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NSW Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attention: Robert Byrne

Dear Robert

**RE: REVIEW OF WATER CYCLE MANAGEMENT REPORT ADDENDUM; MIXED USE
SUBDIVISION, WEST CULBURRA (SSD 3846) (REPORT P1203365JC49V01)**

Thank you for inviting BMT WBM to review the above document. I have reviewed the section in the document that relates to receiving water quality modelling, and outcomes are provided below. I will be happy to discuss these outcomes with the Department if required.

Yours Faithfully
BMT WBM



Dr Michael Barry

The first review of the consultant's receiving water modelling work was provided by BMT WBM in November 2014. Since that time, BMT WBM has provided ongoing advice to improve the model construction and calibration. BMT WBM has now been invited to review a report entitled *Water Cycle Management Report Addendum; Mixed Use Subdivision, West Culburra* (SSD 3846) (June 08 2017, report P1203365JC49V01). This report describes stormwater modelling associated with a proposed change to the site's concept plan. The corresponding receiving water quality modelling is not described.

As per BMT WBM's review of 5th and 8th of May 2017, the matter of key significance in this latest modelling report remains the reliance placed on the efficacy and reliability of the landside stormwater treatment measures in protecting the receiving waterway. In essence, this reliance means that the environmental performance of the proposed development still hinges on the robustness of the proposed landside stormwater treatment devices, and the veracity of assumptions made with regard to concept plan alterations.

This being the case, it means that the rigour applied to the design of the landside stormwater treatment devices is critical, and must be of the highest order – any shortcomings in their design would have the potential to result in adverse estuarine impacts. As such, Mr Tony Weber of Alluvium has been commissioned by the Department to review the details of the revised concept design, the design of the revised landside stormwater treatment devices, and the rigour of the supporting modelling assessments of these devices.

Amongst other matters, Mr Weber's review letter of 19th July 2017 raises concerns relating to the lack of detail provided around the proposed stormwater treatment train design, and the way it has been modelled by the consultants. Mr Weber also points to the lack of clarity around the proposed concept plan changes, and how this makes it difficult to properly assess whether the proposed solution is sound.

These concerns are again sufficient to raise considerable uncertainty for this reviewer with regard to impact predictions made as part of the project's receiving water assessment. Further, the consultant has not simulated the latest proposed solution in the receiving model. Rather, the consultant has made qualitative assessments of the likely outcomes, based on previous modelling predictions. This is unusual and not consistent with best practise.

Without resolution of Mr Weber's concerns, and a subsequent proper reassessment of impacts on receiving waters using the receiving water quality model, the water quality impact of the proposal on the Crookhaven estuary is unable to be meaningfully determined.