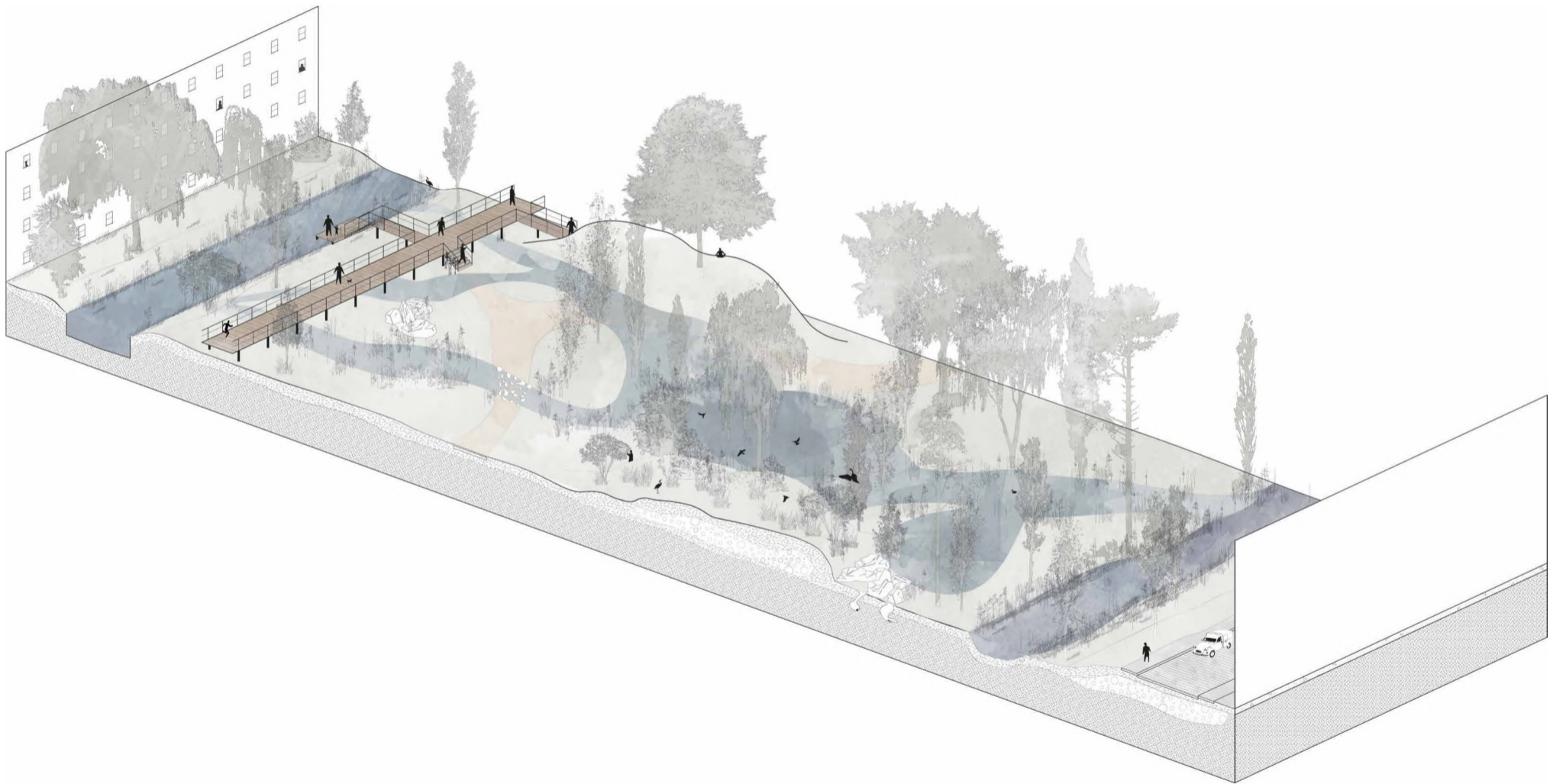


KVILLEBÄCKEN

Urban Flood Park



Lucas Lafont

ACE495 - New Urban Landscapes

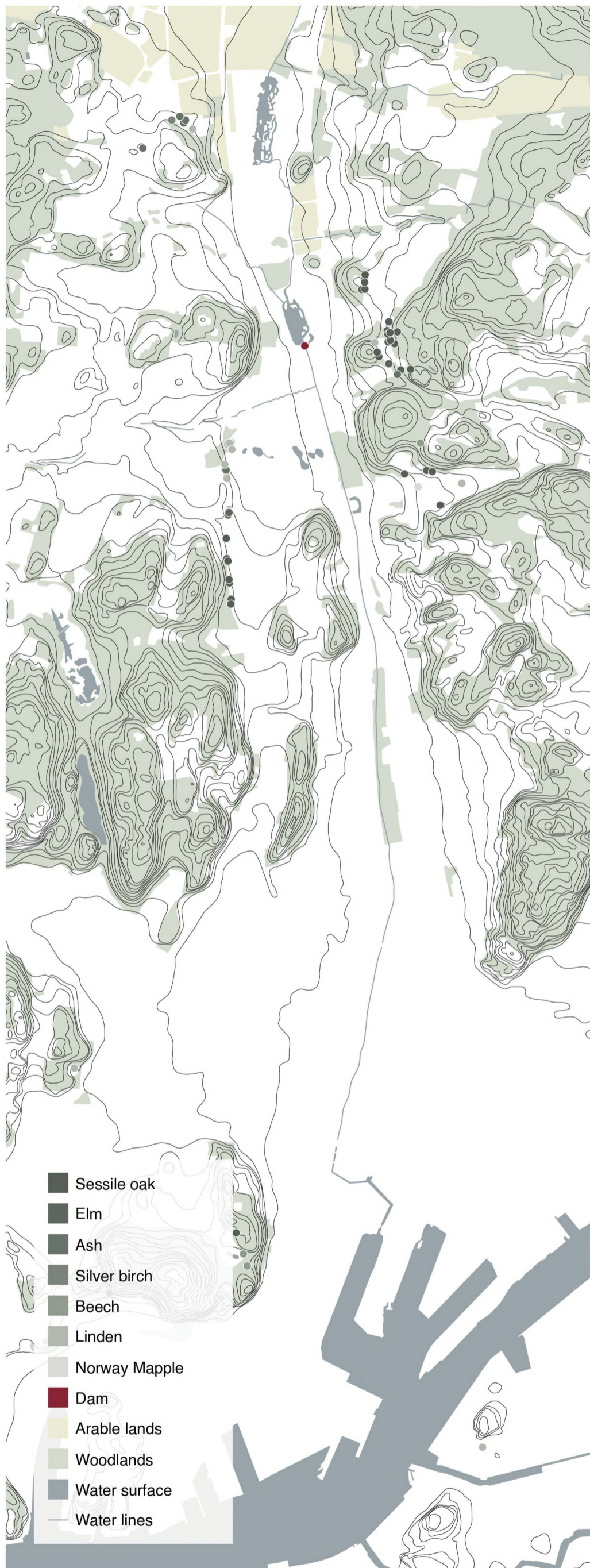
CONTENTS

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An analysis of Kvillebäcken and its surroundings.

A look at the blue and green structures around Kvillebäcken and possible strategies to strengthen both the blue and green corridors.

Based on the strategies the area has been segmented into different zones and interventions. The focus will be on two areas: the urban park with its flooding and contamination situation, and Kvillepiren as a bio-regeneration zone.



Wetland

01. Hökälla

- High value natural area with protected bird species (100+), aquatic plants, bat, frog, lizard and fish species;
- The wetland emerged after the creation of a dam;
- No ornamental vegetation, only spontaneous;
- Network of ditches around arable lands.

Interface

02. Lillhagen

- The stream becomes a small canal until it meets Göta Älv;
- The landscape progressively changes for a highly managed nature;
- The natural landscape is still present scarcely in the thin riparian buffer;
- Ornamental trees are founded in the golf course, along the stream and in the gardens of nearby home's gardens;
- Then, the river goes completely in the golf course and lost its natural riparian buffer.

Lawn

Natural riparian forest and linear open park

03. Aröd

- The golf course ends and gives way for a natural riparian buffer along the river;
- Vegetation can be found 30m on both sides of the river;

Mineral and linear open park

04. Backaplan

- We enter now in a denser built area: the riparian buffer becomes thinner and is part of a longitudinal city park;
- Ornamental trees have been recently planted. As part of a landscape architecture project, species have been carefully considered.

Mineral

05. Kvilleorget**06. Jubileumsparken****07. Frihamnen**

01. Hökälla

Silver Birch



Aspen



Sessile Oak



Alder



Norway maple



Cherry



Apple tree



Rowan



Goat Willow



Juniper



Yew



Hawthorn



Scots pine

02. Lilhagen

Lombardy Poplar



Ash



Norway Spruce



Silver fir



Douglas fir



Larch



Black pine

03. Aröd

- Going back to a natural riparian buffer, species such as aspen, alder, norway maple, silver birch and goat willow can be found here.

04. Backaplan

Weeping Willow



Red oak



Elm



Linden



White beam



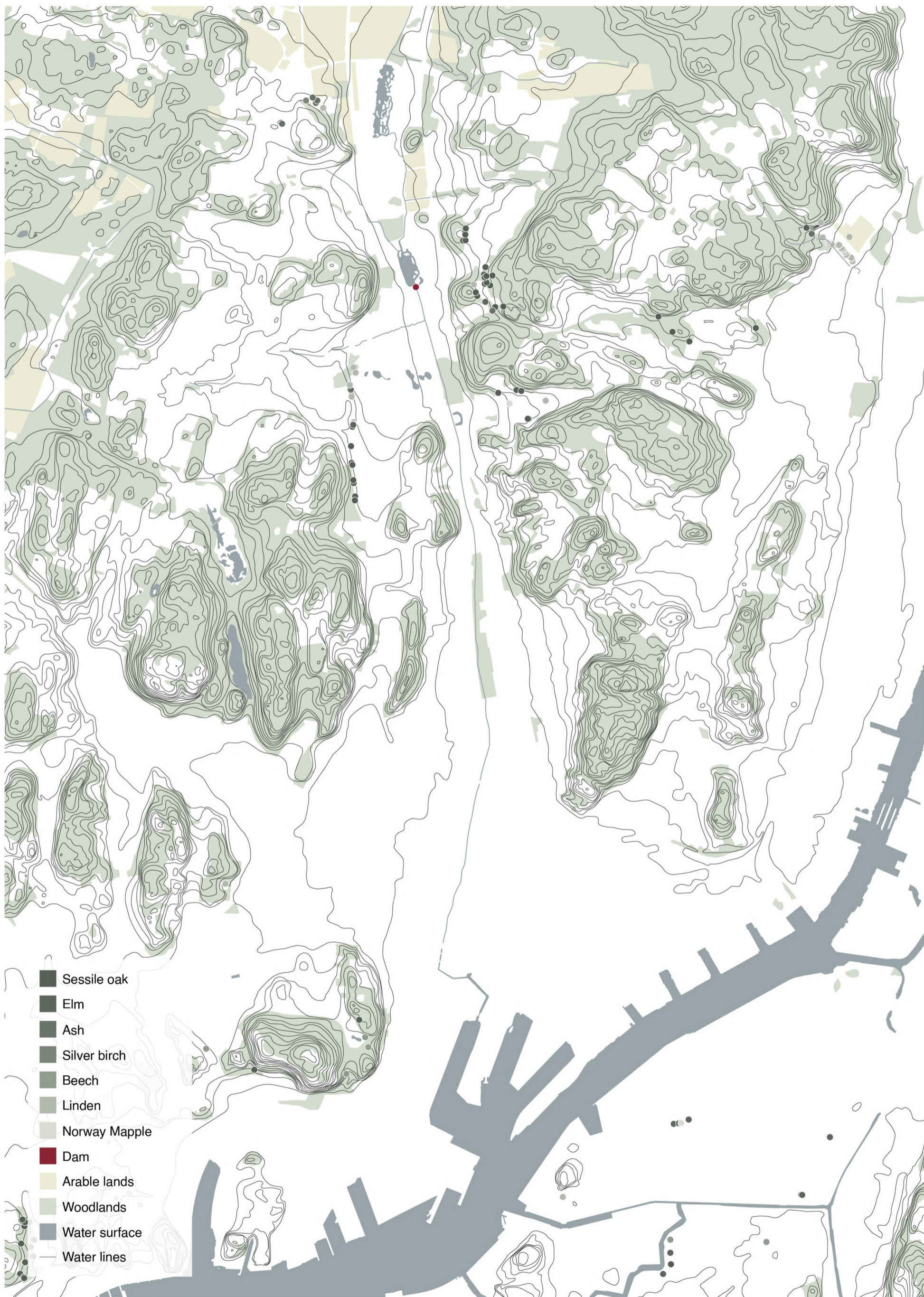
Bald cypress

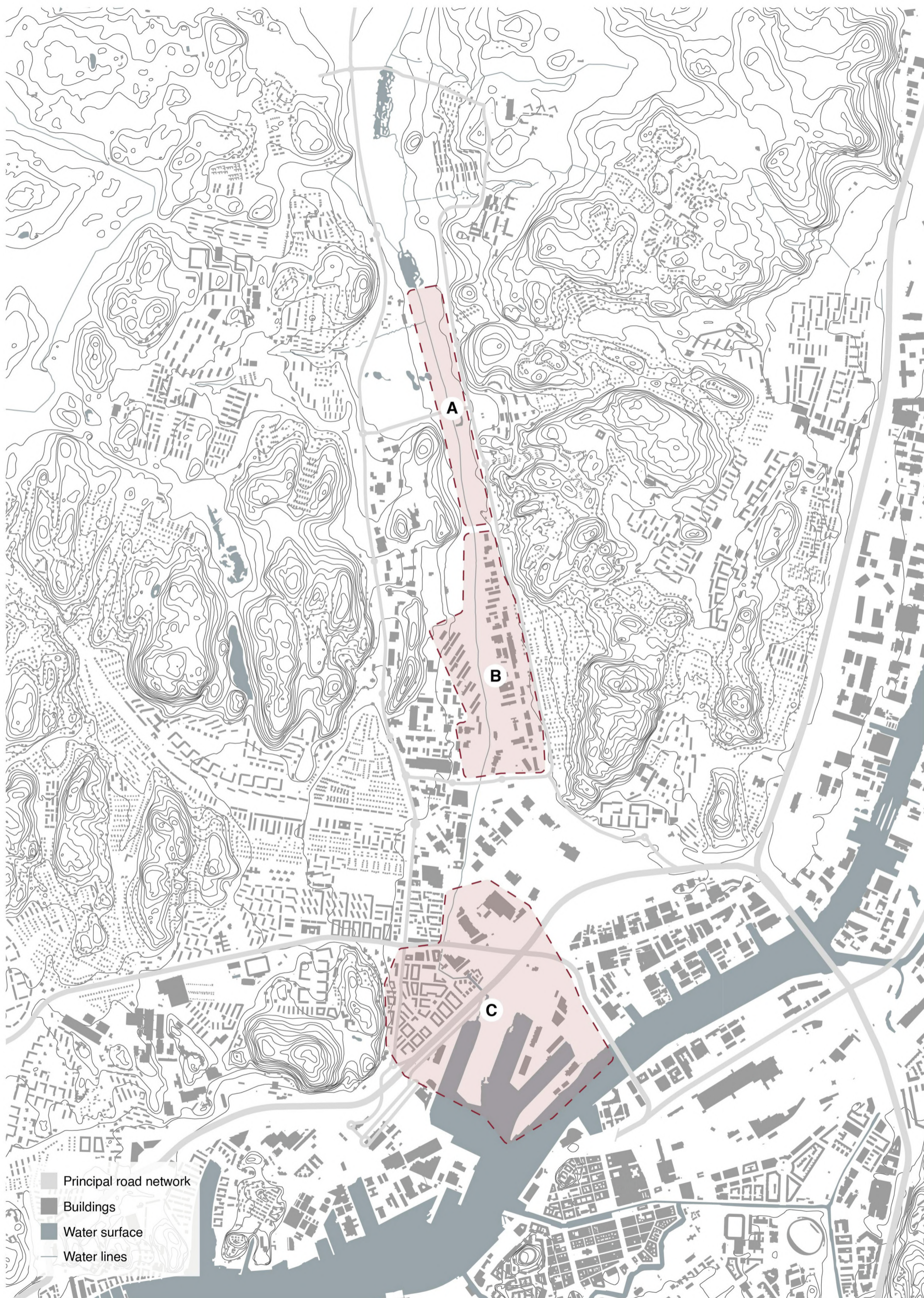
05. Kvilleorget

- Parts of the river are underground as roas network intensifies;
- Coppiced trees are found along the way close to the oldest buildings;
- As we approach towards Göta Älv the river gets thicker.

06. Jubileumsparken

- This park is connected to the point where Kvillebäcken meets Göta Älv;
- Local shoreline-inspired flora are found;
- It is the only significant green space in the area.



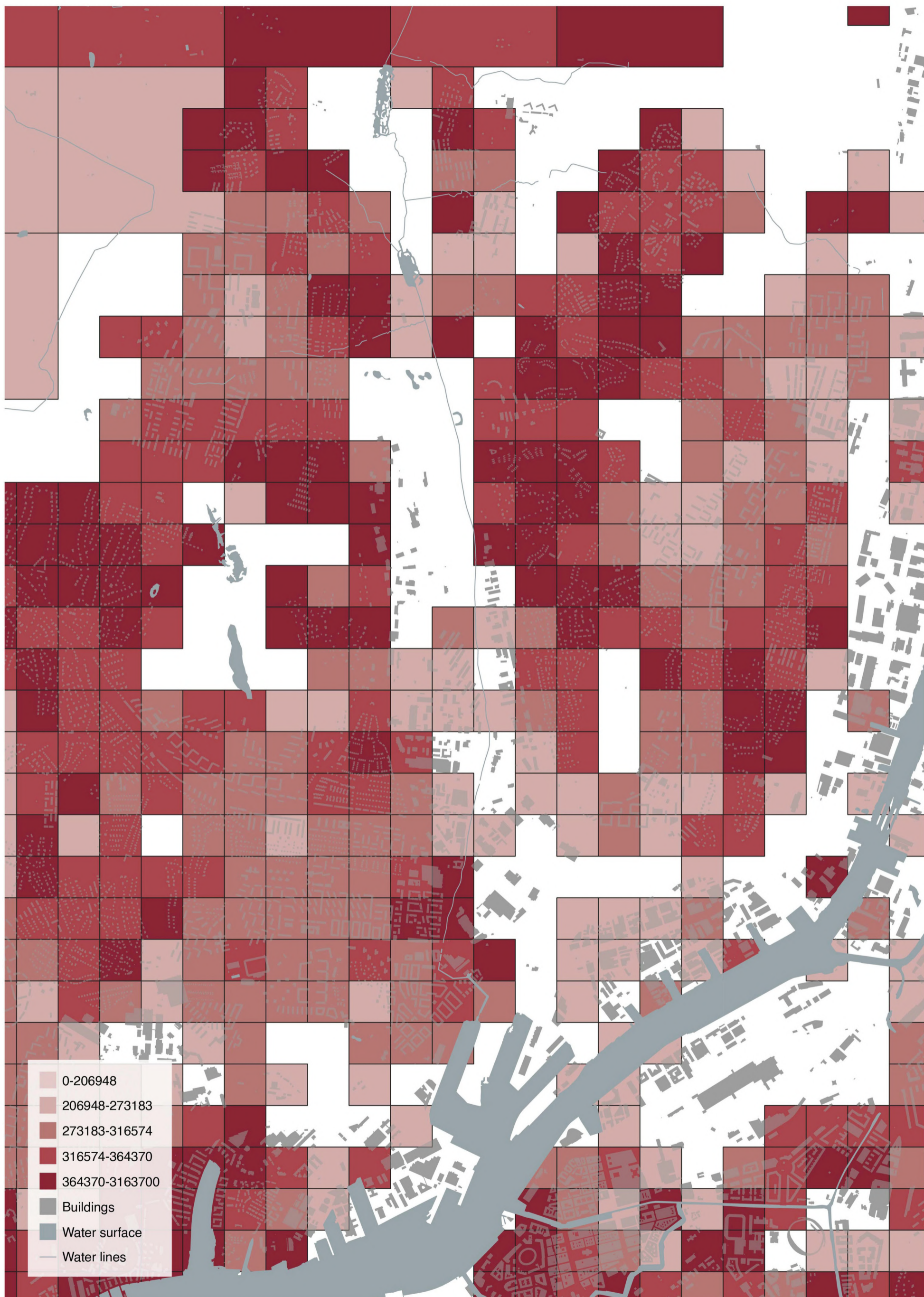


Areas of interest
Scale 1:20000

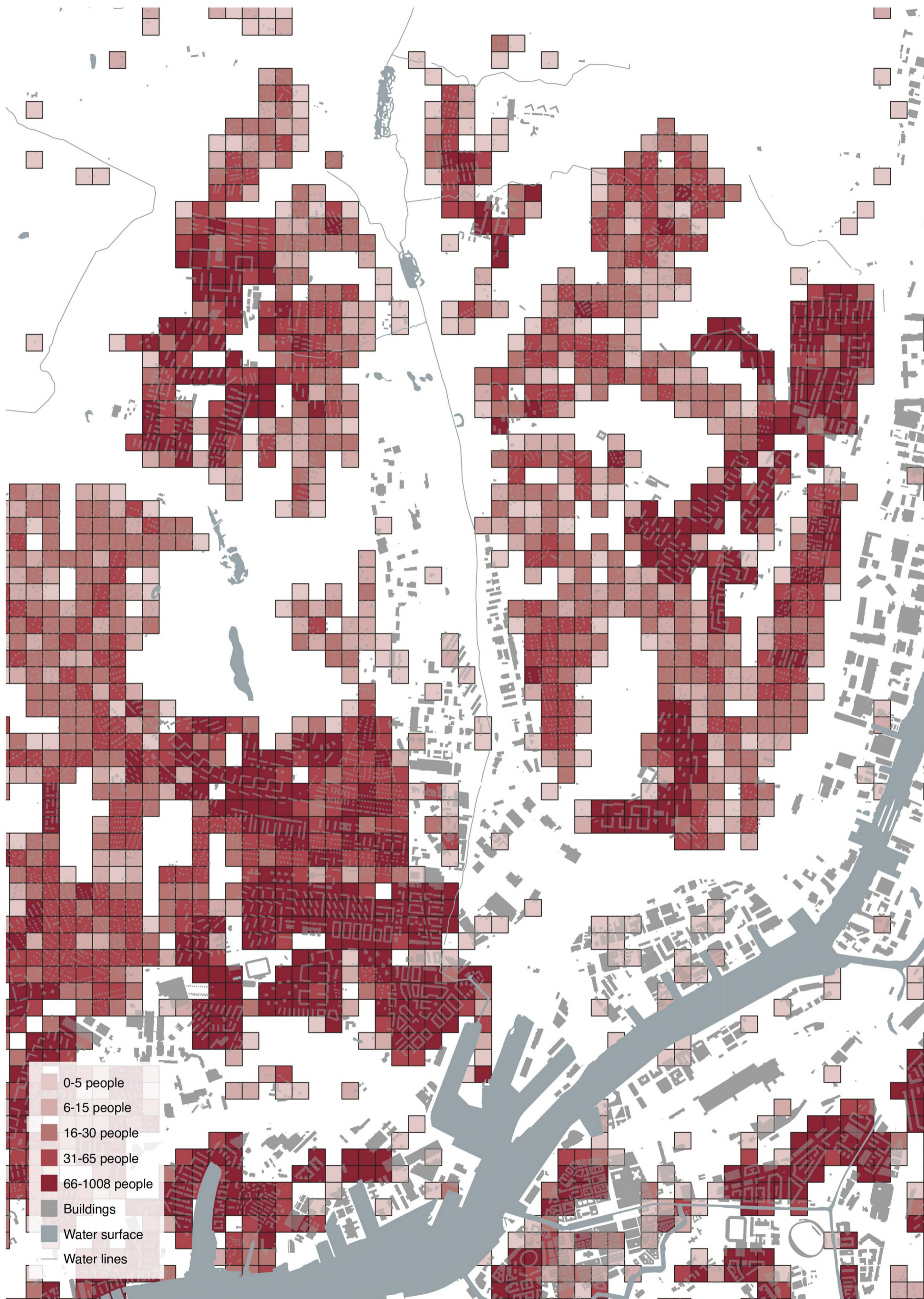




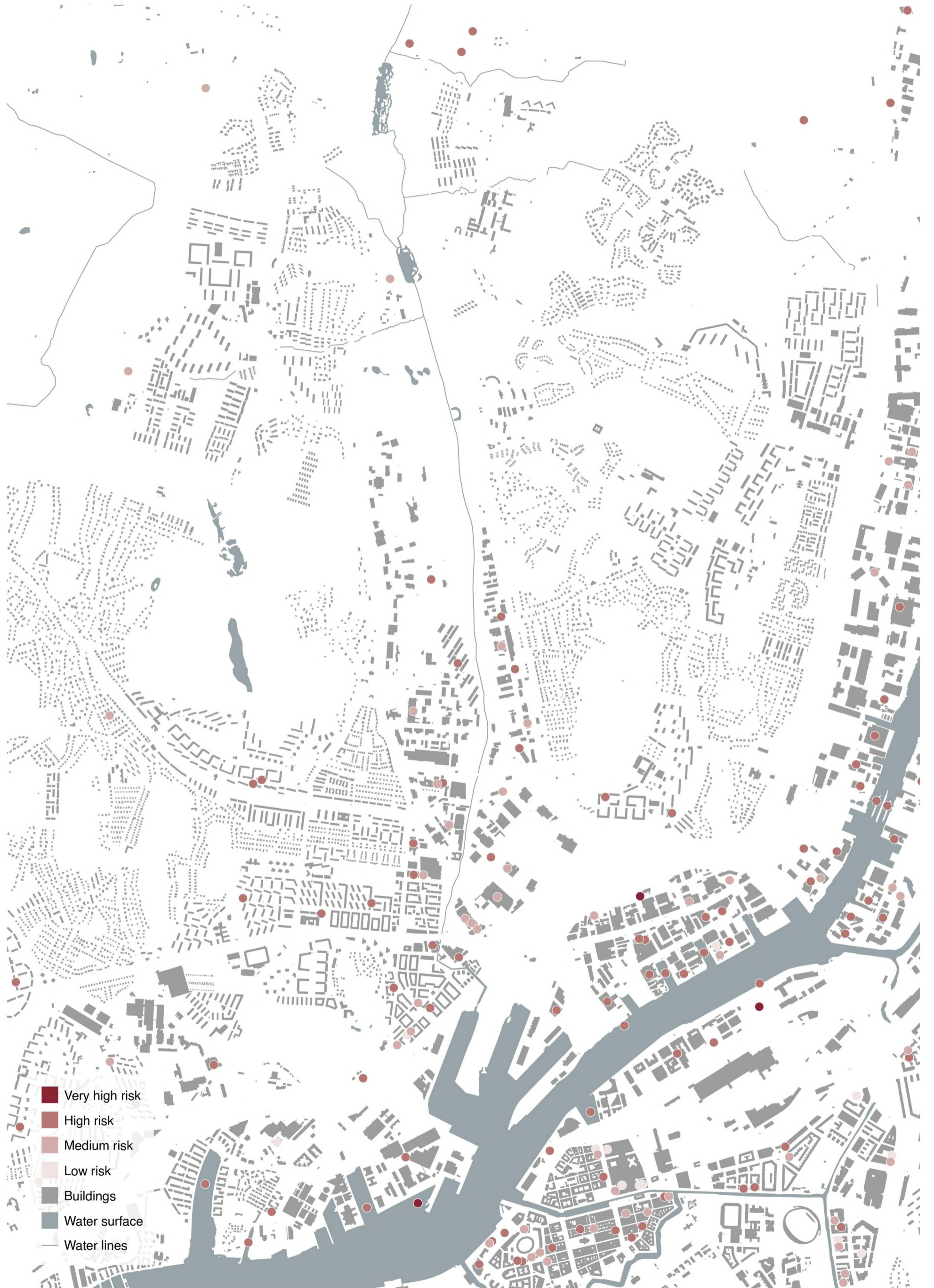
Traffic volume
Scale 1:20000



Population's median income
Scale 1:20000 



Population 100x100m grid
Scale 1:20000

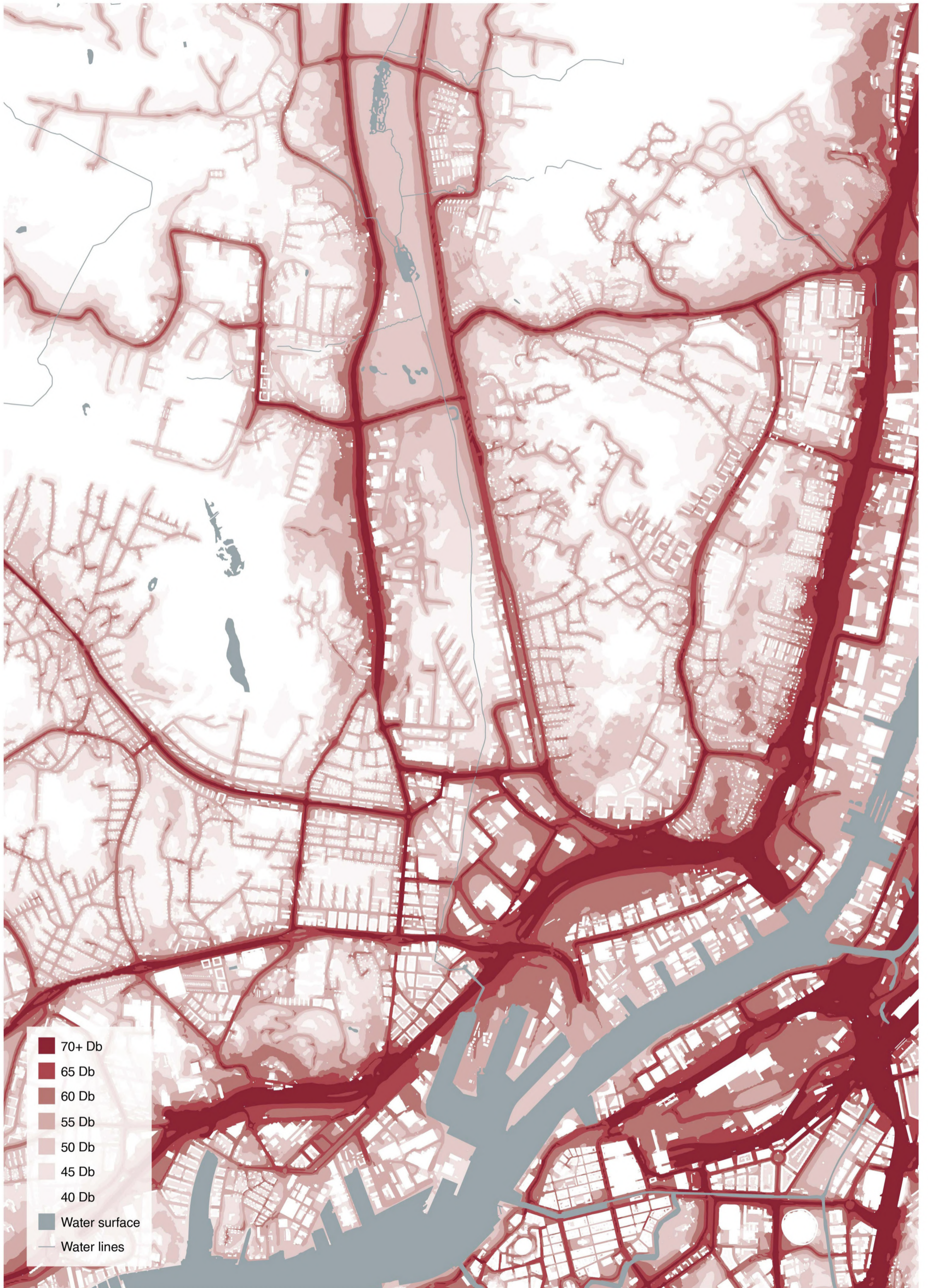


- Very high risk
- High risk
- Medium risk
- Low risk
- Buildings
- Water surface
- Water lines

Land contamination
Scale 1:20000



Building functions
Scale 1:20000



Noise pollution
Scale 1:20000



Floodrisk and ground water storage
Scale 1:20000

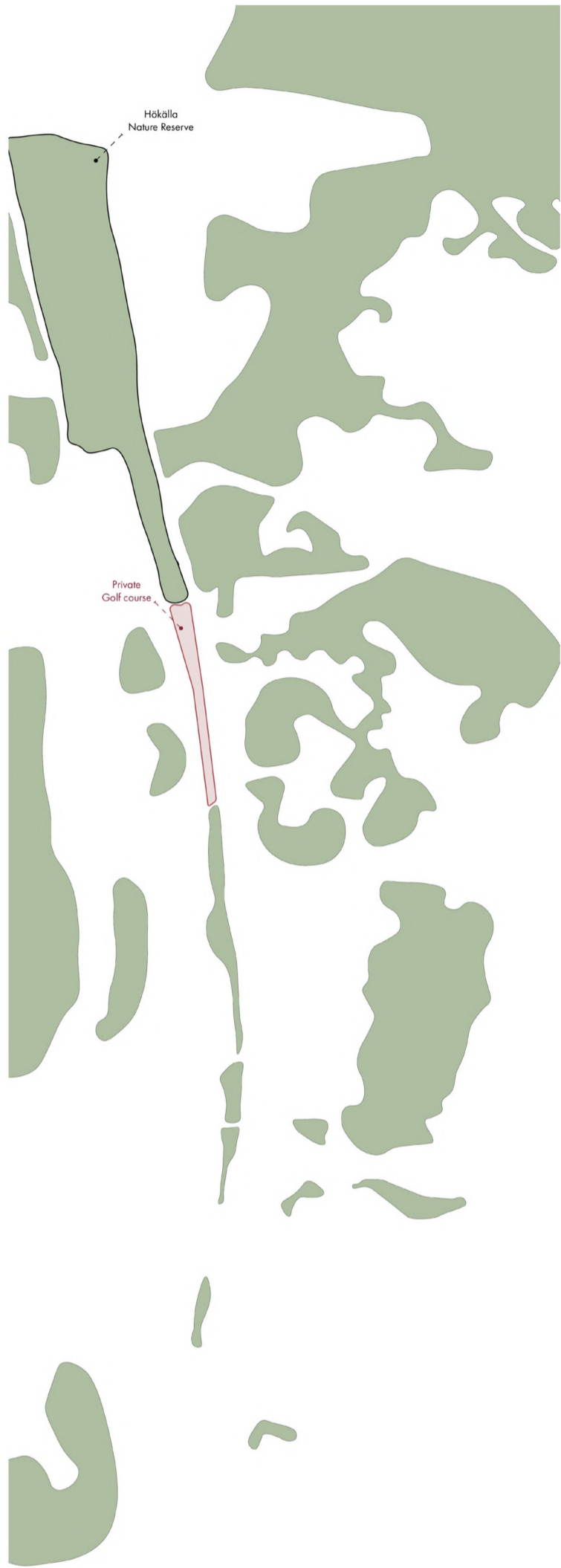


■ Water surface
— Water lines

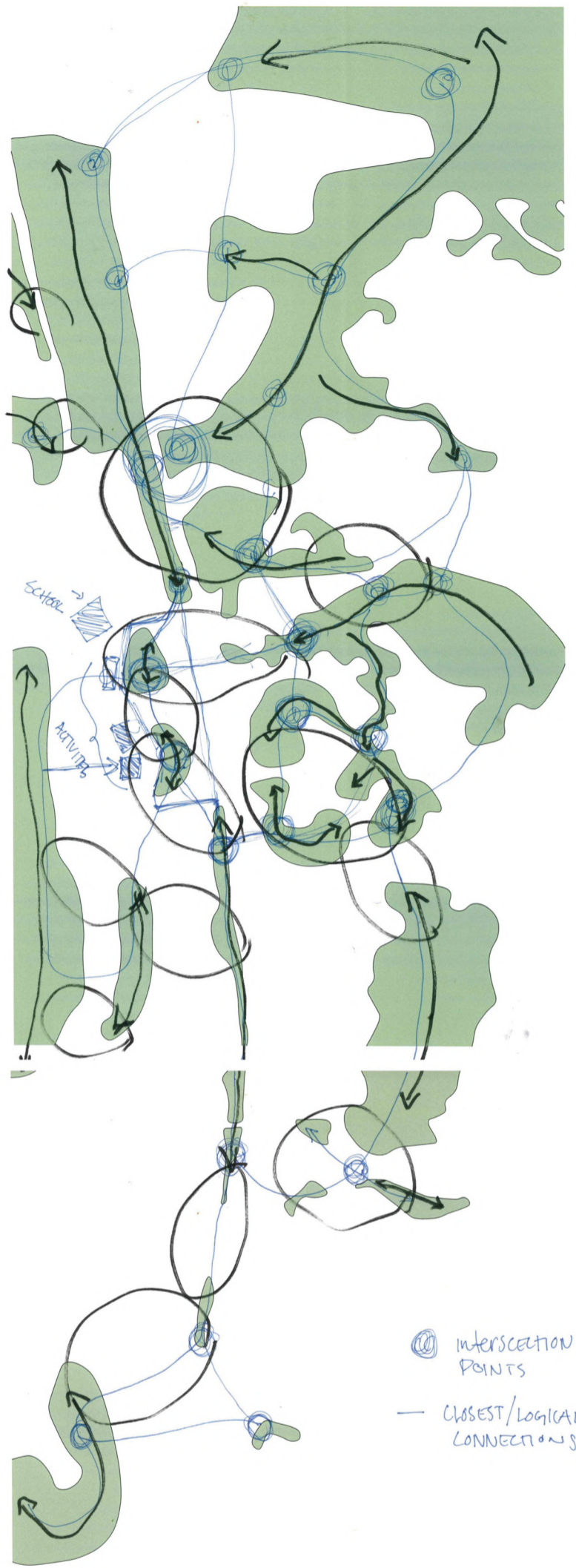
Air pollution (light: low pollution; dark: high pollution)
Scale 1:20000 ▲



Ground saturation
Scale 1:20000



CURRENT



POSSIBLE CONNECTIONS



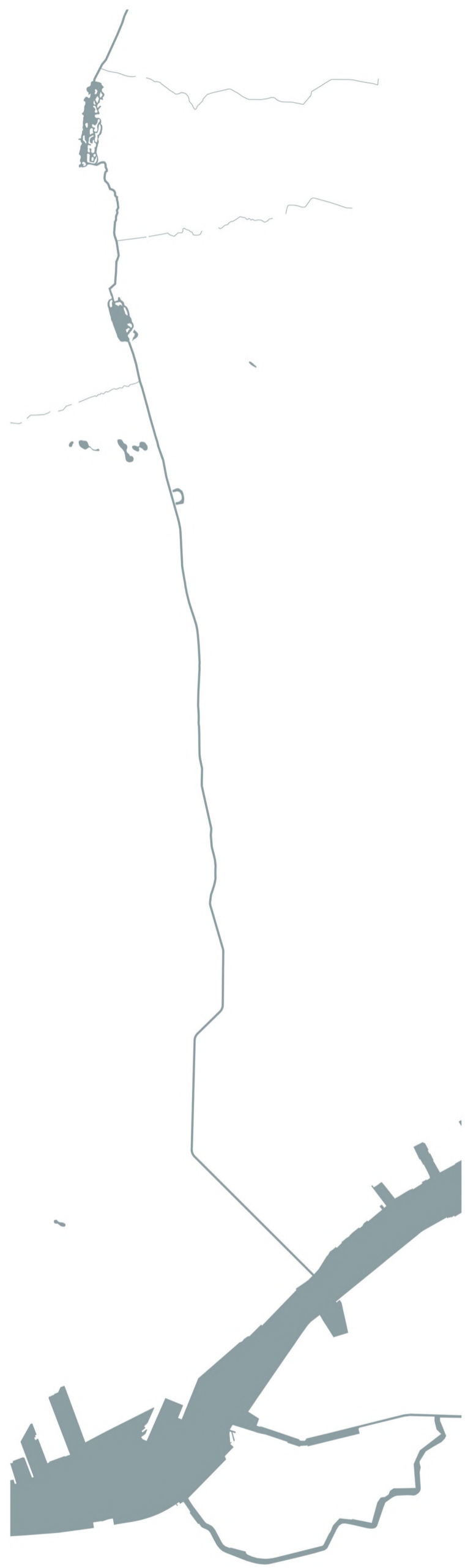
- New green structures
- Current green structures
- Elevated area

NEW GREEN LAYER

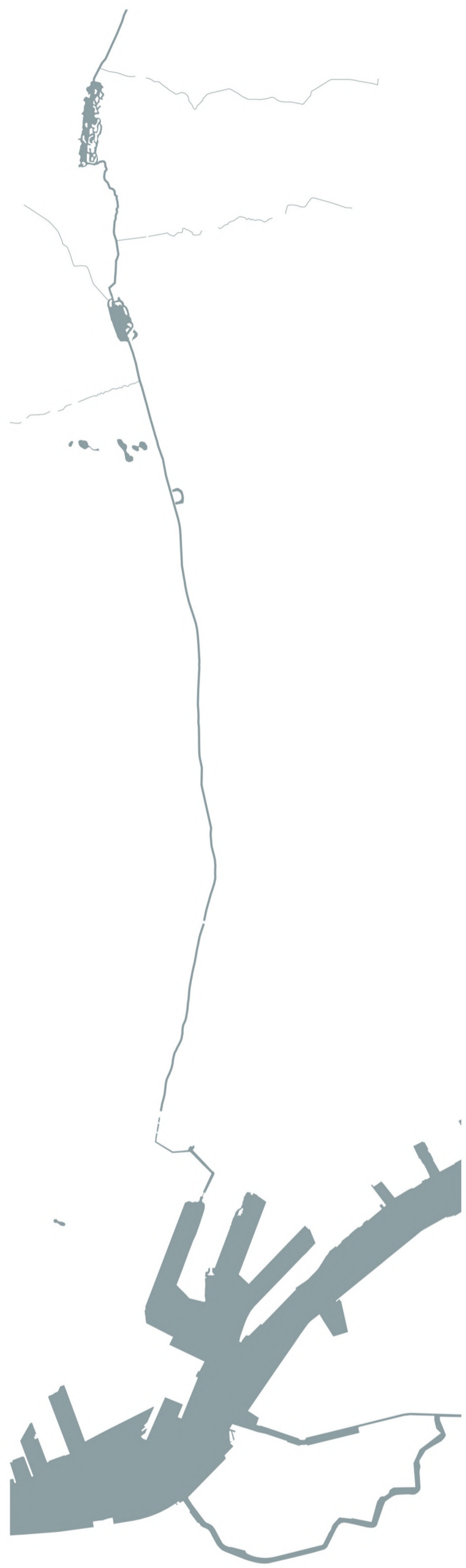


- Point of interest / intervention
- New green structures
- Current green structures
- Elevated area

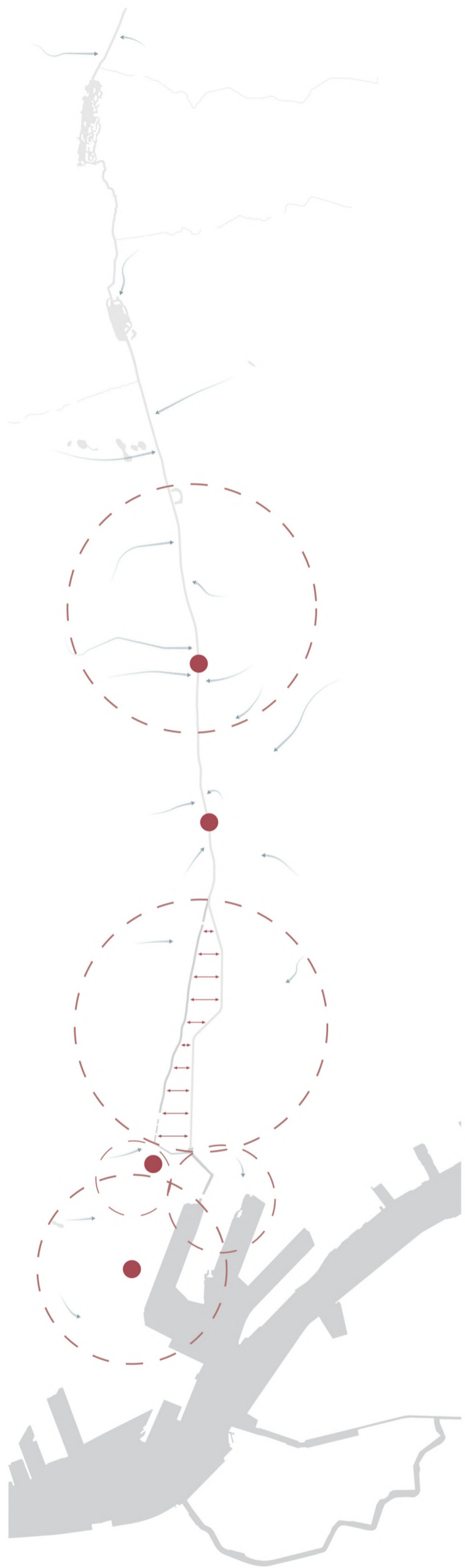
NEW CONNECTIONS AND POINTS OF INTEREST



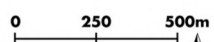
1865



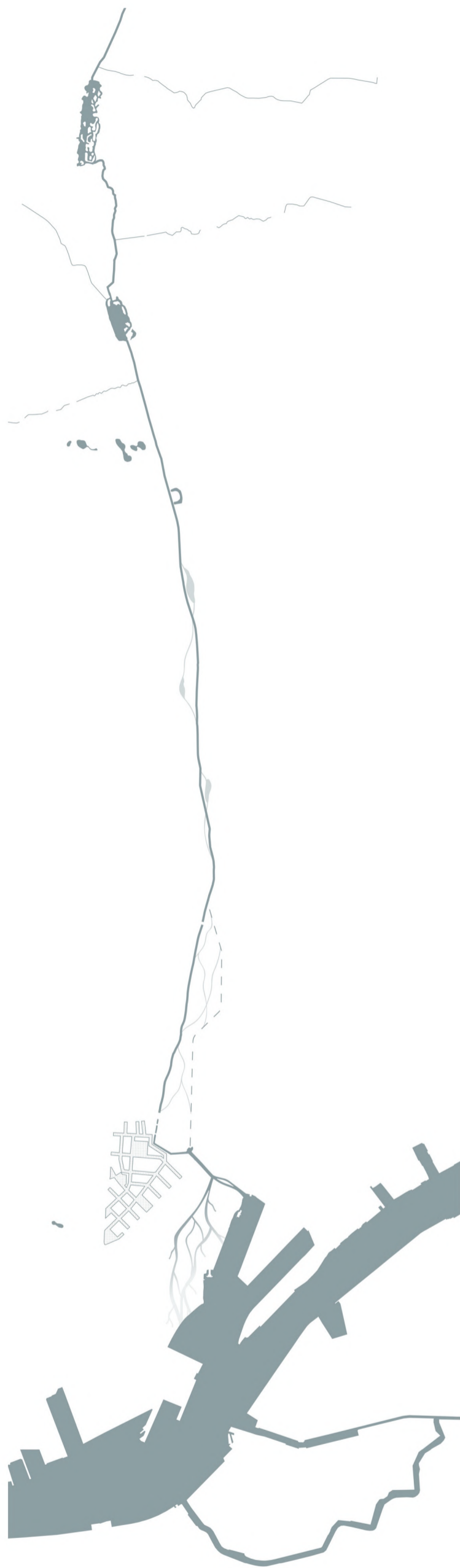
Current situation



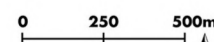
- Point of interest
- Zone of intervention
- Runoff
- Connection of old and current streams



Connections



- Flood mitigation stream
- ▨ Flood mitigation street infrastructure
- Drainage channel

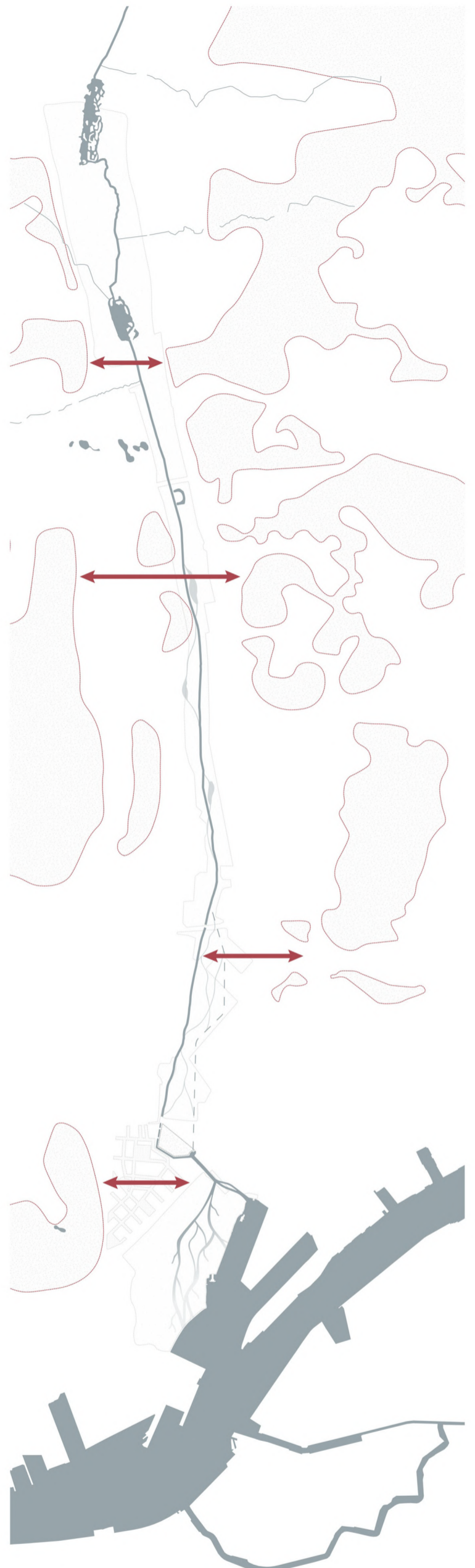


New blue structure



- Blue spine
- Green structures
- Flood mitigation stream
- Flood mitigation street infrastructure
- Drainage channel

GREEN AND BLUE STRUCTURES



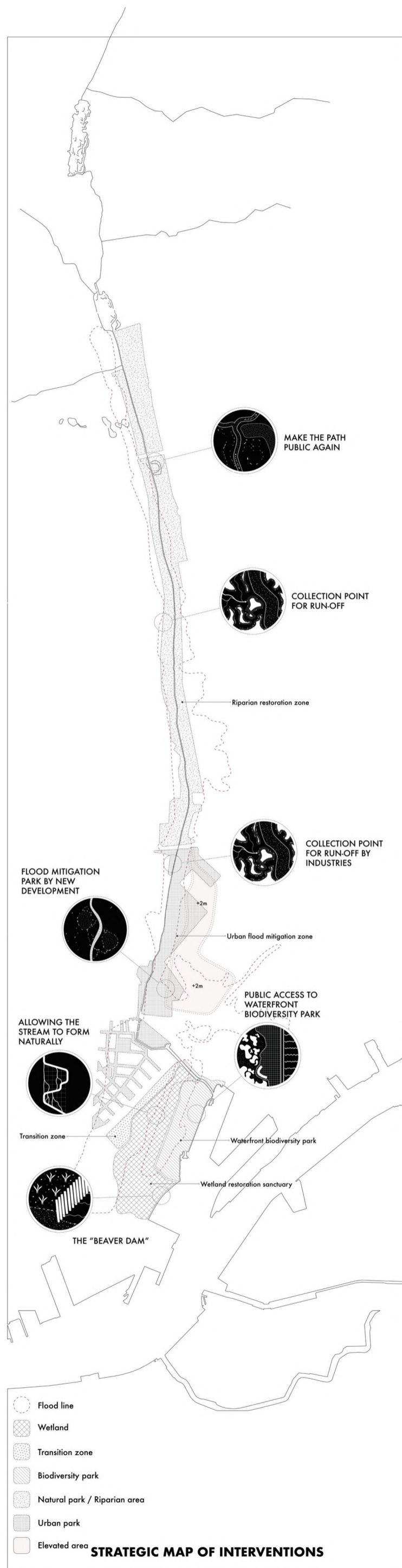
- Blue spine
- Green structures
- Flood mitigation stream
- Flood mitigation street infrastructure
- Drainage channel

GREEN AND BLUE STRUCTURES



- Blue spine
- Green structures
- Flood mitigation stream
- Flood mitigation street infrastructure
- Drainage channel

GREEN AND BLUE STRUCTURES

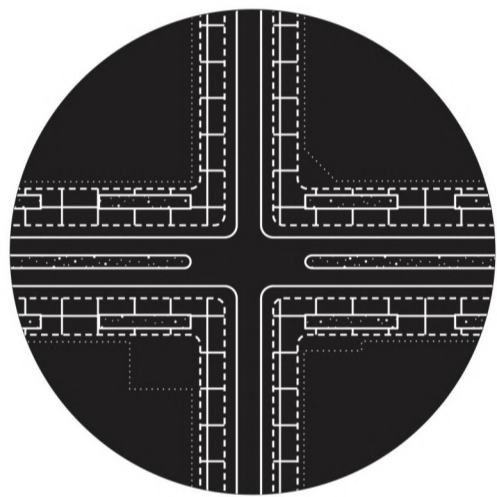




DE-PRIVATIZATION



**URBAN FLOOD
MITIGATION**



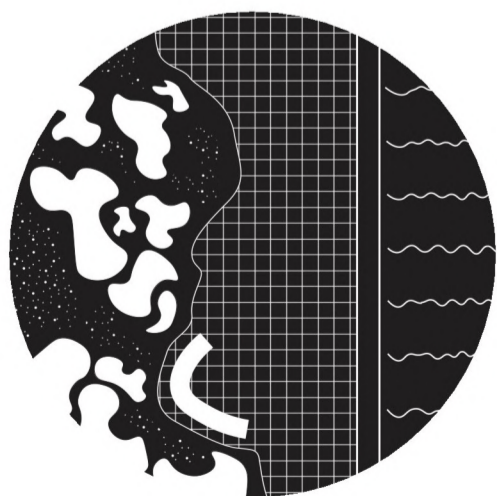
**PERMEABLE
STREETS**



**COLLECTION
POINTS**



**SEMI-PERMEABLE
DAM**



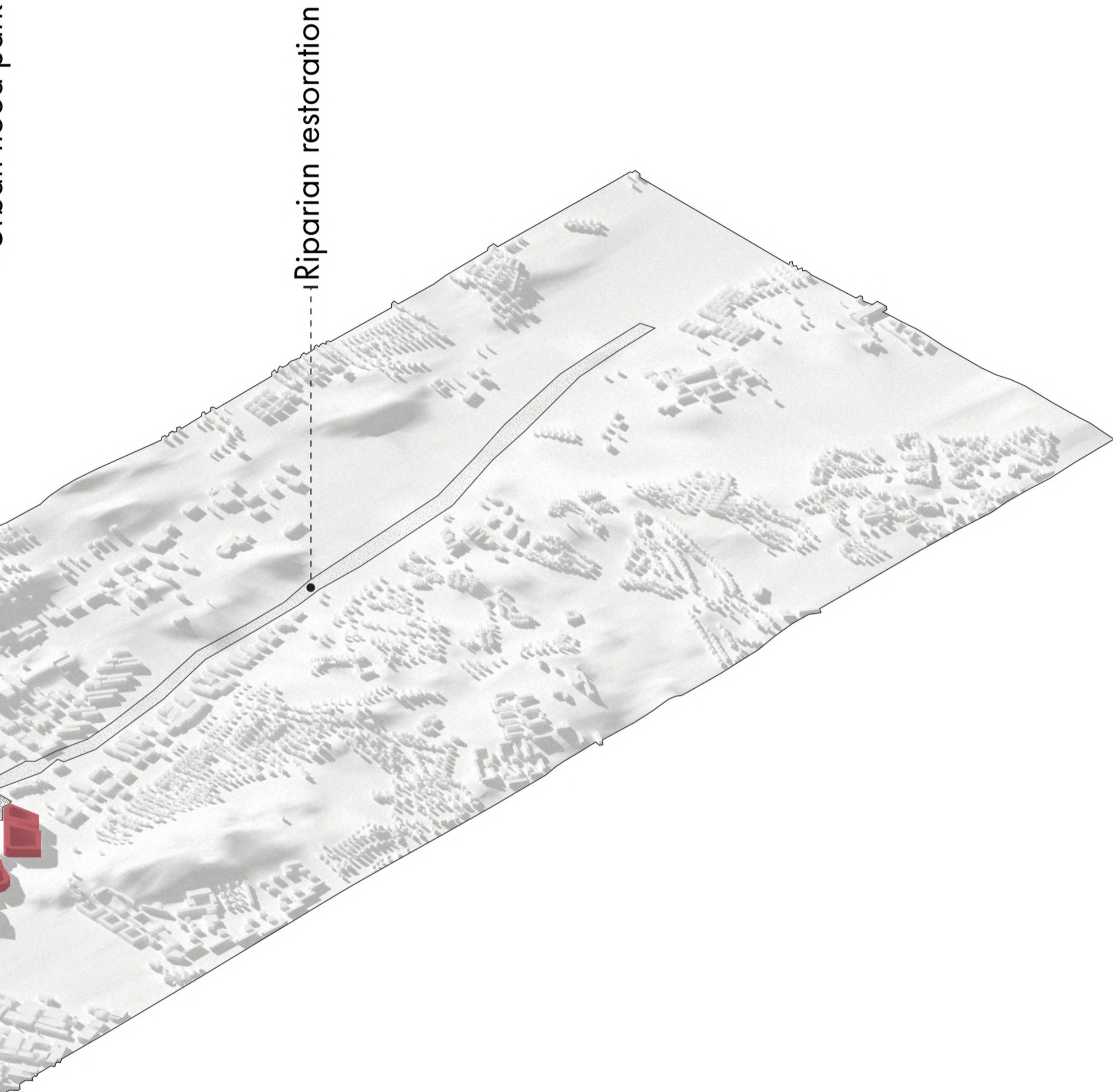
**TRANSFORMATION
OF KVILLEPIREN**



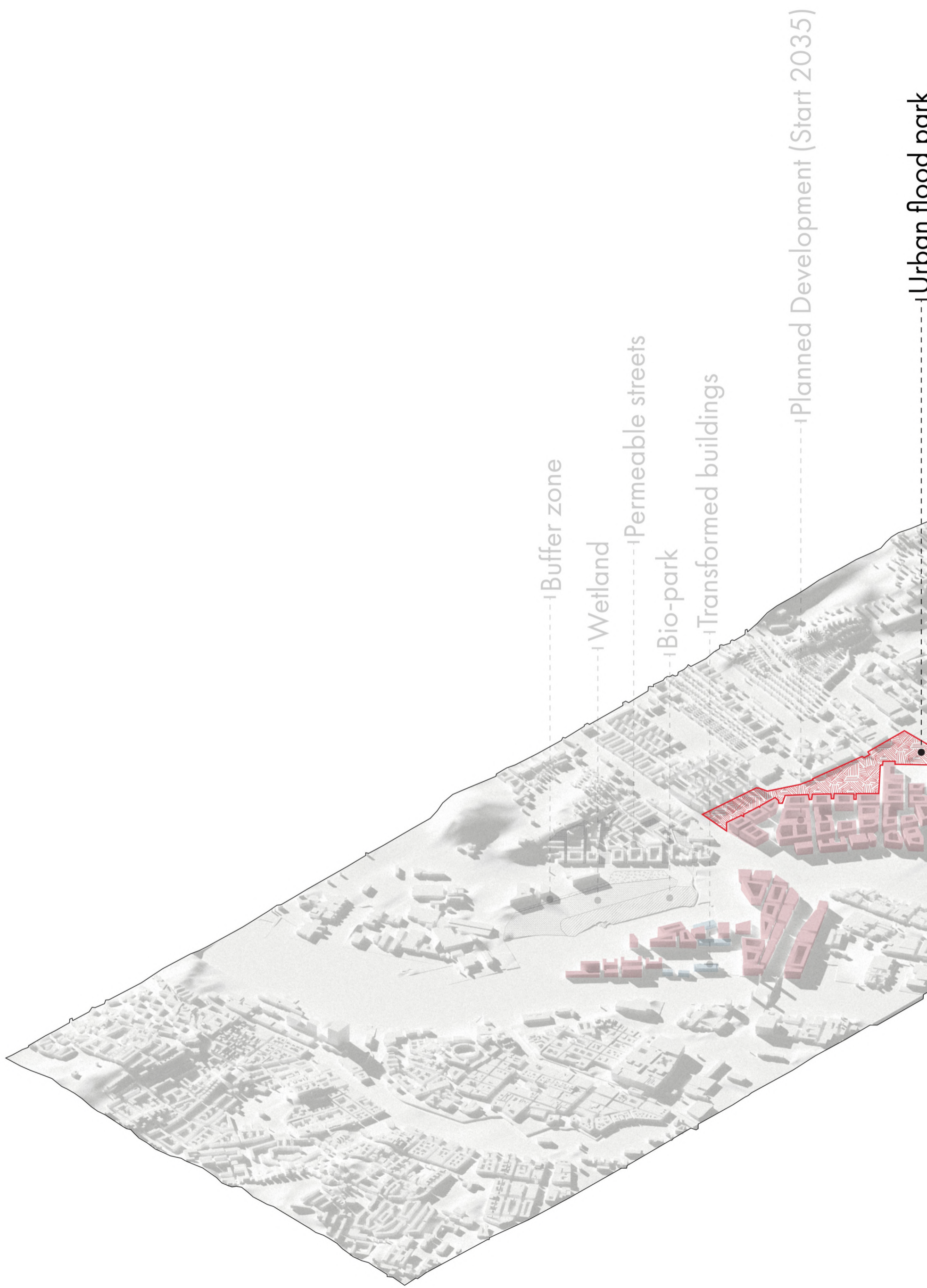
**WETLAND
SANCTUARY**



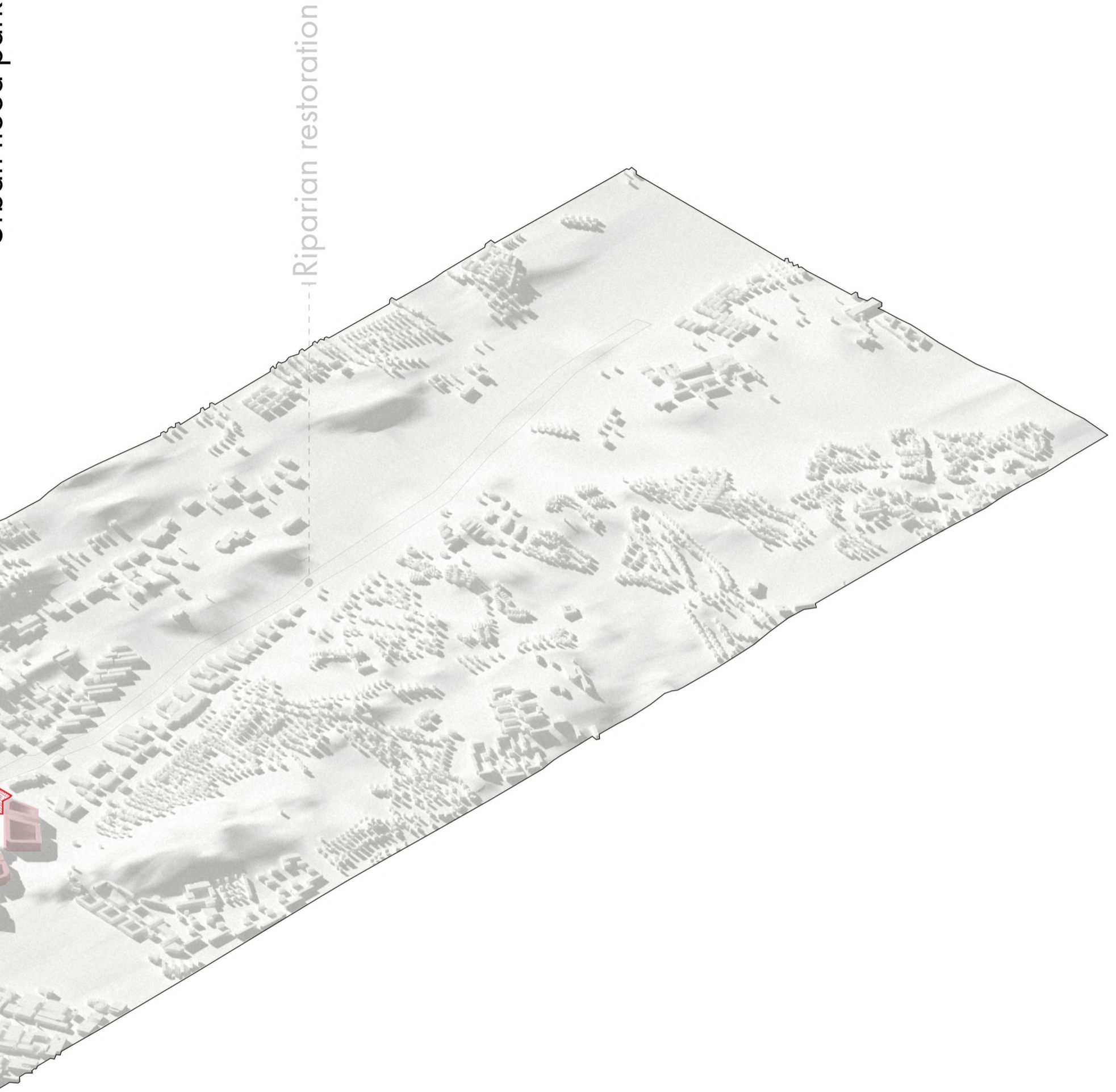
Urban river park



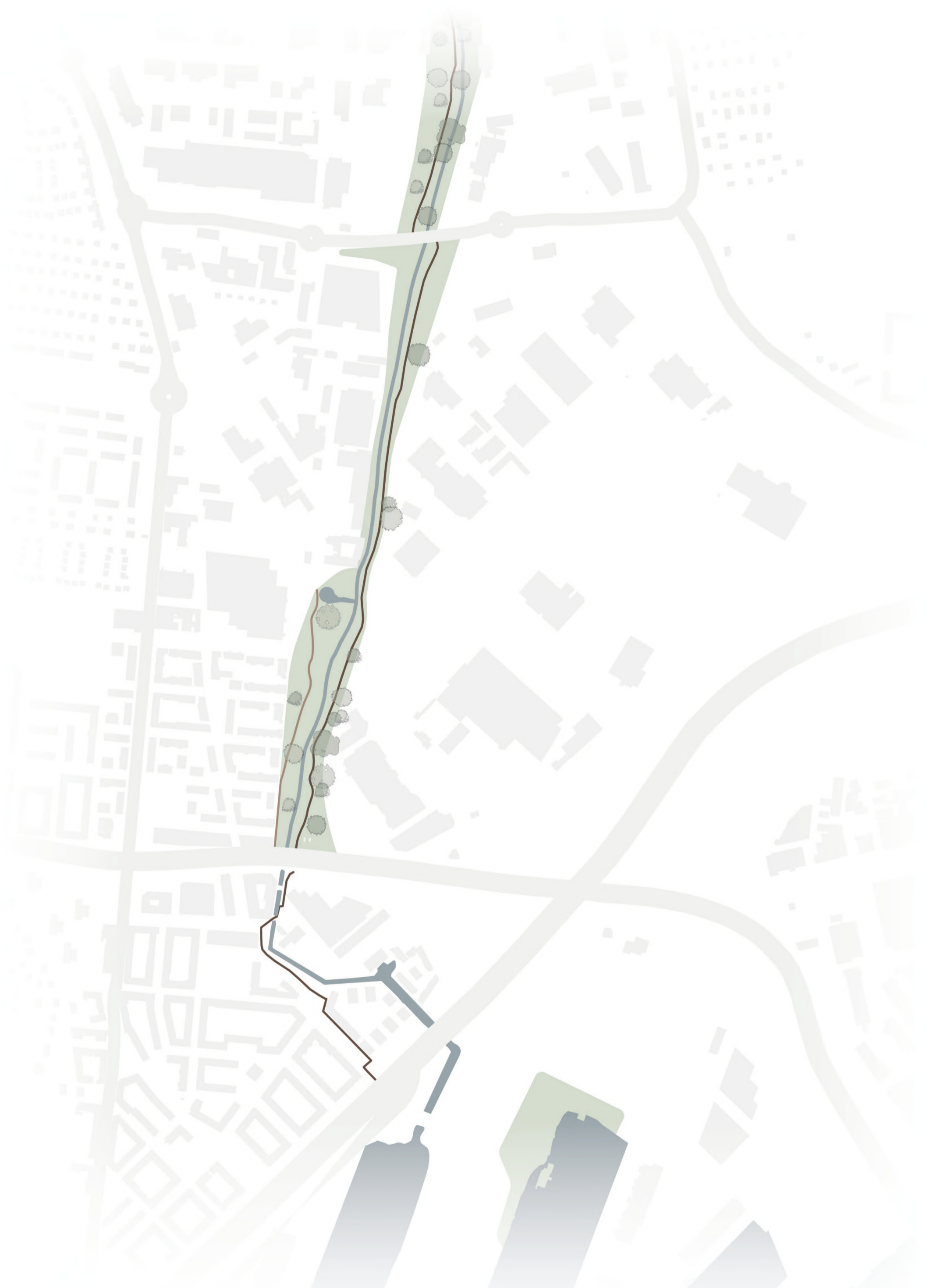
Kvillebäcken river valley
and surrounding context



Urban flood park



Urban flood park with surrounding context



Site before intervention
Scale 1:5000 (A3)



00



Past situation

01



Current situation

02










**Flood park's
blue structures**

02



**Flood park's
green & blue structures**

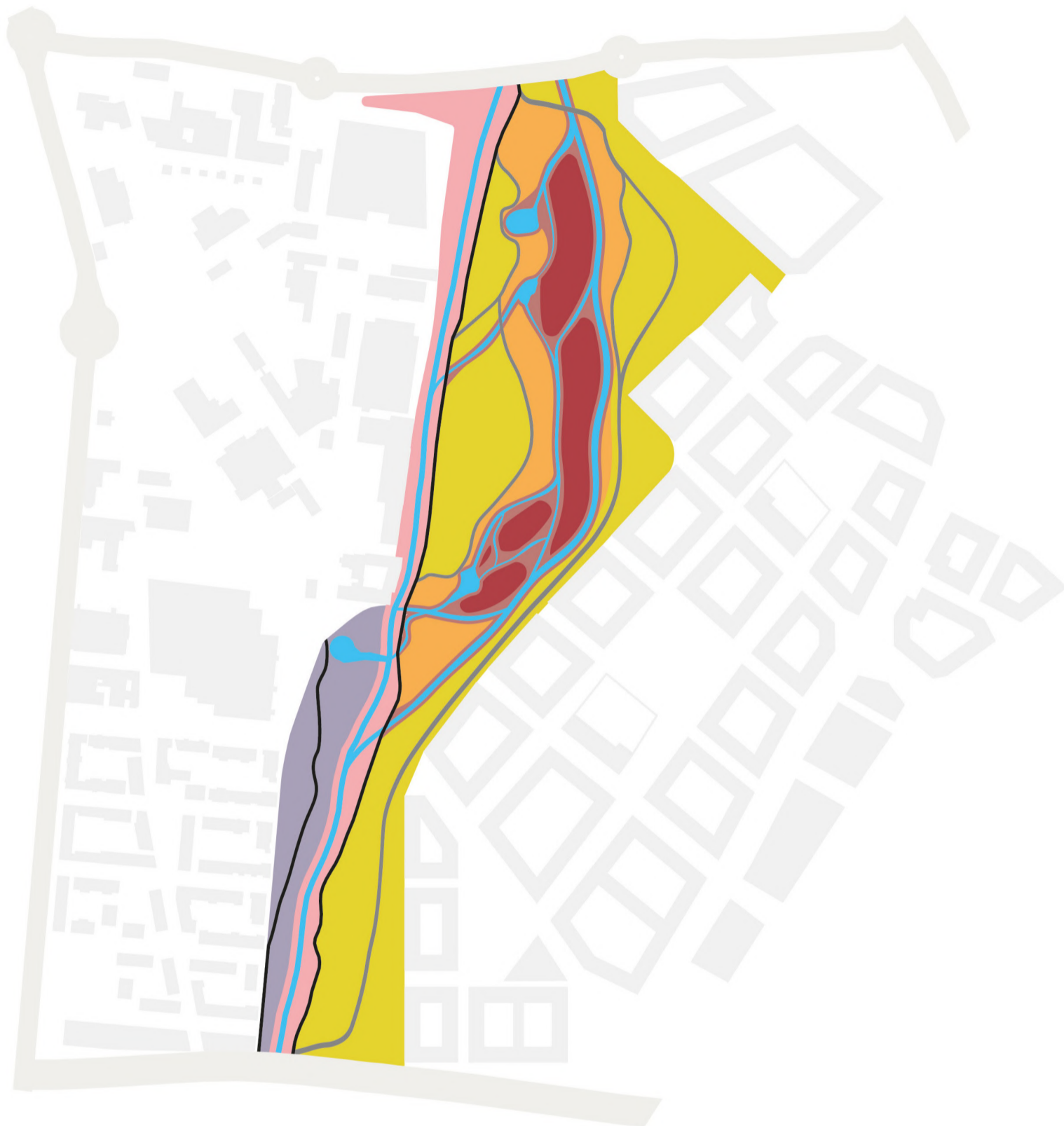
-  Raised path
 -  Path at ground level
 -  Stream and water bodies
 -  +2m above sea level (current level)
 -  +3m above sea level
 -  +4m above sea level
-  Section line

Urban Flood Park
Scale 1:5000 (A3)





Urban Flood Park - Connections
Scale 1:5000 (A3)



- Raised path
- Path at ground level
- Stream and water bodies

- Zone A - Sanctuary: preserved habitats for fauna and flora. Spontaneous growth
Zone A - *Betulus pendula*, *populus tremula*, *salix alba*, *alnus glutinosa*, *fraxinus excelsior*, *pinus sylvestris*, *phragmites* sp.
- Zone B - Ecotone: transition zone between natural and anthropic areas
Zone B - *Pinus sylvestris*, *salix babylonica*, *salix alba*, *populus nigra italica*, *populus tremula*, *betulus pendula*
- Zone C - Open park: extension of current park's structure
Zone C - *Salix babylonica*, *quercus rubra*, *elmus*, *tilia*, *sorbus aria*, *sorbus aucuparia*

- Zone D - Riparian restoration: leave nature taking over the space spontaneously
Zone D - *Betulus pendula*, *populus tremula*, *salix alba*, *alnus glutinosa*, *fraxinus excelsior*, *pinus sylvestris*, *phragmites* sp.
- Zone E - Reed beds: vegetalisation of periodically submerged grounds
Zone E - *Phragmites* sp.
- Zone F - Playground infrastructures
Zone F - Sports, kids, event facilities, animals



Tree species range



Zone A



Silver Birch



Aspen



White beam



Alder



Cherry



Sessile Oak



Zone B



Lombardy Poplar



Scots pine



Weeping Willow



Goat Willow



Aspen



Zone C



Weeping Willow



Red oak



Elm



Linden



White beam



Bald cypress



Zone D



Silver Birch



Aspen



Sessile Oak



Alder



Norway maple



Apple tree



Cherry



Rowan



Goat Willow

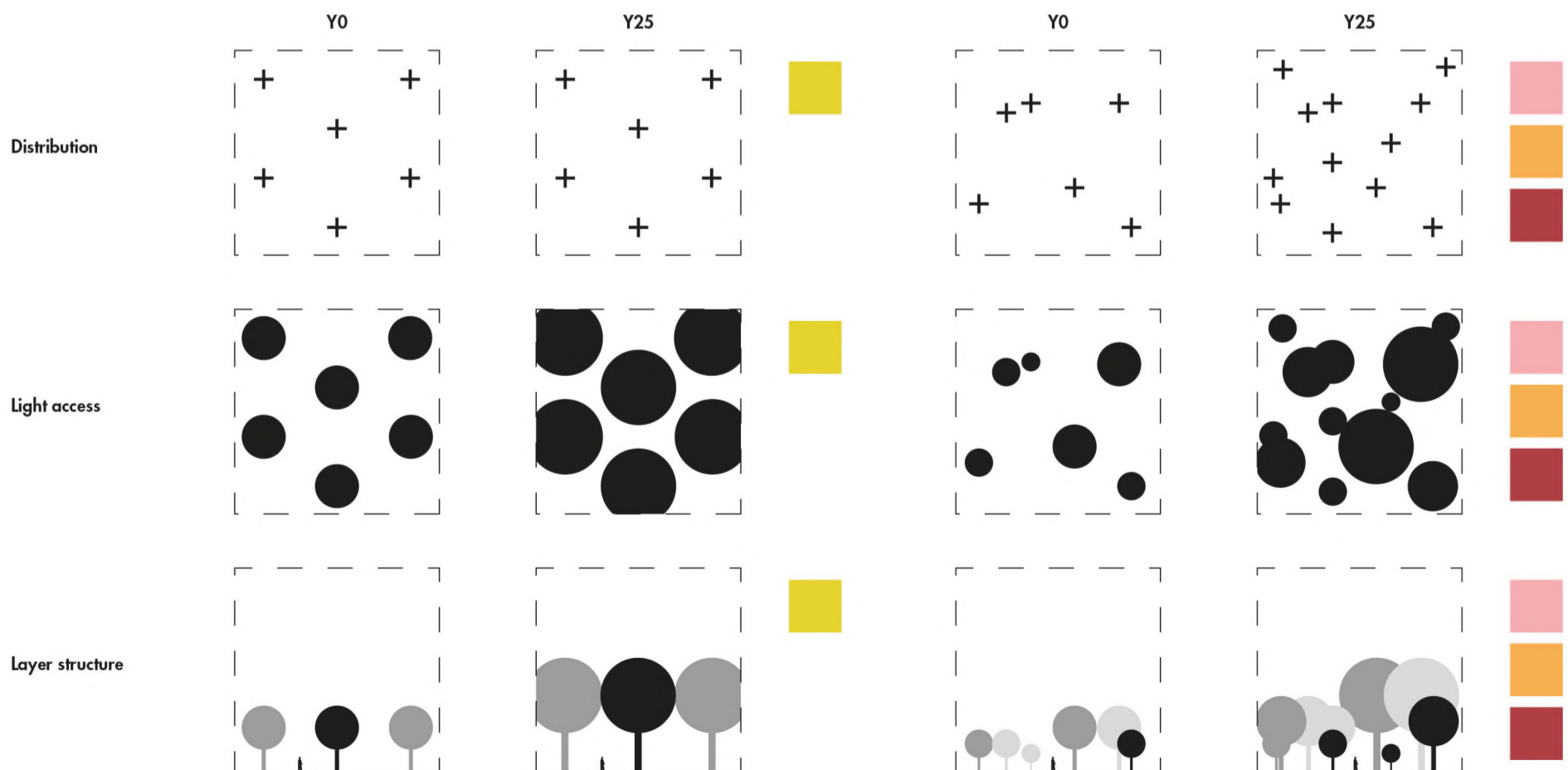


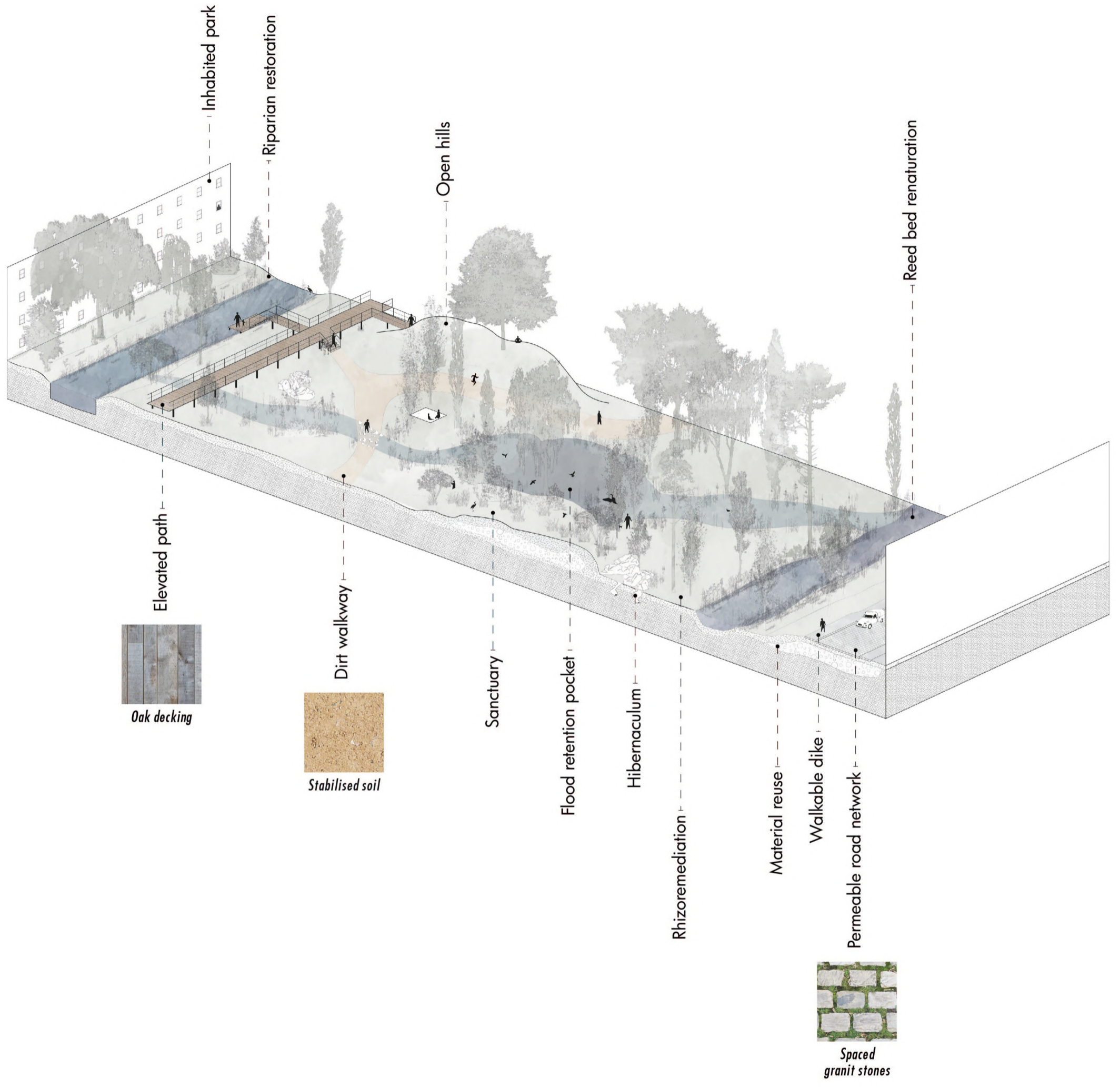
Zone E



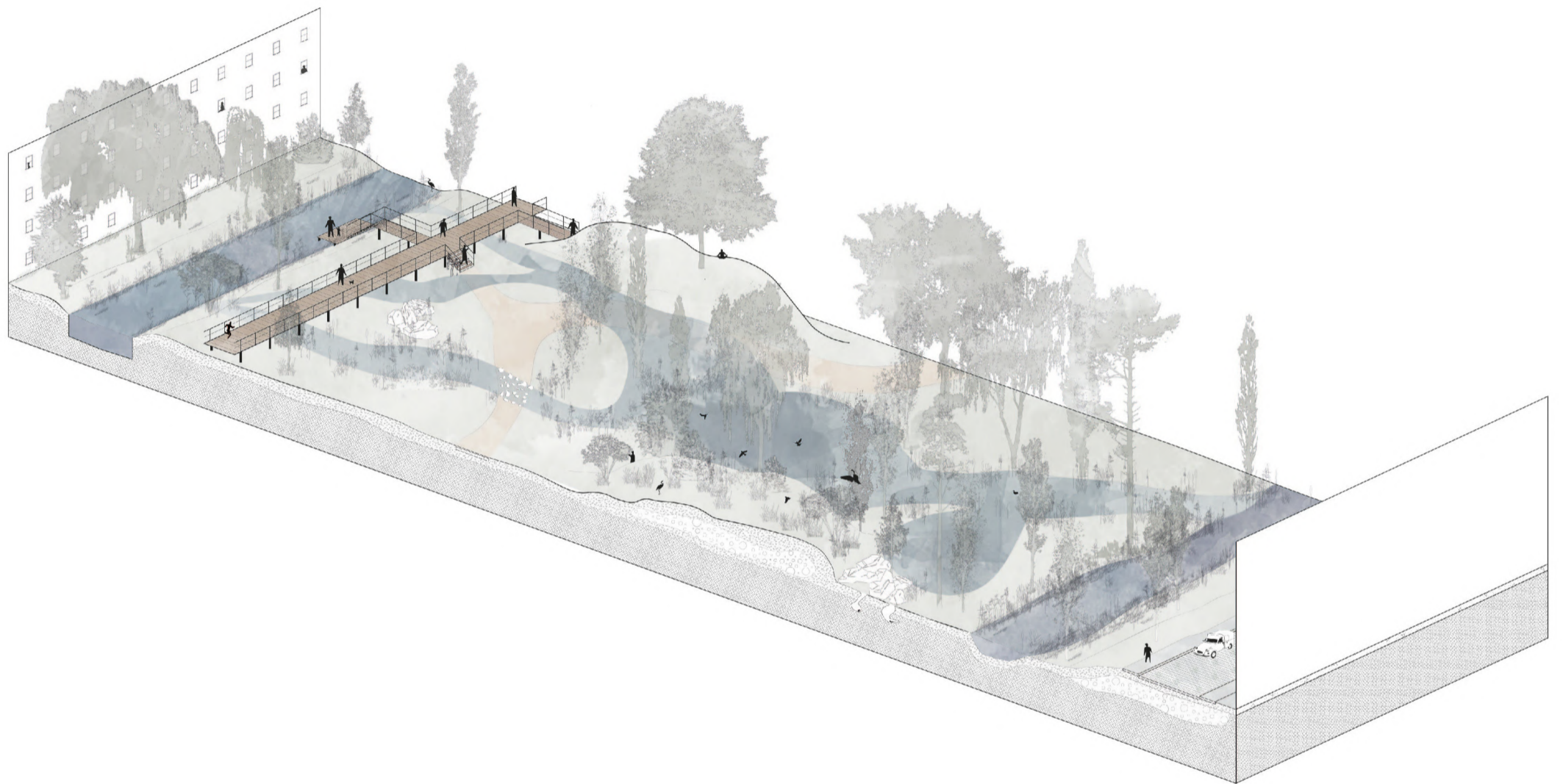
Common reed

Spatiality





Urban Flood Park - Stable situation
Scale 1:200



Urban Flood Park - Flooded situation
Scale 1:200

- Multipurpose project: flood mitigation, bringing nature back to the inner city and extending green corridors
- Renaturation of a large parking lot
- Adaptation to climate events
- Local species for onsite depollution

- Faces barriers in the south with road infrastructures
- Lack of east-west direct connections
- Spontaneous natural regeneration areas will take longer than planted areas to become established

S W
O T

- Hökälla Nature Reserve as a starting point of the project both in the design process and for users
- Include the park in a larger scale project with, as a previous step to the bio-park
- Link existing projects together and reinforcing blue and green corridors

- Backaplan development plan is today not designed to welcome the park
- Kvillebäcken is following a rapid growth of its infrastructures and residential buildings that represent a threat to the development of green structures

