

# DETAILED MODELLING BRIENENOORD ISLAND

## Hydrodynamical effect study and morphological analysis

The municipality of Rotterdam will (further) develop parts of Brienoord Island as a nature reserve on behalf of Rijkswaterstaat and has asked Svašek Hydraulics to provide insight into the effects of this on navigability and dredging issues. The interventions concern the shallowing of part of the north bank of waterway south of the island (Zuiddiepje), the redesign of the western area between the breakwaters, the modification of the creek area under and next to the Brienoord Bridge, and the construction of a dam on the east side of the island.

This study involves a combination of model simulations, data analysis and expert judgment of the morphological development in Zuiddiepje.

The hydrodynamic effect study was set-up using FINEL, nested in the TriWAQ OSR model. Since all flow processes relevant here have a two-dimensional character, it has been decided to set up the FINEL detailed model in a 2D mode (depth averaged). The hydrodynamic results have been used, among other things, for nautical analysis for the benefit of shipping.

The flow results have been translated into sediment transport potential. Together with a thorough study of historical soundings and dredging volumes, an expert judgment was made regarding the expected morphological effects of the intervention in Zuiddiepje.

The Municipality of Rotterdam has used the results in the design process of the area and coordinating that process with various stakeholders. This ultimately leads to an increase of tidal nature and an attractive, lively, and accessible landscape for the city of Rotterdam.

### CLIENT

Municipality of Rotterdam  
on behalf of Rijkswaterstaat

### LOCATION

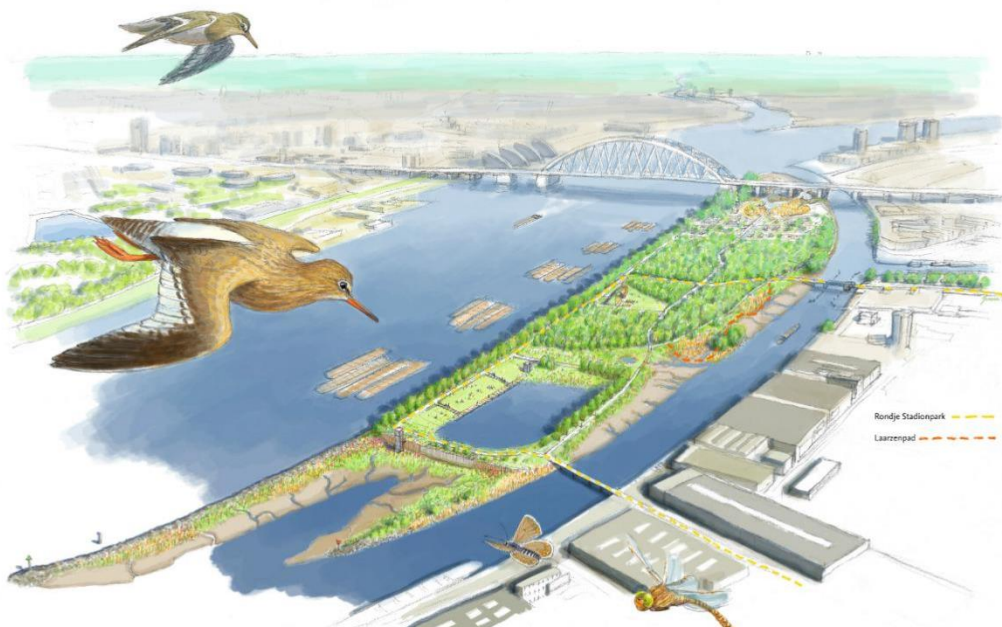
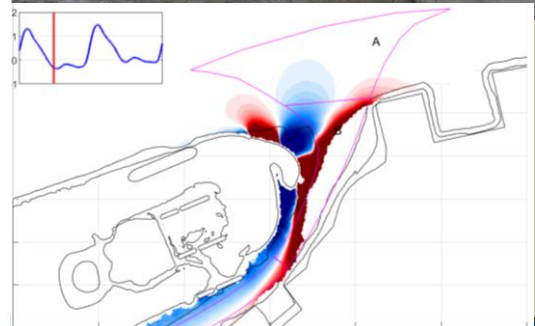
Nieuwe Maas/Zuiddiepje

### DATE

2019

### SERVICES

Detailed hydrodynamical modelling  
Desk study morphology  
Effect study on interventions



# SVASEK HYDRAULICS

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