STAFF REPORT

TO: Community Services Committee

FROM: Stephen Richards, Reserves Officer
Eric Verstappen, Resource Scientist - Rivers & Coast

DATE: 13 May 2009

SUBJECT: McKee Recreation Reserve Coastal Erosion

INTRODUCTION

The purpose of this report is to provide Council with a recommendation resulting from the site meeting held on 16 March with members of the Community Services Committee and council staff.

BACKGROUND

From early in 2007 high tide storm events have been eroding away the foreshore towards the western end of the reserve. Initially erosion events were minor, removing small amounts of gravels and steeping the profile of the beach, but more recently (during 2008) the erosion has been occurring with increasing frequency and severity.

On 16 March members of the Community Services Committee met on site with Eric Verstappen to assess the erosion and discuss options

DISCUSSION

Following on from our recent site visit and discussion, I recommend the following actions be taken with respect to the twin “hazards” of erosion that is occurring on the shoreline and the increasing risk of seawater flooding into the lower lying land of the reserve and campground:

(i) Erosion

The erosion rate along the McKee Domain foreshore is generally very low over the longer term, with infrequent periodic storm attack causing the formation of an erosion scarp. The most cost – effective way of dealing with this is simply to

allow it to happen, as at least partial recovery will occur through deposition on the temporarily degraded beach slope. There are no significant assets at risk from erosion that cannot be readily relocated a little landward, or require significant expenditure on foreshore protection works (such as rock revetments). In a similar vein, beach nourishment is neither necessary, nor a cost effective technique on this shoreline.

The most cost effective response to erosion on this shoreline is to set infrastructure a modest distance back from the head of the beach and allow the erosion process, low as it is, to continue. There is considerable room within the reserve to accommodate such a response, and most if not all of the developments on the reserve are presently sufficiently well set back to not be of concern, or are readily moved (playground equipment, for example)

(ii) **Seawater inundation**

Most of the reserve is very low lying and would be susceptible to seawater inundation, if it were not for the fact that a beach ridge (natural as well as man-made) exists around the coastal margin of the reserve. This bund effectively protects seawater overtopping into the reserve, except in the coincidence of storm and spring tides. Recent storm episodes have eroded into this bund in places, and in other have removed this protection altogether. Inundation protection can be returned to the reserve by rebuilding a bund defence using compacted Moutere clay, as in the past.

Where the former bund protection has been totally eroded, reconstruct a bund wall landward of the erosion scarp, with the toe of the bund either sloping down to the top of a regraded back beach face, or landward of this point. The vertical erosion scarp should first be graded back to a slope of around 3H:1V, and the bund built behind that. It should have a top height either to existing bund height or to around RL4.50m, and a crest width of a minimum 3m (the wider the better), depending on material availability.

Where some bund still exists along the head of the beach, the rear of the existing bund should be built up to prevailing bund height (or to around RL 4.5m) and have a 3m minimum top width. In addition, the bund strengthening works should fall behind the reshaped face of the back of the beach, so that the vertical escarpment is removed by being graded to around 3H:1V.

In both cases, the bund protection can be sited further back from the top of the beach edge, to suit existing planting. Setting the bund works a little back from the head of the beach will ensure inundation protection endures a while longer, as the rate of erosion retreat along this shoreline is relatively low in the long term.

RECOMMENDATION

That Community Services Committee accept Eric Verstappen's recommendations to create a clay bund along the foreshore to act as a strengthened buffer against high tide storm events and reduce the risk of flooding into McKee Recreation Reserve.

Stephen Richards, Reserves Officer
Eric Verstappen, Resource Scientist - Rivers & Coast
g:\tara\agendas\community services\2009\may\rcs090521 report mckee recreation reserve.doc