



02 *Nederland,
land van betekenis*

Manual Water,
Heritage and
the Environment

Water, landscape & citizenship in the face of global change

Using cultural heritage
and historical analysis
for current and future
landscape, energy
and water-related issues
in the Netherlands

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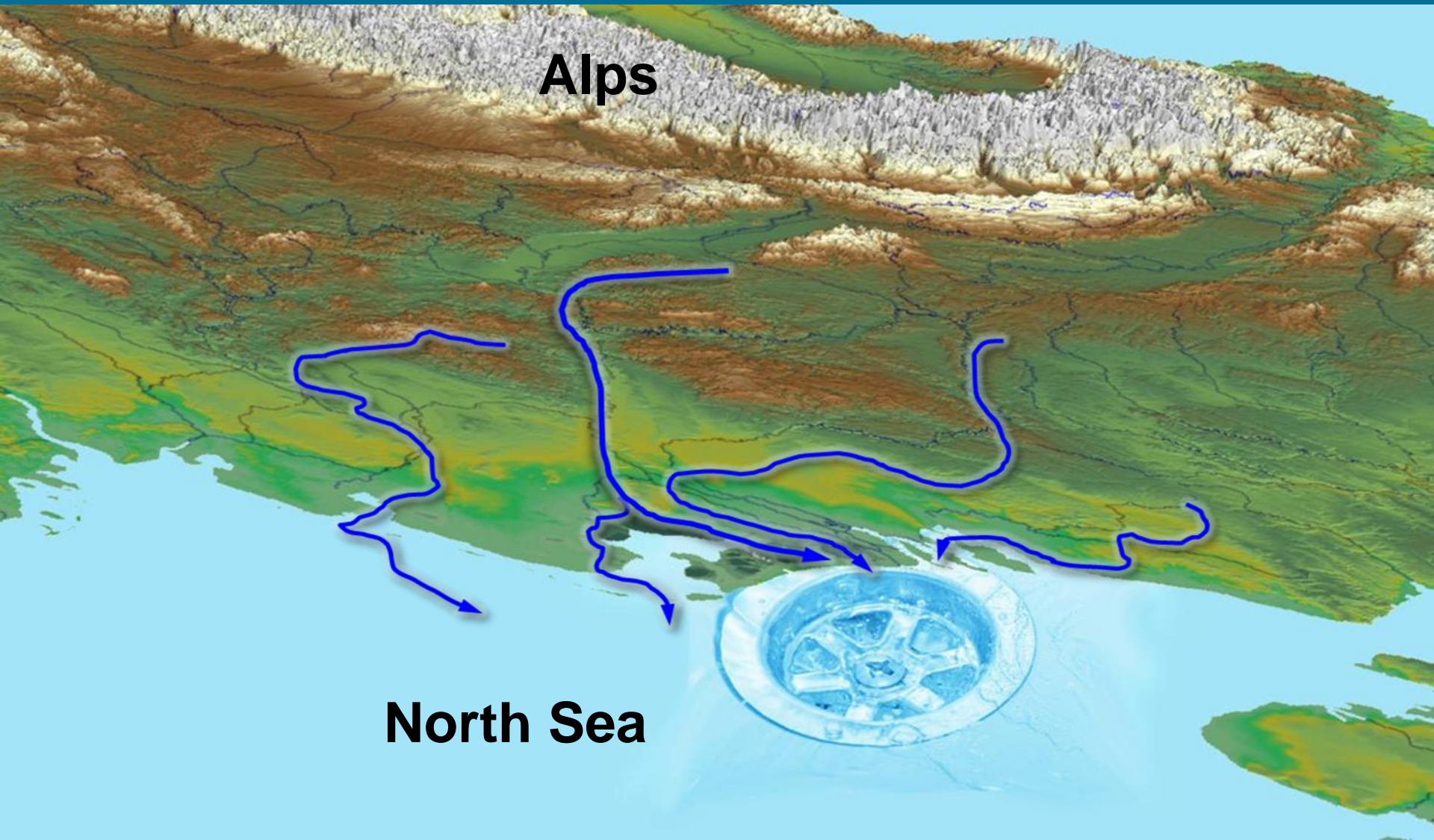


Too much water: historic battle in the Netherlands

Water as a defence system –

Meet water challenges of our time.

Dealing with water...

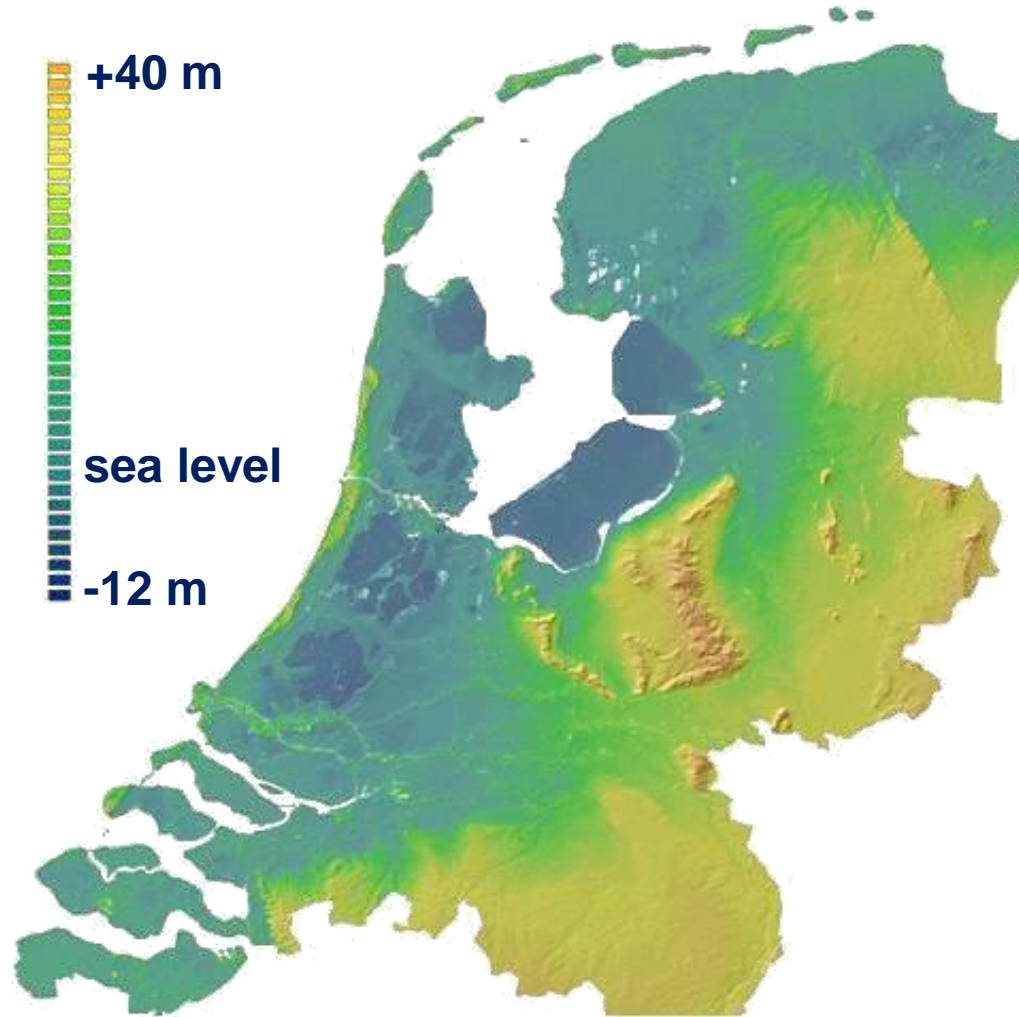


Alps

North Sea

The Netherlands, land in a delta

Dealing with water...



A large part of the Netherlands is below sea level

Dealing with water...



Saint Elisabeth flooding 1421 (painting 15th century, Rijksmuseum)



Dealing with water...



An old dyke system

Dealing with water...



Afsluitdijk, large hydraulic locks, delta works

Dealing with water...



More room for the River Waal near Nijmegen

Dealing with water...



Re-use of artificial water systems for climate adaptation

Dealing with water...



Re-use of defensive waterline structures for climate adaptation



The case of the Diefdijk (New Dutch Waterline)



① Redevelopment of Diefdijk





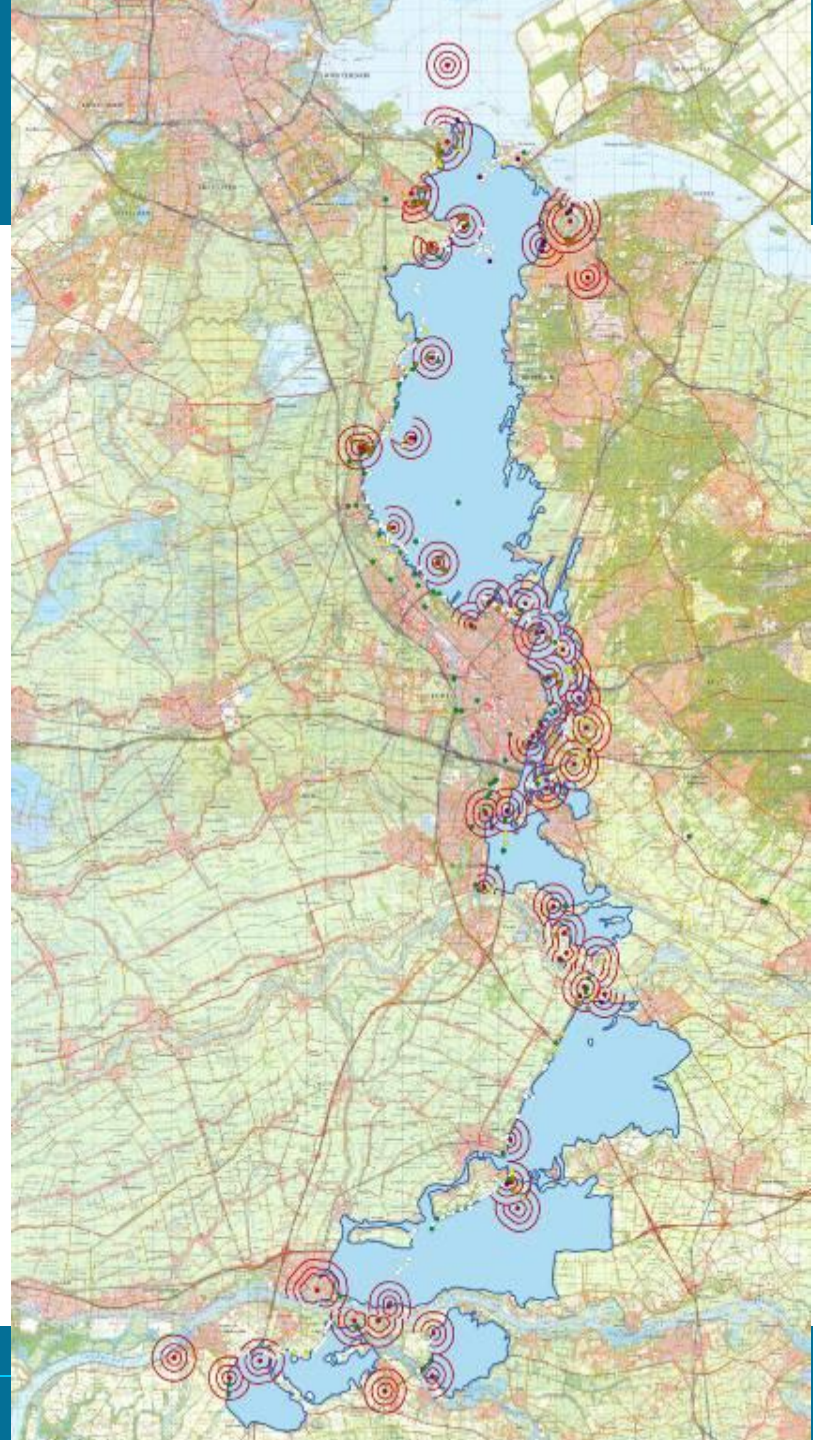




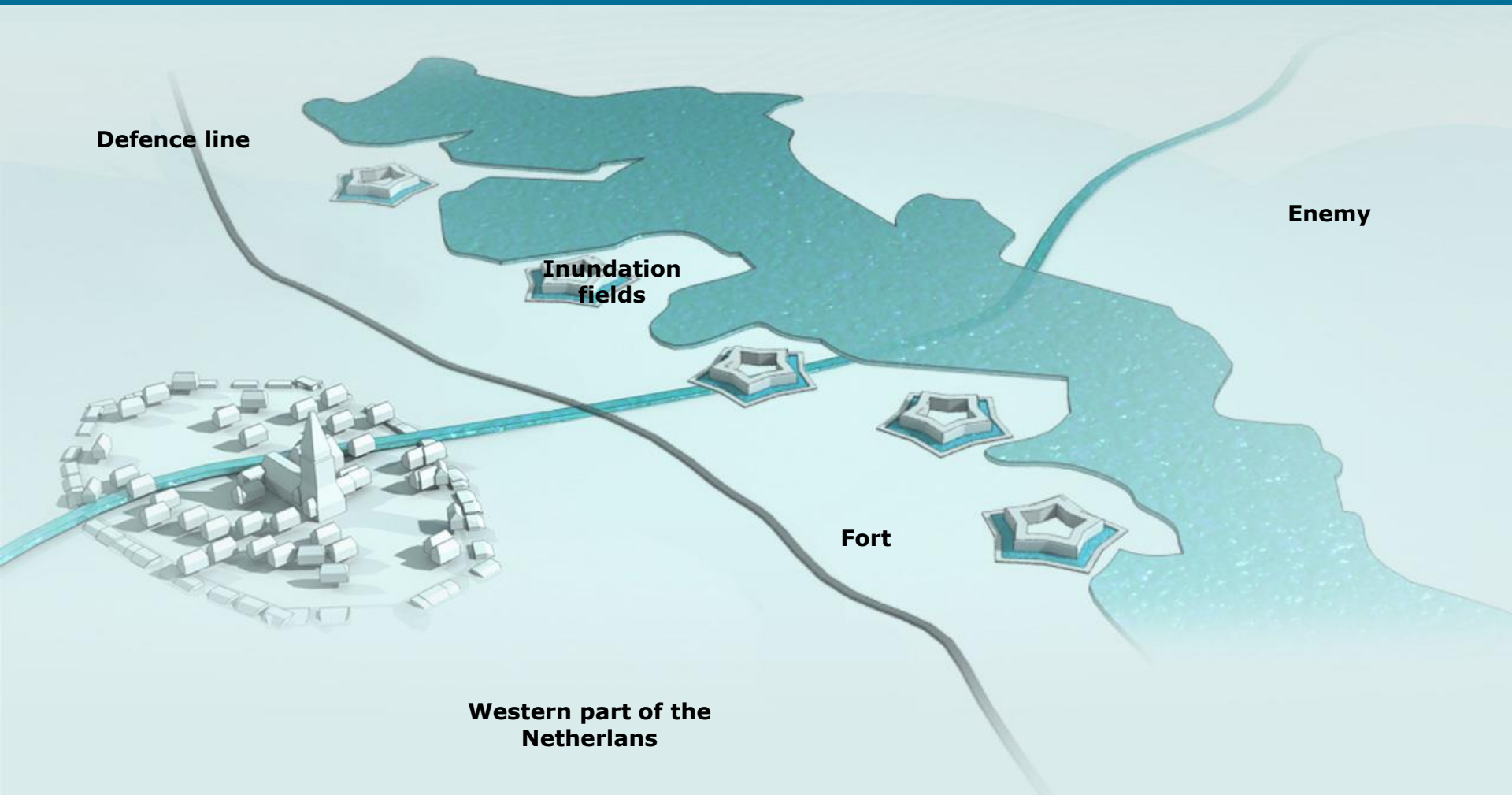


Facts of the Defence Line

- length: 85 kilometres
- width: varies from 3 to 5 kilometres
- 7 basins of inundation field
- 2 castles
- 5 fortified cities
- 53 forts with "the Prohibited Areas"
- bunkers, group shelters, sluices, canals
- totally about 1000 elements
(80% is still in good condition)



How was it working ?





Inundation plains
around fort Spion

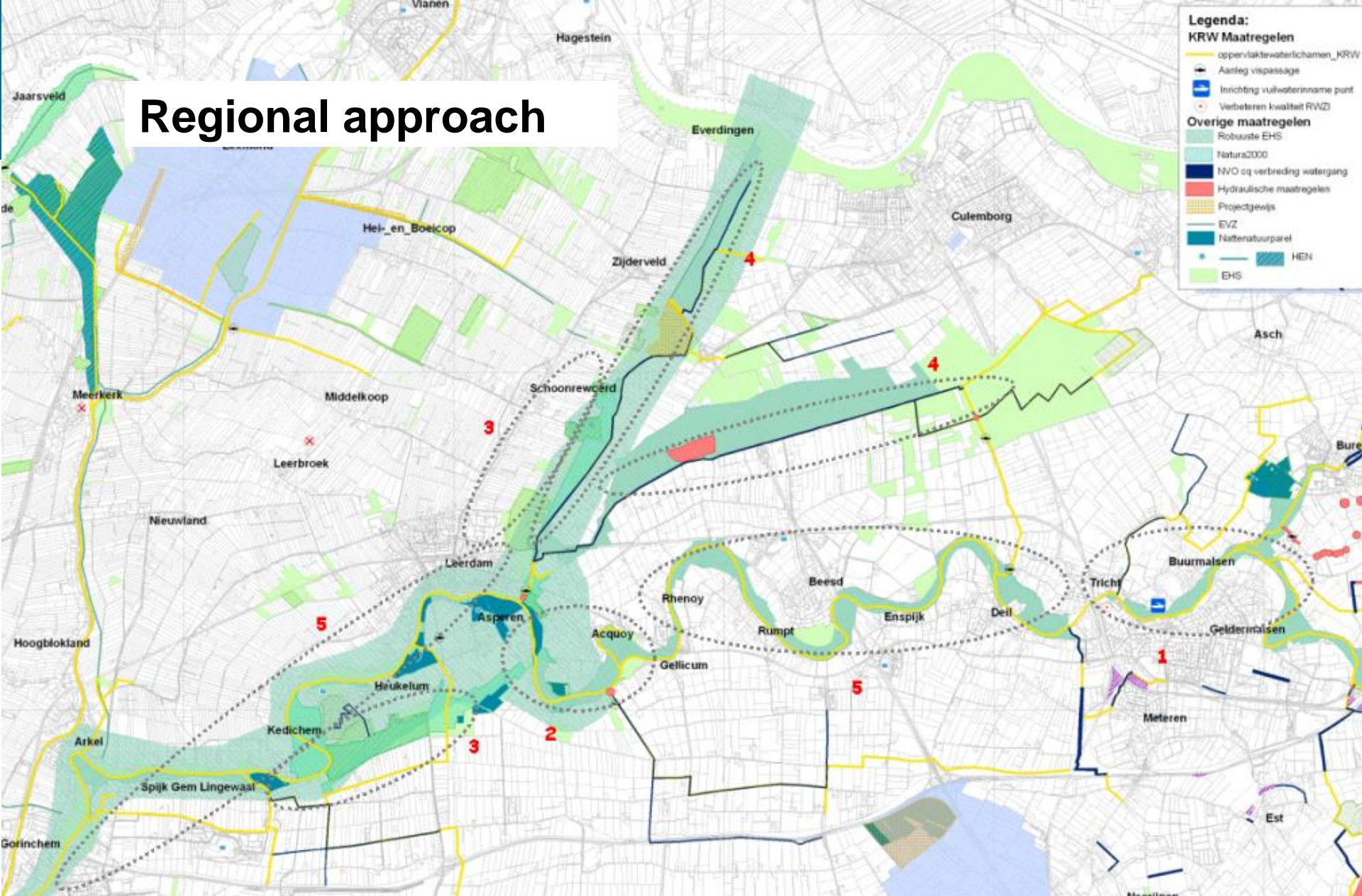
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② Goal of the project

- Water safety
- Water climate
- Development of recreational networks (walking, cycling, skeerler routes)
- Cultural heritage-related issues (old elements of the Water defence line)
- Nature
- 30 km of dikes

Regional approach





Model 1 : dijkversterking t.b.v. piping + stabiliteit middels aanbermingen/ klei- aanvullingen

De illustraties van de aanbermingen zijn getekend in een doorsnede aanzicht



1. Dieldijk



2. Noorderlijke Lingedijk (Meerdijk)



3. Nieuwe Zuider Lingedijk



4. Zuider Lingedijk





Under construction













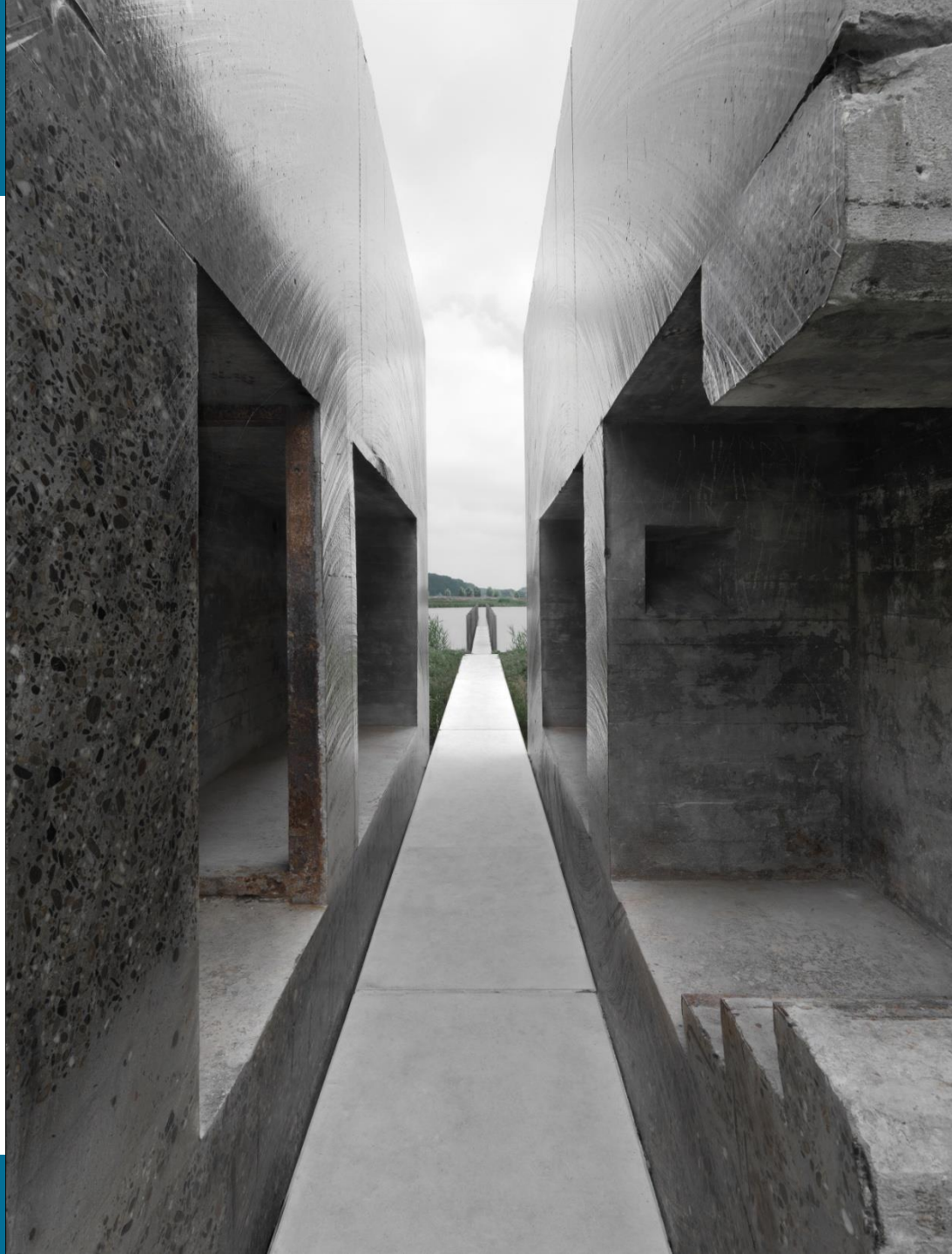






Bunker 5000, Golan Heights, Israel







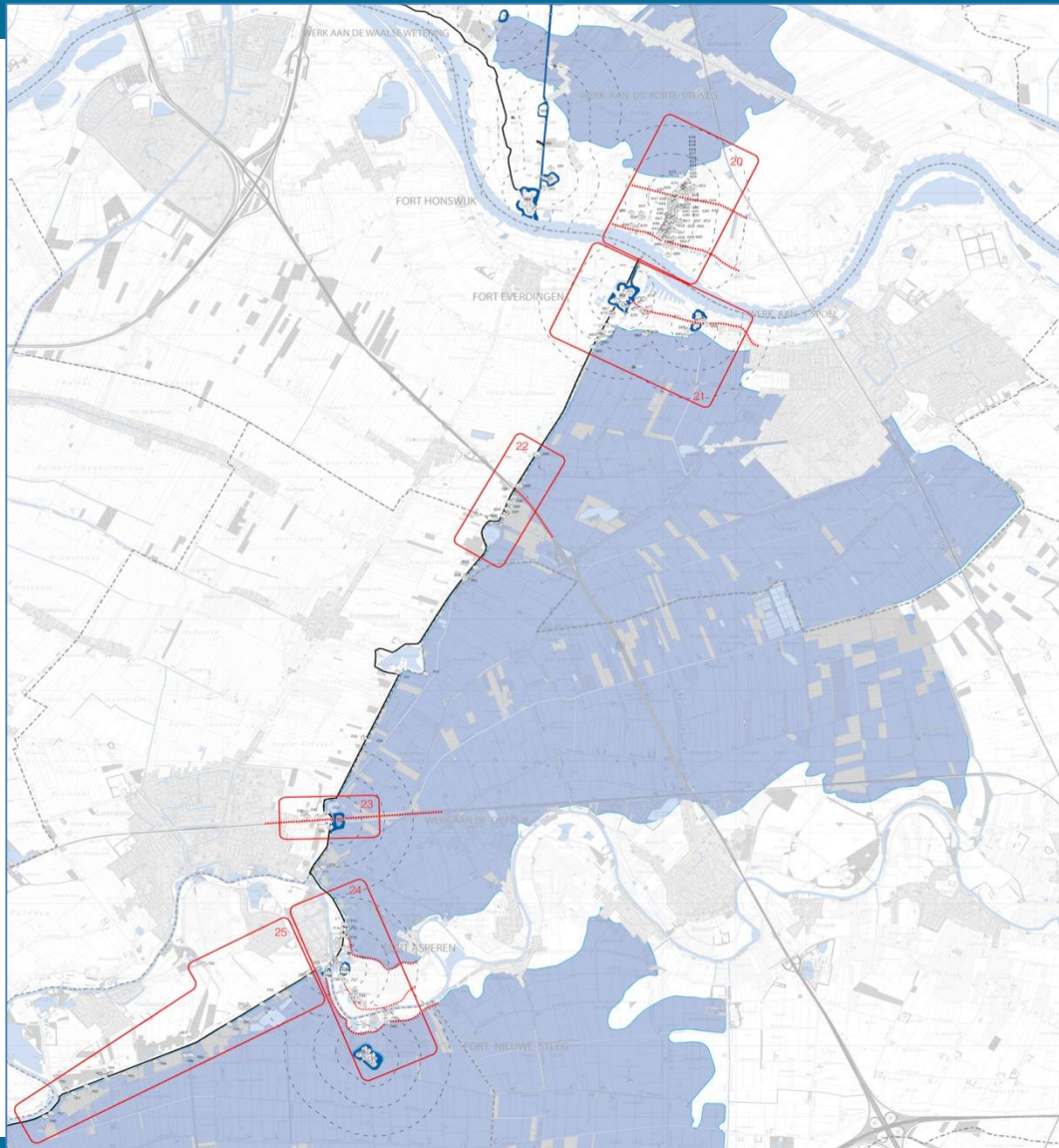




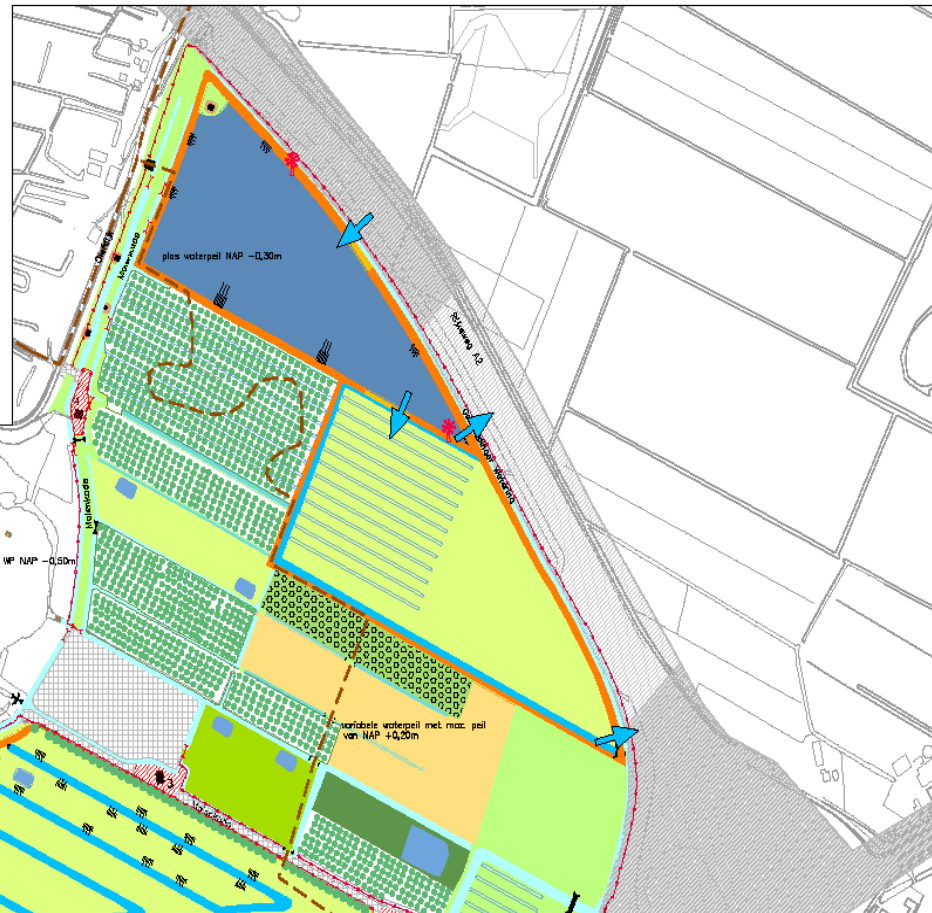
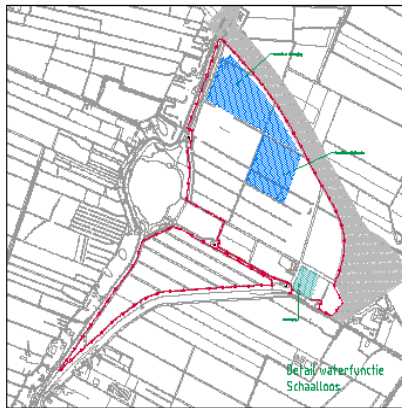




The Molenkade polder originated in the Middle Ages and has been redeveloped into a waterstorage area today



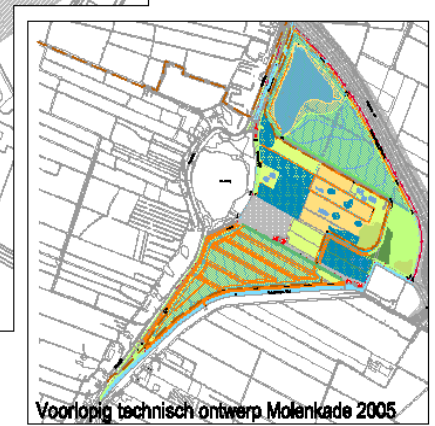
Principe Waterlinie: leegte in inundatievlaktes + clusters verdedigingswerken



LEGENDA

- mochtig voedselrij- grond
- vochtig tot nat schraagvlaks
- bloemrijgrond
- moeras
- eiken hakhout
- eikenbos / rups eikenbos
- grens
- loofbomen
- rdbotten
- natuurvriendelijke oever
- huidig waterpeil ZP NAP -0,50m WP NAP -0,30m
- polder waterpeil NAP -0,30m
- nieuw waterpeil, hoogte variabel
- variabel waterpeil met max. peil van NAP +0,20m
- pad
- kadde NAP +0,75m
- te dampen watergang
- groepwachtplaatsen
- groepwachtplaats met LNF/overstrooming
- recreatieve wandelroute
- beschutting
- stuw/overlaat
- duiker nieuw
- duiker met afsluitdeksel
- vaste overlaat
- windmolens
- waterkering
- duiker bestaand
- projectgrens
- bestaande bebouwing met huiskamer
- niet verzeven perceel
- ruftaafslag verbinding A2
- zijdelingse brug RWS

Definitief technisch ontwerp Molenkade





100,000 m³ water storage

70 ha nature for National Ecological Network



Molenkade: inundatielandschap > 100.000 m³ waterberging, natuur, recreatie (foto Daniel Nicolas)



Conclusions (1)

- **Clever function combinations**
- **Sustainability issues:
ecology, landscape, water and the watersystem**
- **Making clear how the inundation functioned**



- **Great invisible landscape**
- **Make it now visible and vital**
- **Use the existing under layers of nature, water and cultural history**
- **Not just individual elements**
- **Think in terms of an area**
- **A sustainable UNESCO landscape**
- **Good co-operation between partners**



Cultural Heritage Agency of The Netherlands
*Ministry of Education, Culture and
Science*

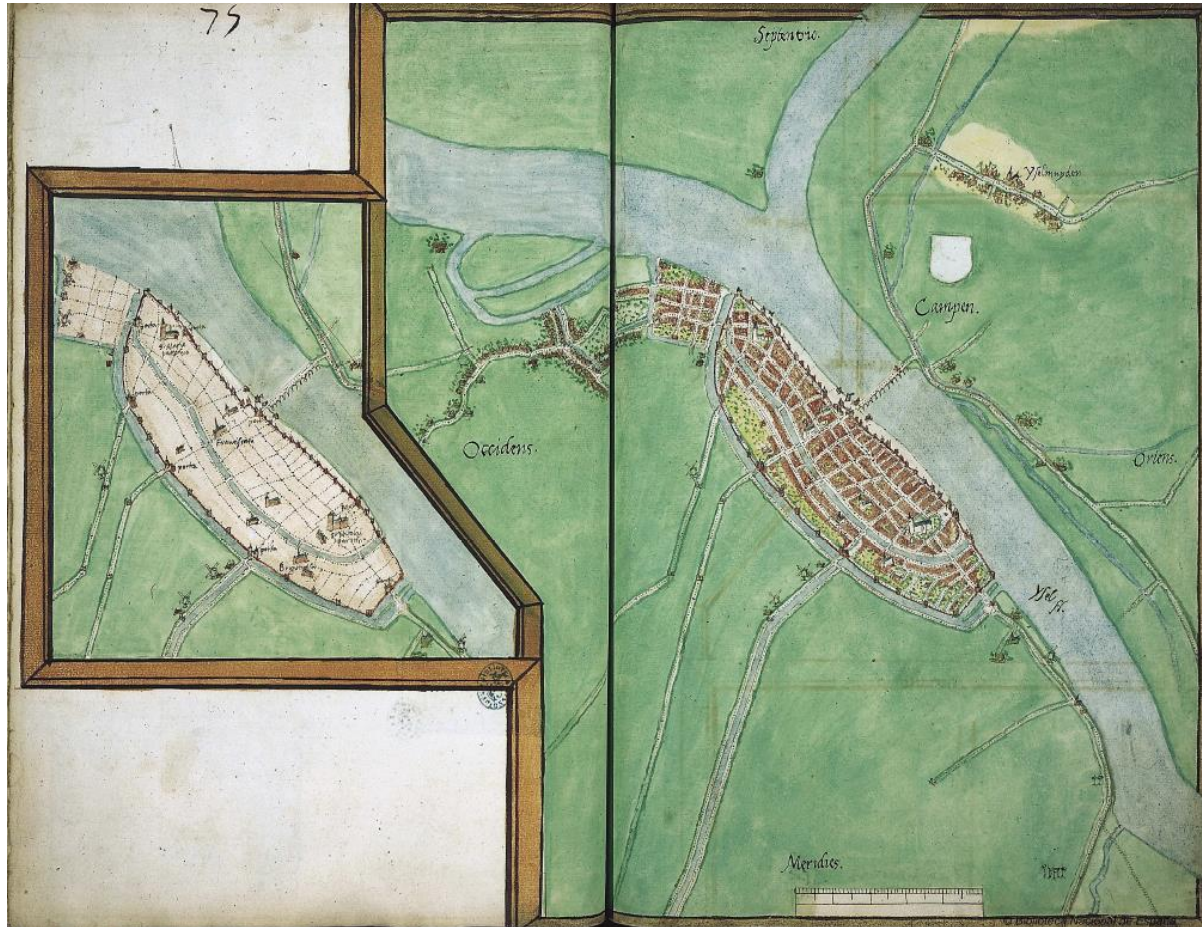


The importance of historical maps and cultural heritage for modern climate adaptation strategies

Ellen Vreenegoor

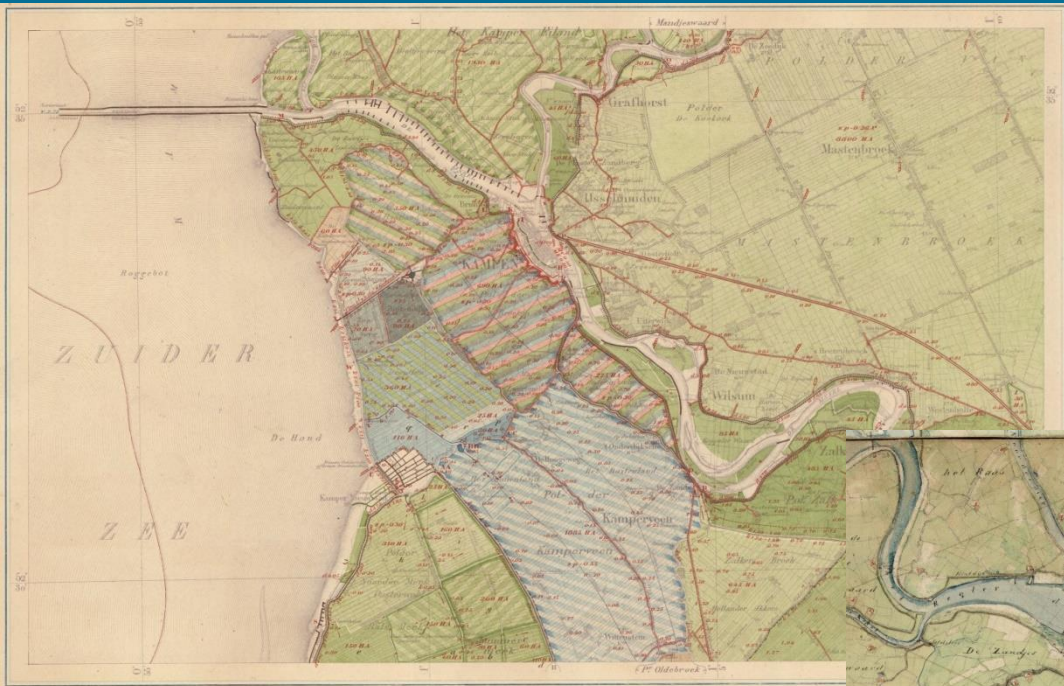
**Programme Manager Water,
Heritage and Environment**

Dealing with water...



Kampen on a 16th century Jacob van Deventer map

Dealing with water...



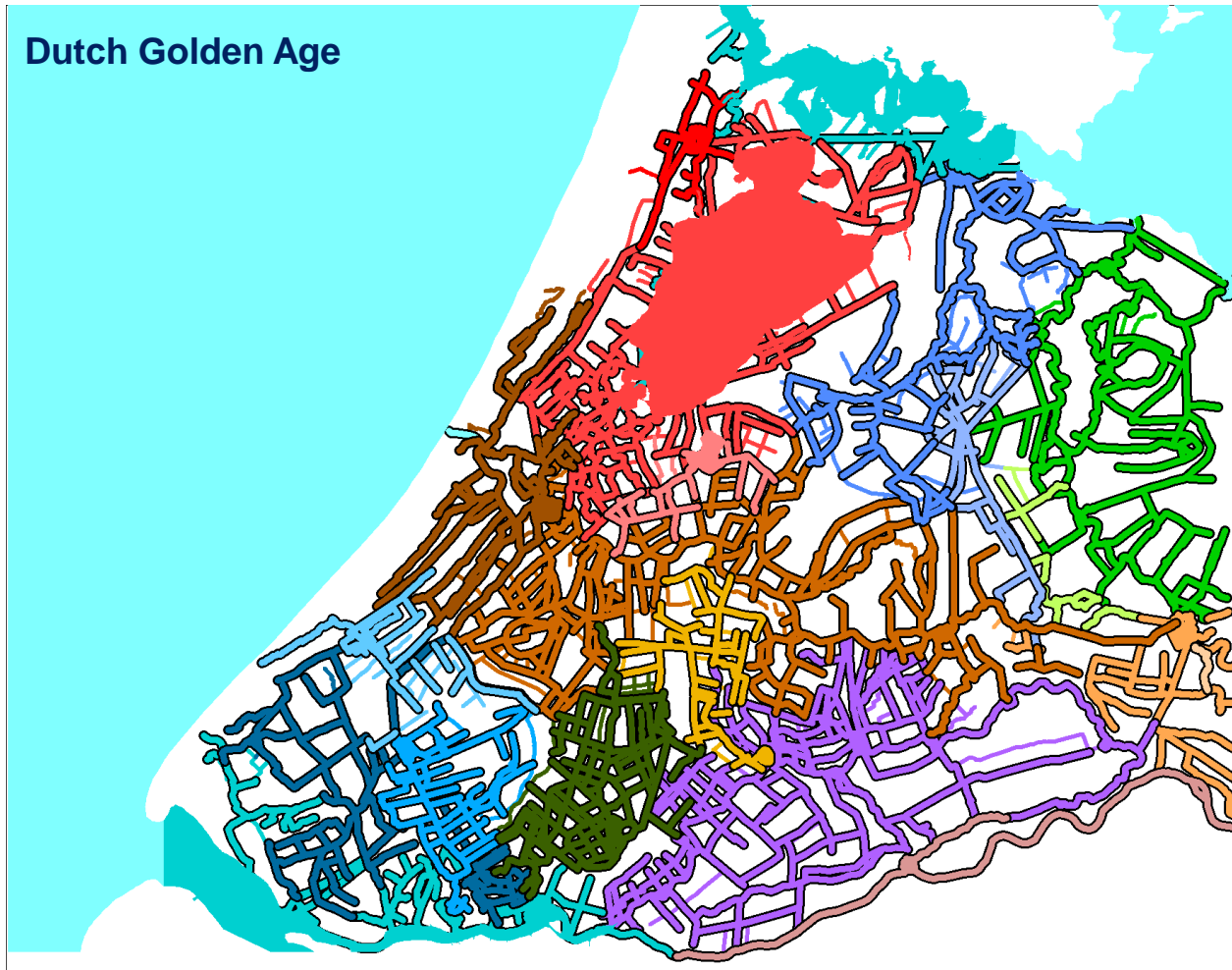
'Waterstaats' map, 1882/83



Military map, 1851

19th century maps

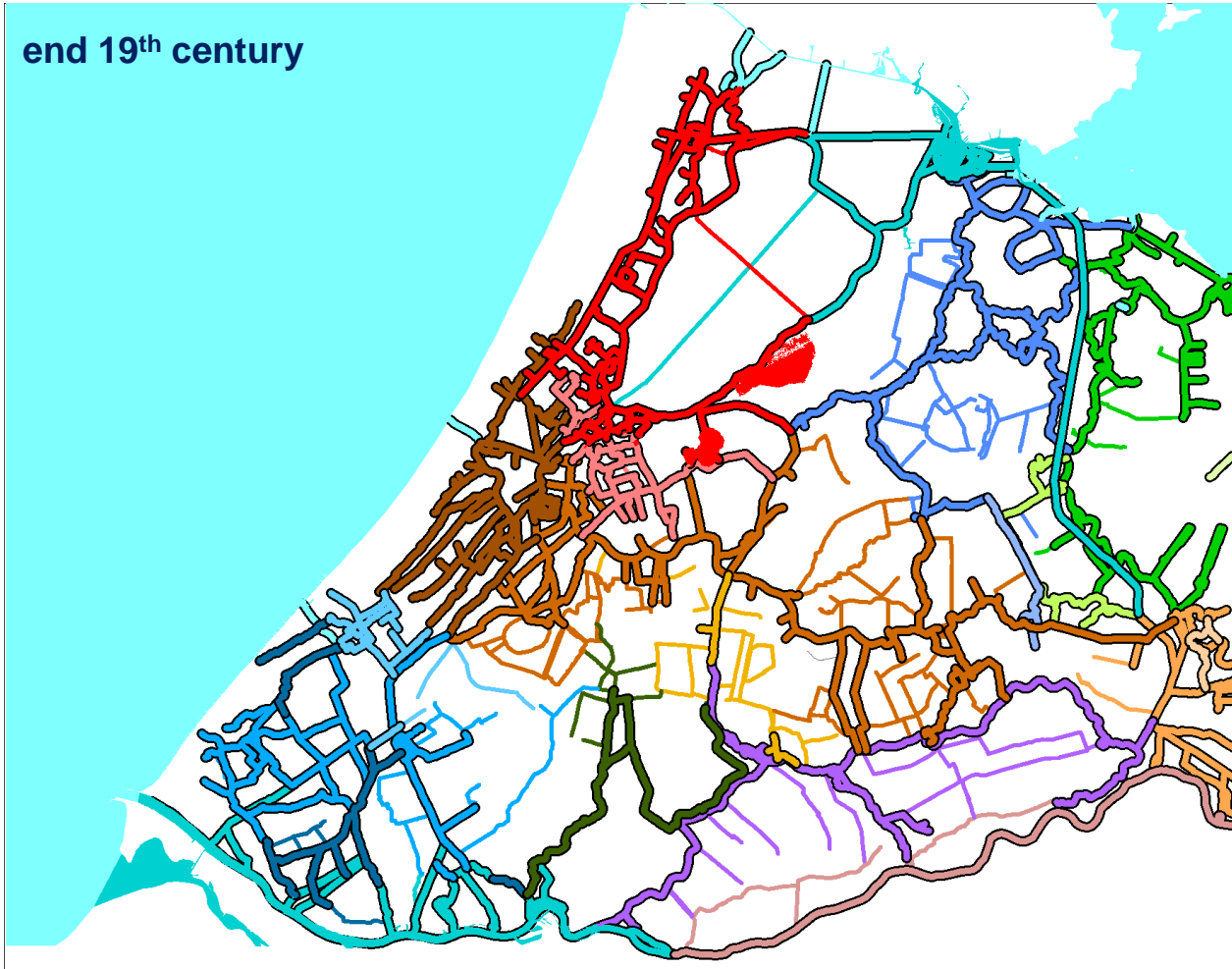
Dealing with water...

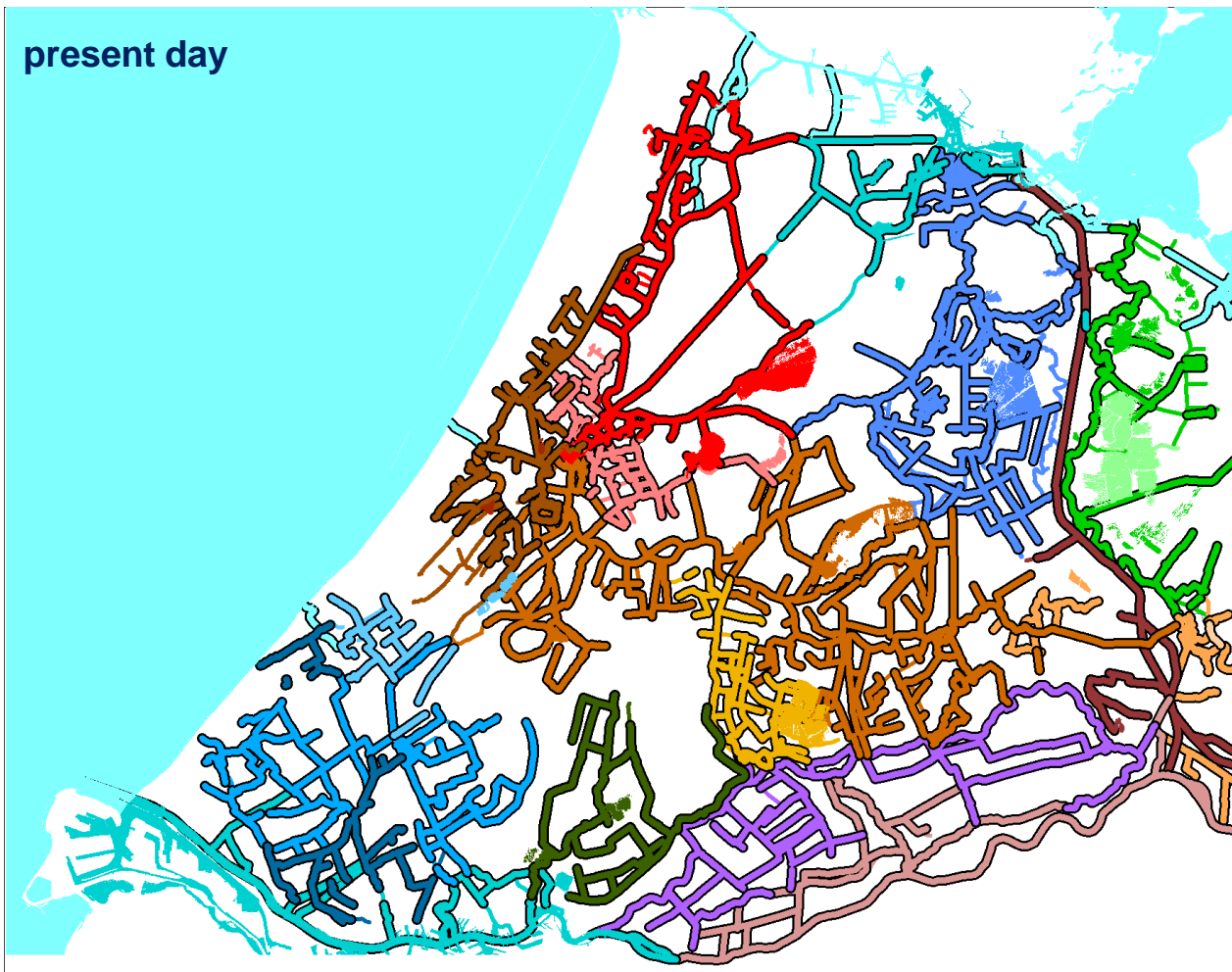


Building a GIS on water systems

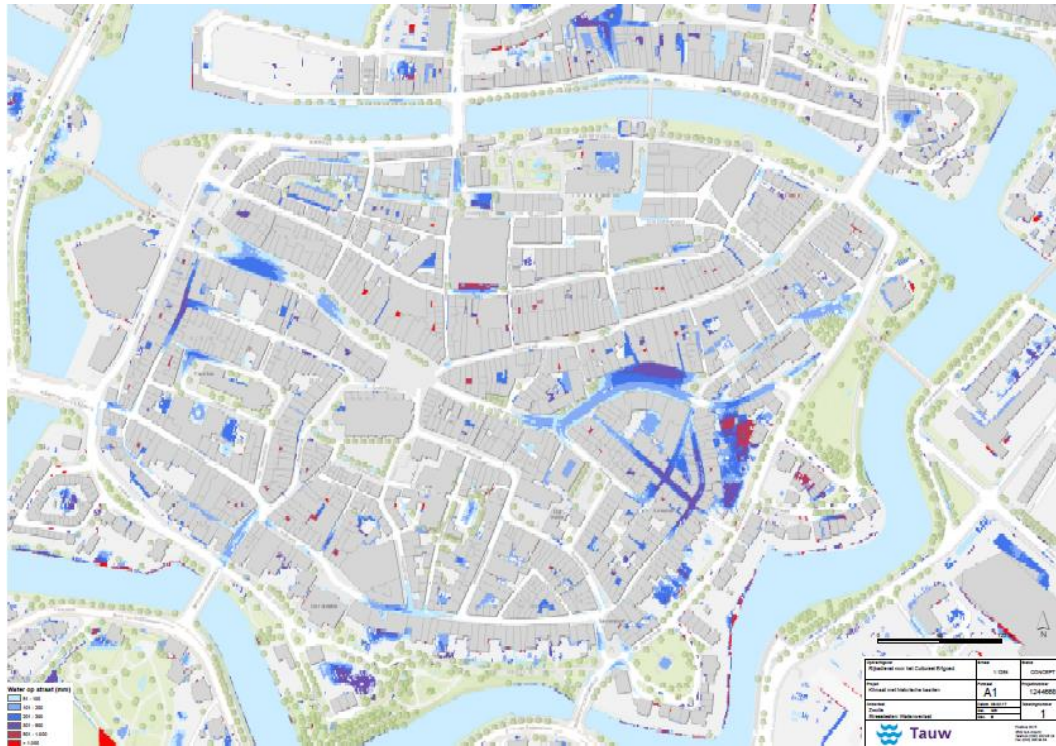


end 19th century

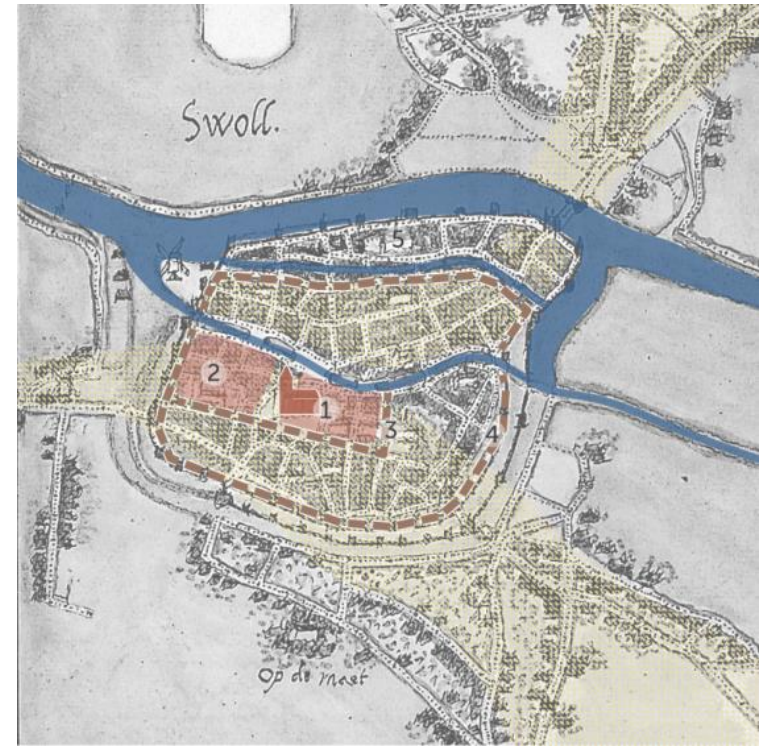




Dealing with water...



Stress test on extreme rainfall (2017)



Historical water system (1557/58)

Identifying potential problems with too much water



Using cultural heritage for current and future landscape, energy-related issues in the Netherlands

- How can we use spatial qualities of our cultural landscape in the production of sustainable energy?
- Alternative forms of energy will have a major impact on our environment;
- How to use cultural heritage aspects in this development?
- Preservation, embedding and transformation of wind, sun and biomass energy methods.
- Manual Energy, Heritage & Environment
- **Subject for a future conference ?**



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*Ministry of Education, Culture and
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Rijksdienst voor het Cultureel Erfgoed
Ministerie van Onderwijs, Cultuur en
Wetenschap

02 *Nederland,
land van betekenis*

Handreiking
Water, erfgoed
en ruimte

Manual Water, Heritage and the
Environment



Discussion

To what extent can this perspective on cultural heritage also be applied outside the Netherlands, in order to redefine the role of cultural heritage, to find suitable solutions for issues relating to climate adaptation and climate change?