6.14 Engagement of Consultancy Services for Additional Morphodynamic Modelling for Tuggerah Lakes, The Entrance

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SUMMARY

This report provides options for Council regarding the engagement of a consultant to undertake additional morphodynamic modelling works at The Entrance channel. The report follows on from recommendations made by the Tuggerah Lakes Estuary and Coastal Floodplain Management Committee.

RECOMMENDATION

1 That Council receive the report on the Engagement of Consultancy Services for Additional Morphodynamic Modelling of Tuggerah Lakes, The Entrance.

2 That Council request the General Manager to engage a consultant to conduct additional morphodynamic modelling of Tuggerah Lakes, The Entrance.

BACKGROUND

At the 5 June 2014 meeting of the Tuggerah Lakes Estuary, Coastal and Floodplain Management Committee (TLECFMC) it was resolved:

> *"RESOLVED unanimously on the motion of Councillor TAYLOR and seconded by Mr K DERRY:*
>
> *1 That the Committee receive the report on Lake Management Operations.*
>
> *2 That the Committee request Council write to Cardno to request that a fee for service proposal be put forward to undertake additional modelling at The Entrance channel where the depth of the channel is increased by the removal of the rock sill."*

This decision was in response to questions raised by the community, Council staff, and committee members that this issue (i.e. consideration of deepening the channel) was not duly considered as part of the State Government commissioned study, completed by Cardno Pty Ltd, into the benefits of training walls at The Entrance Channel.

The community and Councillors echoed these sentiments during the recent B Ward community forum where the consultant, Cardno Pty Ltd, confirmed during question time that the matter had not been investigated as it did not form part of their brief as issued by the NSW State Government.

At low tide, a rock shelf in The Entrance channel is clearly evident, with the outgoing water sometimes cascading over it (depending on channel alignment at the time). The entry channel depth is approximately only 0.3m, and is virtually un-navigable, except by vessels such as jet skis and kayaks. At high tide, the rock shelf at the entrance is not evident due to the depth being approximately 1.0 to 1.5m.

Given the detailed work already completed to date as part of the State Government commissioned study, it was considered that this additional scope of work could be completed at minimal cost by a consultant whom can access and run the model. The NSW Office of Environment and Heritage, whom managed the contract on behalf of the NSW State Government, have advised that they have no proposal at this time to extend the scope of the previous studies.

At the 3 July 2014 meeting of the TLECFMC, the committee considered the pricing received by 3 companies to complete the modelling work and accordingly resolved:

> *"RESOLVED unanimously on the motion of Councillor TAYLOR and seconded by Councillor TROY:*
>
> *1 That the Committee receive the report on Coastal Zone Management.*
>
> *2 That the Committee recommend to Council to proceed with obtaining this modelling."*

CURRENT STATUS

Quotations have been sought from Cardno Pty Ltd, GHD Pty Ltd, and Aurecon Australia Pty Ltd to provide a proposal to undertake the additional morphodynamic modelling work for several scenarios of increased water depth in line with the resolution of the TLECFMC. The consultant would have full access to the detailed model previously developed by Cardno and then simply run the new scenarios.

Staff requested quotes to include six different simulation cases comprising:

- a fully trained entrance (150m wide channel at Mean Sea Level); and water depths of 2m, 3.5m and 5m at mean low water level (three cases)
- no training walls; and water depths of 2m, 3.5m and 5m at mean low water level (three cases)

The water depth of 2m, 3.5m and 5m simulate the removal of the rock shelf to levels of -1.85m, -3.35, -4.85m (AHD) respectively.

Each simulation would include waves, tides, winds and catchment flows over periods of about three months.

The intention is to investigate the extent of typical channel infill (i.e. changes in depth) between dredging campaigns, how much sediment might need to be removed and how much more frequently the channel might need to be dredged. The results of the engagement are also required to provide advice on other impacts to the estuary including flooding, lake levels and water quality as a result of the six different scenarios.

All proposals meet the brief and range in pricing from $16,000 - $34,700.

Staff are awaiting Council's resolution prior to proceeding further.

THE PROPOSAL

This report seeks Council's endorsement to engage a consultant to run some additional scenarios using the model already developed as part of the NSW State Government commissioned Tuggerah Lakes – The Entrance Morphodynamic Modelling. The report will consider the impact of deepening the channel with and without the construction of training walls.

OPTIONS

Option 1 – Engage consultant to undertake modelling and prepare a report as described in the proposal.

Council would be in an improved position to answer enquiries in relation to the perceived navigational benefits of the removal of part of the rock shelf and could use this information to future management decisions in Tuggerah Lakes, The Entrance.

Option 2 – Do not complete the additional modelling

Council accepts that the completion of any additional modelling work is the responsibility of the NSW State Government. At this time the NSW Government has no proposal to complete this work.

STRATEGIC LINKS

Contribution of Proposal to the Principal Activity

The proposal aligns with the objectives of Principal Activity 2 – Community Recreation (PA2) and Principal Activity 6 – Environment and Land Use (PA6).

PA2 includes provision for the maintenance of natural areas and open spaces such as beaches, lake foreshores and parks. The proposal will provide further insight as to how deepening of The Entrance channel is likely to affect the estuary's foreshores. Many members of the community believe it will enhance the exchange of water between the lake and ocean and flush out and clean the lakes which will enhance these foreshore areas if successful.

PA6 includes provision for focussing on waterway improvements. The proposal will meet these objectives by demonstrating whether a deepening of the channel will 'clean' the lakes as described previously against PA2, and also potentially allow greater navigability of the channel for small vessels if the model proves successful and a channel deepening program is implemented.

Long term Financial Strategy

One of the general objectives of the Long Term Financial Strategy (LTFS) is to ensure finance based decision making is sound. Construction of training walls for The Entrance Channel have been estimated to cost in excess of $47 million to build and would require funding from across various levels of government.

Given the cost, it would be prudent to ensure that if the project was ever to proceed, that the investment will achieve the outcomes expected. With this in mind, $16K represents a sound investment to inform this decision (0.03% of projected capital spend). Further, the study should confirm or otherwise whether it is possible to achieve improvements for minimal outlay relative to the cost of constructing break walls.

Asset Management Strategy

Similar to the LTFS, a potential significant investment in training walls is expected to also attract significant ongoing maintenance costs. The study will provide additional information to guide future decision making.

Workforce Management Strategy

The proposal is not expected to impact on the workforce management strategy.

Link to Community Strategic Plan (2030)

The approach of the community agenda 2015/16 includes factors such as delivering waterways improvement and increasing the utilisation of these iconic natural features by the community. This modelling may offer greater insight as to whether deepening of the Entrance Channel (with and without training walls) will benefit the quality of water in the lake and encourage greater community use.

Budget Impact

Funding for the project will be sourced from the Waterways and Asset Management approved 2014/15 operating budget.

CONSULTATION

Discussion on the benefits of undertaking the scope of works as an extension to modelling work already completed by the NSW State Government were held at the 5 June 2014 meeting of the TLCFMC. Proposals were discussed at the 3 July 2014 meeting of the TLCFMC and the recommendation made that Council proceed with the engagement.

GOVERNANCE AND POLICY IMPLICATIONS

There are no governance or policy implications arising from the recommendation.

MATERIAL RISKS AND ISSUES

There are no material risks and issues identified as part of the proposed engagement.

CONCLUSION

It is recommended that Council engage a consultant to utilise the recently developed morphodynamic model for the Tuggerah Lakes to undertake additional modelling work to independently assess the impacts of a deepening of the rock shelf at the mouth of The Entrance.

Proceeding to undertake this modelling will hopefully put to rest much of the debate regarding the feasibility and benefits of installing training walls and/or removing sections of the rock shelf and guide sound future management decisions.

ATTACHMENTS

Nil.