



Maasvlakte 2 on schedule

Flying over the Maasvlakte 2 project in the Port of Rotterdam, the Netherlands, the massive scale of the project is now clearly visible as dredgers have almost completed their mission to reclaim land from the sea. World Port Development reports...

According to the Rotterdam Port Authority the Maasvlakte2 project is right-on-time and the emphasis of the work is currently on the construction of the hard sea defences, the construction of the quays for the first container terminals and the preparations for the construction of infrastructure, such as roads, railway lines and cables and pipelines. The first 40m of the new block dam that will protect Maasvlakte 2 from the onslaught of the waves are now in place. Three weeks ago, a special crane - the "Blockbuster" - started work on this breakwater, which will be built in the sea 50m off the coast. The block dam should be completed by the beginning of next year. Then, 20,000 concrete blocks from the old block dam of the Maasvlakte will have been moved to their new position. Construction work on the quay wall is also on schedule. The Rotterdam World Gateway (RWG) deep-sea quay and barge/feeder quay will be completed this year. A lot of work is also going into the quays for the new terminal of APM Terminals. For the hard sea defences, PUMA, in collaboration with the Port of Rotterdam Authority, has made an innovative design, which consists of a stony dune and a block dam. The core of the stony dune is made up of sand, covered on the outside with a thick layer of fist-size rubble, the so-called "cobblestones". The stony dune will have a height of NAP (Amsterdam Ordnance Datum) +14m. The design for the hard sea

defences was optimised during the past few years, and tested exhaustively using scale models. The hard sea defences of Maasvlakte 2 were designed in such a way that they can withstand the type of storm that occurs once every 10,000 years. On the sea-side of the stony dune, a block dam with a height of around 3m above NAP will be built in the sea. This block dam will ensure that the waves break, so that they hit the stony dune behind with less force. Thanks to this structure, a sort of lagoon will be formed behind the block dam, providing opportunities for unique flora and fauna.

Hard sea defences

The building of these hard sea defences will begin with the construction of the underwater slope. Trailing hopper suction dredgers will bring in sand for this. Then, a temporary track will be laid using cobbles, with larger rubble and concrete blocks for protection. The "Blockbuster" will perform its unique work from the temporary track. This crane was specially designed for the construction of the block dam. From the temporary track, the "Blockbuster" will position the concrete blocks in the sea. After the blocks have been positioned under and above the water, the temporary track will be demolished. The stone that is made available will be used for the construction of the stony dune, among other things. The construction of the hard sea defences will require some 6.5 million tonnes of rubble and around 20,000 concrete blocks. The concrete blocks and 1.5 million tonnes of stone will be recycled from the old block dam and sea defences of the Maasvlakte. Five million tonnes of rubble will be brought in from Norway and Germany by ship. The great

majority of this, about 4 million tonnes, is so-called 'cobblestones'. Most of the stone is already in stock, so that it can be put to use quickly.

Precision positioning

For positioning the concrete blocks, each weighing some 40 tonnes, PUMA designed the "Blockbuster". Thanks to the crane, it is possible to work from the shore, so that PUMA is less dependent on the weather when executing the work. The special crane has a unique positioning system, by means of which the blocks can be positioned both under and above water to an accuracy of 15 centimeters. This precision is necessary if the tested design is to be built accurately. The crane itself weighs around 1200 tonnes, has a counterweight of 360 tonnes and moves on three double sets of caterpillar treads.

RWG quay wall

In January 2010, a start was made on the construction of the quays for the Rotterdam World Gateway (RWG) container terminal. This summer, work on the first 500m of the total 1250m of deep-sea quay will have been completed. The majority of the fenders and bollards are already in place and the land behind the quay is currently being raised. A crane with a sand pump dredges wet sand from the harbour and applies it behind the quay. This technique produces an extremely dense surface, on which the concrete base for the crane track can be cast. The concrete construction for RWG's 600m barge/feeder quay is already complete. This quay can be delivered after the summer. At the same time [January 2011], a start was made on the construction of the quay walls for the container terminal of APM Terminals. Here, 1000m of deep-sea quay and 500m of barge/feeder quay will be built. Delivery of the sites to both clients is on schedule. To guarantee the connection of Maasvlakte 2 to the existing port area, various modifications to the infrastructure are at either the execution or preparatory phase. For instance, the first viaduct over the new access road to Maasvlakte 2 (extended N15) will be completed at the end of this year. Around this time too, the tendering procedure will commence for work on the planned modernisation of the Europaweg/Coloradoweg junction, the most important traffic junction for both the existing Maasvlakte and Maasvlakte 2. The construction of the extended Betuweroute to Maasvlakte 2 and various changes to and connections of existing rail lines will also be implemented this year and in 2012. [\[1\]](#)