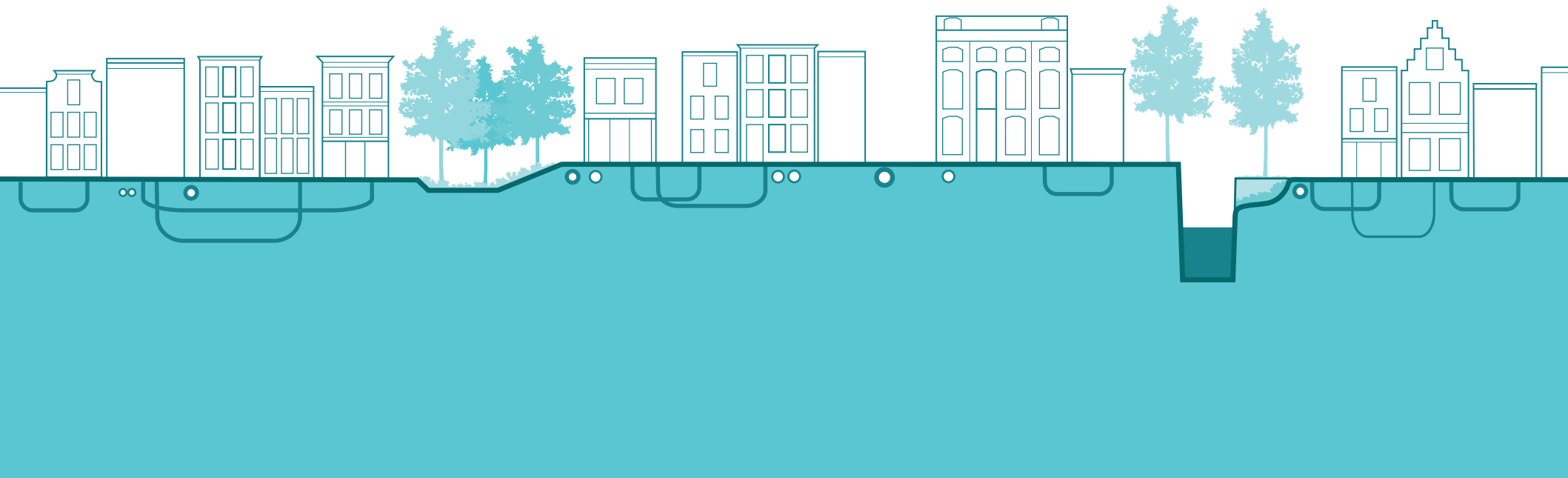


Waterproof Gouda

*The creation of new spatial pathways to connect
climate sustainability with monumental preservation*

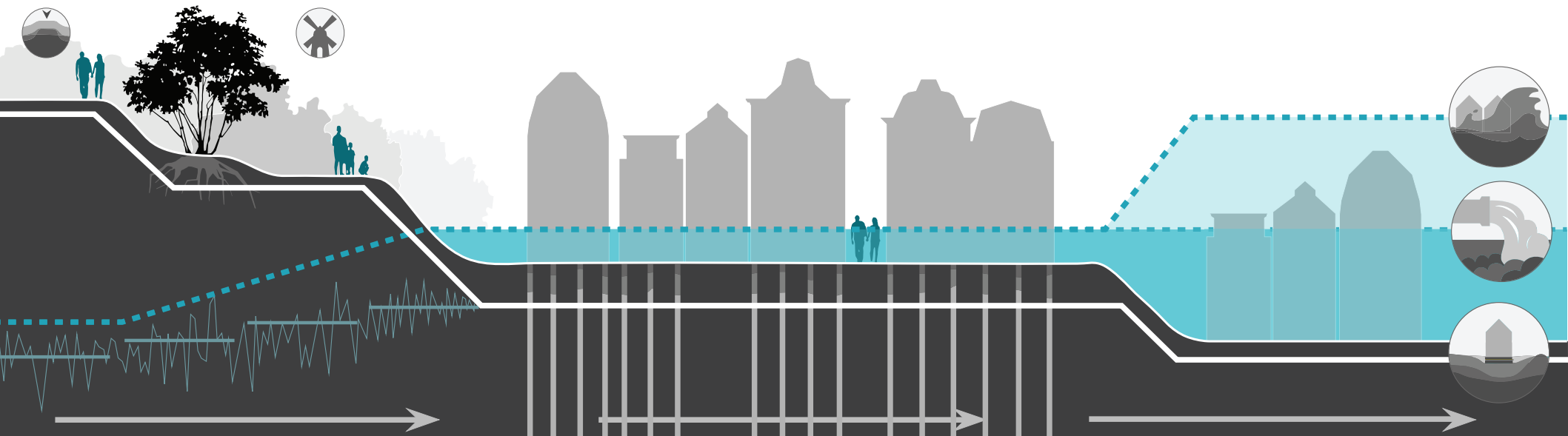
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Problem statement

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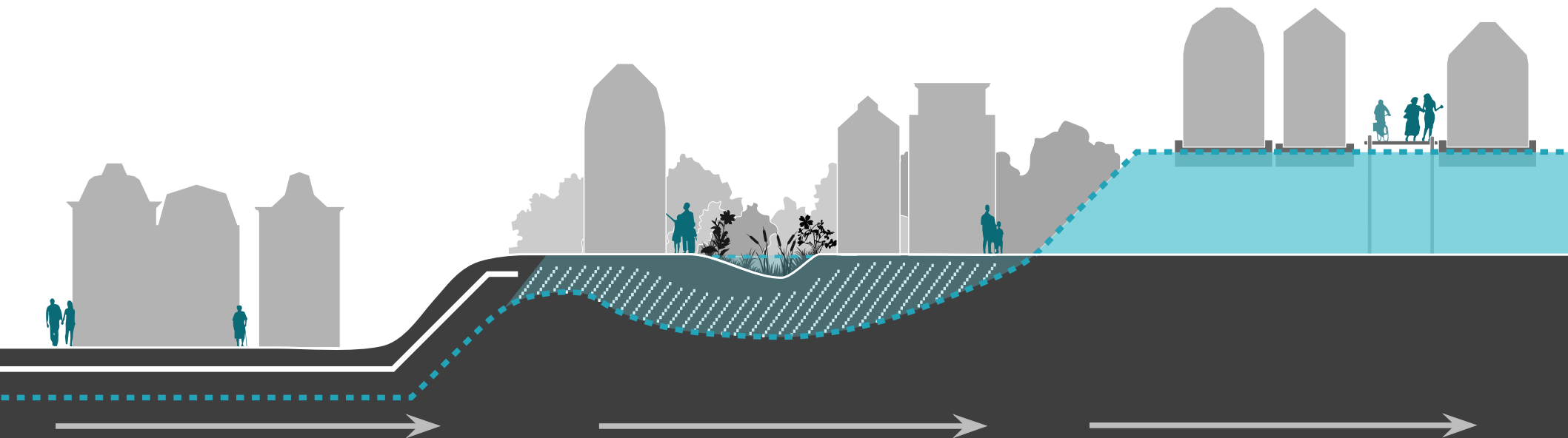


Inspired by a drawing from:

De Urbanisten. (2016). Goed groen is goud waard: verkenning van de toegevoegde waarde van groenblauwe netwerken voor de stad, case Zwolle. Retrieved May 21st, 2018 from <http://www.urbanisten.nl/wp/?portfolio=good-green-is-golden-2>

Parallel path

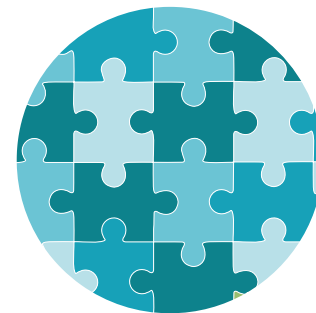
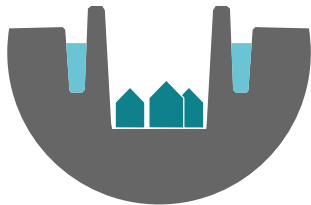
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Inspired by a drawing from:

De Urbanisten. (2016). Goed groen is goud waard: verkenning van de toegevoegde waarde van groenblauwe netwerken voor de stad, case Zwolle. Retrieved May 21st, 2018 from <http://www.urbanisten.nl/wp/?portfolio=good-green-is-golden-2>

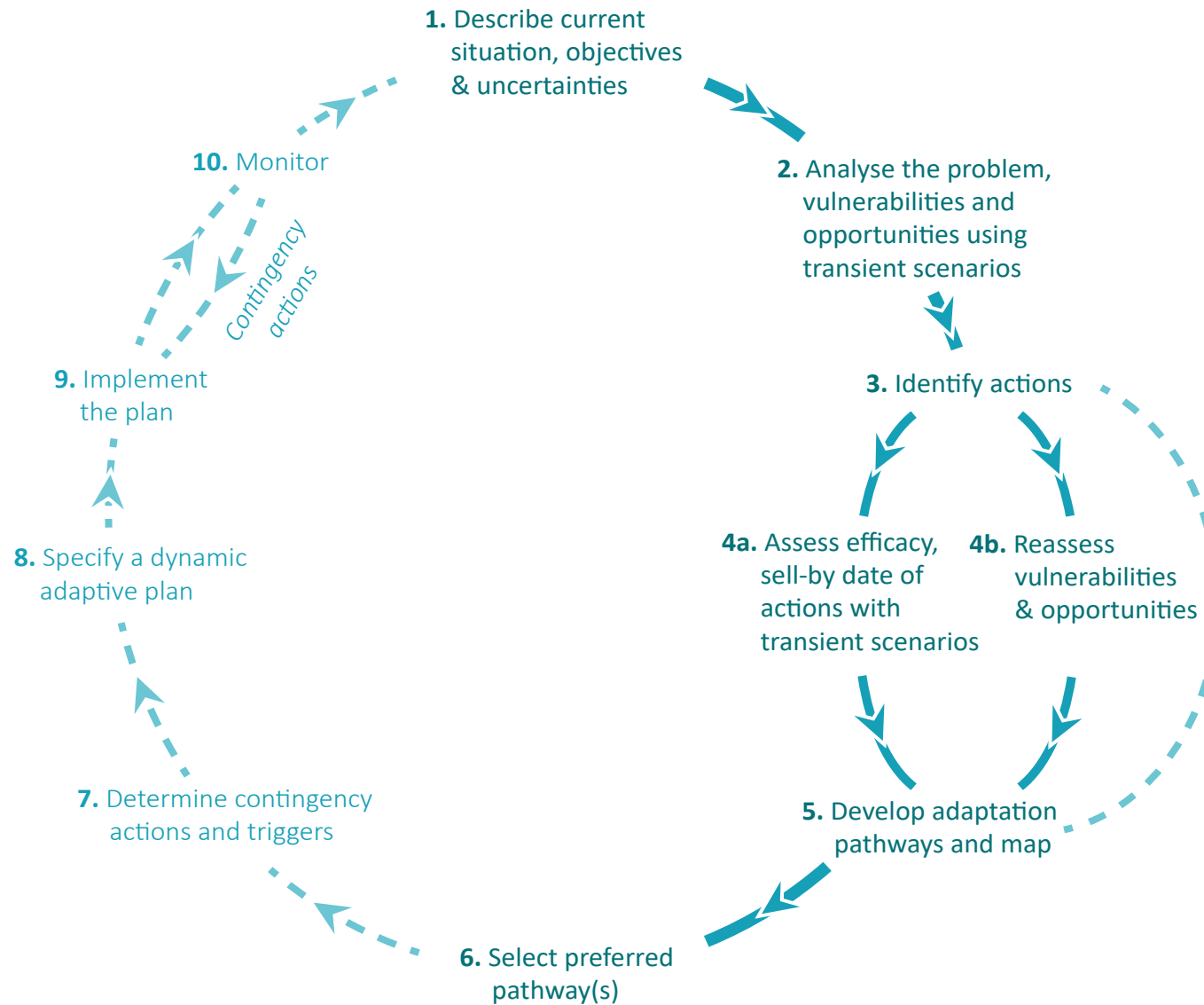
What balance of spatial interventions and technical solutions is needed to retain Gouda's historic character while enhancing the city's ability to withstand climate change-enhanced disasters?



Gouda

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Development of the city

1100- 1500

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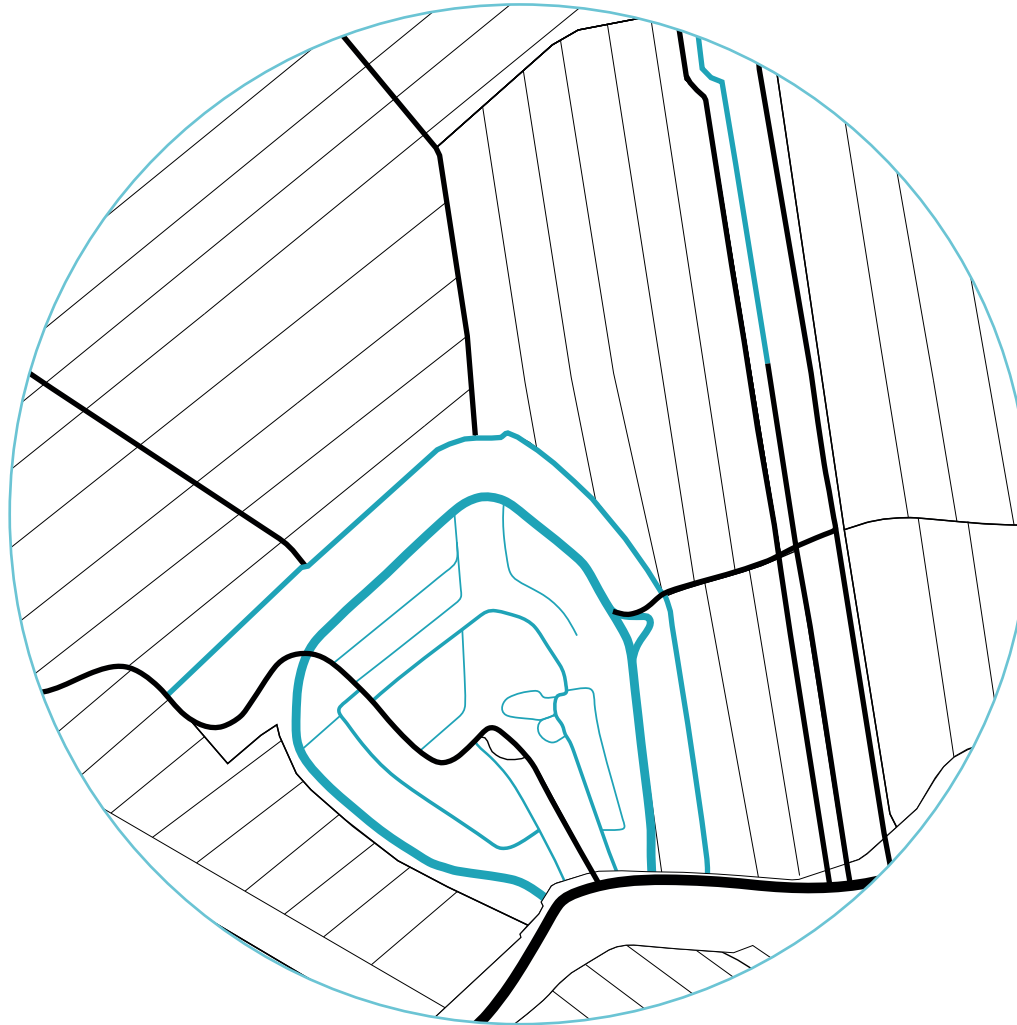


Development of the city



1500 - 1900

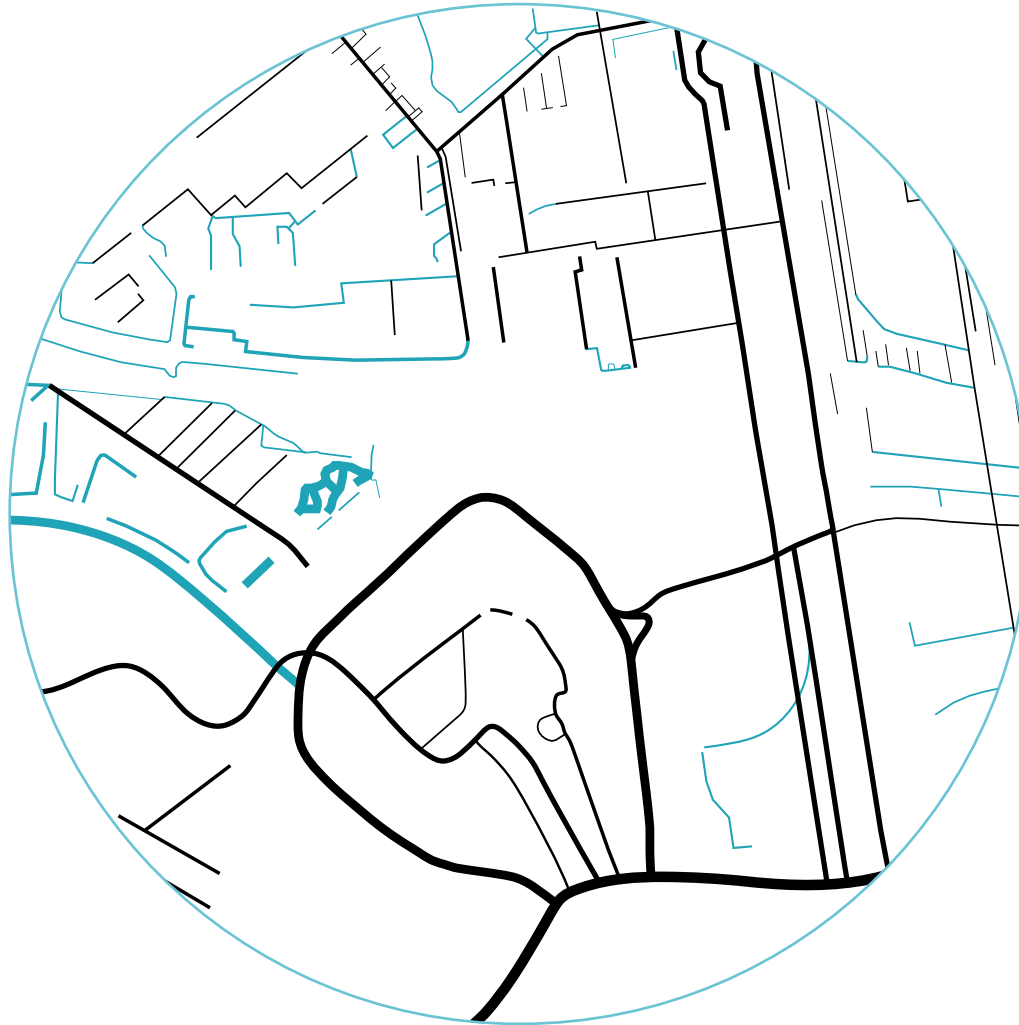
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Development of the city

1900 - now

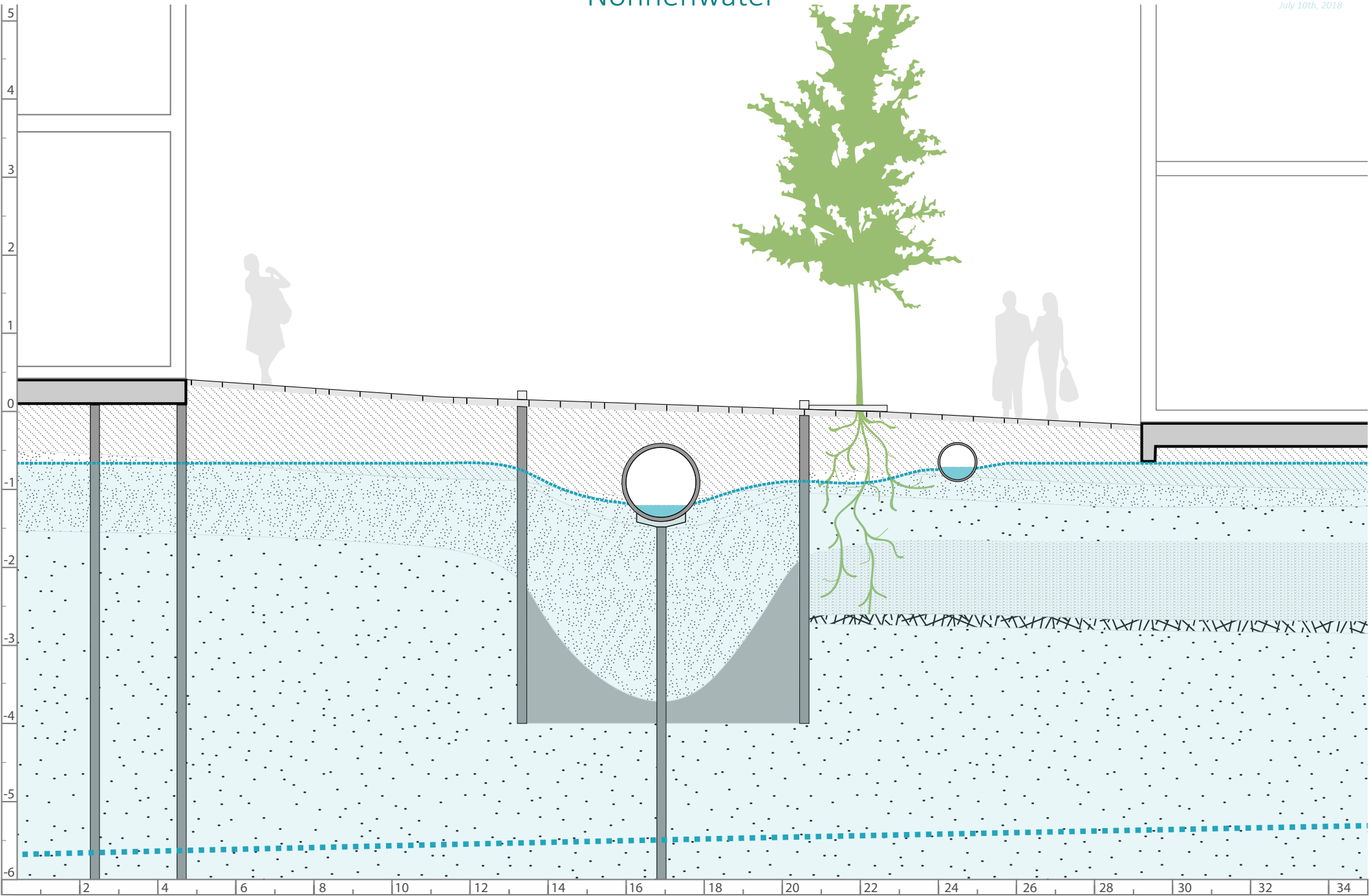
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Technical profile

Nonnenwater

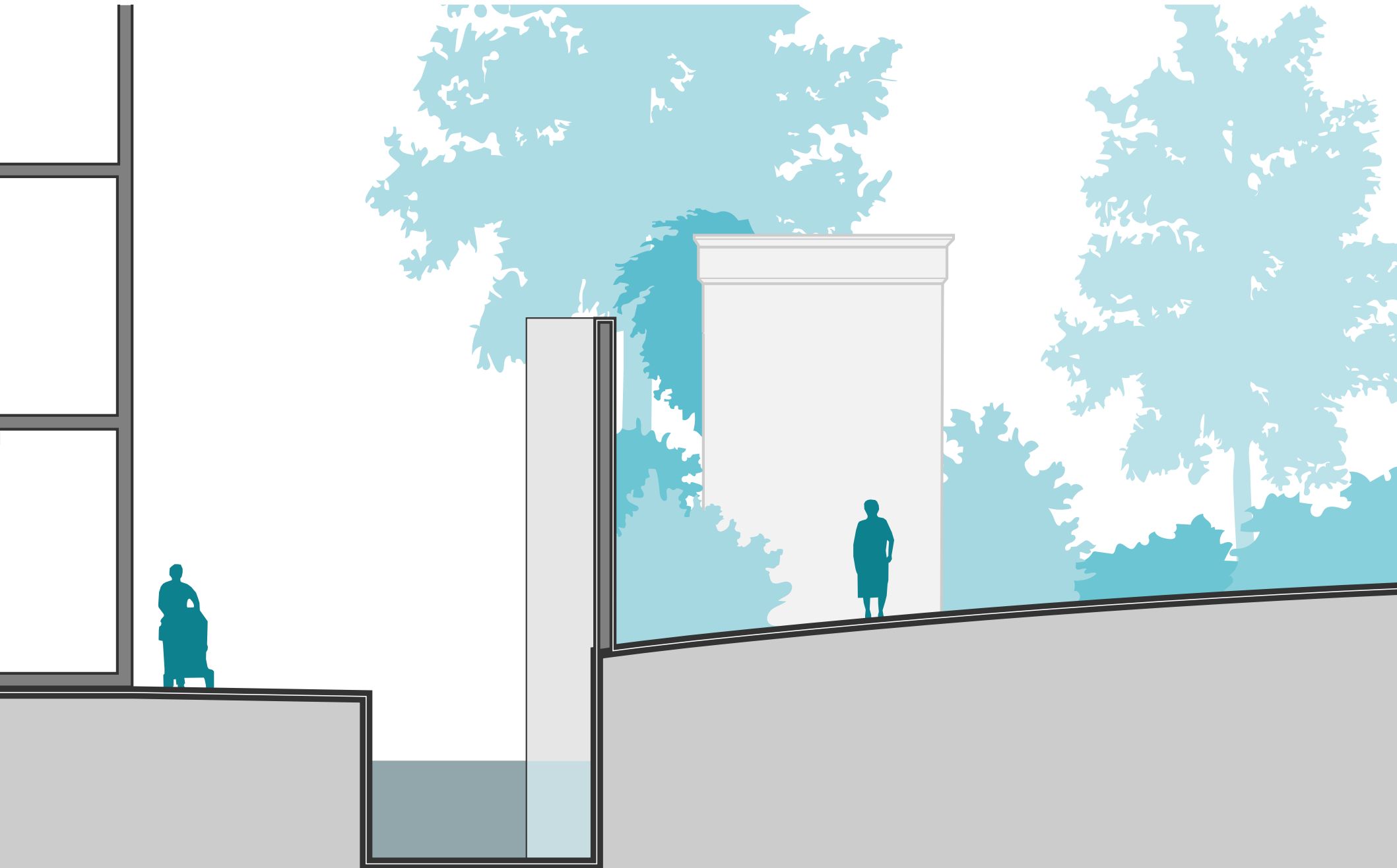
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Street profile

Asymmetric street (Peperstraat)

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Building characteristics

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Building characteristics

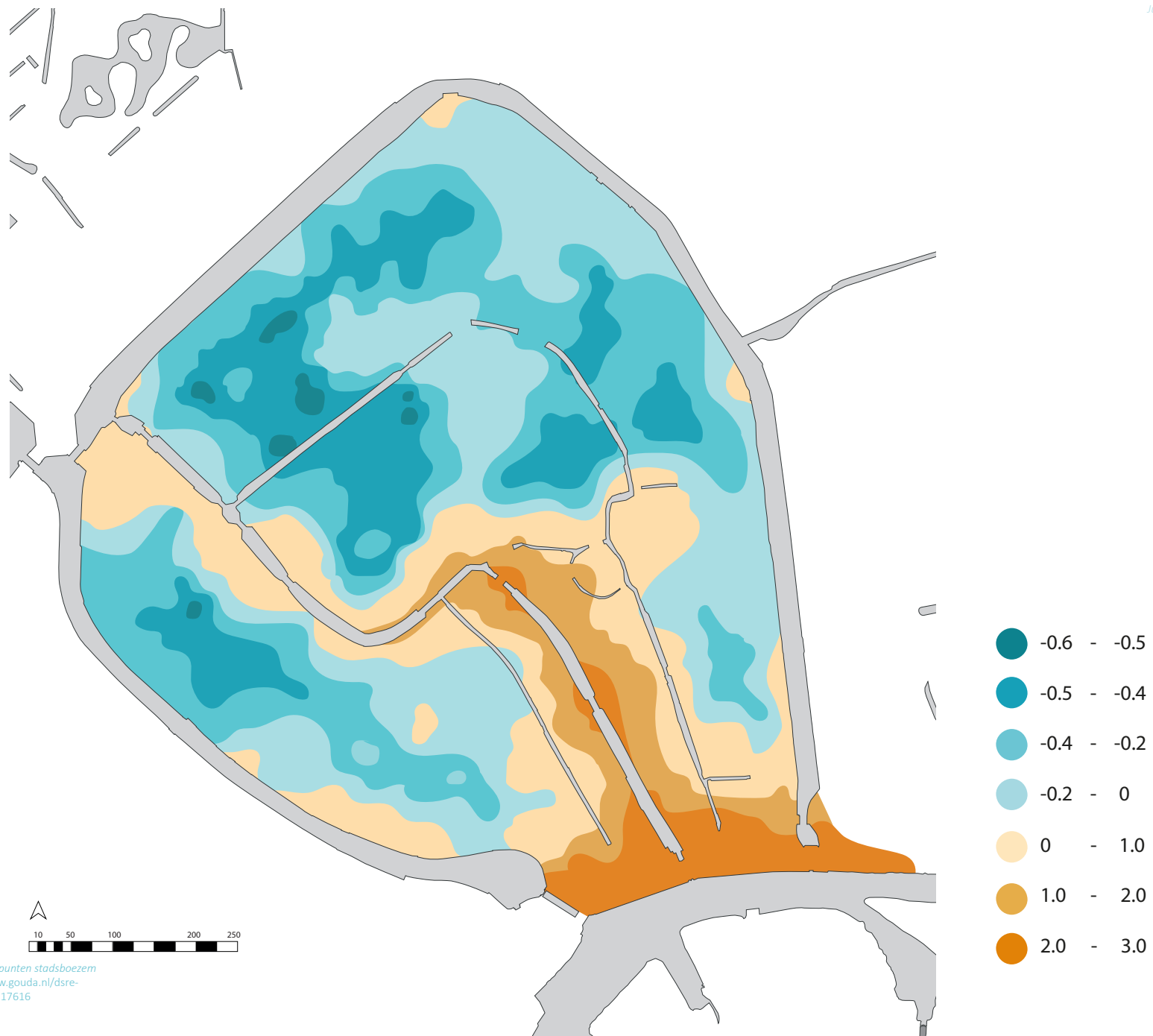
Symmetries

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Surface levels

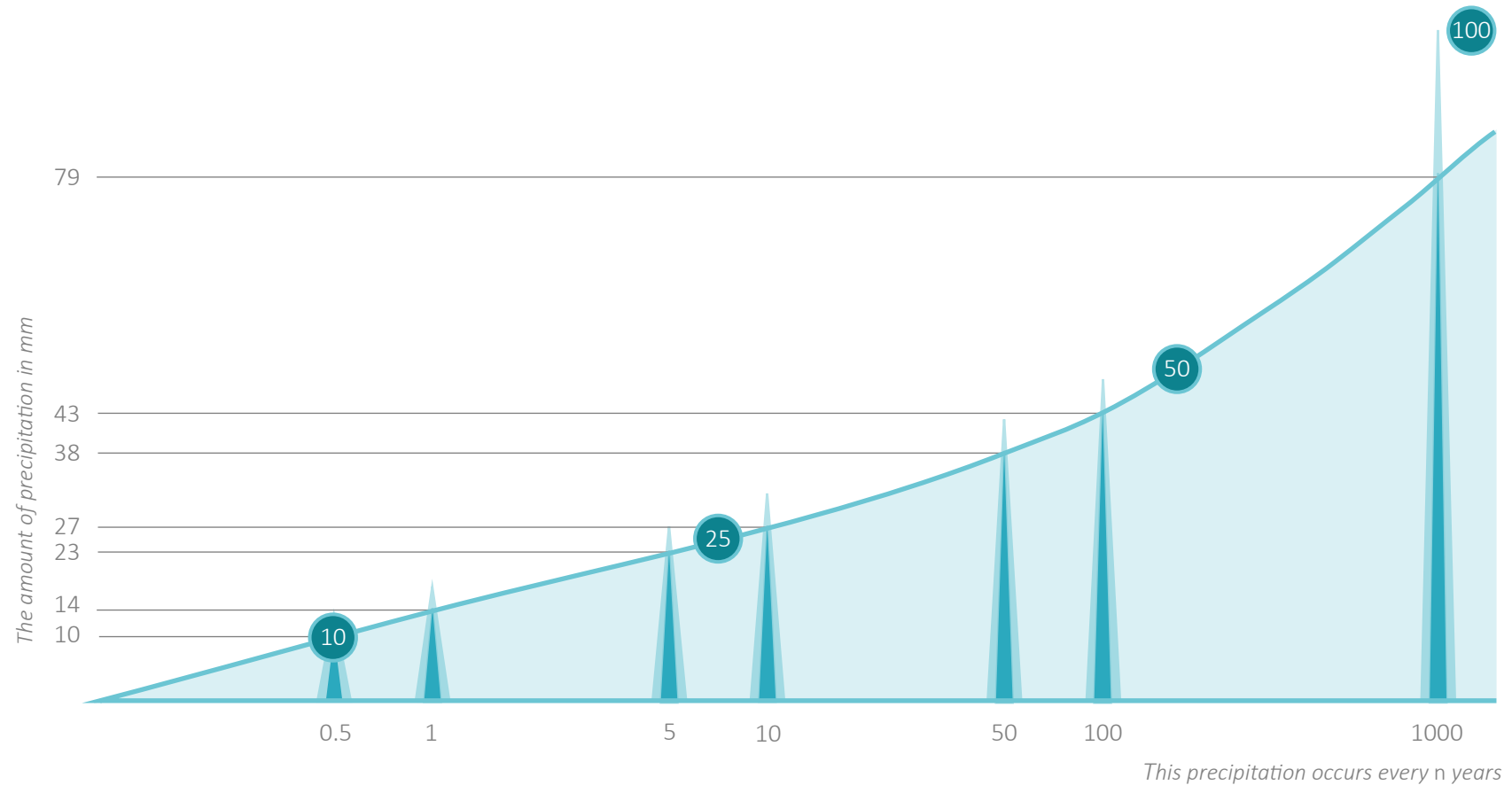
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Map based on image in:
Tamboer, J. (2007). *Watersysteembeschrijving en knelpunten stadsboezem Gouda: technisch rapport*. Retrieved from <https://www.gouda.nl/dsre-source?objectid=1476dd75-c11a-4ee9-a6a5-5e0ac1717616>

Precipitation occurrences

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Koninklijk Nederlands Meteorologisch Instituut. (2014). *neerslagstatistiek*. Retrieved from <https://projects.knmi.nl/klimatologie/achtergrondinformatie/neerslagstatistiek.pdf>

Koninklijk Nederlands Meteorologisch Instituut. (2018). Extreme neerslagsom in Herwijnen. Retrieved May 9th, 2018 from <http://www.knmi.nl/kennis-en-datacentrum/achtergrond/extreme-neerslagsom-in-herwijnen>

Green areas

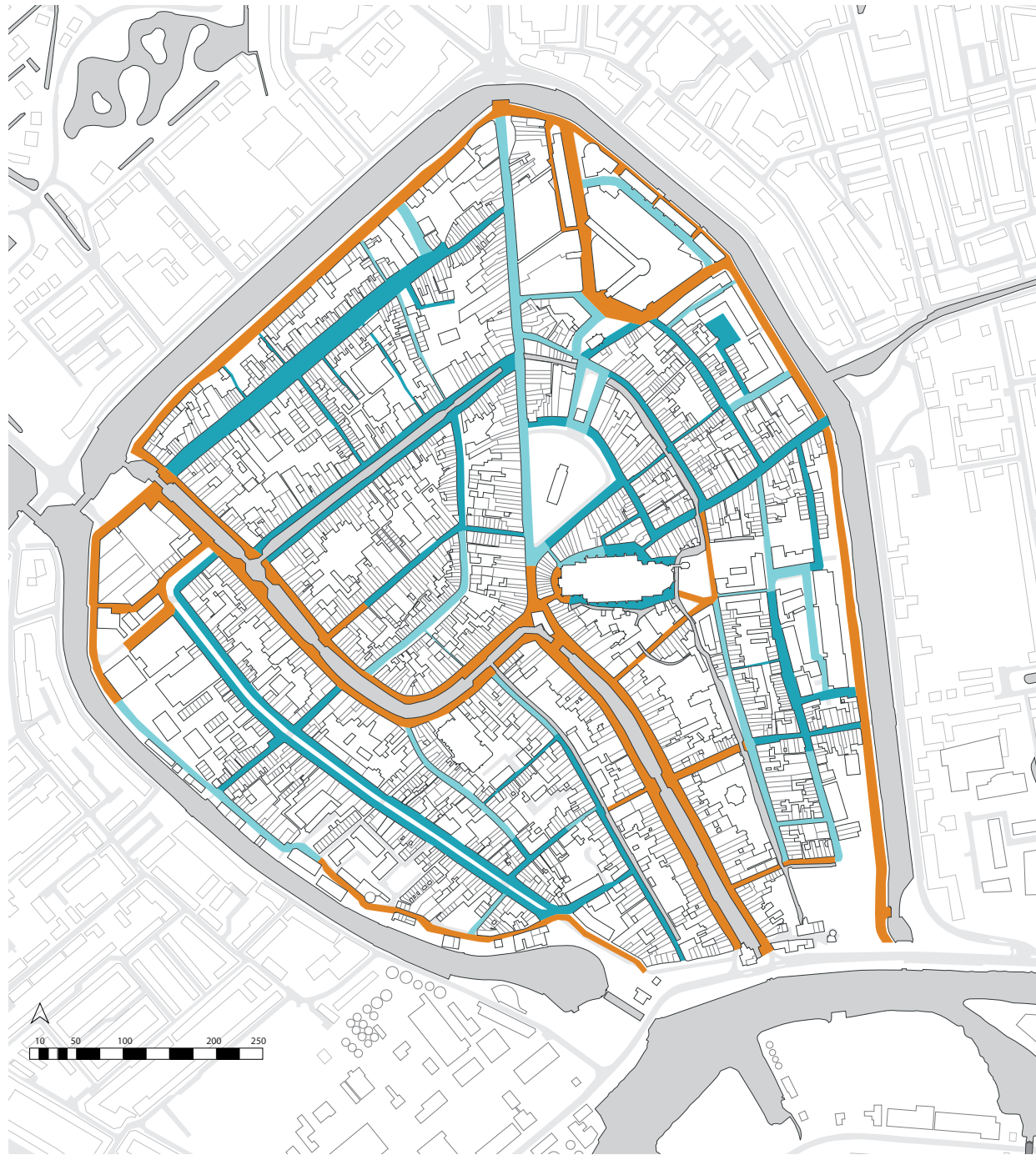
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Flooded roads

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- Inaccessible roads
- Only emergency traffic
- Accessible roads



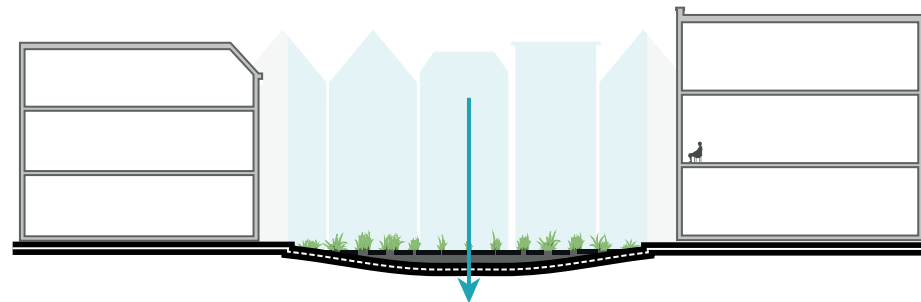
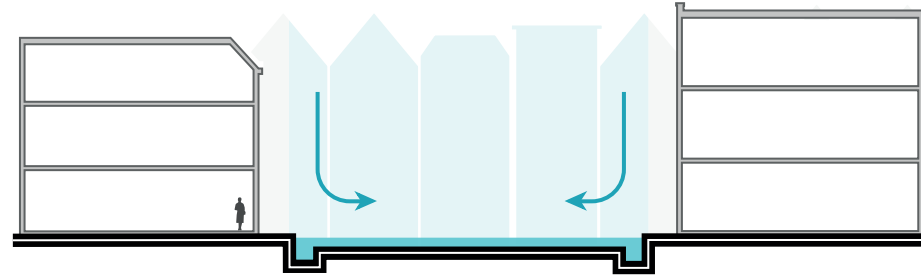
Extreme scenarios

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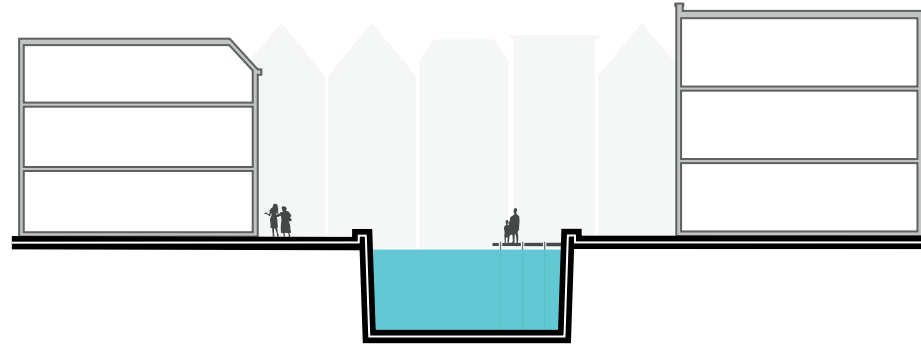
Building and street interventions

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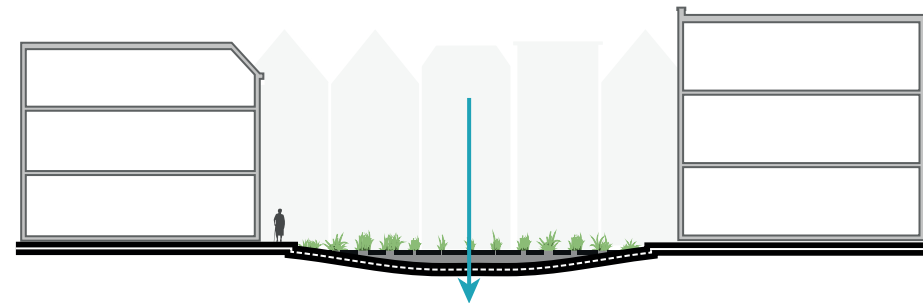
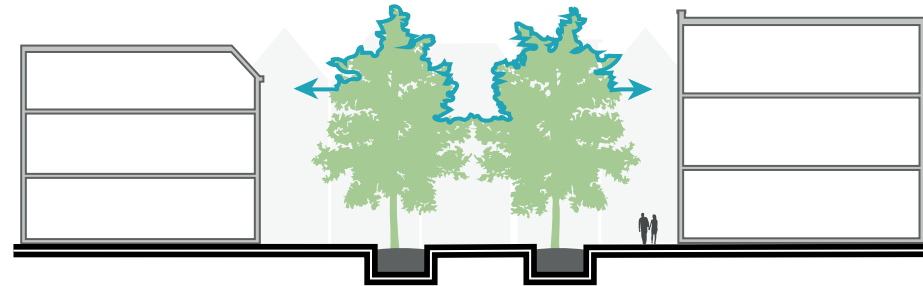
Water and green interventions

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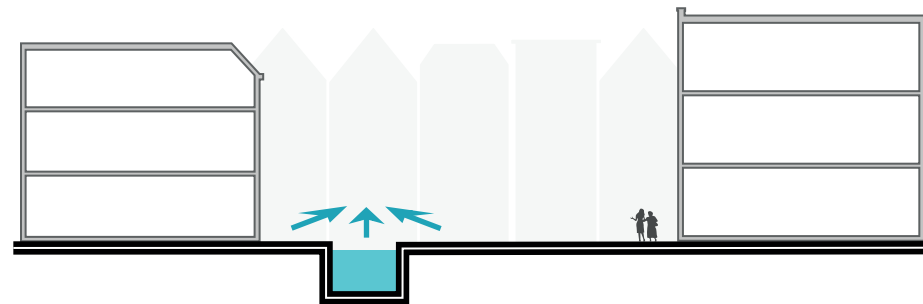
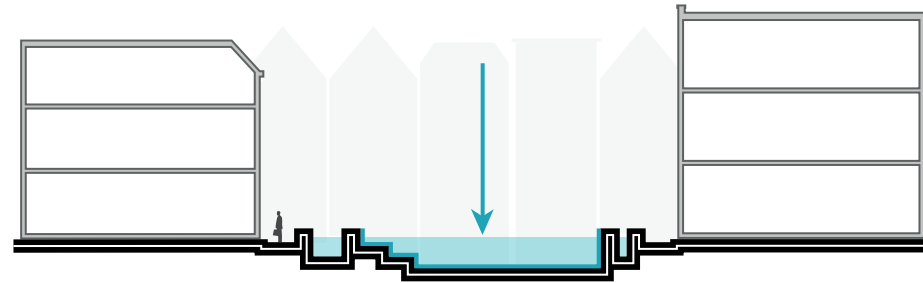
Interception and infiltration storage

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Local and discharge storage

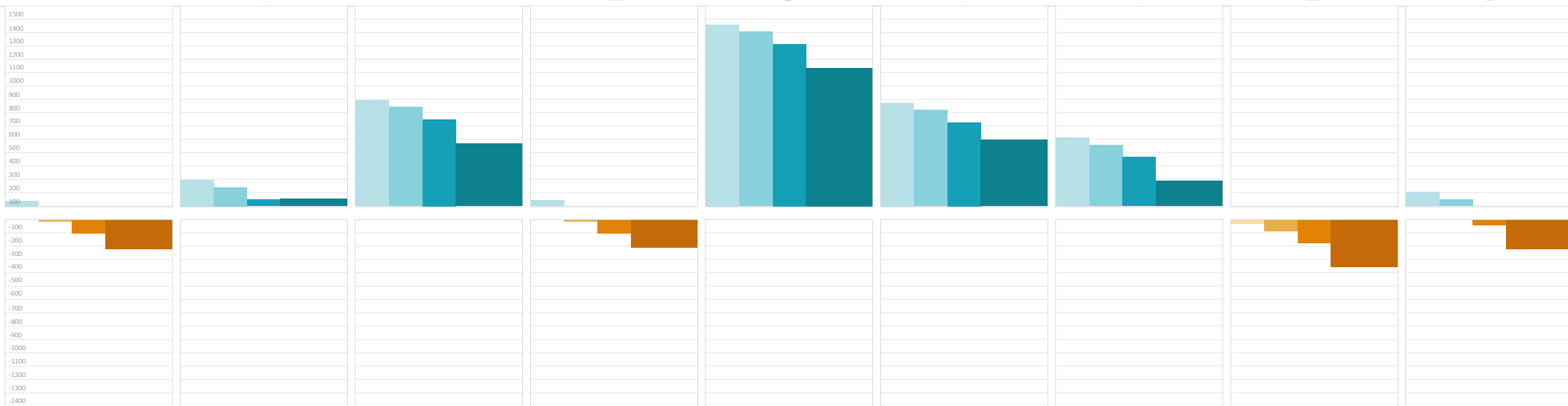
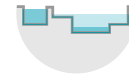
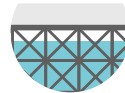
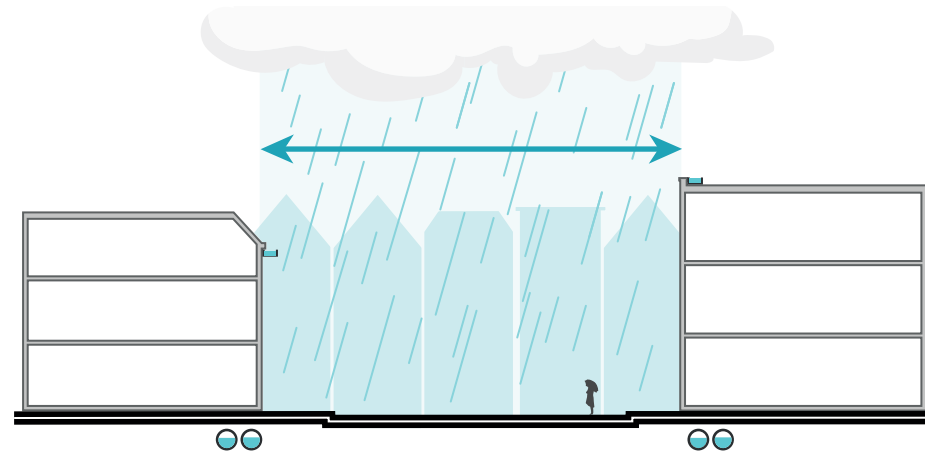
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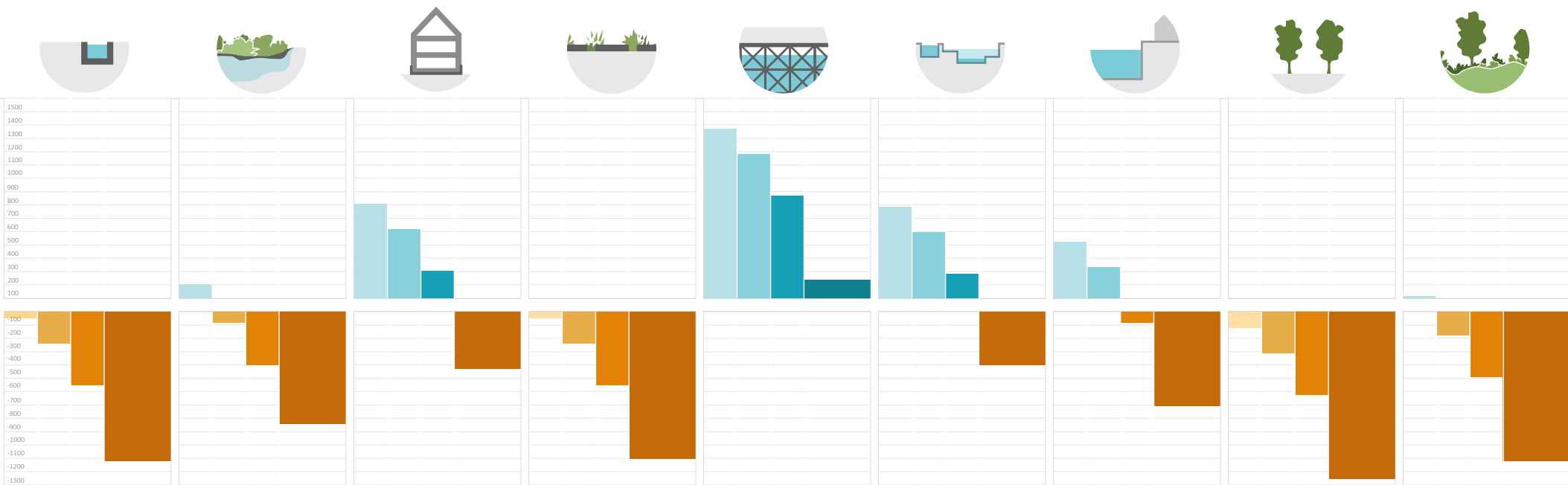
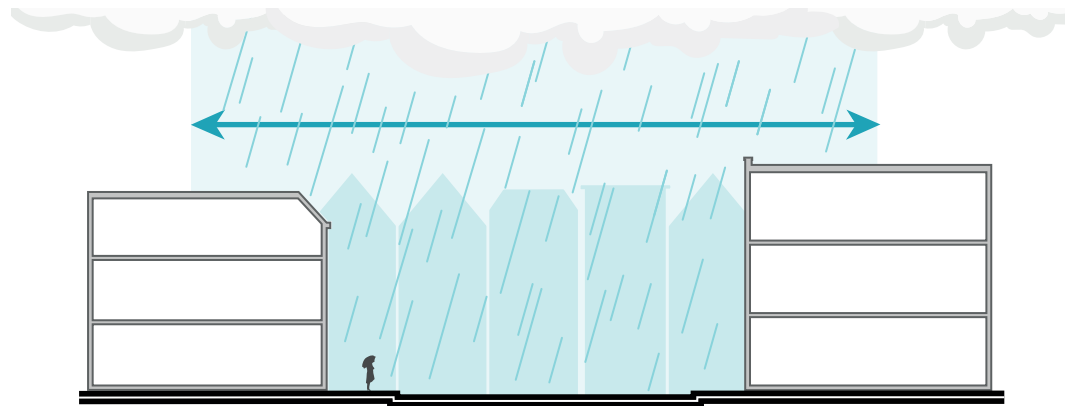


Efficacy interventions

Smaller area

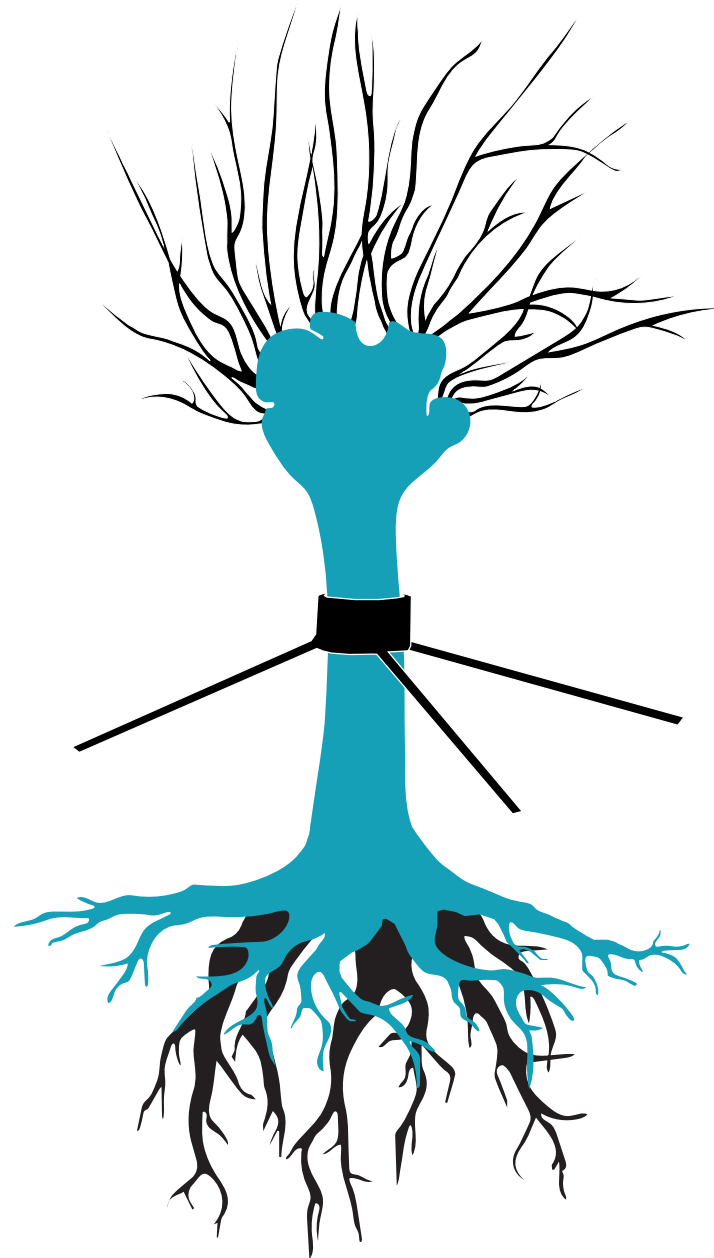
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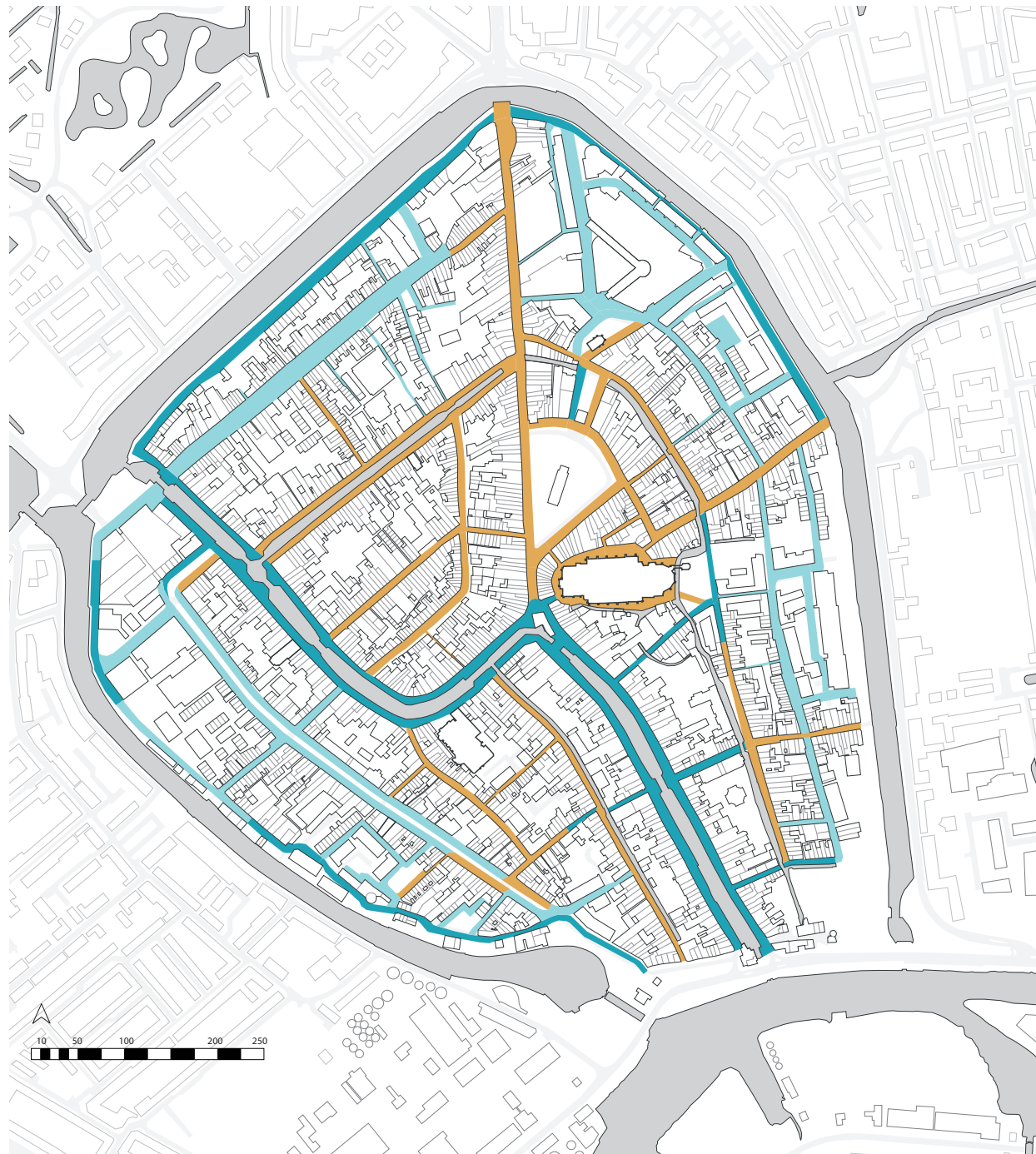
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Different strategies

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Interactive strategies

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Concept Roots

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Strengthen and Enhance

Strategy 1

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Strengthen and Enhance

Strategy 1

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Strengthen and Enhance Design locations

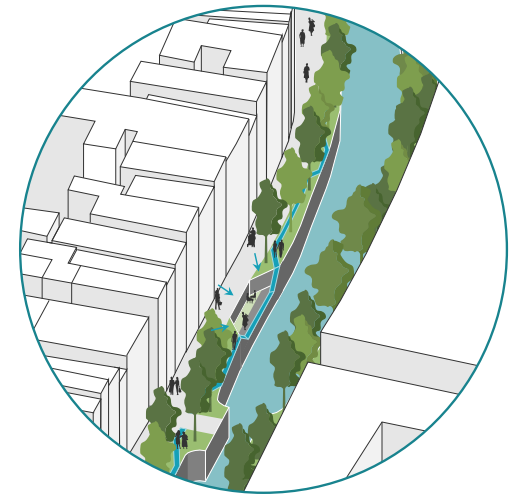
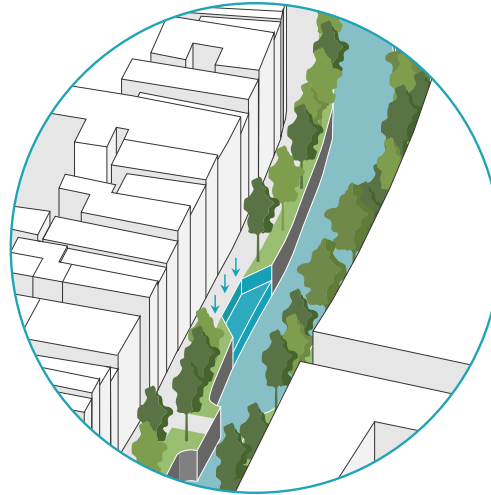
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Strengthen and Enhance

New functions

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Gouwe

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Gouwe

Meandering parks

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Gouwe Oosthaven

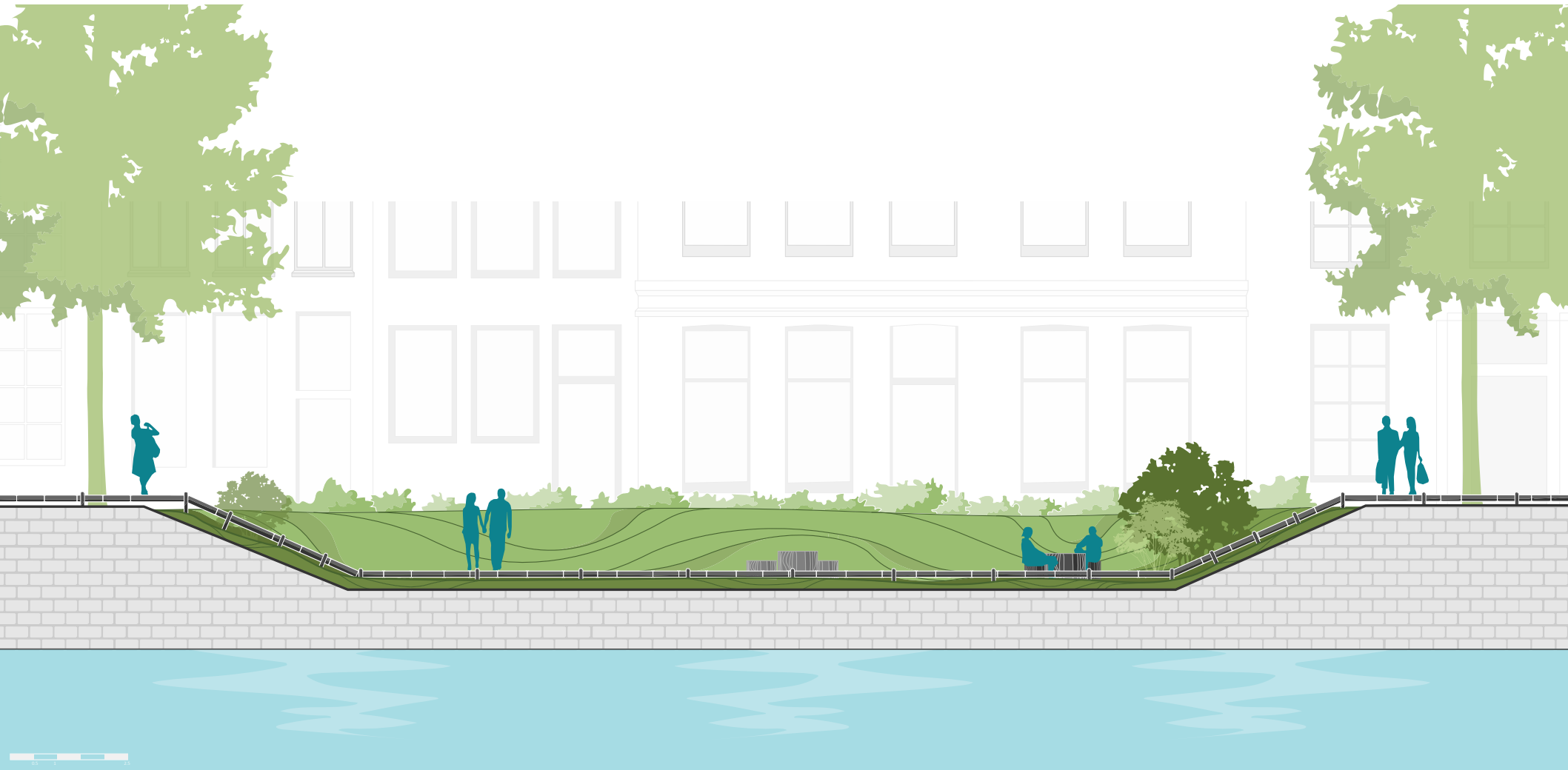


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Gouwe Oosthaven

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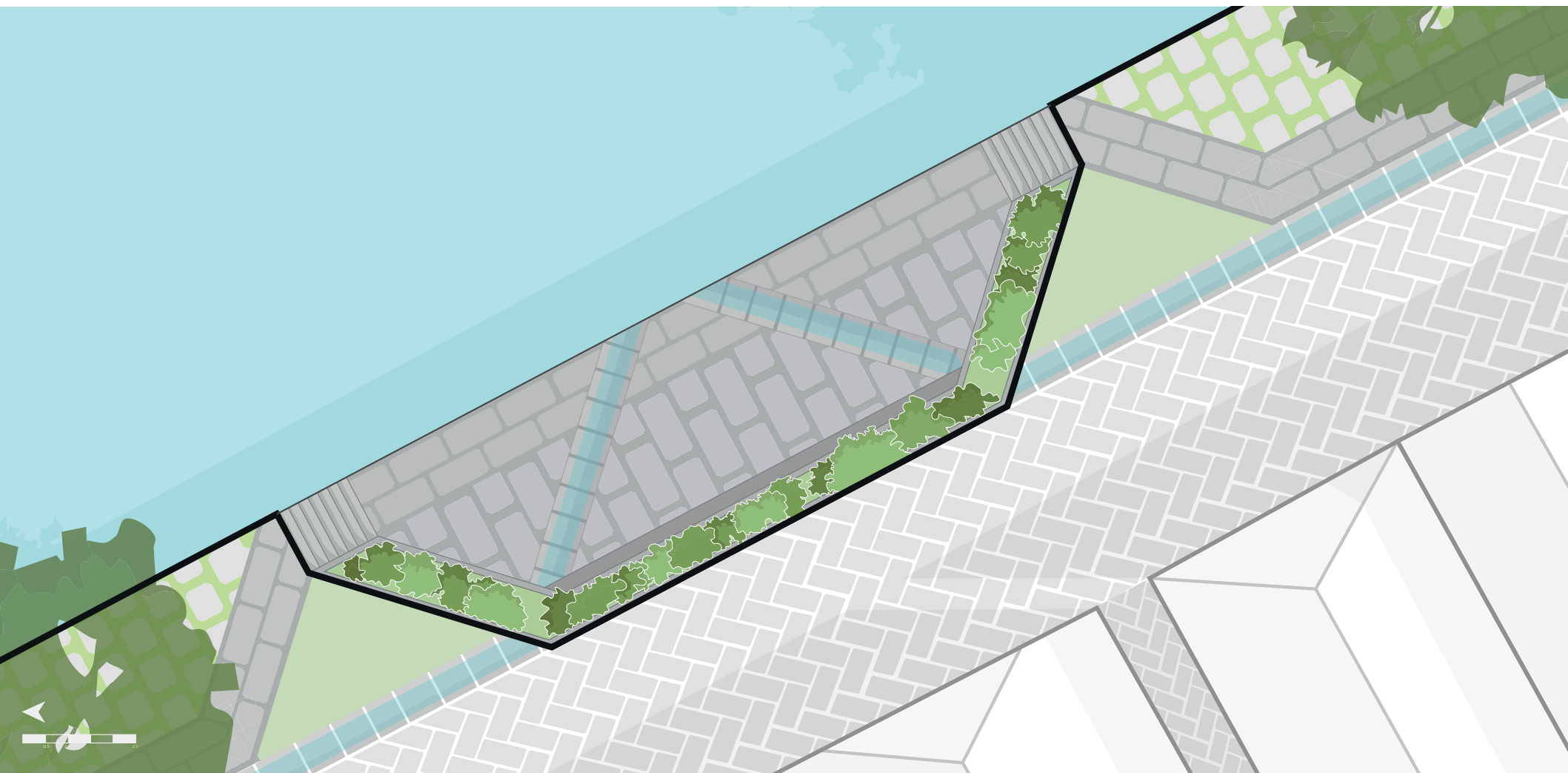




Gouwe Westhaven



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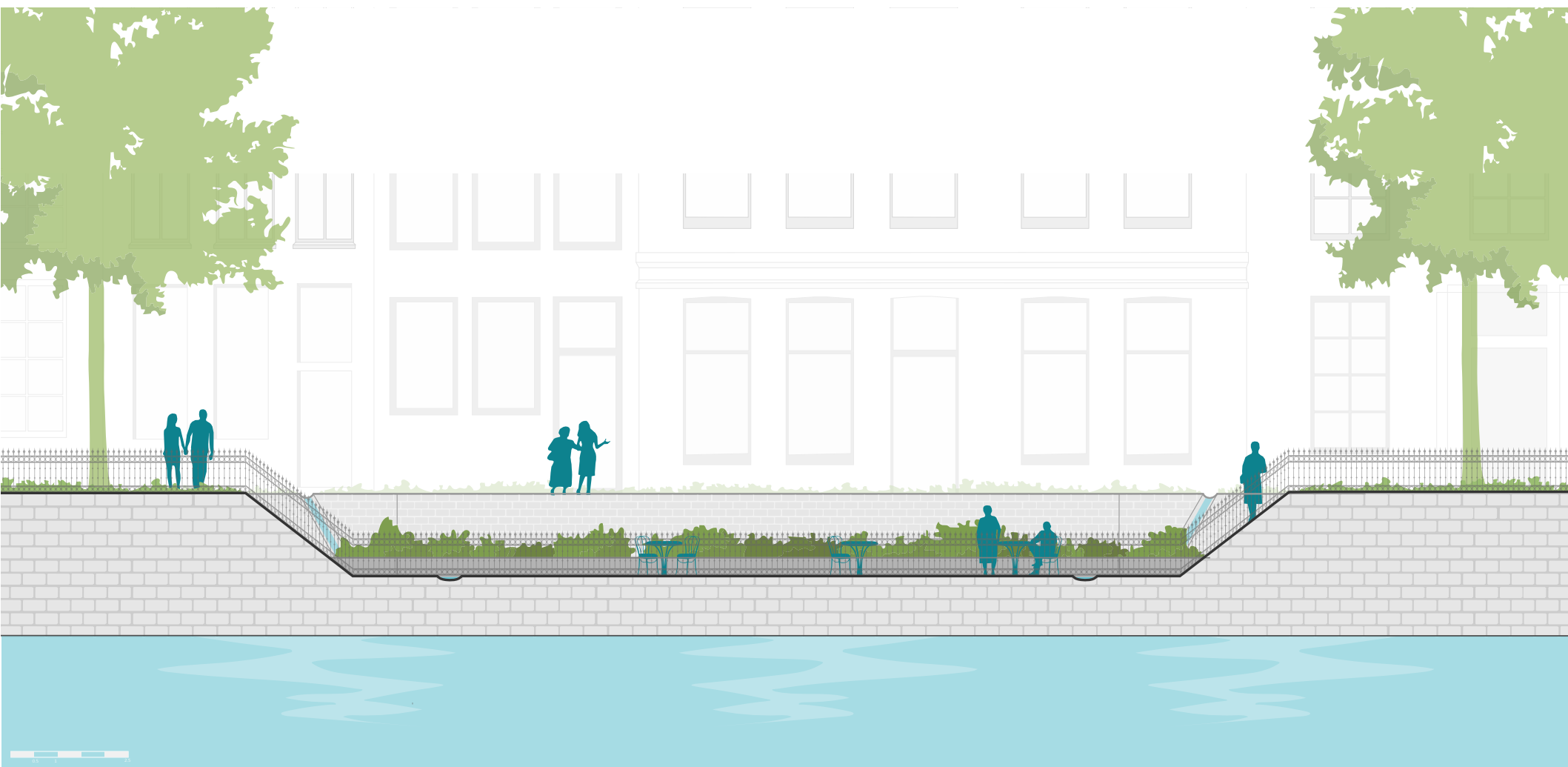




Gouwe Westhaven

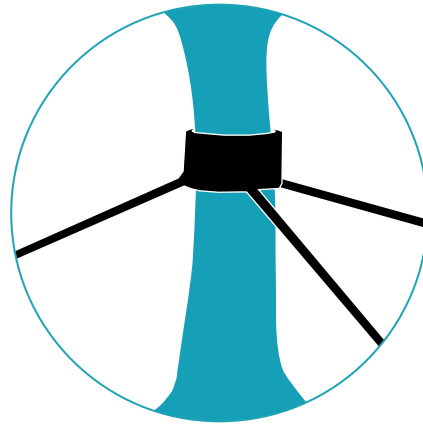


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Concept Support

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Protect and improve

Strategy 2

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Protect and improve

Strategy 2

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Protect and improve

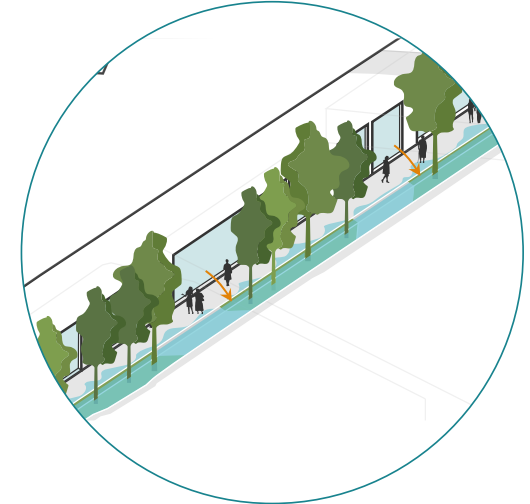
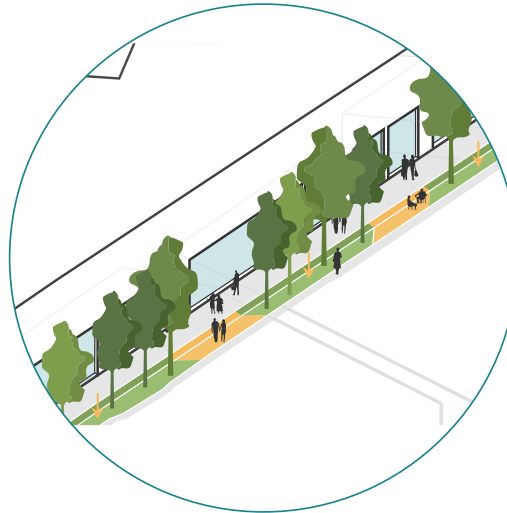
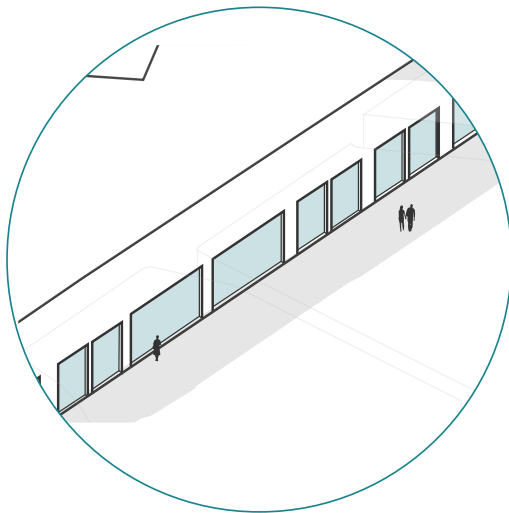
Design locations

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Protect and improve Water storage sections

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Kleiweg and Hoogstraat

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Kleiweg and Hoogstraat

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Kleiweg and Hoogstraat

Trees

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Linden



Birch

Linden tree
Bomengids. (n.d.). Alle foto's van de Hollandse of Tilia europaea of Tilia vulgaris. Retrieved July 1st, 2018 from https://www.bomengids.nl/soorten/Hollandse_linde__Tilia_x_vulgaris__Common_linden.html

Birch
Kunze, G. (n.d.). Ruwe berk - Betula pendula. Retrieved July 1st, 2018 from <https://wilde-planten.nl/ruwe%20berk.htm>

Turfmarkt

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Turfmarkt

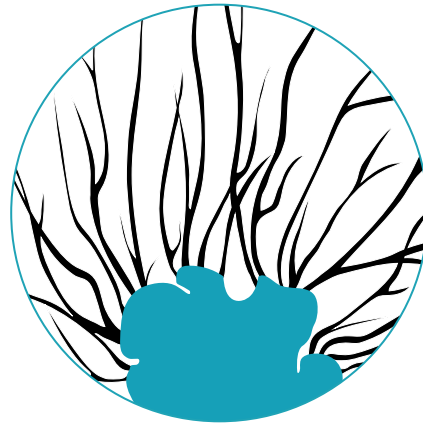
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Concept

New growth

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Renew and Innovate

Strategy 3

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Renew and Innovate

Strategy 3

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Renew and Innovate

Design locations

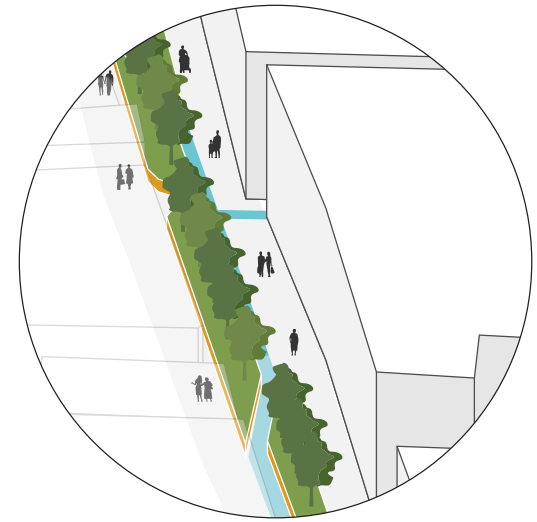
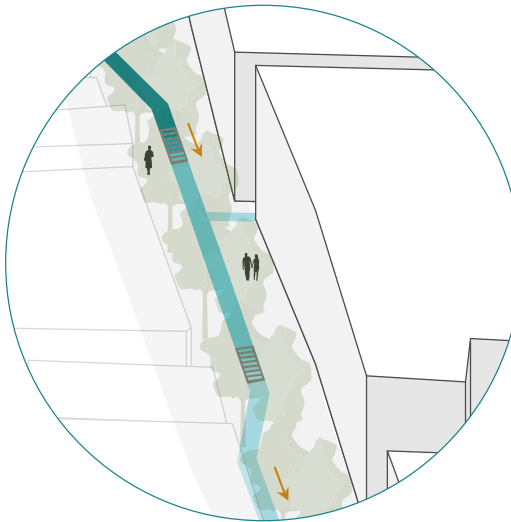
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Renew and Innovate

Decentralized filtration systems

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Raam

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Raam

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Raam



Specialized functions

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Nonnenwater

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Nonnenwater

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Nonnenwater

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Nonnenwater

Vegetation

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Wallflowers



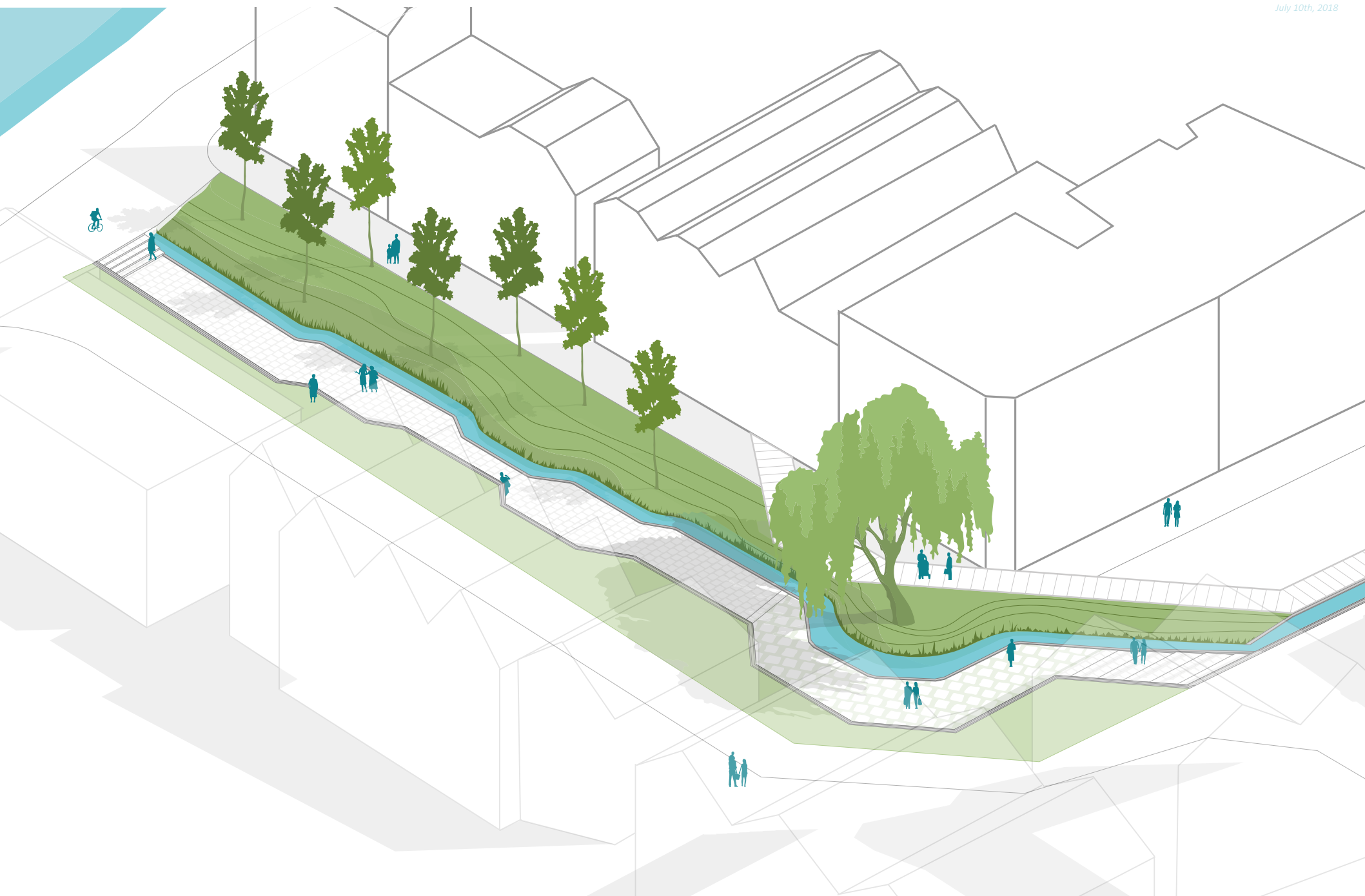
Royal fern

Wallflowers
Silver Falls Seed Company (2018). Wallflower - Siberian. Retrieved July 1st, 2018 from <https://silverfallsseed.com/product/wallflower-siberian/>

Royal Fern
Appeltern, (n.d.). Osmunda Regalis (Koningsvaren). Retrieved July 1st, 2018 from https://appeltern.nl/nl/shop/groen/tuinplanten/vaste_planten/osmunda_regalis_koningsvaren

Nonnenwater

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Integrated designs

Anne va
Jul



