



# BRIDGING PAST AND FUTURE

Utilising Cultural Heritage Values to increase  
Resilience in Amsterdam's Polder Water System

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P5: Final presentation  
4844580  
25 June 2024

Master Track Urbanism

Studio:

First mentor:

Second mentor:

Delegate:

Design of the Urban Fabric

Claudiu Forgaci

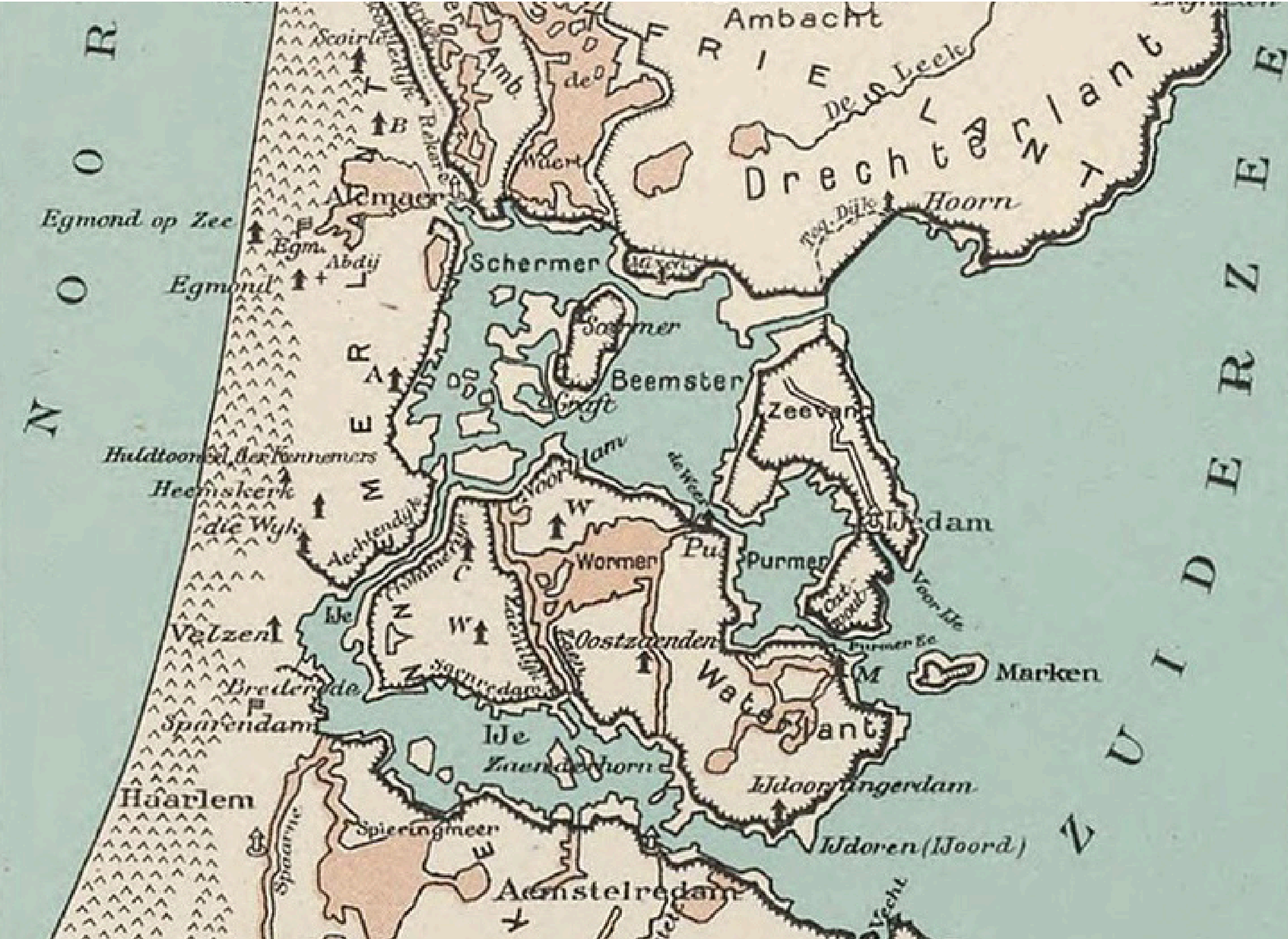
Gerdy Verschuure-Stuip

Yawei Chen

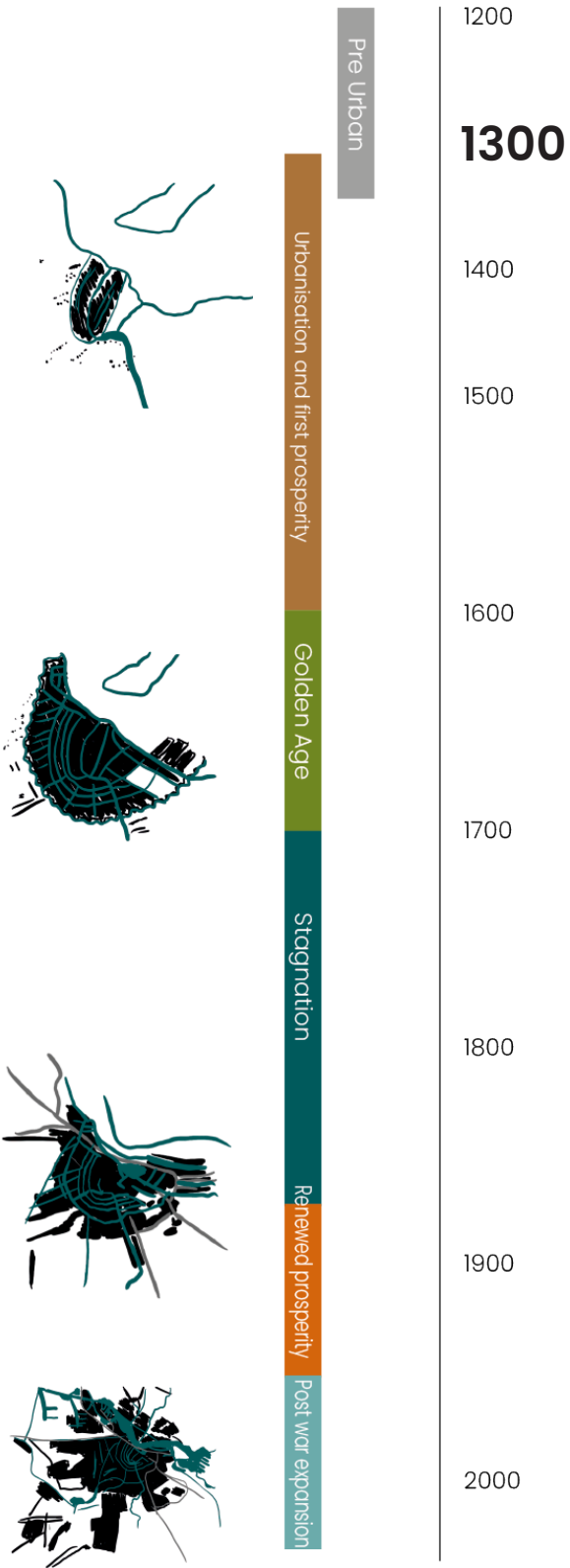
**HOW DO YOU VALUE THE WATER IN YOUR LIVING ENVIRONMENT?**



# HISTORICAL VALUES OF WATER



Source: Beekman & Schuiling (1927)

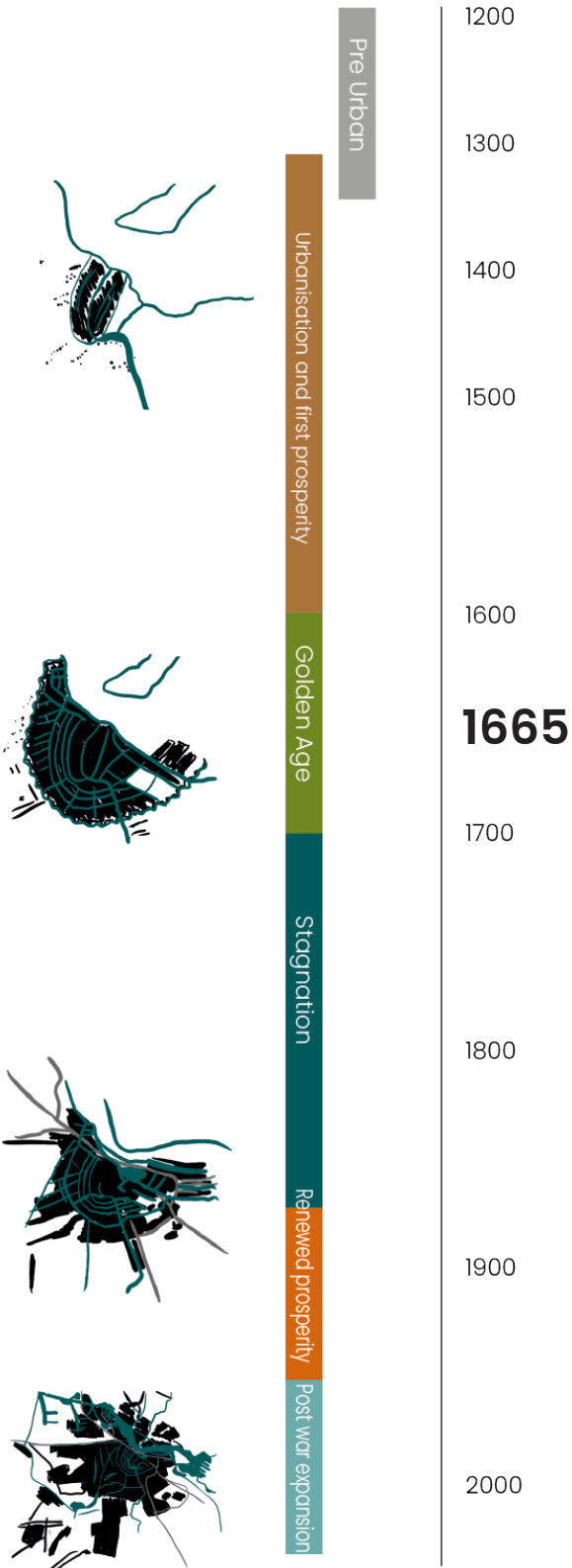




# HISTORICAL VALUES OF WATER



Source: Stadsarchief Amsterdam / Stalpaert (1665)

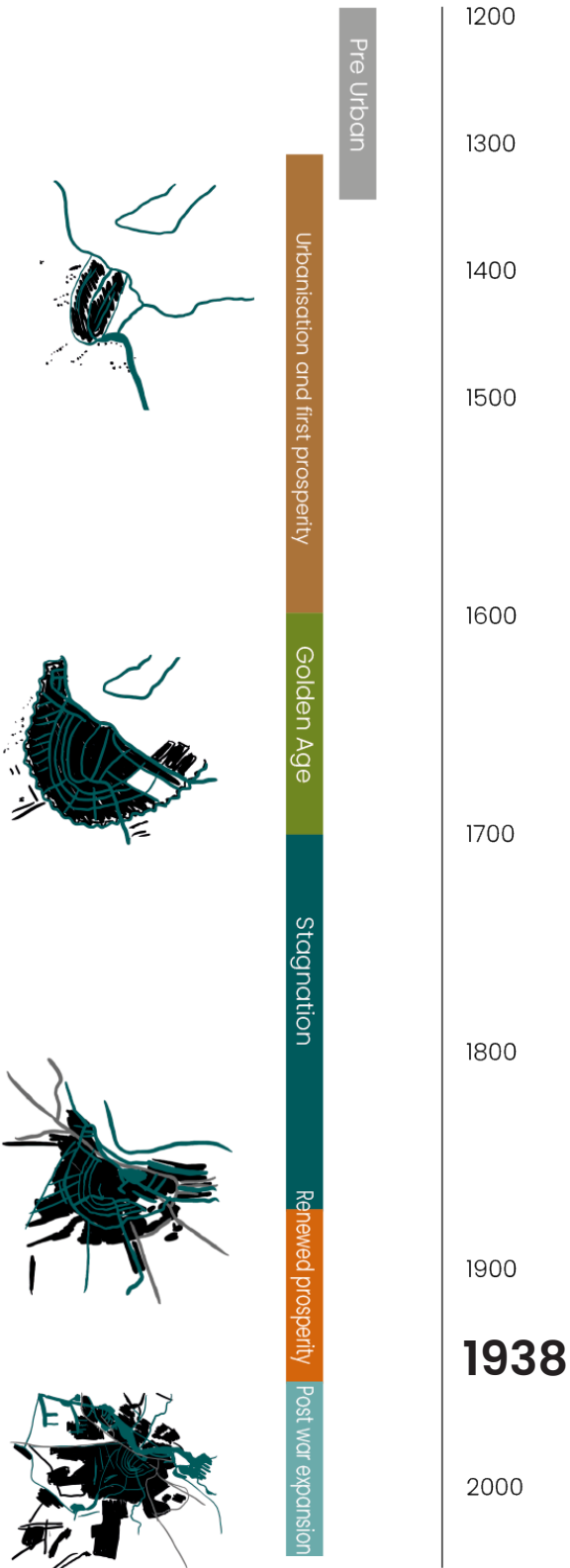




# HISTORICAL VALUES OF WATER



Source: Stadsarchief Amsterdam / Fototechnisch Cartografisch bedrijf KLM (1938)





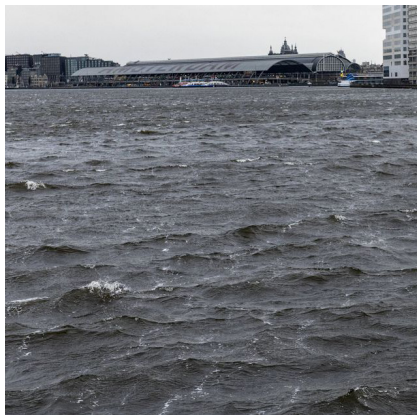
# HISTORICAL VALUES OF WATER

NRC

## Zo ontkwam Amsterdam bij storm Ciarán ternauwernood aan een overstroming

Zo ontkwam Amsterdam bij storm Ciarán ternauwernood aan een overstroming ...  
Hoogwater Amsterdam Amsterdam ontsnapte aan overstromingen door...  
16 Nov 2023

Source: Niemandsverdriet via NRC (6 November 2023)

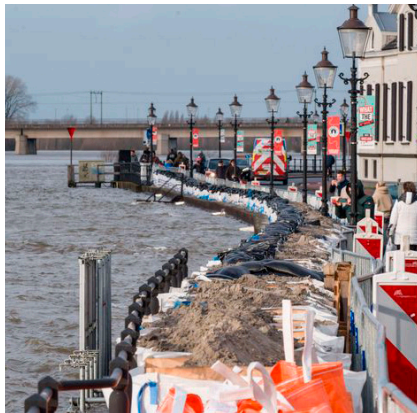


AD AD.nl

## Bouwen in Amsterdam? Op meeste plekken grote risico's op overstroming of bodemdaling

De bouw van woningen en kantoren in Amsterdam wordt op de meeste plekken behoorlijk gedwarsboomd door het gevaar van een dalende bodem of...  
1 month ago

Source: Klerks via AD (4 May 2024)



Het Parool

## Gevolgen klimaatverandering brengen deel erfgoed in gevaar: 'We moeten in tijden van droogte het grondwater op peil ...

Het snel veranderende klimaat bedreigt ook cultureel erfgoed, zoals monumenten, historische tuinen en archeologische resten.  
1 month ago

Source: van Zoelen via Het Parool (14 May 2024)

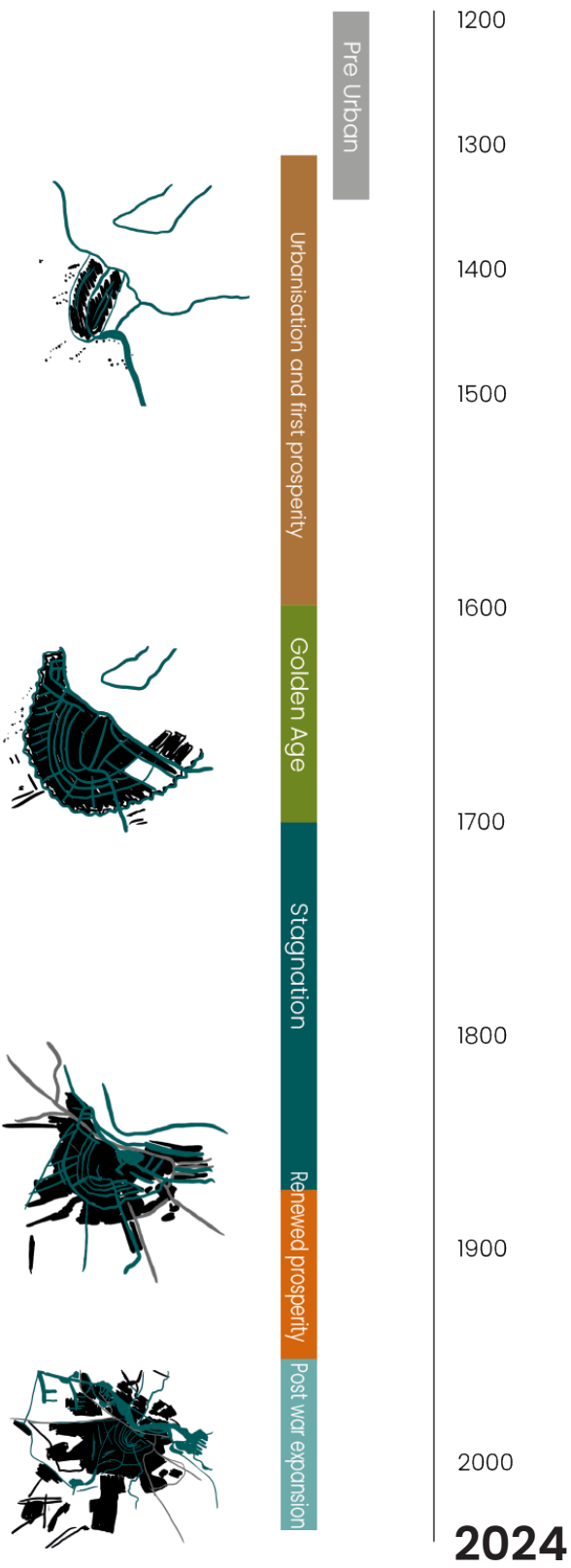
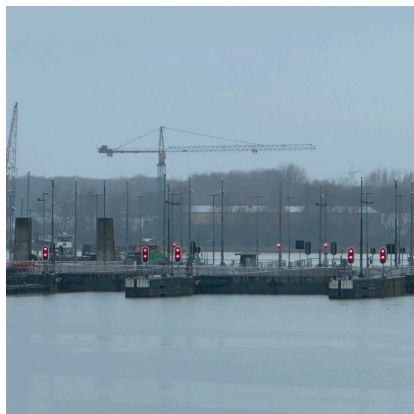


AT5

## Oranjesluizen gesloten vanwege hoogwater in IJmeer en Markermeer

Oranjesluizen gesloten vanwege hoogwater in IJmeer en Markermeer ... De Oranjesluizen, die tussen het IJ en het Buiten-IJ liggen, zijn tot nader...  
4 Jan 2024

Source: AT5 (4 January 2024)





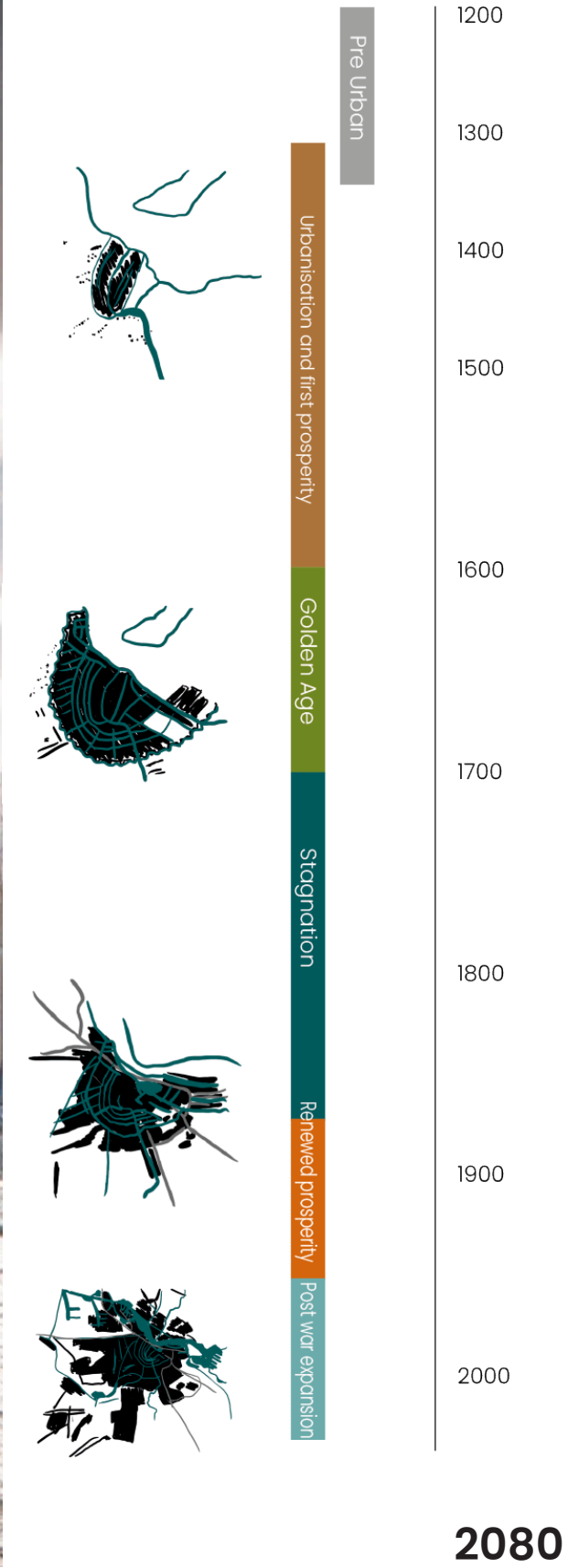
# **HOW WILL THESE WATER STRUCTURES TRANSFORM AS OUR CLIMATE AND CITIES CHANGE?**



# A FUTURE FULL OF WATER PROBLEMS

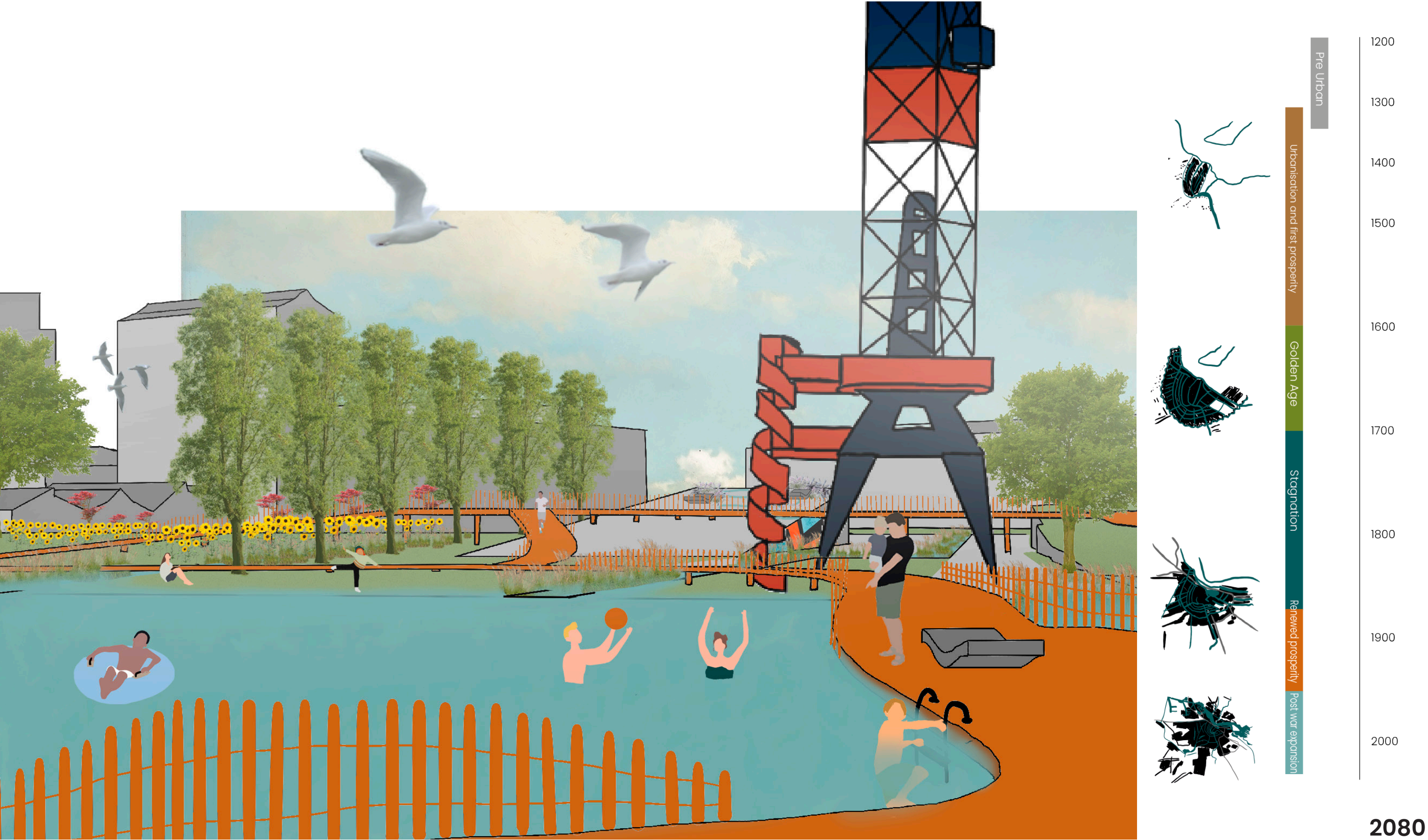


Source: Image generated with Adobe Firefly (2024)





# A FUTURE WITH RENEWED WATER VALUES

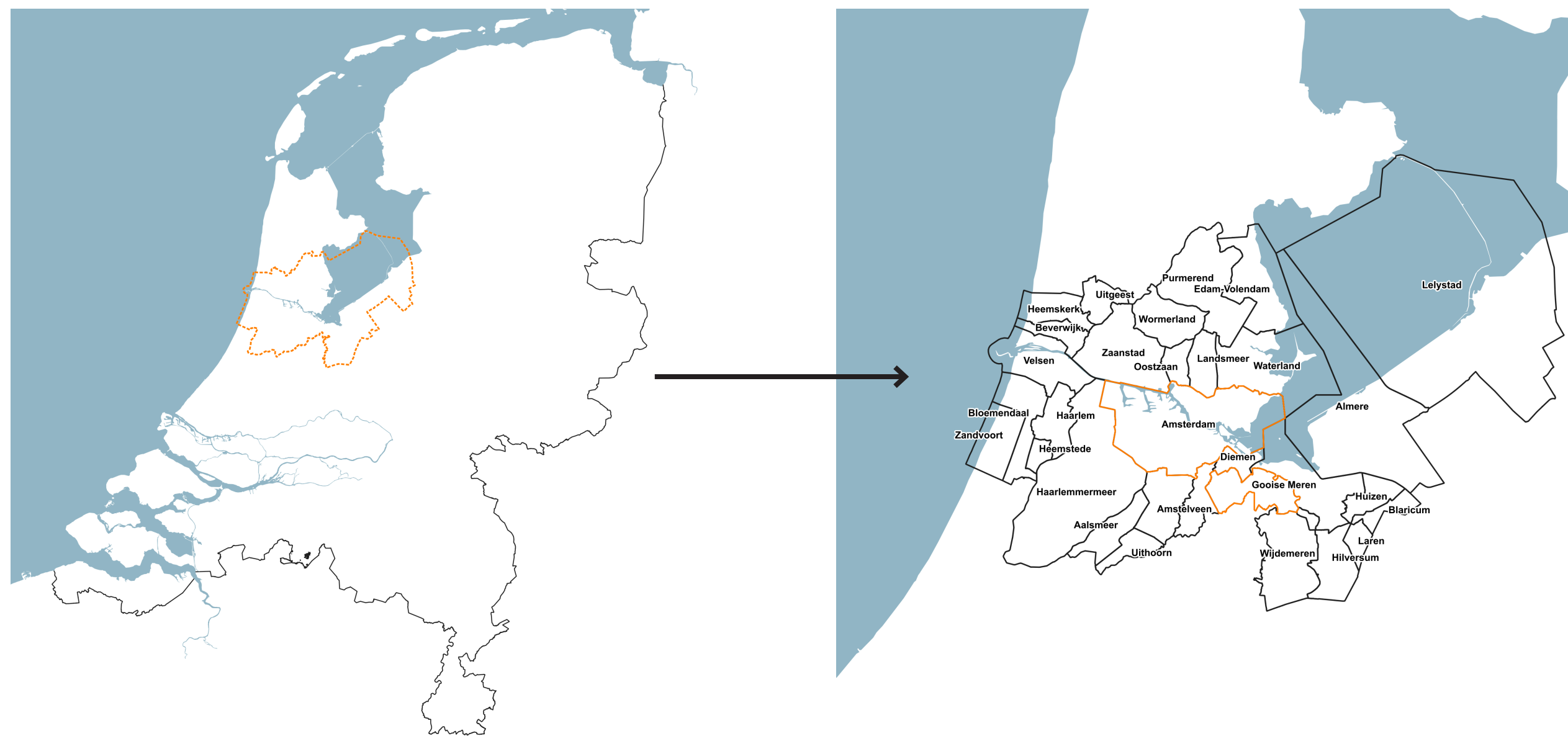


# CONTENTS



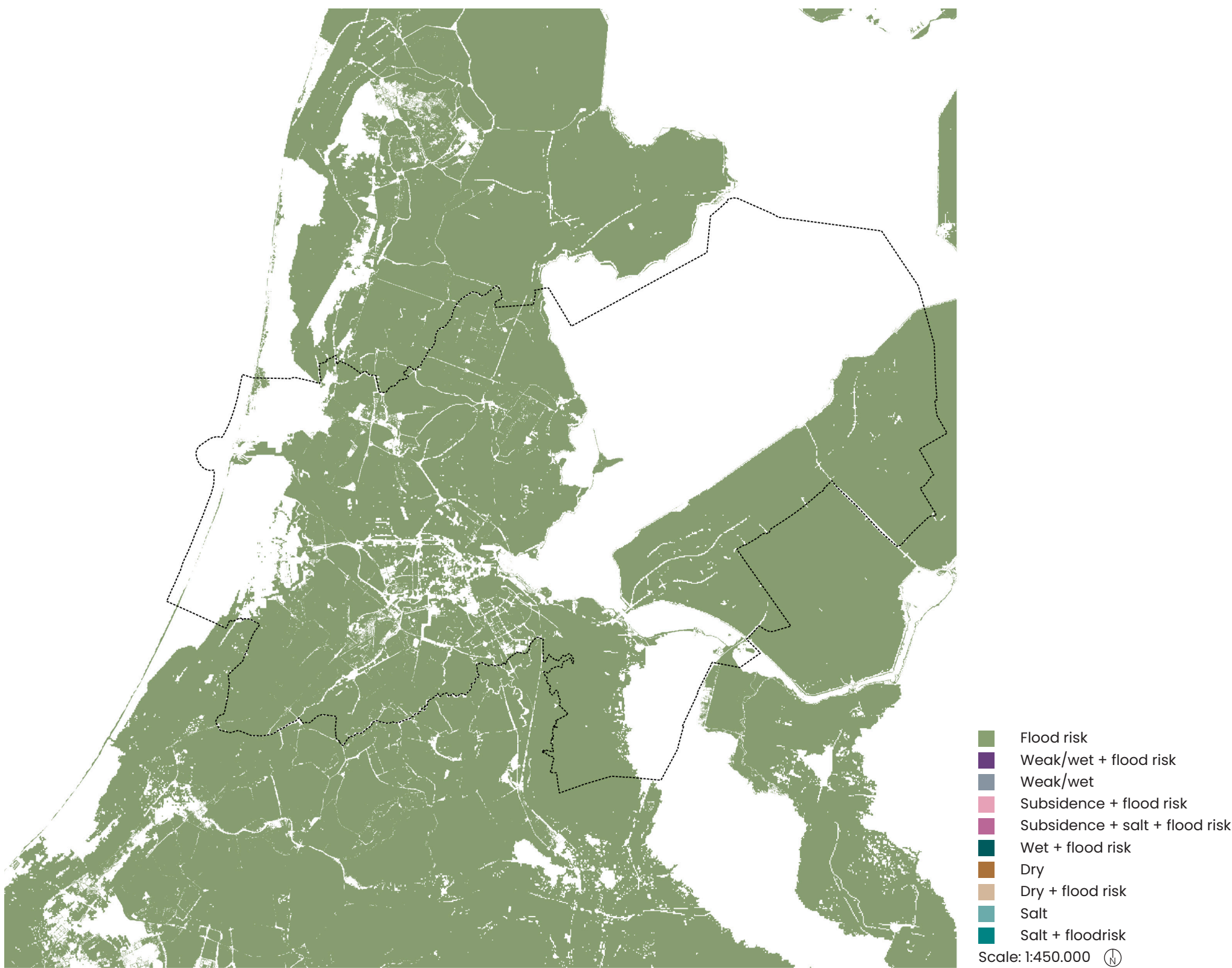


# WHY AMSTERDAM?



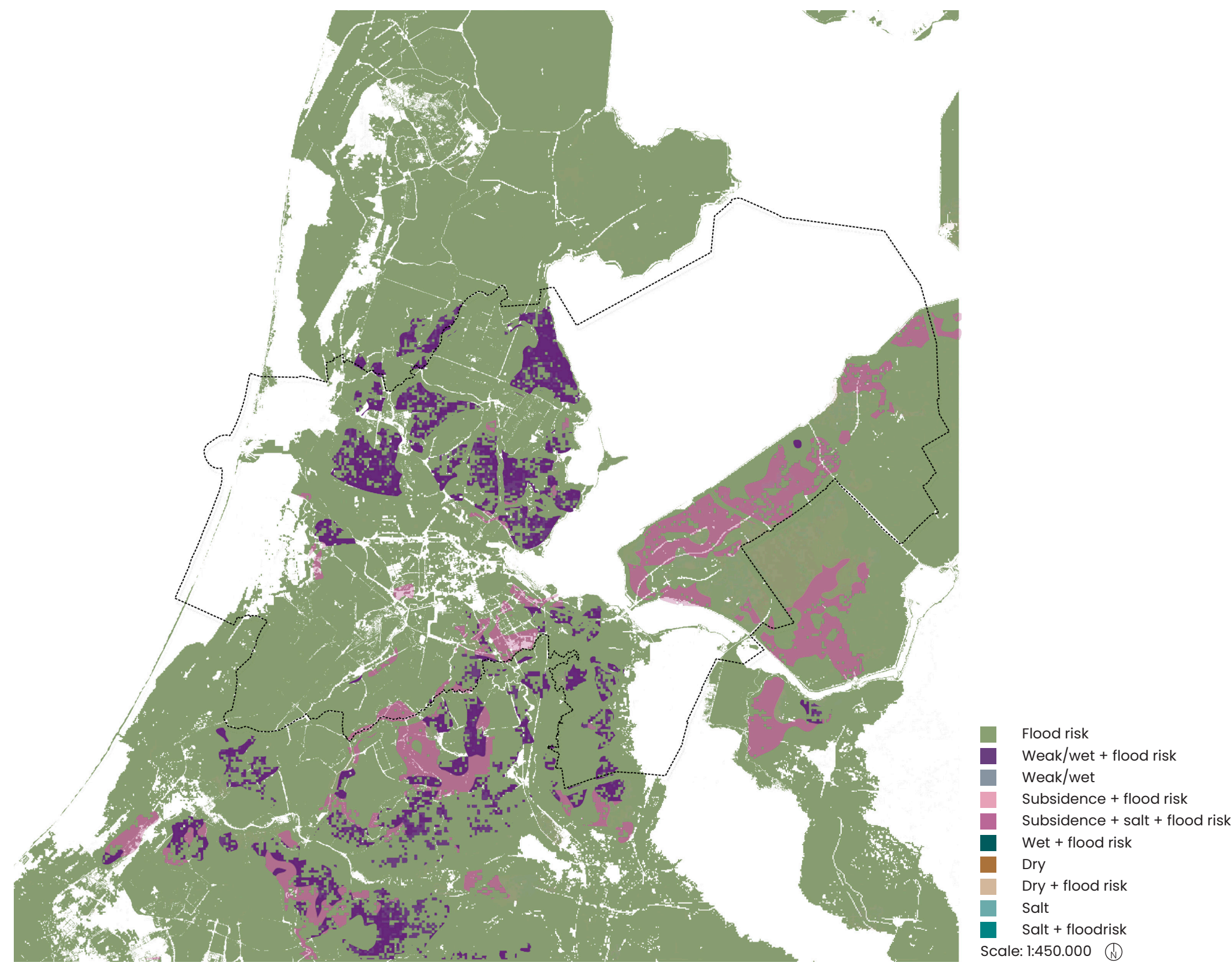


# WATER PROBLEMS IN THE NETHERLANDS



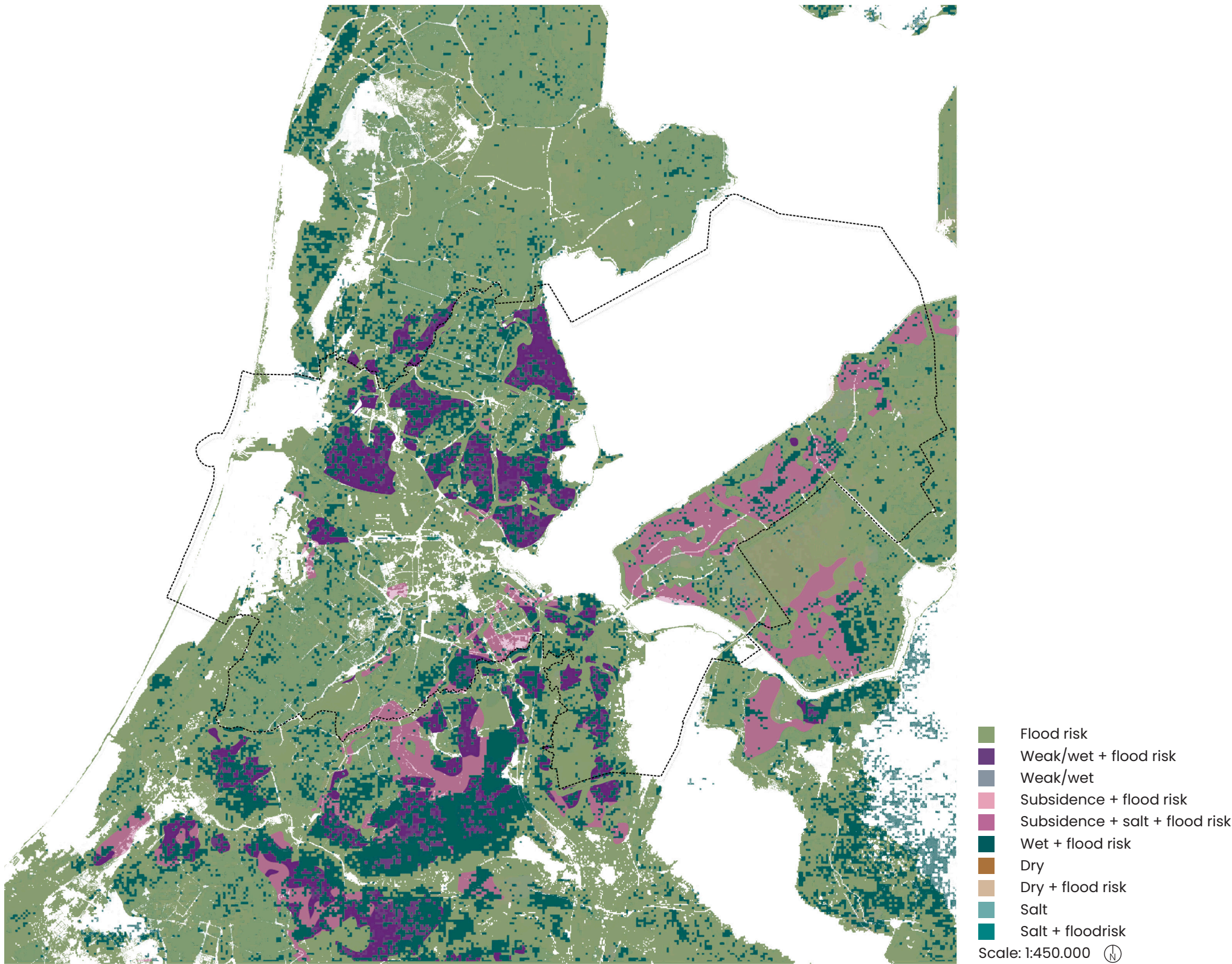


# WATER PROBLEMS IN THE NETHERLANDS



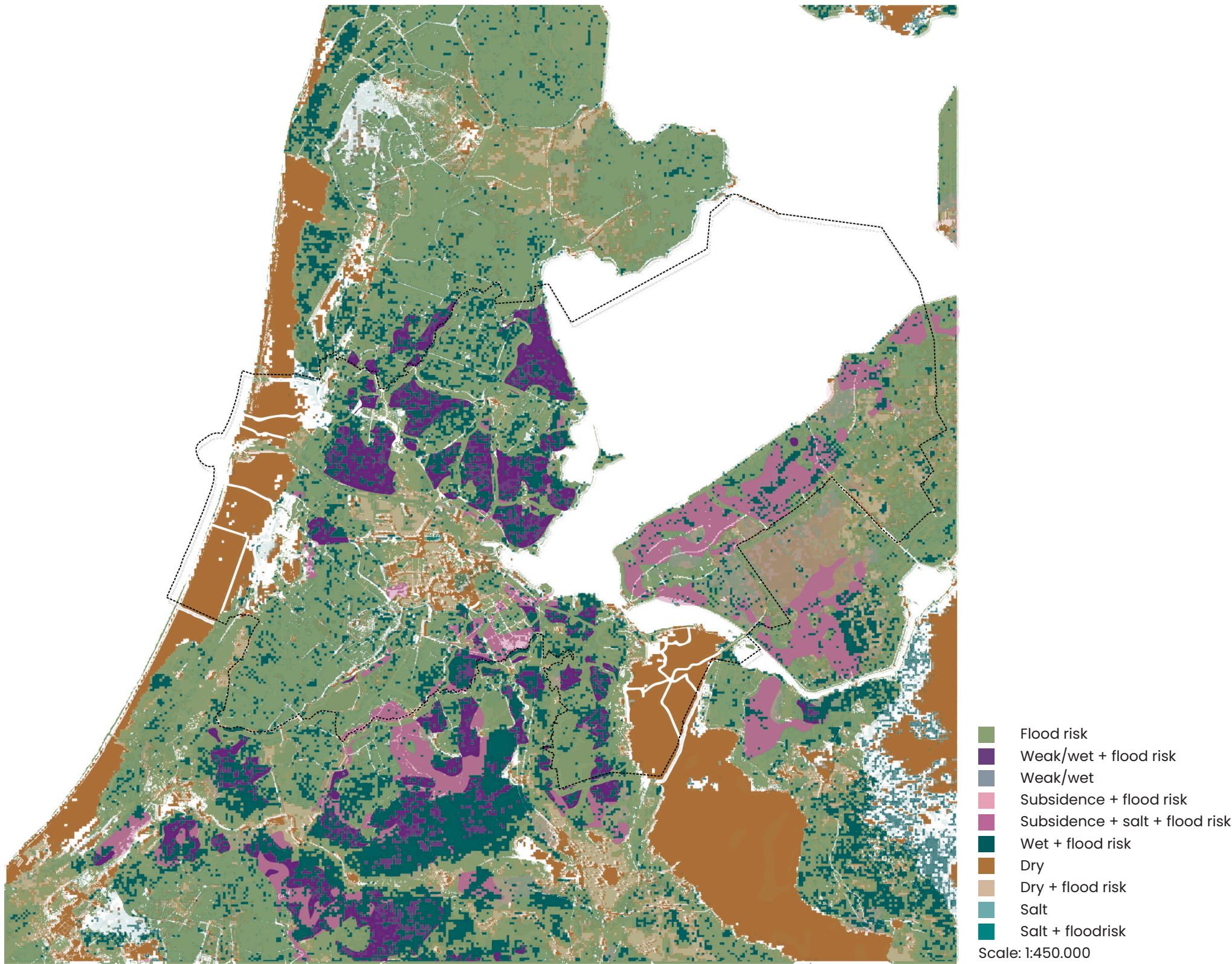


# WATER PROBLEMS IN THE NETHERLANDS



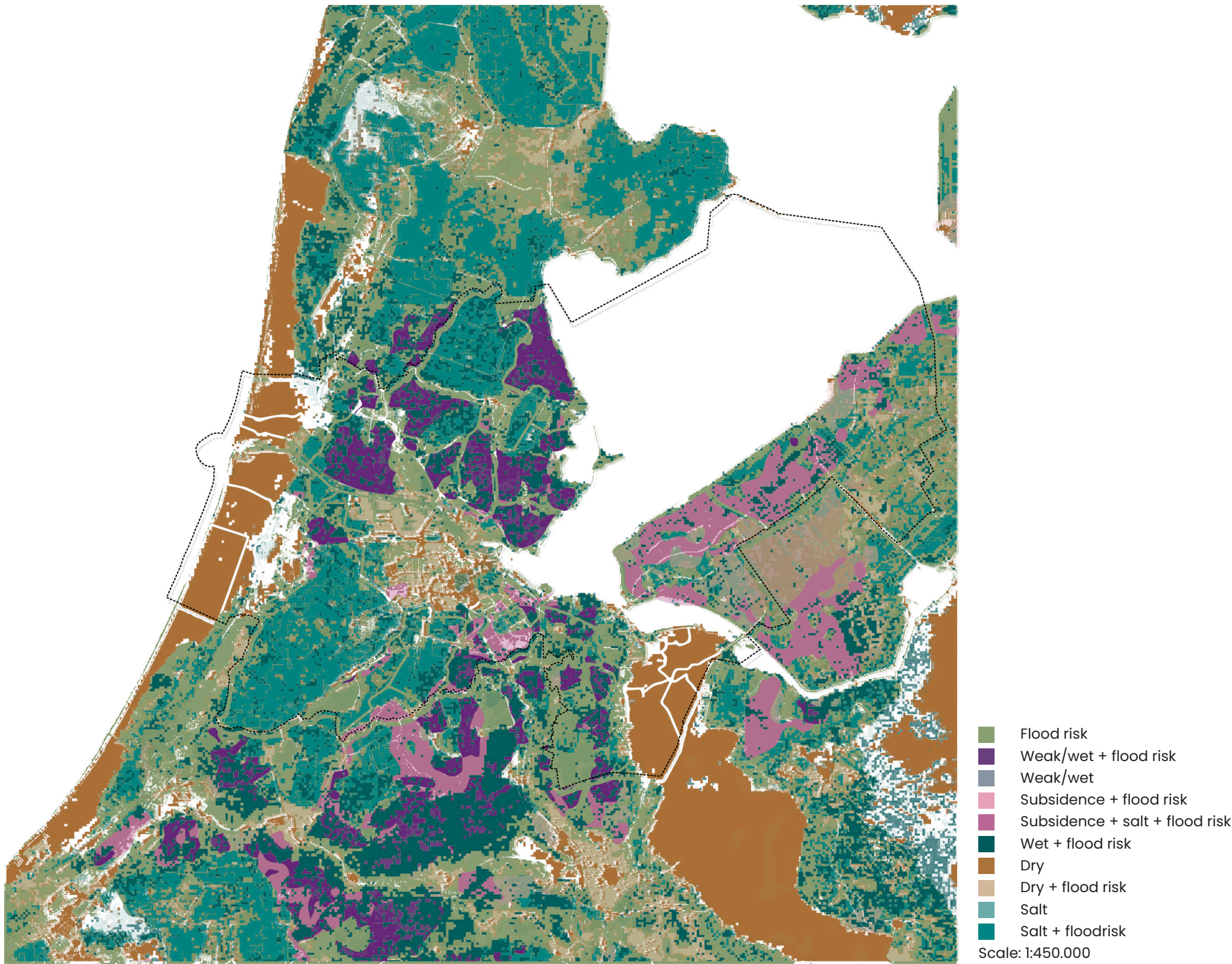


# WATER PROBLEMS IN THE NETHERLANDS



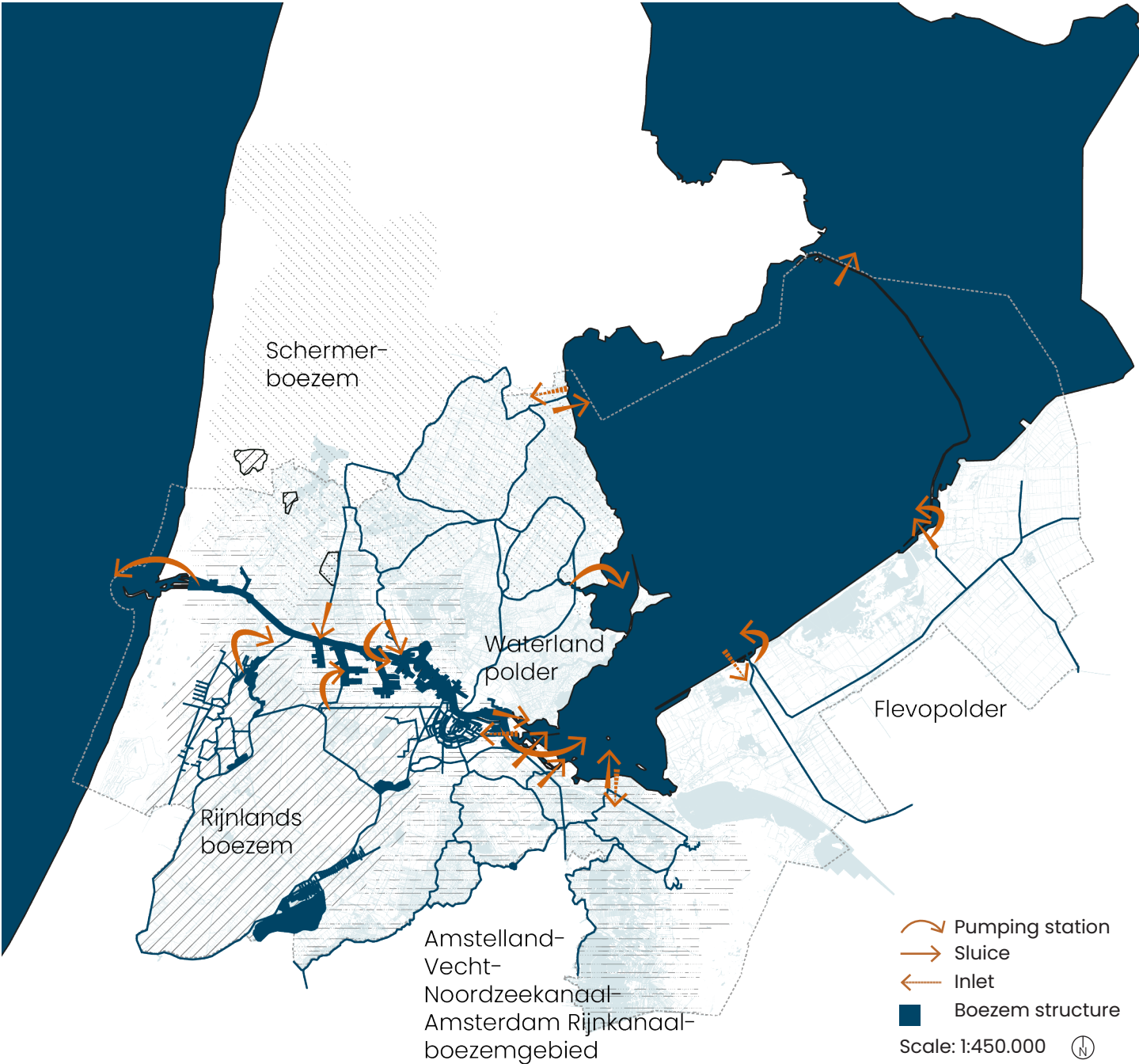


# WATER PROBLEMS IN THE NETHERLANDS

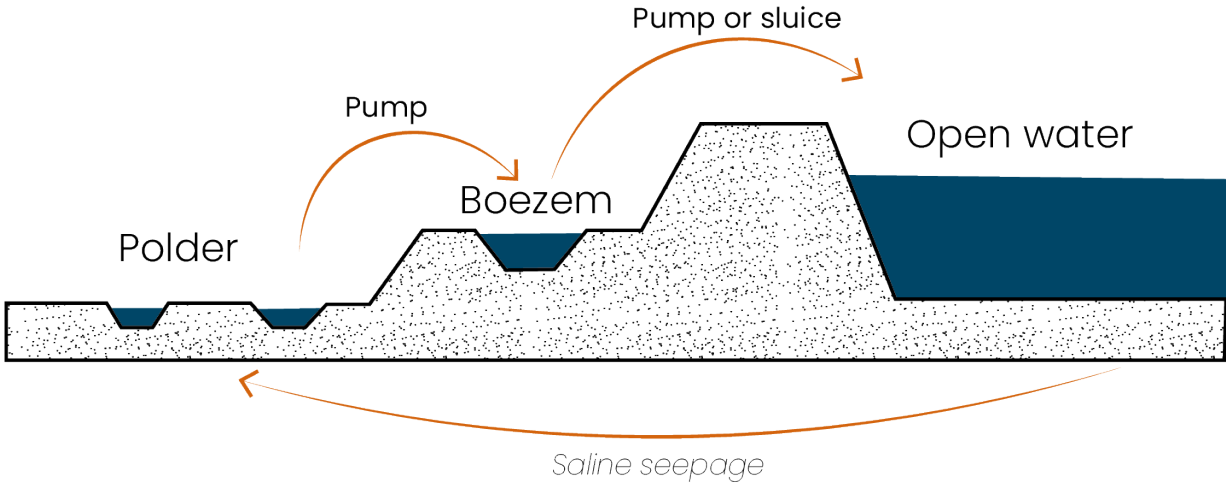




# PROBLEMS IN THE POLDER CITY

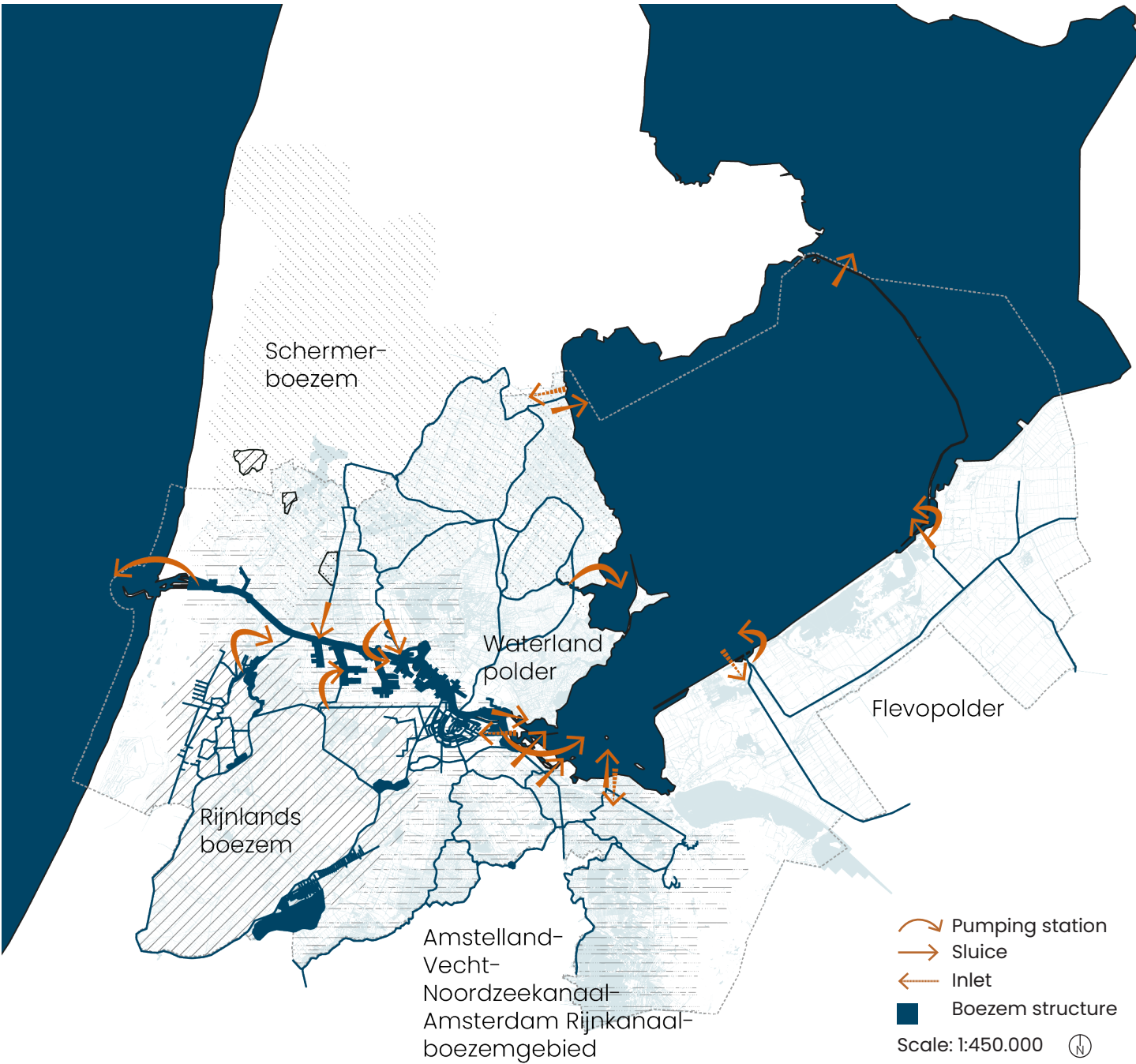


Section general polder-boezem system

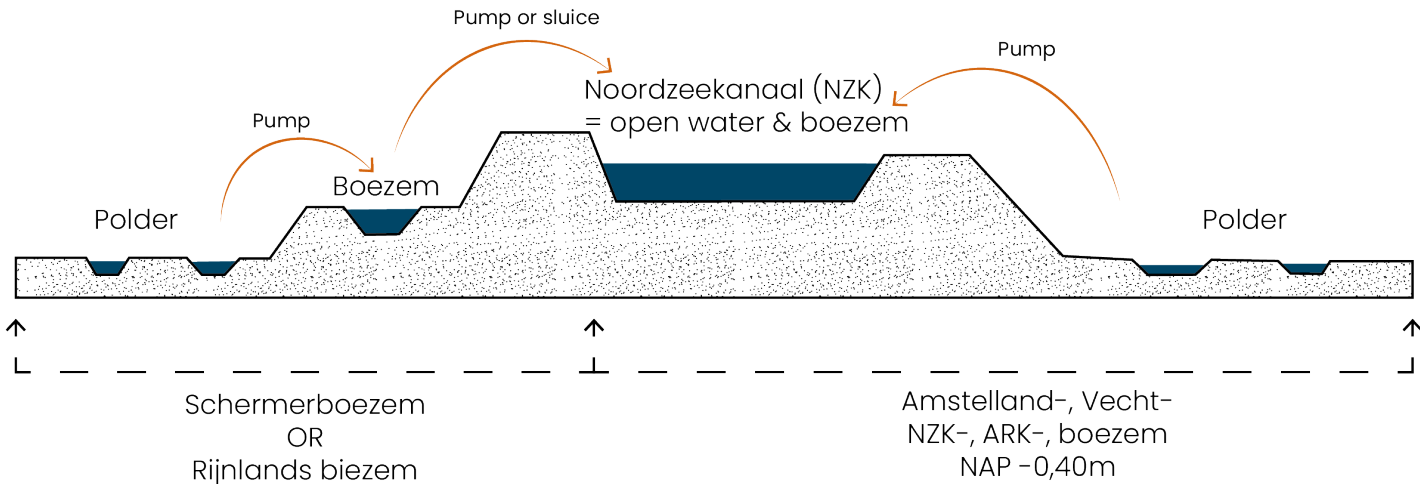




# PROBLEMS IN THE POLDER CITY

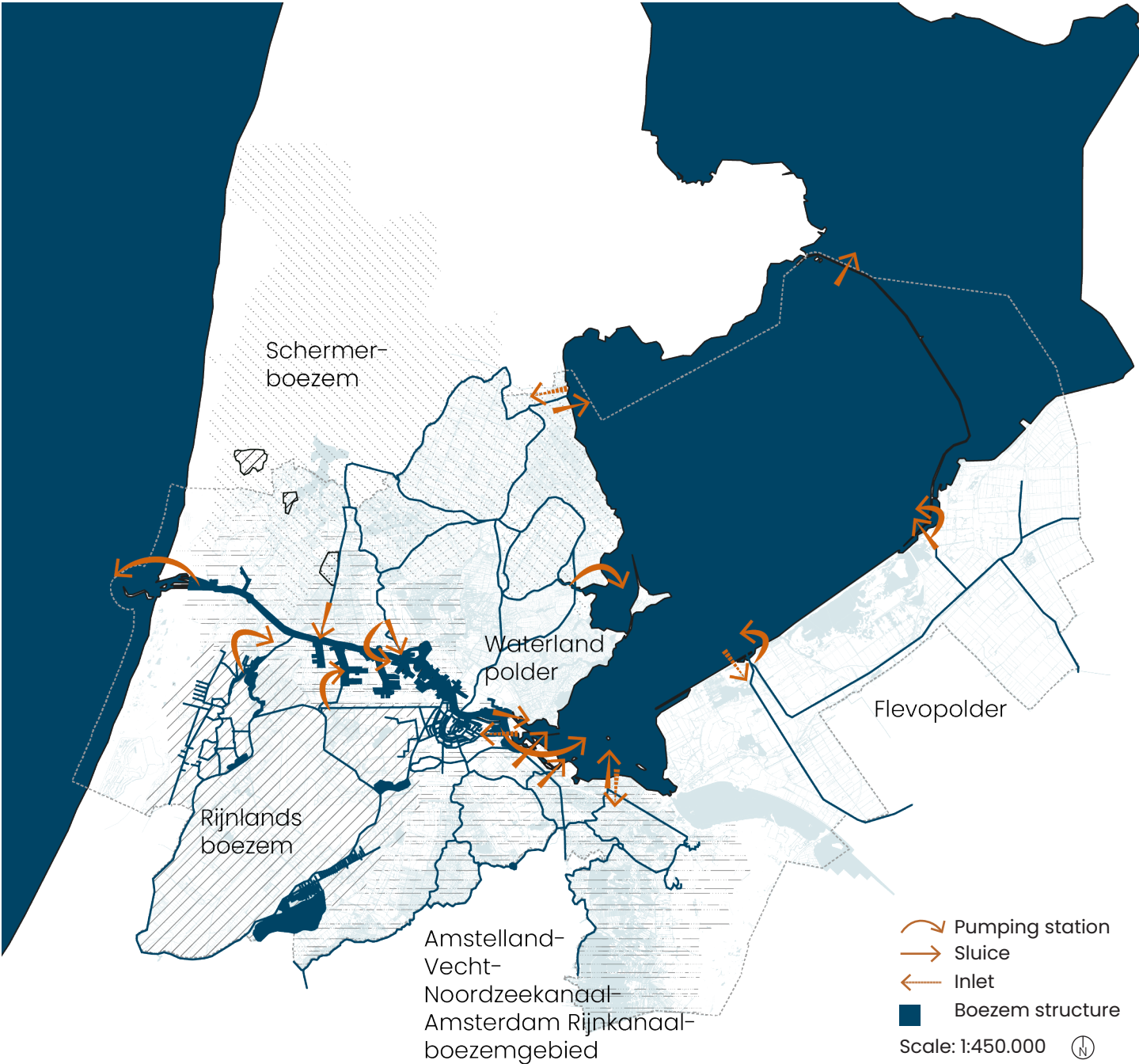


Section polder-boezem system  
Amsterdam Metropolitan Area

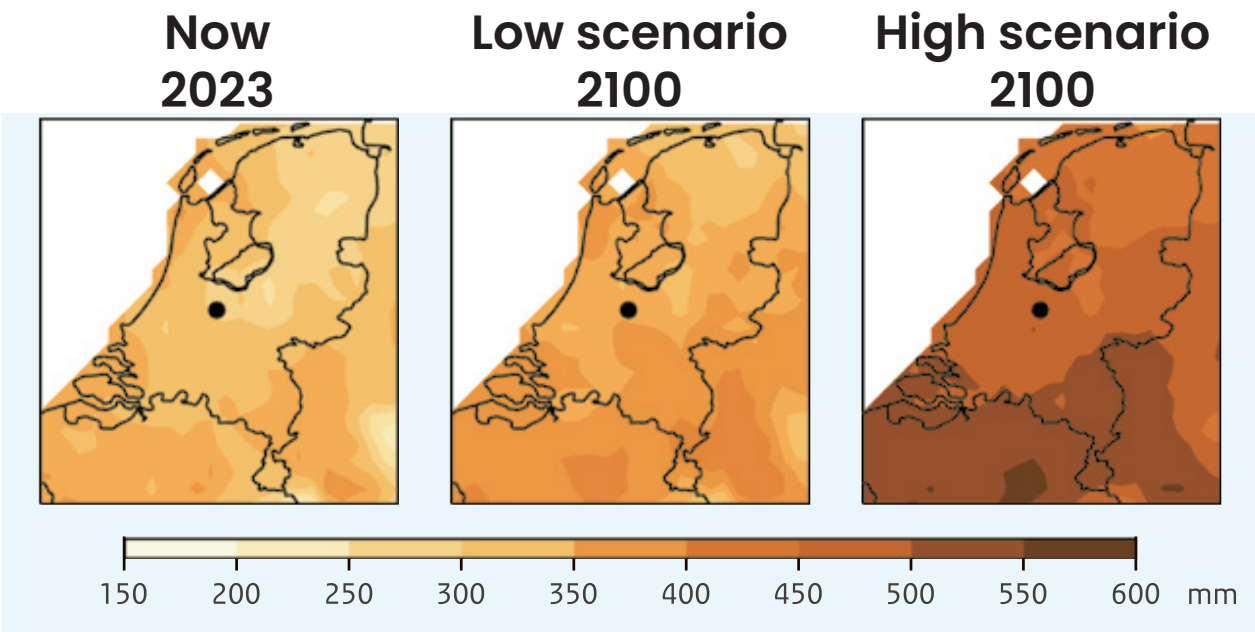




# PROBLEMS IN THE POLDER CITY



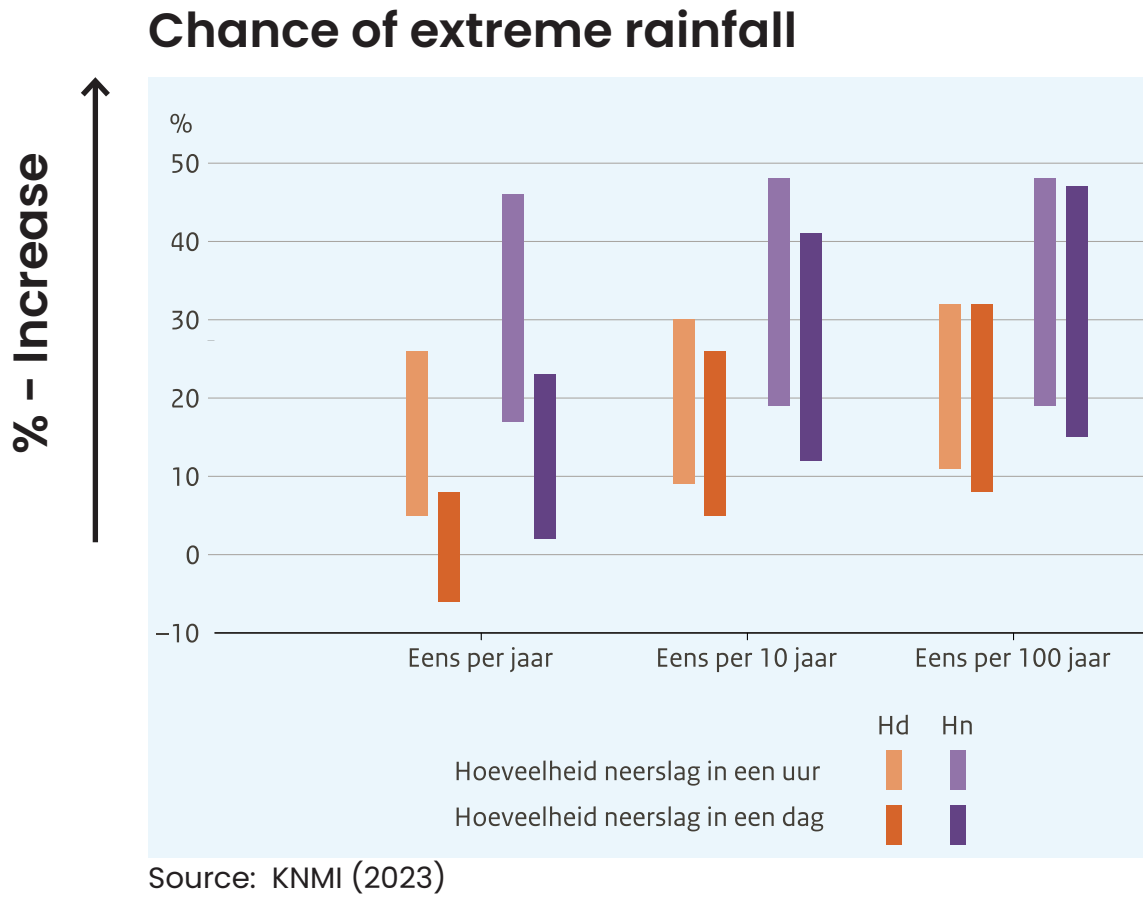
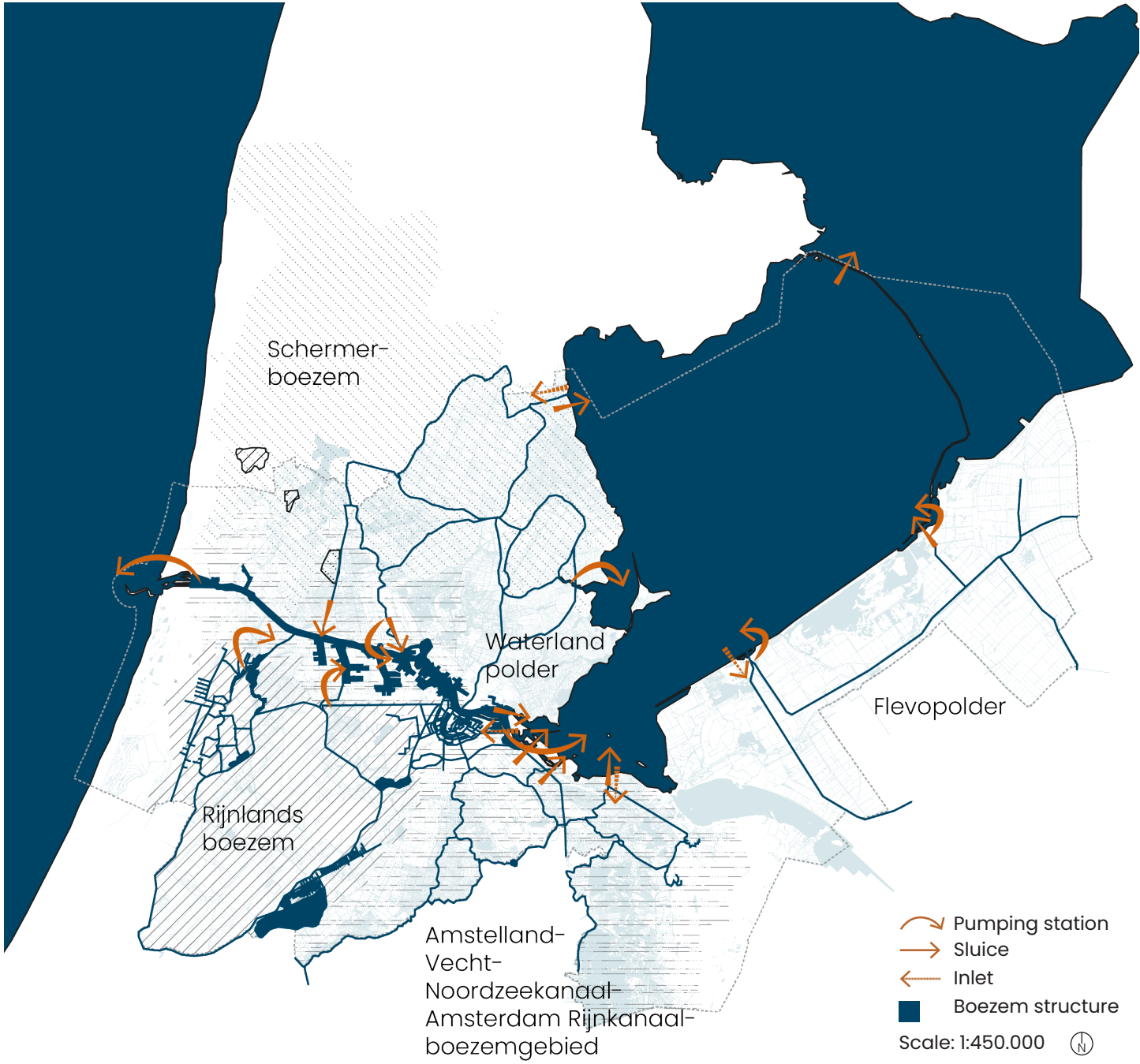
## Maximum water shortage



Source: KNMI (2023)

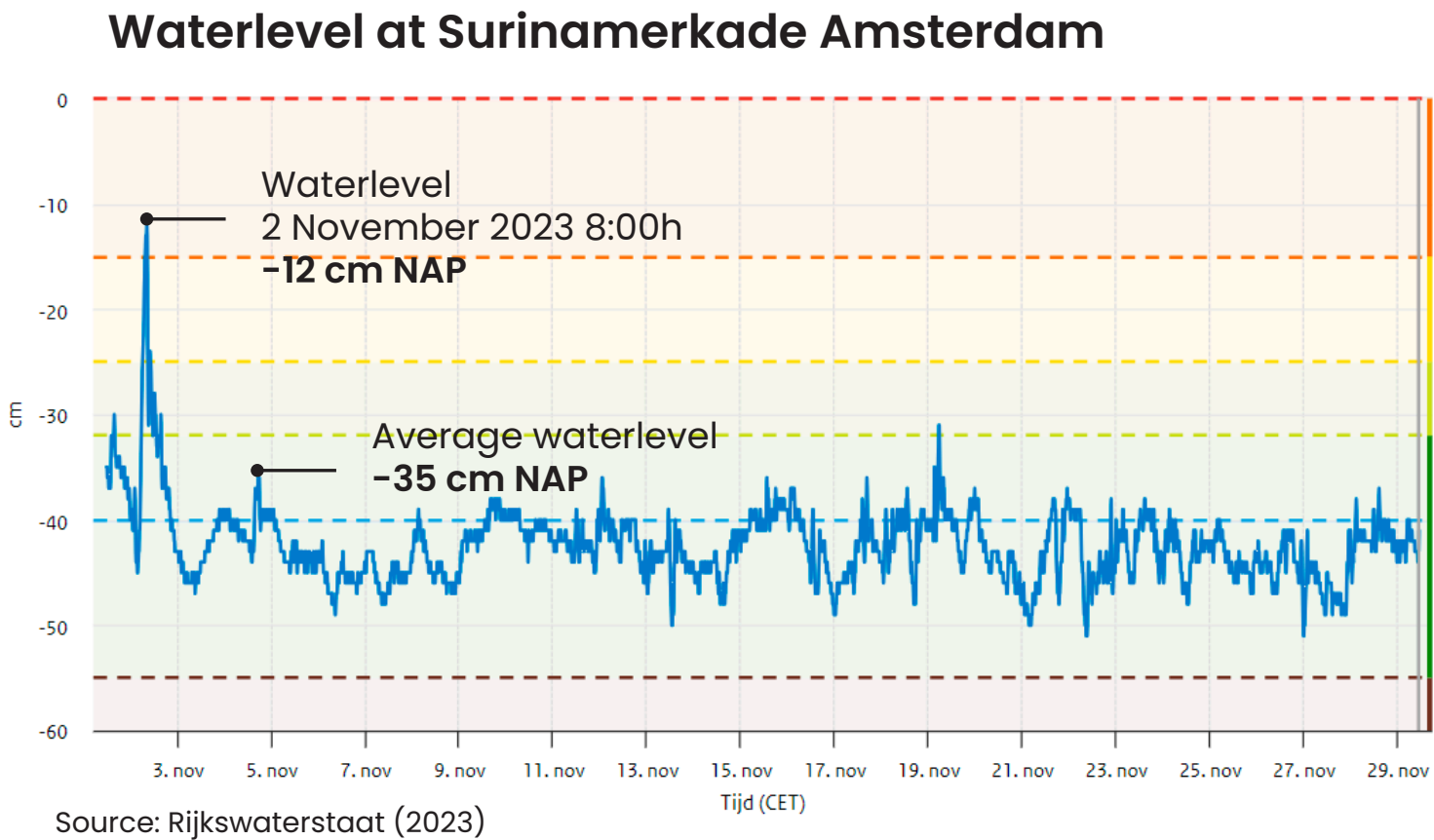


# PROBLEMS IN THE POLDER CITY





# PROBLEMS IN THE POLDER CITY



## Areas outside of the Amsterdam dike system



Source: Waternet via NRC (2023)



# PROBLEM STATEMENT

**WATER HAS BEEN AT THE CORE OF AMSTERDAM'S URBAN DEVELOPMENT**

**NOWADAYS CLIMATE CHANGE IS CAUSING A MULTITUDE OF WATER-RELATED PROBLEMS**

**WATER PRESENTS BOTH AN ASSET AND A THREAT TO AMSTERDAM'S CULTURAL HERITAGE**

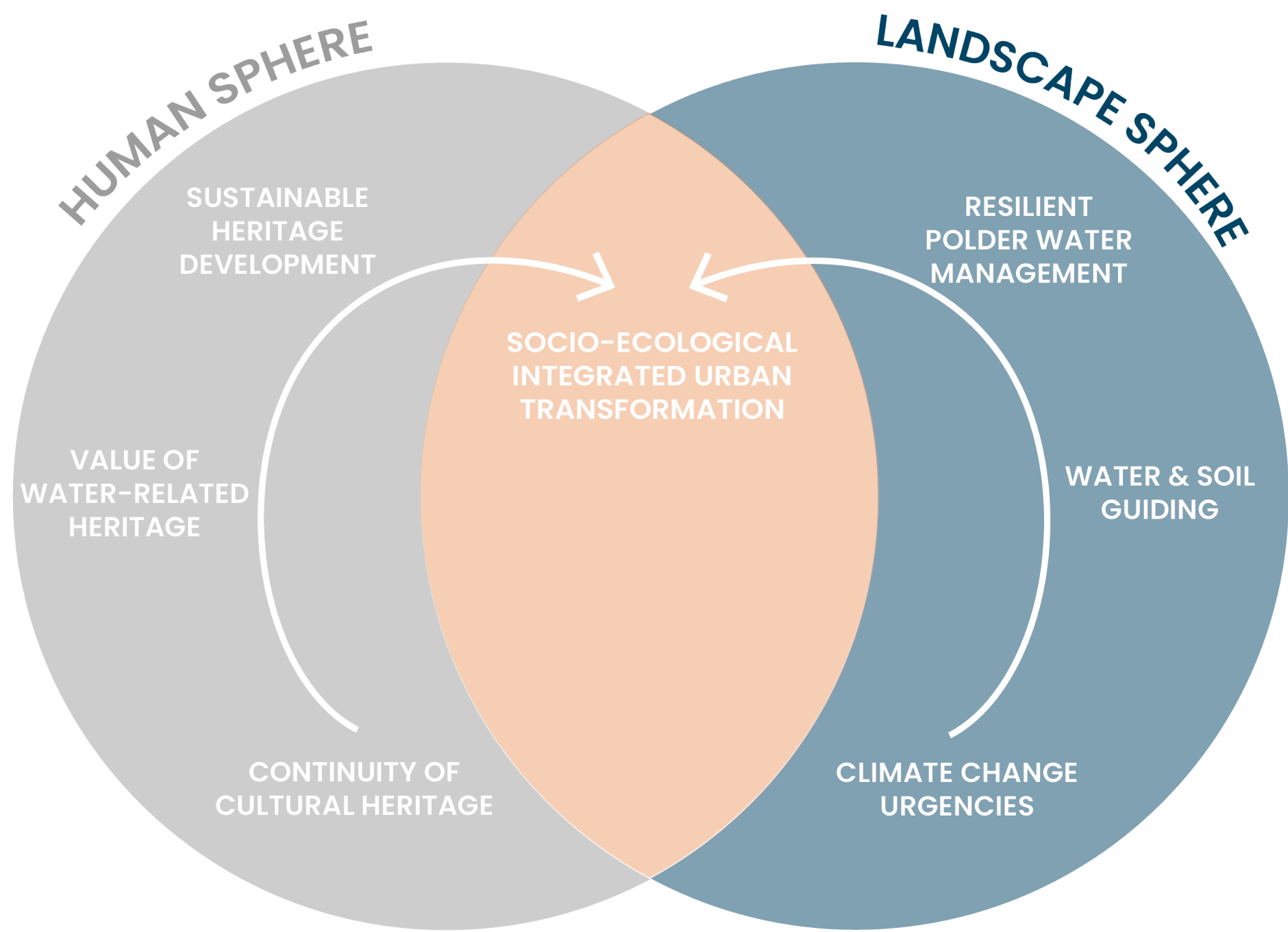


# MAIN RESEARCH QUESTION

HOW CAN THE NEEDED RESILIENCE OF THE FUTURE POLDER WATER SYSTEM BE INTEGRATED WITH THE SUSTAINABLE DEVELOPMENT OF WATER RELATED HERITAGE, STRENGTHENING THE WATER IDENTITY OF AMSTERDAM?

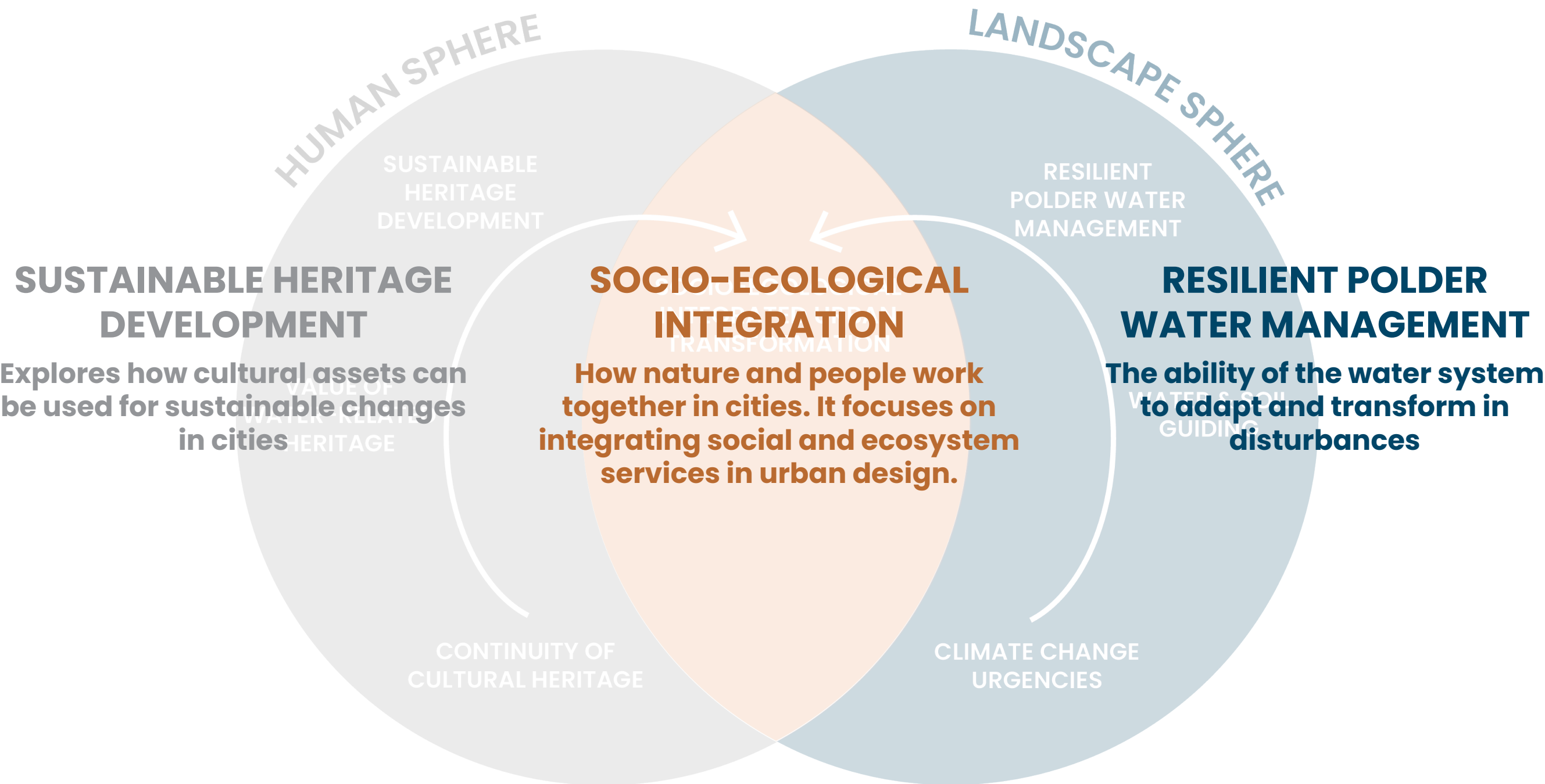


# DESIGN VISION



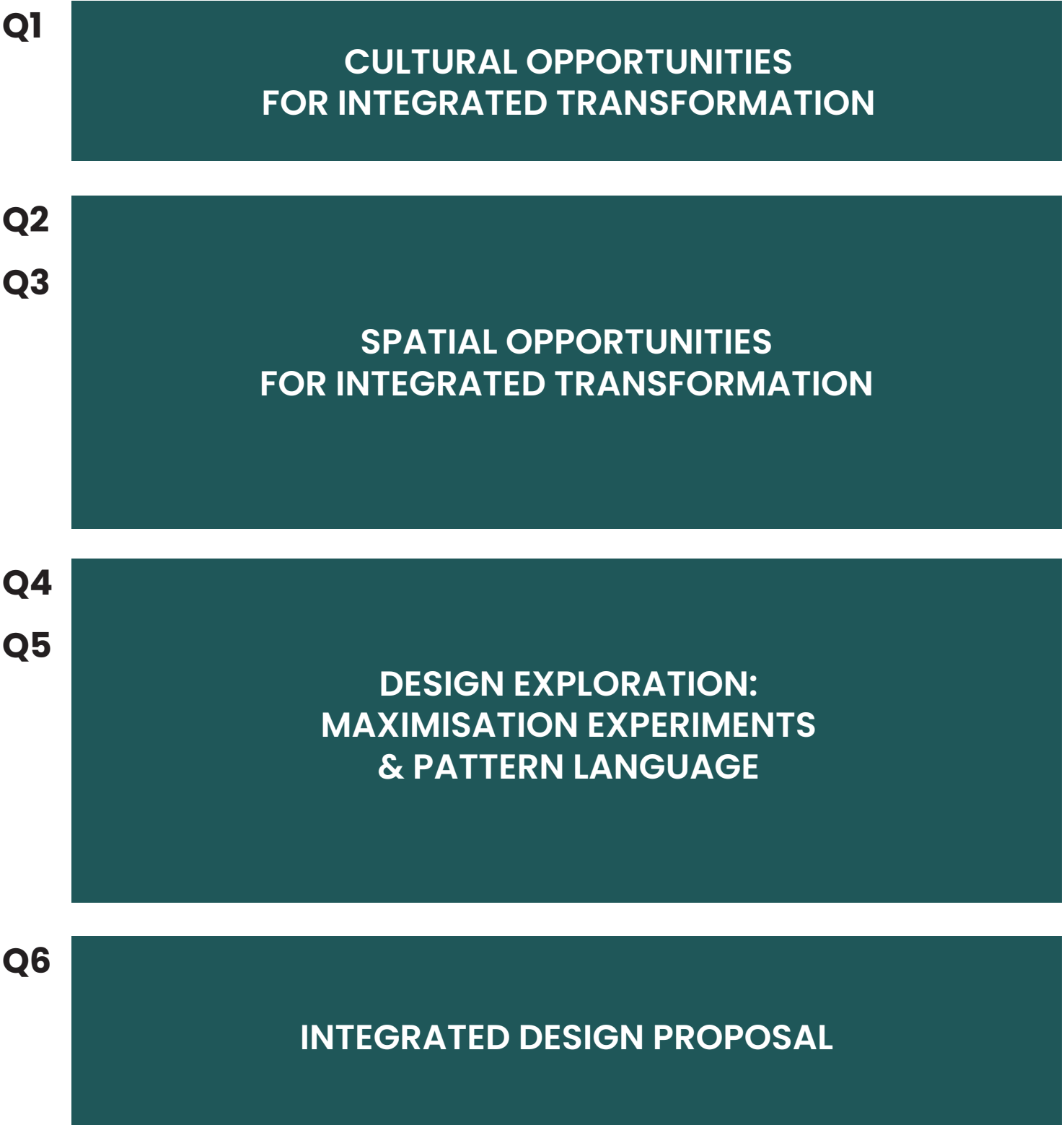


# DESIGN GOALS





# METHODOLOGY





## CULTURAL OPPORTUNITIES

# WHAT ARE CULTURAL HERITAGE VALUES?

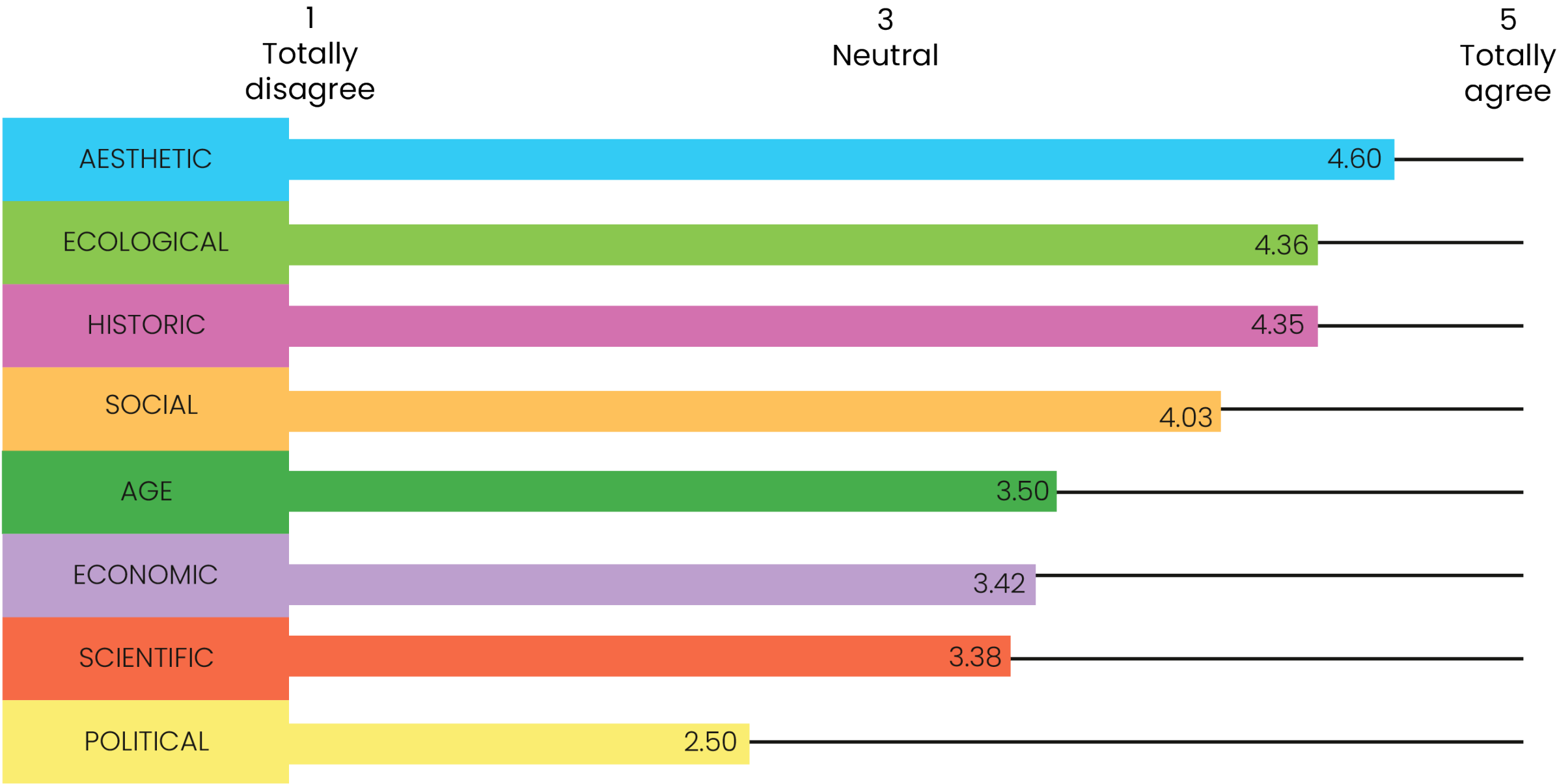
## Cultural heritage value taxonomy



Source: Pereira Roders (2007)



# HOW DO YOU VALUE THE WATER IN THEIR LIVING ENVIRONMENT?



This visualisation is based on 109 respondees

# PLACES TO IMPROVE THE URBAN WATERFRONT



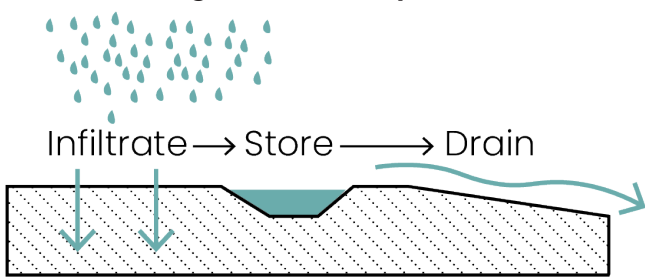


## SPATIAL OPPORTUNITIES

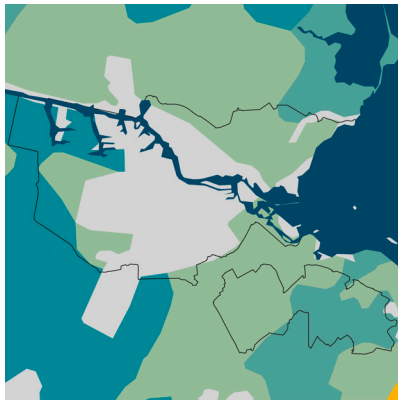


# WATER MANAGEMENT POTENTIAL

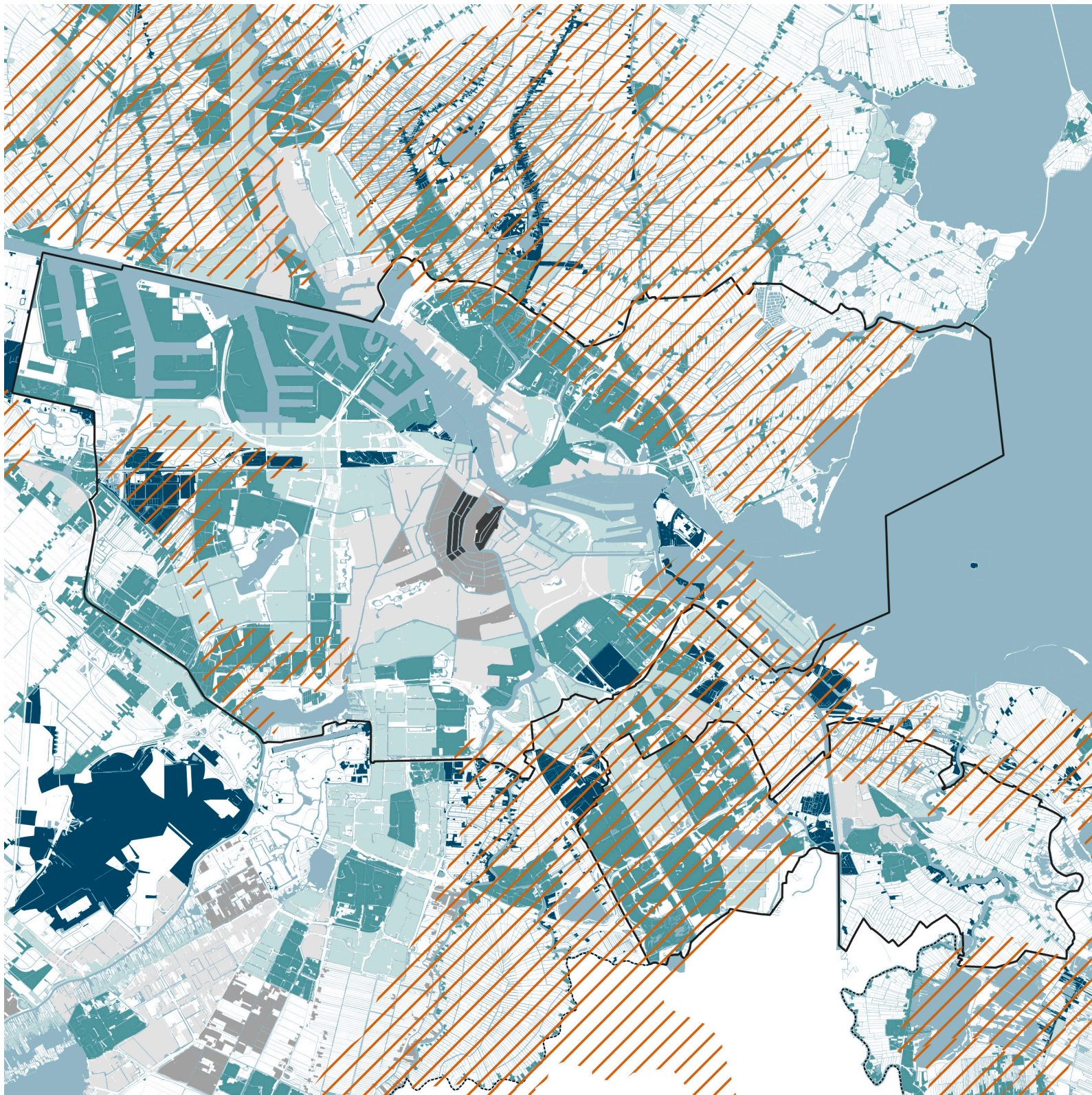
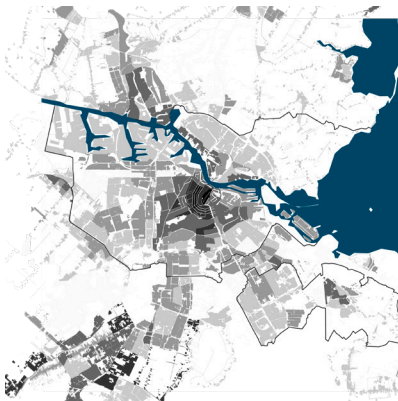
Water Management Principle



Soil Classification



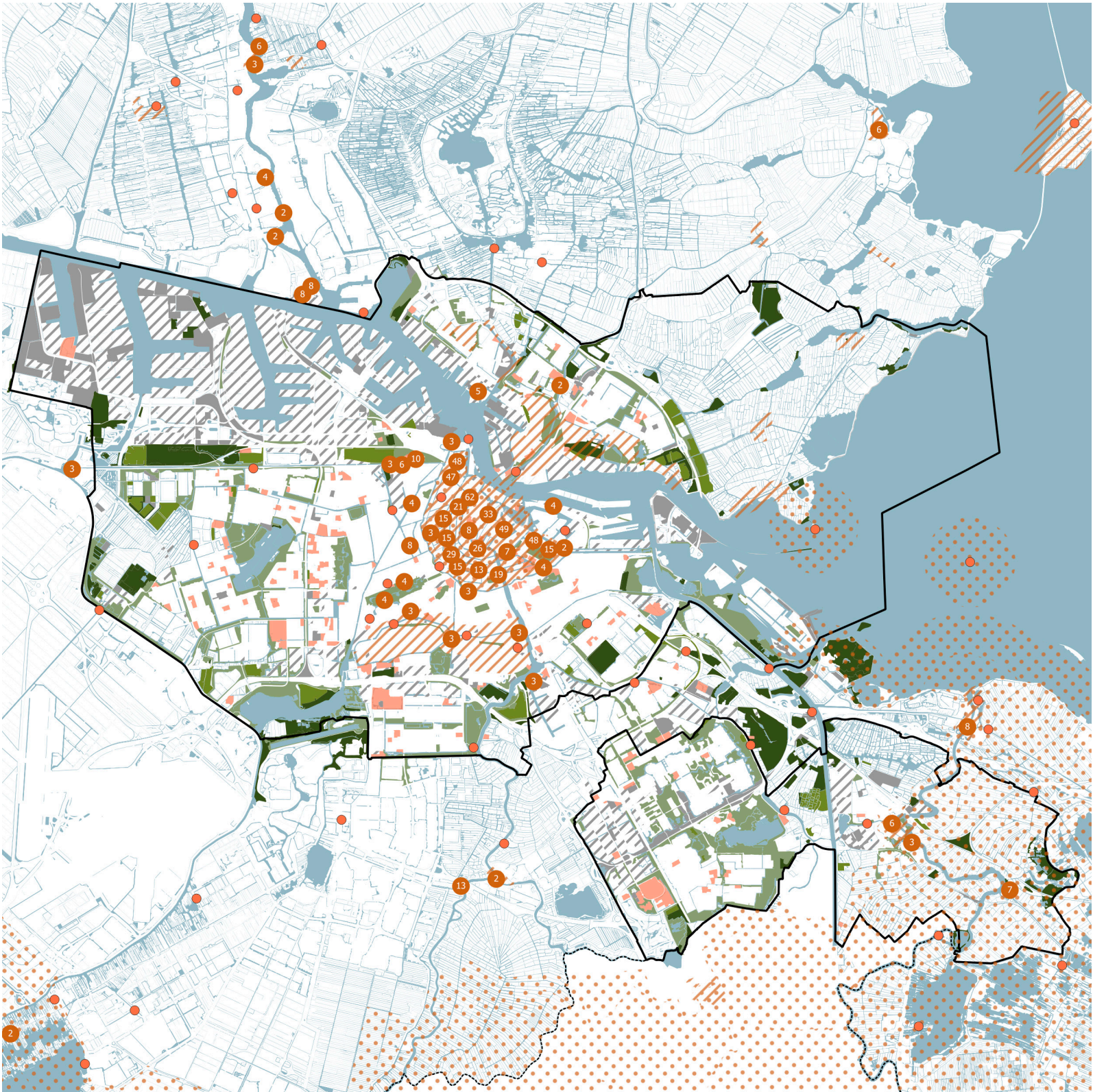
Ground Space Index





# CULTURAL VALUE POTENTIAL

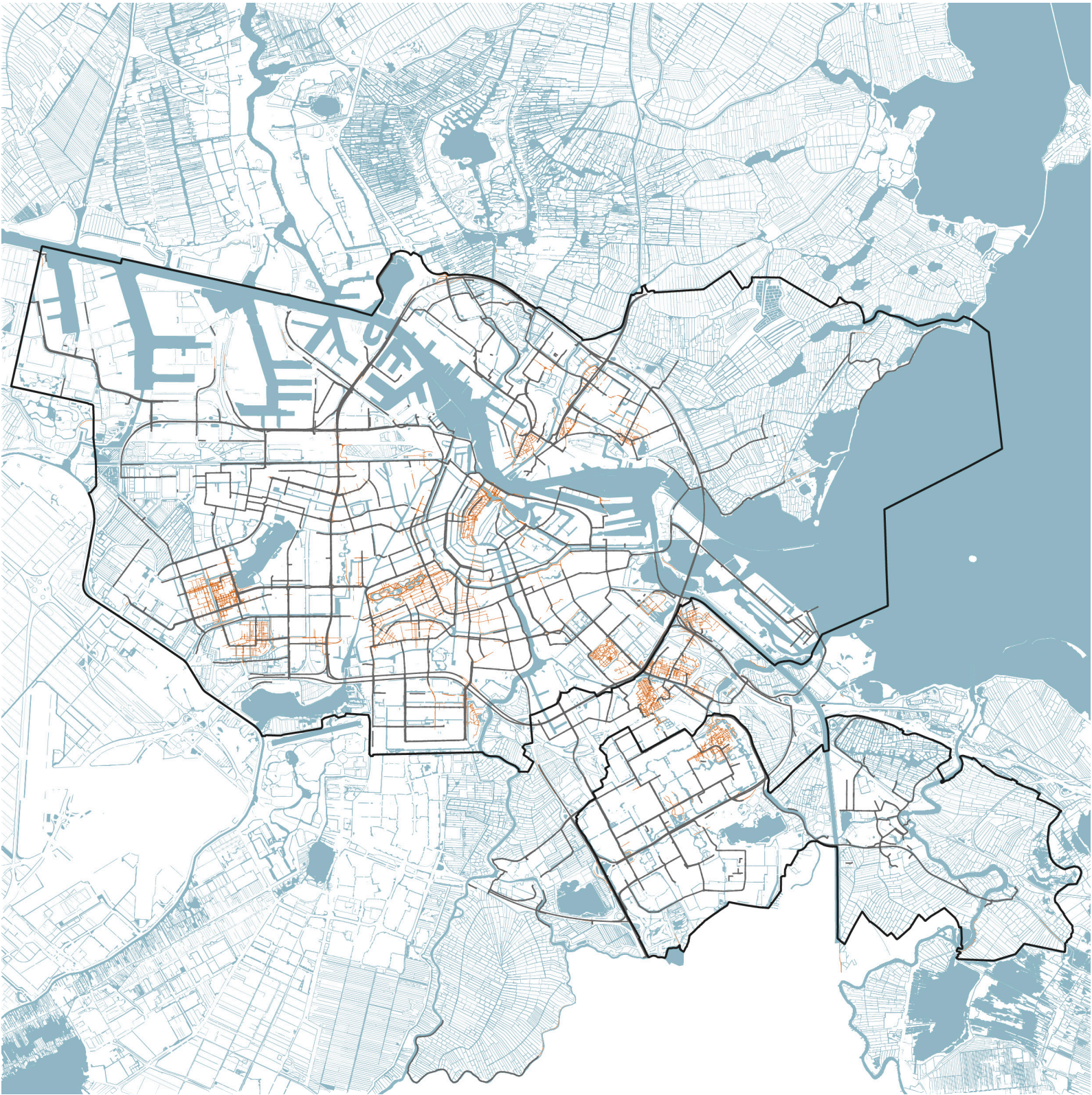
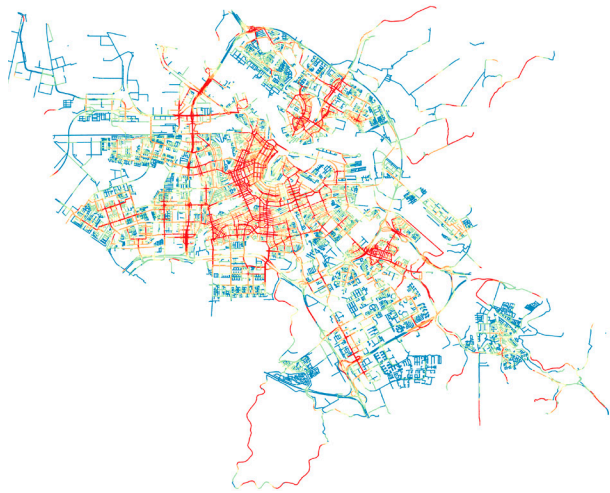
## Water-related heritage






# URBAN NETWORK POTENTIAL

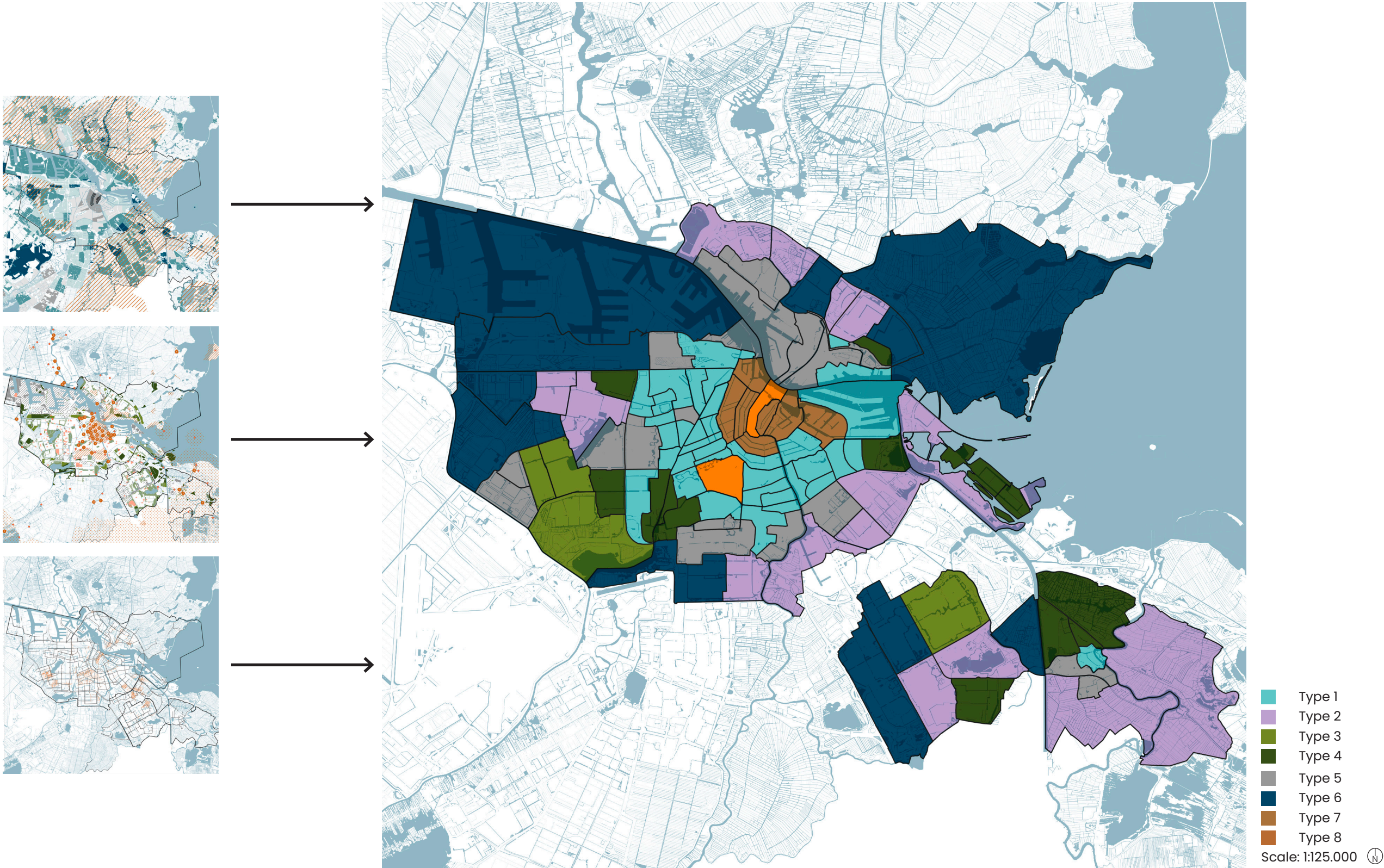
Potential local centres



— Main roads  
— Potential vital local centres  
Scale: 1:125.000 

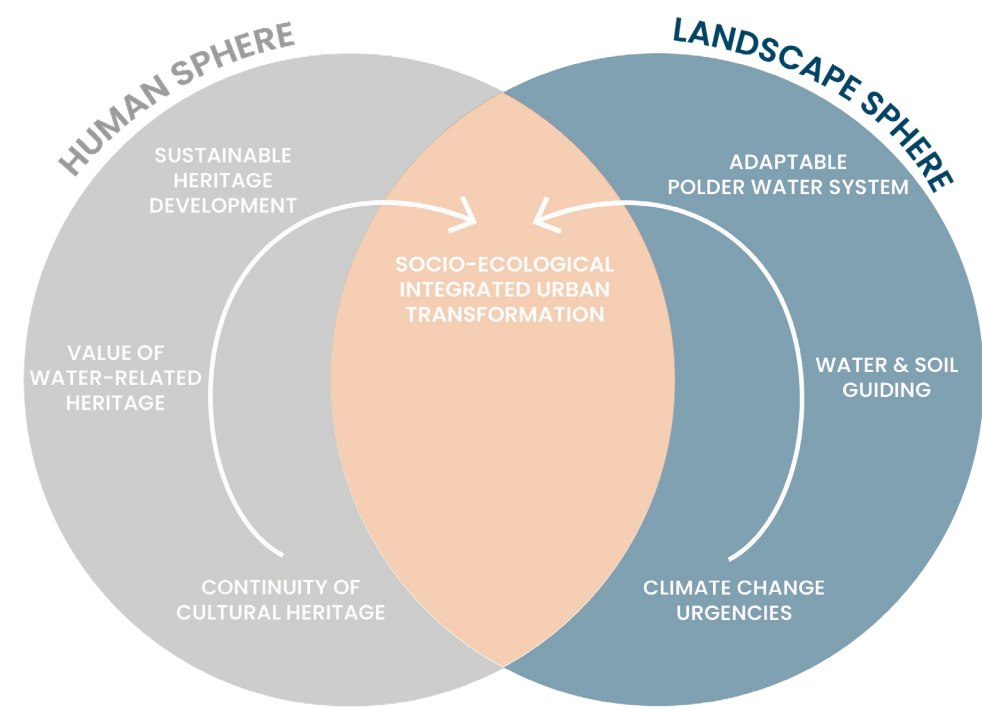


# QUANTITATIVE TYPOLOGY CONSTRUCTION





# DESIGN QUALITIES



## SUSTAINABLE HERITAGE DEVELOPMENT



- Q1: Boost economic potential
- Q2: Renew historical assets
- Q3: create place making opportunity

## SOCIO-ECOLOGICAL INTEGRATION



- Q4: Improve access to social services
- Q5: Strengthen recreation opportunities
- Q6: Increase ecological enhancement

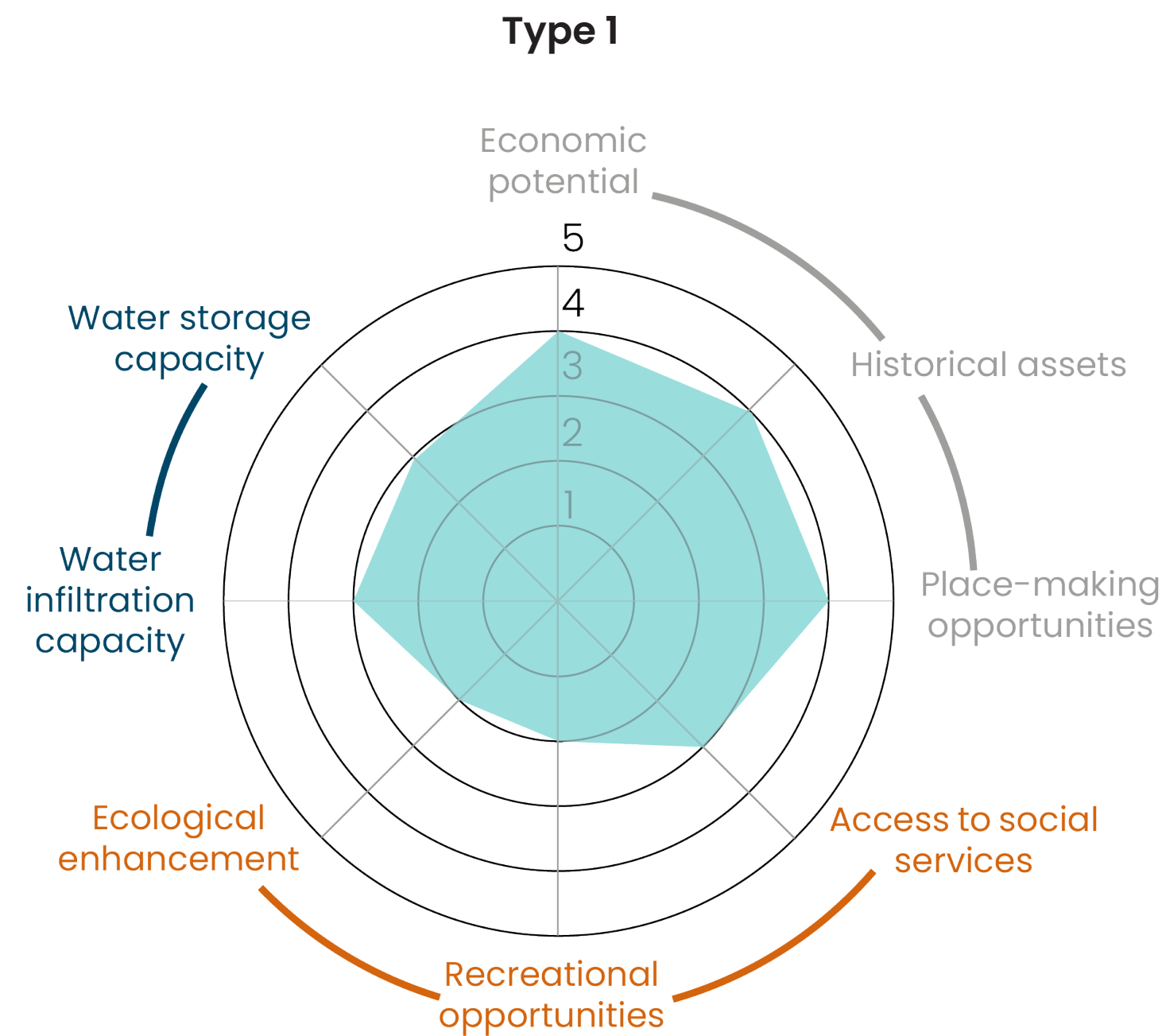
## RESILIENT POLDER WATER MANAGEMENT



- Q7: Maximise water infiltration capacity
- Q8: Expand water storage capacity

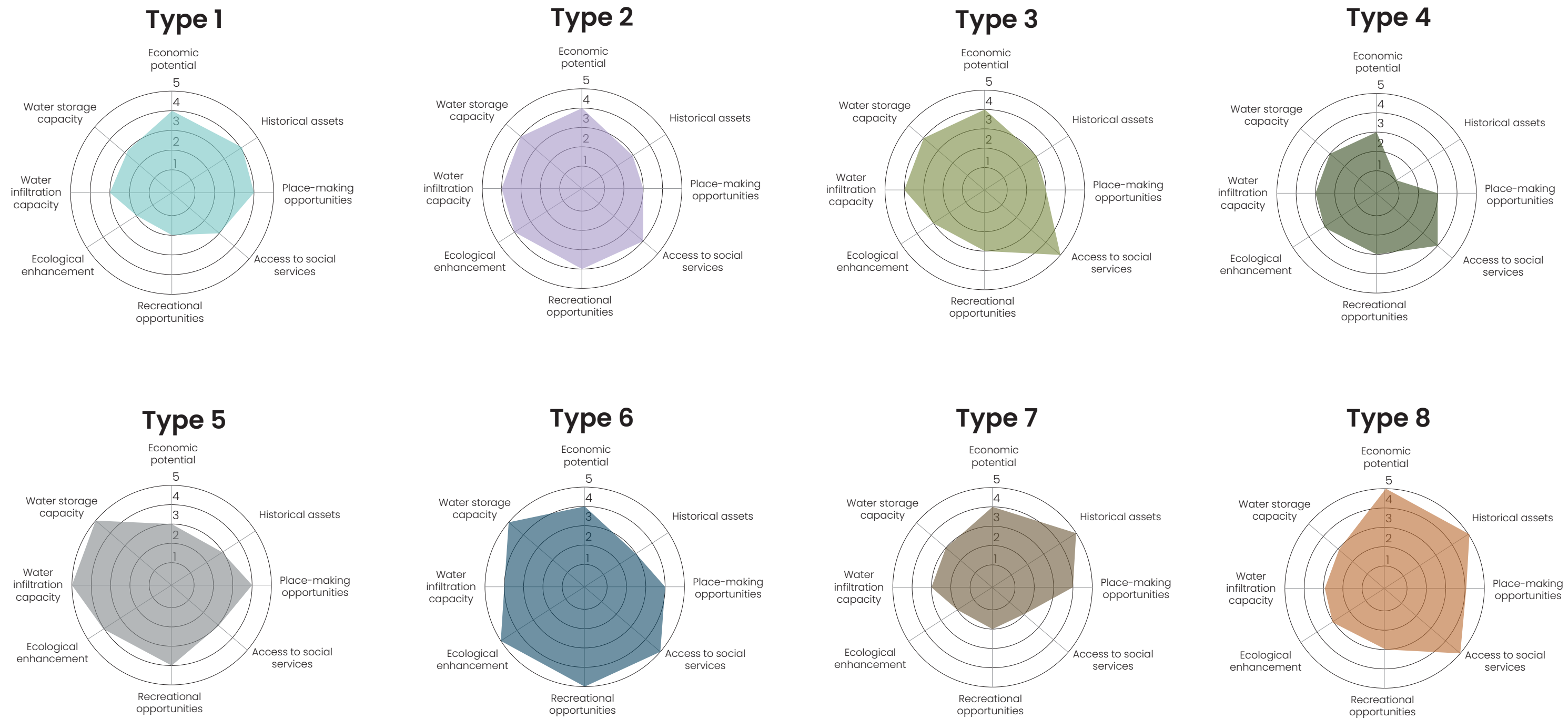


# INTEGRATED TRANSFORMATION OPPORTUNITIES





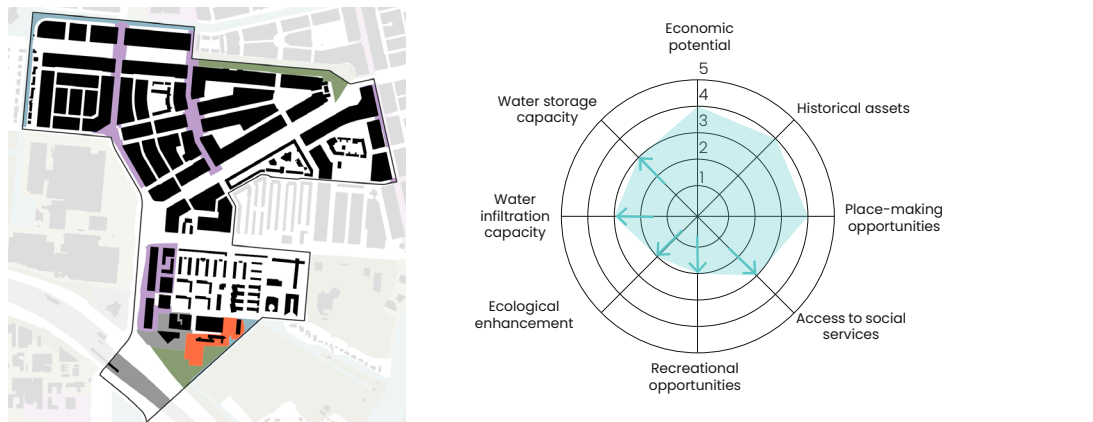
# INTEGRATED TRANSFORMATION OPPORTUNITIES



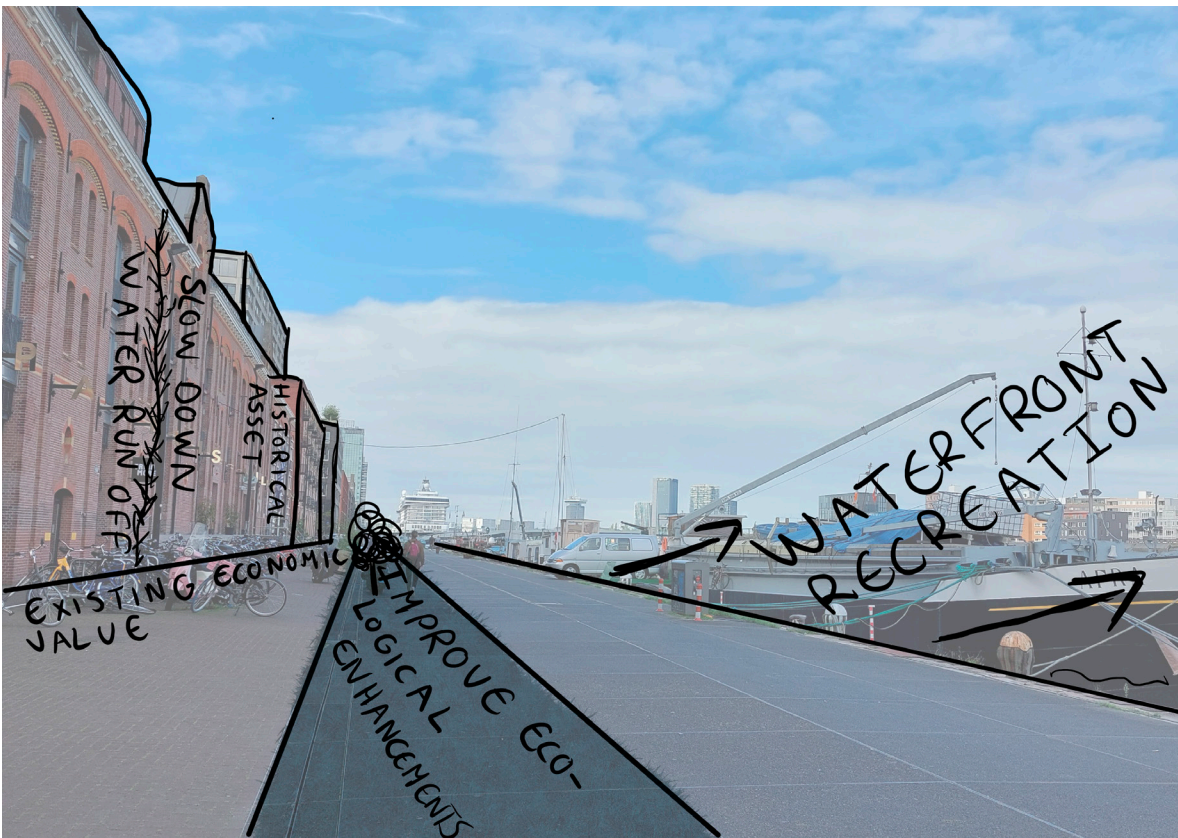
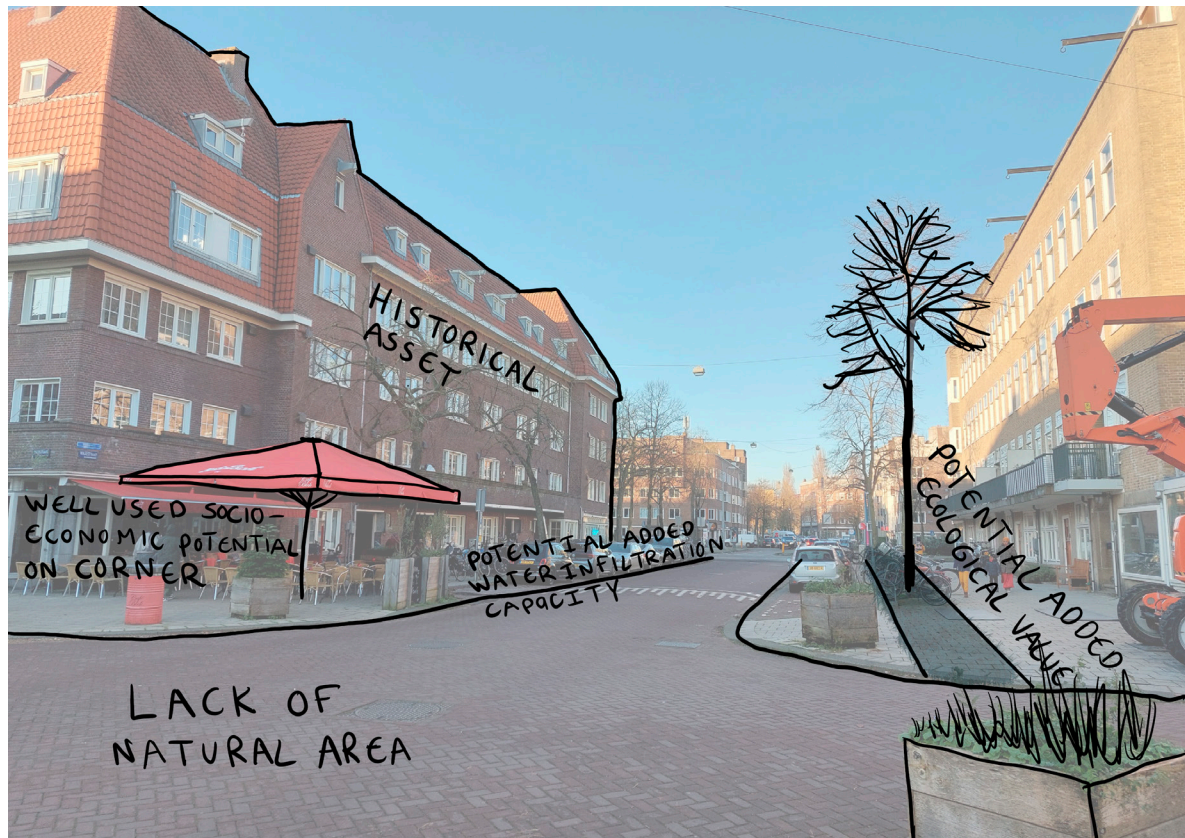
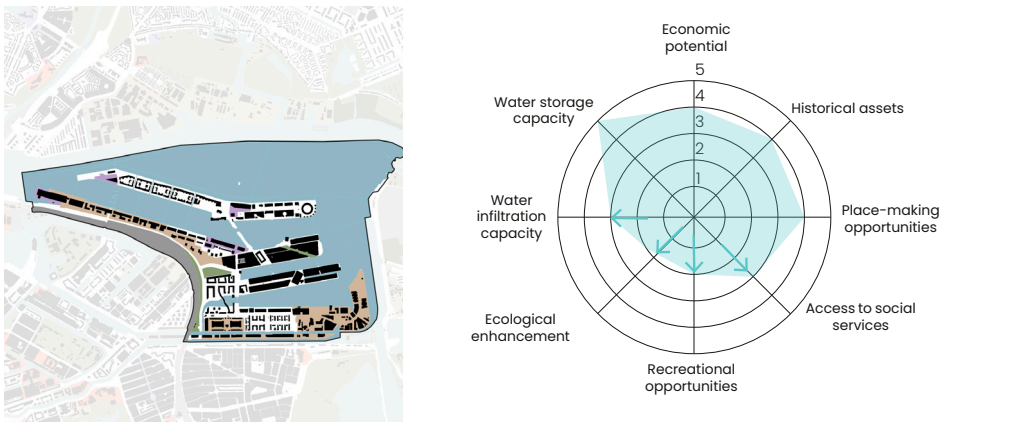


# QUALITATIVE ASSESSMENT OF LOCAL POTENTIAL

Scheldebuilt = archetype 1

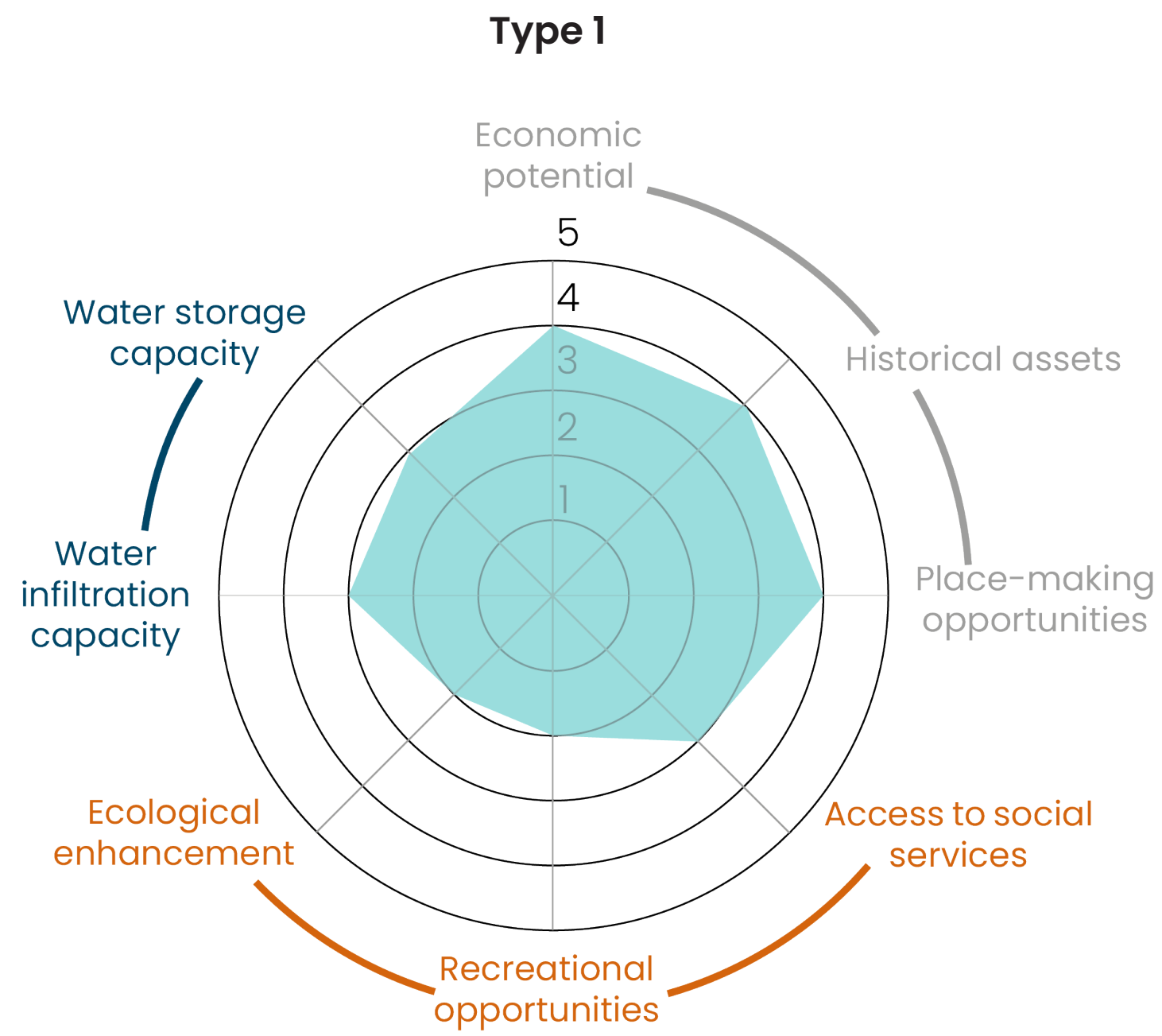


Oostenlijk Havengebied = exceptional type 1



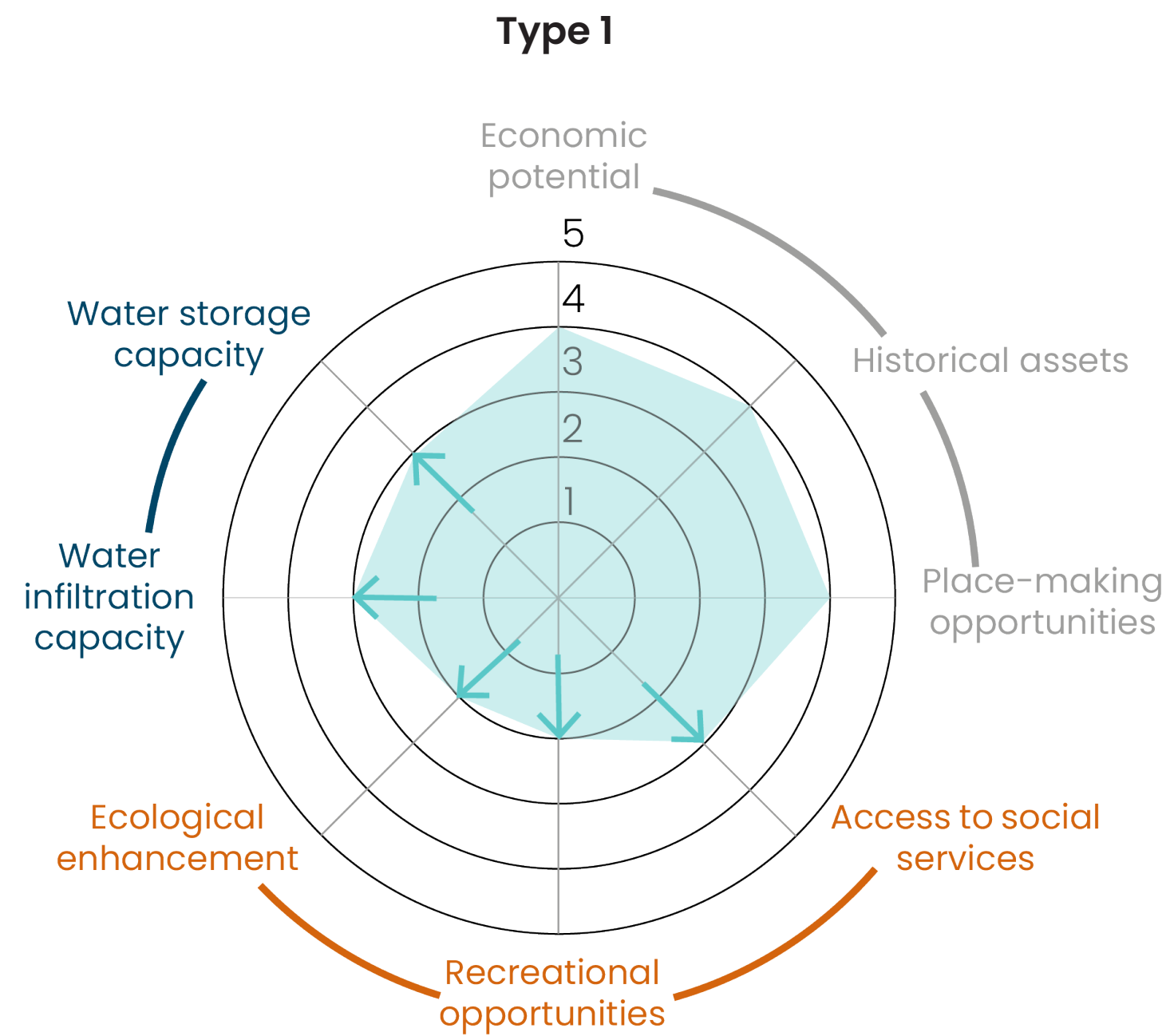


# DESIGN POTENTIAL



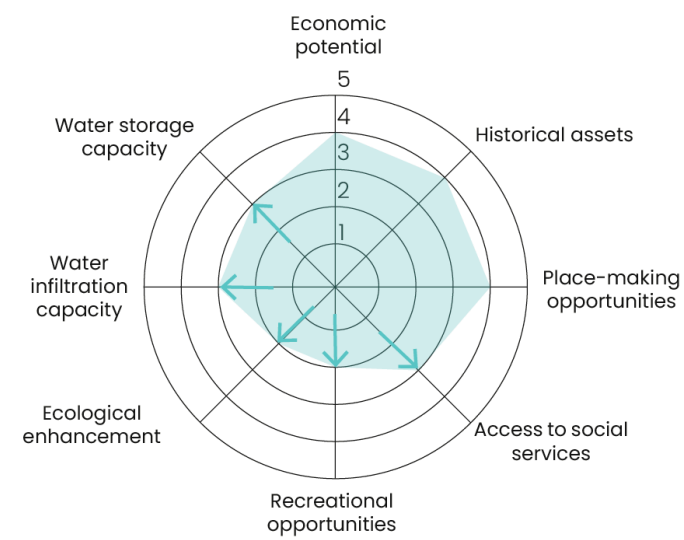


# DESIGN POTENTIAL

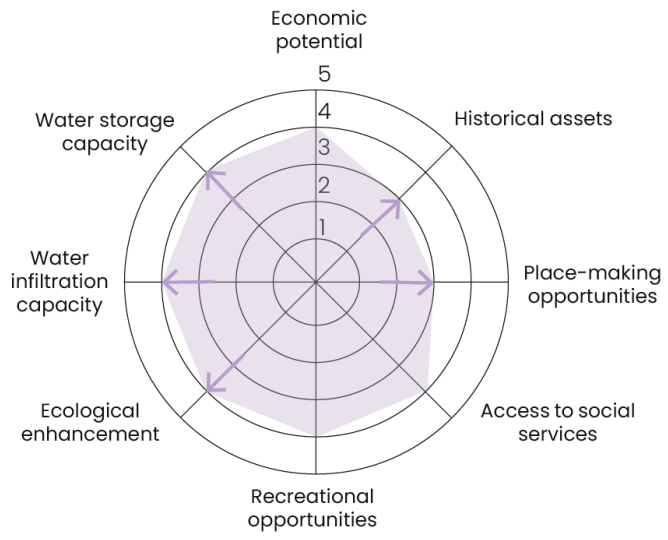


# DESIGN POTENTIAL

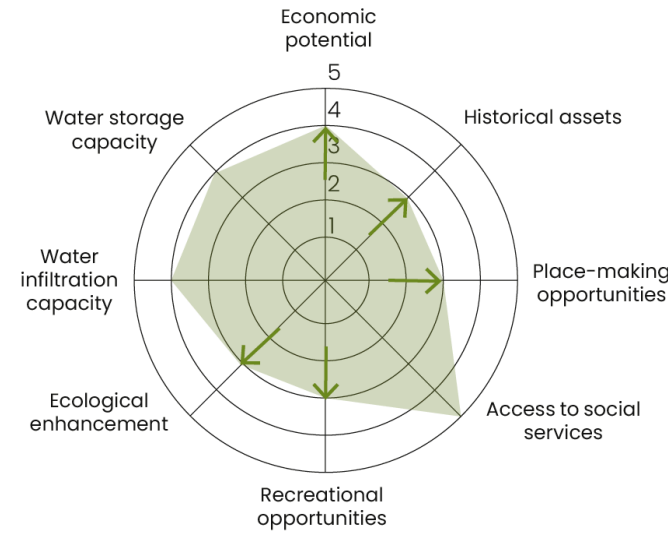
**Type 1: Social water-  
capes for urban living**



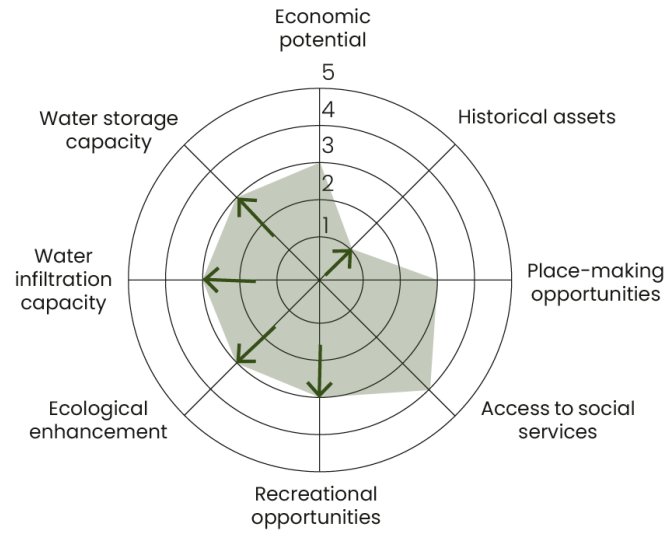
**Type 2: Key hubs in  
blue/green network**



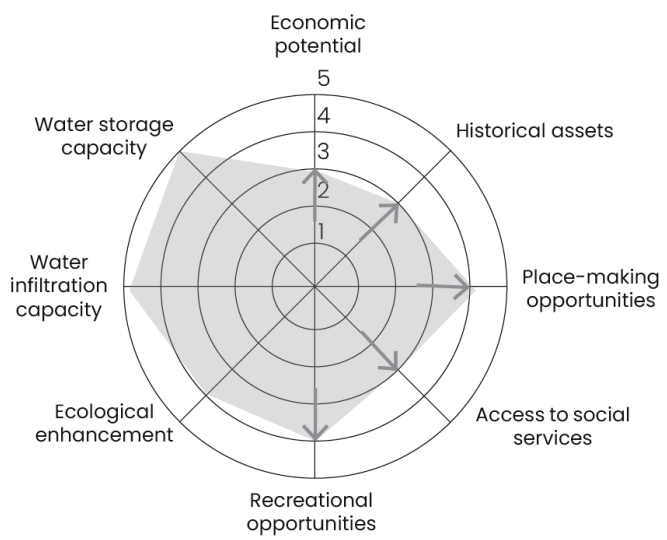
**Type 3: Revitalise  
community core**



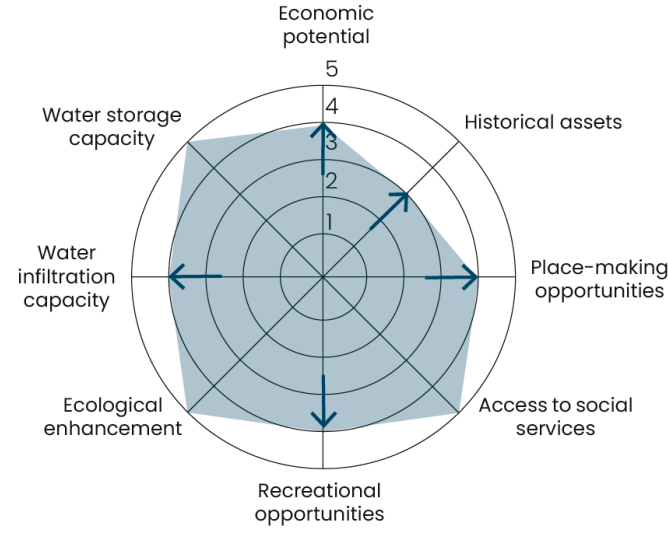
**Type 4: Climate adap-  
tive neighbourhoods**



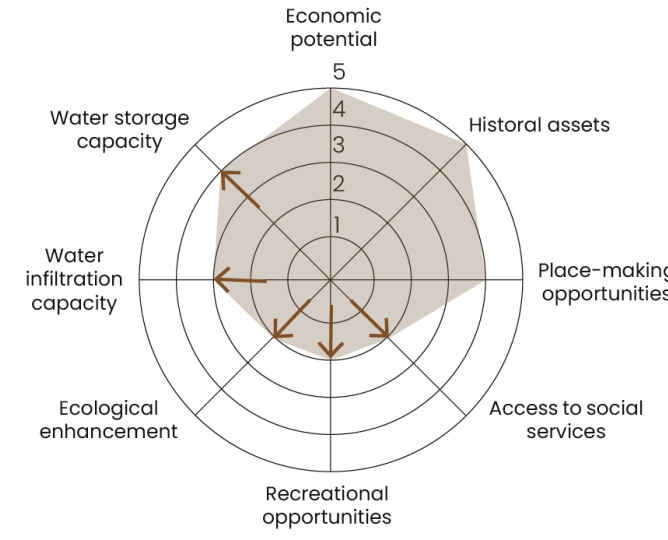
**Type 5: Resilient  
densification**



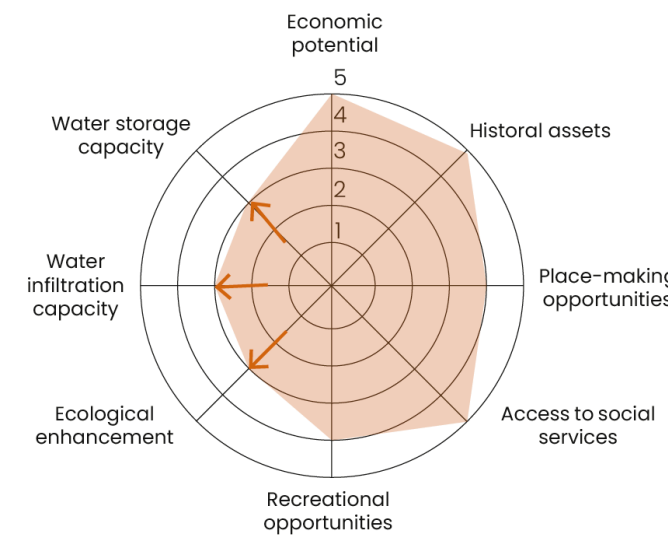
**Type 6: Nature Access  
Enhancement**



**Type 7: Renew  
Historical Legacy**

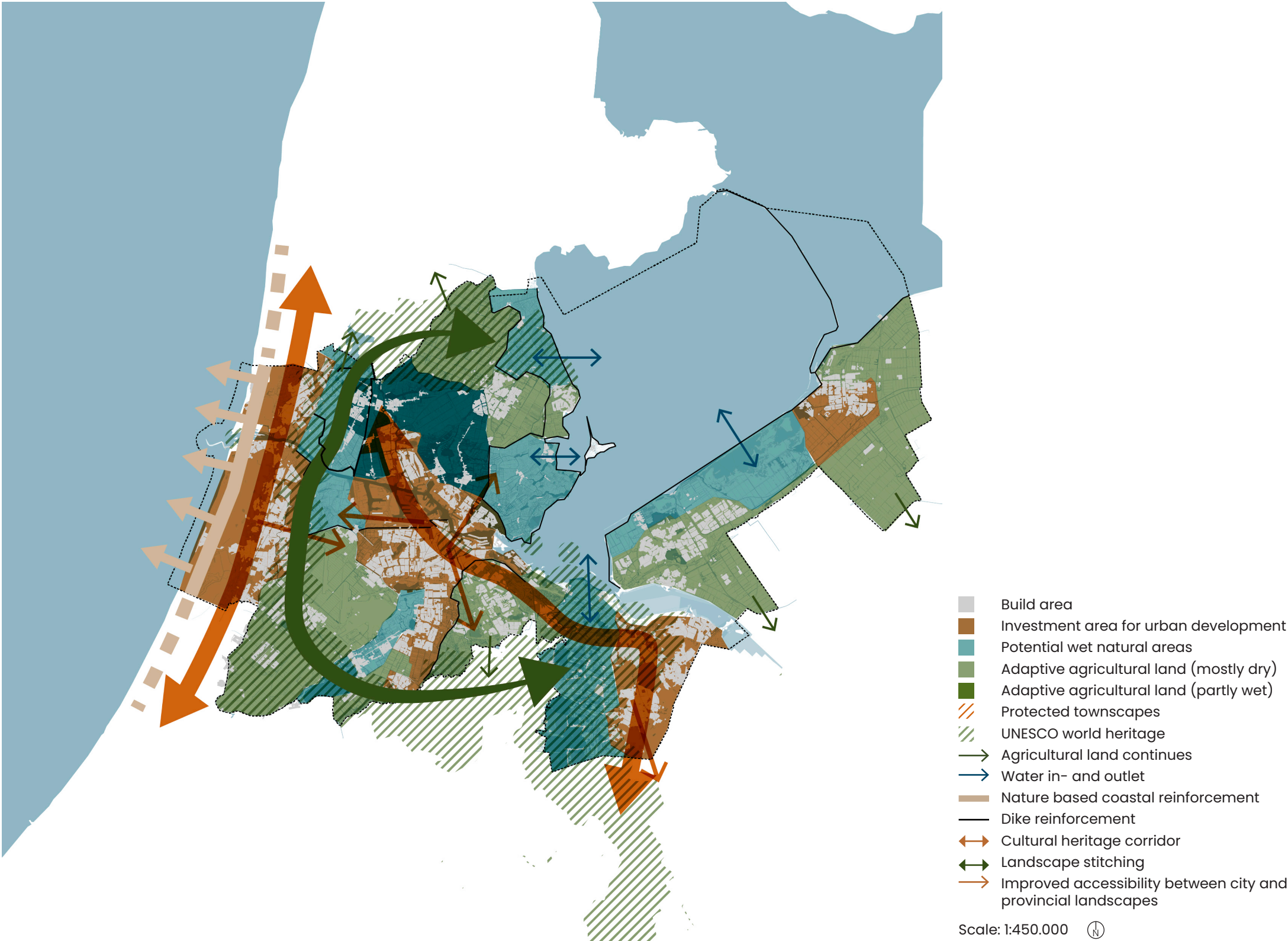


**Type 8: World leading  
sustainability**





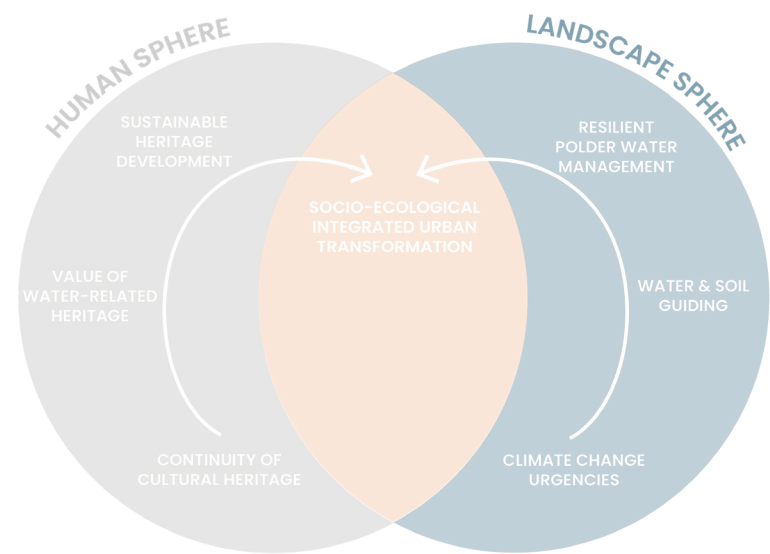
# REGIONAL TRANSFORMATION OPPORTUNITIES



## **DESIGN EXPLORATION: MAXIMISATION EXPERIMENTS & PATTERN LANGUAGE**



# DESIGN APPROACH



## SUSTAINABLE HERITAGE DEVELOPMENT

- Q1: Boost economic potential
- Q2: Renew historical assets
- Q3: create place making opportunity

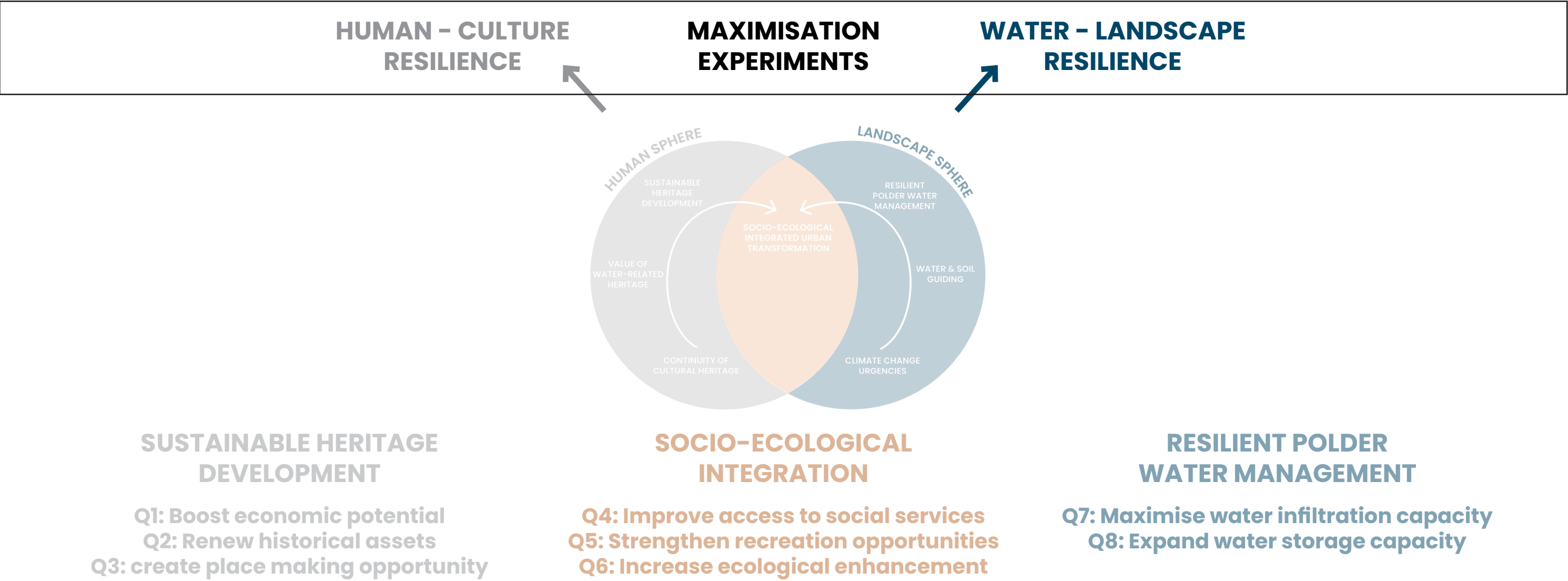
## SOCIO-ECOLOGICAL INTEGRATION

- Q4: Improve access to social services
- Q5: Strengthen recreation opportunities
- Q6: Increase ecological enhancement

## RESILIENT POLDER WATER MANAGEMENT

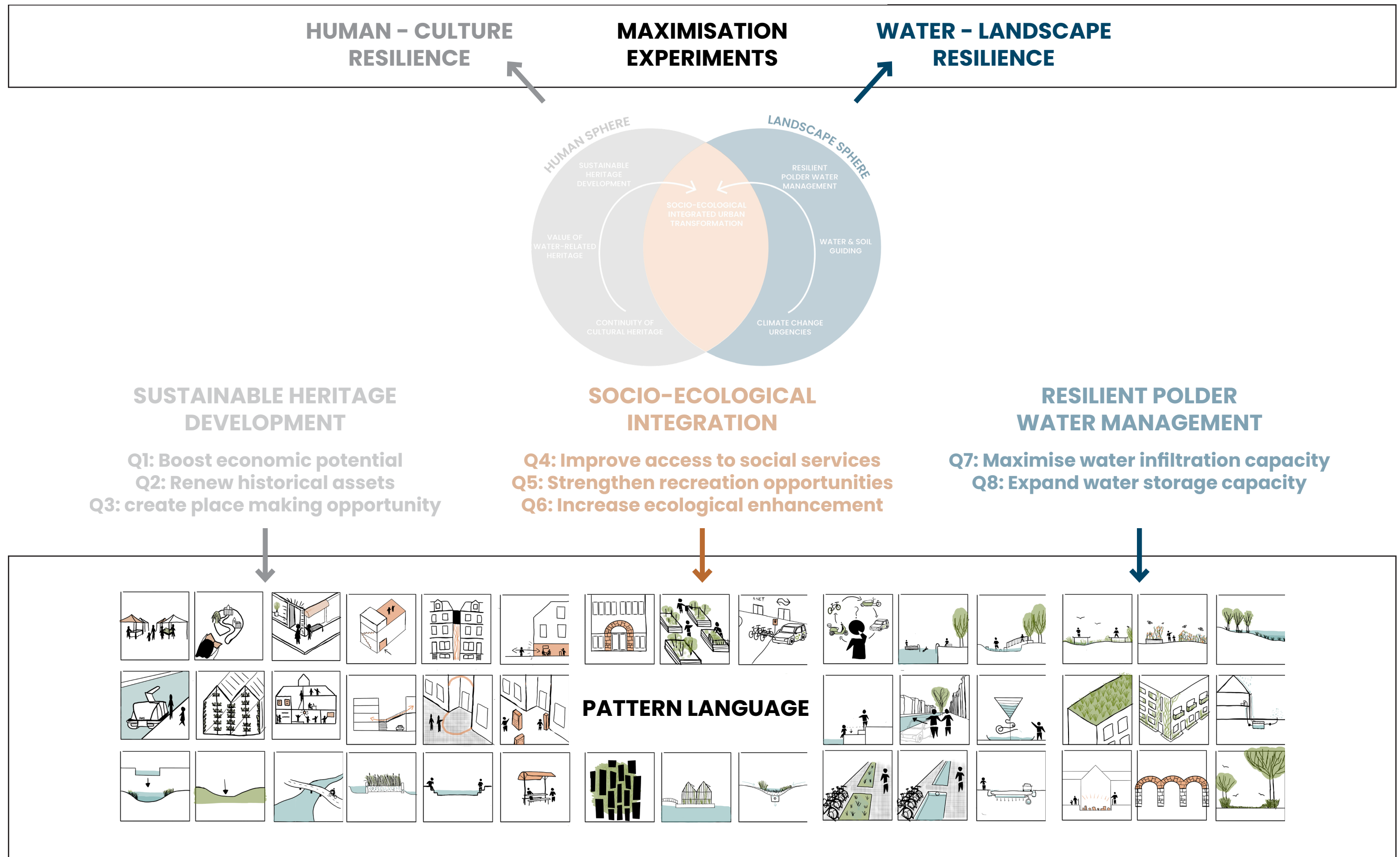
- Q7: Maximise water infiltration capacity
- Q8: Expand water storage capacity

# DESIGN APPROACH





## DESIGN APPROACH



# PATTERN LANGUAGE

P16

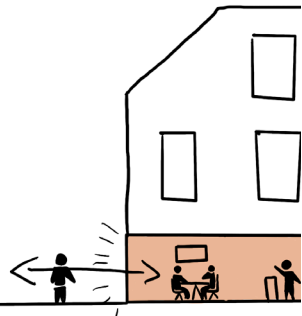
VIBRANT GROUND FLOOR

SUPPORTS QUALITIES

Q1 Q2 Q3

PATTERN NETWORK

THE GROUND FLOOR IS THE MOST VIBRANT PLACE IN A BUILDING AND CAN ACTIVATE THE STREET WITH DIFFERENT FUNCTIONS.



RELATES TO

P6 Intersection interaction

P7 Mixed use transformation

P17 Community workshop

P36 Eco facades

SOURCE

Sim, D. (2019). Soft City: Building Density for Everyday Life. Island Press.

P42

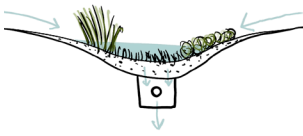
BIOSWALES

SUPPORTS QUALITIES

Q6 Q7 Q8

PATTERN NETWORK

A BIOSWALE IS A DITCH WITH VEGETATION AND A POROUS BOTTOM. IT INFILTRATES, STORES AND DRAINES THE WATER, WHILE ALSO DECONTAMINATING IT.



RELATES TO

P27 Elevated park trails

P34 Mid-height vegetation

P35 Helophyte filter

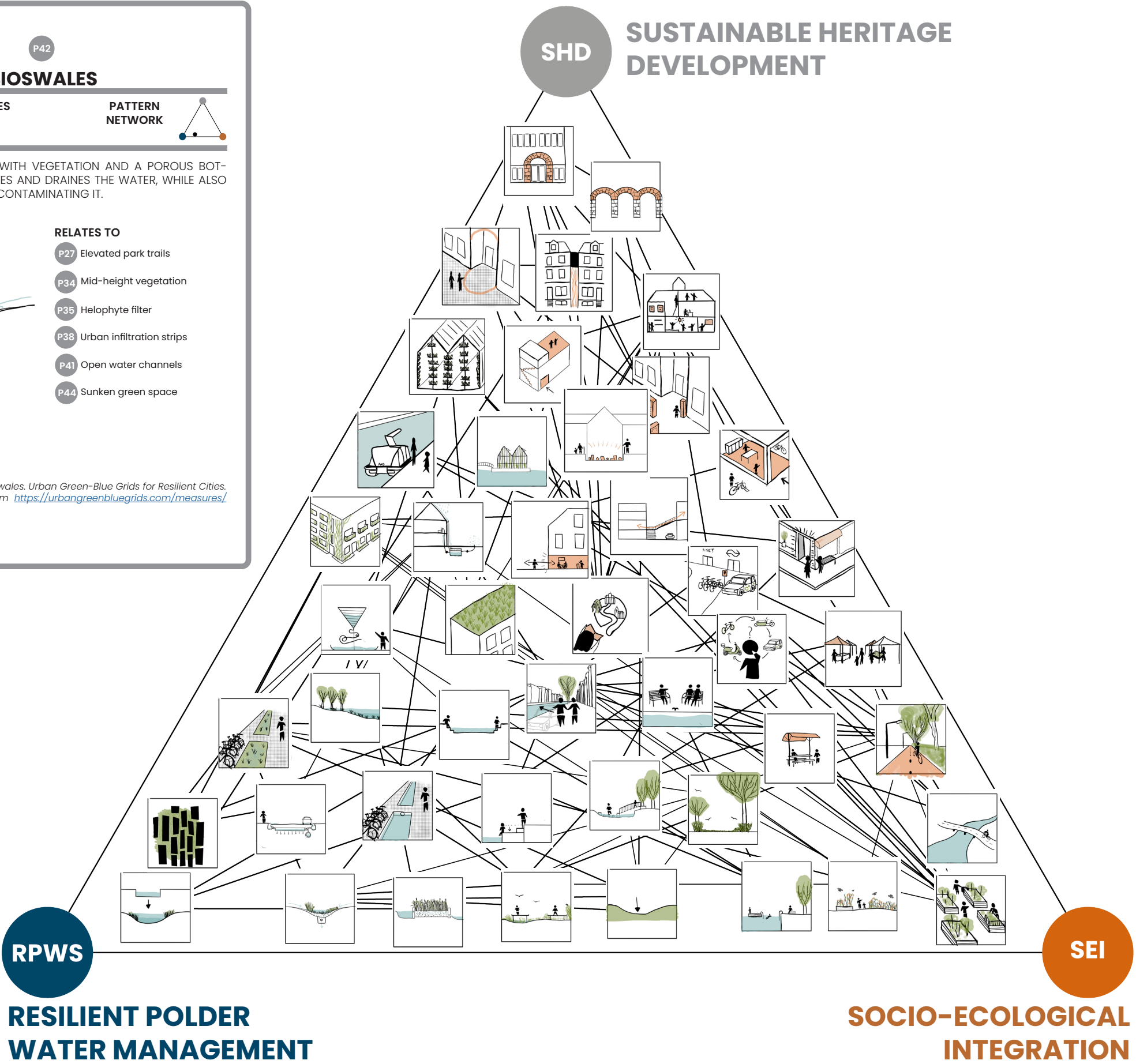
P38 Urban infiltration strips

P41 Open water channels

P44 Sunken green space

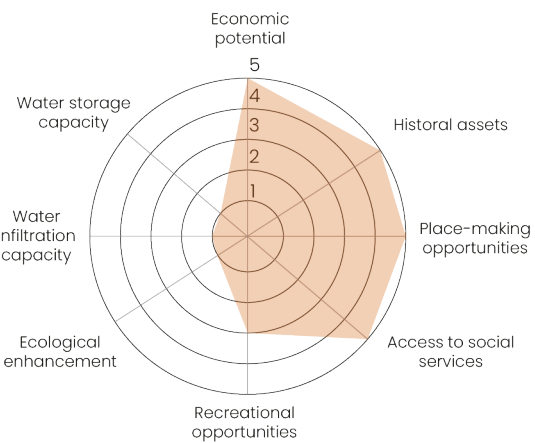
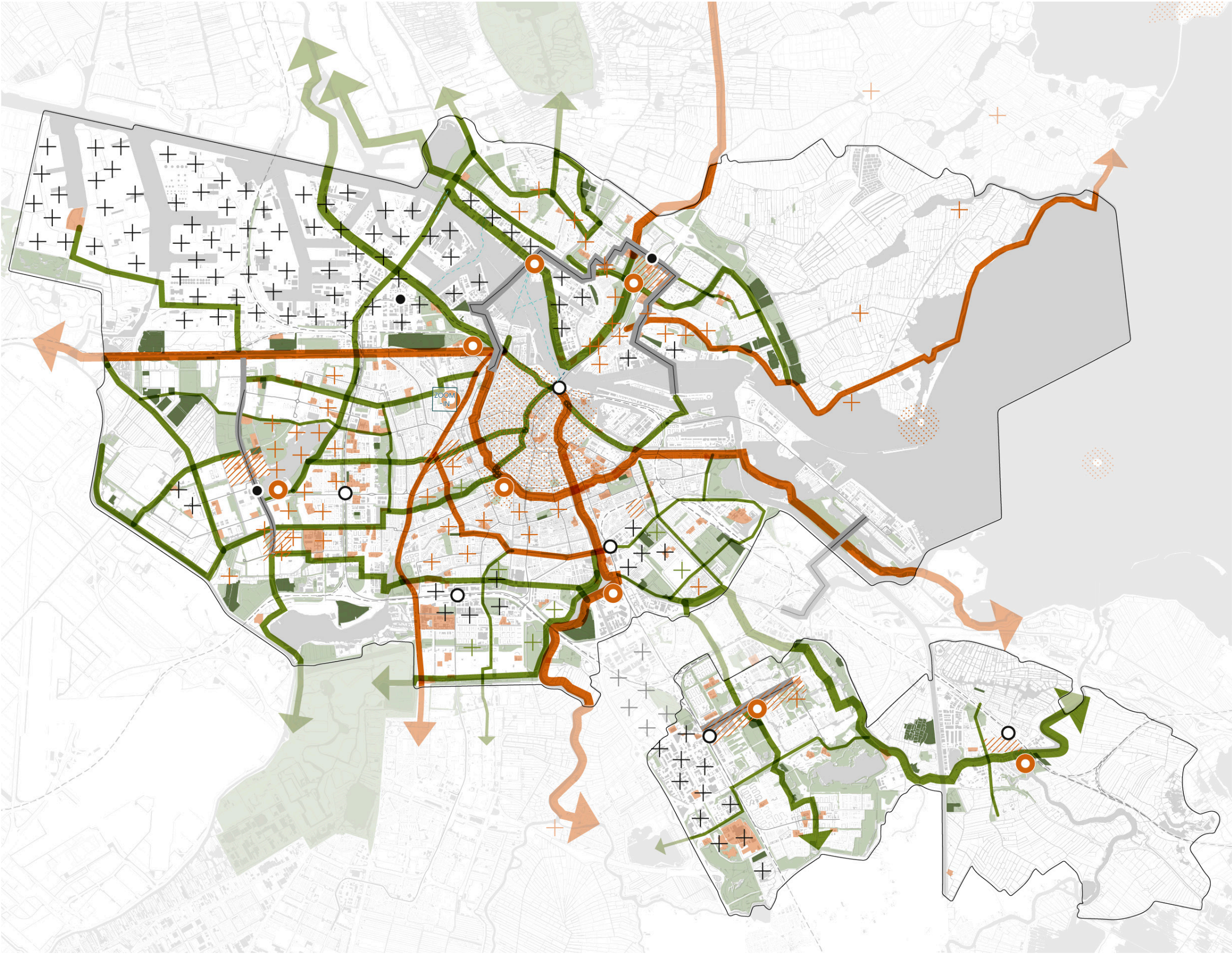
SOURCE

AtelierGroenblauw. (n.d.). BioSwales. Urban Green-Blue Grids for Resilient Cities. Retrieved March 5, 2024, from <https://urbangreenbluegrids.com/measures/bioswales/>





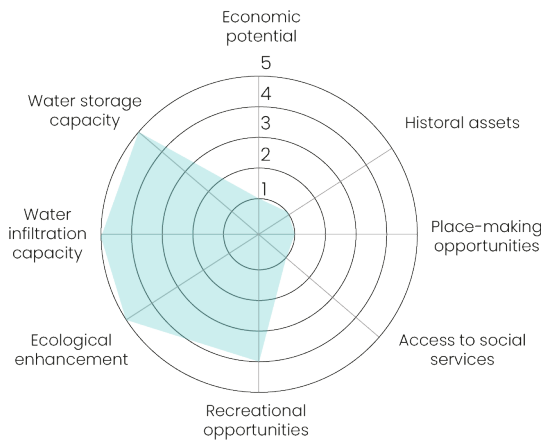
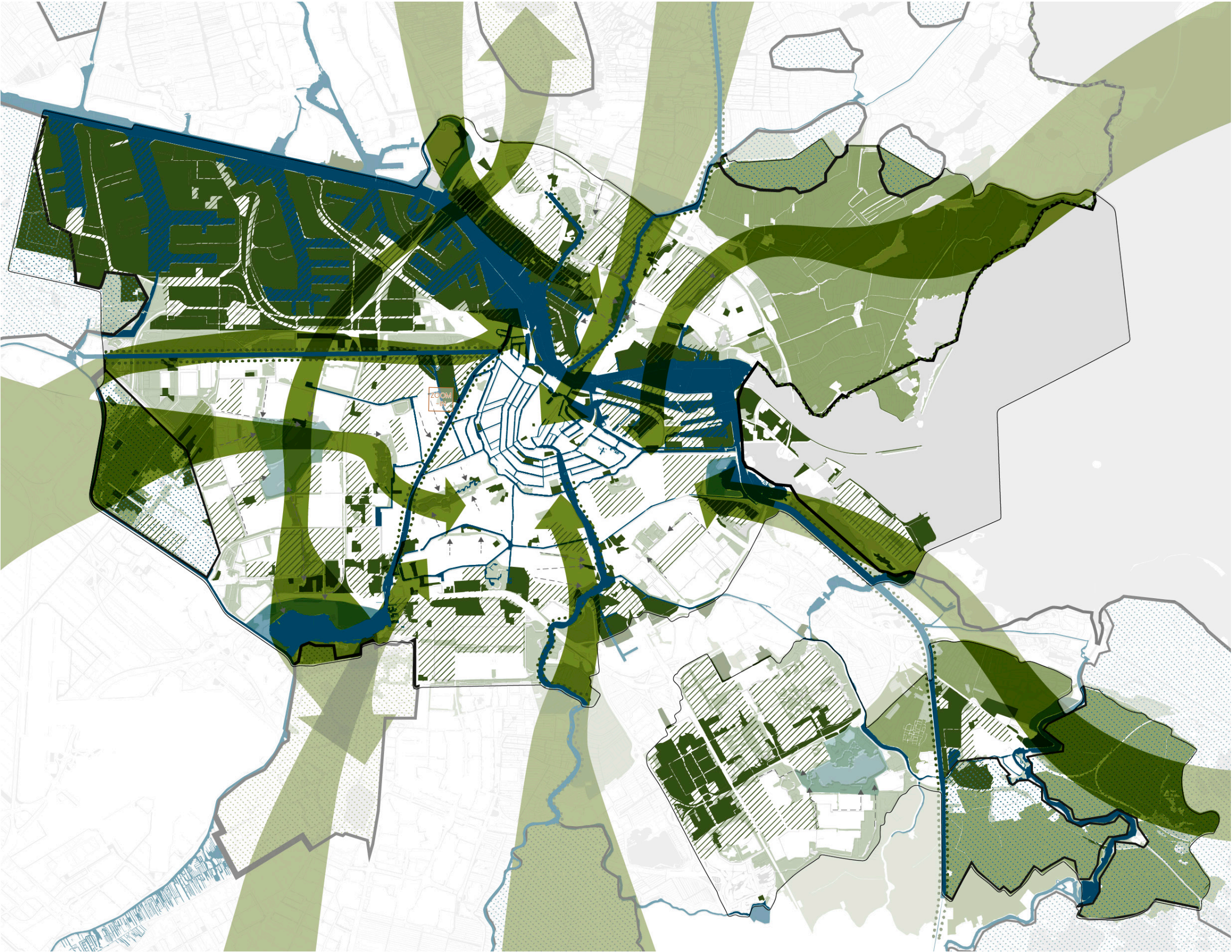
# HUMAN – CULTURE MAXIMISATION



- Existing recreational areas
  - Existing socio-cultural facilities
  - Community garden
  - Housing development opportunities
  - Tramline
  - Train
  - Existing ferry route
  - New ferry route
  - Cultural-historic place-making
  - Green heritage
  - Protected townscapes
  - Local economic centre
  - (Inter)national economic centre
  - New mobility hub
  - Transformed mobility hub
  - Multichange corridors
  - Improved recreational corridor
  - Improved historical corridor
- Scale: 1:85.000



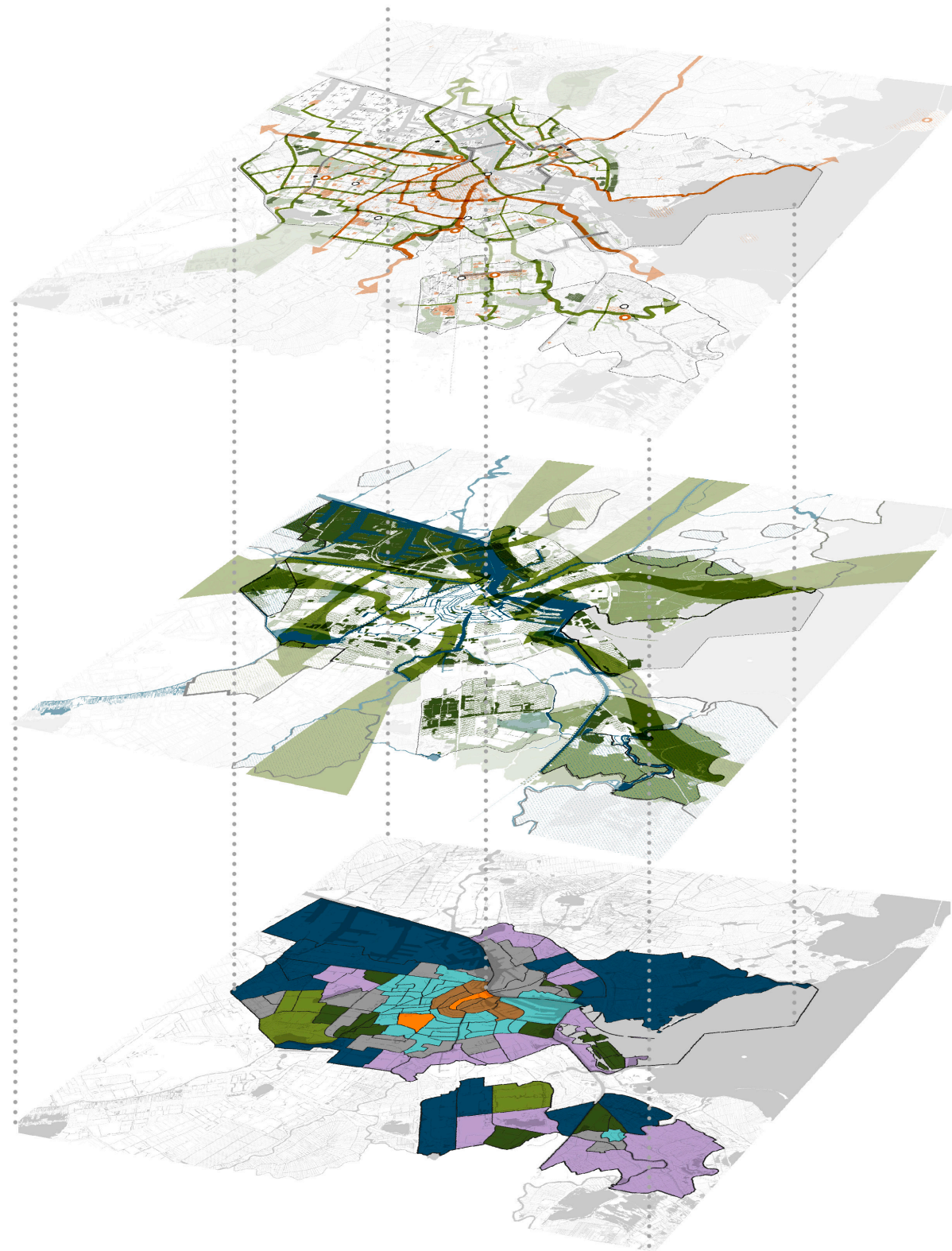
# WATER – LANDSCAPE MAXIMISATION



- Existing water
  - Changed boezem environment
  - Existing permeable patch
  - New permeable patch
  - Adaptive agricultural area
  - Controlled floodable polder
  - Controlled floodable recreation area
  - Buffer zone polder
  - Buffer zone boezem
  - Green roof area
  - Increased connectivity with scheg structure
  - Natural banks
  - Surface drainage
  - Dike strengthening
- Scale: 1:85.000

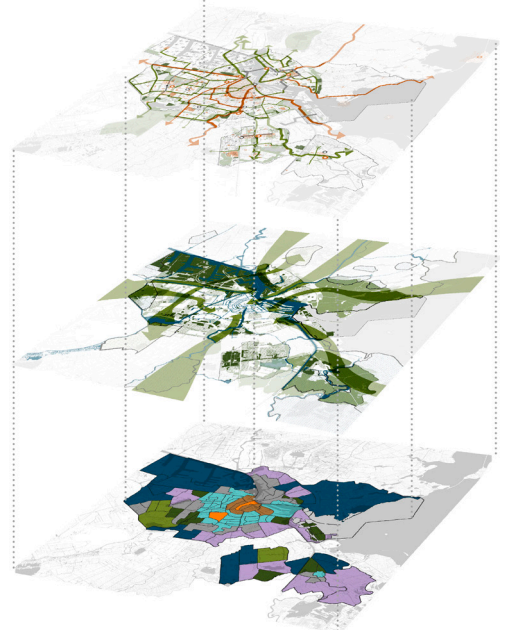
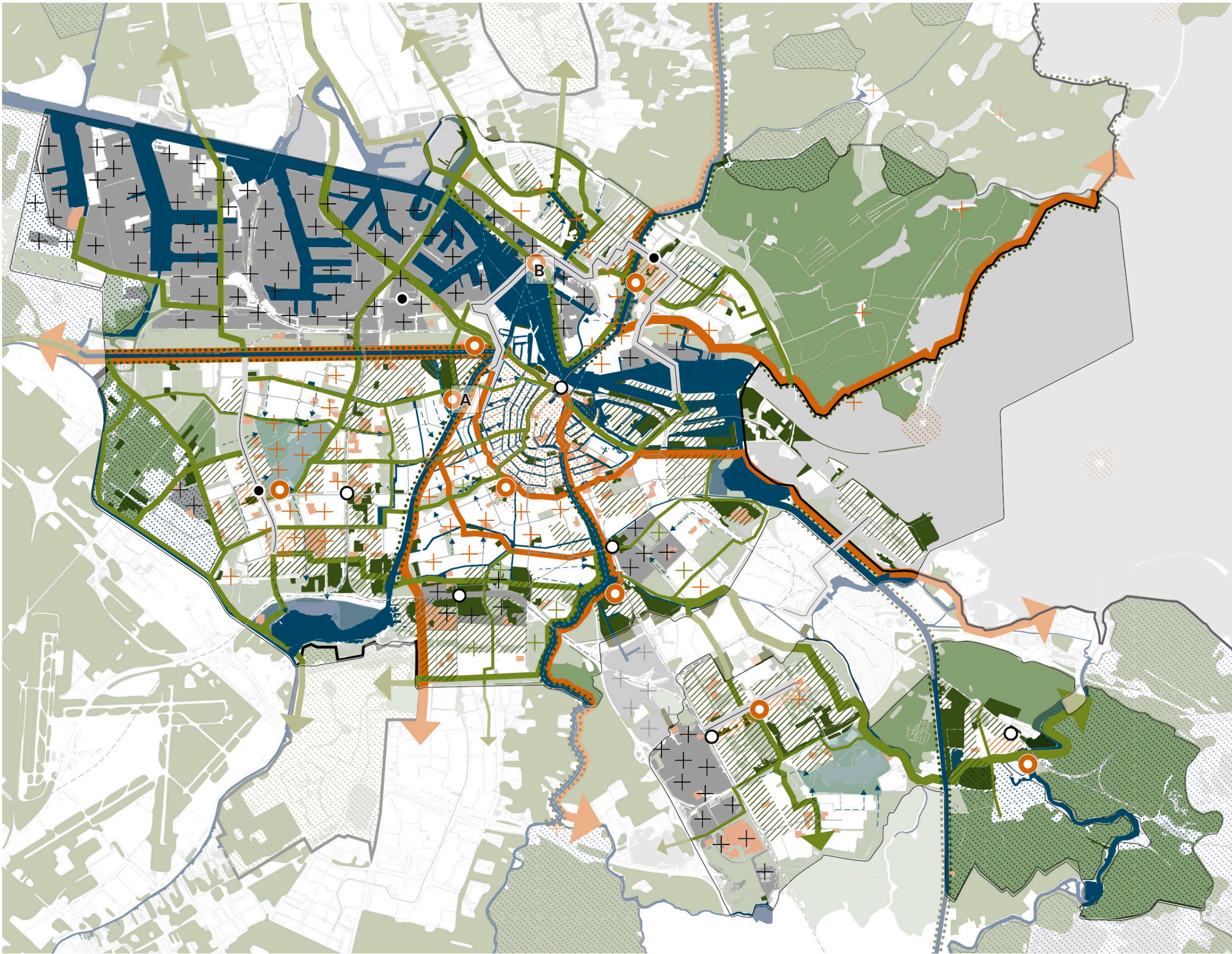


# INTEGRATED URBAN TRANSFORMATION PLAN





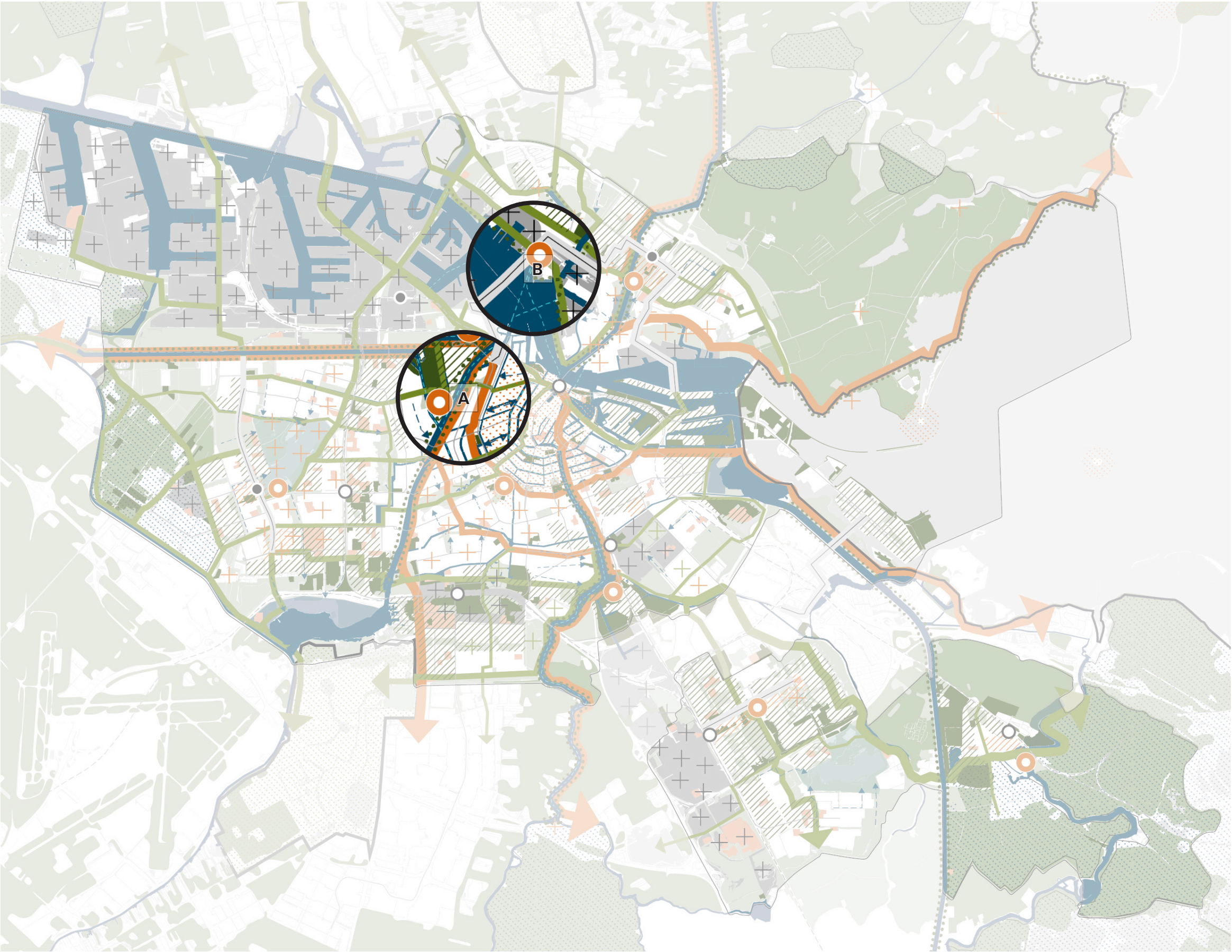
# INTEGRATED URBAN TRANSFORMATION PLAN



- Existing water
  - Changed boezem environment
  - Controlled floodable polder
  - Controlled floodable recreational area
  - Buffer zone polder
  - Buffer zone boezem
  - Roboat route
  - Dike strengthening
  - Improve surface drainage
  - Existing permeable patch
  - New permeable patch
  - Adaptive agricultural area
  - Green roof area
  - Green heritage
  - Improved recreational corridor
  - Natural banks
  - Existing socio-cultural facility
  - Cultural-historic place-making
  - Protected townscapes
  - (Inter)national tourist attraction
  - Local economic centre
  - Improved historical corridor
  - Resilient densification neighbourhood
  - Multichange corridors
  - New mobility hub
  - Transformed mobility hub
  - Tramline
  - Train
- Scale: 1:85.000



# INTEGRATED URBAN TRANSFORMATION PLAN



- Existing water
  - Changed boezem environment
  - Controlled floodable polder
  - Controlled floodable recreational area
  - Buffer zone polder
  - Buffer zone boezem
  - Roboat route
  - Dike strengthening
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  - Existing permeable patch
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  - Multichange corridors
  - New mobility hub
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  - Tramline
  - Train
- Scale: 1:85.000



# MOLEN DE OTTER

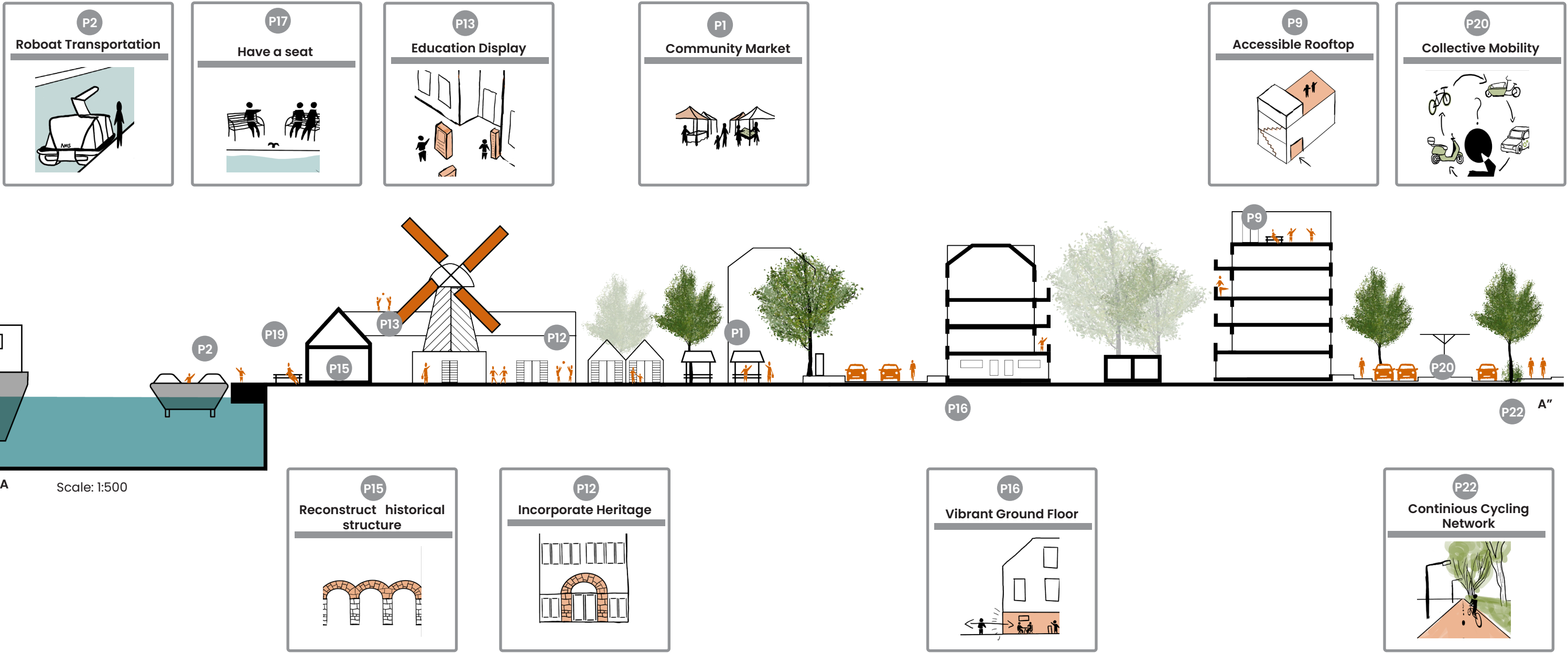


- Existing water
- Changed boezem environment
- Controlled floodable polder
- Controlled floodable recreational area
- Buffer zone polder
- Buffer zone boezem
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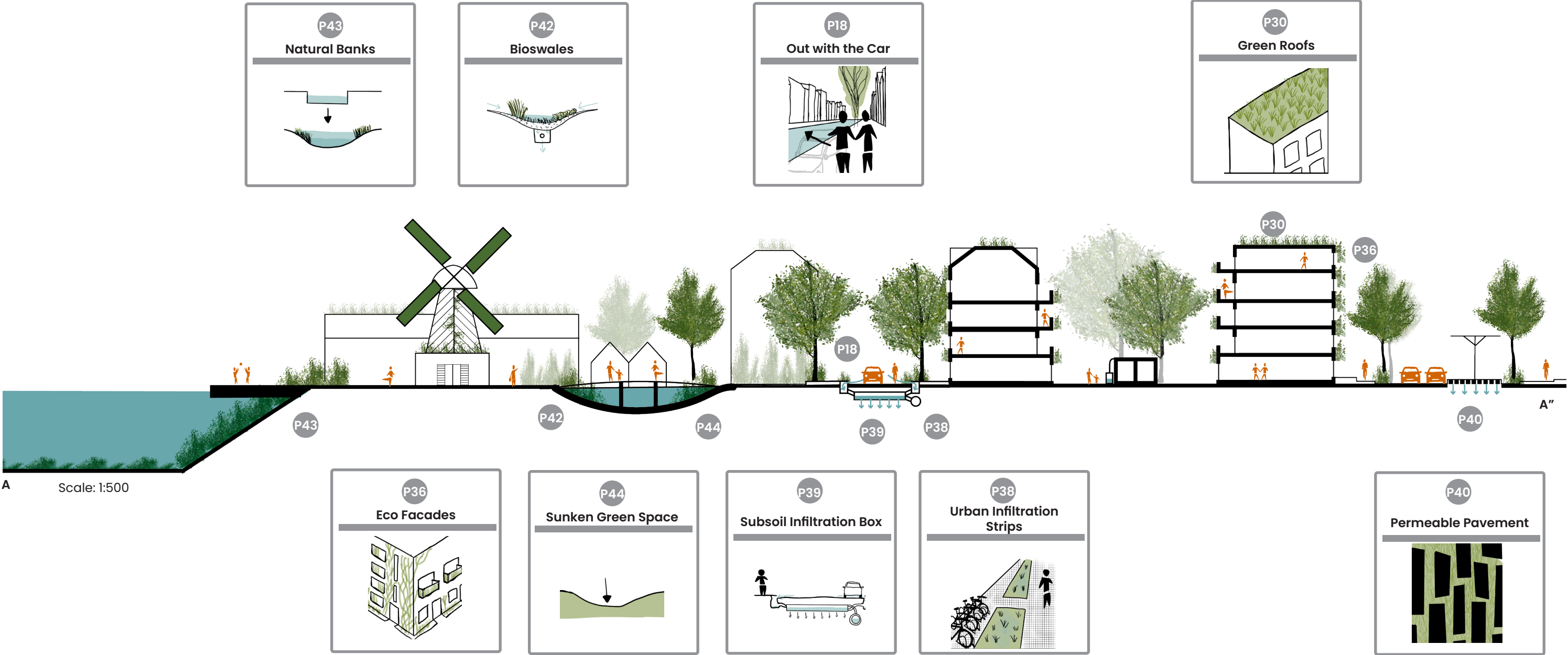
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# HUMAN – CULTURE EXPERIMENT IN THE FREDERIK HENDRIKBUURT

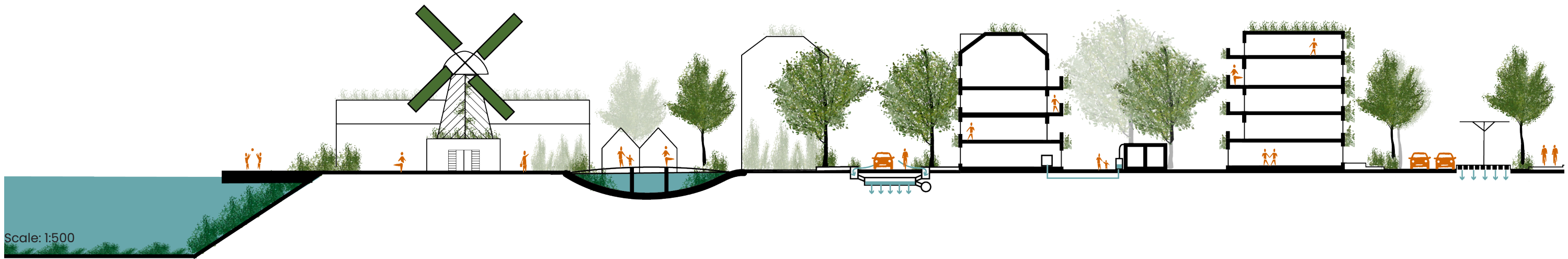
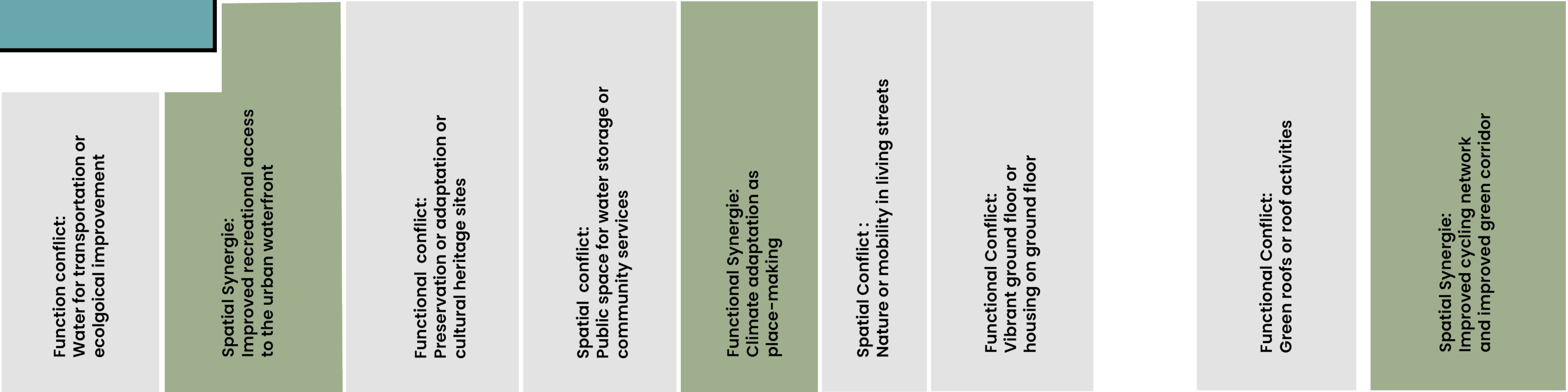


# WATER – LANDSCAPE EXPERIMENT IN THE FREDERIK HENDRIKBUURT





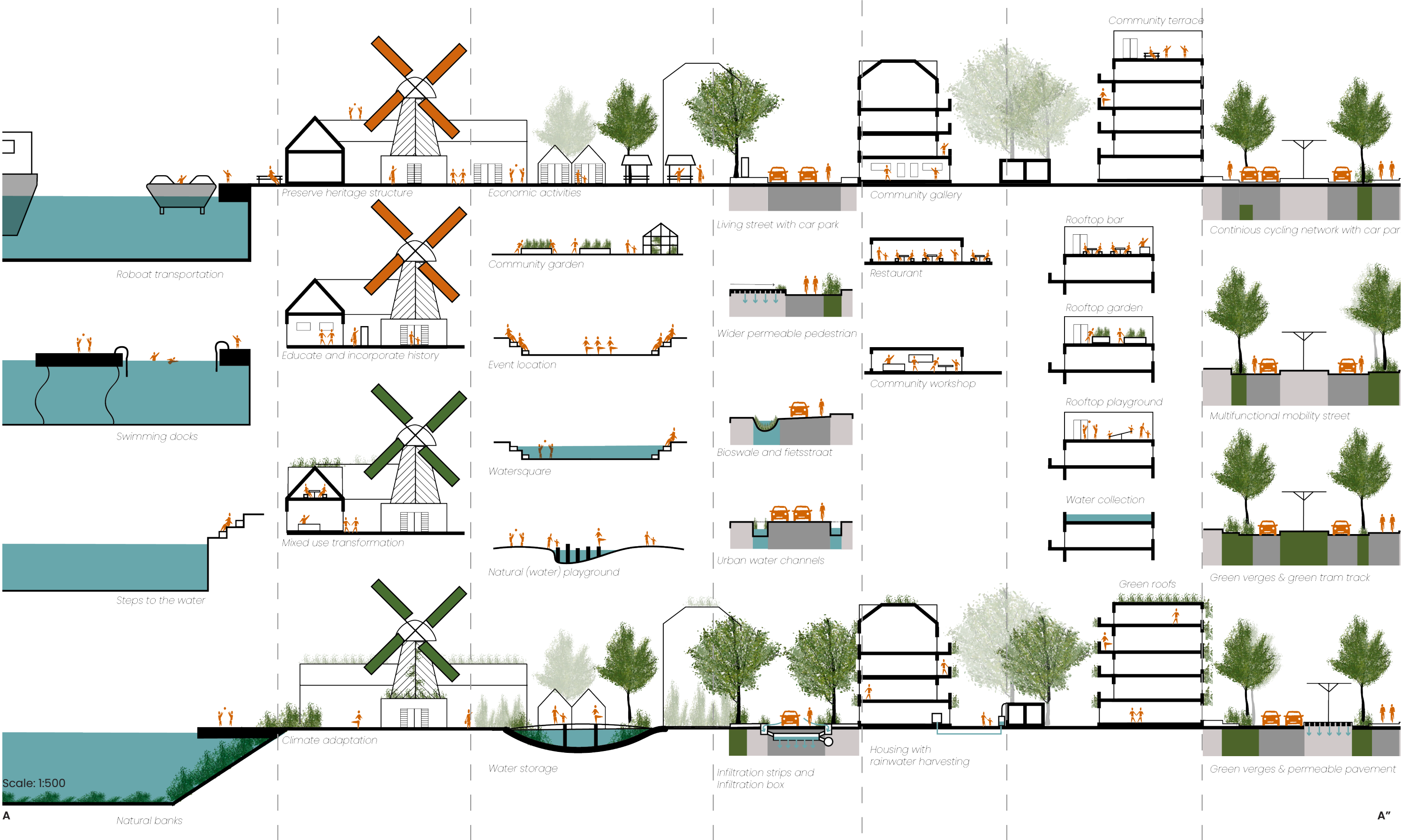
# CONFLICTS AND SYNERGIES ON NEIGHBOURHOOD SCALE



Scale: 1:500



# VARIATIONS ON NEIGHBOURHOOD SCALE





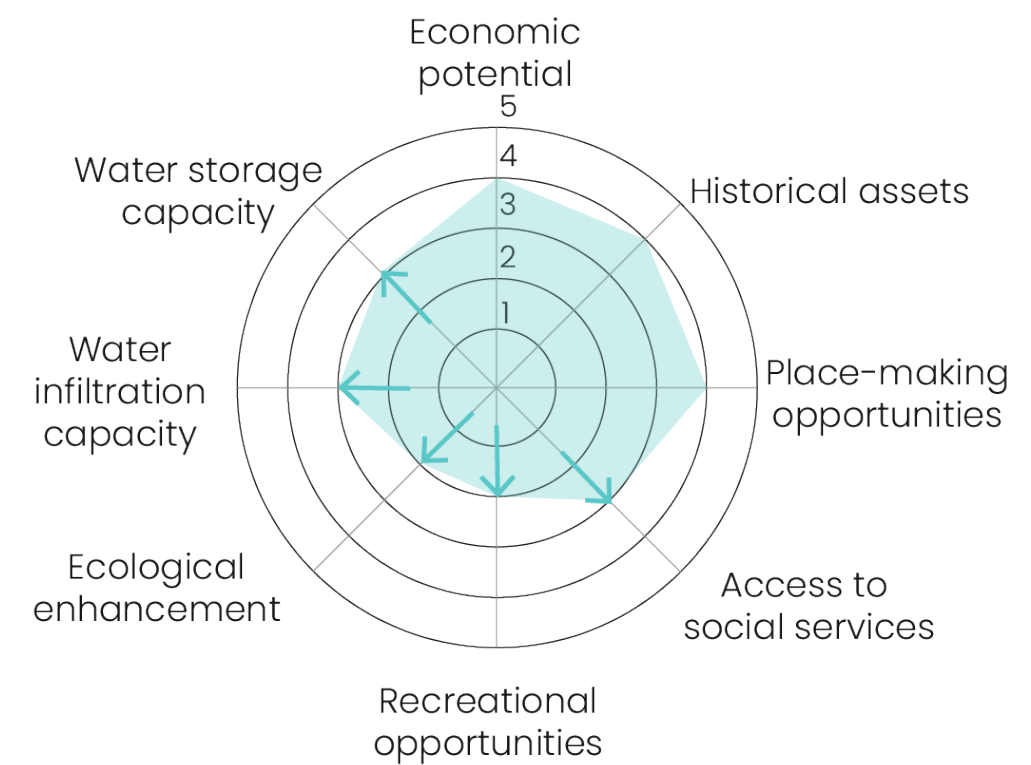
# VARIATIONS ON NEIGHBOURHOOD SCALE



## INTEGRATED DESIGN PROPOSALS



# FREDERIK HENDRIKBUURT = TYPE 1





# CURRENT SITUATION

Gillis van Ledenberchstraat

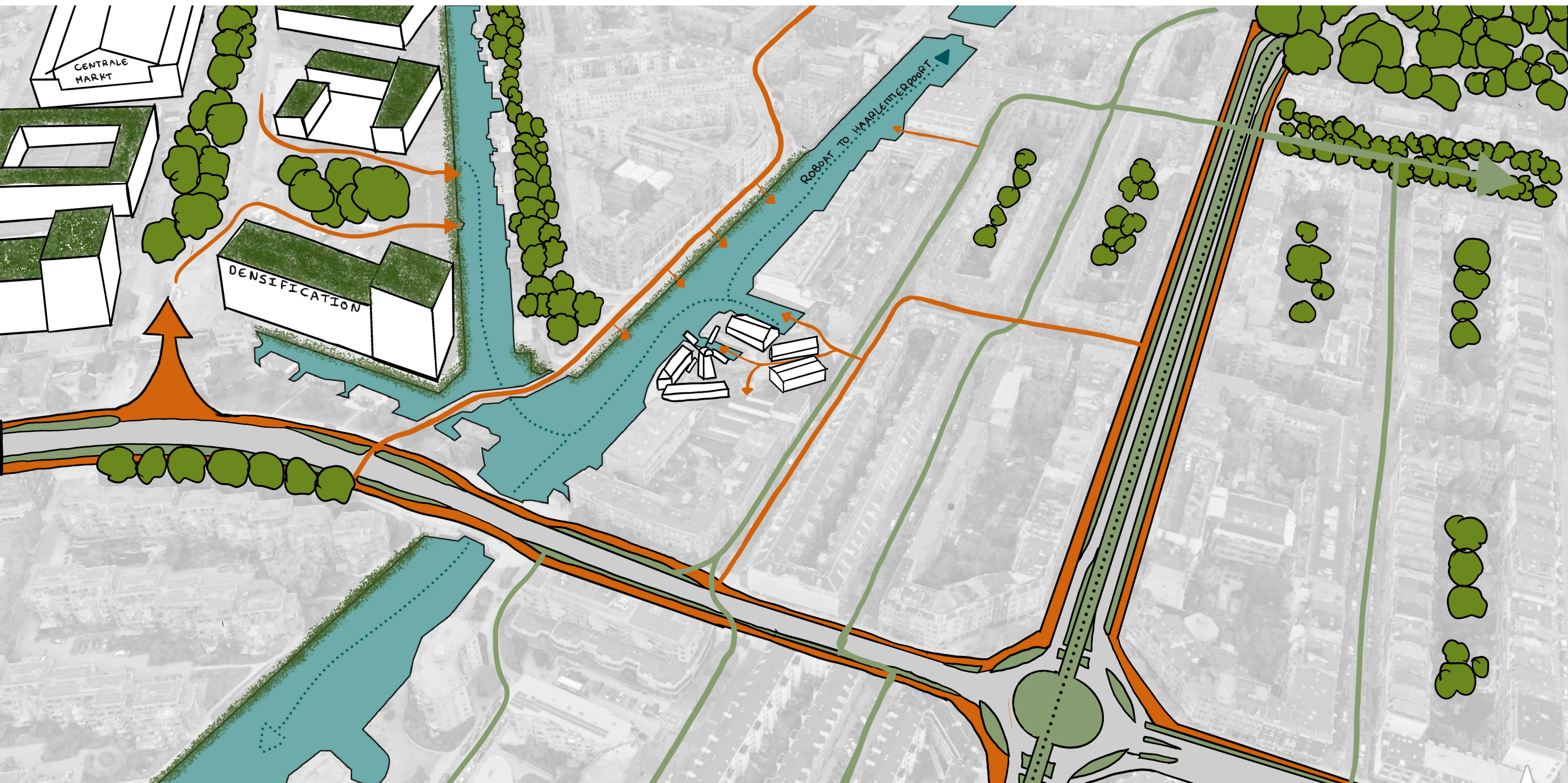


Closed waterfront around Molen de Otter





# NEIGHBOURHOOD PLAN



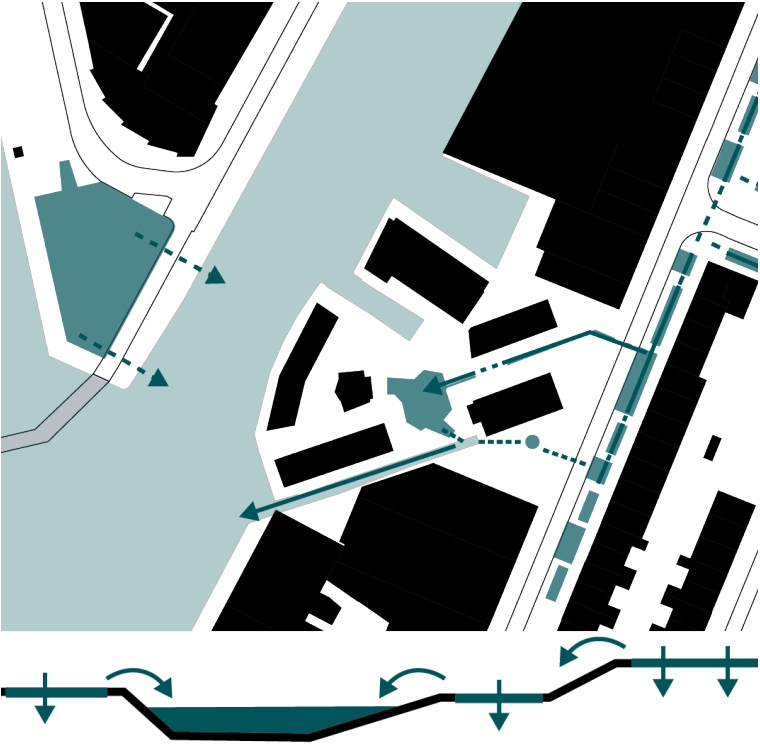


# DESIGN PLAN



Scale: 1:500

Delay water run off



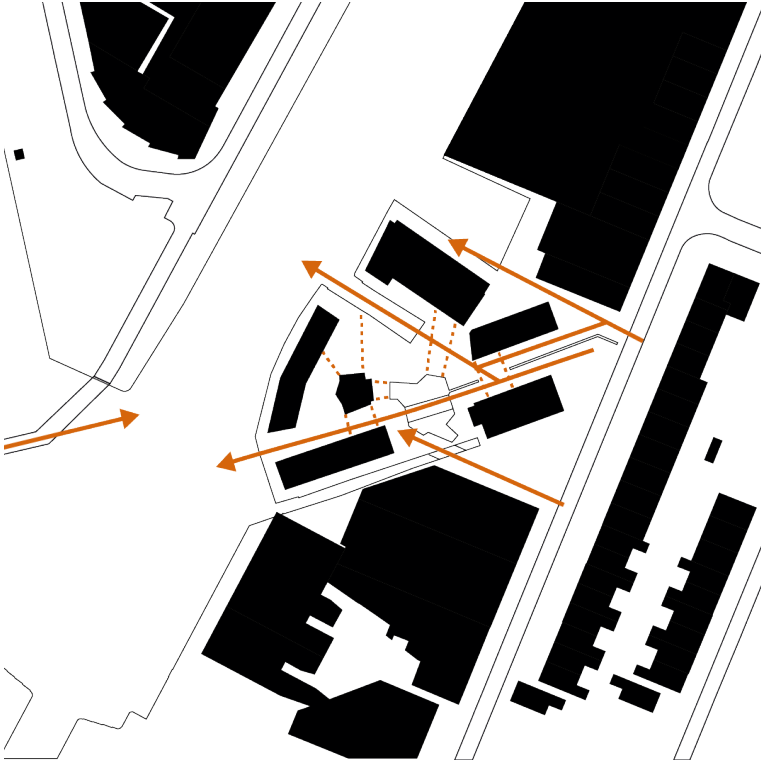


# DESIGN PLAN



Scale: 1:500

Opening sightlines to the saw mill and the waterfront





# DESIGN PLAN



Scale: 1:500

## Stepping stone vegetation





This aerial view illustrates a waterfront development project. The plan features several key buildings: a 'ROBOAT HOUSE' with a wooden deck and orange seating, an 'OFFICE' building, a 'CAFE' with outdoor seating, a 'SAW MILL' with a cross-shaped structure, and a 'MUSEUM'. The buildings are situated along a riverbank, with a dashed line indicating a water level or boundary. Landscaping includes trees, shrubs, and a paved walkway. Elevation markers are provided:  $-0,40\text{m NAP}$  near the river,  $0,10\text{ m NAP}$  near the cafe, and  $-0,25\text{ m NAP}$  near the saw mill. A scale bar indicates  $0,48\text{ m}$ . The plan also shows a parking area with cars and a small boat docked at the river.





# THE LIVING STREET



*Lavandula angustifolia*  
30 cm  
Purple to violet blue during spring to summer



*Sedum spectabile*  
10-50cm  
Pink flowers summer



*Carex morrowii*  
30-40cm  
Non-blossoming



*Narcissus spp*  
20-40cm  
Yellow in spring



*Rudbeckia fulgida*  
60-90cm  
Yellow summer to fall



*Robinia pseudoacacia*  
15 -18 m  
Non - blossoming



*Aronia*  
1 - 2 m  
Berries from spring summer



*Acer pseudoplatanus*  
9 - 12 m  
Non - blossoming



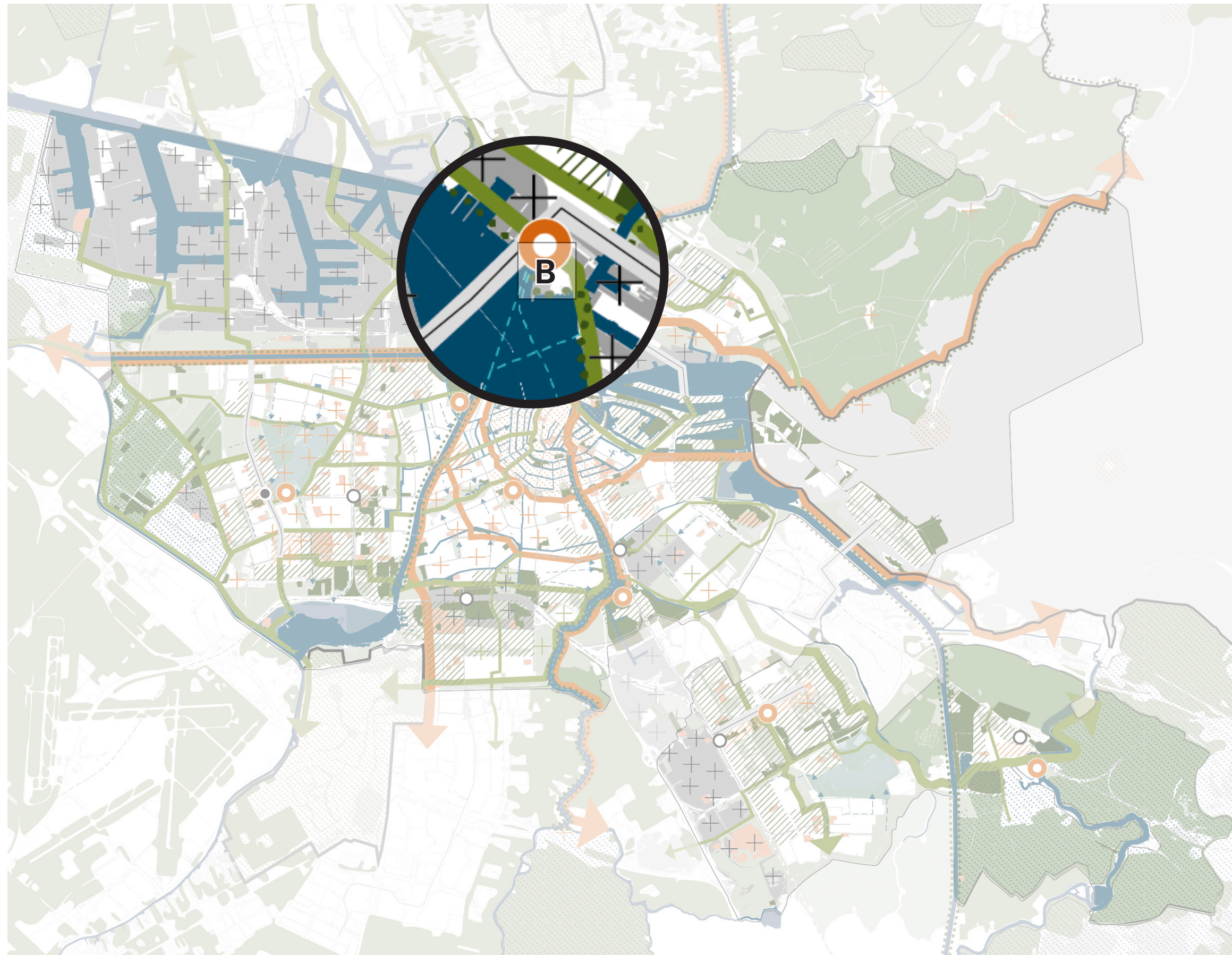


# CULTURAL-HISTORIC PLACE-MAKING OF THE WATERFRONT





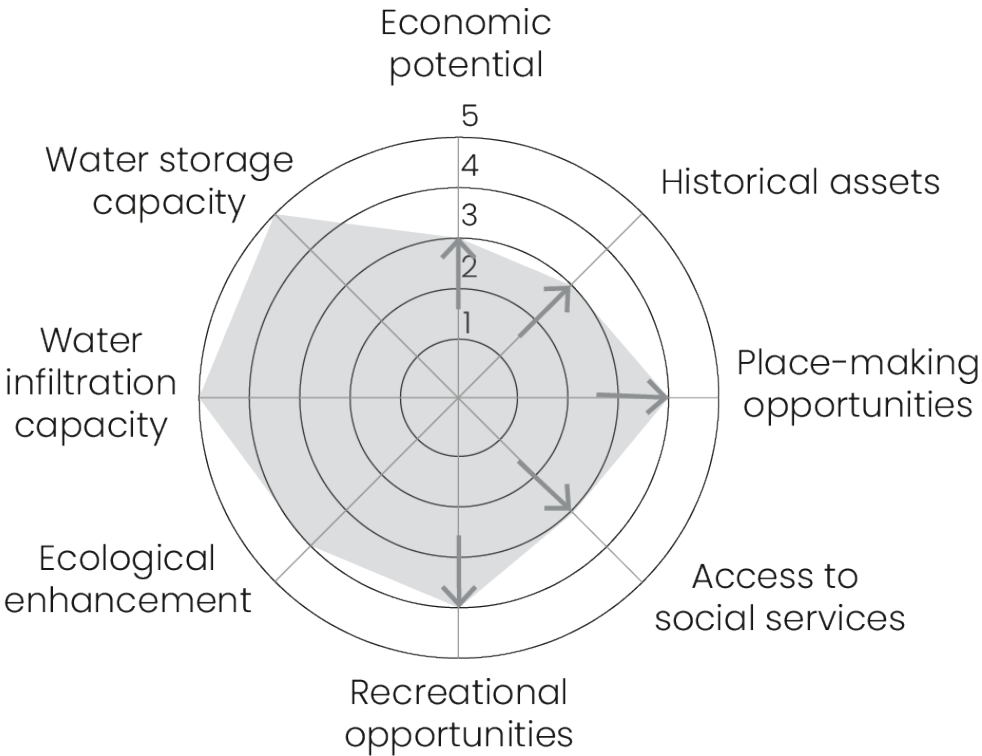
# NDSM WHARF



- Existing water
  - Changed boezem environment
  - Controlled floodable polder
  - Controlled floodable recreational area
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  - Transformed mobility hub
  - Tramline
  - Train
- Scale: 1:85.000



# NOORDELIJKE IJ OEVER WEST = TYPE 5





# CURRENT SITUATION

Empty grey event space

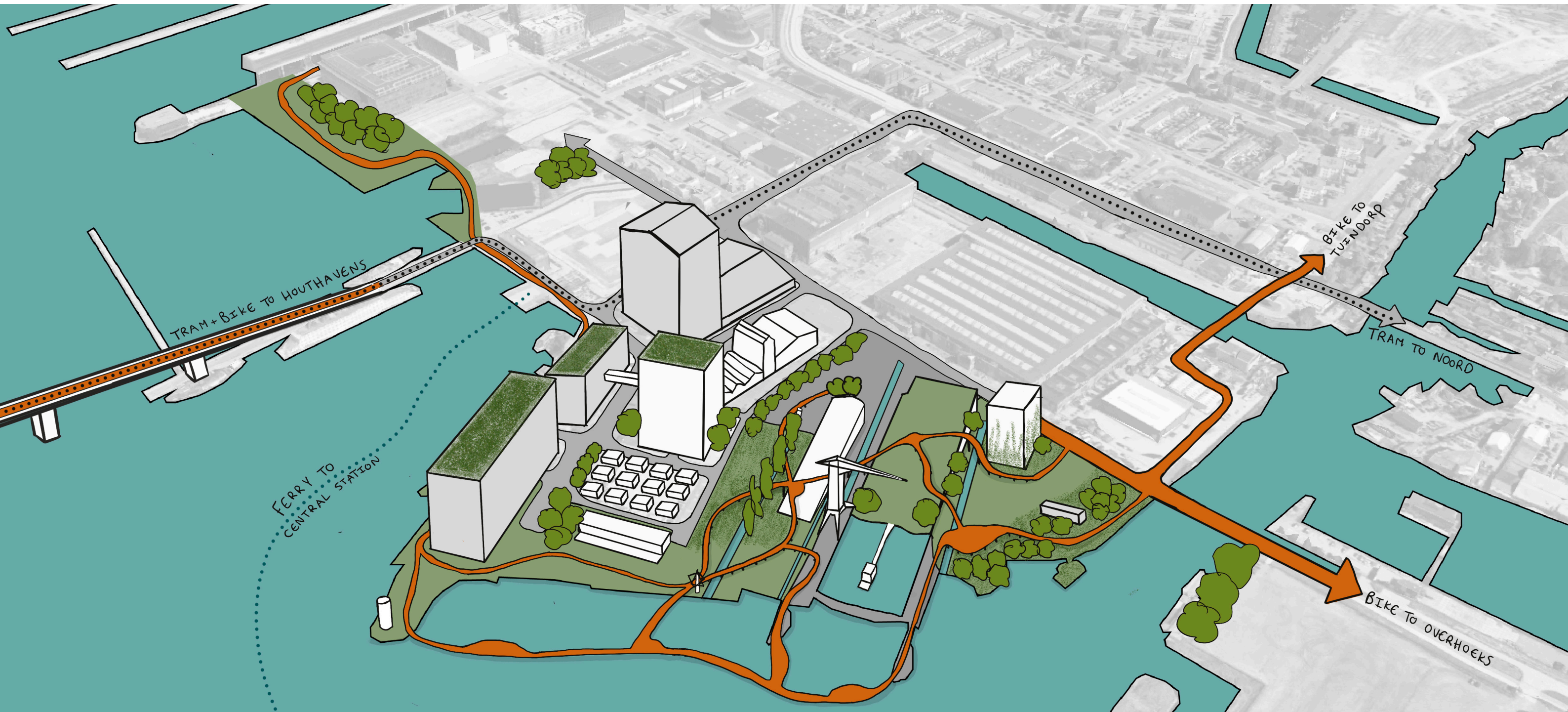


Ship wharf is industrial heritage





# NEIGHBOURHOOD PLAN

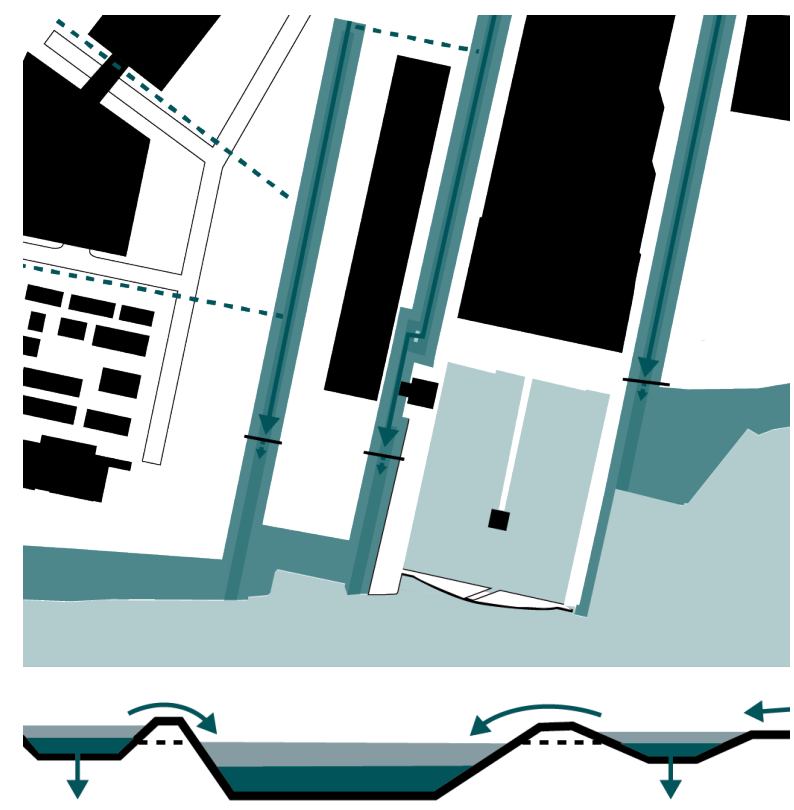




# DESIGN PLAN

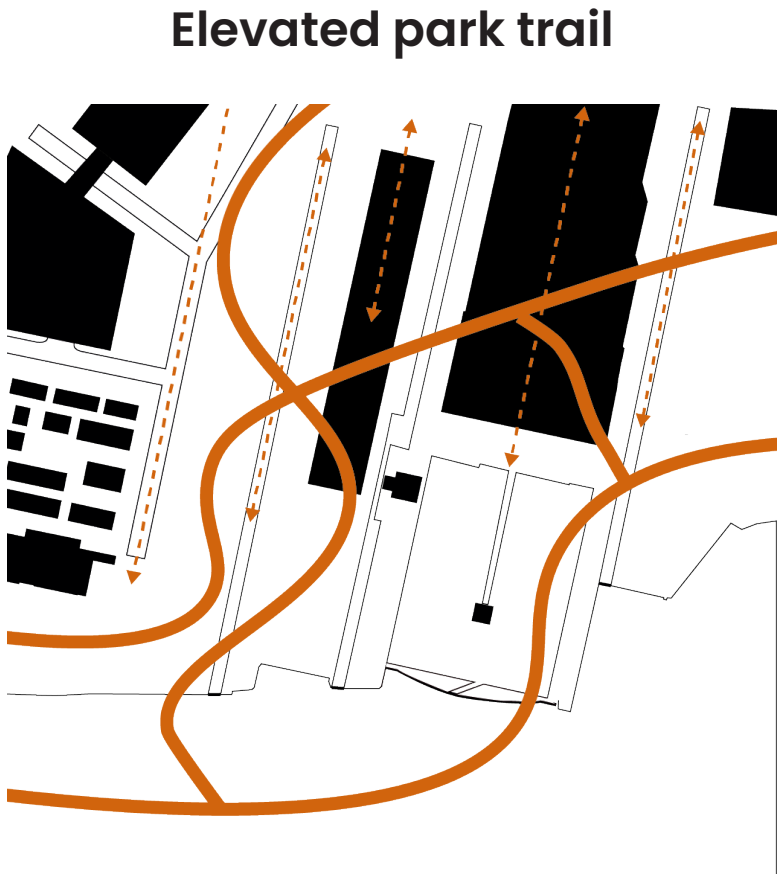


Decontaminating waterbuffers





# DESIGN PLAN

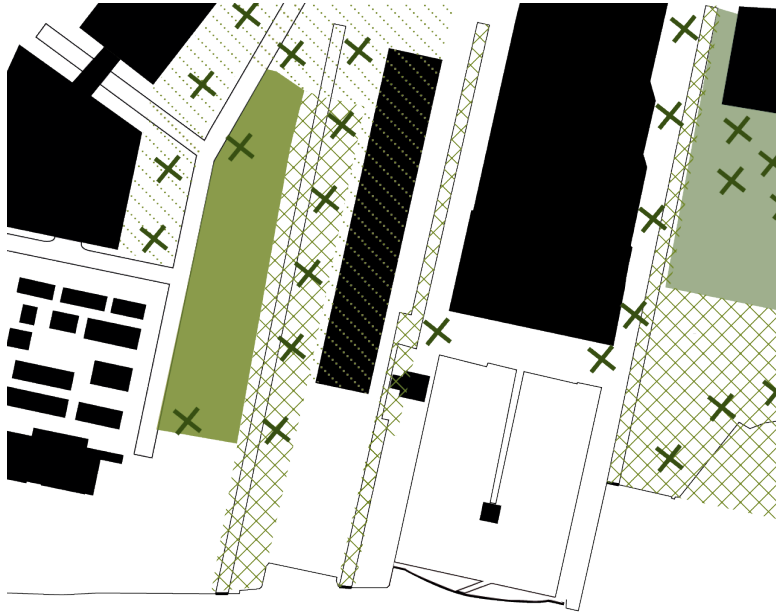




# DESIGN PLAN



Different landscape experiences





# DESIGN PLAN

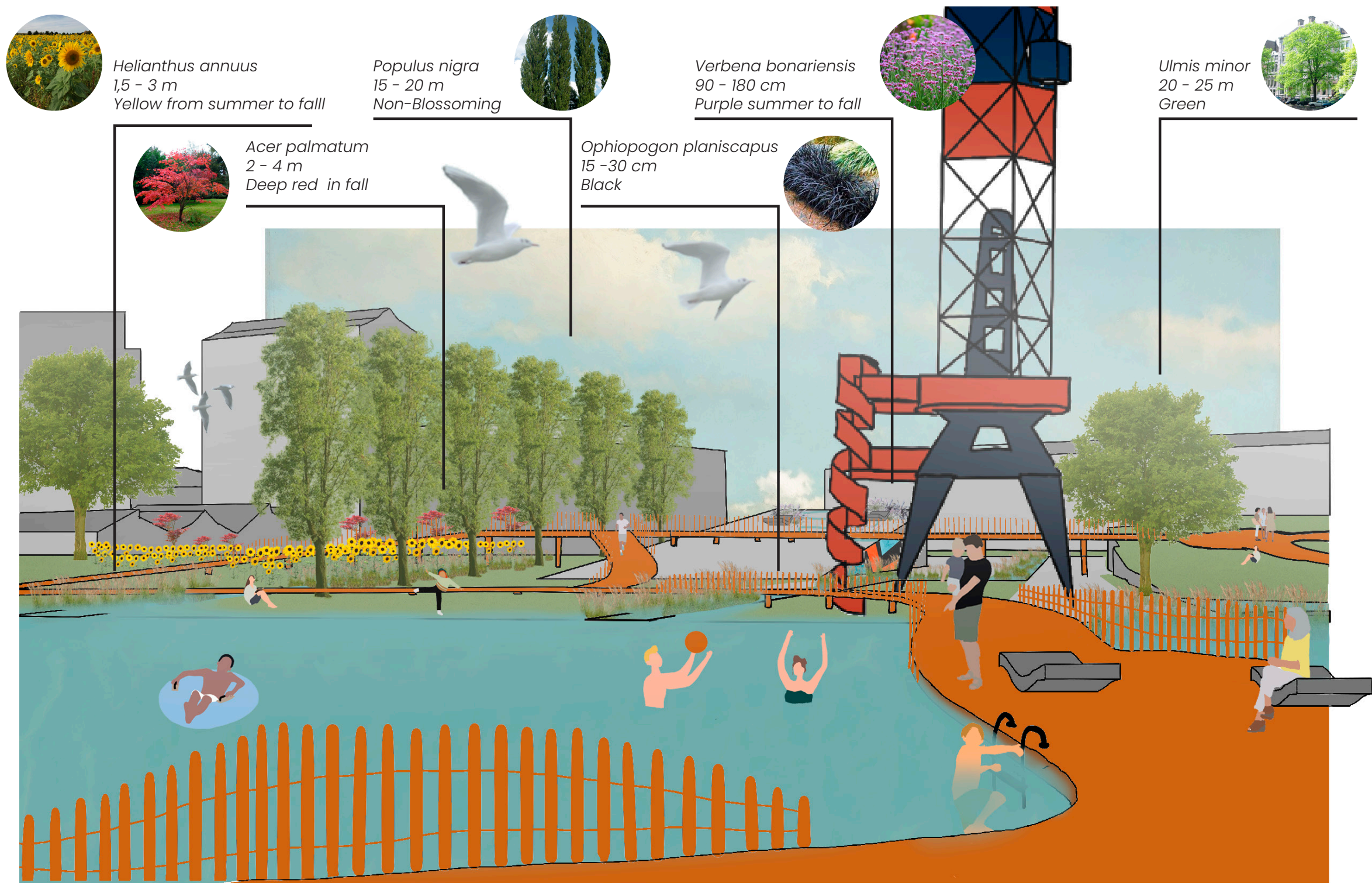


## Socio-ecological activities



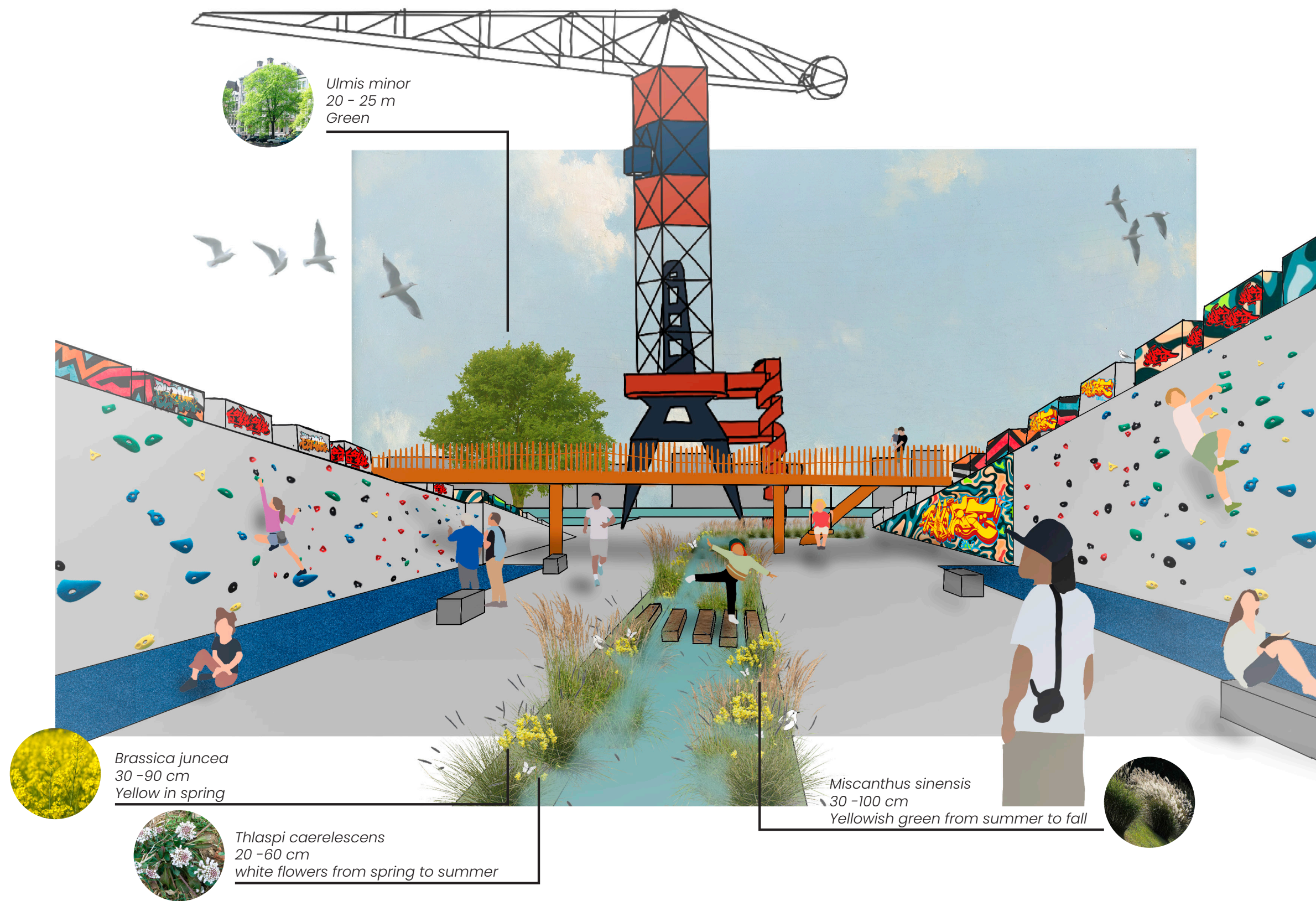


# OPENING THE URBAN WATERFRONT





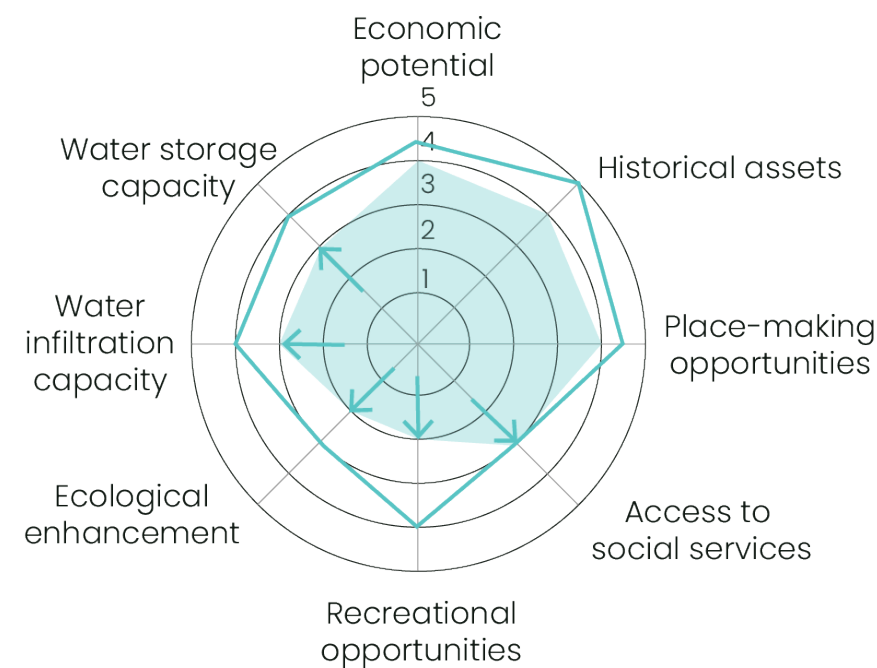
# RECREATIONAL ACTIVITIES ON HISTORICAL SITE



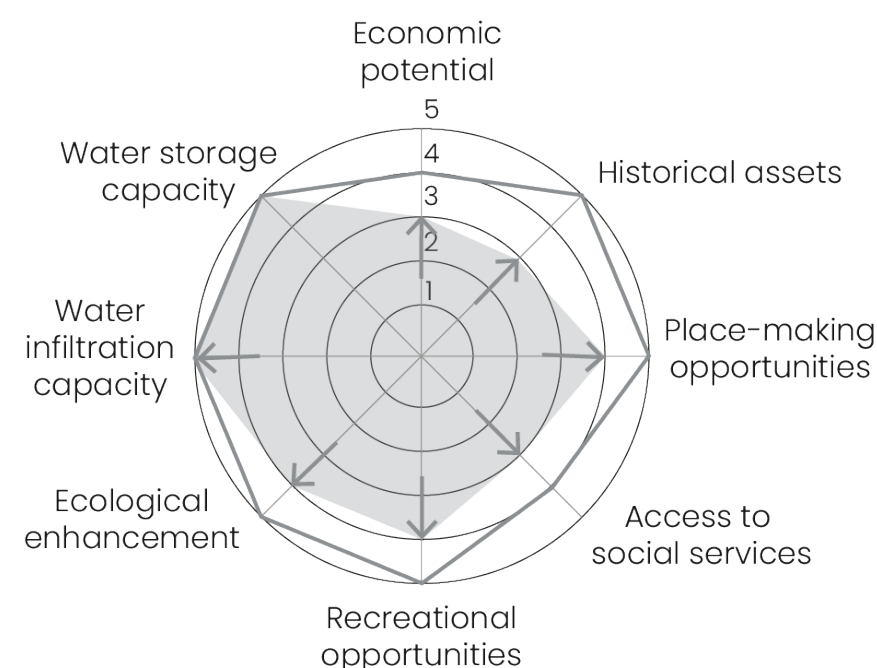


# THE USE OF THE TYPOLOGY IN THE DESIGN

## Molen de Otter

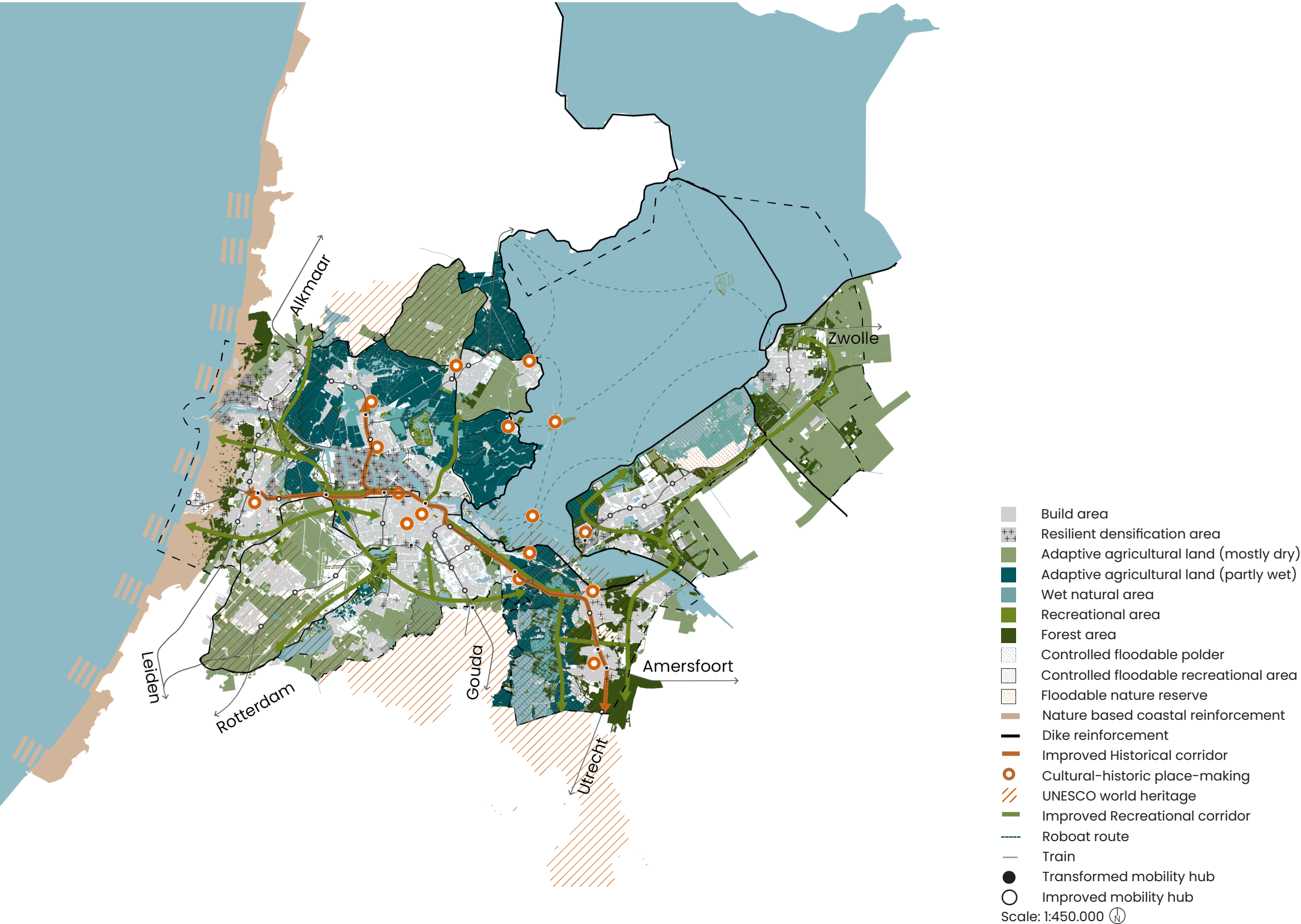


## NDSM wharf





# INTEGRATED STRATEGY ON THE REGIONAL SCALE

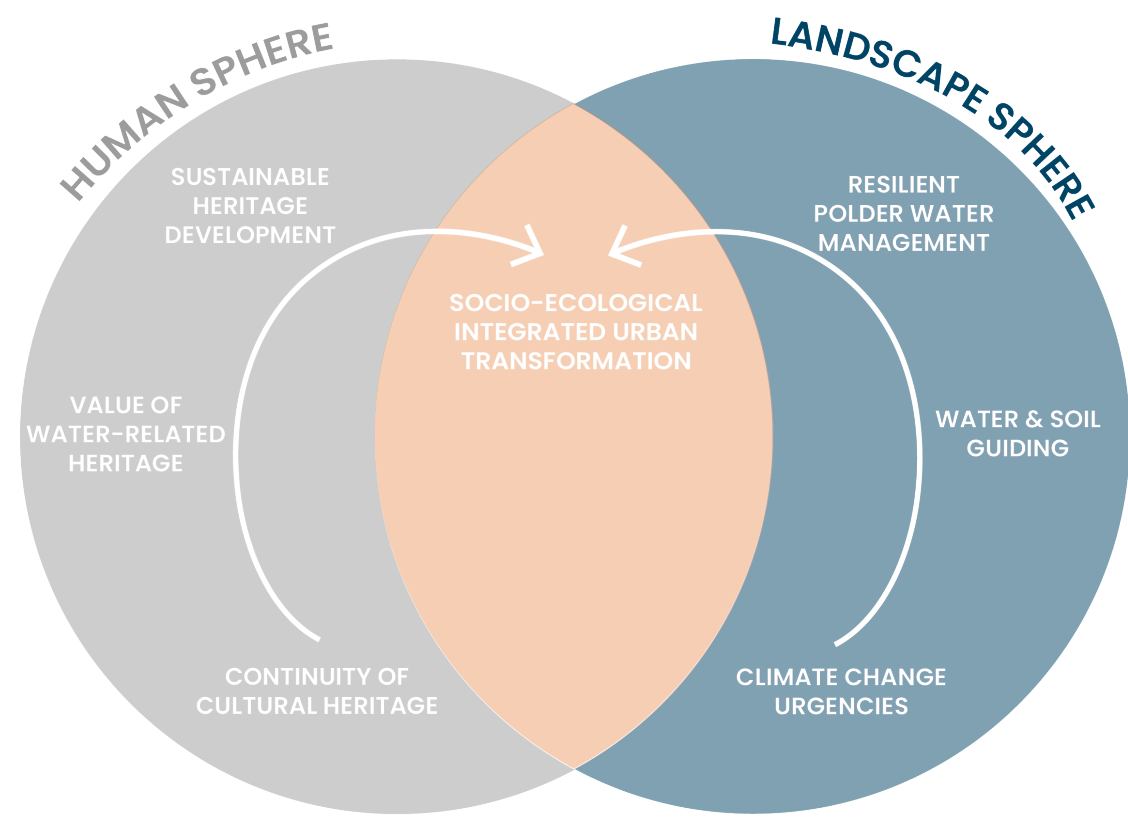




HOW CAN THE NEEDED RESILIENCE OF THE FUTURE POLDER WATER SYSTEM BE  
INTEGRATED WITH THE SUSTAINABLE DEVELOPMENT OF WATER RELATED HERITAGE,  
STRENGTHENING THE WATER IDENTITY OF AMSTERDAM?



# CONCLUSION



## SUSTAINABLE HERITAGE DEVELOPMENT

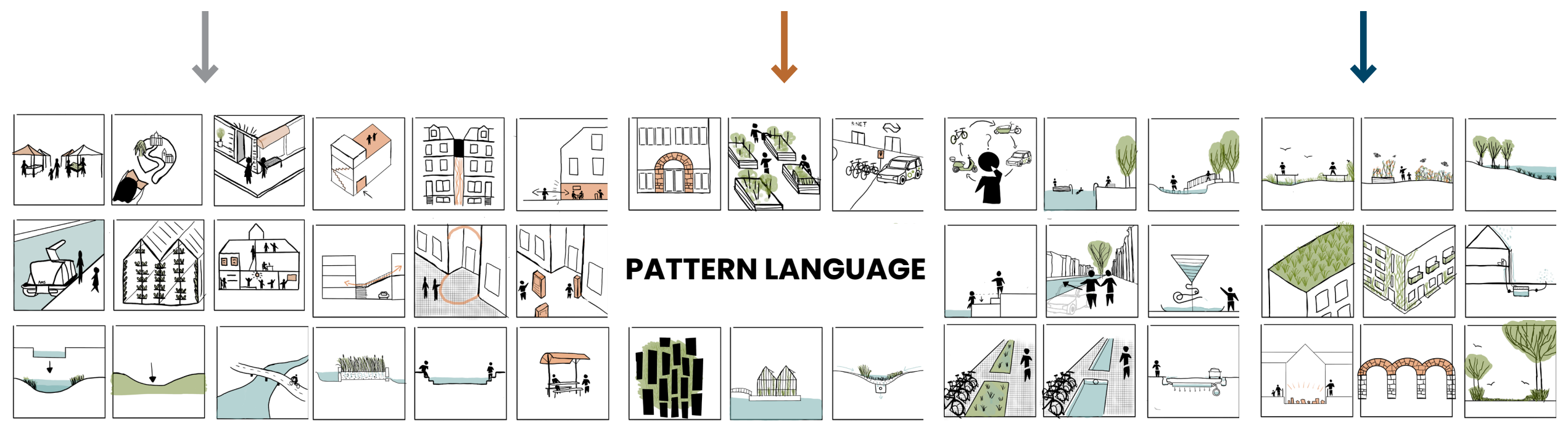
- Q1: Boost economic potential
- Q2: Renew historical assets
- Q3: create place making opportunity

## SOCIO-ECOLOGICAL INTEGRATION

- Q4: Improve access to social services
- Q5: Strengthen recreation opportunities
- Q6: Increase ecological enhancement

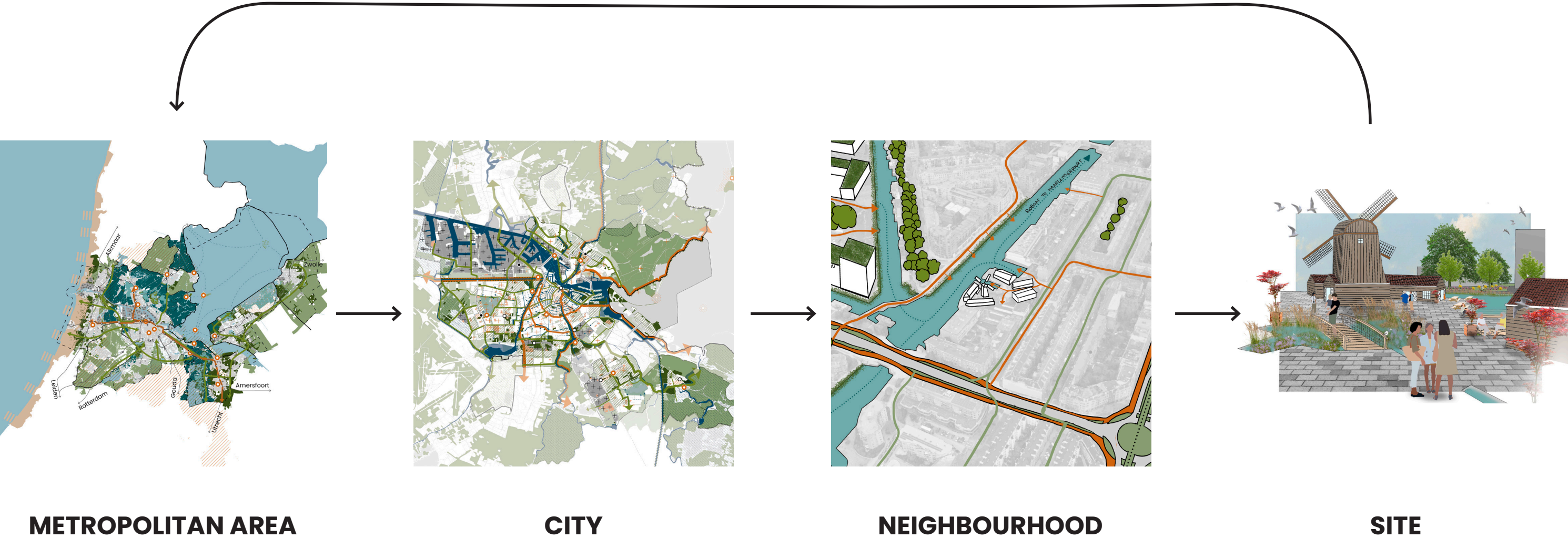
## RESILIENT POLDER WATER MANAGEMENT

- Q7: Maximise water infiltration capacity
- Q8: Expand water storage capacity



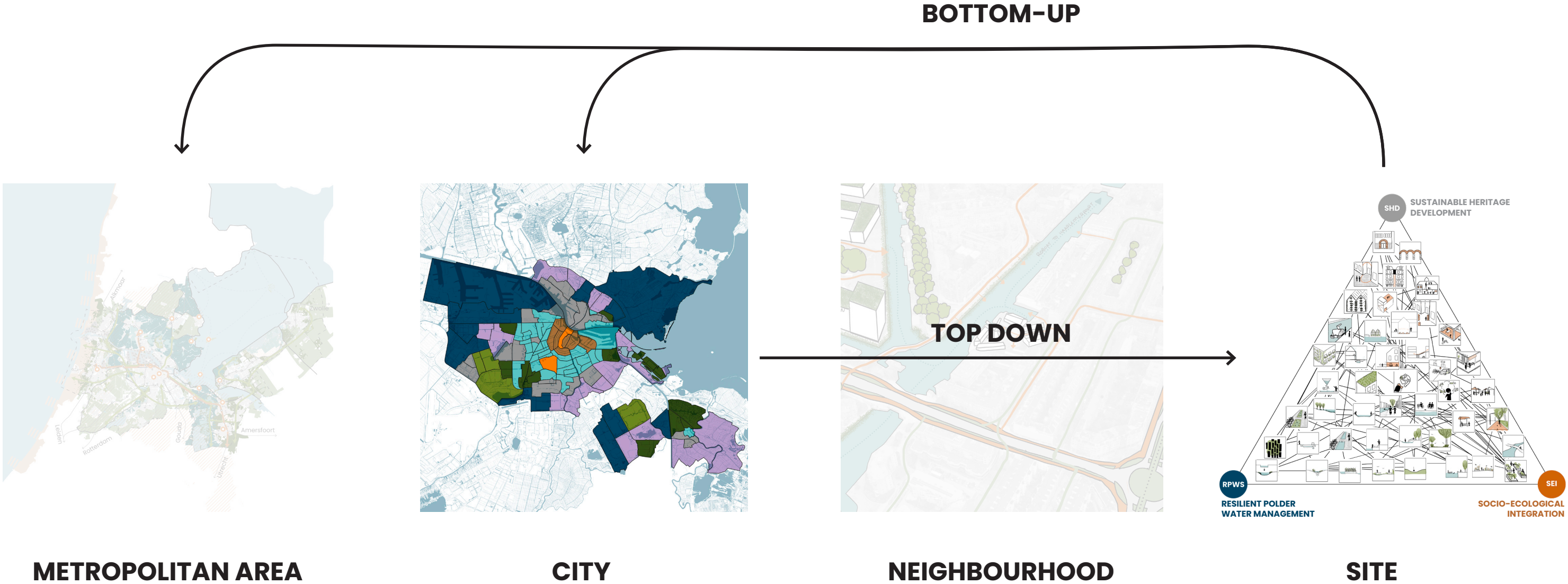


# CONCLUSION





# CONCLUSION





# BRIDGING PAST AND FUTURE



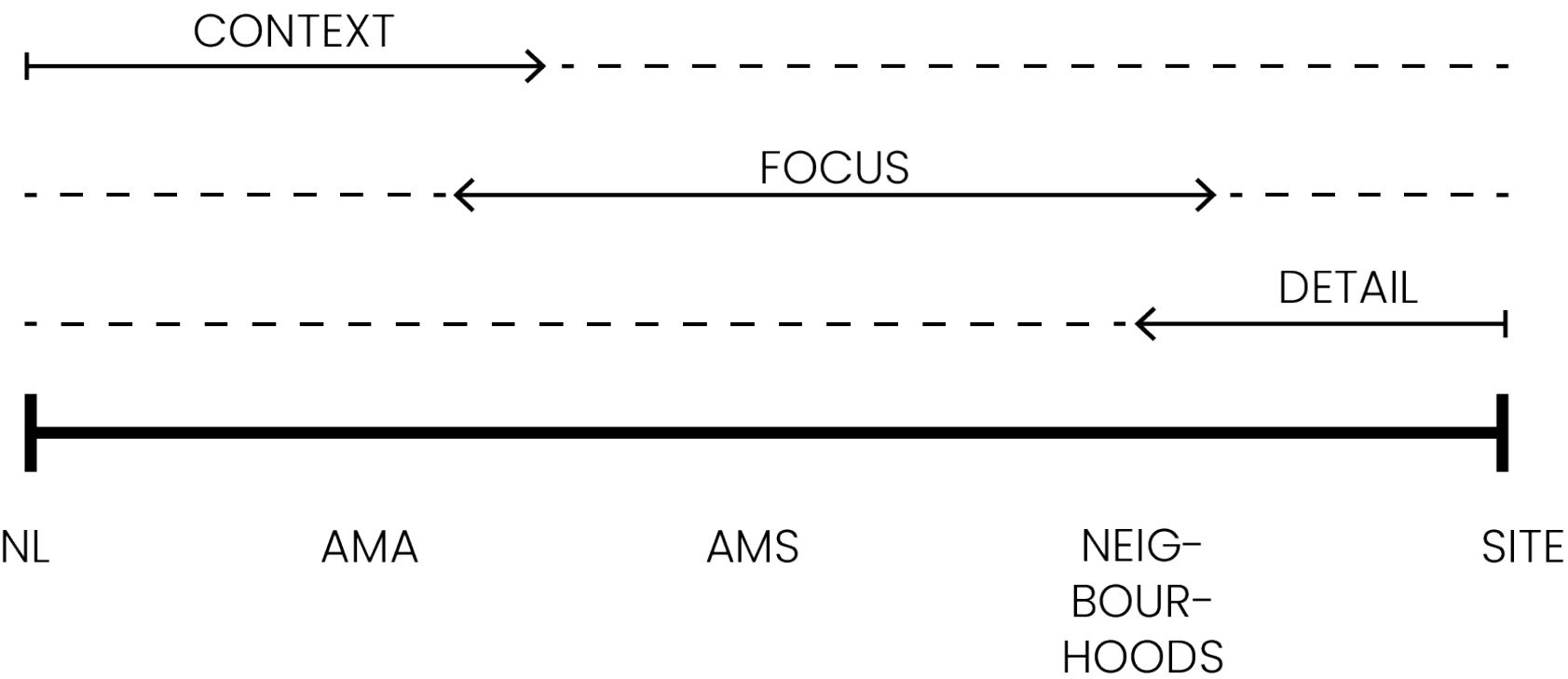
P5: Final presentation  
Design of the Urban Fabric  
Lieke van Lun  
25 June 2024



## APPENDIX



MULTI-SCALAR APPROACH TO THE PROJECT



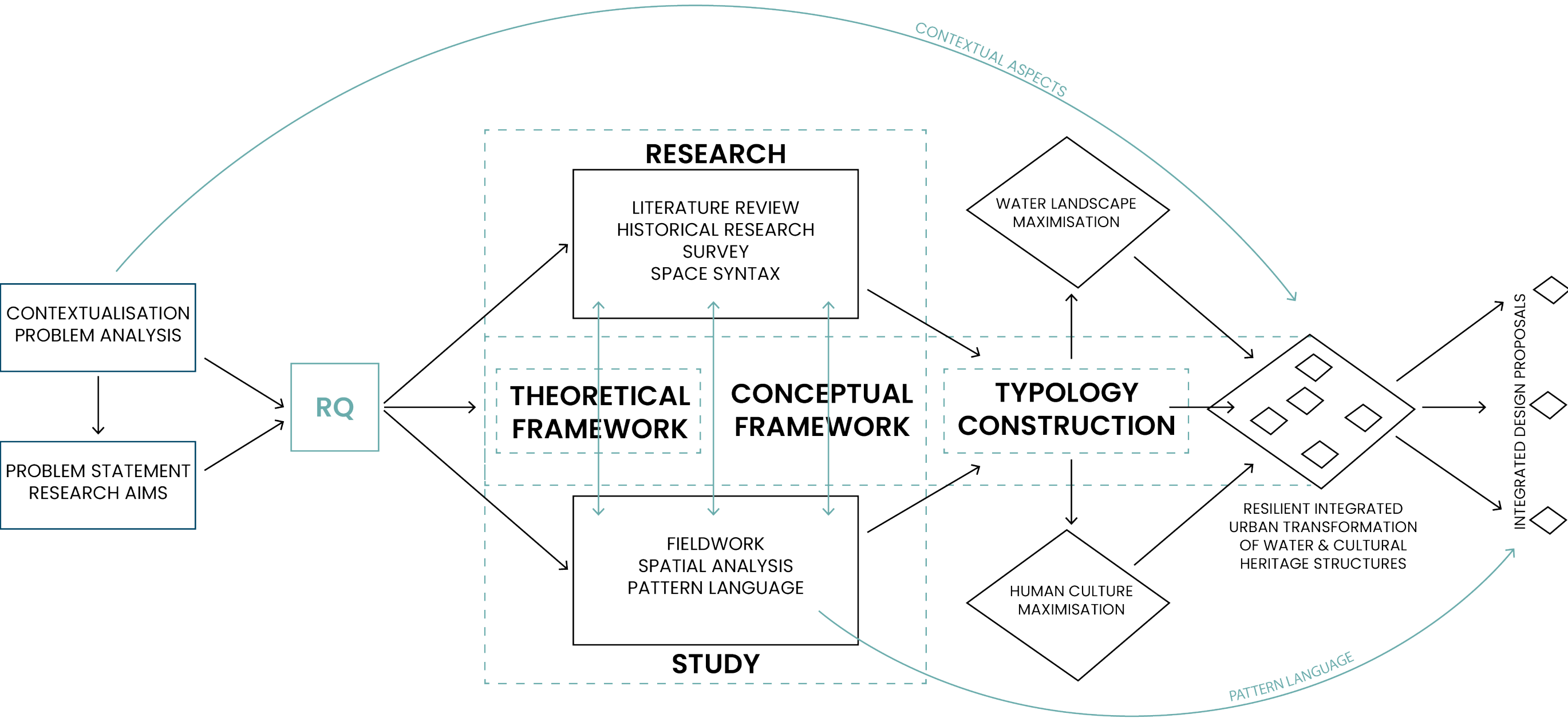


METHODOLOGY

SUB QUESTIONS	RESEARCH AIMS	METHODS	INTENDED OUTCOME
What are the cultural values of the water identity of Amsterdam?	Enrich the understanding of the historic and present day values of the polder water system in Amsterdam	<b>Literature review:</b> An introduction to cultural heritage management and cultural values <b>Historical research:</b> Historical research of the changing structure of water over time and the value of water in urban development. <b>Survey:</b> Determine the cultural values that citizens link to the water structures in their neighborhood.	Cultural and spatial opportunities for integrated urban transformation of the climate adaptation of the polder water system and the possibility for sustainable heritage development in Amsterdam and the Amsterdam Metropolitan Area.
What are the existing and future water problems in the polder water system in Amsterdam and the Metropolitan Area?	Identifying the critical locations and spatial needs to adapt the polder water system to future climate change problems	<b>Literature review:</b> Understanding the need for adaptability of the polder water system to future water problems that are likely to occur due to climate change <b>Spatial analysis:</b> Understanding the spatial implications of the polder water system and the future problems that are likely to occur.	
Which water-related heritage structures in Amsterdam are suitable for sustainable development?	Understanding the different types of water-related heritage structures and their location in the urban fabric	<b>Literature review:</b> Understanding the stories behind heritage structures and heritage management <b>Spatial analysis:</b> Understanding the spatial relationship between water & heritage structures and a spatial analysis of porosity. <b>Space syntax:</b> Understanding to role of heritage structures in the urban network	
How can socio-ecological integration enable an increased capacity for water resilience on a city scale?	Create a resilient polder water system with a socio-ecological urban water management plan.	<b>Spatial analysis:</b> Identifying the potential spaces to increase the water infiltration and storage capacity. <b>Maximization scenario:</b> Maximise the potential for water infiltration and storage in the city <b>Pattern language:</b> Explore design solutions that give water structures more ecological and social values	A city scale plan to integrate the sustainable development of water-related heritage and the needed climate adaptation of the polder water system.
How can the sustainable development of water-related heritage increase the resilience of the cultural structure in the city?	Use water-related heritage as a catalyst for sustainable development, while increasing the cultural value on neighbourhood- and city scale	<b>Spatial analysis:</b> Identifying the potential spaces to increase cultural value with sustainable heritage development <b>Maximization scenario:</b> Maximise the potential cultural connections in the city. <b>Pattern language:</b> Explore design solutions that give historical structures more ecological, social or economic values	A pattern language that explores design solutions which integrate sustainable heritage development, socio-ecological integration and a resilient poder water system
How can the climate adaptation of the water and cultural structures in the city postively contribute to the living environment?	Reconnect people with nature to increase the appreciation of the needed climate adaptation in the city	<b>Research by design:</b> Make design decisions based on the city scale maximisation scenario <b>Pattern language:</b> Design examples to show the synergies and conflicts of integration sustainable heritage development and water resilient climate adaptation on a neighbourhood scale <b>Survey &amp; literature review:</b> Determine stakeholders demands and interests and power relations in governance.	Design proposals on a neighbourhood scale, based on the adaptation strategies on city and regional scale, that show the implementation of these strategies with the pattern language in the direct living environment.



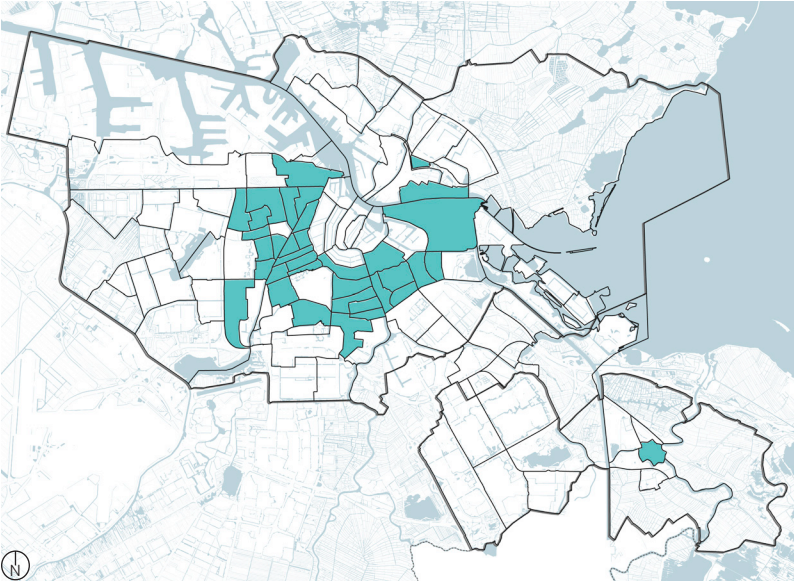
METHODOLOGY FRAMEWORK





QUALITATIVE ASSESSMENT TYPE 1

Location of type 1 neighbourhoods



Type 1 neighbourhoods are mostly part of the early 20th century city expansions. They have closed residential blocks with little to no natural area. Small water courses run through these neighbourhoods. Almost all neighbourhood have a main street with shops and one or multiple social-cultural facilities. Therefore the neighbourhoods already have economic potential. Most neighbourhoods have one or two heritage sites and therefore have place making potential. Due to the high proportion of build area the water infiltration and storage capacity is limited. This needs to be improved with an advanced infiltrate-store-drain system. Through engaging this in the urban environment, ecological values will be strengthened. The historical assets can be used as catalyst for climate adaptation and there is a need to provide for small scale recreational possibilities of the urban waterfront

Type 1 exceptional neighbourhoods

**Centrale Markt**

Historical market with high potential for social and economic services, potential for large scale transformation

**Tuindorp Buiksloot**

Garden city housing with no social or economic potential and no natural area -> switch to type 4

**Noordelijke IJ-oever oost**

One big industrial area on the northern bank of the IJ, an inaccessible private part of the city

**Westlandgracht**

Mixed use area with little historical asset and more water infiltration capacity. -> switch to type 5

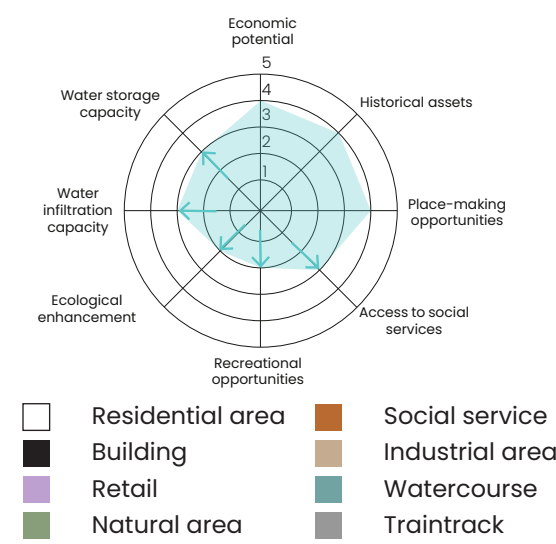
**Spaarndammer Zeeheldenbuurt**

Pre-war residential closed blocks but with the large natural area of Westerpark

**Oostelijk Havengebied**

Former harbour as asset for residential development, waterfront as place making tool

Type 1 potential improvement



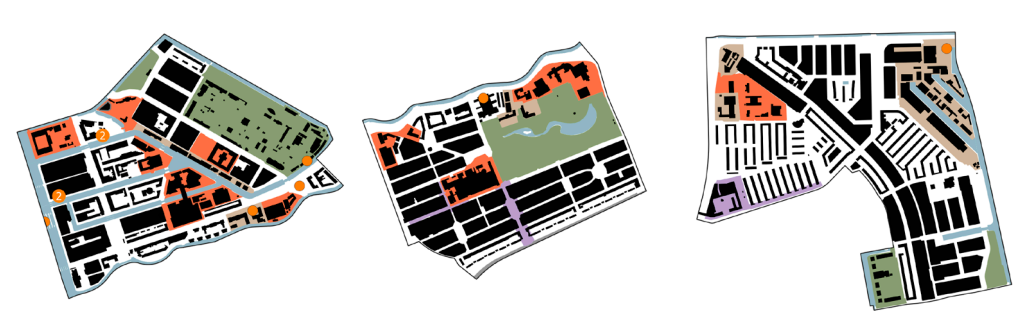
Archetype 1 neighbourhoods: residential closed blocks with a main street and small watercourses



Archetype 1 variations: Residential closed blocks with a main street and a small natural area

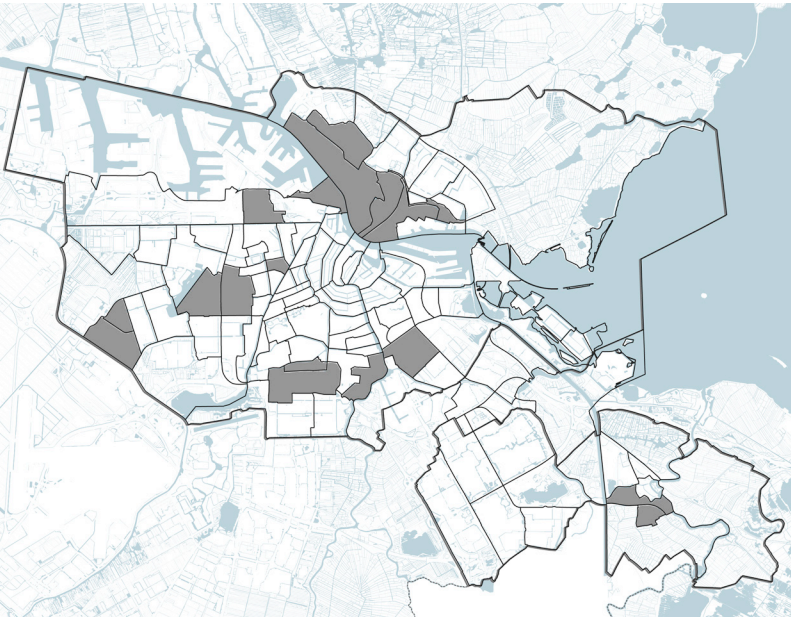


Archetype 1 variations: Residential closed blocks, but more mixed with retail or socio-cultural services





QUALITATIVE ASSESSMENT TYPE 5



Type 5 shows the inner city porosity. There is not as much space as in the neighbourhoods in type 6. But these are still areas that hold potential for more or new activities. There is large water management potential, because many neighbourhoods possess large scale natural areas. These natural areas hold great potential for socio-ecological activities, place-making and recreation opportunities. Moreover multiple neighbourhood border important waterbodies, which allows for waterfront development, this would improve the historical asset. Because of the available space these areas hold potential for densification. Economic and social potential could be enhancement within the transformation and densification process.

Exceptions

Nieuwendammerdijk / Buiksloterdijk

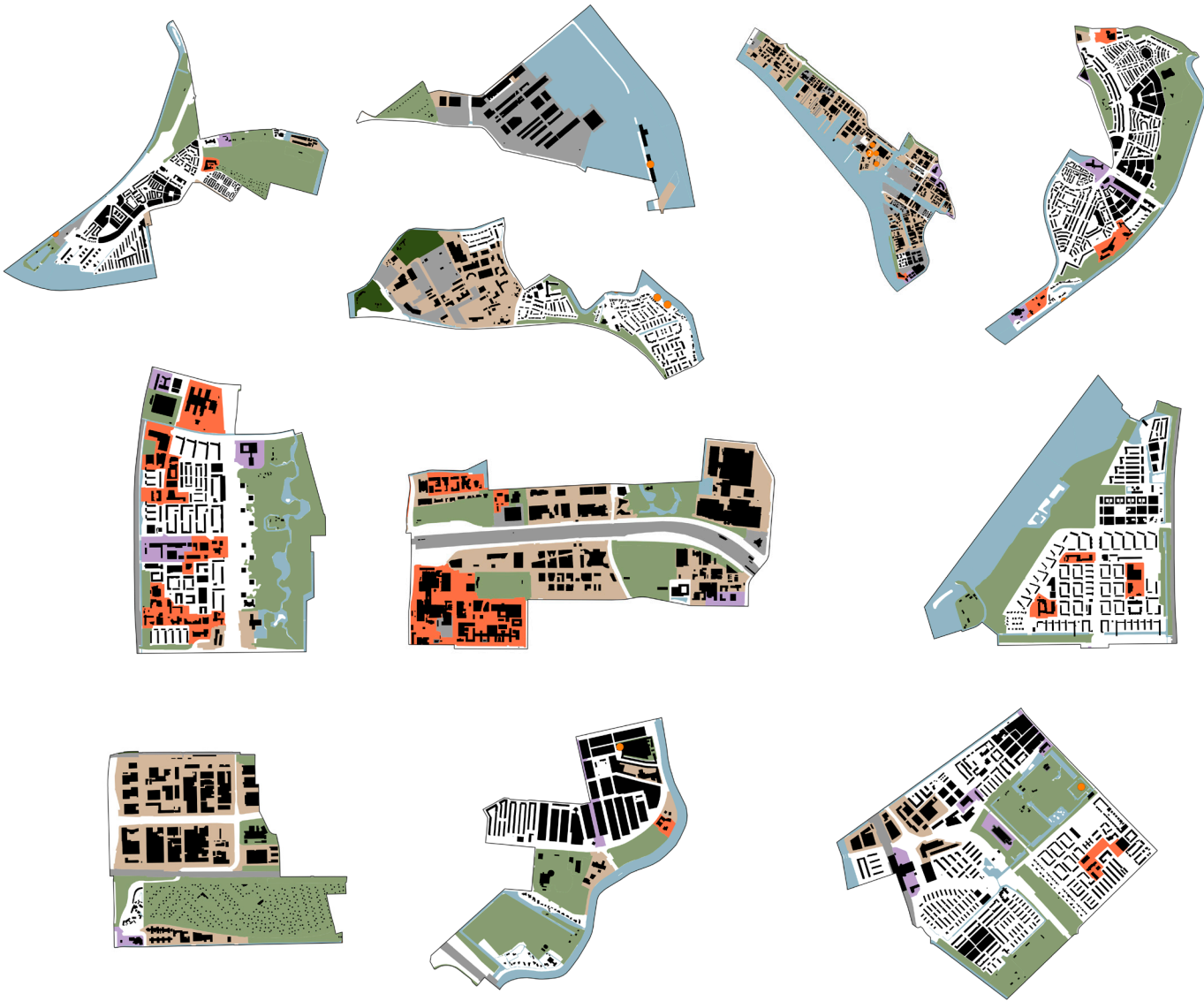
Nieuwendammerdijk / Buiksloterdijk is a low density residential area with transformable natural area. But because of the urban morphology the actual transformation potential is very limited.

Geuzenbuurt

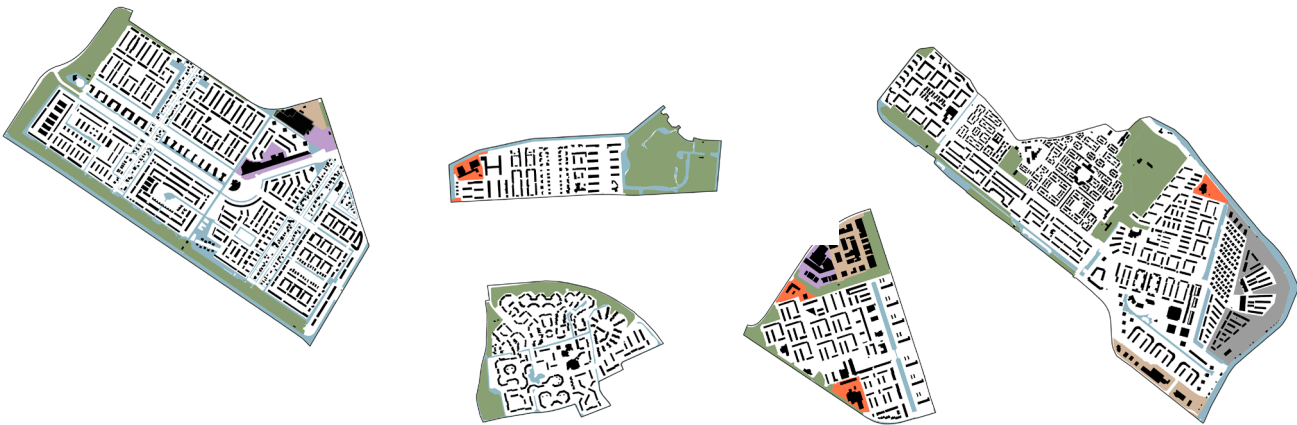


The Geuzenbuurt looks nothing like a type 5 neighbourhood. It is a closed block residential area, with no natural area or transformable space. There is no water infiltration or storage capacity and no ecological enhancement or place-making potential. It has some economic activity and holds historical assets because of its time of construction. Therefore Geuzenbuurt belongs to type 1 instead of type 5.

Neighbourhood with porosity and high transformation potential

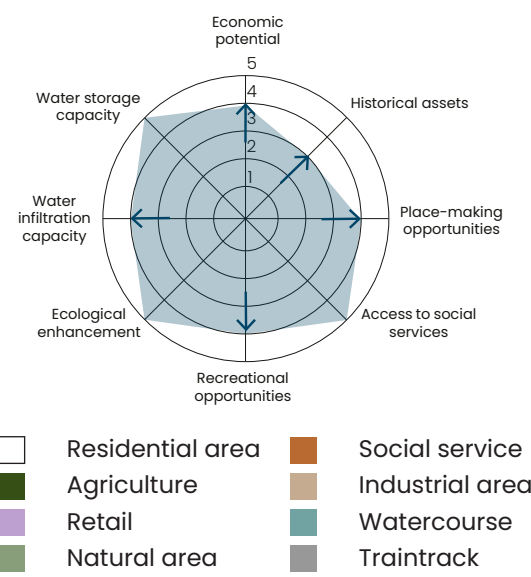
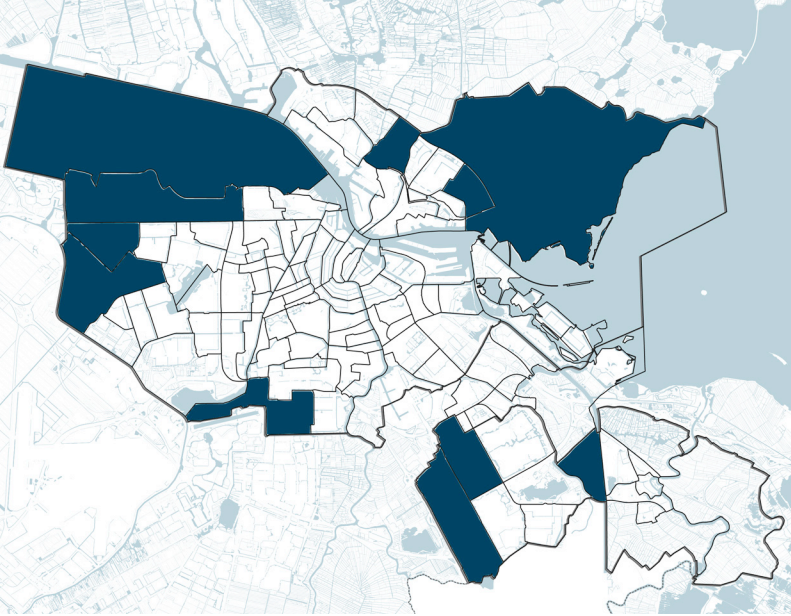


Low density residential area with transformable natural areas



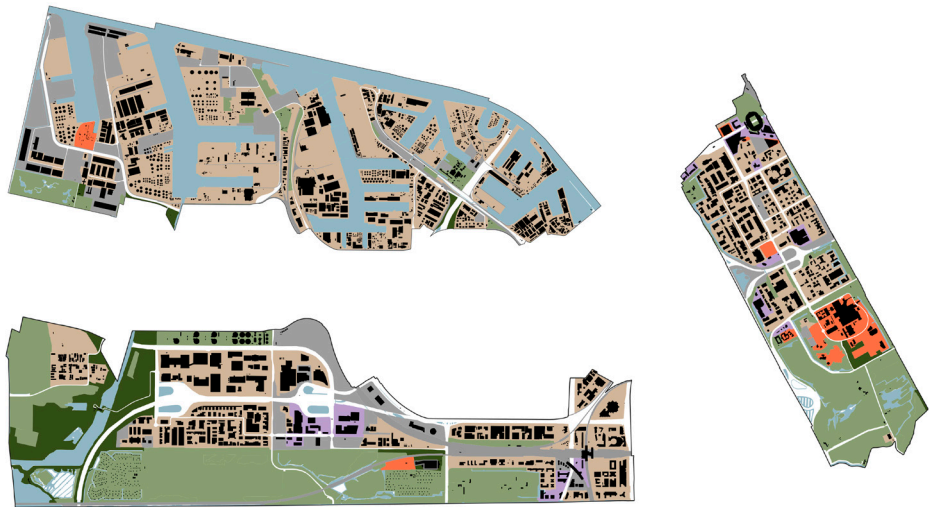


# QUALITATIVE ASSESSMENT TYPE 6

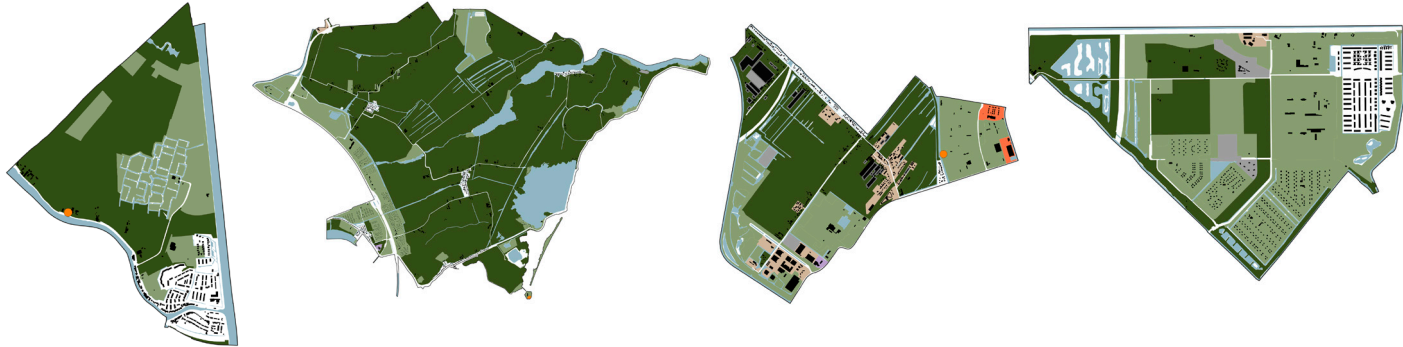


Type 6 is on the one hand the type with the largest transformation potential. Type 6 neighbourhood are on the edge of the city and already possess most of the qualities that are looked for in this design project. There are three variations to distinguish. The first variations are mixed residential neighbourhoods, they look a lot like the type 5 neighbourhoods, but have more space for transformation or water management. Moreover they already have social services and economic activity than type 5 neighbourhoods. The second variations are large scale industrial areas. These areas have high water management and economic potential. The place-making potential and historical assets could be increased in these neighbourhoods. Lastly there are large agricultural areas, that hold very high water management potential and ecological enhancement, but also can improve there historical assets and place making opportunities.

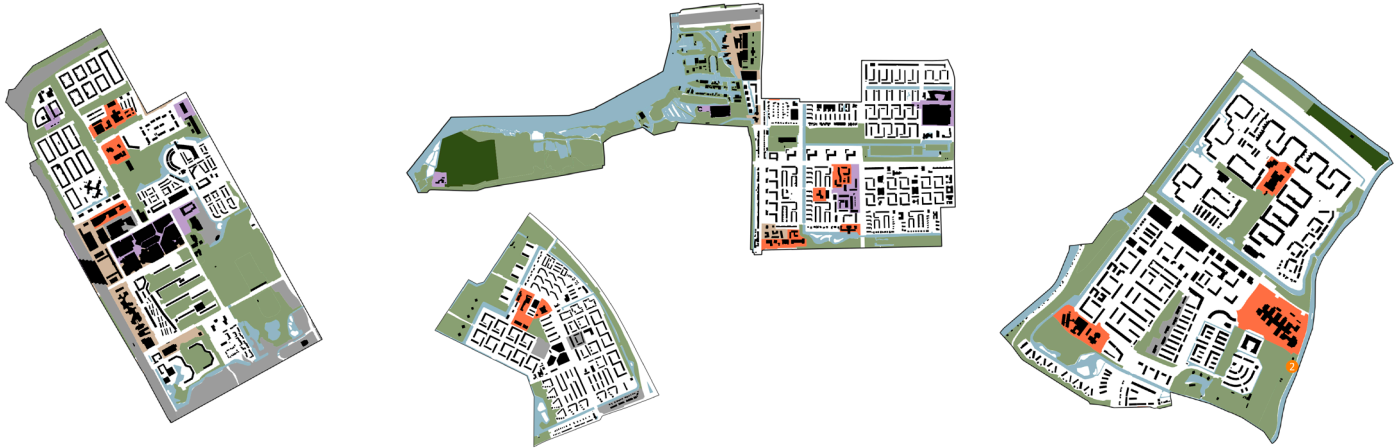
Large scale industrial areas open for future transformation



Large scale agricultural or natural areas open for future transformation



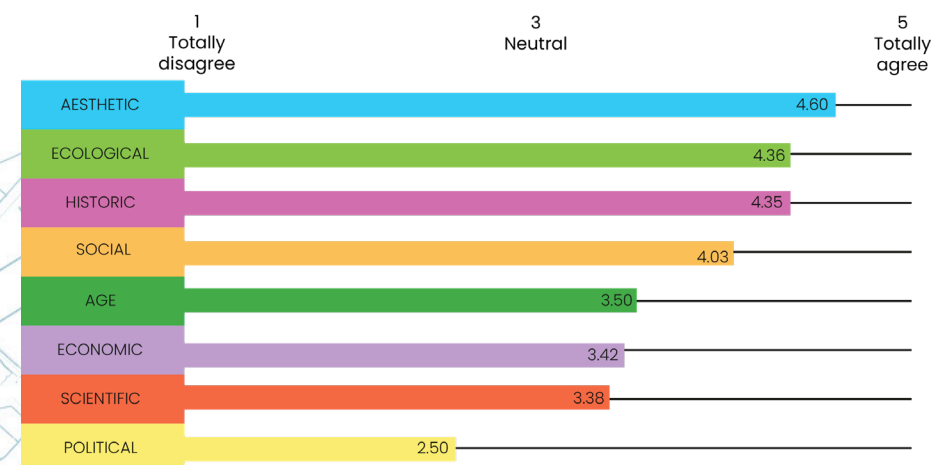
Mixed residential area and natural area with large space for transformation





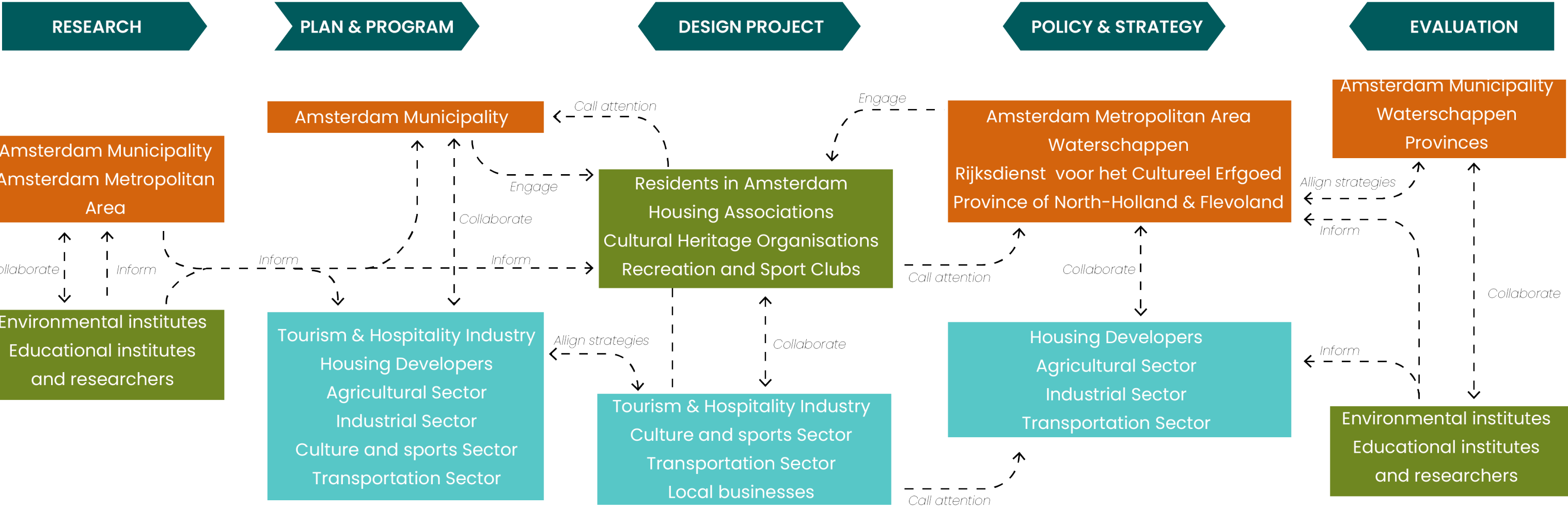
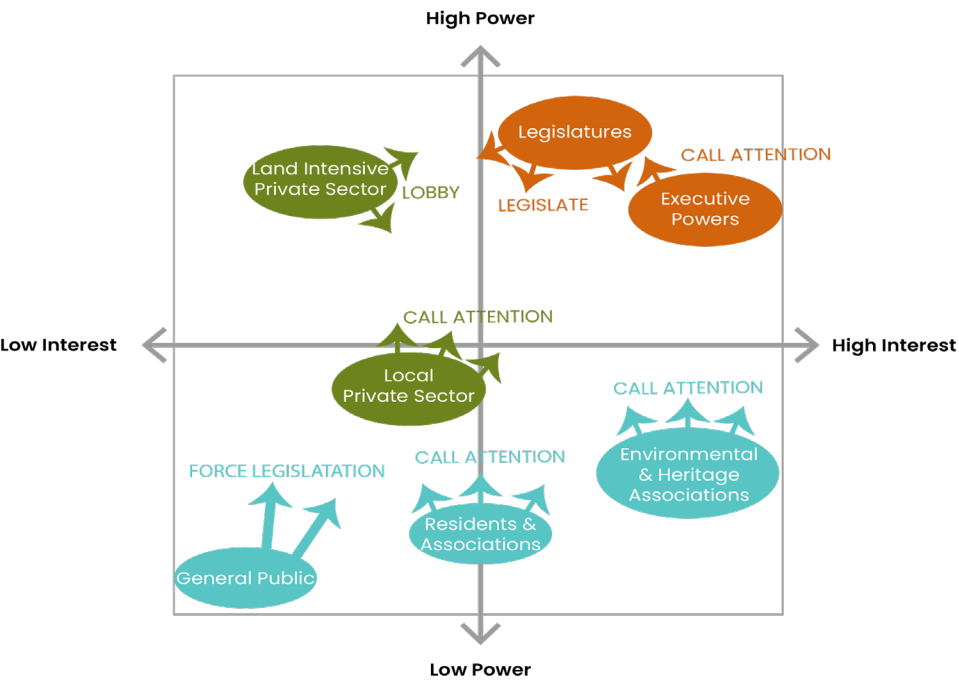
# SURVEY DISTRIBUTION

## Average rate of water structures to cultural heritage values



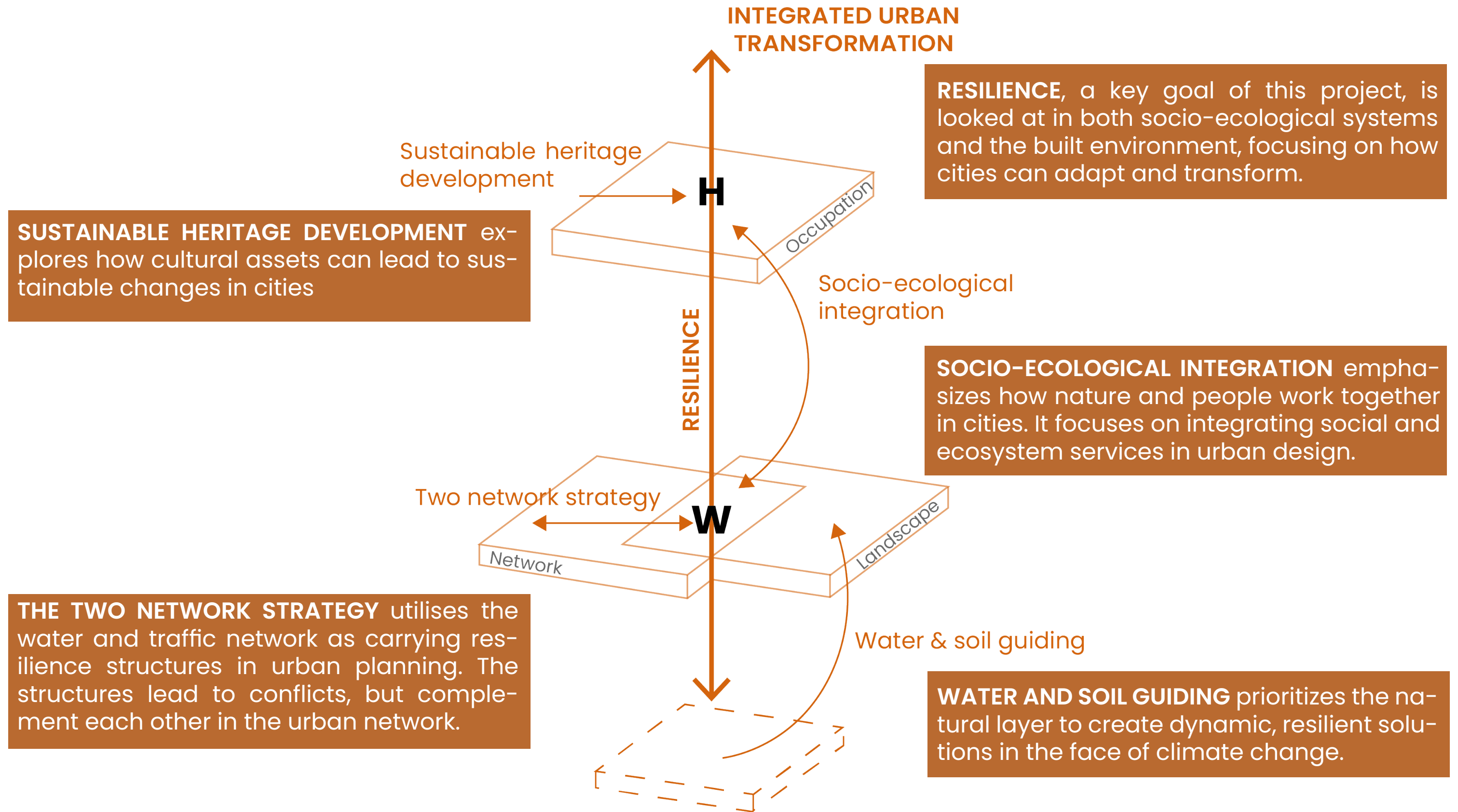


STAKEHOLDER MATRIX



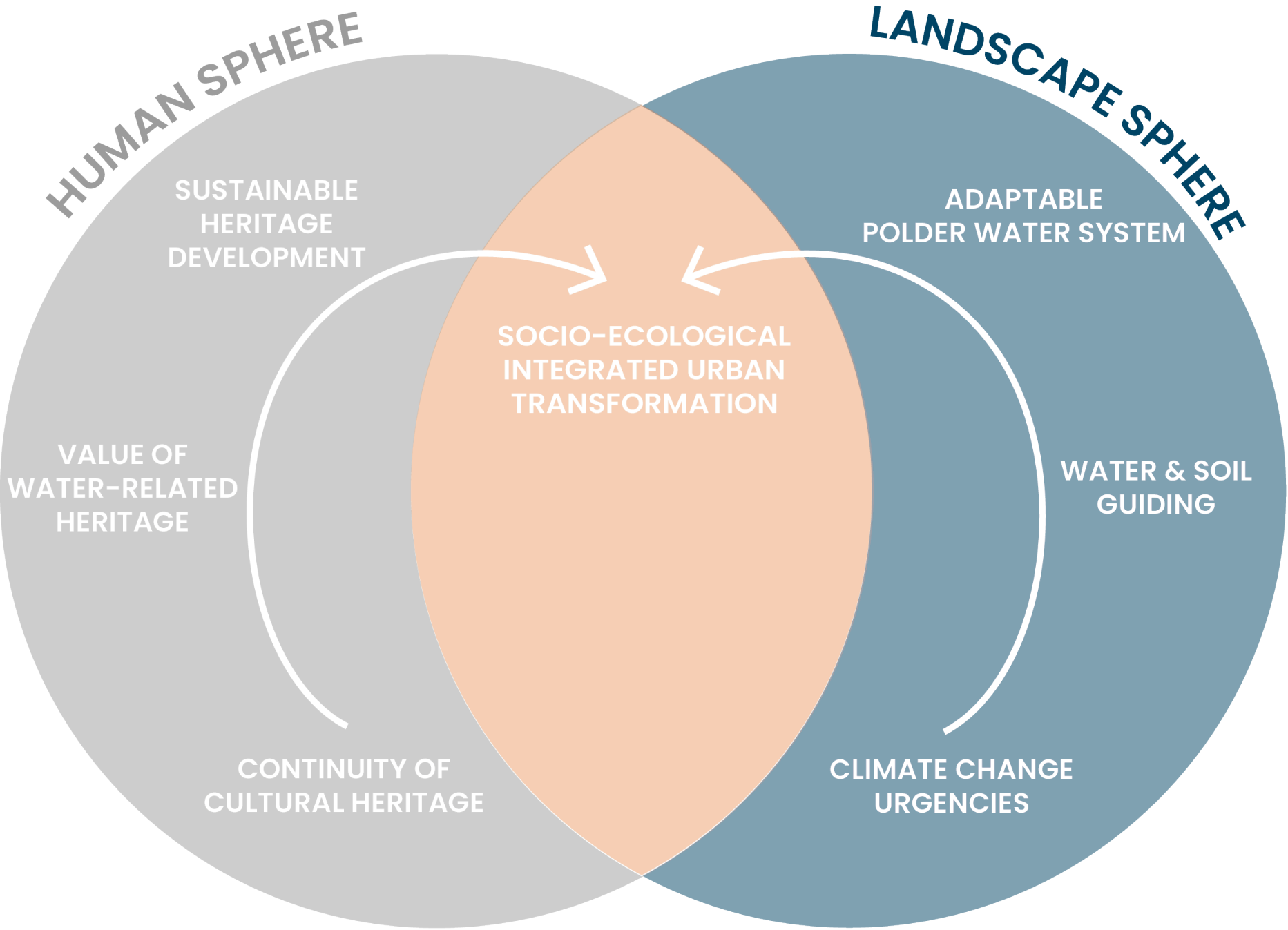


## THEORETICAL FRAMEWORK



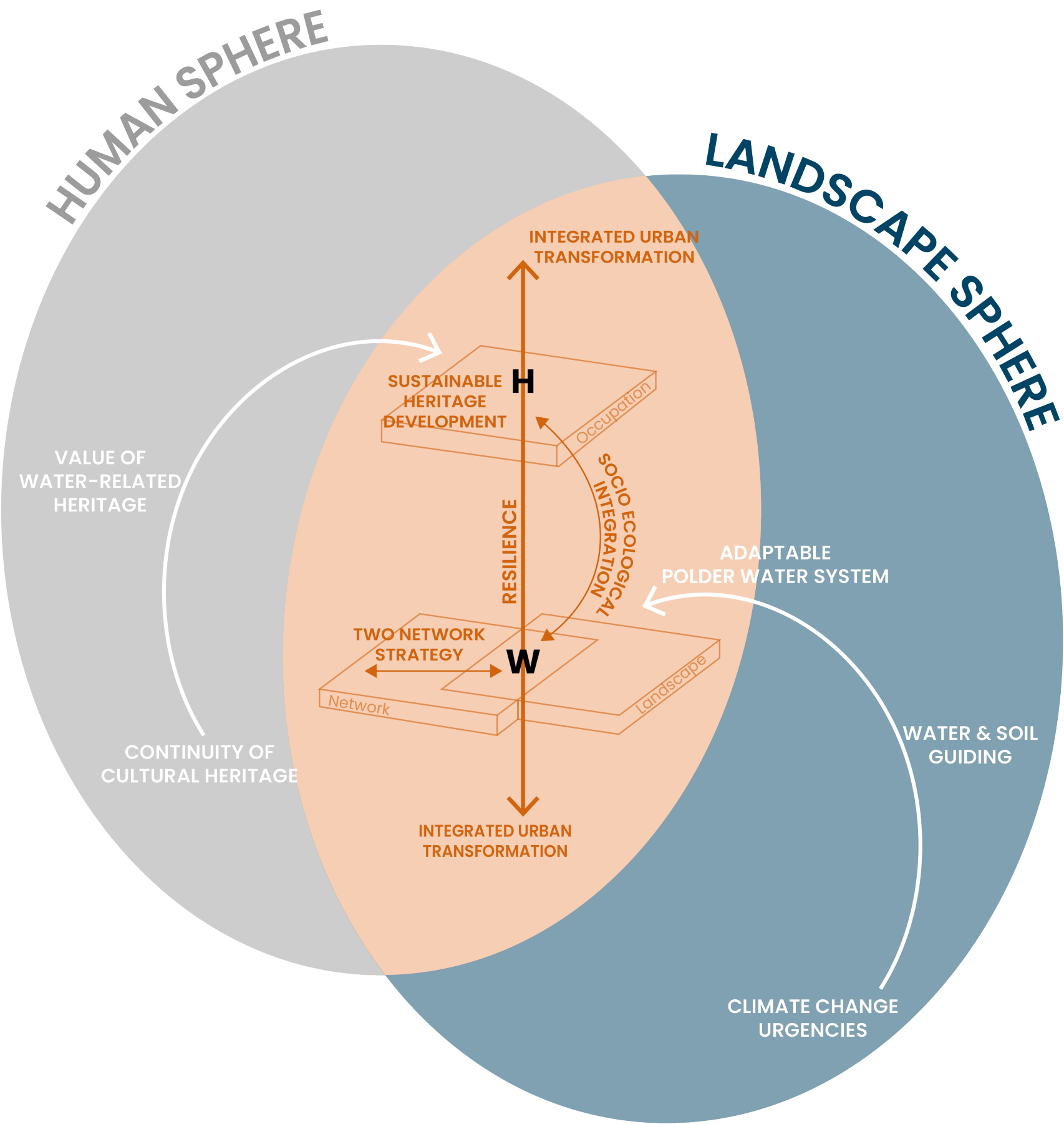


DESIGN VISION



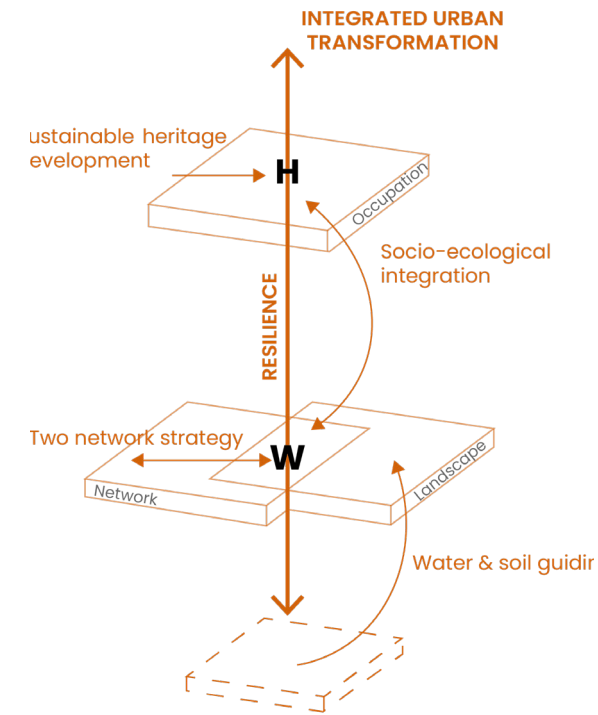


CONCEPTUAL FRAMEWORK

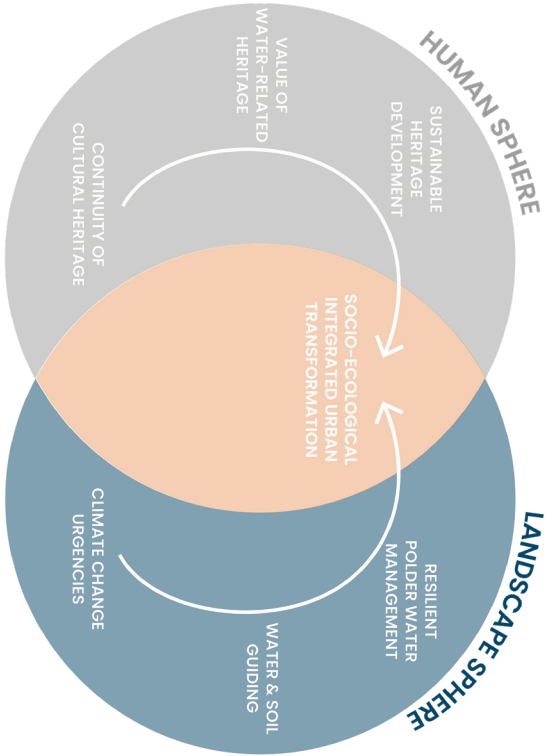




FROM ANALYSIS TO DESIGN



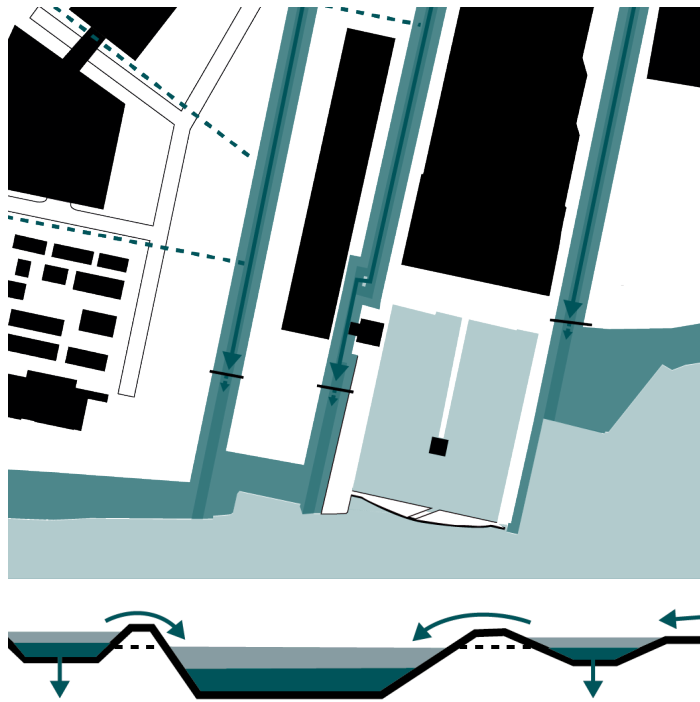
Spatial layers	Spatial analysis Curren conditions	Design Qualities retrived from literature	Design Goals
Network	Potential local centres	Economic potential	sustainable heritage development
	Heritage points	Historical assets	
		Place-making opportunity	
Occupation	Transformation opportunities	Access to social services	Socio-ecological integration
		Recreational opportunities	
		Ecological enhancement	
Landscape	Cultural land use		Resilient polder water system
	Ground Space Index	Water infiltration capacity	
	Soil quality	Water storage capacity	





SOCIO-ECOLOGICAL STRATEGY

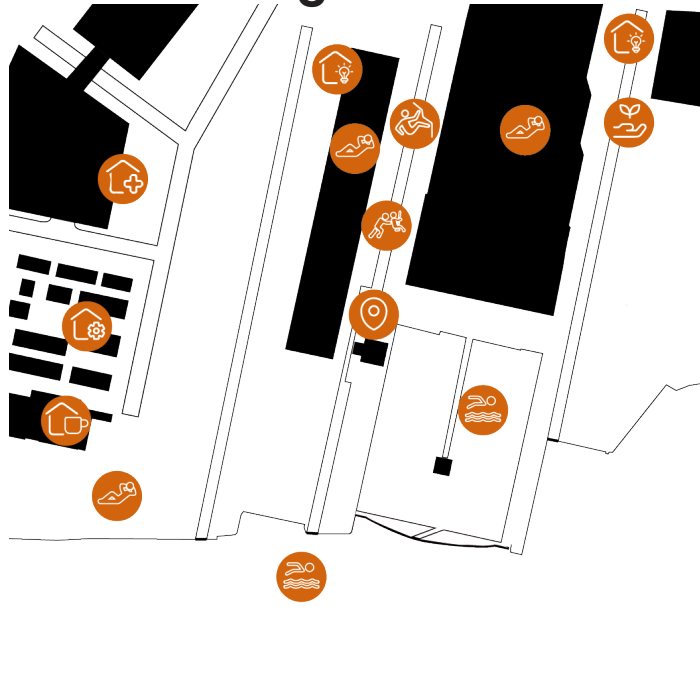
Infiltrate, store and drain



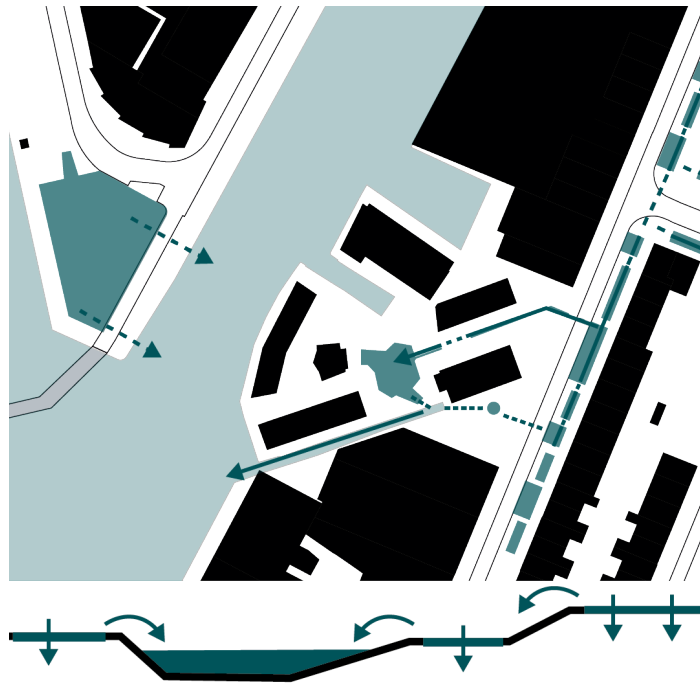
Sightlines on historical structure



Socio-cultural and socio-ecological activities



Landscape strategy



Water retention/buffer zone  
Direction of water run-off

Primary direction of movement  
Secondary direction of movement

Socio - economic activity  
Socio - ecological activity  
Cultural - historic destination

Zone 1: Blossoming vegetation  
Zone 2: Socio-ecological activity  
Zone 3: Bioswale & phytomeditation  
Zone 4: Urban ecology  
Tree planting strategy