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De Vlaamse Waterweg nv

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USAR
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Using sediment as a resource

RENOVATION OF A CONTROLLED FLOOD AREA IN THE SCHELDT ESTUARY USING DREDGED MATERIAL FROM THE DURME RIVER

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Content

- USAR-project and partners
- Project area Durme
- Investigation of sediments
- Design
- Project execution and planning


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Hoogheemraadschap van Schieland en de Krimpenerwaard
Westcountry Rivers Trust
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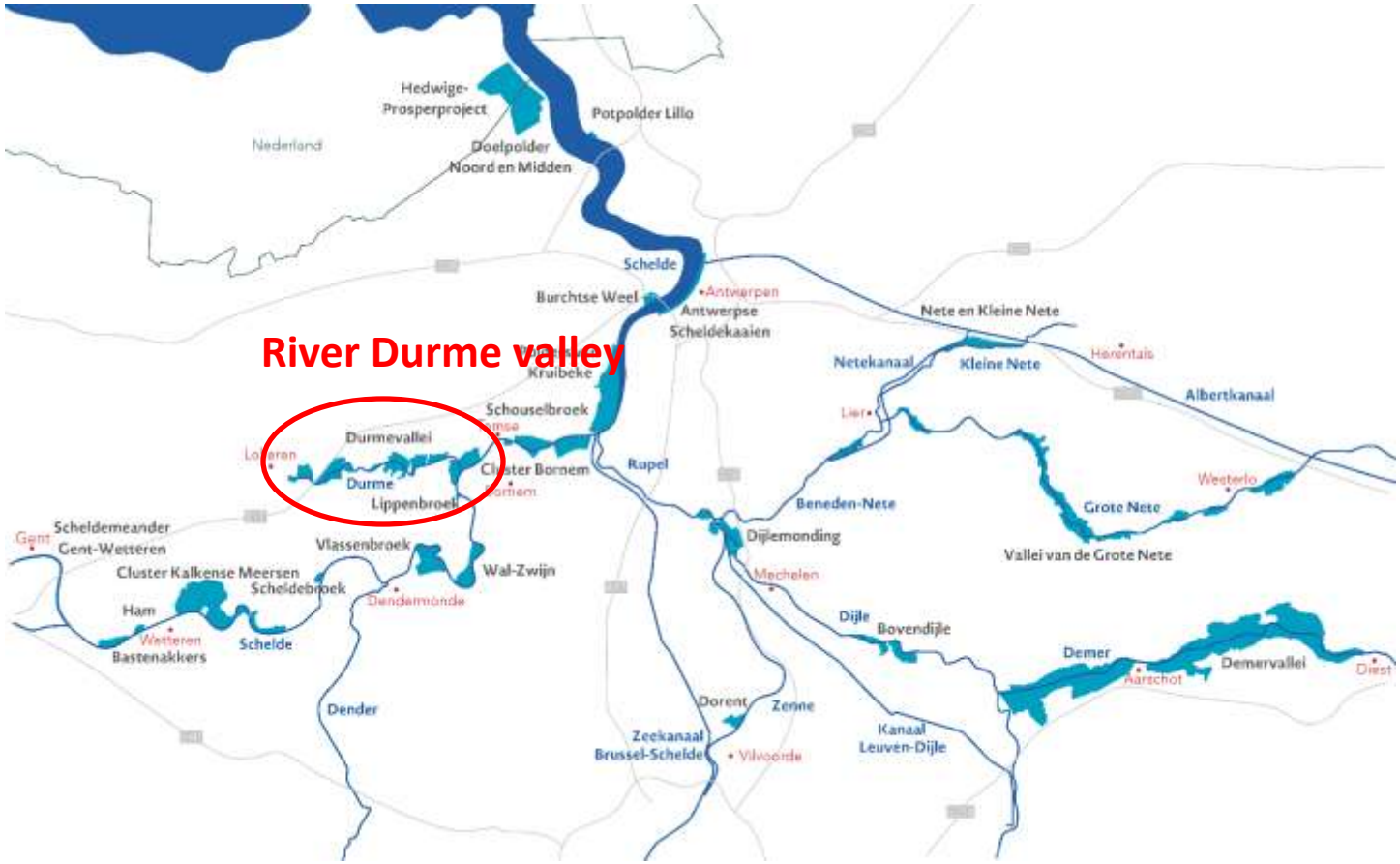
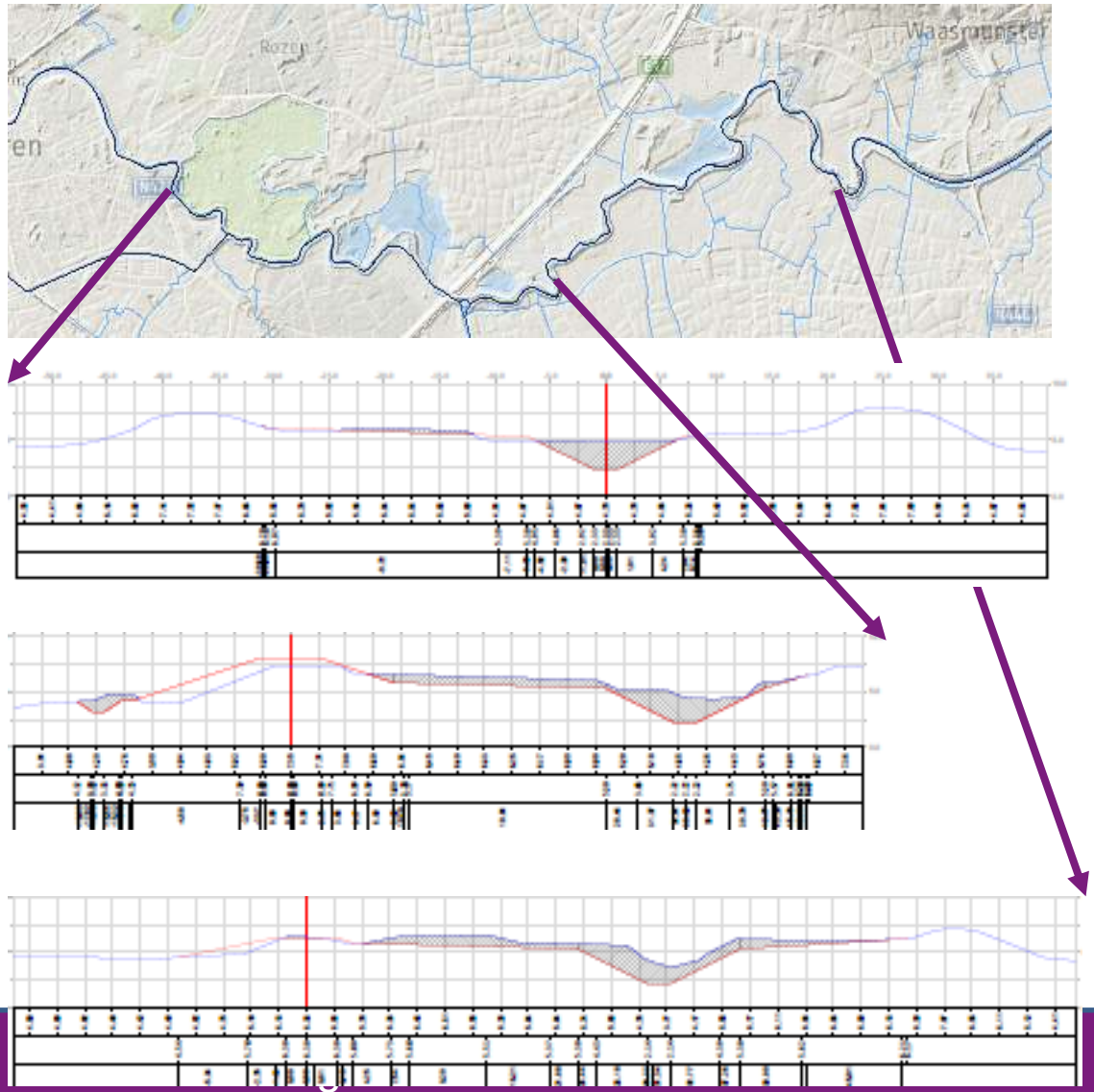
River Scheldt basin



Project area: river Durme

Problem: severe floods in winter time (2010)

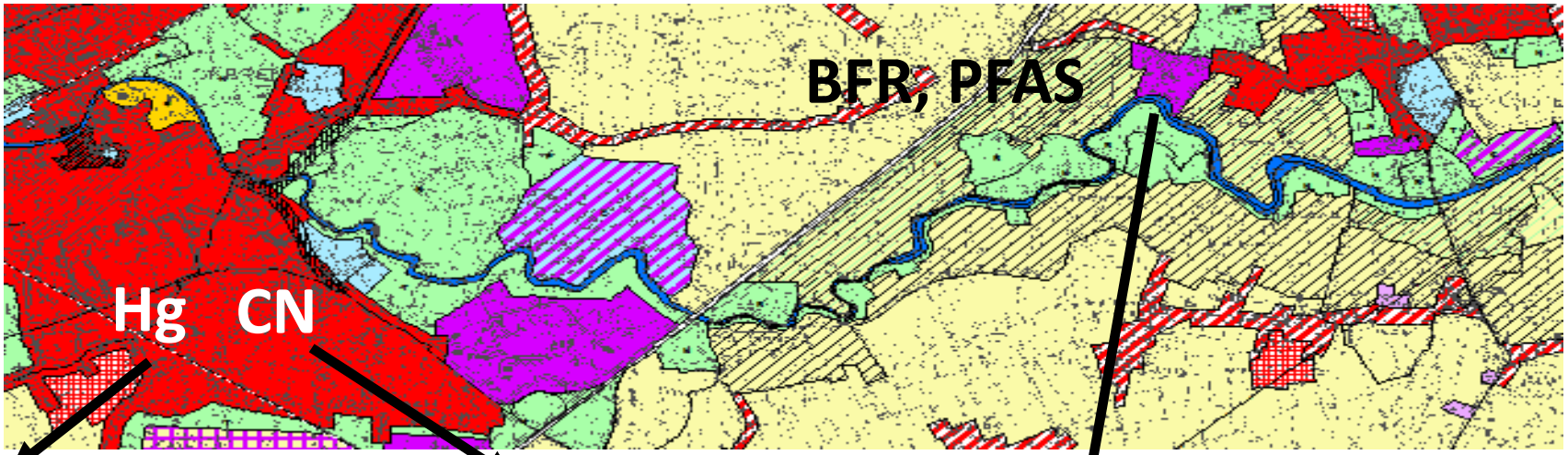
Urgent need to dredge the river Durme



Urgent need to dredge the river Durme

- 265.000 m³ of sediment to be removed
- increase the discharge capacity of the river
- improve flood defense at high water levels (storm events, storm tide)
- create new fresh water marshes

Historical and current industrial activities



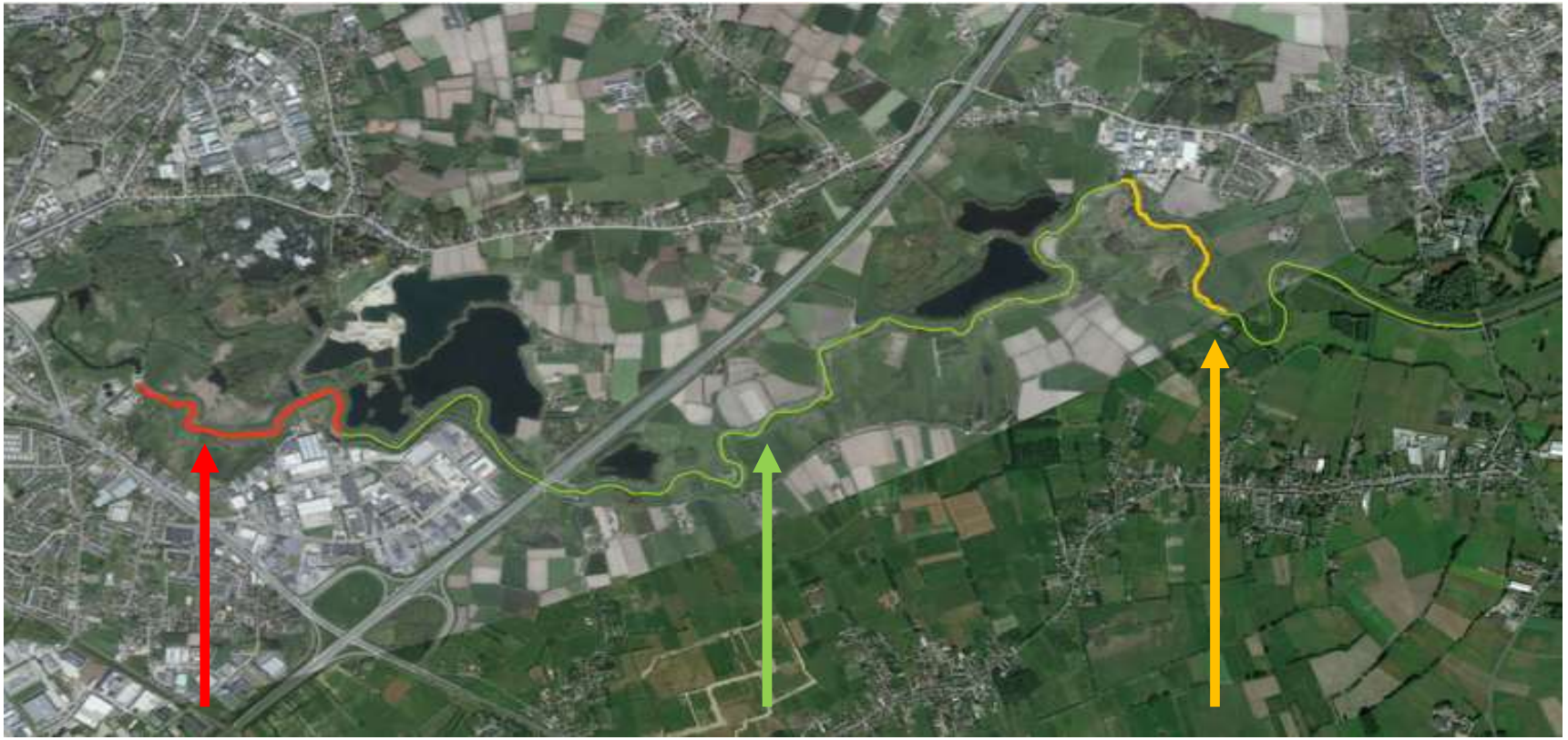
Former factories rabbit skins

Former gasification plant

Textile industry

Fieldwork: taking samples

Environmental assessment of the sediment quality

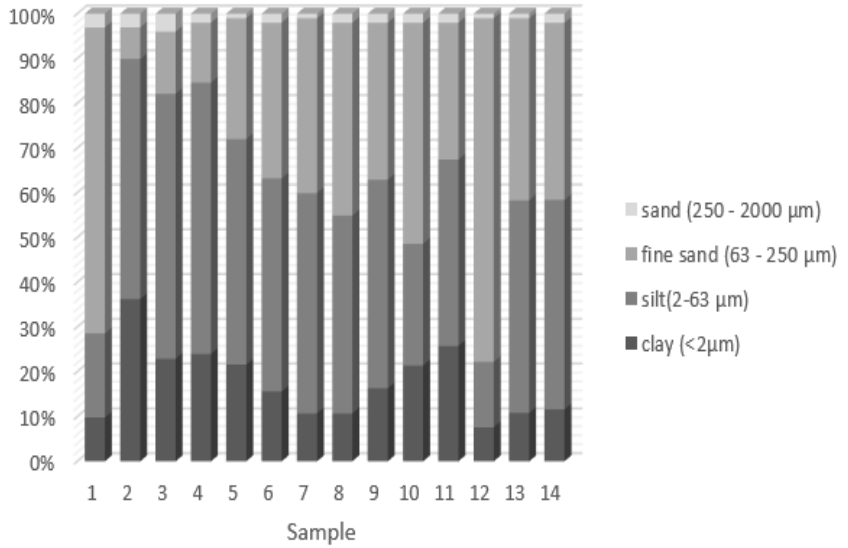


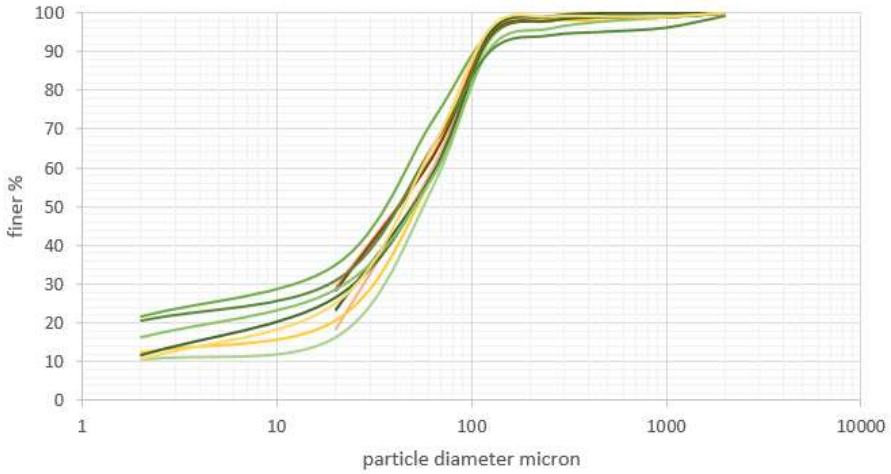
> limits construction material (TPH, heavy metals)

< limits construction material

Increased levels PFAS and BFR

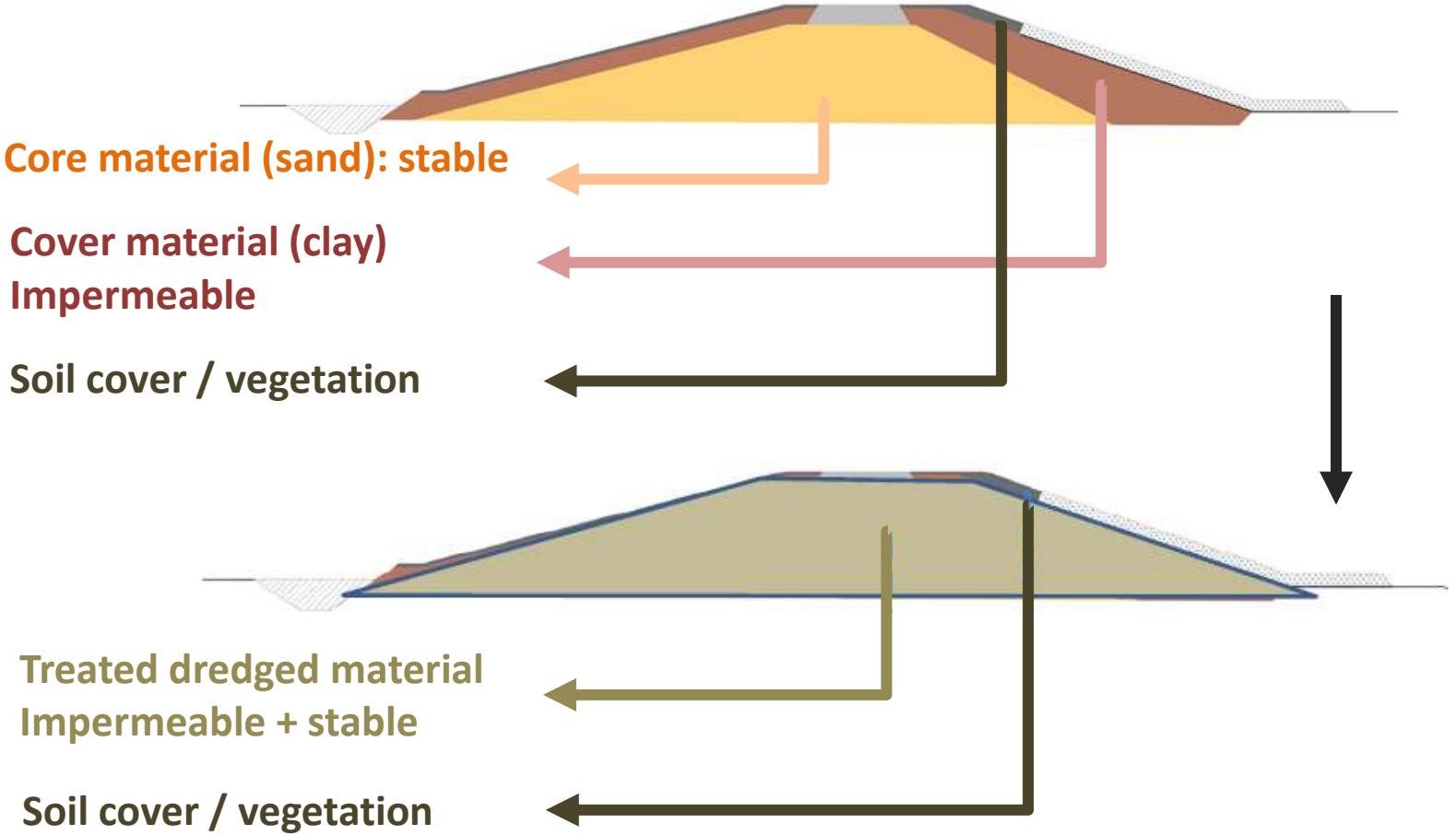
Geotechnical assessment of the sediment quality





Parameter	Value	Unit
dry matter content	40-65	%
plasticity index	15-50	-
organic matter	2.0-5.0	%DM
particle size distribution		
sand (63 µm - 2 mm)	10-80	%
silt (2 µm - 63 µm)	10-55	%
clay (< 2 µm)	10-25	%
TOC	1.9-5.8	%DM

Design infrastructure works



Using sediment as a resource for embankment construction: benefits and challenges

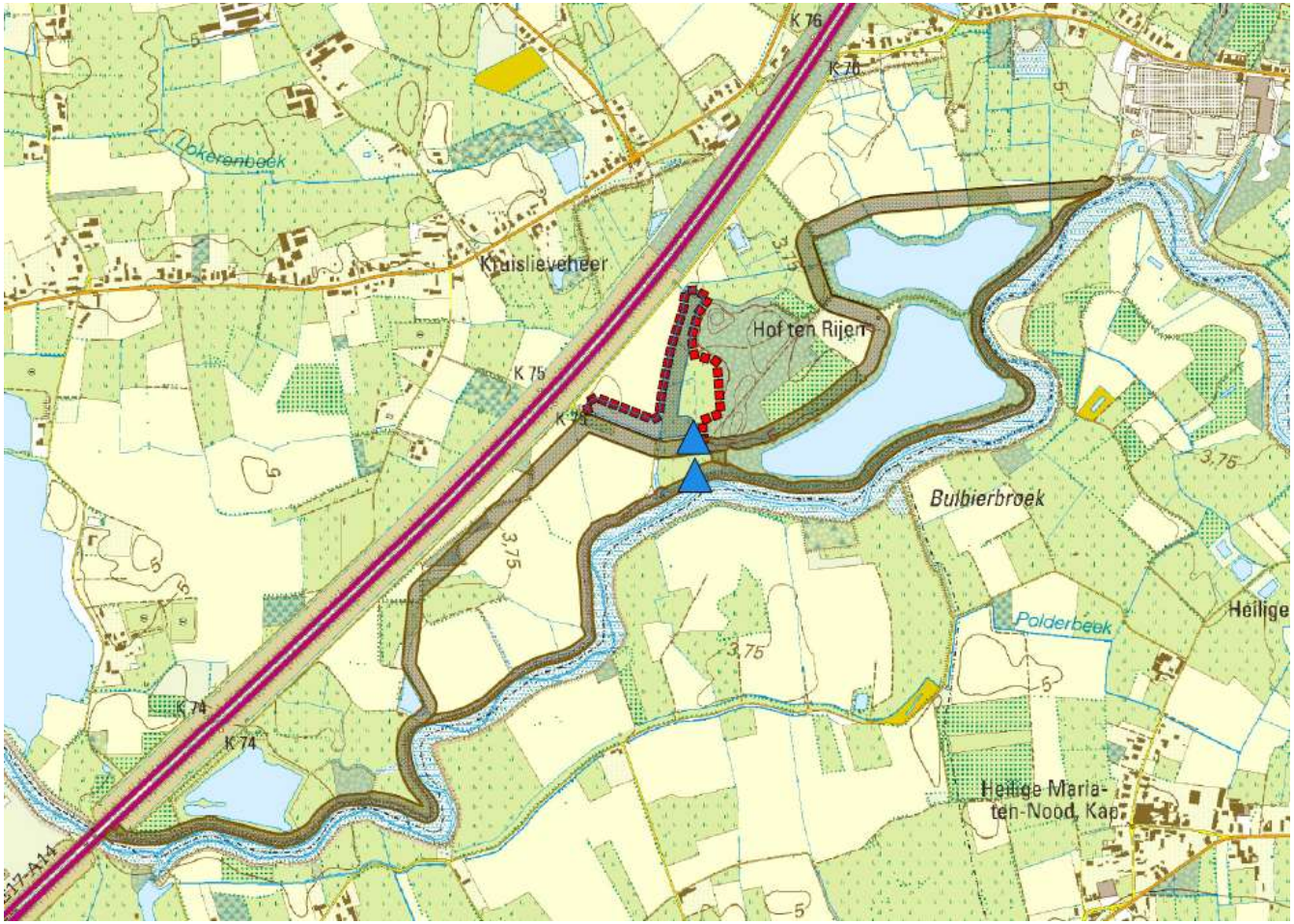
Benefits

- Sediment is used beneficially instead of dumped in landfill site
- Local use of dredged sediments: less transport!
- Double improvement of flood defense: river is dredged + embankments are reinfocred

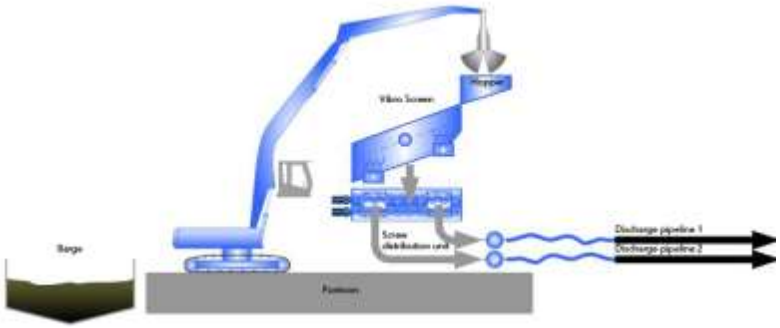
Challenges

- 26.000 m^3 of sediment is contaminated and needs to be treated
- the geotechnical quality of the sediment needs to be improved

Design infrastructure works



Example of on site treatment of sediments



Planning

Completed:

- Design of dredging and embankment works
- Geotechnical and environmental asessment of the sediment
- Environmental impact assessment
- Construction and environmental permits
- Tendering procedure

In progress (2019-2023)

- Preliminary testing
- Execution of dredging and embankment works

USAR-team:
Thanks for your attention!

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