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creating an artificial island ~ philipsdam

'HOLLAND' DREDGING COMPANY B.V. - Netherlands

P.O. Box 508 - Hardinxveld
Tel.: 01846 - 2444
Telex: 24795

'HOLLAND' DREDGING COMPANY (U.K.) LTD.

13 Ailesbury Way
Burbage, Wilts.
Tel.: 0672 - 810649
Telex: 449765



creating an artificial island ~ philippsdam



First phase of a secondary dam in the Delta Works.

Client Rijkswaterstaat, Deltadienst, Den Haag

Main Contractor 'Holland' Dredging Company B.V., Netherlands
P.O. Box 508 - Hardinxveld

Photographs Aerocamera Bart Hofmeester, Rotterdam
F. J. Blankers, Middelharnis
H. J. Stuvet, Voorburg

The Philipsdam - between Sint Philipsland and the Grevelingendam is one of the two secondary dams which are to be built in the Eastern Schelde Region. The two secondary dams (the other dam - the so called Oesterdam is to be constructed in the eastern part of the Eastern Schelde along the Schelde-Rhine canal) are necessary to eliminate the effects of the tide from the Schelde-Rhine canal connection, the region of the eastern part of the Eastern Schelde will then change to a freshwater region, and those, will reduce the dimensions of the final enclosure dam in the mouth of the Eastern Schelde. Finalisation of the construction of these two dams in 1985 in conjunction with the main closure of the Eastern Schelde is essential to ensure that the compartimentation is to function on time. The locks in Philipsdam must be operational in 1983, these works being built in conjunction with the closing of the Kramer.

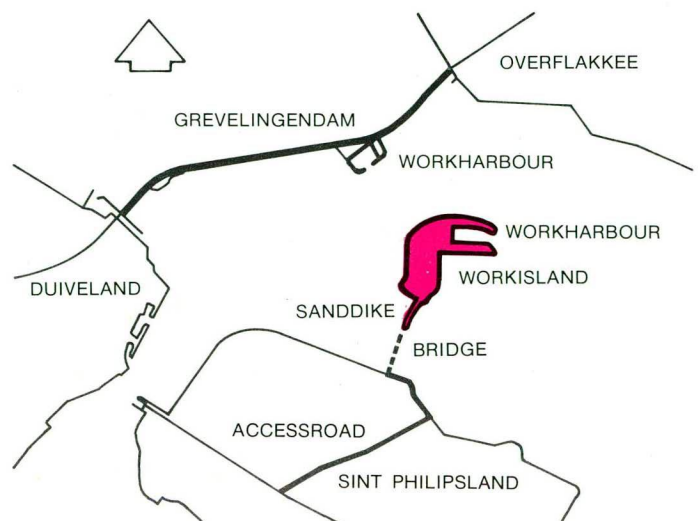




Photo left:
Workharbour at Grevelingendam under
construction.
Photo below:
Artificial island under construction (April 1977).

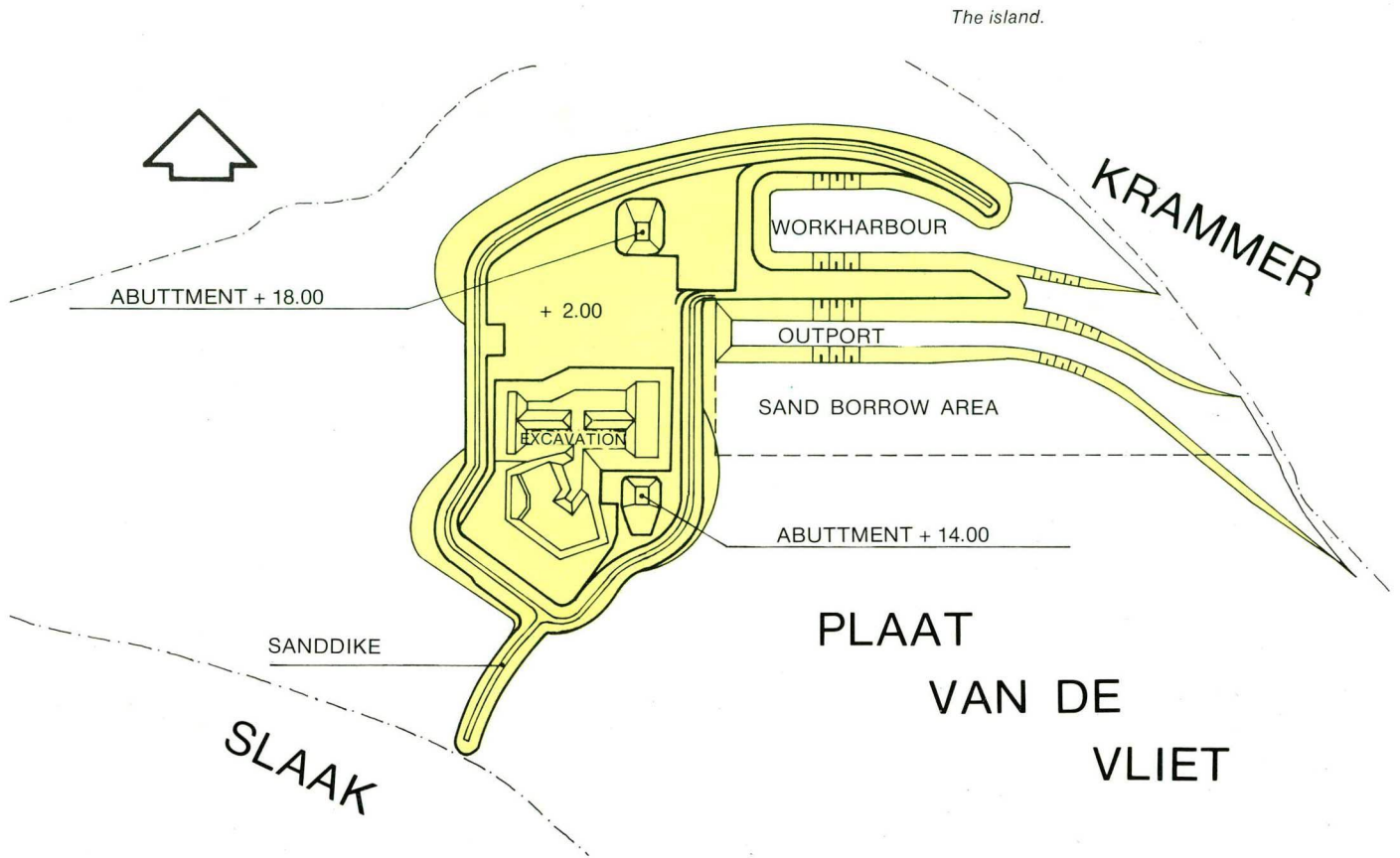
Because of the tight time schedule until 1983, 'Holland' B.V. started in February 1977 to create an artificial island of 1000 x 550 m. on the Plaat van de Vliet, a tidal sandbank between the current streams the Krammer and the Slaak.

The dimensions of the island are determined by the ultimate position of the locks.

The complex in the first instance will contain two push-boat locks (24 x 280 m) and a lock for pleasure craft (9 x 75 m), it is also born in mind that the island is large enough to accommodate a third push-boat lock and a second pleasure craft lock. For the workboats and the handling of materials, two work harbours are to specially built on each side of the Krammer, one on the north side of the island, three sides of which are construction areas with a total surface area of 14 hectares, the other working harbour at the Grevelingendam with on the north side an area of 2 hectares. The enable lorries to reach the artificial island, on the south side a dike of some 400 metres long, will be constructed, together with a temporary bridge over the Slaak.

For the connection from Sint Philipsland in





June 1977 'Holland' B.V. started the construction of an access road to the temporary bridge, this work consist of widening the existing single-track way and the construction of about 1 kilometre of new access road on both sides of the spring tide embankment of the Anna Jacoba-polder.

With the construction of new access roads the existing high water embankment will be enlarged and brought up to Delta standards. The excavation in the artificial island will be about 480 m. long and 280 m. wide, shape and dimensions are determined by the sizes of the push-boats locks, bridges and

tubes for the de-salination system. The excavation being mainly a wet exercise, will be performed by the cutter suction dredger 'Noord Brabant'. For stability purpose, in 1978 after de-watering and in dry conditions, profiling of the slopes and bottom will be carried out. The bridge over the locks will be over 700 m. long. With the creation of the island, on the location of the proposed bridge abutments, two mounds of sand, with heights respectively of N.A.P. + 14 and N.A.P. + 18 metres will be placed, in order to compact the sub-soil. The relatively small excavation required for the pleasure craft lock will be done in dry conditions. The island work harbour is so situated that

in future it will be the out-harbour for pleasure craft. The length of the work harbour is 500 m. and width 170 m., the bottom being - 7 N.A.P. On the south side of the work harbour is an area of 6 hectare, designated for construction plant, concrete batching plant etc. At the north side 2,5 hectares are reserved for the storage of concrete blocks, which are necessary for the final construction stage, and for the construction of the cablecar, to be used in placing the concrete blocks, 50% of the blocks required for the closure of the Philipsdam will be stored on the island, and the remaining 50% will be stored at the work harbour at Grevelingendam.

Cutterdredger 'Zuiderklip'.



Closure of the ringdike at August 1977.





The island at Juli 1977.

On the island, roads will be built for the construction traffic, the width of the roads varies from 3,5 m. on the inside of the ringdike and 5,50 to 6 meter around the excavation and work area. The height of the ringdike around the excavation varies from + 5,50 N.A.P. on the east side to + 7,50 N.A.P. on the west side. The area around the excavation will be built up to + 2 N.A.P.

Because of the tight schedule - 1st. March 1978, both harbours and excavation must be completed, for the execution of the works, two cutter suction dredgers are used namely: 'Zuiderklip' (total HP 2800) and the 'Noord Brabant' (total HP 1750). Both dredgers reclaim the sand required for the island, total quantity needed is 4.100.000 m³. The sand is won from the work harbour and the future easterly outport of the locks. The choice of the former two dredgers

proved right, as on the 9th August 1977, the ringdike was closed, 4 weeks ahead of schedule.

The harbour moles are constructed from sand contained between colliery waste (stone + slate) formed bunds also colliery waste, transported by ship from Germany, is used under the protection of the dike enclosing the excavation. These protections are of temporary nature, most of the material to be reclaimed later for possible further use.

Underwater slopes of the dikes are protected with a filter fabric reed mattress, with fascin poles, on top of which is placed 600 kg. per square metre of stone. The toe of the slope construction consist of a line of treated wooden stakes. The slope above the toe is 1 : 3 and is protected by 50-70 cms. of colliery waste, on top of which are placed concrete blocks 50 x 50 cms. with thickness varying between

15-25 cms. Above the protection the sand core is covered with a layer of clay, 80 cms. thick on the outside of the dike, and 60 cms. on the inside.

The working harbour along the Grevelingendam is 350 x 150 m. with the bottom — 7 N.A.P. During the construction of the harbour some 200.000 m³ of soil is to be removed, because this soil is unsuitable for construction of the storage area at the north side of the working harbour, this soil was dumped to sea.

For the construction of the work harbour the bucket dredger 'Holland XIX' (bucket capacity 600 litres) was used, while the sand for the reclamation of the work area and both harbour moles was won using the suction dredger 'Holland VI' and reclaimed by the barge unloading dredger 'Holland XXIV'. The required quantity of sand has been won from the easterly outport of the future locks.

