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INTERREG EU PROJECT FAIR

RENEWING SEA DIKE MIDDELKERKE
Technical design

Masterplan coastal safety

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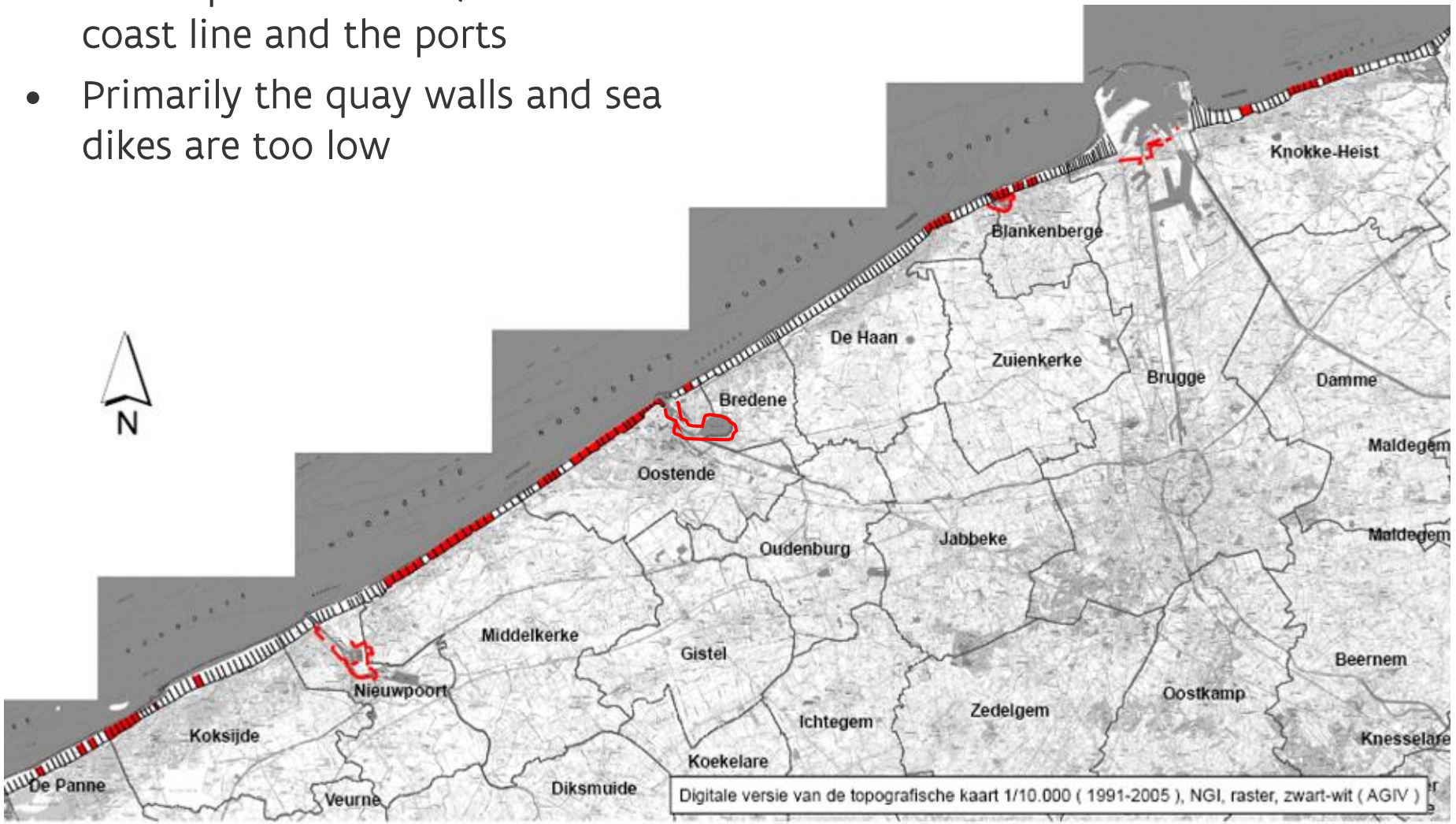
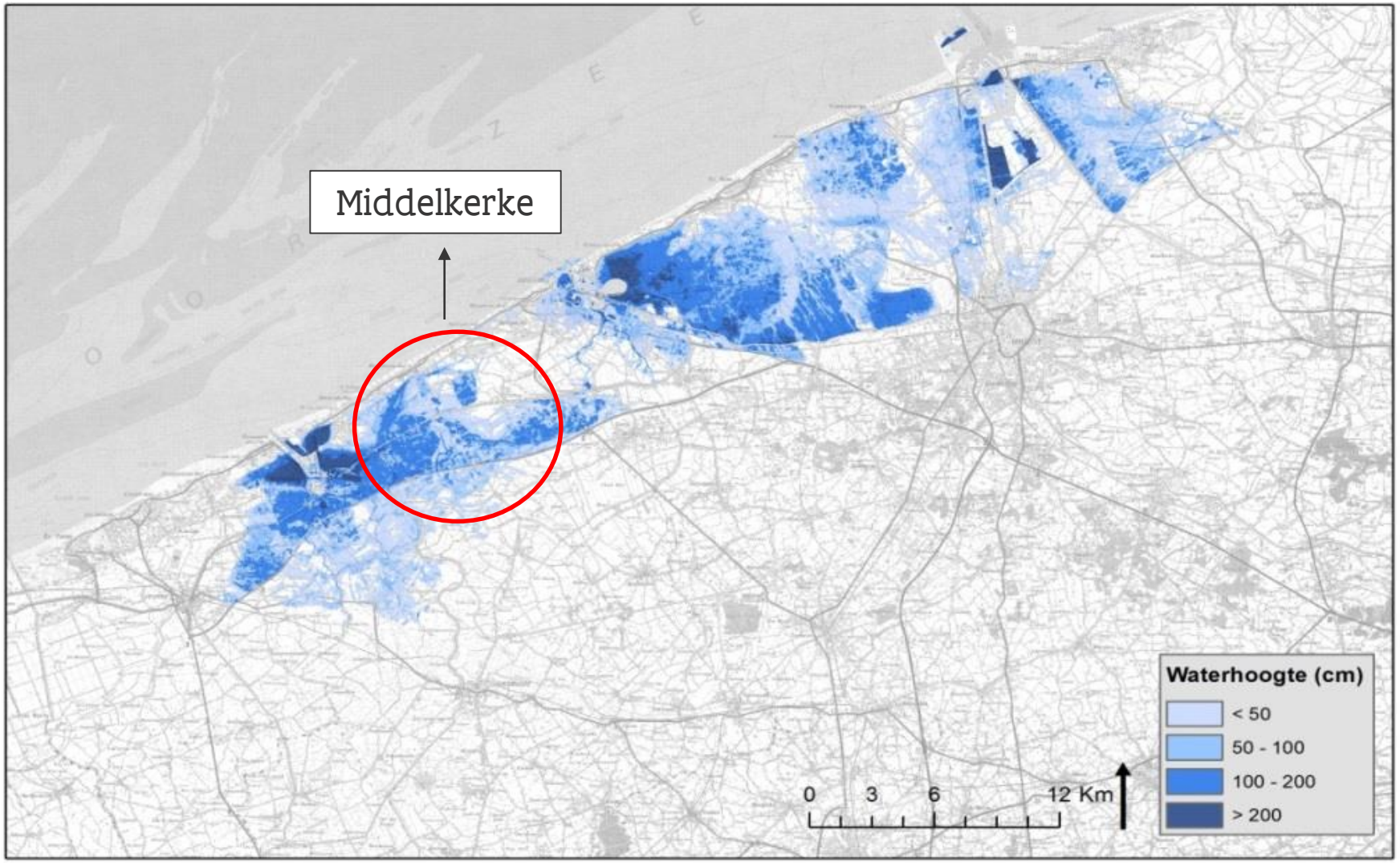
System analysis 2007-2008

- Weak spots (T1000): 1/3 of the coast line and the ports
- Primarily the quay walls and sea dikes are too low



Floodchart – T1000 (situation 2011)



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Masterplan Coastal Safety - Middelkerke

- Middelkerke has to be protected against the impact of a 1000 - year storm
- Include climate change until 2070
- The overtopping over the sea wall cannot be more than 1 l/m/s

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Design proces

1) Boundary conditions
2) Beach erosion
3) Wave transformation
4) Estimate overtopping over the sea wall
5) Estimate forces on the sea wall

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Boundary conditions

	2020	2070
H_{m0}	4,82 m	4,95 m
T_p	11,2 s	11,4 s
SWL	+7,00 mTAW	+7,32 mTAW

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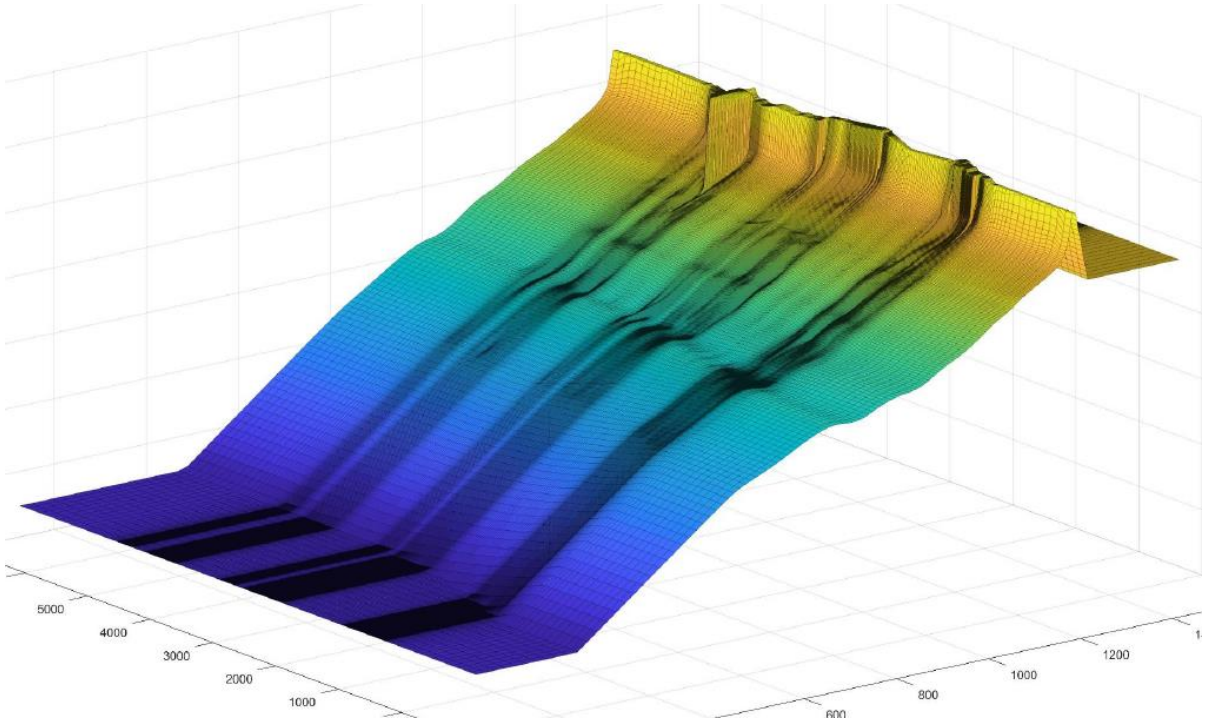
Design proces: beach erosion

Numerical model XBEACH



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Design proces: wave transformation

SWASH 2D: wave transformation between -5 mTAW-line en the toe of the dike

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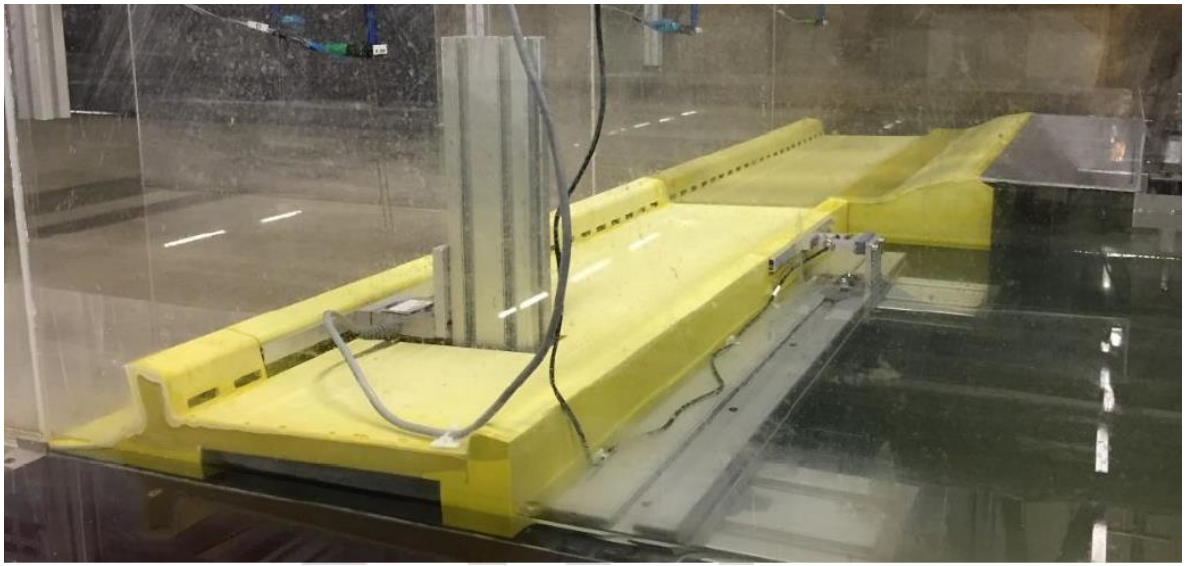
Design proces: overtopping and forces

The overtopping over the sea wall and the forces acting on the sea wall are estimated with physical model testing



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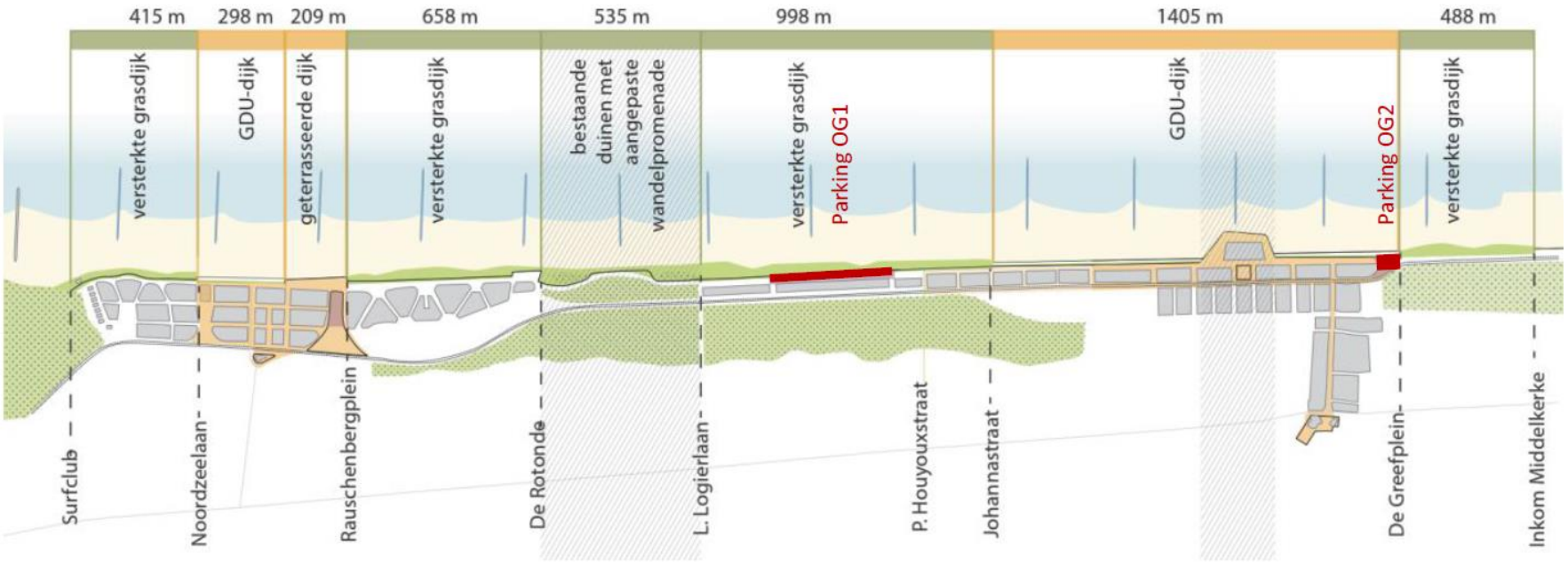
Overview project area



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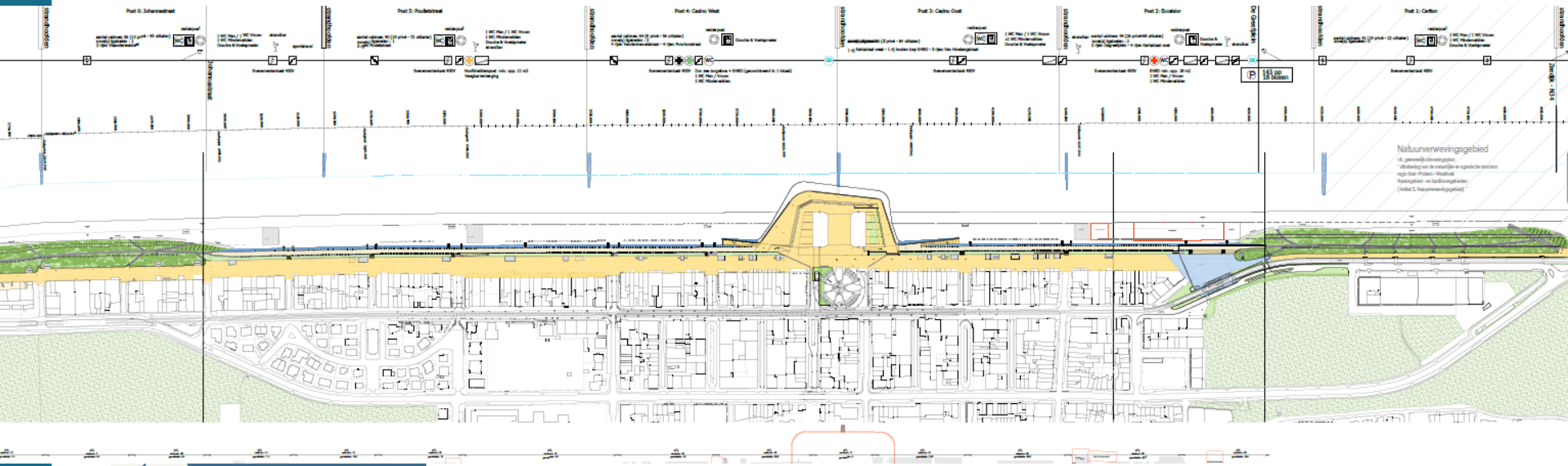
Overview plan



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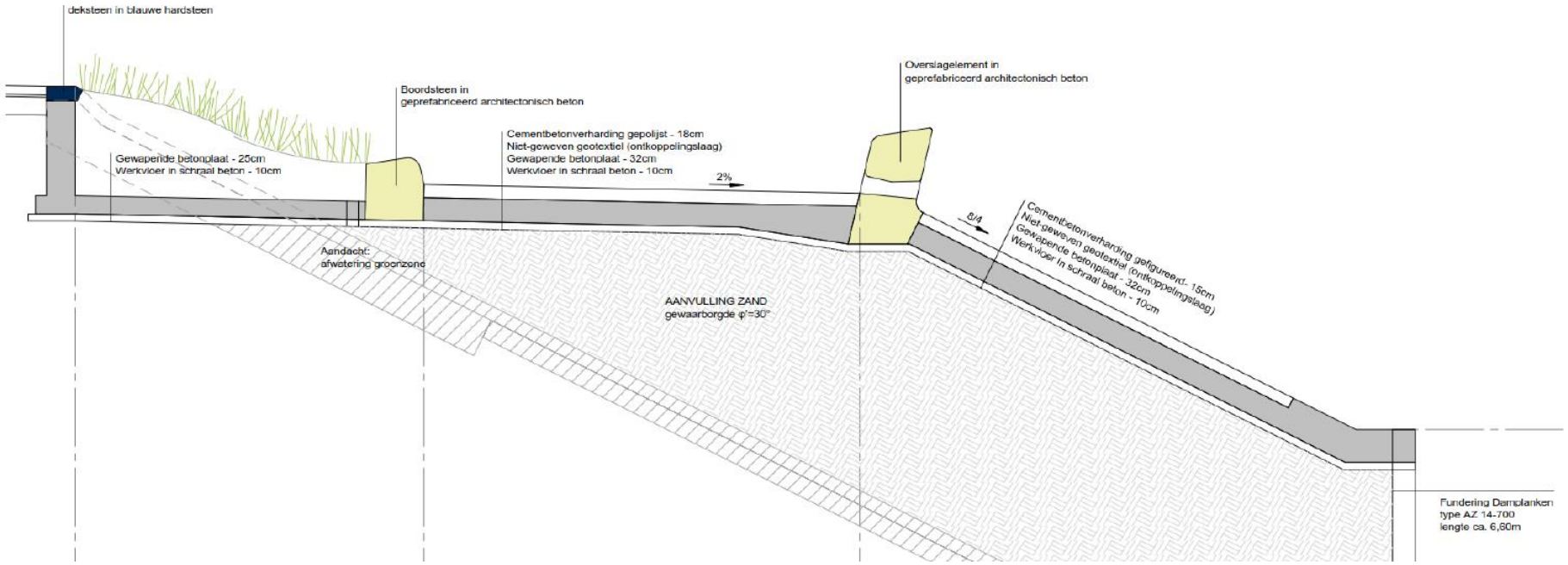
Technical design stilling wave basin



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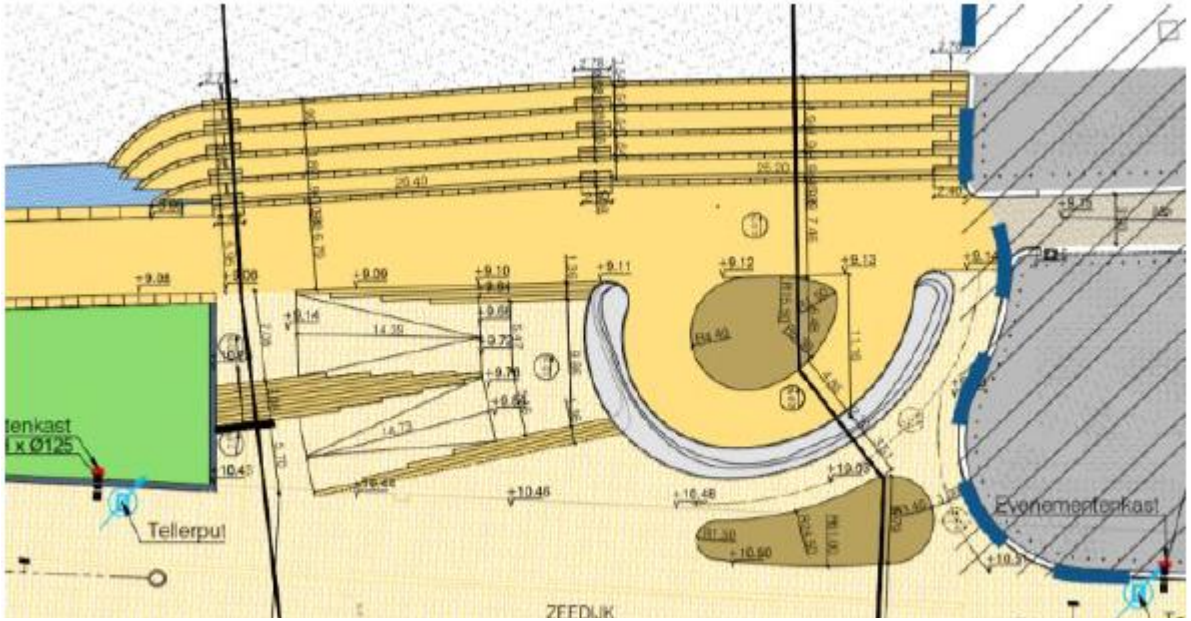
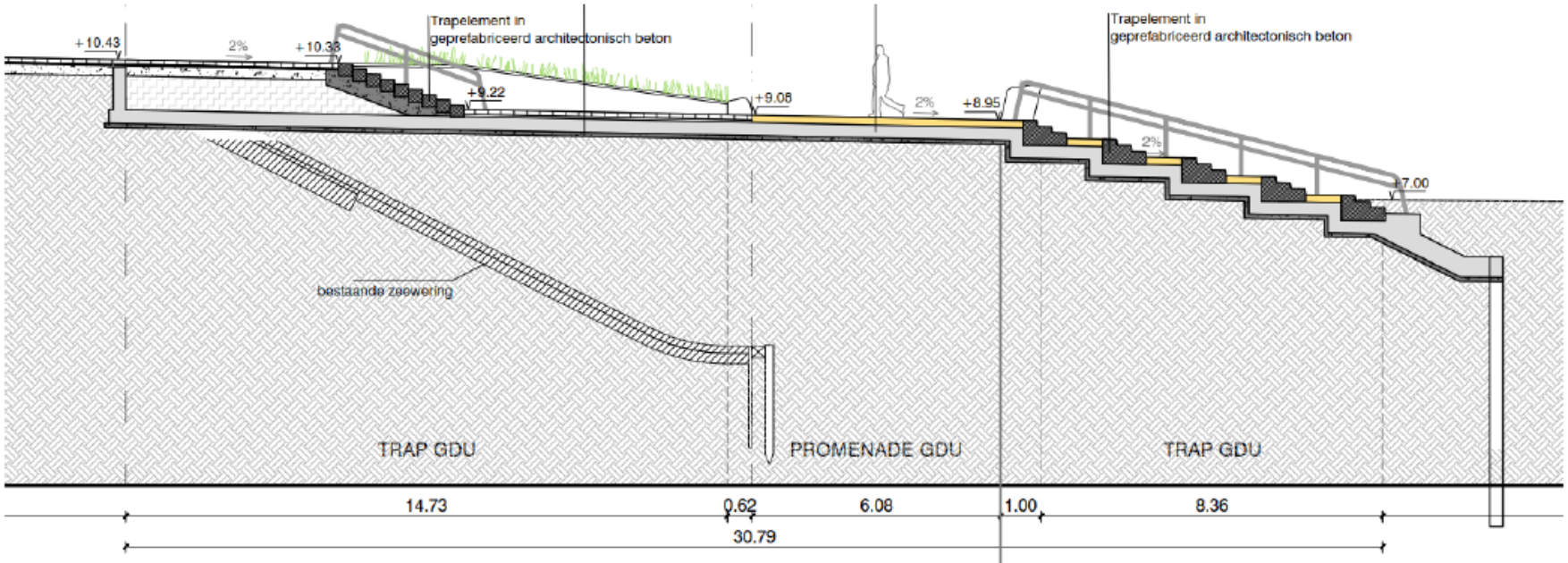
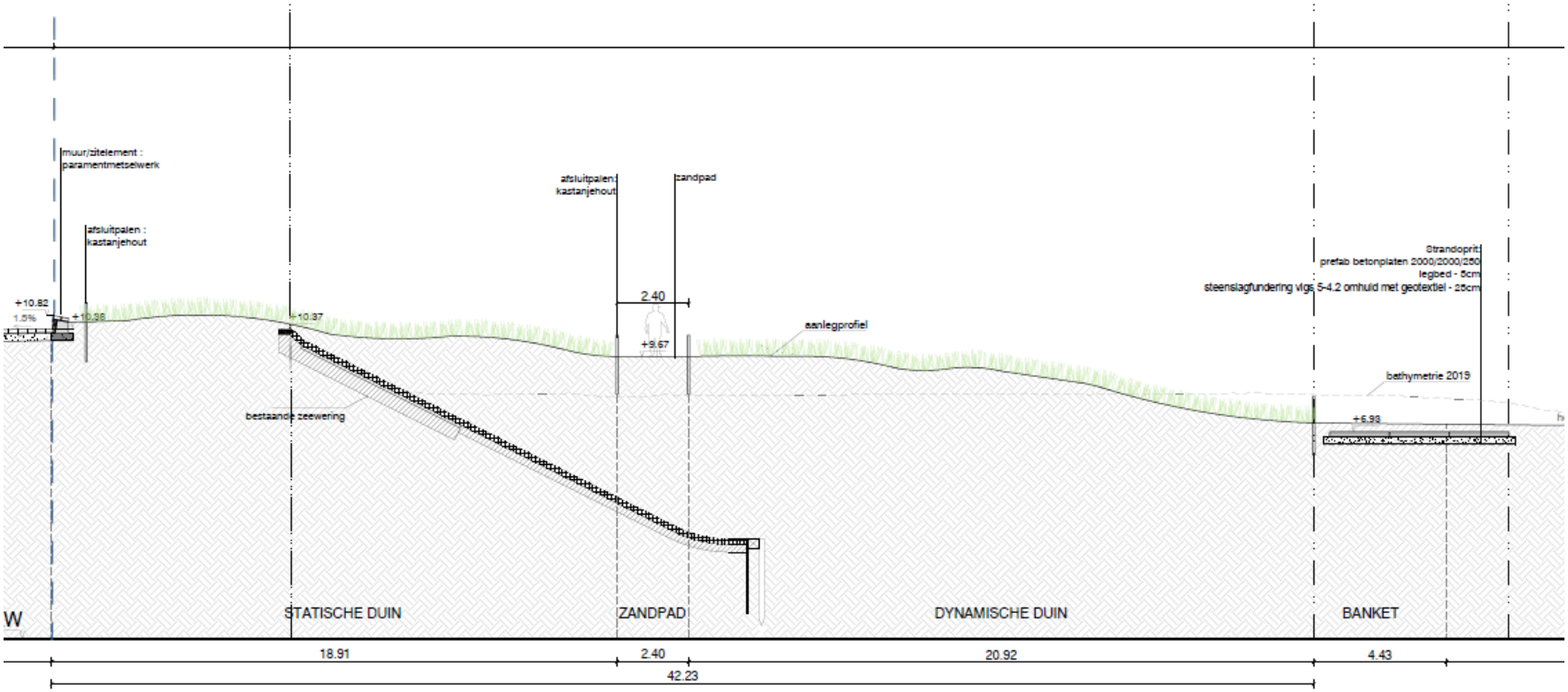
Technical design Rauchenberg square





Technical design dunes



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Design dunes

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