

COASTAL EROSION & FLOODING IN HAWKES BAY

An apparent sudden increase in erosion along the East coast of New Zealand has focused attention on several areas in Hawkes Bay where houses and holiday baches are being threatened.

Since 1970, annual heavy sea swells in the May to August period have battered the coastline at what appears to be an increasing intensity. The observation is supported by wave height measurements by the Napier Harbour Board which show that storms in 1970, 1971, 1972 and 1974 produced increasingly larger waves.

Areas where coastal erosion has become a serious problem include Kairakau - 200 m, Waimarama - 700 m, Clifton to Awatoto - 11 km and Westshore to Bay View - 7 km.

Although there would appear to be little doubt that the recent series of storms have increased the rate of coastal erosion, records would indicate that the erosion has been happening at a steady rate over the past 40 years, as evidence of land surveys and aerial photographs show. Erosion of up to 50 m is evident at East Road, Haumoana, and near the Hastings City sewer outfall. At East Road a coastal subdivision appears to have been well conceived in that it provided for a coastal reserve, and public road to seaward of housing sections, but today, 40 years after the subdivision, the reserve and road have gone and half the housing sections also. This is the area depicted by the photographs.

At Waimarama a subdivision in the mid 1960's provided a 20 m to 30 m wide esplanade reserve on the seaward side of housing sections. This has now been reduced to 4 m to 10 m wide and erosion is rapidly reducing the buffer zone even further.

The situation at East Road had become very serious by 1973 when two houses were under direct attack from waves. Although the practicability of providing effective protection seemed remote, a preliminary estimate was prepared based on the use of groynes. The estimate was \$140,000 to \$220,000 to protect 300 m of coastline on which stands some 20 houses. Another estimate based on experience in Queensland was that protection using parallel rock walls would cost \$.6M to \$1.2M per kilometre.

The very high cost coupled with the uncertainty of the efficacy of the work, and of its possible bad effects down drift in the littoral zone, ruled out any attempt at promoting such works. Instead the Board adopted a policy of encouraging home owners in the danger zones to move their homes to new sites away from the coast. As a result, one good quality two storied house has been moved, but the majority would not accept defeat at the hands of the sea without a fight and they set about private works with rails and tyres to build a protective wall. Two lengths were built, one at East Road and one at Te Awanga. At East Road

erosion continued at a similar rate to that before the work, but at Te Awanga the erosion stopped as a build up of material started. The 'do it yourselves" naturally take considerable satisfaction from their apparent success but it would appear that the construction of their work coincided with a local 'wave' in the littoral material reaching that part of the beach.

At Waimarama the situation is different, in that the beach is sand and is backed by sand dune country. Further the 700 metre length suffering severe erosion at present is flanked by two reefs one of which, together with off-shore Bare Island, provides a degree of shelter from the ocean swell. This natural shelter plus the shallow sloping beach profile off-shore limit the size of wave which can arrive on the beach, and all these factors plus the close proximity of limestone rock have encouraged a look at the feasibility of protecting the area. Costs estimated at approximately \$3,000 per 20 metre wide section based on substantial rock rip rap, place protection works for this beach in a category where further detailed consideration is justified, and is being continued.

A recent planning matter referred to the Board by the Hawke's Bay County, highlights the bold stance which must be taken if we are to learn from past mistakes in our coastal planning. A subdivision plan containing some 70 residential sections was under consideration. The land being subdivided is situated near East Road and its nearest proximity to the coast is 200 feet. Between the land and the sea are the main county road to Clifton and the house sections which are at present under attack from the sea. When these sections were subdivided some 40 years ago they were 120 feet from the coast but after that short space of time are now at the mercy of the sea.

One might well ask how far back from the coast is far enough.

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