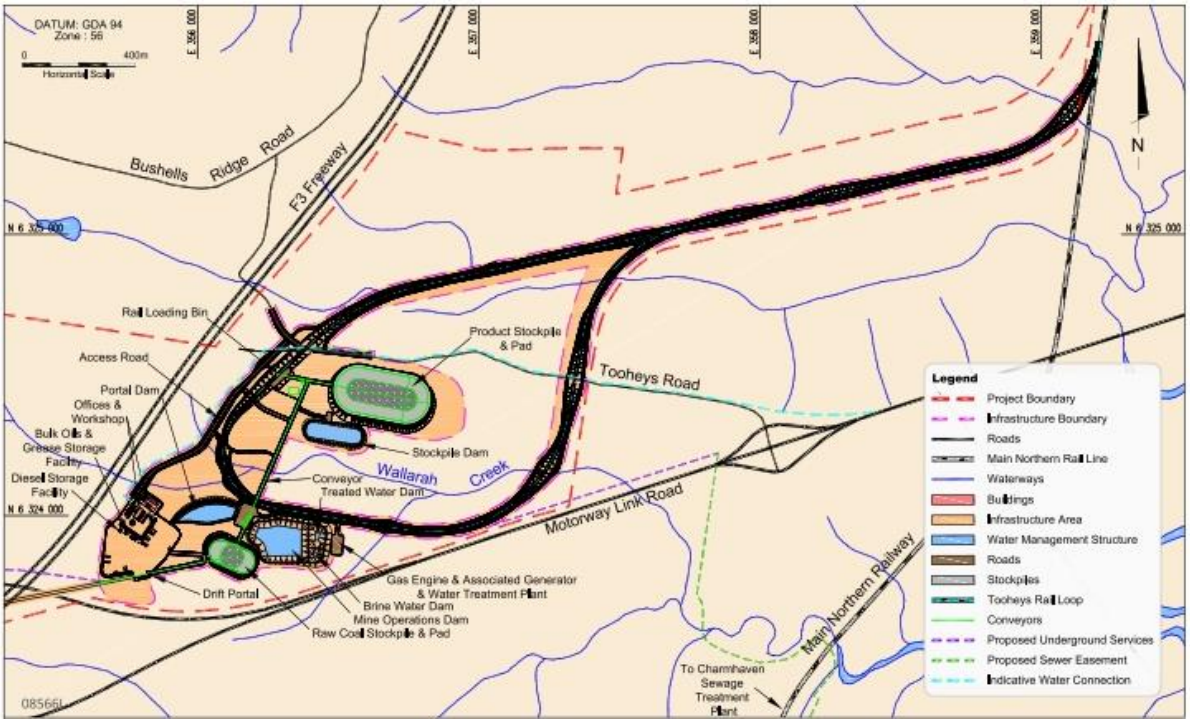

Figure 1-2 Tooheys Road Site (Source: Hansen Bailey, 2013a)

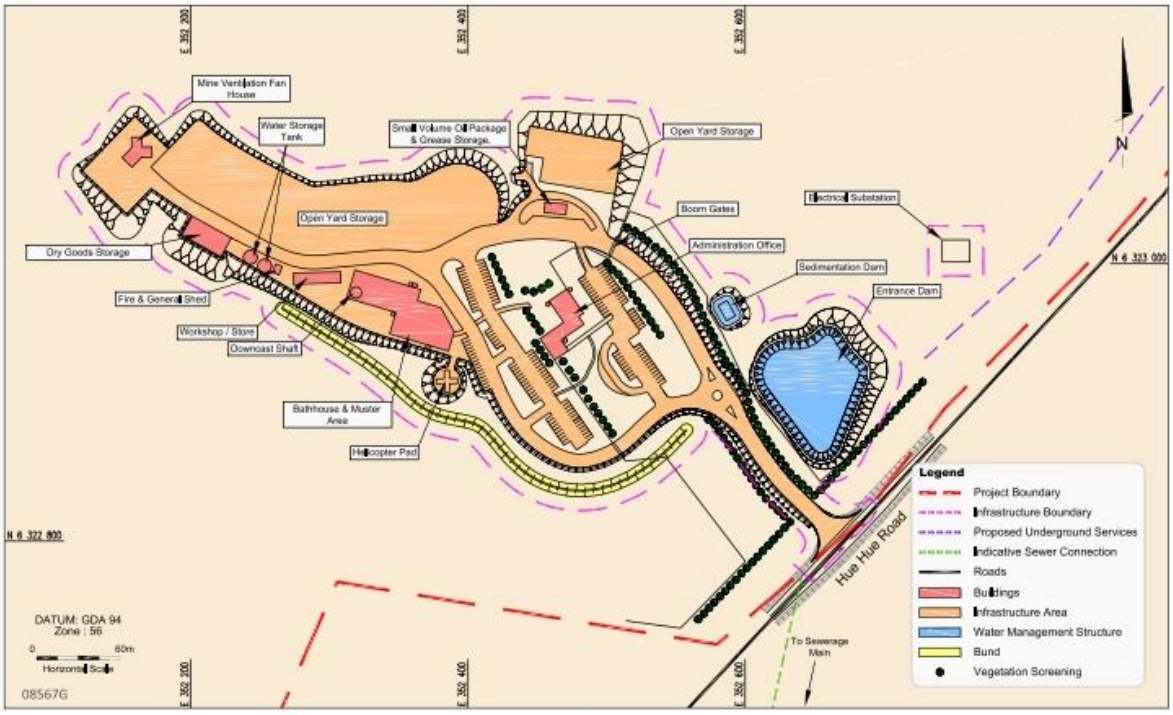

Figure 1-3 Buttonderry Site (Hansen Bailey, 2013a)

WACJV proposes to extract of up to 5 million tonnes per annum of run-of-mine (ROM) coal from the Wallarah-Great Northern Coal Seam for a period of 42 years using longwall mining methods. The Project is described in full in Chapter 3 of the 2013 EIS.

Key land uses within the Project Application Area range from light industrial, commercial and housing developments to small townships and small farms (Figure 1-4). The Tooheys Road Site is located between the F3 Freeway and an active clay quarry and tile factory. The Buttonderry Site is situated adjacent to the Wyong Employment Zone (WEZ) and the Buttonderry Waste Management Facility. The proposed Warnervale Town Centre (WTC) is located southeast of the Project sites while the Blue Haven residential area is located approximately 3 km to the north east of the Tooheys Road Site. A sewage treatment plant is located approximately 2 km to the south east of the Tooheys Road Site

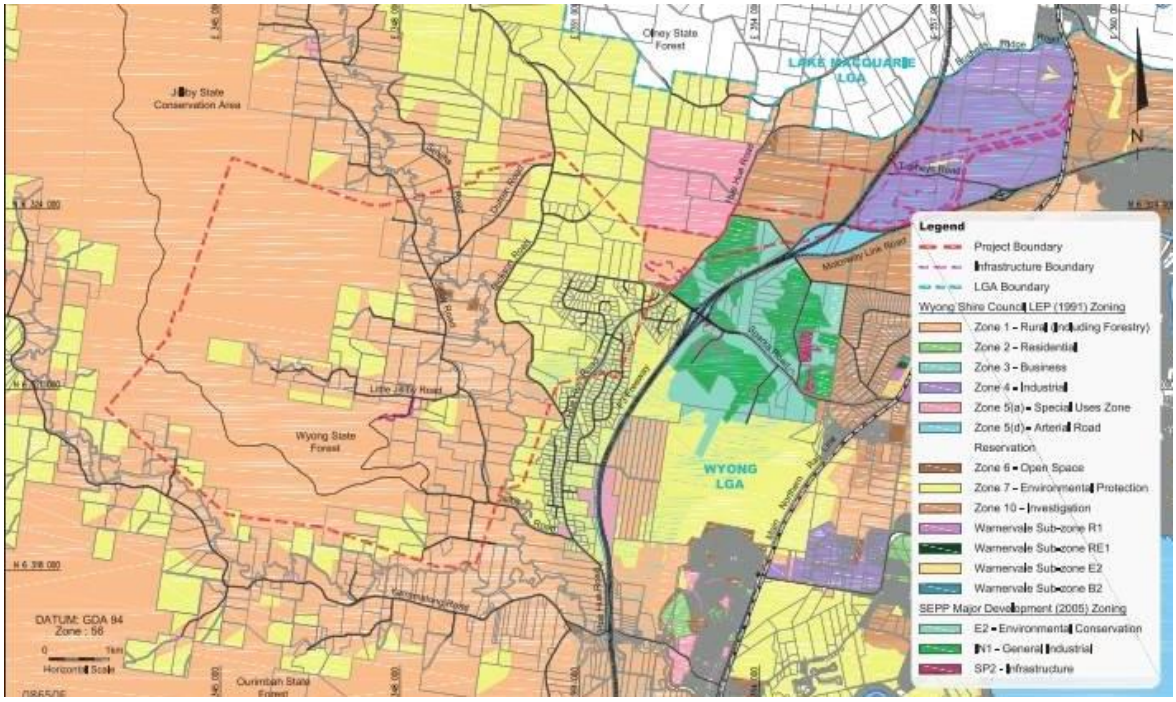

Figure 1-4 Surface Facilities and Surrounding Land Uses (Source: Hansen Bailey, 2013a)

The Jilliby State Conservation Area and Wyong State Forest are located to the west of the Project area. Jilliby Creek flows southeastward to merge with the Wyong River which feeds Tuggerah Lake. Wallarah Creek flows through the Tooheys Road Site to Budgewoi Lake.

Major transport routes near the Project area include the F3 Freeway, Motorway Link Road and the Main Northern Railway Line.

2 Methodology

This Report was undertaken to review and evaluate the adequacy of the responses and information presented in the Response to Submissions (2013) as they pertain to the findings and recommendations provided by Earth Systems in its review of the 2013 EIS. To ensure a comprehensive review, Earth Systems undertook the following steps:

1. Review of the responses in the RTS (2013) against the Review of 2013 EIS conducted by Earth Systems (June 2013);
2. Determine if the findings were addressed;
3. Assess the suitability and comprehensiveness of the response against each finding identified and recommendations provided by Earth Systems in the Review of the 2013 EIS; and
4. Summarise key findings from this Report.

2.1.1 Literature Review

The following documents were reviewed during the preparation of this Report:

- *Wallarah 2 Coal Project Response to Submissions (2013);*
- *Wallarah 2 Coal Project Residual Matters Report (2013);*
- *Wallarah 2 Coal Project Review of the 2013 EIS (2013);*
- *Wallarah 2 Coal Project Environmental Assessment: Volumes 1 to 6 (2013)* and technical appendices*;*
- *Wallarah 2 Coal Project Environmental Assessment: Volumes 1 to 4 (2010)* and technical appendices*;*
- *Director-General's Environmental Assessment Requirements (January 2012) and Supplement to the Director-General's Requirements (July 2012);*
- All relevant Federal and State legislation, policies and plans; and
- Relevant environmental, sustainability and environmental impact assessment (EIA) standards and best practice guidelines; and

The review considers whether the EIS adequately addresses the relevant provisions of State, Regional and Local policies, plans, standards and guidelines and new or updated regulatory requirements.

3 Review

3.1 Review of RTS

An analysis of the suitability and quality of the proponent's responses to the findings, queries and recommendations identified by Earth Systems in its review of the 2013 EIS are presented in Table 3-1. The review is structured according to the 13 findings highlighted in the Executive Summary and the 12 recommendations provided in the *Review of the 2013* (Earth Systems, 2013).

Table 3-1. Review of WACJV's response to issues identified by Earth Systems in the 2013 EIS.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
Structure and Approach	1	*EIS does not adequately assess construction impacts; in particular related to air quality, water quality and transport.*	**No**, air quality and water quality impacts are further commented on, but the deficiency is not addressed.	Air Quality: *"Section 7.1 of the AQGGA provided detailed dust emission estimates for a construction phase scenario. The estimated dust emissions during construction were found to be significantly lower (approximately 50% lower) than the estimated dust emissions during the operational phase." "Section 8 of the AQGGA demonstrated that the Project will comply with the air quality impact assessment criteria at all locations during the operational phase. Due to the lower emissions during the construction phase, it can be concluded that the construction phase of the Project would also comply with the air quality criteria under all modelled climatic conditions."* Water Quality: *"The water balance model is configured to represent the changing characteristics of the water management system over the 28 year Project life, including the construction period. The construction period represents the first three years of the Project life, which has been simulated in the water balance model."* *"There are predicted to be overflows from the Entrance Dam at the Buttonderry Site during the construction period ranging from 0 ML/year (during an extremely dry year) to approximately 65 ML/year (during an extremely wet year). Since there is no coal handling at the Buttonderry Site, the primary potential pollutant will be suspended sediment. The runoff will be suitable for release after treatment of sediment within the Entrance Dam. The proposed erosion and sediment controls are described in Section 6.3 of the SWIA. There is no coal handling at the Tooheys Road Site during Year 1. Groundwater inflows to the underground commence in Year 2 of the Project,*	Section 3.5.1, 3.3.6, 3.11.7, 3.11.8	The response provides no justification as to why construction impacts were not clearly separated from operations impacts and fails to articulate the extent of construction impacts for most parameters. Air Quality The air quality impact assessment is fundamentally flawed and air quality exceedences are anticipated, thus the assumption that construction impacts are also compliant cannot be justified with certainty. Ambient conditions for PM_{10} often exceed criteria in the region, thus air quality impact criteria during both construction and operations will exceed air quality criteria under certain meteorological conditions. Emission factors for the construction phase were taken from USEPA (1995) and NERDDC (1998). Emission factors for Australia are available from the National Pollutant Inventory (NPI) Emission Estimation Technique Manual for Mining (2012). Water Quality Construction phase impacts are not addressed. The justification in the Response to Submission points to erosion and sediment control planning that relies on the completion of various components of Project construction (e.g. sediment dams). No controls are recommended for minimising erosion and sediment control at the outset of construction and potential impacts from hydrocarbons and other construction phase water quality are not considered, nor are management measures provided.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				corresponding with the construction of the required drift. The volumes of groundwater inflows are shown in Section 5.7 of the SWIA. The WTP will be operating from the end of Year 1 of the Project to treat any groundwater inflows and any rainfall runoff, with excess treated water to be discharged to Wallarah Creek in accordance with the water management strategy and the conditions of an EPL."		
	1	*EIS does not adequately consider closure planning and no assessment of potential closure impacts has been undertaken.*	**No**, a commitment to prepare a closure plan has been made, however, the lack of closure planning within the body of the report leads to uncertainty in the assessment of impacts.	*"Further detail on rehabilitation objectives to ensure a safe, stable and non-polluting final landform will be included in a Rehabilitation and Closure Plan for the Project to be developed in consultation with relevant regulators. It shall include information on relevant domains and discuss final landuse, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring. The timing of the preparation of the plan will be consistent with any conditions of Development Consent."*	Section 3.22	Although it is recognized that WACJV intends to develop a Rehabilitation and Closure Plan, no indication in the response is provided with respect to the an approach to closure planning, impact assessment and post-closure risk mitigation.
	2	*The risk assessment and cost benefit analysis need to be re-rated based on the remaining knowledge gaps and uncertainties and the findings of further recommended studies.*	**No**, the risk assessment and cost benefit analysis has not been re-rated.	*"The BCA of the Project was based on the best available information about the Project, including information from a range of specialist assessments predicting the likely environmental, social and cultural impacts. The Economic Impact Assessment considered reasonable worst-case assumptions for the purposes of the impact assessment including the BCA…This analysis indicated that the results of the BCA were not sensitive to reasonable changes in the assumptions for any of these variables. In particular, significant increases in the values used for impacts of greenhouse gas emissions, agricultural impacts and forestry impacts had little impact on the overall economic desirability of the Project."* *"Chapter 6 of the EIS provides a summary of Appendix F of the EIS which provides a detailed Revised Risk Assessment of the potential known Project risks in accordance with the WACJV Risk Assessment Matrix. The risk assessment was*	Section 3.17.2, 3.27.18	Since submission of the 2013 EIS additional investigations have been undertaken and additional mitigation measures derived (refer to Table 11, Response to Submissions, 2013) which are not captured in the revised risk assessment.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				undertaken in accordance with the DGRs which required they identified the key issues for further assessment."		
	3	*Lack of Environmental Management System or a commitment to develop one.*	**Partially** addressed. A description of Environmental Management System was not provided, however an indication to develop one was included**.**	*"WACJV will develop and implement an Environmental Management System in consultation with the relevant regulators (and the Aboriginal community where relevant) consistent with Section 7 of this EIS to the approval of DP&I which shall comprise (at least)"* 17 strategies / plans.	Section 3.25, Table 11 of Section 4.	The response specifies the intention of WACJV to develop an Environmental Management System while Table 11 outlines the plans and strategies that would form the basis of the EMS.
	4	*Lack of commitment to regular independent environmental audits throughout the project life cycle. However, there is a commitment to develop an Annual Review Report to systematically assess performance and identify areas for improvement.*	**Partially** addressed. A commitment to undergo Independent Environmental Audits is stated, however no indication of regularity or frequency provided.	*"WACJV will commission Independent Environmental Audits in accordance with any conditions of Development Consent."*	Section 3.27.14, Table 11 of Section 4	Response has addressed recommendation to have independent environmental audits conducted, however no further detail is provided regarding the proposed nature of the audit, frequency, etc.
Stakeholder Engagement	5	*2013 EIS does not indicate that WACJV has adequately engaged with the community during the environmental assessment process and consequently limited consultation has been conducted. The EIS does not provide sufficient information on the concerns raised*	**No.** No additional information is provided to determine if stakeholders were adequately engaged or if their concerns were accurately captured and addressed in the EIS.	*"As described in Section 5.3 of the EIS, various methods were employed to engage with the local community including local community meetings, focus groups and telephone surveys, five newsletters, direct correspondence, creation of a community reference group and Project information days."*	Section 3.24.1	Although different methods of engagement were employed as stated in the response, the only examples and evidence provided to substantiate the statement was a newsletter and one example of a residential letter. No meetings minutes or other evidence from meeting are presented. Therefore, it is not possible to determine if stakeholders adequately engaged and if raised concerns were accurately captured and addressed.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		by the community during consultation.				
Water	6	*EIS does not assess impacts on surface water quality or provide potential management and mitigation measures including a contingency plan related to the construction phase.*	**No.** Impacts on surface water quality have not been assessed.	*"There are predicted to be overflows from the Entrance Dam at the Buttonderry Site during the construction period ranging from 0 ML/year (during an extremely dry year) to approximately 65 ML/year (during an extremely wet year). Since there is no coal handling at the Buttonderry Site, the primary potential pollutant will be suspended sediment. The runoff will be suitable for release after treatment of sediment within the Entrance Dam. The proposed erosion and sediment controls are described in Section 6.3 of the SWIA. "* *"As described in Section 5.3.1 of the SWIA, the mine water management system has been designed to ensure that there are no uncontrolled discharges (overflows) from the mine water storages (Portal Dam, Stockpile Dam and Mine Operations Dam) to the receiving environment under all historical climatic conditions."* *"It is possible that an event greater than the design capacity of the mine water storage dams could occur and potentially cause uncontrolled discharges to Wallarah Creek. During such an extreme weather event, it is likely that Wallarah Creek would be in flood and any uncontrolled discharges from the mine water storages would be significantly diluted by flood flows in the receiving water."*	Section 3.3.1, 3.3.6	Although the mine water management system has been designed to ensure no uncontrolled discharges, the RTS admits the possibility of an uncontrolled discharge to occur in an extreme event, however no mitigation measures or contingency are provided. Furthermore, inferring that impacts to Wallarah Creek will be minimised because flood conditions and dilution are assumed to reduce impacts, there is no further investigation to support this assumption. Dilution is also not an adequate means of reducing impact, which depends on the nature of potential contaminants (chemical and physical), etc.
Water	7	*No assessment of potential acid and metalliferous drainage (AMD)*	**No.** No assessment of AMD has been conducted.	*"The Newcastle Coal Measures are not associated with marine incursions. As a result the coal seams and the surrounding sediments do not contain significant concentrations of sulphide minerals. Sulphur content of Newcastle Coal Measure coals is significantly lower than sulphur levels recorded in Greta coals. Analysed values are typically less than 0.3%. There are no recorded events of AMD issues associated with*	Section 3.23.3	The 2013 EIS Appendix C Geology Report or RTS do not indicate that a geochemical analysis was undertaken to test for AMD, rather a desktop analysis was relied upon. However, the Soils and Land Capability Impact Assessment (EIS 2013) found the *"potential of acid sulphate soils (ASS) and potential acid sulphate soils*

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				contamination of water which has emanated from mines operating in the Newcastle Coal Measures."		*(PASS) to occur in the south of the Project Boundary along the lower reaches of the Jilliby Creek and Little Jilliby Creek, and along the unnamed waterway adjacent to western boundary of the Buttonderry Site"* (page 8). Furthermore, the report states that *"any activities in sections of the Project Boundary within or close to these areas (e.g. construction and final rehabilitation of the Buttonderry Sites…800 meters from an area with a potential for ASS and PASS to be present) should take into account the potential presence of ASS and PASS and ensure such soils are appropriately assessed and managed."* (page 8, EIS 2013). ASS are soils that typically contain significant concentrations of pyrite. When exposed to oxygen coupled with sufficient moisture, they oxidise and result in sulphuric acid generation.
Water	8	*Lack of immediate downstream sampling point of proposed Wallarah Creek tributary discharge site.*	**No.** A WTP monitoring point will be located at the release point; however this will not provide baseline data for basis of comparison.	*"Section 6.4 of the SWIA details the existing and proposed surface water monitoring program for the Project. Table 6.3 in the SWIA shows that the [Water Treatment Point] WTP monitoring point will be located at the release point from the WTP. The existing Wallarah Creek surface water monitoring locations W6 and W12 are located on Wallarah Creek downstream and upstream of the discharge location respectively and will continue to be utilised during operations."*	Section 3.3.3	Although the WTP monitoring point will be located at the release point from the WTP as part of the monitoring program, baseline conditions at the discharge point have not been captured and therefore will not provide a baseline comparison of impacts including cumulative impacts. Furthermore, no indication is provided of when the WTP release sampling point will be installed. If it is installed after Project activities commence (e.g. construction, operations) begin, it will not be possible to distinguish between existing baseline conditions (prior to project activities and potential Project impacts/influences) and Project impacts.
Water	9	*Lack of contingency for potential overflow of untreated mine water from the Mine Operations Dam (MOD).*	**No.** No contingency plan is provided.	*"The mine water management system has been designed to ensure that there are no uncontrolled discharges (overflows) from the mine water storages (Portal Dam, Stockpile Dam and Mine Operations Dam) to the receiving environment under all historical climatic conditions…The discharge of untreated mine water is not part of the water management system*	Section 3.3.1	Response does not directly address concerns regarding potential overflow of the MOD specifically, such as reference to a design criteria of MOD and mitigation measures to prevent overflow. Although the mine water management system has been designed to ensure no uncontrolled discharges, the RTS admits the possibility of an uncontrolled

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				design for the Project. As mentioned above, the mine water management system has been designed to avoid uncontrolled discharges to the receiving environment from mine water storages for all historical climatic conditions." *"Detailed design of mine water dams will be undertaken in the detailed design stage of the Project, following the granting of the relevant approvals."*		discharge to occur in an extreme event, however no mitigation measures are provided and no contingency plan proposed. Furthermore, the detailed design of mine water dams should be undertaken in conjunction with the EIS and finalized before obtaining environmental approvals in order to adequately categorize residual impacts following mitigation measures considered in the design criteria.
Water	10	*Insufficient groundwater parameters measured during baseline (i.e. only pH, conductivity and TDS were measured).*	**No.** There is no justification or indication for the limited parameters measured.	*"It is acknowledged that baseline groundwater monitoring was fragmented, with water level, salinity and pH being monitored from 1999 to 2001 at many of the piezometers installed in the alluvial lands. Subsequently, access to these piezometers was not possible. However, it is important to note that the available data supports a quasi-steady state system for the important alluvial lands aquifer where the water table fluctuates over a predictable range in response to rainfall. Ionic speciation was also conducted on water samples collected on at least five occasions during 1998-1999…groundwater quality is not predicted to change as a result of the Project."*	Section 3.2.5	The response does not state a rationale for only conducting a limited range of parameters and does not indicate an intention to implement a more comprehensive monitoring program. Furthermore, it indicates that data collected from relevant piezometers was only over a course of 2 years collected more than 10 years ago. As a result referenced parameters may not adequately represent current groundwater properties in the Project Area.
Water	11	*Limited groundwater mitigation measures presented requiring better articulation of groundwater quality mitigation.*	**No.** No groundwater mitigation measures developed.	*"…Should future (rigorous) monitoring of the aquifer system identify a deterioration in water quality that can be attributed to the Project, mitigation measures may include localised rerouting of rainfall runoff to enhance aquifer recharge or changes to the mine plan. Measures to mitigate impacts on groundwater quality will be detailed in the Water Management Plan."*	Section 3.2.5	The response does not substantially elaborate on mitigation measures for potential groundwater impacts due to the expected changes in the groundwater system. Furthermore, no details of the future (rigorous) monitoring are provided in the response to assess the comprehensiveness and adequacy of the monitoring program and its ability to capture potential impacts and resulting mitigation measures.
Water	12	*EPBC Act 'Water Trigger' Amendment (2013) has not been*	**Yes.** The RTS indicates a pending decision regarding application of the	*"The EPBC Act Water Trigger Amendment 2013 was passed by parliament on 19 June 2013. The Minister has 60 days from the commencement of the Bill to decide whether the Project requires approval in*	Section 3.28.6	60 days from June 19 is August 17. It would be expected that a decision would have been made prior to submission of the RTS, however this is not

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		considered.	water trigger to the Project.	*relation to the new water trigger. In its submission, SEWPaC indicated that a decision on whether the water trigger applies to the Project was still pending."*		discussed in the RTS.
Air Quality	13	*The methodology for air quality impact assessment was not undertaken in a manner consistent with applicable legislation (DECC, 2005). Detailed modelling includes only Project emissions rather than Project emissions with baseline conditions. This provides a misleading assessment of likely dust levels that will be experienced by surrounding communities.* *Construction impacts and impacts associated with certain climatic conditions are not clearly outlined.*	No. The assertion that the modelling was conducted according to guideline is not accurate, therefore the fundamental issue was not addressed.	*"The AQGGA was completed in accordance with the Approved Methods for Modelling and Assessment of Air Pollutants in NSW (DECC, 2005) (the Approved Methods). The submission from EPA confirmed that the air quality assessment was conducted in accordance with the Approved Methods. The Approved Methods is not legislation but rather a guideline for the completion of air quality assessments in NSW. "*	Section 3.5.2	The Approved Methods for Modelling and Assessment of Air Pollutants in NSW (DECC, 2005) "lists the statutory methods for modelling and assessing emissions of air pollutants from stationary sources in the state. It is referred to in Part 4: Emission of Air Impurities from Activities and Plant in the Protection of the Environment Operations (Clean Air) Regulation 2002 (the 'Regulation'). Industry has an obligation to ensure compliance with the requirements specified in the Regulation." The modelling for predicted impacts (Sections 8.1 – 8.7 of the EIS) and associated contour plots consider emissions from Project-related operations alone (with exception of the abbreviated cumulative impact assessment discussed below). Predicted impacts from the Project must be summed with respective background concentrations to determine total impact for each parameter and averaging period. Instead, the impact assessment compares predicted emissions from Project operations alone against the impact criteria, giving the impression that concentrations of applicable parameters will be compliant with impact criteria. As ambient conditions exceed guidelines on occasion, exceedences will occur, which will be exacerbated with Project emissions. Maximum daily PM_{10} used a Monte Carlo statistical simulation to randomly select values, rather than use maximum available PM_{10}. While there may be merit in using a statistical approach, *The Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DECC, 2005) specifies the use of maximum measured volumes in cases where measurements were not taken often enough to

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
						include them in the model, and advises consulting Air Technical Advisory Services Unit of the DECC otherwise. A cumulative impact assessment should capture total impacts (background concentration summed with predicted Project-related inputs) combined with anticipated future development. The cumulative impact assessment does not adequately consider the combined effects of Project emissions, future development (e.g. Warnerville Town Centre construction) and ambient conditions
Air Quality	14	*Predicted Project-related emission concentrations from dispersion modelling assume Project implementation of best practices. These estimates are only relevant provided these controls are implemented. It is unclear whether the EIS commits the Project to these management and mitigation measures.*	**No.** No clear explanation provided.	*"WACJV has committed to the implementation of all best practice dust management measures outlined in the AQGGA. Full details of dust management measures will be provided in an Air Quality Management Plan (AQMP), which the proponent will prepare in accordance with the conditions of the development consent for the Project. The AQMP will describe all best practice dust control and monitoring measures to be implemented, including the measures required by the EPA. All measures will be quantifiable, auditable, measurable and enforceable. The AQMP will include Key Performance Indicators (KPIs) for determining compliance with the plan and conditions of development consent. Although considered an unlikely occurrence due to the anticipated high moisture content of the Project's resource, should spontaneous combustion be determined to be a risk in the future, it shall be considered in the AQMP with relevant management and mitigation measures incorporated to the approval of relevant regulators."* *"As outlined in Section 11.3 of the AQGGA, the existing monitoring network will be updated or augmented with a number of continuous PM_{10} / $PM_{2.5}$ monitoring instruments. These will provide near real-time data on dust levels in the local community. Full details and locations of monitors will be outlined in the*	Section 3.5.5, 3.5.6	The proponent has committed to developing an Air Quality Management Plan (AQMP). The AQMP has not been included in the EIS. The future AQMP will provide an (undisclosed) number of PM_{10}/$PM_{2.5}$ particulate monitors. There is no commitment for ambient air gases or odour monitoring from the potentially odorous ventilation stack. It is accepted that the rail corridor is used by all train movements, though a monitor between the corridor receptors and site may prove beneficial.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				AQMP." *"Continuous monitoring stations are not intended to be established along the rail corridor as suggested in some submissions. Such monitoring is not considered necessary since recent studies have determined that fugitive emissions are not a significant concern. In any event, dust levels within the rail corridor are the result of all train movements. Should it be required it would therefore be more appropriate for monitoring to be undertaken by the appropriate rail authority or government agencies, rather than an individual rail transport customer"*		
Greenhouse Gas	15	*Greenhouse gas emission mitigation strategies are very brief and do not demonstrate a sufficient level of commitment by the Proponent to reduce emissions and does not adequately address the terms listed in the Director-General's Environmental Assessment Requirements and the Supplementary Director-General's Requirements.*	**Partial.** Commitments not thoroughly described.	*"Greenhouse gas mitigation measures are outlined in Section 10.6 of the AQGGA. Additional detail on GHG mitigation measures will be provided in the AQMP, which would be required as a condition of development consent. As stated in Section 7.6.4 of the EIS, WACJV will also develop an Energy and Greenhouse Strategy within 2 years of the commencement of longwall mining.* *Although the submission notes that the list of mitigation measures is brief, the proposed mitigation measures are significant in terms of GHG savings. For example, the proposed methane capture and utilisation has the potential to achieve a GHG reduction of more than 50% through flaring; with additional reductions achieved through the beneficial re-use of methane for on-site power generation (if feasible)."*	Section 3.6.4	A commitment has been shown to provide Greenhouse Gas mitigation measures in a future Air Quality Management Plan (AQMP). An AQMP has not been included as part of the EIS. WACJV should clarify the wording/timing of the Energy and Greenhouse Strategy, as to whether "within" refers to 2 years prior to or after commencement of longwall mining. And the timing of anticipated greenhouse mitigation measures contained within the Strategy.
Noise and Vibration	16	*It is unclear whether the control measures identified in the Noise and Vibration specialist study are Project commitments or*	**Partially** addressed.	"The Noise and Vibration Impact Assessment (Appendix N of the EIS) for the proposed development predicts that there will be no change in the LAmax noise level and only a marginal change in the LAeq, 24Hr noise level in the vicinity of the rail line. Using the guidance provided in the 'WHO Methodological	Section 3.8.1	The Noise study noted that coal maybe transported by road when regular train freight is not available. This represents a potential "worst-case" emission scenario for both noise impacts and air quality impacts to the community

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		recommended best practices. The results of noise modelling are only valid if the recommended attenuation measures are committed to and implemented.		Guidance for estimating the burden of disease from environmental noise' (WHO, 2012) this marginal change will result in less than a 1% increase in sleep disturbance of the population in the immediate vicinity of the rail line." "Section 7.8.3 of the EIS identifies that noise modelling for a peak annual production output of 5 Mtpa shows that the additional rail traffic noise will marginally increase (1-2 dBA) the existing LA rail traffic noise levels on the Main Northern Rail Line. With respect to the LAmaxeq, 24 hour noise levels, the Project is not expected to increase the existing levels. The OEH LA60 dBA criteria is shown to be satisfied at approximately 70 m from the rail line. As Blue Haven is greater than 500 m from the rail loop / rail li ne junction, the OEH criteria is met."		
Noise and Vibration	17	*While noise modelling indicates that construction and operational noise will not be a major issue for the Project, modelling predicted that there may be some exceedences of Project Specific Noise Criteria (PSNC). Additional mitigation measures are not identified to prevent these exceedences.*	**No.** Predicted exceedences not addressed.	*"As described in Section 7.8.3 of the EIS, the Project Specific Noise Criteria (PSNC) are not predicted to be exceeded at any privately owned residences during construction and operations. Mitigation measures are outlined in Section 7.8.4 of the EIS."*	Section 3.8.1	Mitigation measures specific to the *Project Specific Noise Criteria (PSNC)* are not addressed in the RST and therefore mitigation measures specific to these exceedences are not provided.
Ecology	18	*Although an overall adequate ecological*	**Yes,** Additional flora and aquatic surveys	*"As the majority of the quadrat data provided in the EIS was collected outside of the five year timeframe*	Section 3.9.2,	Surveys for threatened species were not conducted. The Project is assuming that threatened species

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		baseline was provided, it lacks detail in regard to threatened species population distribution and abundance estimates. Ecological surveys should have been conducted over a broader survey area to reflect impacts associated with all project components.	were conducted in 2013. Although sufficiently detailed surveys for threatened species were not conducted for flora and fauna, the Project is assuming their respective occurrence.	*prescribed by regulatory bodies, additional flora surveys were conducted in July 2013….The July 2013 surveys provided a total of 30 additional quadrats."* *"Targeted searches for the aforementioned threatened flora species within the SIL were not considered necessary due to the limited extent of disturbance. Nevertheless, the assessment has adopted a conservative approach by assuming that these threatened flora species have the potential to occur within areas of suitable habitat within the SIL. The areas of potential habitat for threatened fauna that will be cleared, subsided and offsets have been presented in Table 6.2 of the EIA."* *"It was conservatively assumed that threatened frog species occur within the Project Boundary due to the availability of suitable habitat and historical recordings…Further surveys for threatened frog species will be conducted once survey conditions are appropriate to determine areas where threatened frogs are more likely to occur and to fulfil survey effort requirements specified by regulatory agencies."* *"Any threatened species that have been historically recorded within the Project Boundary and surrounding areas were considered as likely to occur. Impacts on potentially occurring species have been assessed as if they were recorded. Potential impacts on recorded and potentially occurring threatened species have been assessed in Section 6.8 of the EIA."*	3.9.3, 3.10	occur within the project area as part of a conservative approach. Additional surveys for threatened species would improve the existing knowledge base of their population and distribution and may lead to discovery of additional species.
Ecology	19	*Offsets required under the EPBC Act for threatened species identified within the Project Boundary were not calculated using the new EPBC Act Policy Guidelines of 2012.*	**Partially** addressed. No calculations of offsets for threatened species were provided in the RST to support the response.	*Since the exhibition of the EIS, further fieldwork has been conducted to assess the proposed Biodiversity Offset Package (BOP) under the new EPBC Act Offsets Policy's Offsets Assessment Guide. In particular, assessments were conducted for the species listed as controlled action' species: namely Charmhaven Apple (Angophora inopina) and Black-eyed Susan (Tetratheca juncea), listed as Vulnerable*	Table 11 of Section 4, Section 3.9.5, 3.9.9	The response does not include the calculations conducted to determine offsets or include details of the Biodiversity Offset Package. As a result it is not possible to determine the accuracy or suitability of methods used in determining offsets.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
				under the EPBC Act; and Spotted-tail Quoll (Dasyurus maculatus) and Giant Barred Frog (Mixophyes iteratus), listed as Endangered under the EPBC Act. *The results of the assessment under the Offsets Assessment Guide were provided to SEWPaC in June 2013. SEWPaC has reviewed this assessment and is satisfied with the adequacy of the proposed BOP for offsetting impacts to Matters of National Environmental Significance (MNES)."* *"Indirect offsetting measures will be required for the Giant Barred Frog. WACJV will provide indirect offsets in the form of funds for research or education programs to meet the 100% offset requirements under the EPBC Act Offsets Policy."* *"The proposed BMP will include measures for rehabilitating degraded areas and revegetating grassland areas back to native vegetation. The offset areas will be conserved in perpetuity and the quality of the native vegetation will be improved through active management. As a result, there will no net loss of biodiversity, which is consistent with the required. Maintain and Improve' principles of the Native Vegetation Act 2003."*		
Traffic and Transport	20	*A Rail Study has been conducted as part of the 2013 EIS to address the gaps in information regarding transport impacts identified in the 2010 EIS. This is a more comprehensive assessment of the transport route of the coal.*	**Yes.**	*"The DGRs relating to impacts of the rail network have been reproduced in the submission from TfNSW. These issues have been addressed in Section 3.12.2 and Section 3.12.3."*	Section 3.12	Additional measures are provided for managing risks related to rail transport. Furthermore, WACJV has committed to develop a Traffic and Transport Management Plan (TTMP) to manage impacts of the Project on the traffic network.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
Visual Amenity	21	*The visual assessment conducted for the Project provides a good site analysis and identification of key viewpoints, assessment of potential visual impacts and recommendations for mitigation measures to minimise impacts of the Project.*	**Yes.**	*"Appendix E of the EIS provides plan and elevation drawings for the relevant infrastructure items. The Visual Impact Assessment considered these drawings in its assessment."*	Section 3.15	No further issues identified in the review of the RTS.
Archaeology and Cultural Heritage	22	*In general, a comprehensive survey and report of the Aboriginal cultural and historic heritage of the areas surveyed within the Project Boundary has been prepared apart from some areas with accessibility restrictions.*	**Yes.**	*"WACJV will continue to consult with the Aboriginal community during the construction and operation of the Project."*	Section 3.13.1	Continual and transparent consultation with Aboriginal communities is paramount in addressing any concerns or potential impacts are covered and should form part of the Stakeholder Engagement Strategy discussed above.
Community Health and Safety	23	*Uncertainties and knowledge gaps identified in Earth Systems review of the 2013 EIS including air and water quality impacts indicate that the assessment of community health and safety impacts and risks and their necessary management and*	**No.** Identified data gaps and uncertainties which have the potential to impact community health and safety have not been adequately addressed in the RTS as referenced throughout this report.	*"Wallarah Creek and Buttonderry Creek are located outside of the Gosford-Wyong Water Supply Scheme catchment and are part of the Tuggerah Lakes Water Source. Therefore there are no potential impacts to the water quality of the Gosford-Wyong Water Supply Scheme due to possible overflows from the mine water management system or the proposed discharges of treated water to Wallarah Creek."* *"Section 7.1 of the AQGGA provided detailed dust emission estimates for a construction phase scenario. The estimated dust emissions during construction were found to be significantly lower (approximately 50% lower) than the estimated dust emissions during*	Section 3.3.6, 3.5.1, 3.5.5	Given the information gaps and recommendations provided in this Report, responses related to community health and safety with respect to water and air quality are not adequately addressed. Comprehensive baselines are required to establish existing water quality, air, and traffic conditions in order to assess potential impacts, develop comprehensive monitoring and management plans.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		mitigation measures are unlikely to be sufficiently comprehensive.		*the operational phase…Due to the lower emissions during the construction phase, it can be concluded that the construction phase of the Project would also comply with the air quality criteria under all modelled climatic conditions."* *"WACJV has committed to the implementation of all best practice dust management measures outlined in the AQGGA. Full details of dust management measures will be provided in an Air Quality Management Plan (AQMP), which the proponent will prepare in accordance with the conditions of the development consent for the Project. The AQMP will describe all best practice dust control and monitoring measures to be implemented, including the measures required by the EPA."*		
Impacts beyond DGRs	24	*Contingency plans for potential disasters, whether naturally occurring or human induced, have not been included in the EIS. This is an oversight.*	**No.** A Disaster Risk Management Plan was not developed.	*"Insufficient detail is provided to ascertain the exact nature of this submission, however it has been assumed here that it refers largely to environmental incidents. Should WACJV be granted Development Consent, that instrument (along with various other post approvals' documentation) will include further risk assessment and subsequent procedural notification requirements for any environmental incidents occurring on site."*	Section 3.27.12	A Disaster Risk Management Plan ensures natural and human-induced emergencies associated with the Project are addressed. This Plan should be inclusive of specific Contingency Plans to manage particular events, including the management / treatment of the Mine Operations Dam (MOD) and spontaneous combustion. Disaster risk management should have been included in the revised risk assessment of the 2013 EIS. The lack of this contingency plan is consistent with the general lack of contingency plans in the RTS.
Impacts beyond DGRs	25	*The Buttonderry Waste Management Facility is mentioned in the EIS in respect to visual amenity, however, the potential environmental risks (gas and leachate leakage) associated with the proximity of this facility to the*	**No.** Inadequate justification provided for disregarding potential environmental risks associated with the proximity of the facility to the Project.	*"The longwall panels in the Extraction Area are located over 1 km from the Buttonderry Waste Management Facility. Each of the Waste Management Facility and the Buttonderry Surface Facilities area are located outside the SIL and as such interactions between the waste site and coal extraction are considered highly unlikely."*	Section 3.27.8	Although the longwall panels are located over 1 km from the waste management facility there may be potential impacts to the facility due to subsidence, loss of geotechnical integrity, etc. Given the socio-economic and environmental significance of the facility to the area, impacts should be assessed and included in the risk assessment.

Findings of EIS Review	Finding number	Earth Systems Finding	Finding Addressed	WACJV Response	WAJCV Reference (Response to Submissions, 2013)	Assessment of Response
		project are not discussed.				
Management and Monitoring	26	*The EIS is not accompanied by management and monitoring plans. It is understood that these have not yet been prepared. Good industry international practice and / or best practice requires an Environmental Management and Monitoring Plan (ESMMP) to be prepared as part of the EIS process.*	**No.** No ESMMP has been developed and a specific timeframe or description of proposed plans part of the EMS not provided.	An Environmental Management Strategy (EMS) and an Environmental Monitoring Plan are included as part of the Environmental Management System to be developed and implemented in the future.	Table 11 of Section 4	An ESMMP type plan was not adopted in the 2013 EIS. The proponent has indicated a plan will be developed in the future. Without a plan to review simultaneously with the EIS it is not possible to ascertain the efficacy of the management strategies to avoid and minimise impacts.

Table 3-2. Review of WACJV's response to recommendations identified by Earth Systems in the 2013 EIS.

Recommendations of 2013 EIS Review	Earth Systems Recommendation	Recommendation Addressed	WACJV Response	WAJCV Reference (Repose to Submissions, 2013)	Assessment of Response
Air quality	*Air quality impacts are assessed utilising relevant methodologies to ensure that detailed impact assessments of project phases are conducted effectively.*	**No.** The assertion that the impact assessment is conducted according to approved methods (DECC, 2005) is inaccurate.	"The AQGGA was completed in accordance with the Approved Methods for Modelling and Assessment of Air Pollutants in NSW (DECC, 2005) (the Approved Methods). The submission from EPA confirmed that the air quality assessment was conducted in accordance with the Approved Methods."'	Section 3.5.1	The impact assessment did not sum the combined effects of Project emissions and ambient conditions (total impact); therefore estimates of exceedences are not valid. The cumulative impacts was not calculated with maximum background concentrations as is required for Level 1 Assessment (DECC, 2005). The cumulative impact assessment does not consider future development in modelling.
Greenhouse gas	*A more realistic assessment of greenhouse gas (GHG) impacts is provided by including Scope 2 and 3 emissions sources in the analysis of the GHG impacts and updating impacts of the Project on anthropogenic global warming*	**Partially** addressed.	"The AQGGA included estimates of Scope 1, 2 and 3 emissions and provided an overview of the potential impacts on the environment. It is impossible to isolate the Project's impacts on climate change at a local level, and the contribution of the Project to global changes in sea levels, acidification, etc. However, as an example, the average annual Scope 1 emissions generated by the Project would represent approximately 0.04% of Australia's annual average commitment under the Kyoto Protocol. The Scope 1 emissions would account for a very small portion of Global Greenhouse Gas (GHG) emissions, given that Australia in total contributes approximately 1.5% of global GHG emissions (ABS, 2010)."	Section 3.6.1	Although the potential Project impacts on climate change at the global level were not provided, an estimation of emissions generated by the Project on the national level were established.
Water quality	*Surface water quality is investigated further to ensure that all sources of contaminants are identified and that*	**No.** Surface water quality was not investigated further	*There are no recorded events of AMD issues associated with contamination of water which has emanated from mines operating in the Newcastle*	Section 3.23.3	The RTS does not provide further consideration to AMD potential as stated above despite occurrence of

	water sources are effectively monitored for changes associated with the Project. *A geochemical assessment for potential AMD / salinity is conducted, including development of contingency plans for the management and treatment of the Mine Operations Dam*	and AMD assessments were not conducted.	*Coal Measures."*		ASS and PASS soils in the vicinity of potential project disturbance areas.
EPBC 'Water Trigger' Amendment (2013)	*The EPBC Act Water Trigger Amendment (2013) is considered by the Proponent.*	**Yes.** The RTS indicates a pending decision regarding application of the water trigger to the Project.	*"The EPBC Act Water Trigger Amendment 2013 was passed by parliament on 19 June 2013. The Minister has 60 days from the commencement of the Bill to decide whether the Project requires approval in relation to the new water trigger. In its submission, SEWPaC indicated that a decision on whether the water trigger applies to the Project was still pending."*	Section 3.28.6	60 days from June 19 is August 17. It would be expected that a decision would have been made prior to submission of the RTS, however this is not discussed in the RTS.
Ecology	*Further detailed surveys for biodiversity are conducted, including extended flora survey to establish a robust flora baseline for the Subsidence Impact Limit.*	**Yes.** Additional flora surveys were conducted in 2013.	*As the majority of the quadrat data provided in the EIS was collected outside of the five year timeframe prescribed by regulatory bodies, additional flora surveys were conducted in July 2013. These surveys were conducted within the infrastructure boundary at the Tooheys Road and Buttonderry Sites, as well as in the proposed Hue Hue and Tooheys Road offset areas. The July 2013 surveys provided a total of 30 additional quadrats."*	Section 3.9.2, 3.9.9	Additional surveys were conducted to better characterize flora, however they were predominantly focused around the proposed locations of surficial disturbance. A survey covering distribution across the Project area would assist in identify potential management measures in response to potential impacts such as subsidence which are independent of predicted surficial disturbance due to surface project infrastructure.
Ecology	*The Biodiversity Offset Strategy for threatened species is revised to ensure it addresses the current Policy and that currently proposed offsets for fauna habitats are reviewed for suitability.*	**Yes.** The Biodiversity offset Package (BOP) was re-assessed.	*" Mitigation measures such as active fauna management and monitoring will be detailed in the BMP. Compensatory measures include the provision of a comprehensive Biodiversity Offset Package (BOP), which will conserve habitat for EECs and threatened species in perpetuity."* *"Since the exhibition of the EIS, further fieldwork has been conducted to assess the proposed* Biodiversity *Offset Package (BOP) under the new EPBC Act*	Section 3.9.2, 3.9.9	Additional surveys were conducted to better characterize flora and fauna distribution as part of the assessment of the proposed Biodiversity Offset Package.

			Offsets Policy's Offsets Assessment Guide." *"Biodiversity Offset Package (BOP) under the new EPBC Act Offsets Policy's Offsets Assessment Guide. In particular, assessments were conducted for the species listed as controlled action' species: namely Charmhaven Apple (Angophora inopina) and Black-eyed Susan (Tetratheca juncea), listed as Vulnerable under the EPBC Act; and Spotted-tail Quoll (Dasyurus maculatus) and Giant Barred Frog (Mixophyes iteratus), listed as Endangered under the EPBC Act."*		
Mine Design and Layout	*Internal haulage routes are confirmed to allow assessment of potential impacts of heavy vehicle movement.*	**No.** No indication provided for the future assessment of heavy vehicle traffic on internal haulage roads.	*" As the Project is proposed to comprise an underground mine, very limited heavy vehicle movements within the mine will occur, primarily in relation to deliveries to site from external roads. Internal roads are shown on Figure 19 and Figure 21 of the EIS for each of the Tooheys Road and Buttonderry sites, respectively."*	Section 3.27.1	Although little heavy vehicle movement is expected on internal roads, it is still necessary to determine potential disturbances or impacts caused by heavy vehicles on local environment (e.g. dust, noise, vibration).
Stakeholder Engagement	*A robust Stakeholder Engagement Plan is developed that is inclusive of commitments to ongoing consultation and a structured grievance procedure*	**No.** The RTS does not indicate a Stakeholder Engagement Plan and grievance procedure are not specified.	*"WACJV has conducted and will continue to conduct a comprehensive stakeholder engagement program throughout the EIS process aimed at maximising the opportunity for community interaction. WACJV will continue to undertake consultation with stakeholders, particularly the consultation commitments made in this RTS."*	Section 3.24	Although the RTS states that WACJV will continue to undertake consultation with stakeholders, it does not specify a strategy, plan of how consultation will be undertaken and does not provide an indication of a grievance mechanism, a best practice approach typical of impact assessments.
Rehabilitation and Closure	*A comprehensive Rehabilitation and Closure Plan is prepared.*	**No.** A Rehabilitation and Closure Plan has not been prepared.	*"Further detail on rehabilitation objectives to ensure a safe, stable and non-polluting final landform will be included in a Rehabilitation and Closure Plan for the Project to be developed in consultation with relevant regulators. It shall include information on relevant domains and discuss final landuse, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring. The timing of the preparation of the plan will be consistent with any conditions of Development Consent."*	Section 3.22	Without developing a Rehabilitation and Closure Plan as part of the EIS, it is difficult to determine how closure and post closure impacts will be mitigated and the nature of residual impacts.
Risk Assessment and Cost Benefit	*The Risk Assessment and Cost Benefit Analysis are reviewed and*	**No**, the risk assessment and cost	*"This analysis indicated that the results of the BCA were not sensitive to reasonable changes in the*	Section 3.17.2,	Since submission of the 2013 EIS additional investigations have been

Analysis	*revised based on detailed findings of further recommended work.*	benefit analysis has not been re-rated.	*assumptions for any of these variables. In particular, significant increases in the values used for impacts of greenhouse gas emissions, agricultural impacts and forestry impacts had little impact on the overall economic desirability of the Project."* *"Chapter 6 of the EIS provides a summary of Appendix F of the EIS which provides a detailed Revised Risk Assessment of the potential known Project risks in accordance with the WACJV Risk Assessment Matrix. The risk assessment was undertaken in accordance with the DGRs which required they identified the key issues for further assessment."*	3.27.18	undertaken and additional mitigation measures derived (refer to Table 11, Response to Submissions, 2013) which are not captured in the revised risk assessment.
Disaster Risk Management	*A Disaster Risk Management Plan is developed to cover natural and human-induced emergencies associated with the Project. This Plan should be inclusive of specific Contingency Plans to manage particular events, including the management / treatment of the Mine Operations Dam (MOD) and spontaneous combustion.*	**No.** A Disaster Risk Management Plan was not developed.	*"Insufficient detail is provided to ascertain the exact nature of this submission, however it has been assumed here that it refers largely to environmental incidents. Should WACJV be granted Development Consent, that instrument (along with various other post approvals' documentation) will include further risk assessment and subsequent procedural notification requirements for any environmental incidents occurring on site.*	Section 3.27.12	The response states that insufficient detail was provided to determine the nature of the recommendation and appears to indicate that an assumption needed to be made that the submission refers to environmental incidents. However, in Section 3.7 of the Earth Systems Review of the 2013 EIS, it states: *"Disaster risk management for naturally occurring or human-induced events have been overlooked in the EIS. These include environmental emergencies such as uncontrolled discharge during high rainfall events, water storage dam wall failure, and bushfires. Other disasters could include those associated with spontaneous combustion or blasting accidents.* *It is recommended that a comprehensive disaster risk management plan is developed, inclusive of detailed contingency plans to manage specific events, such as the development of contingency plan for management /*

					treatment of the Mine Operations Dam (MOD) water that would be required should MOD water levels approach potential uncontrolled discharge stages to prevent untreated water from reaching Wallarah Creek."
Community Health and Safety	*The Community Health and Safety assessment is reviewed and revised based on the findings of the further work recommended.*	**No.** Identified data gaps and uncertainties which have the potential to impact community health and safety have not been adequately addressed in the RTS as referenced throughout this report.	*"Wallarah Creek and Buttonderry Creek are located outside of the Gosford-Wyong Water Supply Scheme catchment and are part of the Tuggerah Lakes Water Source. Therefore there are no potential impacts to the water quality of the Gosford-Wyong Water Supply Scheme due to possible overflows from the mine water management system or the proposed discharges of treated water to Wallarah Creek."* *"Section 7.1 of the AQGGA provided detailed dust emission estimates for a construction phase scenario. The estimated dust emissions during construction were found to be significantly lower (approximately 50% lower) than the estimated dust emissions during the operational phase…Due to the lower emissions during the construction phase, it can be concluded that the construction phase of the Project would also comply with the air quality criteria under all modeled climatic conditions."* *"WACJV has committed to the implementation of all best practice dust management measures outlined in the AQGGA. Full details of dust management measures will be provided in an Air Quality Management Plan (AQMP), which the proponent will prepare in accordance with the conditions of the development consent for the Project. The AQMP will describe all best practice dust control and monitoring measures to be implemented, including the measures required by the EPA."*	Section 3.3.6, 3.5.1, 3.5.5	Given the information gaps and recommendations provided in this Report, responses related to community health and safety with respect to water and air quality are not adequately addressed. Comprehensive baselines are required to establish existing water quality, air, and traffic conditions in order to assess potential impacts, develop comprehensive monitoring and management plans.
Community Health and Safety	*Potential impacts upon the Buttonderry Waste Management Facility associated with the development of the Project are fully*	**No.** Inadequate justification provided for disregarding potential environmental risks	*"The longwall panels in the Extraction Area are located over 1 km from the Buttonderry Waste Management Facility. Each of the Waste Management Facility and the Buttonderry Surface Facilities area are located outside the SIL and as*	Section 3.27.8	Although the lngwall panels are located over 1 km from the waste management facility there may be potential impacts to the facility due to subsidence, loss of geotechnical

	considered.	associated with the proximity of the facility to the Project.	*such interactions between the waste site and coal extraction are considered highly unlikely.*		integrity, etc. Given the socio-economic and environmental significance of the facility to the area, impacts should be assessed and included in the risk assessment. This is a potential oversight.
Management, Monitoring and Reporting	*Management and Monitoring Plans are prepared for each aspect of assessment prior to commencement of the Construction phase to clearly outline how impacts will be mitigated and managed.*	**Partially** addressed. *Management and Monitoring Plans are intended to be develop, no timeline is provided.*	"WACJV will develop and implement an Environmental Management System in consultation with the relevant regulators (and the Aboriginal community where relevant) consistent with Section 7 of the EIS to the approval of DP&I which shall comprise: • Environmental Management Strategy (EMS); • Environmental Monitoring Plan (incorporating subsidence, groundwater, surface water, air quality and noise) • Extraction Plan; • Water Management Plan; • Air Quality Management Plan; • Energy and Greenhouse Strategy; • Noise Management Plan; • Biodiversity Offset Strategy; • Land Clearance Protocol; • Traffic and Transport Management Plan; • Aboriginal Cultural Heritage Management Plan; • Historic Heritage Management Plan; • Soil and Land Capability Procedure (including an Acid Sulphate Soils • Management Procedure); • Land Management Plan;	Section 3..25, Table 11 of Section 4.	It is best practice to include a Environmental Monitoring and Management Plan with the EIS to demonstrate commitment to managing risks and an accountability to stakeholders. It should describe environmental parameter monitoring, implementation, processes and scheduling. Findings from regular monitoring of air and water quality etc. should be provided to interested stakeholders on a regular basis to ensure that transparency.
Management, Monitoring and Reporting	*An independent expert is commissioned by the Proponent to conduct Environmental Audits of the project on a regular basis throughout the project life cycle.*	*An indication to conduct Environmental Audit is also provided.*			
Management, Monitoring and Reporting	*An Environmental Management System based on ISO14001:2004 'Environmental management systems -- Requirements with guidance for use' is developed and implemented for the Project.*	**No.** No reference to ISO14001:2004 given.			

			• Bushfire Management Plan; • Waste Management System; and Landscape Management Plan"		

4 Conclusions

In general, the *Response to Submission* does not adequately address many of the findings highlighted by Earth Systems in its Review of the 2013 ESI. Furthermore, the recommended measures provided in the review were only partially considered in the RTS. As a result, significant data gaps and uncertainties still remain.

As the EIS was not developed according to the standard EIA approach (i.e. baseline determination, impact assessment, management and mitigation measures, residual impacts), it is not possible to determine residual impacts in many instances. Significant data gaps exist in the baseline assessments and impact analyses for various parameters. In most cases, management and mitigation measures refer to development of future management plans. This fundamental flaw in the approach to the EIA allows for significant uncertainty regarding the residual impacts.

5 References

References provided below include guidelines, regulations and best practices relevant to the Wallarah 2 Coal Project and this review.

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DUAP (2000) *Coal Mines and Associated Infrastructure - EIS Guideline.* Department of Urban Affairs and Planning.

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NSW Department of Mineral Resources (2003) *Guidelines for Application for Subsidence Management Approvals.*

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World Bank (2006) *Environmental Impact Assessment Regulations and Strategic Environmental Assessment Requirements: Practices and Lessons Learned in East and Southeast Asia.* Environment and Social Development Department.