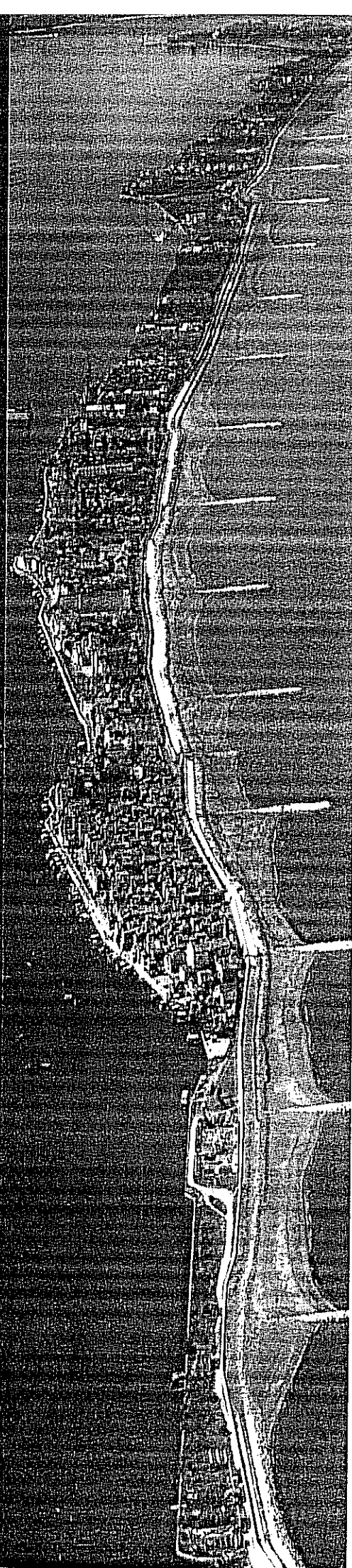
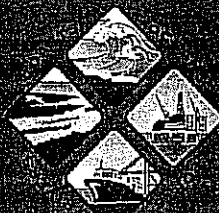
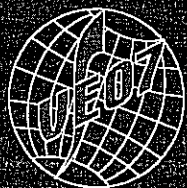


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STILLING WAVE BASIN TO SOLVE LOCAL OVERTOPPING PROBLEM IN THE OOSTENDE PROJECT

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ABSTRACT

In Oostende (Belgium) a multifunctional project is designed to solve two main problems: coastal protection and harbour access. Firstly, with regard to coastal protection: it is decided that the city of Oostende should be protected against a storm with return period 1000 year which is characterized by $SWL = TAW + 7.25$ m, $H_s = 5.22$ m, $T_p = 12.0$ s. The actual seadike with crest level at $TAW + 9.60$ is clearly too low (see Fig. 1). Secondly, the access to the harbour will be ameliorated. The actual access channel, which is situated between two curved jetties and groins, will be straightened and turned to the east. Two breakwaters will be built to protect the access channel. Within this protected area, the wave attack at a specific dike location, called Zeeheldenplein, is still rather high. Too high calculated wave overtopping discharges are a consequence of this. At this location, so close to the harbour access channel, sandfill cannot be placed. Moreover, due to the houses and apartments on the dike and the related visual implications, the dike can not be heightened either.

The problem will be solved by the construction of a so-called Stilling Wave Basin (SWB) (Geeraerts et al., 2006) in front of the actual seadike. Such basin keeps the crest level of the dike unchanged but provides a mean to dissipate wave energy. The waves are directed upwards by a first (seaward) vertical wall after which they drop dead in the basin which is separated from the actual dike by a second (landward) vertical wall. Thorough scale model testing has demonstrated that the wave overtopping will be restricted to acceptable limits.

The paper will describe the design conditions, scale model test results and finally the design of the SWB to be realized in the near future (scheduled to start in 2007).



Figure 1 - Wave overtopping at Oostende seadike.

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- Geeraerts, J., De Rouck, J., Beels, C., Gysens, S. (2006). Reduction of wave overtopping at seadikes – Stilling Wave Basin. *Proceedings 30th International Conference on Coastal Engineering, San Diego, USA*, in press.