



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 A1519354  
Your Ref: 11/18834

**Re: State Significant Development Wallarah 2 Coal Project (SSD 4974) Environmental Impact Statement.**

Dear Mr Preshaw,

Thank you for the opportunity to comment on the Environmental Impact Statement for Wallarah 2 Coal Project. The CMA has concerns about the loss of native vegetation and potential for accelerated erosion of the bed and banks of Jilliby Jilliby Creek and its tributaries as a result of the proposal. Detailed comments on each of these issues are provided below.

**Clearing of Native Vegetation**

The CMA administers the Native Vegetation Act 2003 (NV Act). One of the objects of the NV Act is to 'prevent broadscale clearing unless it improves or maintains environmental outcomes'. In certain circumstances, clearing is permitted without approval such as the clearing associated with prescribed Routine Agricultural Management Activities or native vegetation that has regrown since 1990.

The CMA understands that the NV Act does not apply to this project as Development Consent is being sought under Section 89J, Part 4, Division 4.1 of the Environmental Planning and Assessment Act (1979). However, the CMA expects that the 'improve or maintain' principle of the NV Act is adopted in the assessment of the proposal.

The EIS states that approximately 89 ha of vegetation will be cleared as a result of the project (Volume 1, page 174). In order to offset habitat losses incurred due to the clearing of native vegetation, the project proposes to protect and rehabilitate 261 ha of compensatory habitat. The CMA considers this offset ratio (< 3:1) is inadequate as it does not meet the 'improve or maintain' principle of the NV Act. It should be noted that assessments under the NV Act in similar situations have established offset ratios of between 10:1 and 50:1.

A portion of the proposed area of clearing includes, four Endangered Ecological Communities (EECs) comprising a total area of 12.2 ha. The NV Act precludes the clearing of EECs except those

categorised as in low condition. Given the EECs in the project area have been assessed as being in moderate to good condition, the clearing of this vegetation (12.2 ha) would not be permitted. Notwithstanding this, the CMA considers that compensatory habitat offset ratios should be set at a high level for the loss of EECs i.e. up to 50:1, as determined by a methodology such as applied to Biobanking or the NV Act.

The EIS states that compensatory habitat has been selected due to similar ecological values as areas proposed to be cleared, but will also involve the rehabilitation of degraded land within the offset area. Rehabilitation of degraded land generally does not meet the 'like for like' requirement under the Environmental Outcomes Assessment Methodology (EOAM), the decision support tool used for assessing clearing proposals, and is therefore unlikely to meet the 'improve or maintain' principle of the NV Act. The CMA considers that any offset areas should ensure compensatory habitat meets the 'improve or maintain' principle of the NV Act.

### **Accelerated Erosion**

The CMA is concerned about the potential for the erosion of the bed and banks of Jilliby Jilliby Creek, Little Jilliby Jilliby Creek and its tributaries. Due to predicted subsidence in the lower reaches of the catchment, the alluvial stream is at risk of developing a rapidly migrating knick-point (head – cut), leading to the systemic erosion of the drainage network upstream.

Subsidence modelling in the Wallarah 2 EIS predicts subsidence induced tilt at a maximum of 1.0% along the lower reaches of Jilliby Jilliby Creek. The current bed gradient in the alluvial stream within the mine footprint is 1.3 mm/m, or 0.13%. The increase in bed gradient as a result of subsidence is by more than 7.6 times. This has the potential to induce bed incision in high flows and the formation of a knick-point or series of knick-points that erode rapidly upstream, beyond the footprint of the mine. Established literature provides many examples of measured rates of knick-point migration in alluvial streams caused by a range of factors, including base level change.

Although the EIS considers riverbank and bed instability due to subsidence a likely occurrence, it is predicted to remain localised, despite the lack of natural bed controls in the lower catchment. The EIS also proposes several measures to mitigate damage caused by subsidence, however discussion of these issues is brief and the mitigation measures are inadequate; a response is triggered only after erosion has been observed.

The EIS recommends baseline surveys prior to mining and quarterly field inspections of the river banks and beds with additional inspections following any significant flow event. In neighbouring Wollombi catchment comprising similar geology and bed sediments a knick-point eroded more than 3.5 km of stream channel in a single flood (Erskine, 2008). Some of the resulting environmental impacts included the loss of productive river flats either through the mass wasting of riverbanks or burial of topsoil by overbank sedimentation, the drying alluvial soils and pasture they supported through lowered groundwater tables, the destruction of key habitats both in-stream and within the riparian buffer and a reduction of water quality.

Despite differences in land-use history, climate and the character of riparian vegetation, Wollombi Brook and Jilliby Jilliby Creek share a history of frequent adjustment; both catchments flow through

sandy alluvium and display geomorphology consistent with ongoing and potentially rapid channel change. As a consequence, the risk of significant erosion of Jilliby Jiliby Creek and its tributaries before any bed control measures are emplaced needs to be quantified, and effective preventive measures need to be accurately determined.

Thorough bank stability geotechnical modelling and baseline surveys are required to identify areas at greatest risk of incision. Following this, the location of likely affected sub catchments needs to be mapped and volumes of sediment available for erosion calculated. This is needed in order to determine overall risk, potential consequences and to accurately calculate budgets and resources required for preventative works and remediation strategies.

The extensive drainage network flowing into Tuggerah Lakes has received high levels of investment from a range of sources for works to improve riparian and lake health, in-stream biodiversity and to guarantee the delivery of clean drinking water to residents of the Central Coast. Most recently, \$20 million from the Commonwealth Government's Caring for Our Country initiative was allocated to Wyong Shire Council to undertake activities leading to improvements in water quality in Tuggerah Lakes. Strategic direction for the project was provided by the Tuggerah Lakes Estuary Management Plan (2006) which listed actions to reduce the impact of accelerated erosion on water quality as a priority area for investment. As a project partner, the CMA in turn partnered with local landholders to successfully deliver \$500,000 to priority on-ground works. It is of vital importance that subsidence related erosion poses no threat to these investments or compromises water quality improvements achieved through the implementation of this project.

If you require any further information or to discuss these issues further, please don't hesitate to contact David Green, Catchment Coordinator Central Coast on 4352 5114 or by email on [david.green@cma.nsw.gov.au](mailto:david.green@cma.nsw.gov.au)



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