Boskalis
Dredging & Marine Experts

PROJECT SHEET

A1/A6 ROAD ENLARGEMENT, NETHERLANDS

WIDENING / MOVING OF THE DIEMEN - ALMERE MOTORWAY

INTRODUCTION

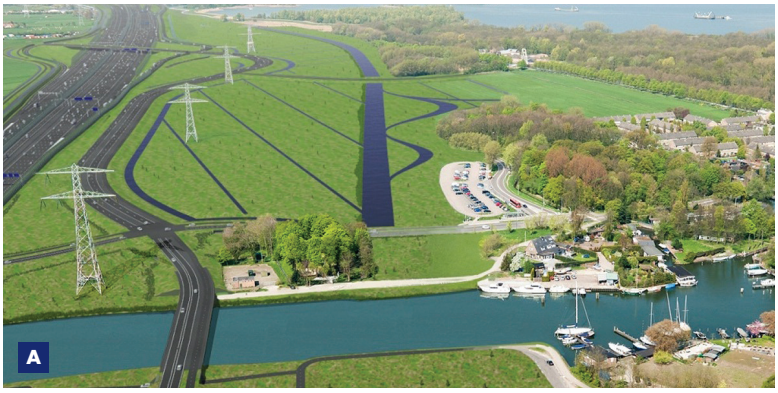
The A1/A6 project is one of the five sub-projects for Rijkswaterstaat that are included in the upgrading of the road network linking Schiphol Airport, Amsterdam, and Almere (SAA). The total length of the SAA link is 40 kilometers. Boskalis, together with partners VolkerWessels and Hochtief, is responsible for the section from the Diemen intersection to Almere, a distance of approximately 23 kilometers. Minister Schultz van Haegen (of Infrastructure and the Environment) gave the green light in December 2013, bringing to an end a long period of preparations and signaling the start of the project.

THE WORK

The enlargement of the A1/A6 involves the reconstruction and widening of this section of the motorway. The A1 and the A6 between the Diemen intersection and the Hollandse Brug will become a road with 2x5 lanes. The A6 from the Hollandse Brug to the Hoge Ring near Almere will be 4x2 lanes. Reversible lanes will also be built on the entire A1/A6 section. The enlargement of the A1/A6 will also involve the construction of a permanent bypass at the Diemen intersection from the A9 to the A1. SAAone will build a total of 70 new engineering structures, including the cantilever bridge

FEATURES

Client	Rijkswaterstaat (Dutch Directorate General for Public Works and Water Management)
Location	Diemen - Almere Havendreef
Period	December 2013 to mid-2017 (followed by maintenance contract for 25 years)
Contractor	SAAone consortium (Boskalis, Volker-Wessels, Hochtief and DIF)
Type of contract	DBFM (Design, Build, Finance, Maintain)



A Artist's impression of A1 after reconstruction, with road bridge and local bridge.
B Artist's impression of the future A1 exit with the new railway bridge.

crossing the Amsterdam-Rhine Canal, the doubling of the Hollandse Brug bridge across the Gooimeer and the new aqueduct near Muiden as the most eye-catching features. The aqueduct that takes the River Vecht across fourteen lanes is the widest in Europe. After the completion of the construction stage in mid-2017, SAAone will maintain the work for 25 years.

TYPE OF CONTRACT

This is the first DBFM (Design, Build, Finance, Maintain) contract in the SAA program. The contract sum is more than EUR 1 billion, and the Boskalis share is 30%. The project includes the design, the execution and the financing, as well as the management and maintenance for a period of 25 years of the new and existing infrastructure. The magazine Project Finance International declared the project the 'European Road Deal of the Year 2013'. The jury of international experts in project financing said they were impressed by, among other things, how fast financing was arranged.

SPEED

The fact that SAAone is responsible for the financing means that the interest costs for the project increase the longer the work lasts. So minimizing the construction time was the key to success. The leading factors here were the speed of the sand deliveries and the reduction of settlement times. Drawing on our sound geo-engineering expertise, Boskalis was able to produce a balanced design that complied with the time limits for construction. Sand deliveries for the project achieved a record of 150,000 - 200,000 m³ a week.

SAND DELIVERIES

More than nine million cubic meters of sand are needed and it comes mainly from the IJsselmeer / Markermeer area. Roughly half will be taken to the project area by truck from five discharge locations. The earth-pumping unit Rhenus will deliver the other half through a pipeline that crosses the A1. A special gantry was produced for the crossing and it was installed in mid-January 2014. To complete that operation safely, the A1 was closed for quarter of an hour at night. The gantry consists of two sections: one measuring 50 meters and one measuring 25 meters. It will be needed for approximately 14 months. Although Boskalis often uses gantry structures like this, this project requires a special, extra heavy-duty design. A total of 4.5 million cubic meters of sand will be pumped through this pipeline and every million cubic meters produces a millimeter of wear.

CHALLENGES

One of the challenges is the fact that a part of the route crosses one of the most difficult subsurfaces in the Netherlands. Between Muiden and Weesp, the subsurface consists of a weak peat layer six meters thick. Boskalis is delivering and installing the vertical drainage needed to accelerate settlement. Geotextile is being applied to safeguard the stability of the fill.

QUANTITIES

Length:	23 kilometers
Sand deliveries:	9,000,000 m³ (delivered at a record speed of 100,000 m³ a week)
Number of engineering structures:	70, including a 65-meter-wide bridge

C To transport the sand to the right location, a pipeline crosses the A1 motorway. A special gantry, which was installed in mid-January 2014, was produced for the crossing.

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