

Geachte griffie en bureau kabinet,

Graag wil ik u vragen om, indien mogelijk met enige urgentie, bijgaande brief en bijlagen voor te leggen aan de gemeenteraad en het college van B&W. Bijlage 3 behorende bij deze mail, stuur ik u separaat toe. In de brief wordt aan het eind verwezen naar een link van Eden en Tumo, u komt op de link door in de brief op de woorden 'Eden Project' en 'TUMO' te klikken. Mochten er nog vragen zijn, dan hoor ik dat graag. Hartelijk dank alvast.

Met vriendelijke groet,

Drs. Joost Korver

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# Aquaport

Educational Landscape

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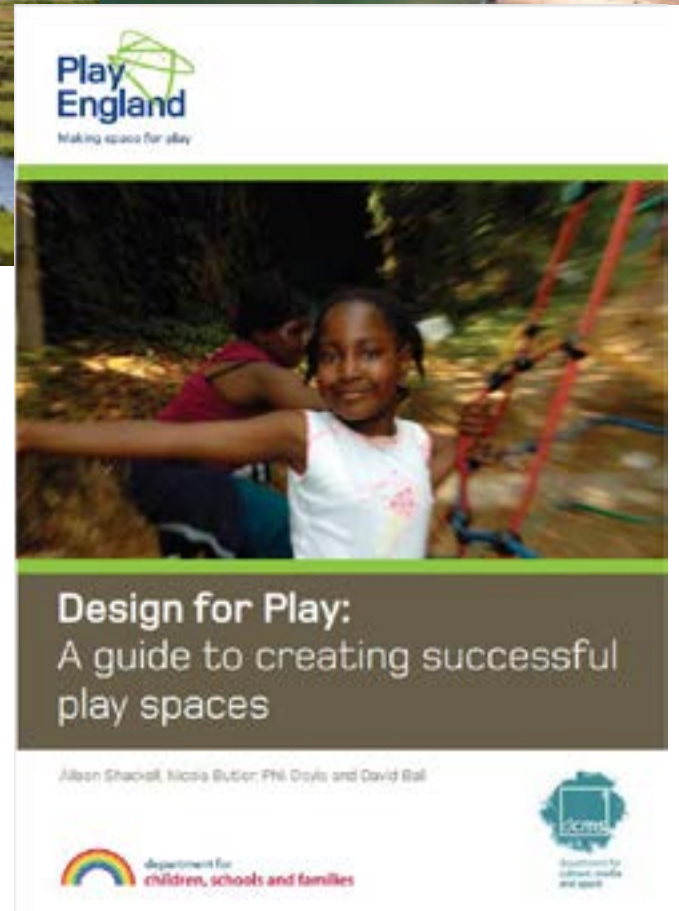
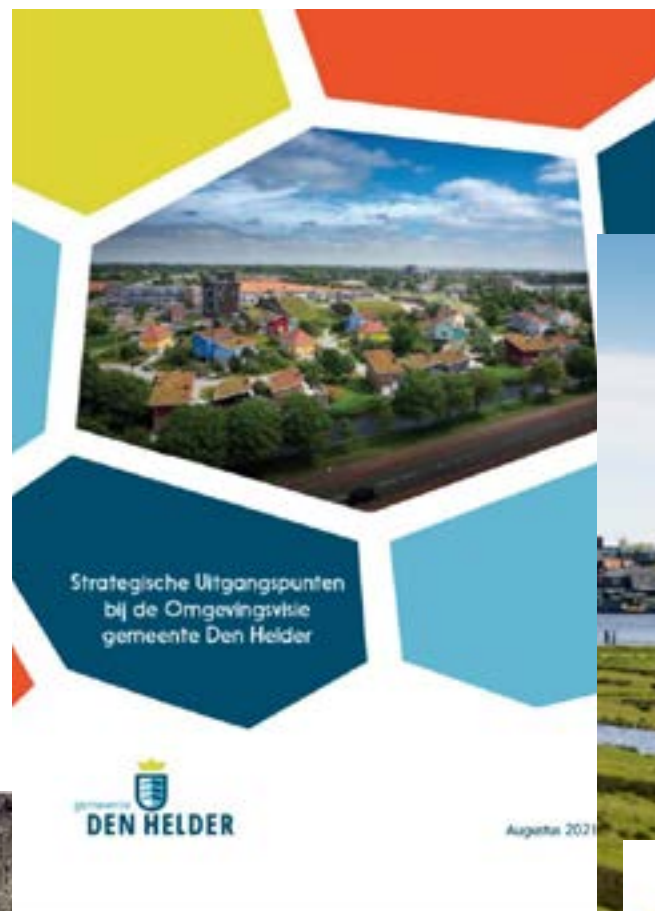
**I Fort**

**II Dunescape**

**III Riverscape**

**IV Donut**

# Research Sources

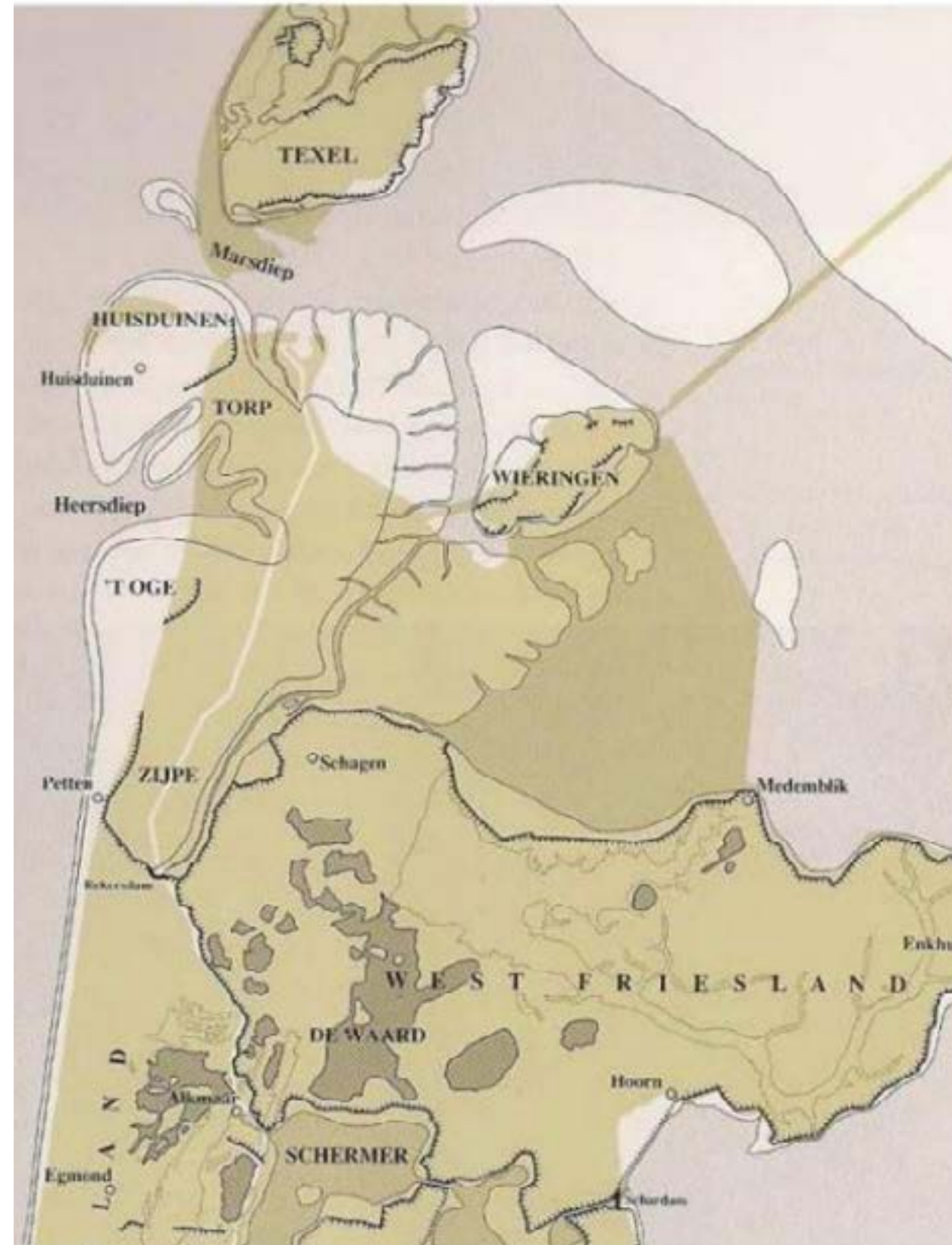


A historical painting of a harbor scene. In the foreground, a small boat with three people is on the water. In the middle ground, several large sailing ships are docked at a quay. In the background, there are buildings and a hazy sky. The text '1. HISTORICAL BACKGROUND' is overlaid on the left side of the image.

# 1. HISTORICAL BACKGROUND

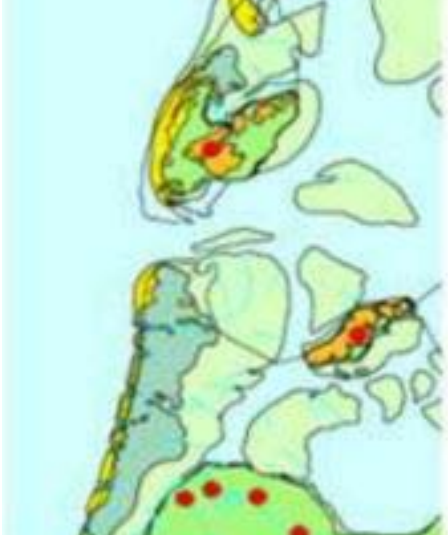
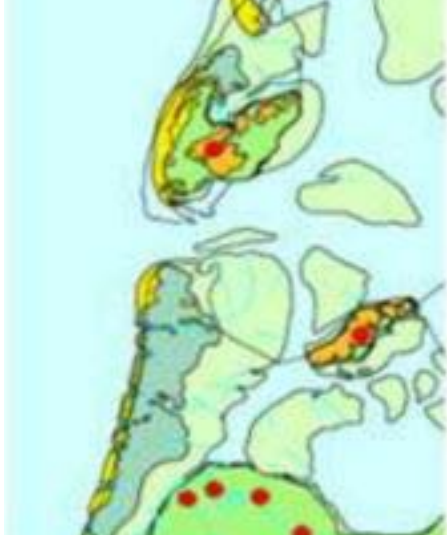
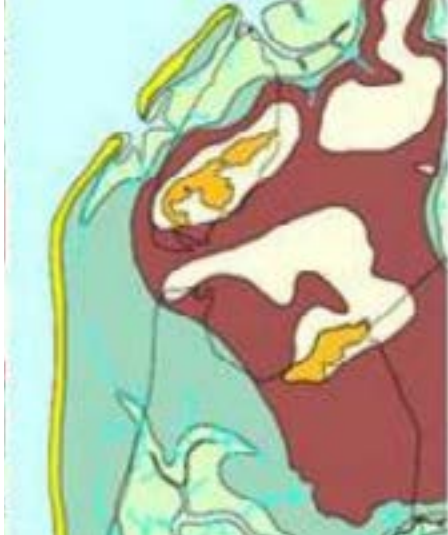
**Water as a formative element in the historical development of Den Helder's Landscape**

# Water as a Formative element of the Landscape



**Map compares the current landscape of North Holland (ochre) with its condition in 1350 BC. It shows how the land has transformed through the destructive and formative character of water, highlighting the dynamic nature of the environment. This emphasizes the urgent need to deepen our understanding of these issues and incorporate them into educational schemes.**

# Water as a Formative element of the Landscape



3850 v Chr

2750 v Chr

500 v Chr

100 v Chr

800 n Chr

1500 v Chr

2000 v Chr

**Kustduinen**

- Hoog duin: Jonge Duinen, gevormd na 300 na Chr., heelrijp.
- Duin en strandwalen: duingebied, voornamelijk Oude Duinen.
- Laag duin: duinvallen tussen de strandwalen en lagere delen van het duin.

**Landduinen**

- Stuitend gebied: zandverstuivingen, heelrijpelijk vanaf 1000 na Chr.

**Overstromingsgebieden**

- Intertidalgeregebied: wadden en slikken.
- Overstromingsvelden: gebieden in de rivier- en kustvallei die periodiek of incidenteel onder water lopen, rivierdalen en kwelders.
- Kwelders: relatief hoog gelegen delen binnen de kwelders.

**Veen gebieden**

- Veen.

**Antropogene gebieden**

- Ingedijt overstromingsgebied.
- Droogmakerijen.
- Overdekt gebied.

**Permanent oeverwater**

- Binnenwater: overstromend zoutwater, rivieren en meeren.

- Beekde- en riviergebied.
- Pleistocene zandgebied, boven 10 m NAP.
- Pleistocene zandgebied, tussen 10 en 0 m -NAP.
- Pleistocene zandgebied, tussen 0 m -NAP.
- Rivierduinen (duinen).

- Stuwwater, gestuwde keienmeeuwen en ruggen.
- Erosiegebied.
- Gebieden met tertiaire en oudere afzettingen van of na het ijstijd.

# Human adaptation to water conditions

17th Century



18th Century



19th Century





19th Century



20th Century



20th Century



# Technological Advancements in the Landscape of Den Helder

Het Nieuwe Dijk



1610

Het Nieuwe Diep



1625

Breakwater system



18th

The Rijkswerf



1822

Mout System



18xx

Noord Holland Kanaal



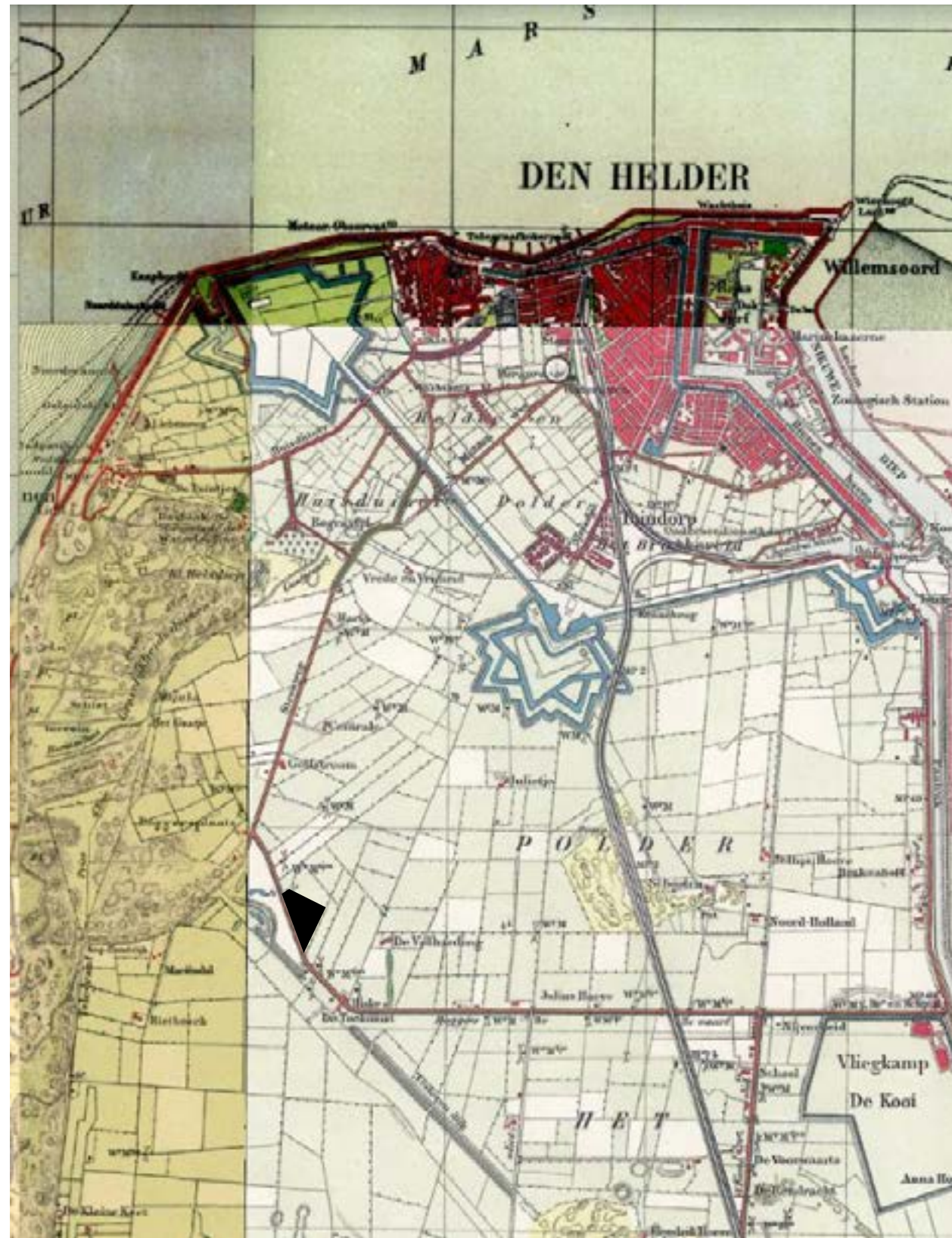
1824

The New Port



1949 -1954

## Expansion of the Urban Areas - emerging of Nieuw Den Helder



After the city was largely built up within the defence line in the 1930s, expansion of Den Helder had to take place outside the line. The area where this had to be done consisted of arable land and a number of farms. The Jan Verfailleweg, known as Stroo-weg before the construction of the district, runs through the middle of the district and is one of the oldest roads in Den Helder. This road ran from the Zanddijk to the old village of Helder. Another old road, the Doggersvaart, forms the southern border of the district.

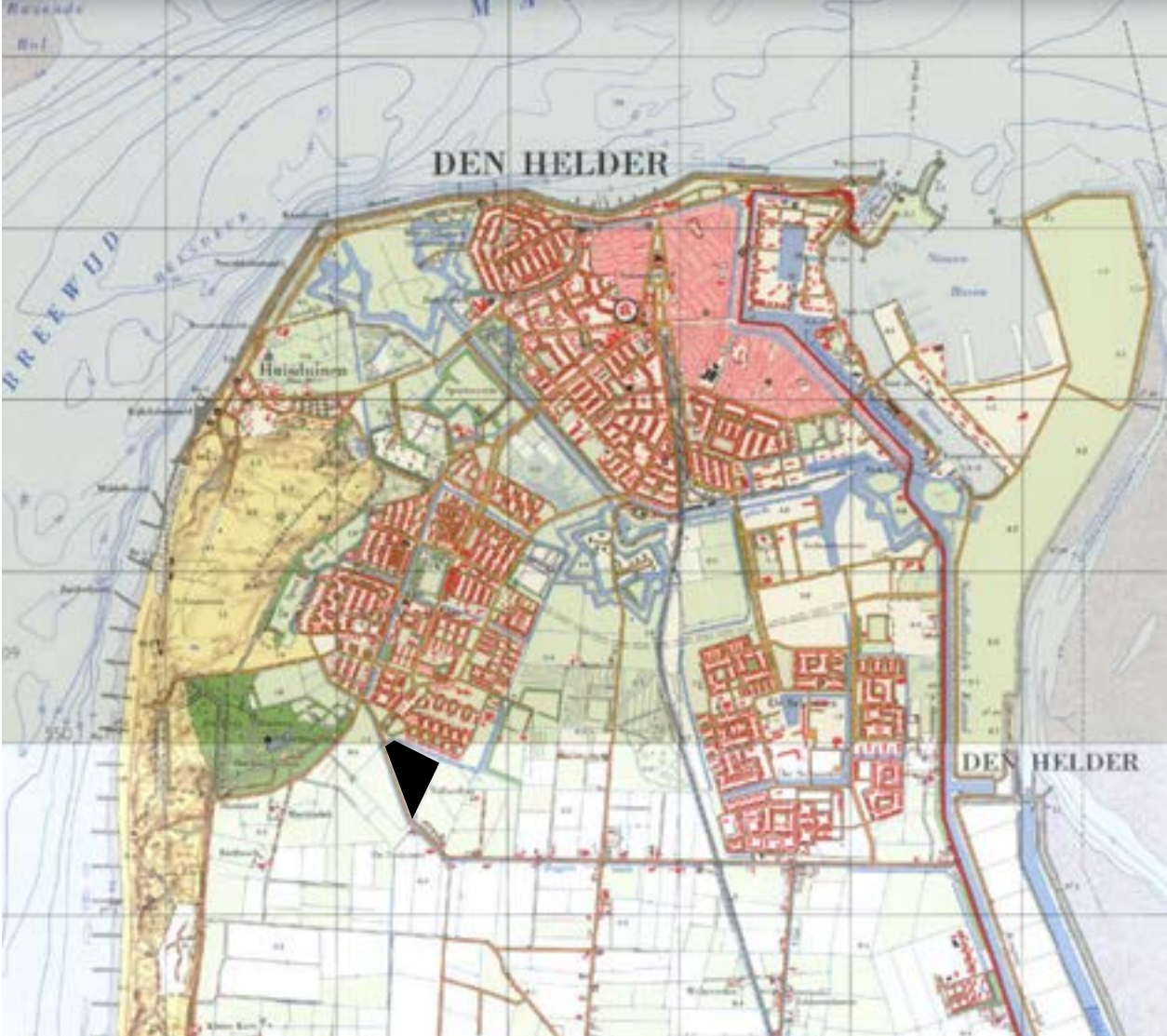
1960



1970



1980





## 2. CONTEXT AND LOCATION

Spatial Analysis - Provincial, Municipal and Site scale

# Addressing Provincial and Municipal ambitions

## Climate Adaptation

Municipality is planning for **more spaces where storm water** can be discharged during intense rain season. Such spaces, they mention, can function as mitigating elements during dry seasons. This should be done while ensuring the greening of the environment and additionally improving the dike system to provide flooding protection.

## Mixed Neighbourhoods

Municipality of Den Helder wants to ensure neighbourhoods maintain the **mixed function** character and thus form more resilient urban settings. This especially applies to the area of Nieuwe Den Helder where there is a significant lack of supportive functions for the neighbourhood.

## Green/Water connections

It is important to **strengthen the green east-west connections, for example via De Stelling, Doggersvaart** and van Foreestweg/Schoolweg. An additional advantage is that these connections also become **more interesting for recreational purposes** and this also offers opportunities for strengthening the **network for slow traffic**.

# Municipal Ambitions

## Transport and accessibility

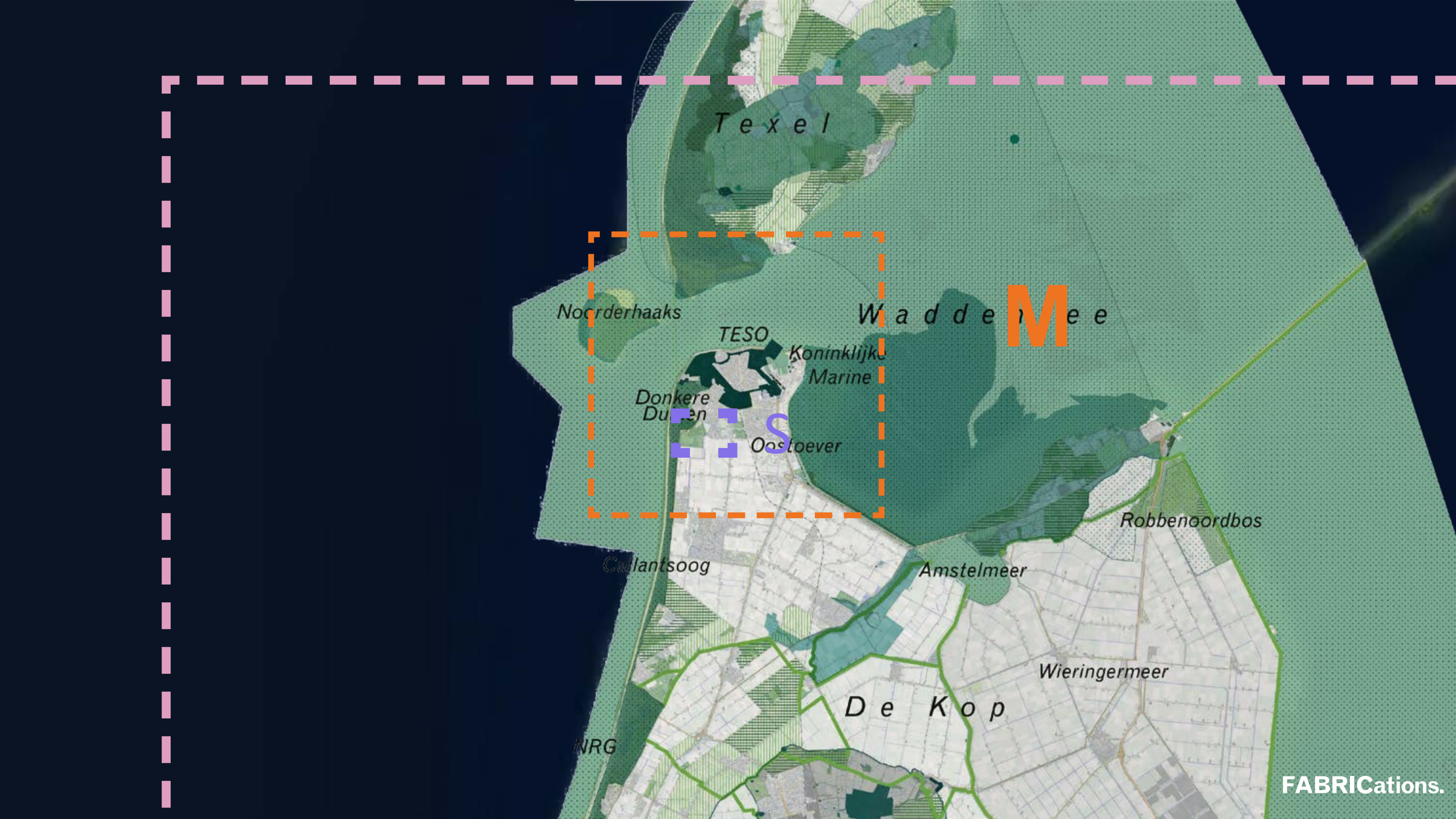
Transport strategy assumes maintaining the **N250 as the main north - south** connection while keeping secondary roads of the eastern side as **touristic coastal roads** with integrated cycling route. This axis will gain a role of a **landscape experience route**.

## Heritage and History

Huisduinen, the Grafheidsduinen and the part of Nieuw Den Helder east of Jan Verfailleweg have a **past as a vanished Wadden Island**. This history of the landscape is currently almost invisible, but is an **opportunity to bring back an attractive landscape and interesting history**.

## Tourism

Coast should maintain an attractive touristic character to bring more visitors to Den Helder. Thus, **dune landscape on the eastern side could become even more prominent** while in conjunction with touristic coastal road it will form a compound system which has a potential of becoming a great touristic destination.



Texel

Noorderhaaks

Waddemeer

TESO

Koninklijke  
Marine

Donkere  
Duinen

Oostoever

Callantsoog

Amstelmeer

Robbenoordbos

Wieringermeer

De Kop

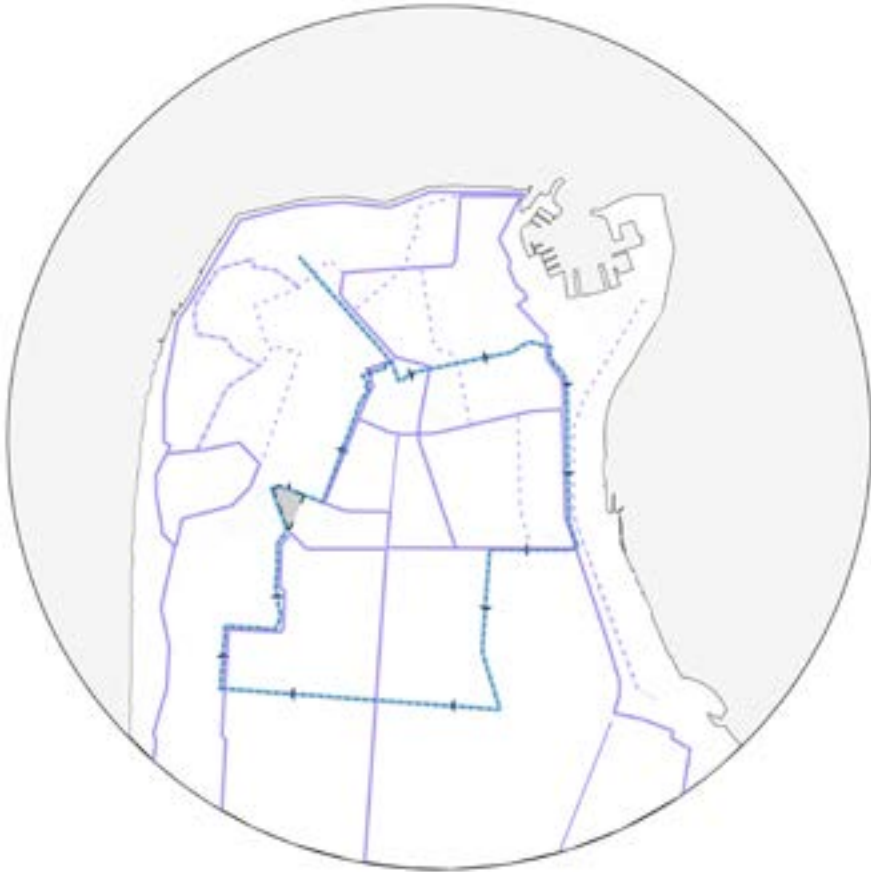
NRG

FABRICations.

# M - SCALE ANALYSIS

## MUNICIPAL LEVEL

Cycling/Canoeing Network



Cycling/canoeing network of Den Helder offers manifold possibilities for activating the site and making it an integral part of the system. It is, furthermore, an important element which will might become important while defining the program and activities which will take place in the new childcare center

Sport Facilities



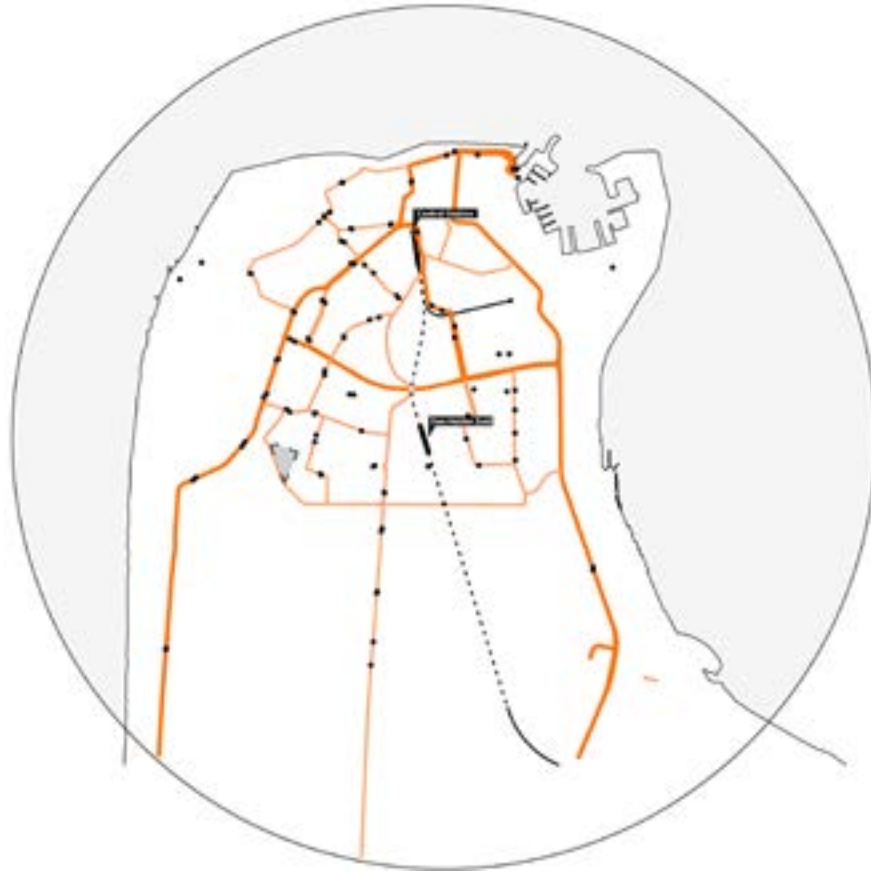
Region offers many sites for leisure and sport activities. In the vicinity of the site there are already many facilities such as climbing valley, football pitches or a tennis club which might potentially be utilised by the new childcare center.

Cultural Facilities



Most of the cultural facilities such as museums, galleries, military landmarks or libraries are located relatively far from the site. This might mean that there is a need for incorporating a cultural function.

Transport/Accessibility



Site is relatively well connected with one secondary road passing through it on the eastern edge. This side might become an entrance point for the incoming cars, bikes and pedestrians.



# M - SCALE ANALYSIS

## MUNICIPAL LEVEL

Water Network



Water is critical for the region and offers many options for integrating the project site further with its context. Through that it is possible to create a trully dynamic setting in terms of its program and ecological character.

Landcover Types



Site is located in between three main zones ie natural, urban and agricultural. It is important to consider the meaning of the site for bridging between those three zones.

Ecologically Significant Areas



Site is surrounded by many areas of high ecological value, including NNN zones. Natura 2000 or Wadden Sea. Those areas could become critical for expanding the possibilities of the educational landscape we would be creating.

Noorderhaaks

Waarde

TESO

Koninklijke  
Marine

Donkere  
Duinen

Gostoever

Callantsoog

Amstelmeer



# S - SCALE ANALYSIS

Past/Present Use

1990

1980

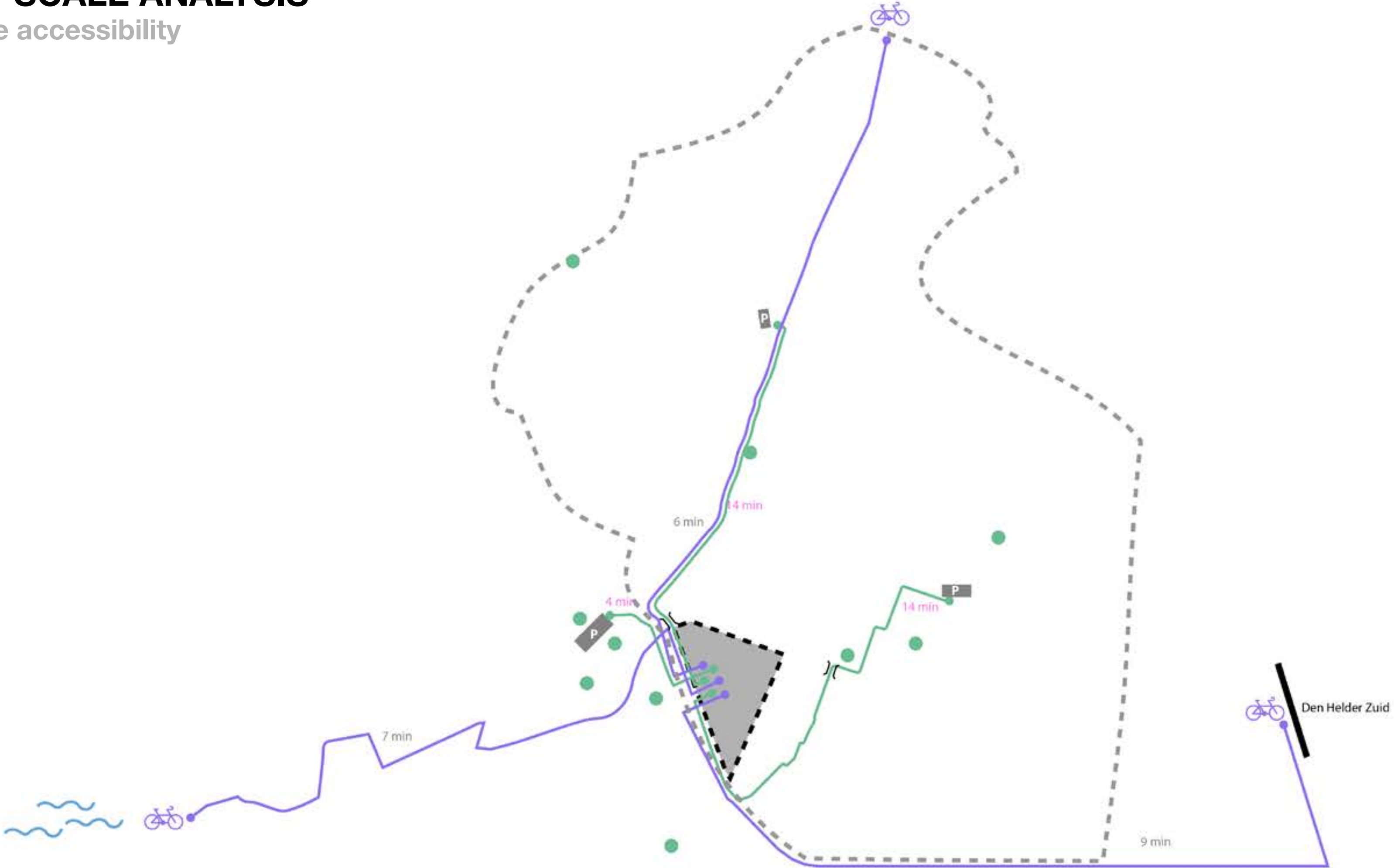
1970

1960







# S - SCALE ANALYSIS

Site accessibility

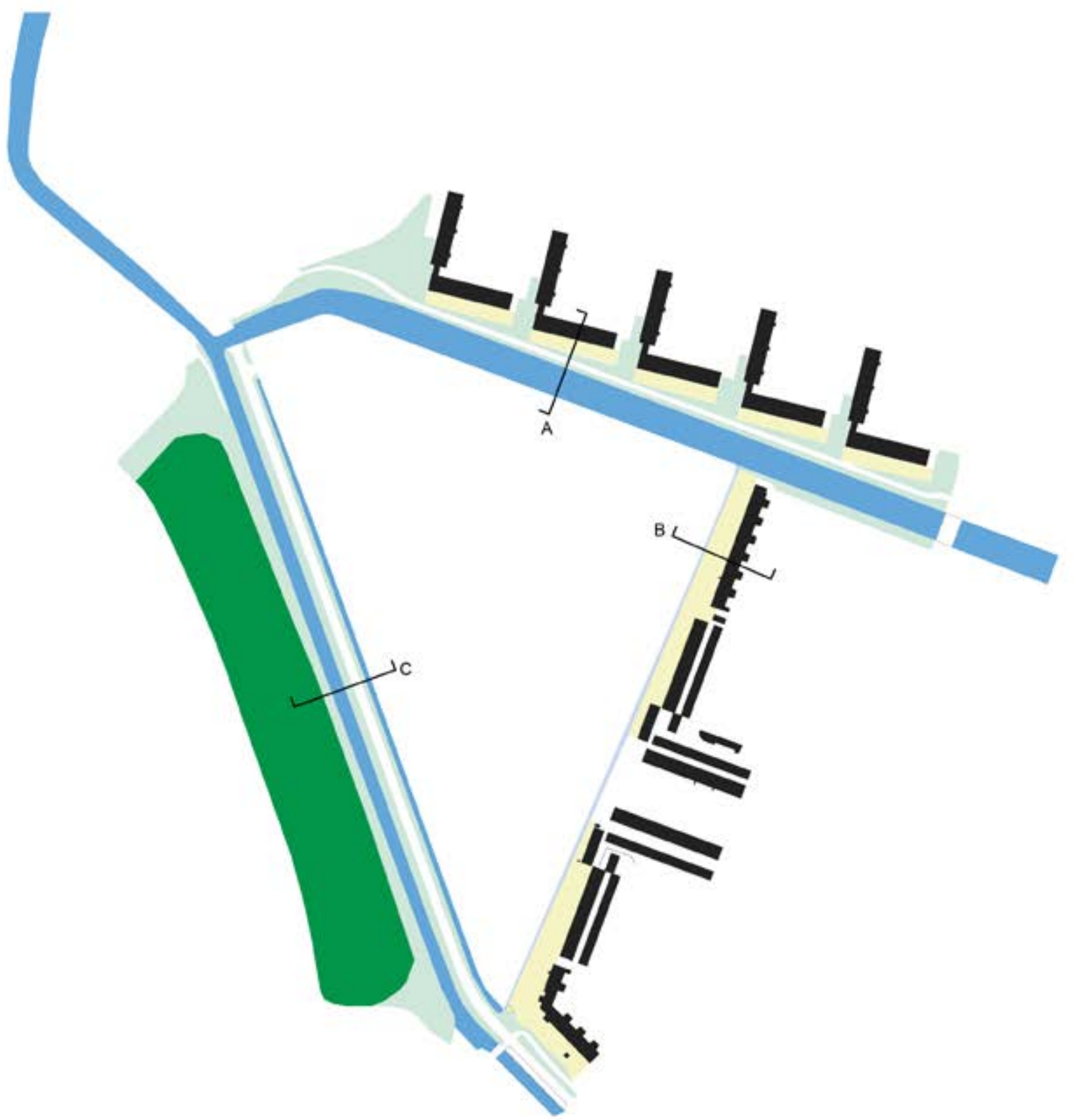


**LEGEND**

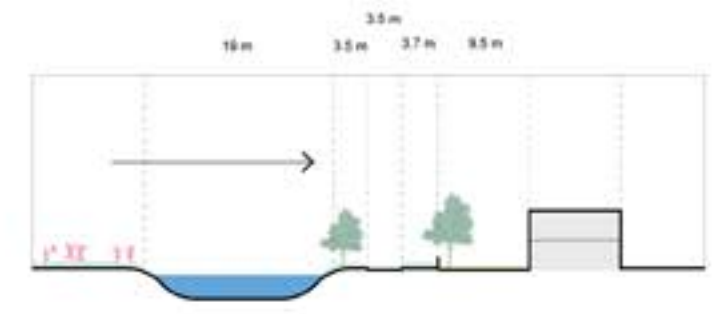
-  cycling route
-  walking route
-  Nieuwe Helder borders
-  station

# S - SCALE ANALYSIS

Site and It's Neighbouring Context



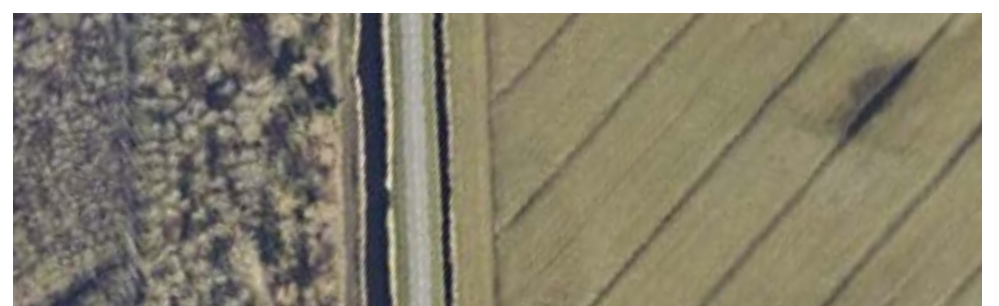
A



B



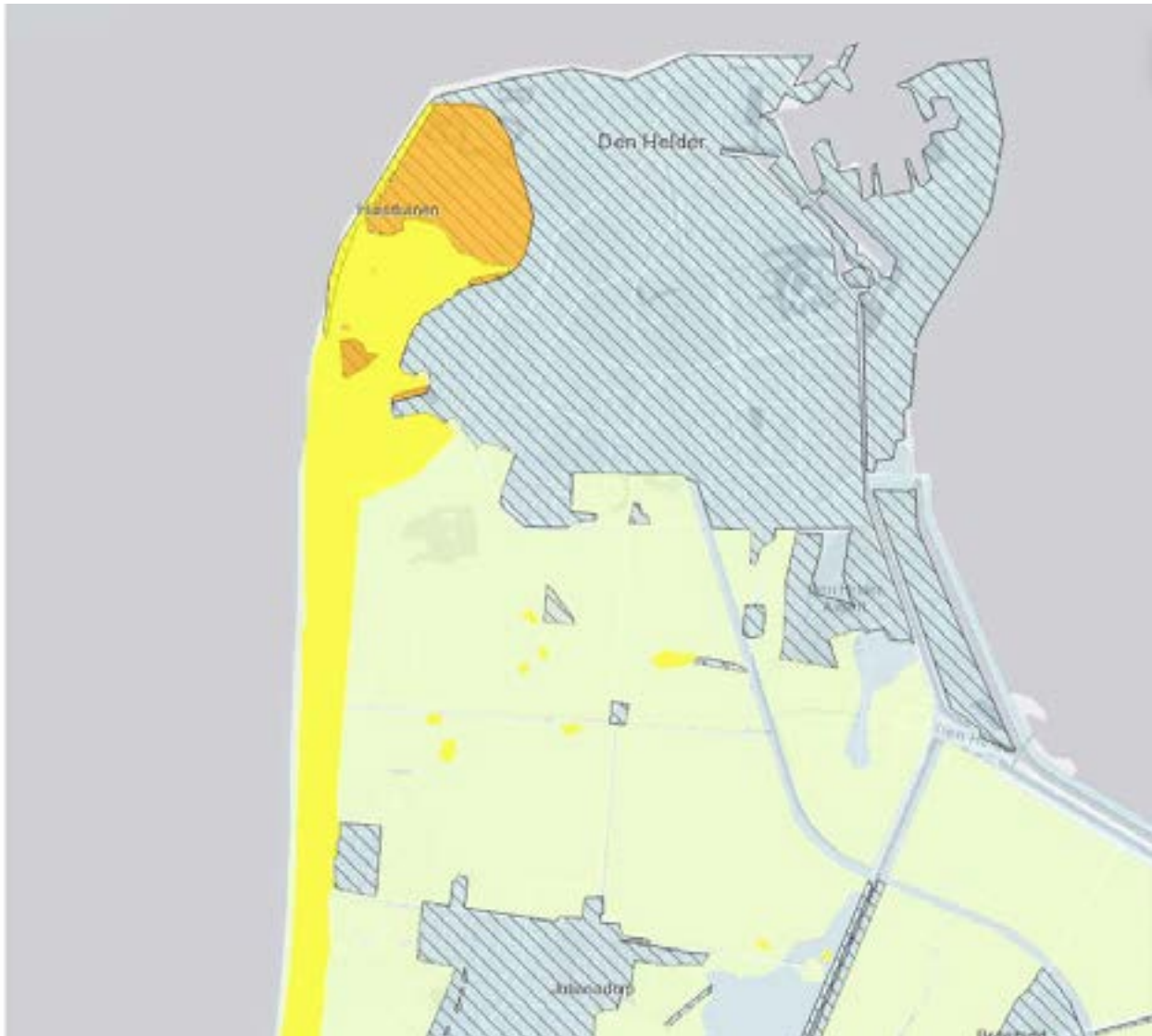
C



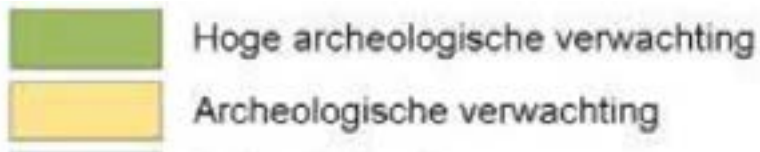
# S - SCALE ANALYSIS

## Ground Condition - overview

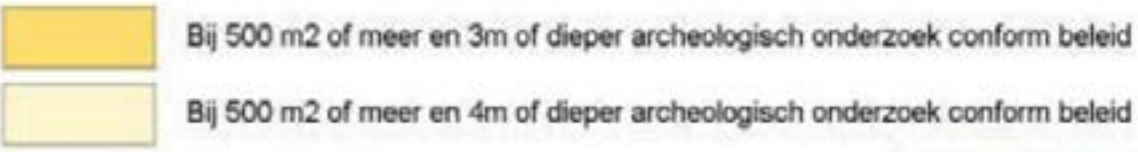
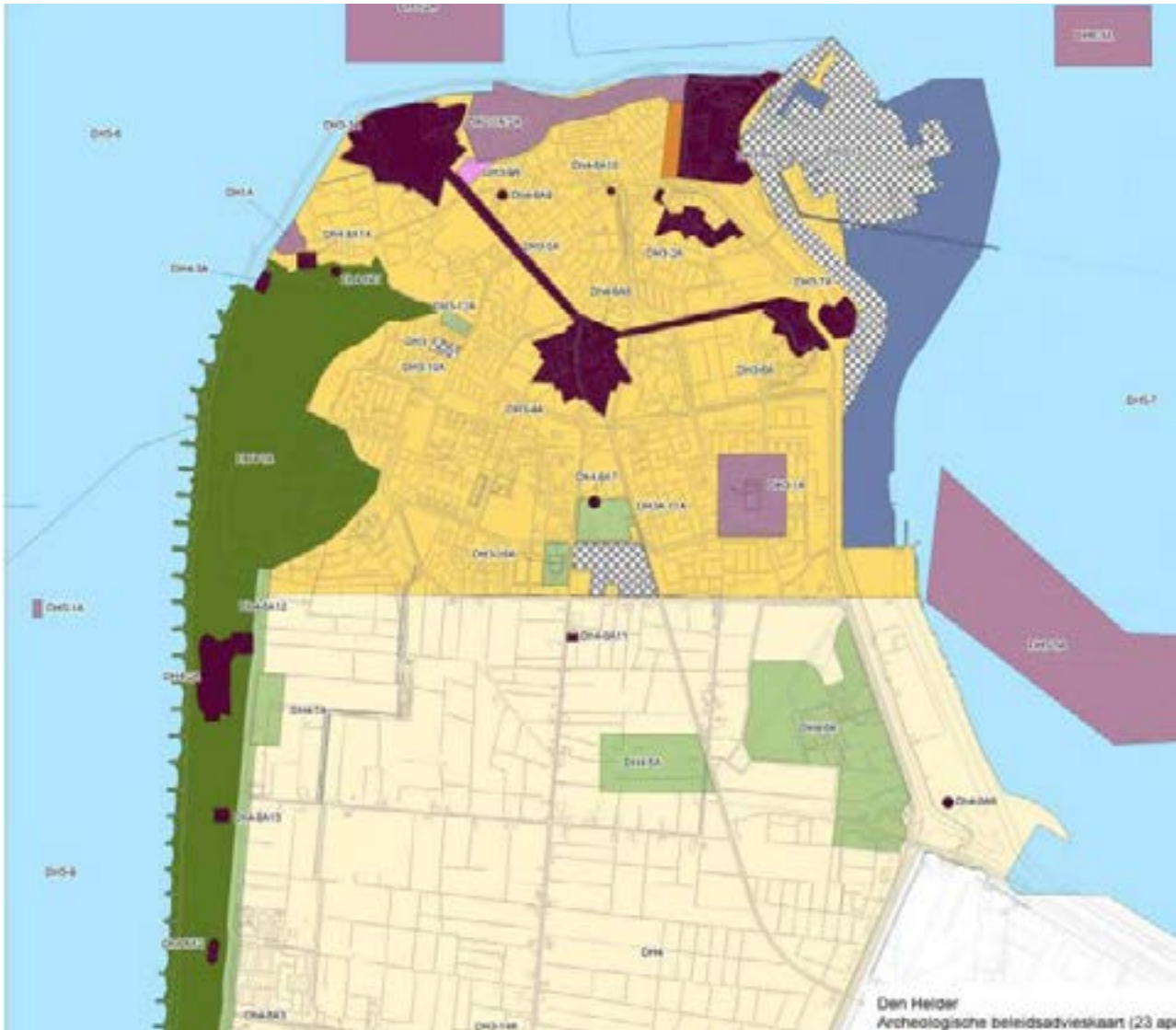
Soil and Ground Characteristics



Archeological Value of the Site



Excavation Constraints



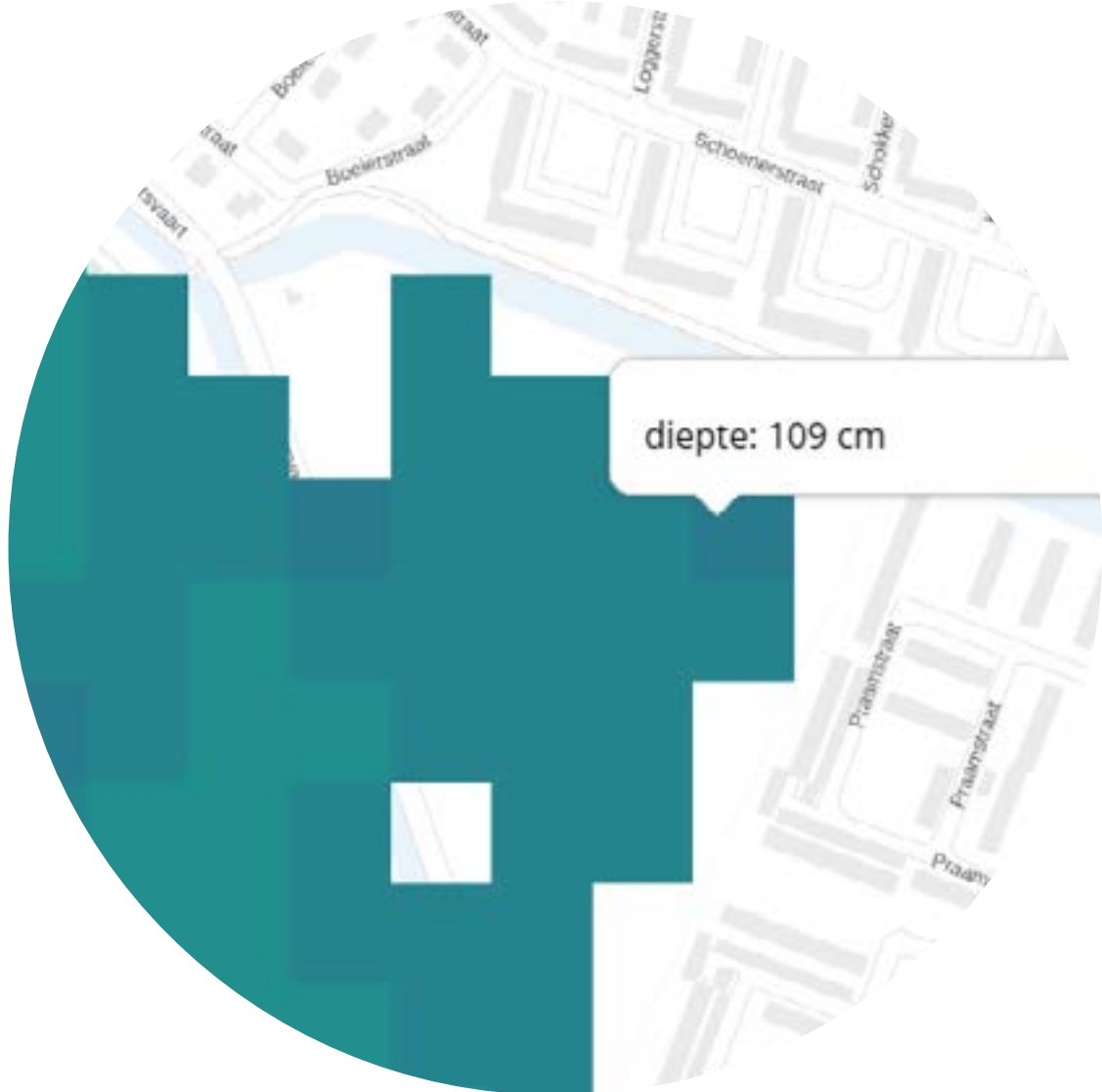
# S - SCALE ANALYSIS

## Ground Water Condition

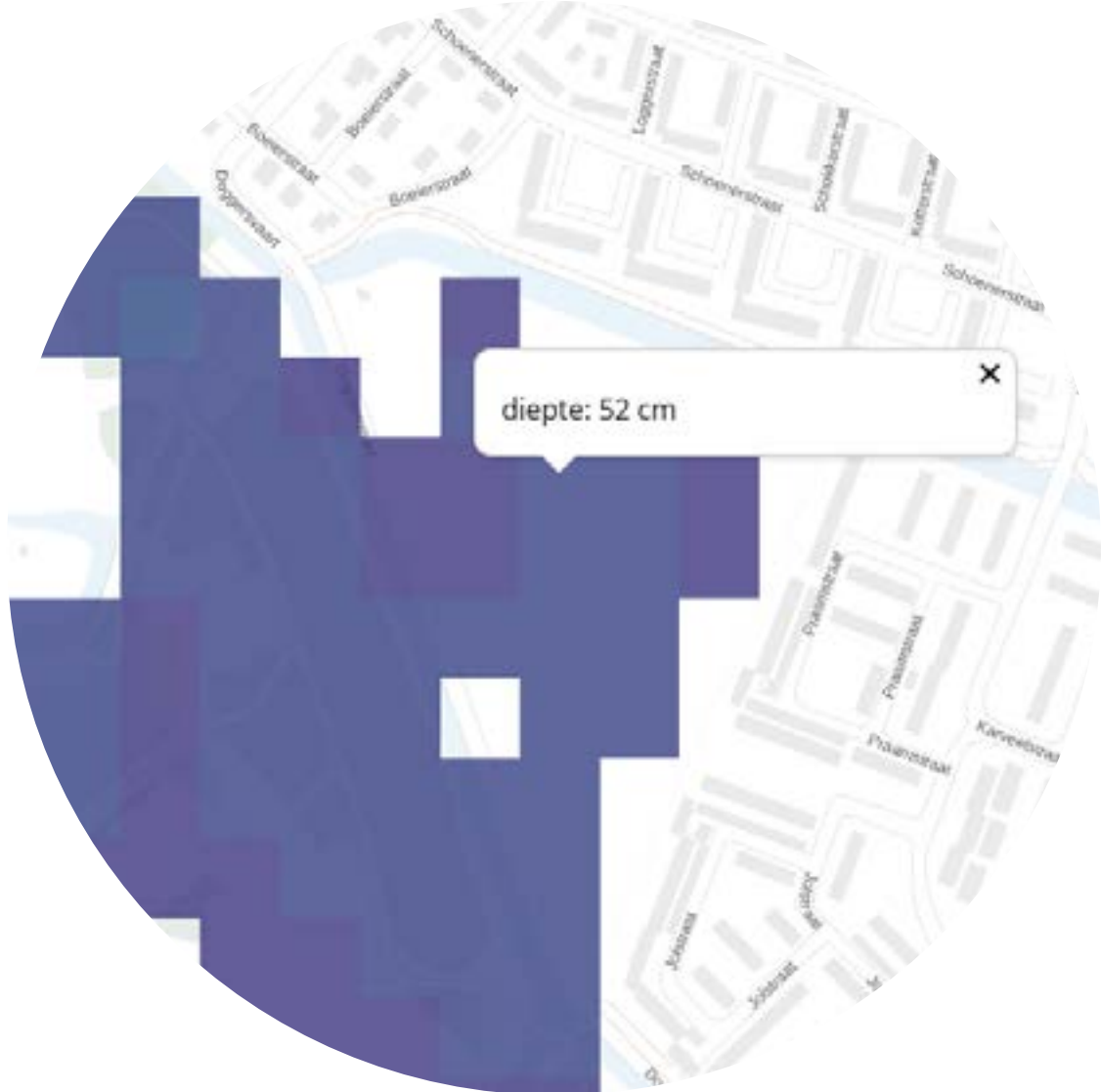
Ground level heights



Ground water depth min



Ground water depth max





### **3. Educational Landscapes**

**What does it mean to learn through landscape?**



# Educational Landscapes

## Psychology behind outdoor learning

### Novel Experience

Outdoor learning and play often involve novel experiences and challenges that can stimulate the brain and enhance cognitive flexibility. Exposure to new environments, activities, and people can help children develop problem-solving skills and adapt to changing situations, which are important for success in school and life.

### Creativity

Outdoor learning environments promote creative and problem-solving skills. Children are often presented with new and challenging situations in outdoor environments that require them to think creatively to find solutions (Bell and Dymont, 2008). For example, they may need to figure out how to climb over an obstacle or find a new way to navigate a trail.

### Exposure to Nature

Studies have shown that exposure to natural settings, such as parks and forests, can increase activity in the prefrontal cortex, which is responsible for attention and decision-making, while reducing activity in the amygdala, which is associated with fear and anxiety.

## Benefits of outdoor learning for the psychological development of children

### Social Interaction

Outdoor play provides children with opportunities for social interaction, which is critical for brain development. Social interaction stimulates the development of neural networks involved in empathy, self-regulation, and communication, which are important for healthy social and emotional development.

### Multi-sensory Stimulation

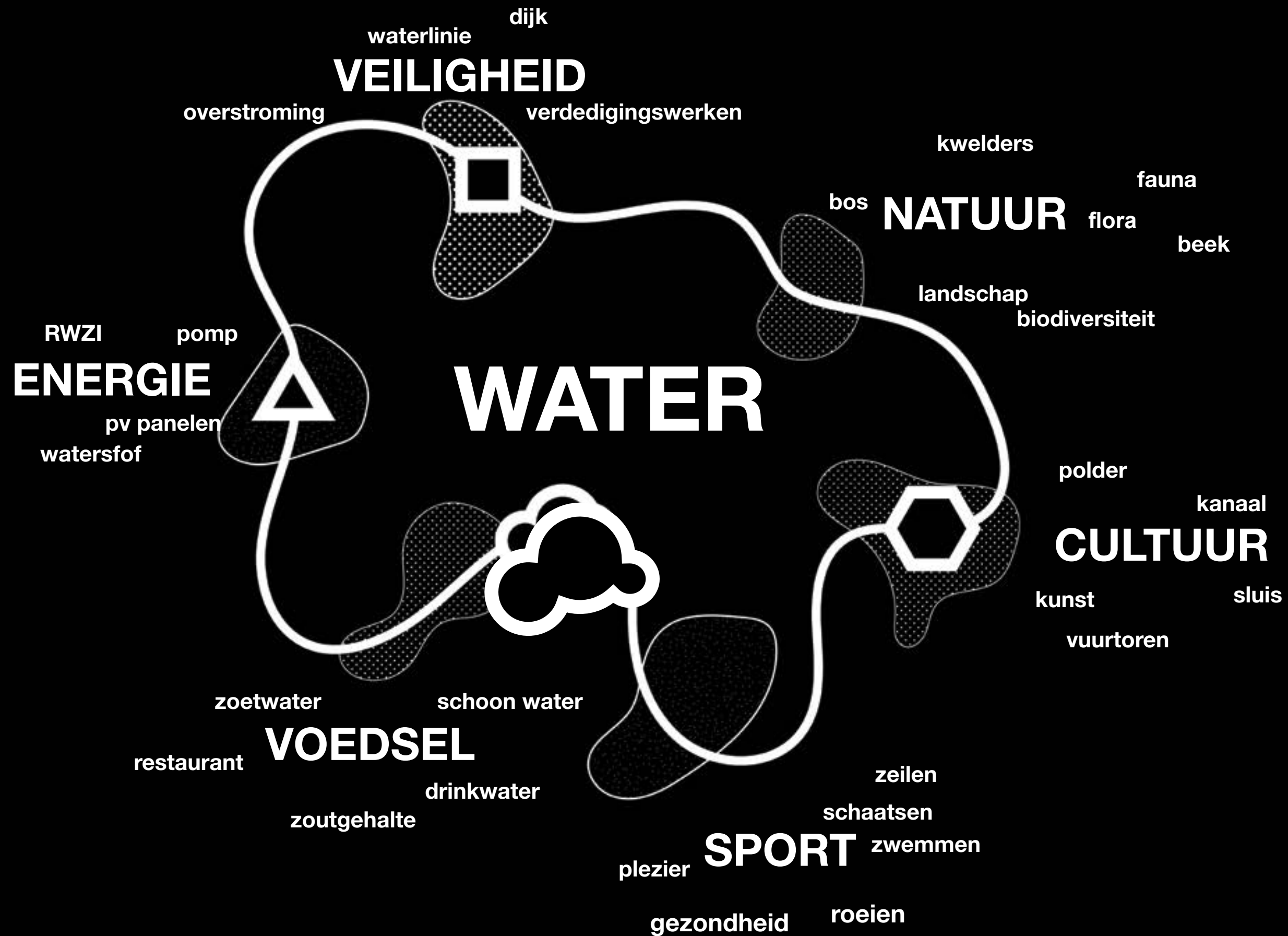
Multi-sensory stimulation can enhance brain development by strengthening neural connections and promoting the development of sensory integration, which is important for learning and behavior.

### Assimilating Knowledge

By engaging in hands-on learning, children can develop a deeper understanding of the scientific concepts ex., by observing the life cycle of an animal in a natural environment, children can gain a deeper understanding of its biology, growth and development. This kind of experiential learning can help retain and apply information more effectively (Dymont and Bell, 2008).

# Educational Landscapes

Concept for the Outdoor Learning Center



# Educational Landscapes

## Examples of Educational Landscapes



# Educational Landscapes

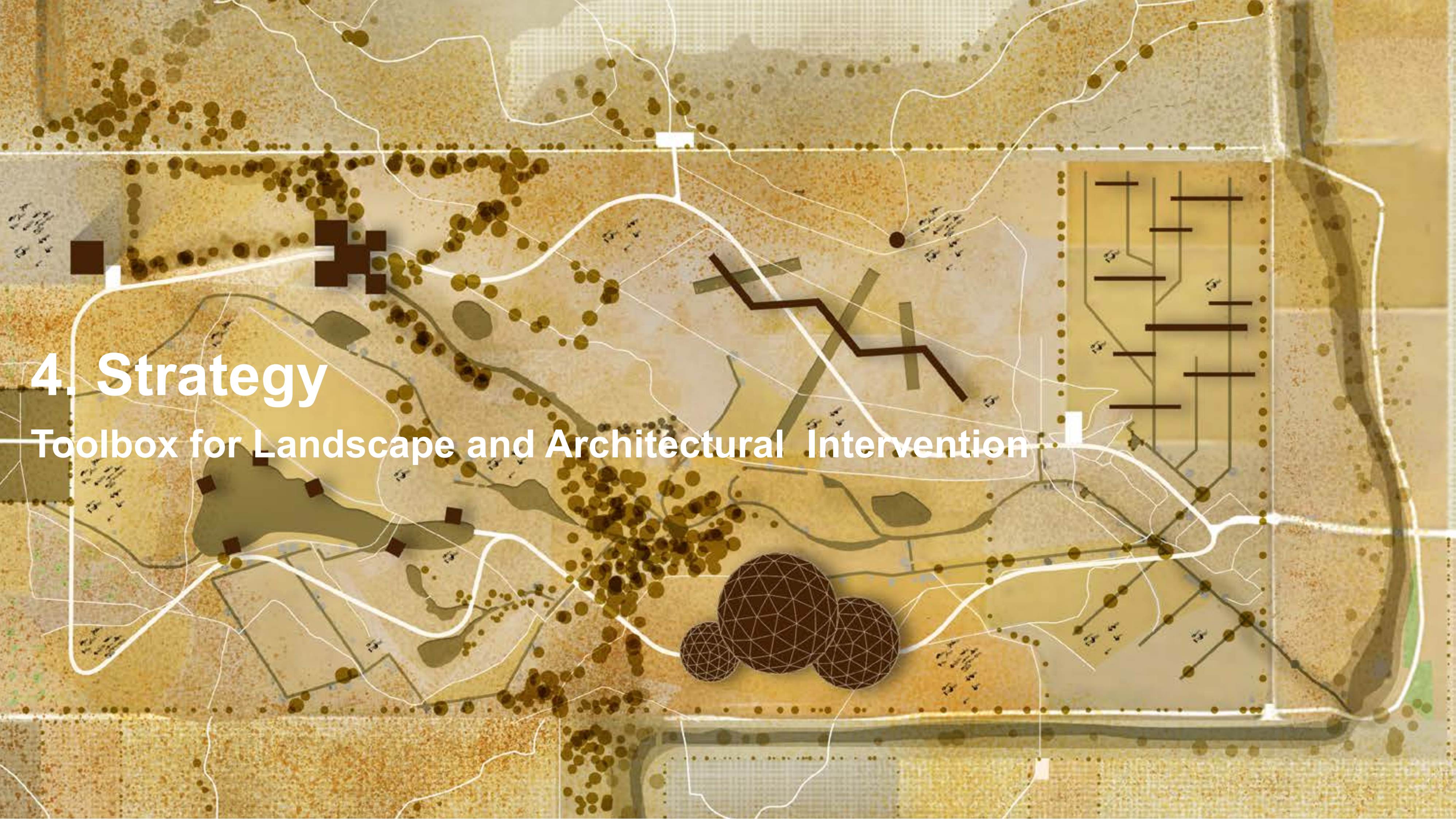
Landscape and Architectural typologies for play and experiments



# Educational Landscapes

Landscapa and Architectural typologies for play and experiments





# 4. Strategy

Toolbox for Landscape and Architectural Intervention

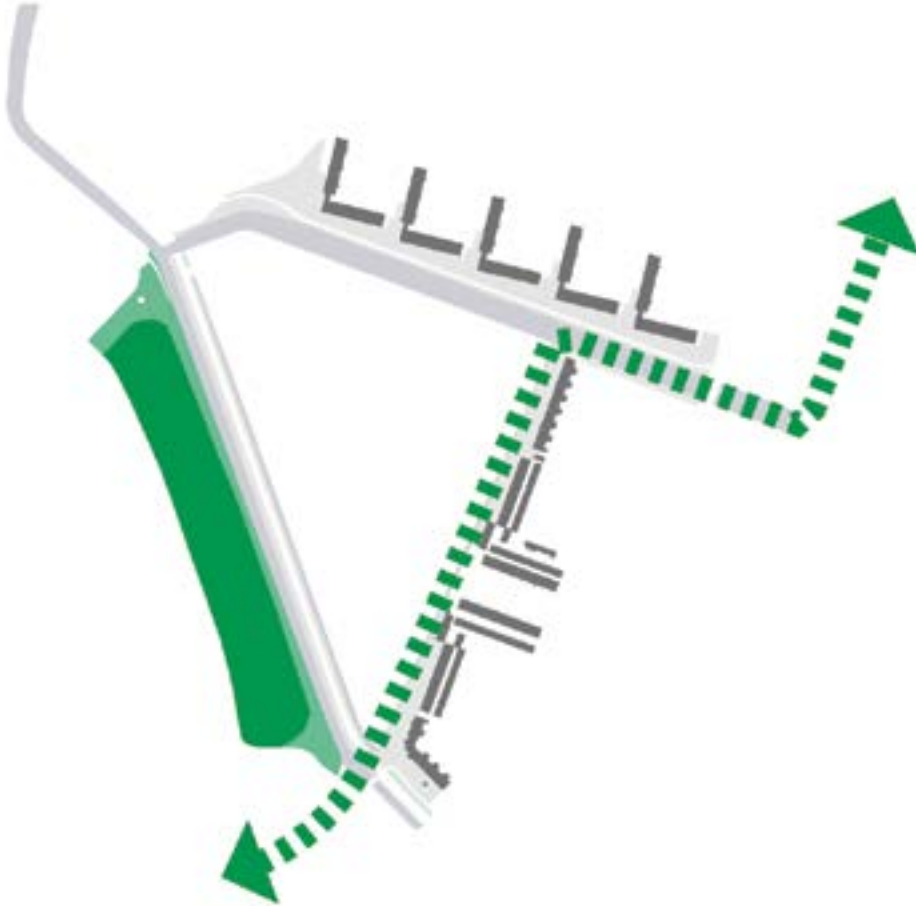
# Strategy

Overarching 'generic' principles

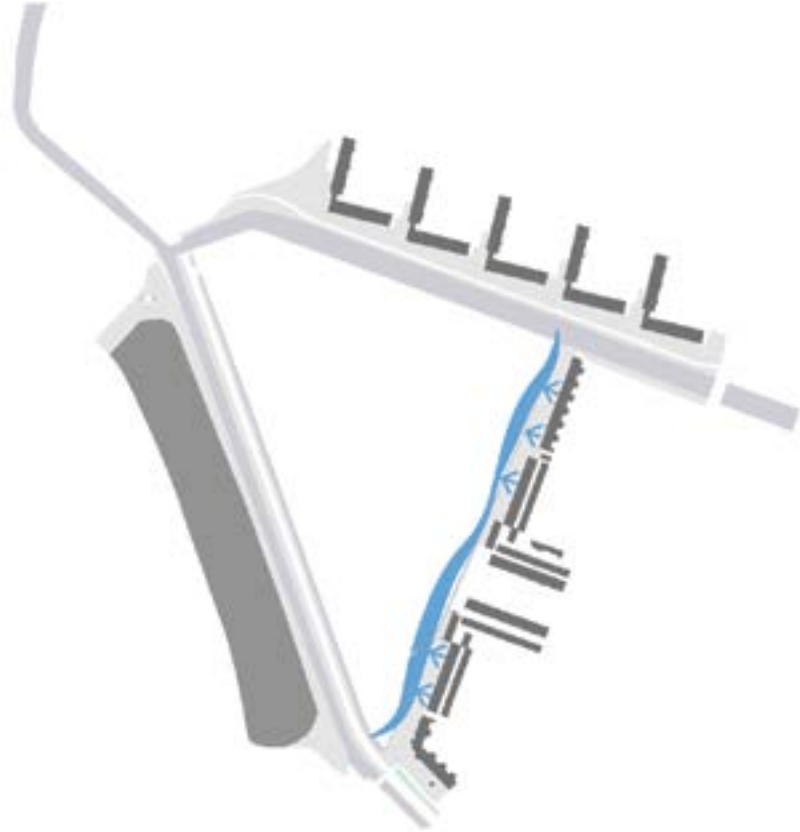
Extending the Naturescape



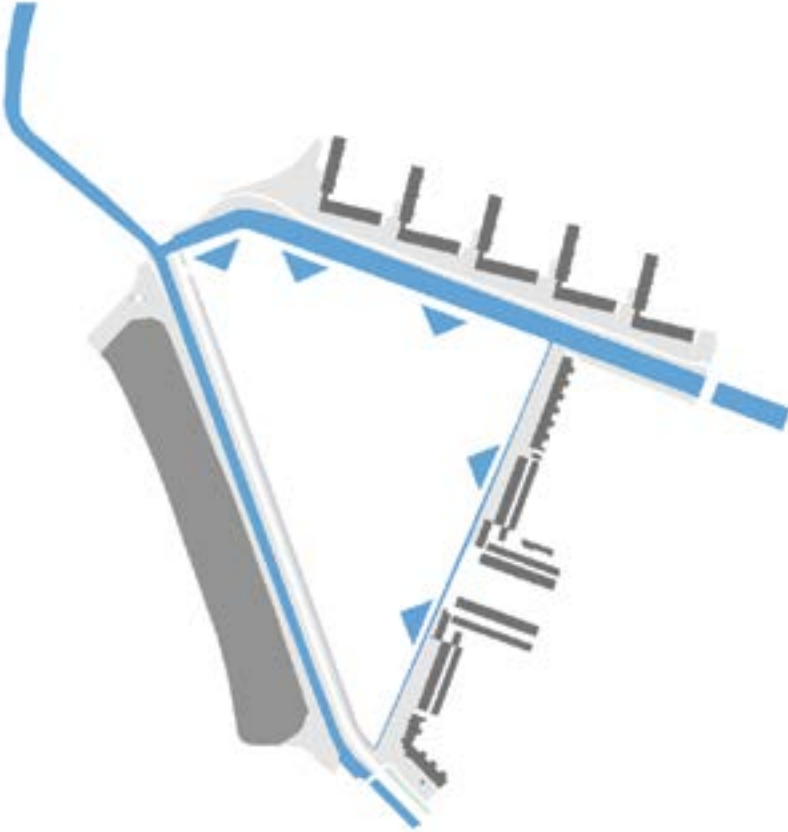
New Green Route



Waterbody enlargement



Connection to the Canal Route



# Strategy

## Matrix for Design Intervention

	landform	waterscape	landscape transition	water - land dynamic	building adaptation	landscape dynamism	landscape function	function distribution	car circulation	access by car	access by canoe	access by bike
Scenario I Fort						controled/static landscape	Historical experience					
Scenario II Dunescape						dynamic landscape	expanded playground					
Scenario III Riverscape						dynamic landscape	food forest					
Scenario IV Donut						controled/static landscape	technological landscape					



# Strategy

## Introducing the four scenarios

Fort



- Radial landscape transition: Secure central core with dynamic, ever-changing edges
- Externalised flows: Circular roundabout system for easy access to the inner core
- Internalised program: Man-made structure inside the natural landscape
- Embracing fort typology: Blending historical features with controlled/static landscape elements

Dunescape



- Vertical landscape transition: Dynamic progression from wet to dry land in a north-south orientation.
- Multitude of intersecting flows: Freedom of movement and formation of unexpected connections.
- Dispersed program: Varied interventions organically inserted into the dynamic landscape.
- Referring to dune landscape: Embracing natural dune features to create a dynamic landscape that forms an extended playground.

Riverscape



- Horizontal landscape transition: Dynamic core adaptable to water conditions progressing towards drier land in the west and east directions.
- Aligned flows: Circulation routes aligned with the direction of the river.
- Aligned program: Built program lined up along the river, embraced by the natural landscape.
- Referring to a productive landscape: Creating a food forest along the new water route.

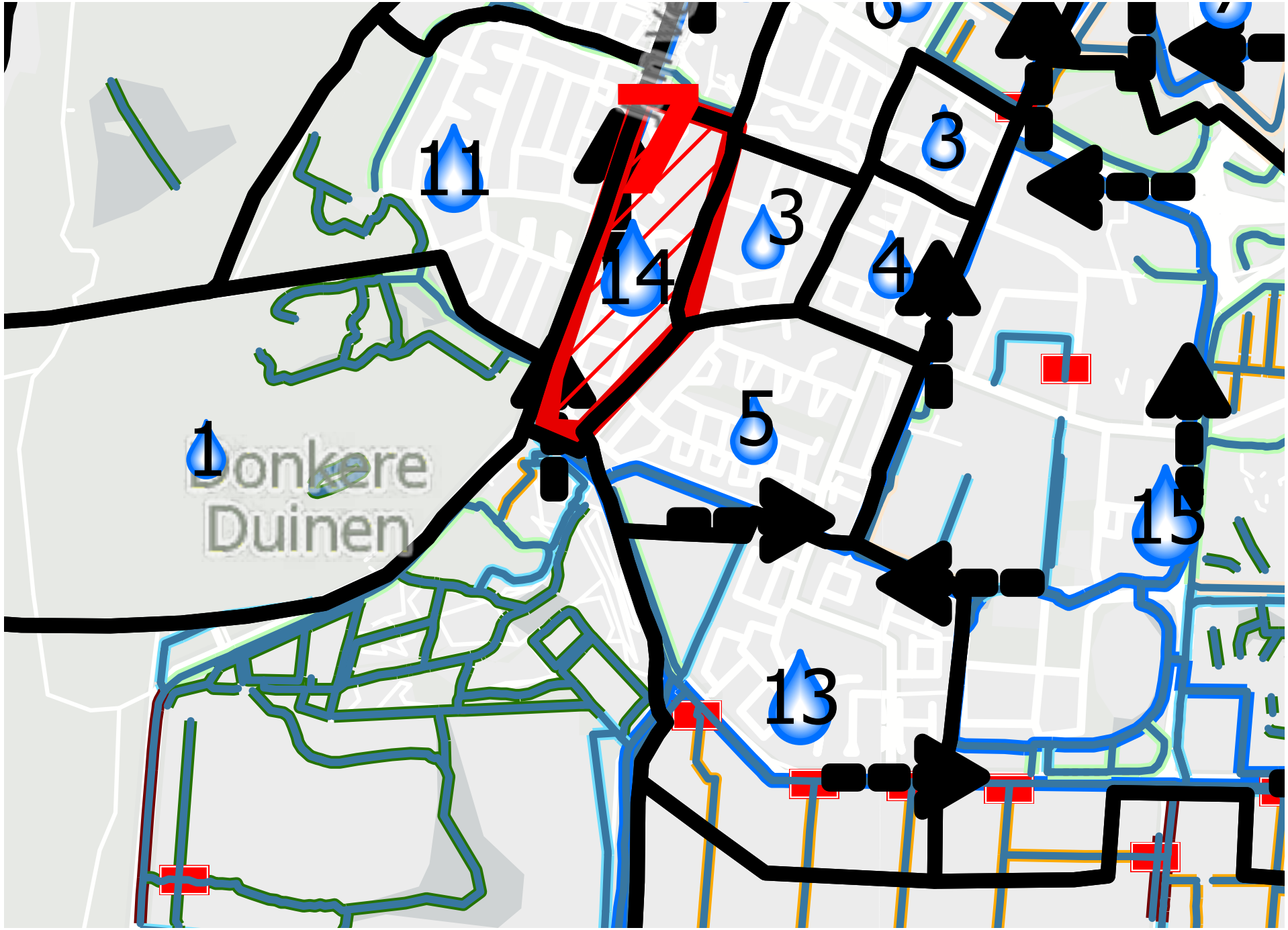
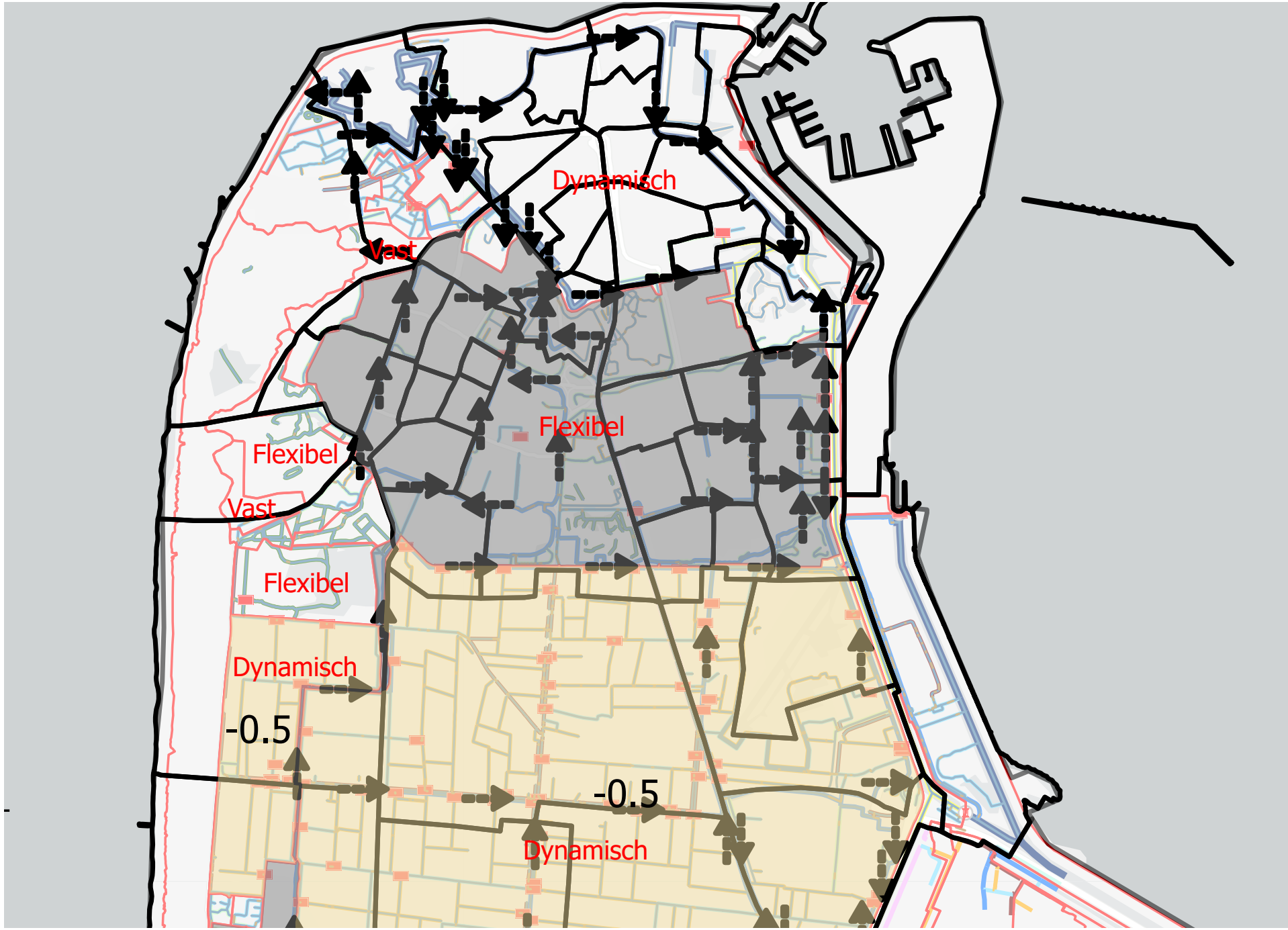
Donut



- Controlled landscape: Three technologically enhanced islands resilient to changing conditions.
- Compound flows: Combining freely accessible walking routes on the islands with local access points for each island.
- Internalized program: Three courtyards inside the islands representing three different educational landscapes.
- Referring to island typology: Creating three productive islands for education, energy production, or water harvesting.

# Watersysteemkaart

Den Helder

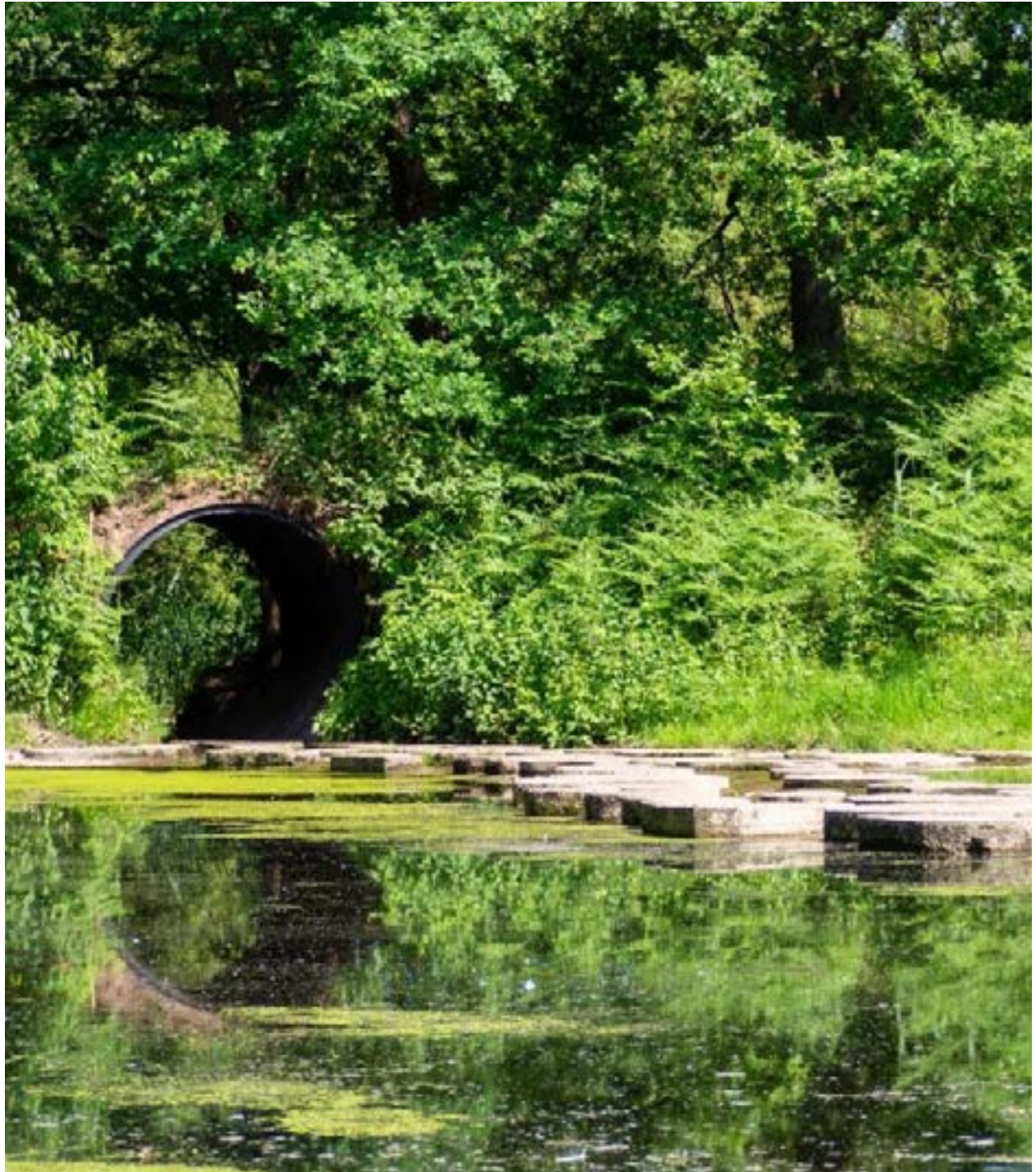


- Legend**
- |                        |                                  |                    |                          |
|------------------------|----------------------------------|--------------------|--------------------------|
| ■ Agrarisch_peil_HHNC  | □ gemeentegrens Den Helder       | — Poldervaarweg    | — Natuurwater            |
| ■ Stedelijk_peil_HHNC  | □ Peilgebieden HHNC - Streefpeil | — Hoofdwaterloop   | — Aangewezen schouwsloot |
| □ Buurten              | — duikers                        | — Dijksloot HHNK   | — Schouwsloot            |
| ↑ Stroomrichting noord | ■ gemalen                        | — Dijksloot derden | — Schouwsloot breed      |
| ↓ Stroomrichting zuid  | □ sluizen                        | — Spoorloot        | — Schouwsloot HHNK       |
| ← Stroomrichting west  | — waterlopen                     | — Rijkswegslot     | — Waterberging HHNK      |
| → Stroomrichting oost  | — Boezemvaarweg                  | — Wegsloot derden  | — Overig                 |
| □ gemeentegrens        | — Boezemwater                    | — Wegsloot HHNK    | — Geen                   |
|                        |                                  | — Stedelijk HHNK   | — Onbekend               |
|                        |                                  | — Stedelijk derden |                          |

- Legend**
- |                                   |                        |                        |                          |
|-----------------------------------|------------------------|------------------------|--------------------------|
| □ Buurten                         | ↑ Stroomrichting Noord | <b>Waterlopen HHNK</b> | — Stedelijk HHNK         |
| ■ Aandachtsgebieden wateroverlast | ↓ Stroomrichting Zuid  | — Boezemvaarweg        | — Stedelijk derden       |
|                                   | ← Stroomrichting West  | — Boezemwater          | — Natuurwater            |
|                                   | → Stroomrichting Oost  | — Poldervaarweg        | — Aangewezen schouwsloot |
|                                   | — waterlopen           | — Hoofdwaterloop       | — Schouwsloot            |
|                                   | — duikers              | — Dijksloot HHNK       | — Schouwsloot breed      |
|                                   | ■ gemalen              | — Dijksloot derden     | — Schouwsloot HHNK       |
| □ sluizen                         | — waterlopen           | — Spoorloot            | — Waterberging HHNK      |
|                                   | — Boezemwater          | — Rijkswegslot         | — Overig                 |
|                                   | — Wegsloot derden      | — Wegsloot HHNK        | — Geen                   |
|                                   | — Wegsloot HHNK        | — Onbekend             | — Onbekend               |
- Millimeter berging T100**
- 1
  - 2,5
  - 5
  - 7,5
  - 10

# Water purification park

Moodboard



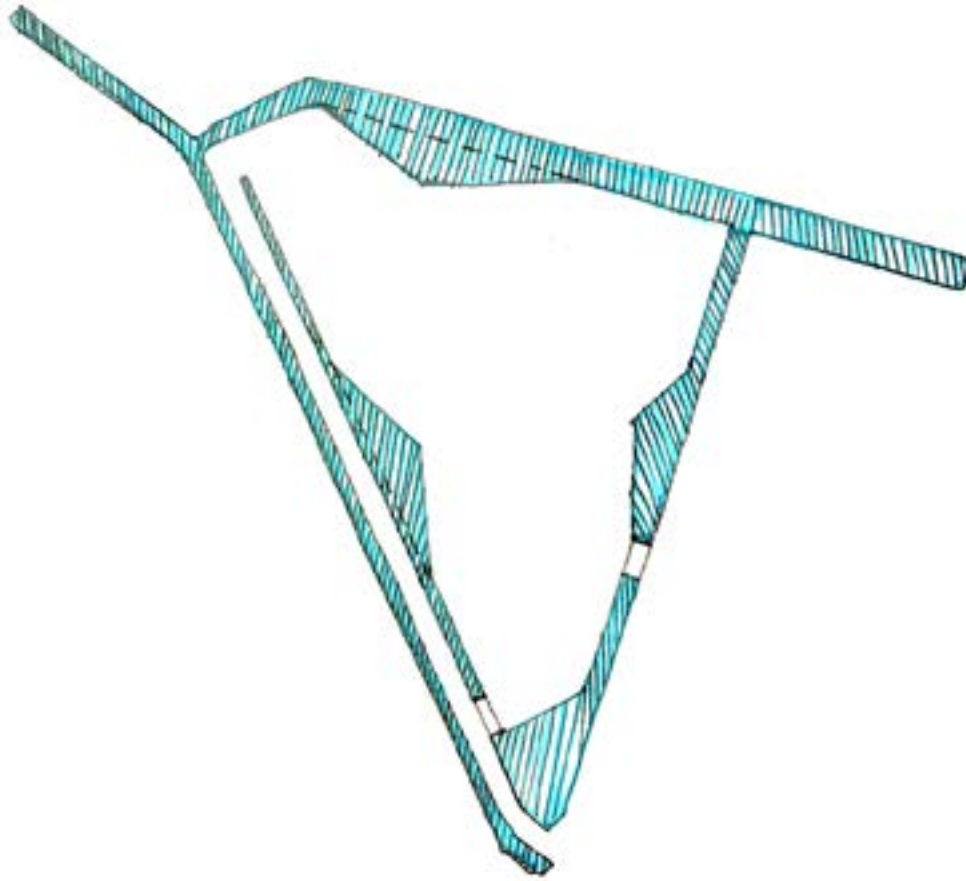


# Scenario I Fort

# Scenario I Fort

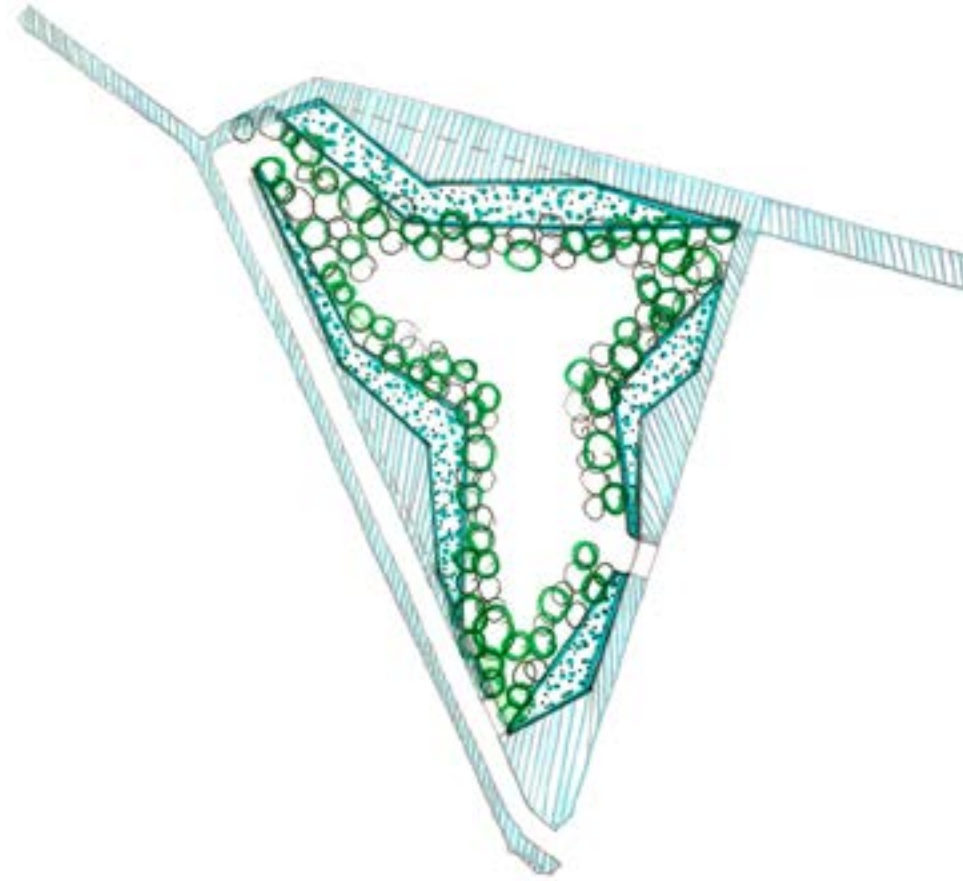
## Landscape Strategy

### Waterscape



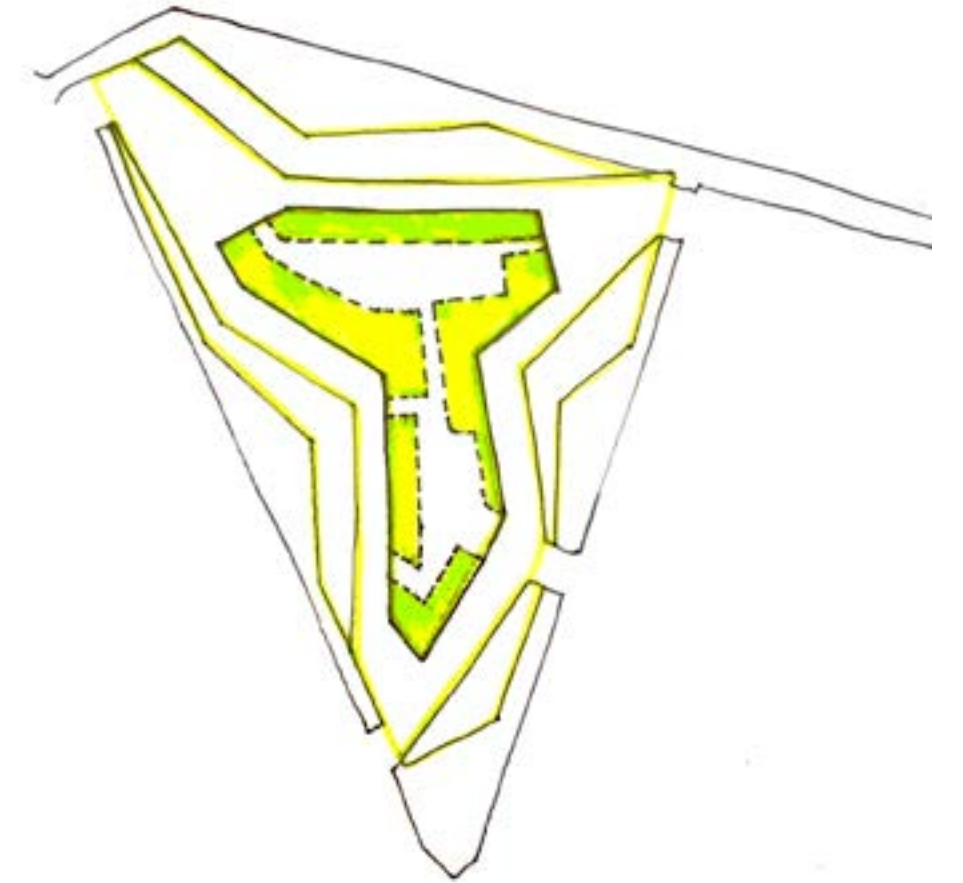
An externalized waterscape, inspired by the moat system of Den Helder, forms a geometrical ring around the island.

### Naturescape and Landscape Transition



A radial naturescape features a safe, dry core that gradually transitions into a wetter landscape formed around it.

### Landform and topography

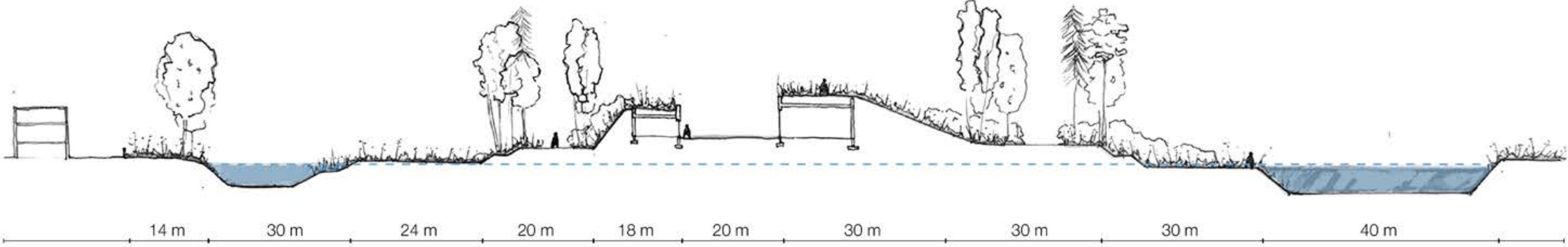


The ground level height increases towards the inside of the island, with the fort being the highest point, the moat being the lowest, and the wetland bridging between the two.



# Scenario I Fort

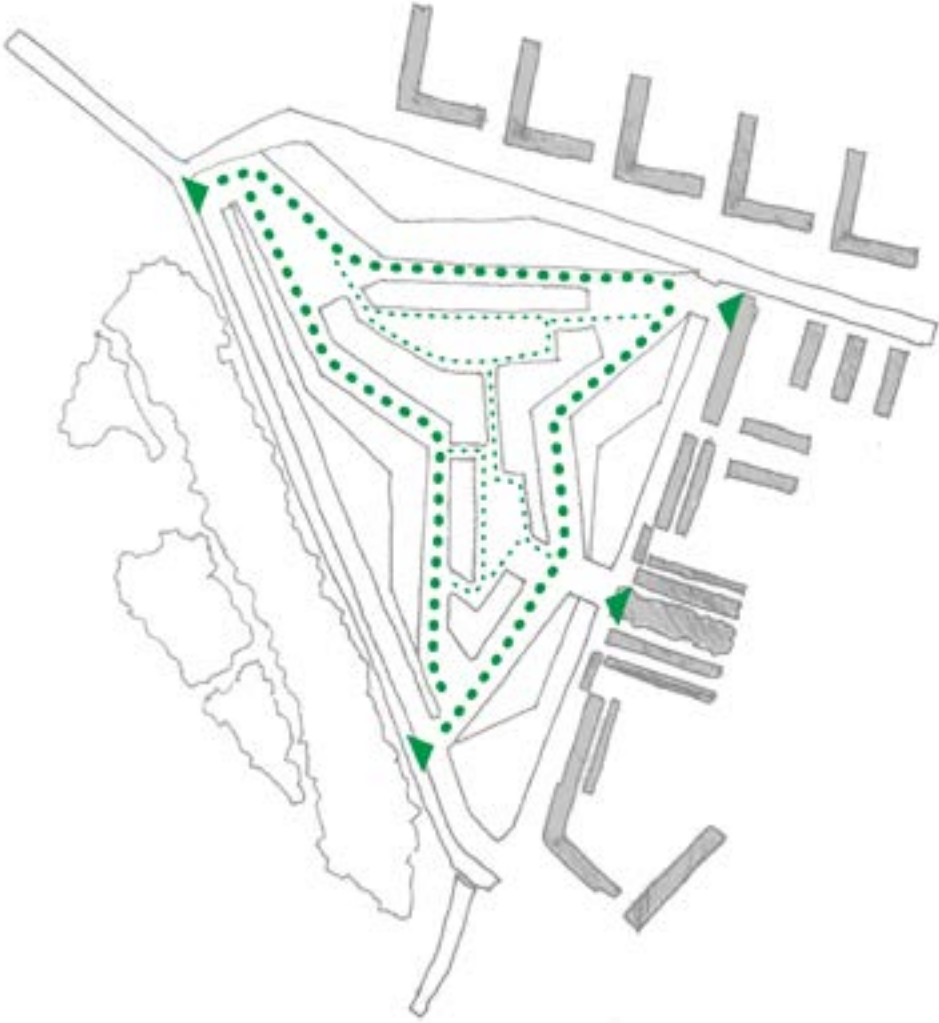
Landscape cross section



# Scenario I Fort

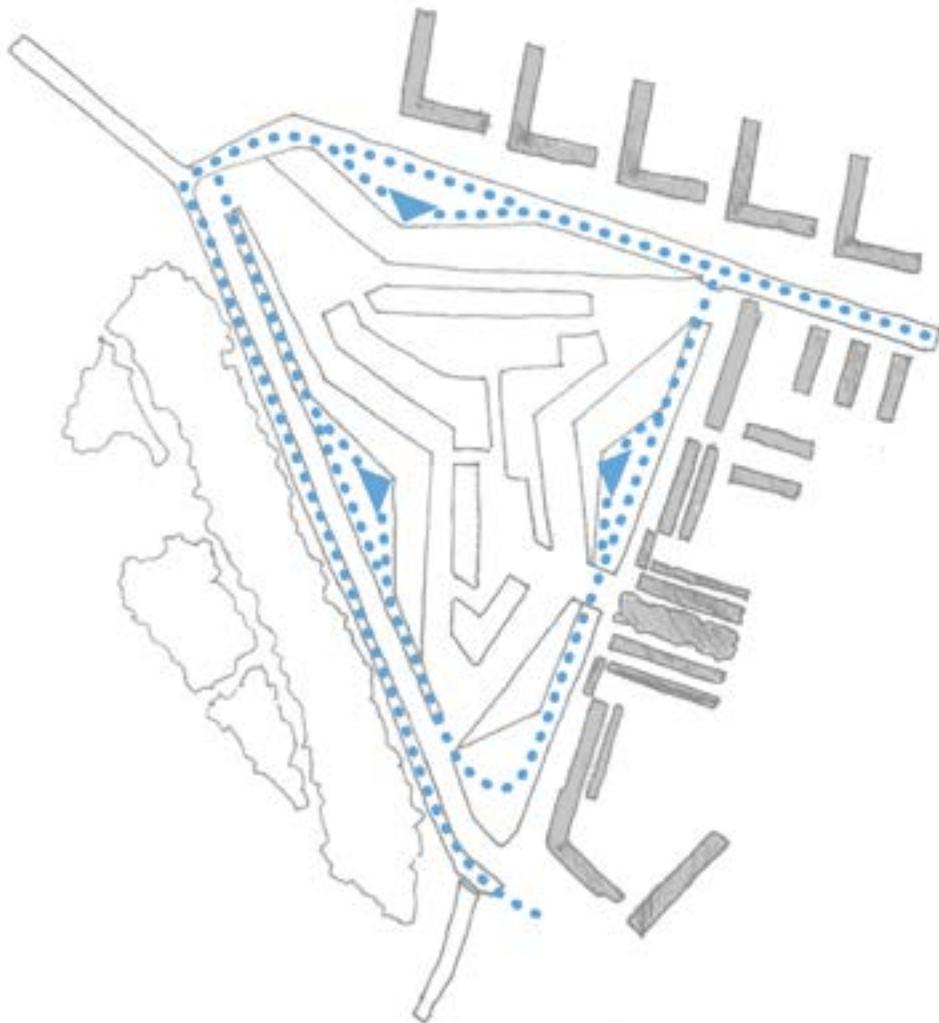
## Flows and Accessibility

### Walking Routes



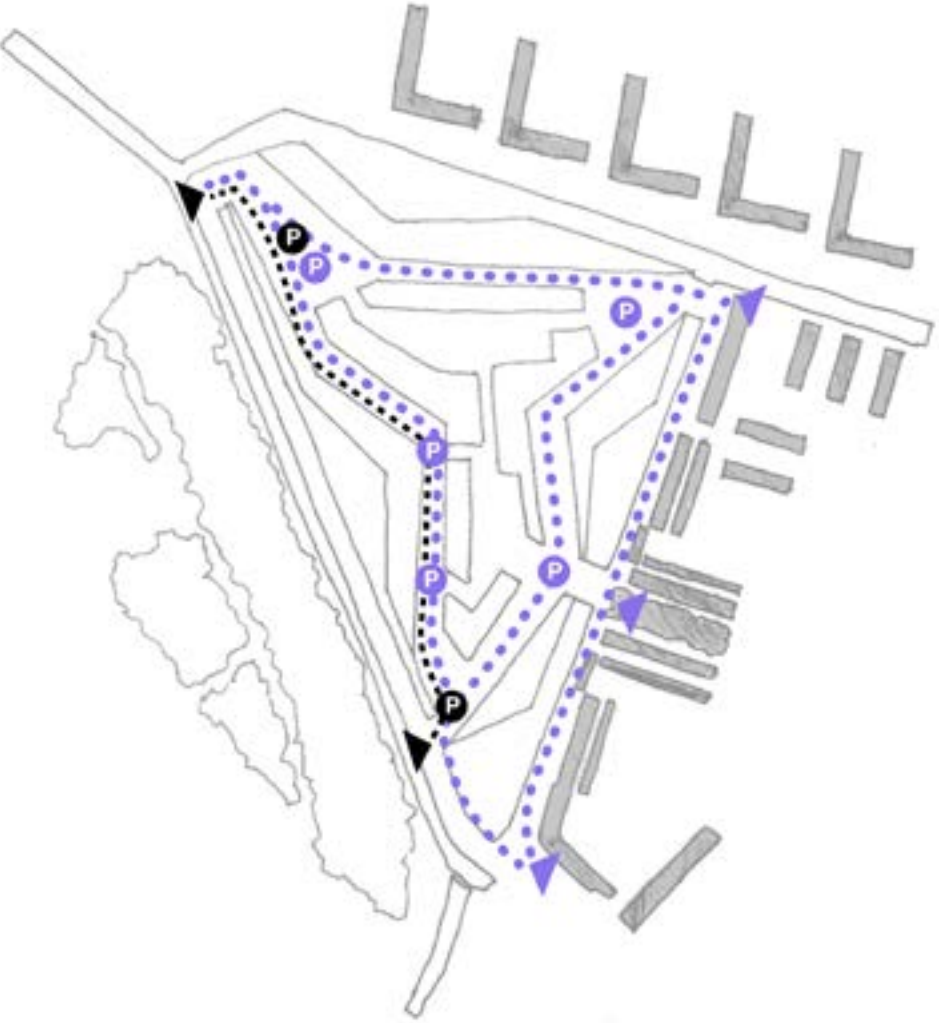
There are two walking route systems: the first forms a ring around the fort, and the second operates within the fort courtyards.

### Canoe Routes and Docks



A new canoe route is formed around the island, allowing access from any point along the route. The main docking zones are located in the shore niches.

### Car/Bike Routes and parking



The cycling route wraps around the fort, taking on a roundabout character. The car route is positioned on the west side of the fort and can be accessed through two main access points located in the north and south of the island.



# Scenario II Dunscape

Moodboard



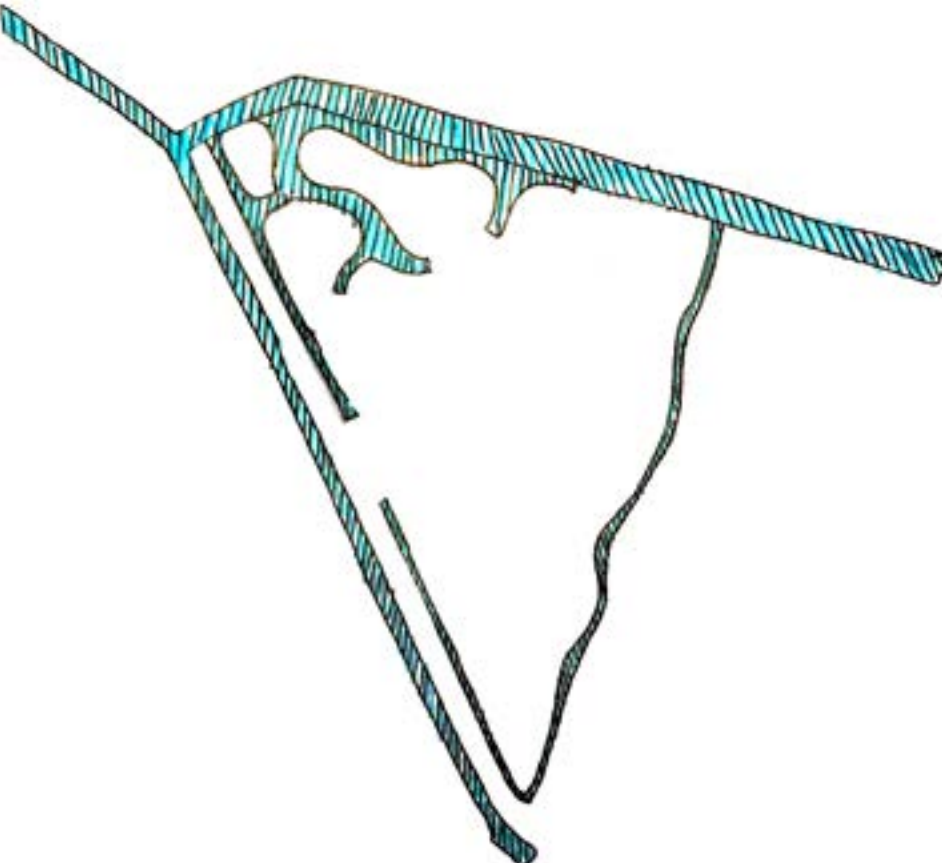


# Scenario II Dunescape

# Scenario II Dunscape

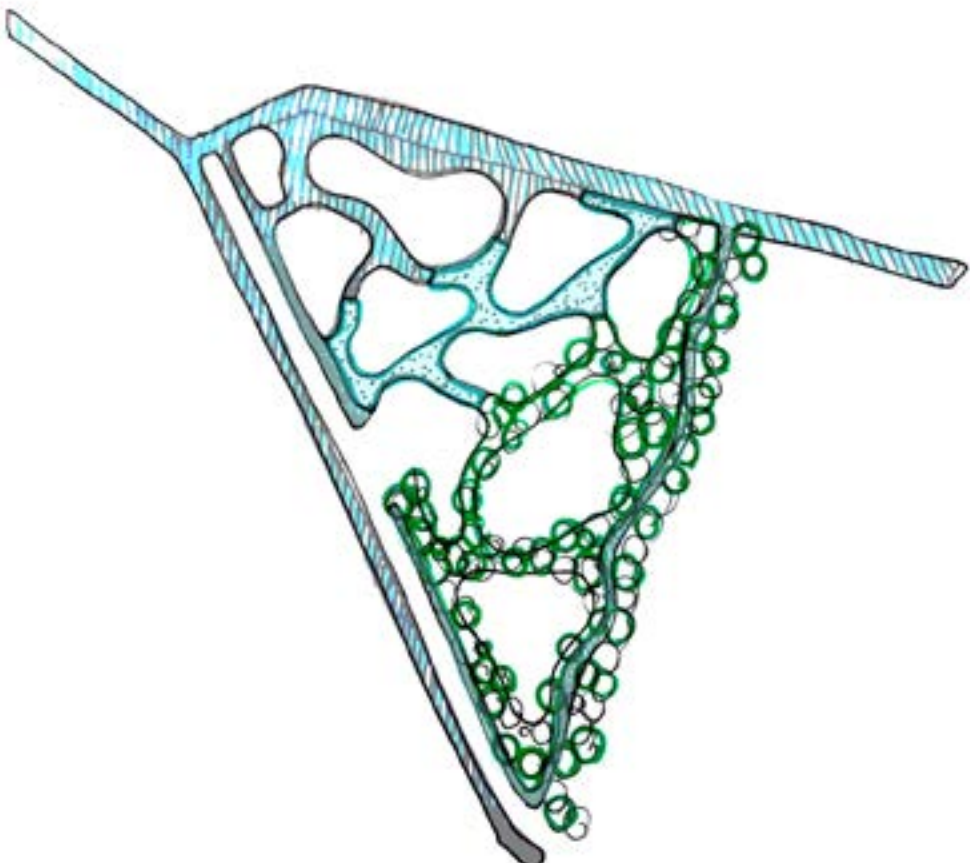
## Landscape Strategy

### Waterscape



A new waterscape extends and intermingles between the dunes to the north of the site, creating a partially isolated landscape.

### Naturescape and Landscape Transition



The transition between water and dry land exhibits a vertical orientation, with the waterscape situated to the north and the dry land to the south. These two areas are connected through a transitory wetland zone, forming a bridge between them.

### Landform

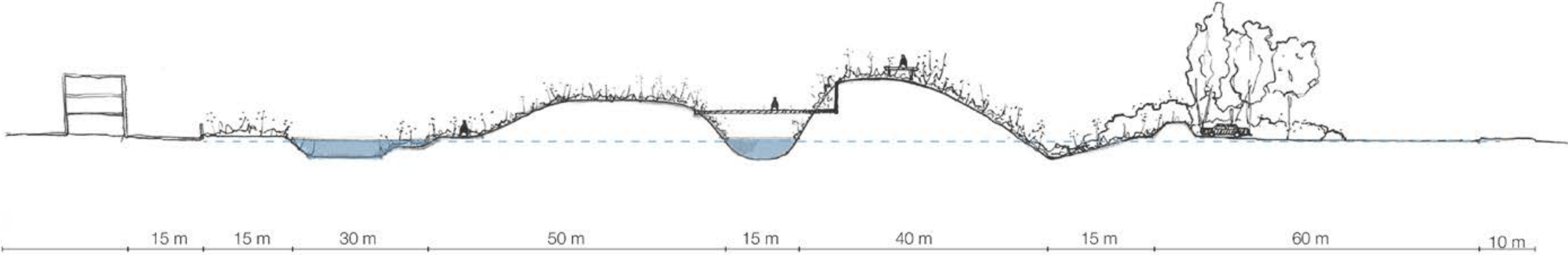


The landscape takes the form of a collection of dunes with varying dimensions and heights. This diversified landscape, along with the fluctuations in ground level, enables adaptability to the dynamic underlying conditions and the seasonal changes within the landscape.



# Scenario II Dunescape

Section through the Landscape



# Scenario II Dunscape

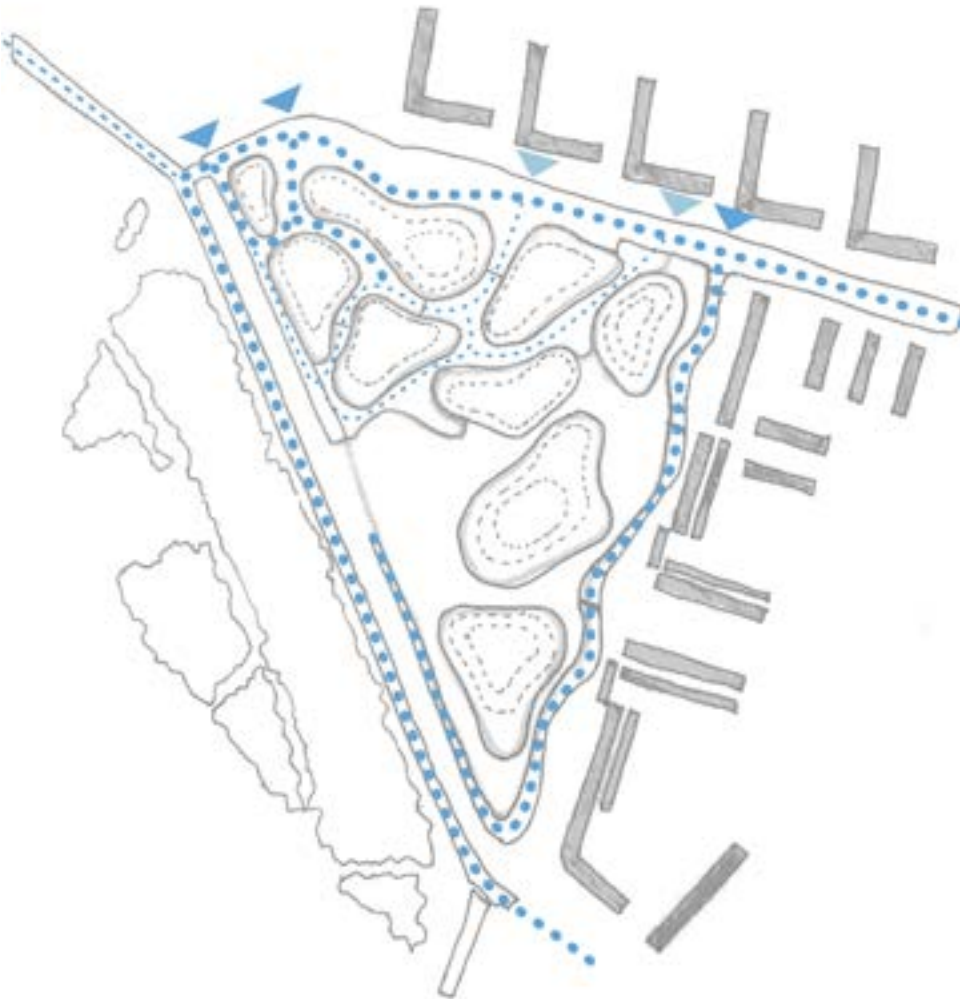
## Flows and Accessibility

### Walking Routes



There are two walking route systems: the first operates around and between the dunes, with the main access points located to the east. This system can periodically expand towards the wetland. The second system operates on top of the dunes and is connected by bridges.

### Canoe Routes and Docking



The integrated canal route meanders between the dunes, influenced by seasonal changes. In the rainy season, the wetland becomes traversable by canoe, while in drier seasons, it can be explored on foot. This dynamic interaction adds versatility to the canal route and the surrounding wetland environment.

### Car/Bike Routes and Parking



Only one car access point has been incorporated, which leads to the large parking zone nestled centrally within the forest. The site can be accessed by bike from the eastern side through one of the four access points.

# Scenario II Dunscape

## Moodboard





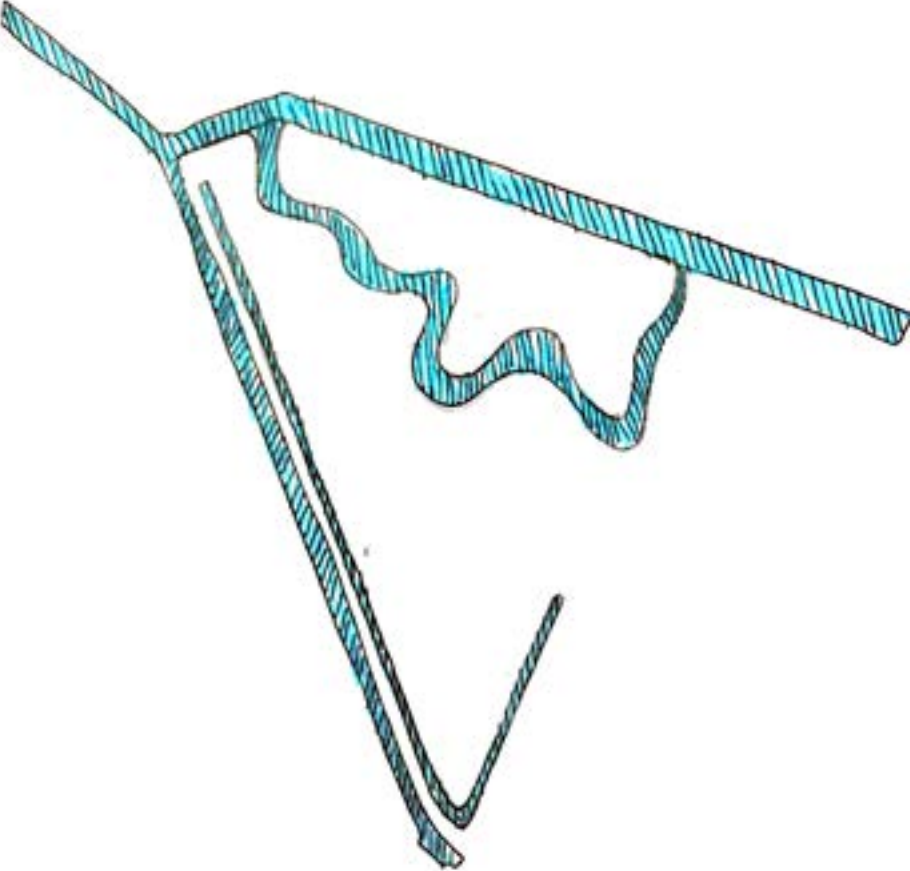
**Scenario III Riverscape**



# Scenario III Riverscape

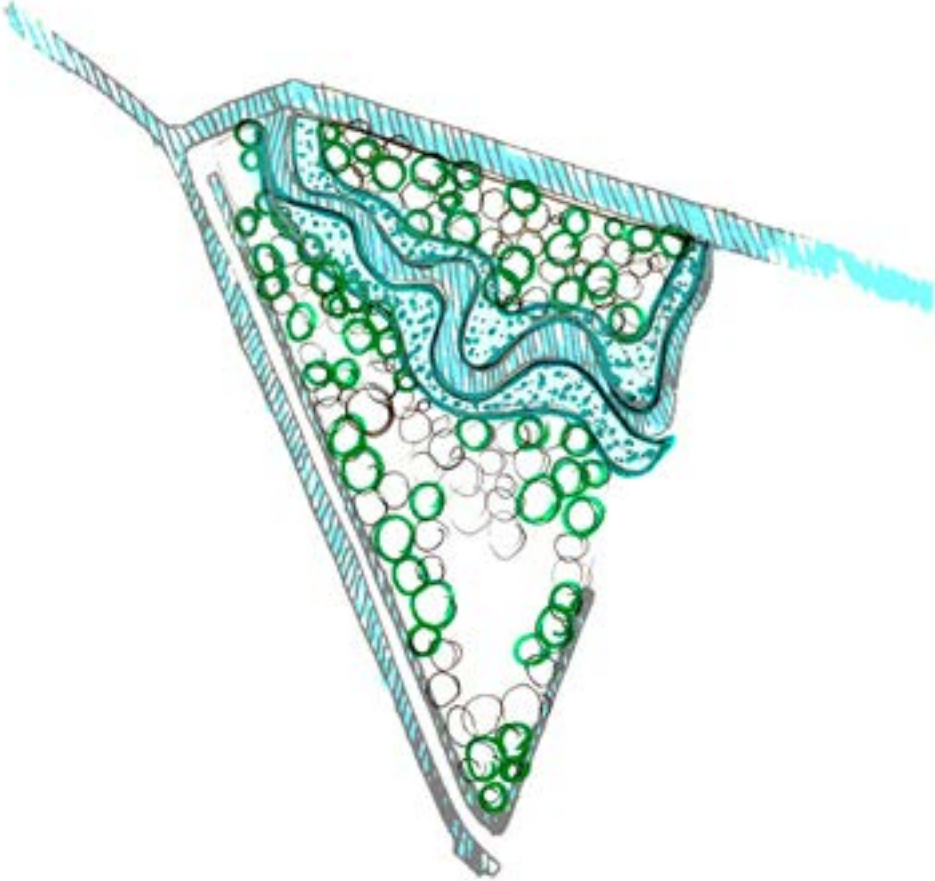
## Landscape Strategy

### Waterscape



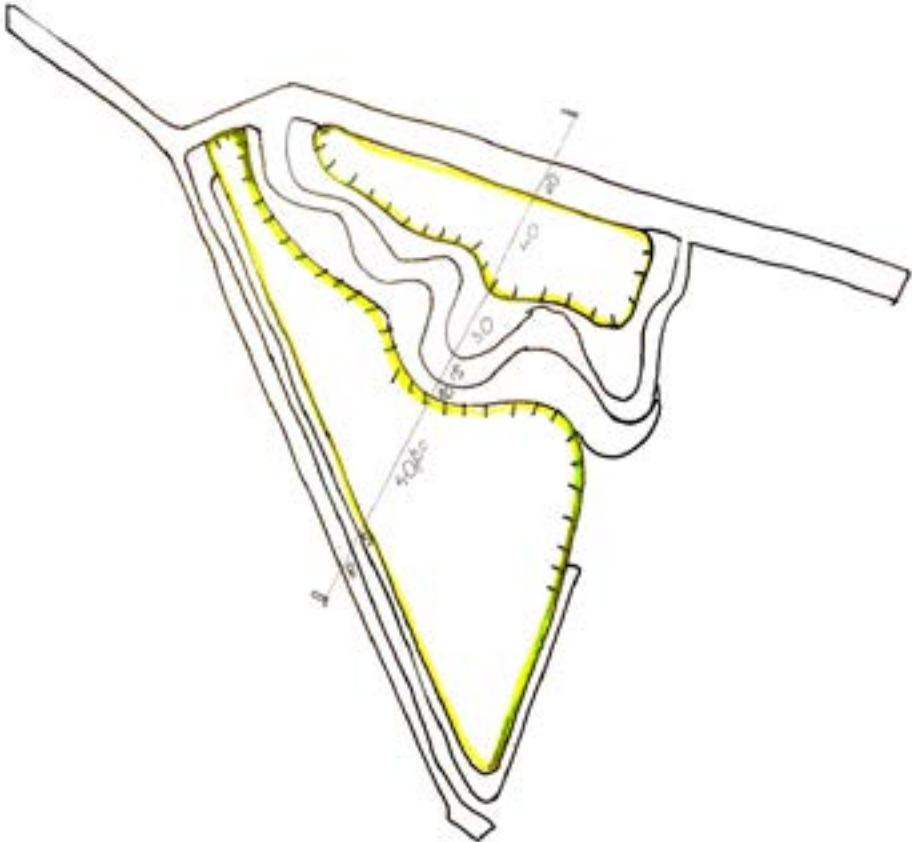
The main water route divides the site into two zones, establishing a water loop that is connected to the main canal system.

### Naturescape and Landscape Transition



The landscape transition occurs horizontally, with the main waterbody positioned in the center. It gradually transforms into an extended wetland area and further extends towards the dry land and food forest at the edges.

### Landform

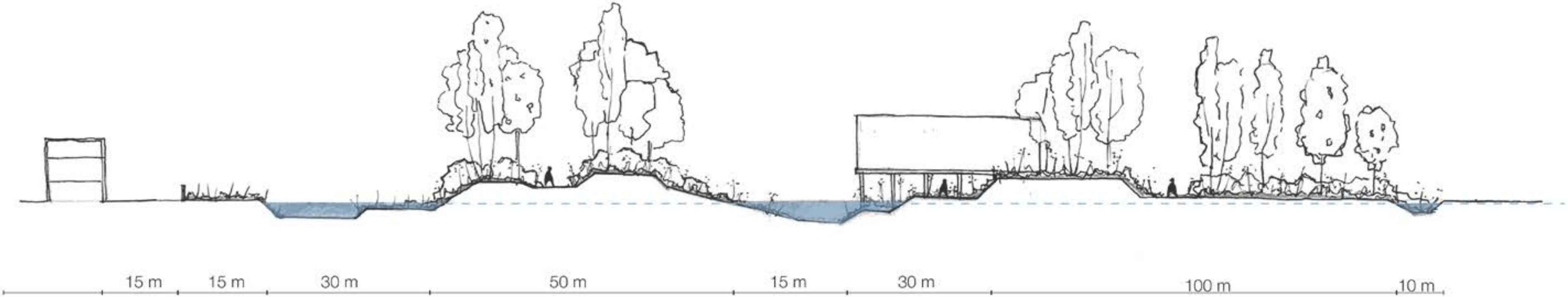


The landscape is divided into two landmasses, with the ground level gradually rising towards the “river.” The first landmass serves as a productive food forest, while the second landmass features a wilder landscape where various plants and shrubs would grow naturally.



# Scenario III Riverscape

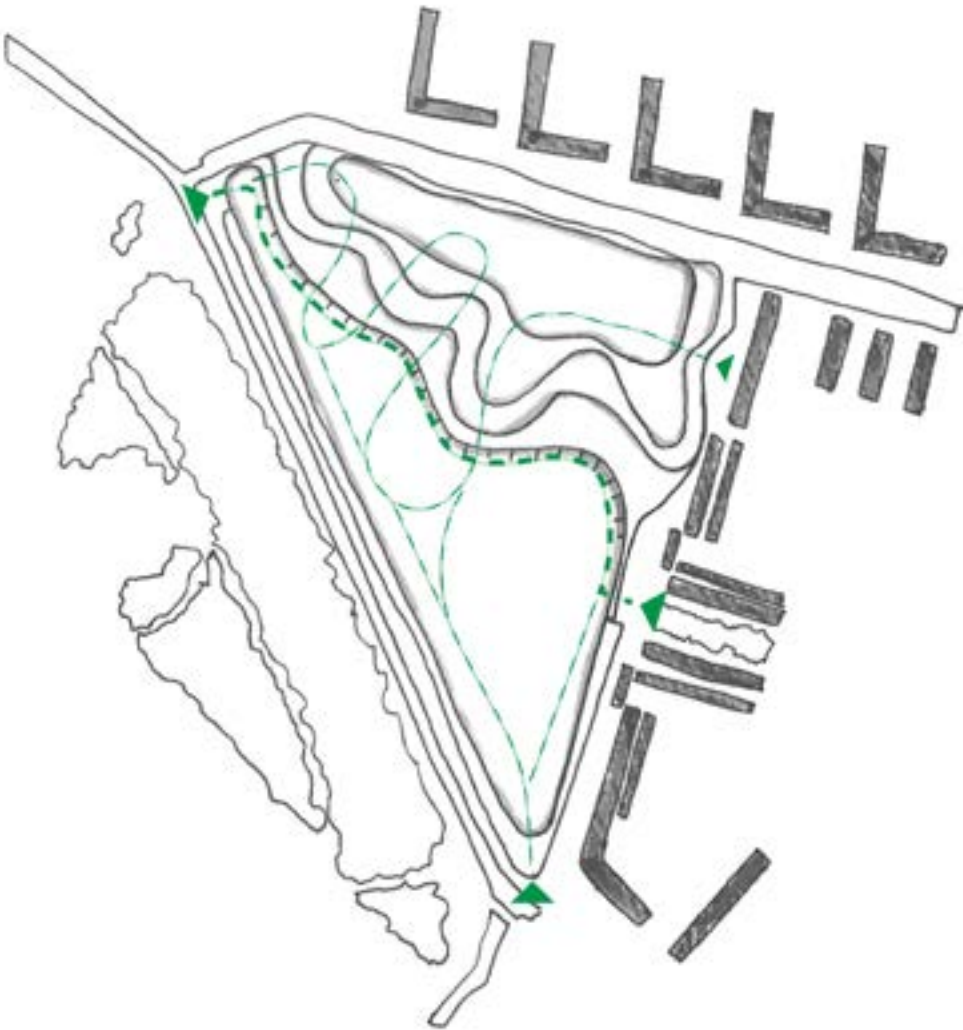
Section through the Landscape



# Scenario III Riverscape

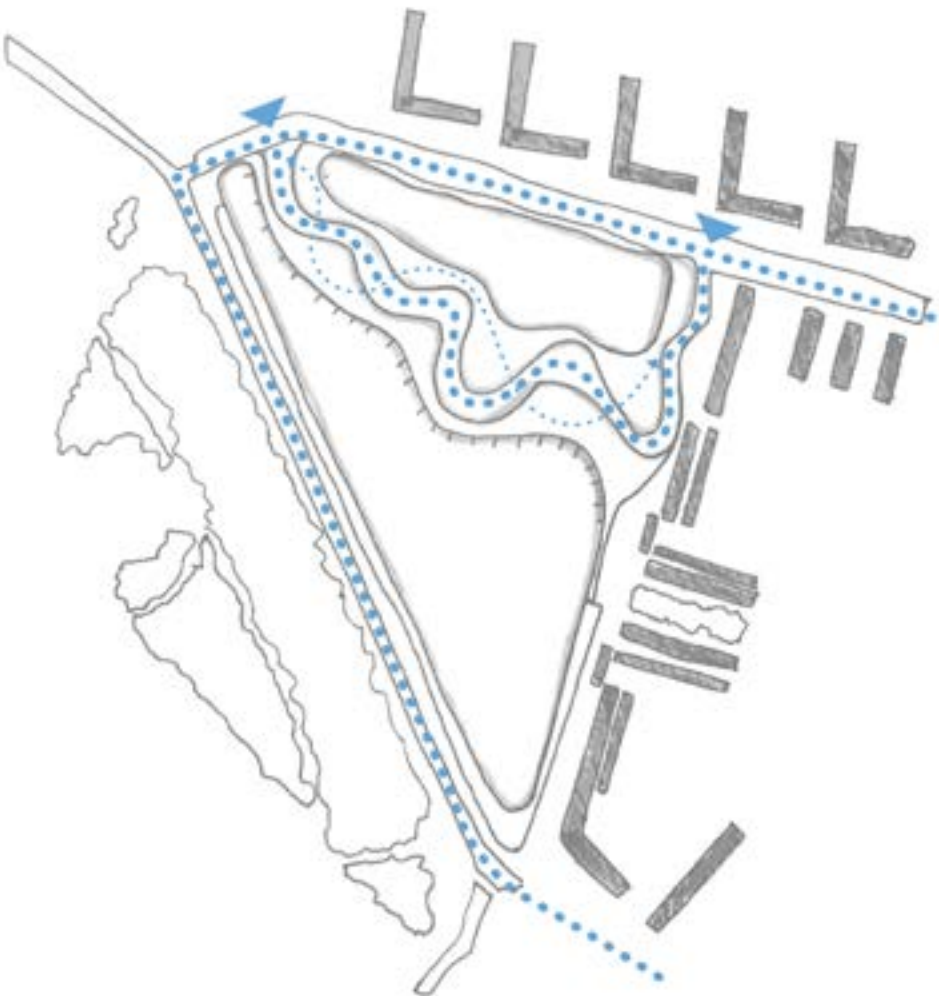
## Flows and Accessibility

### Walking Routes



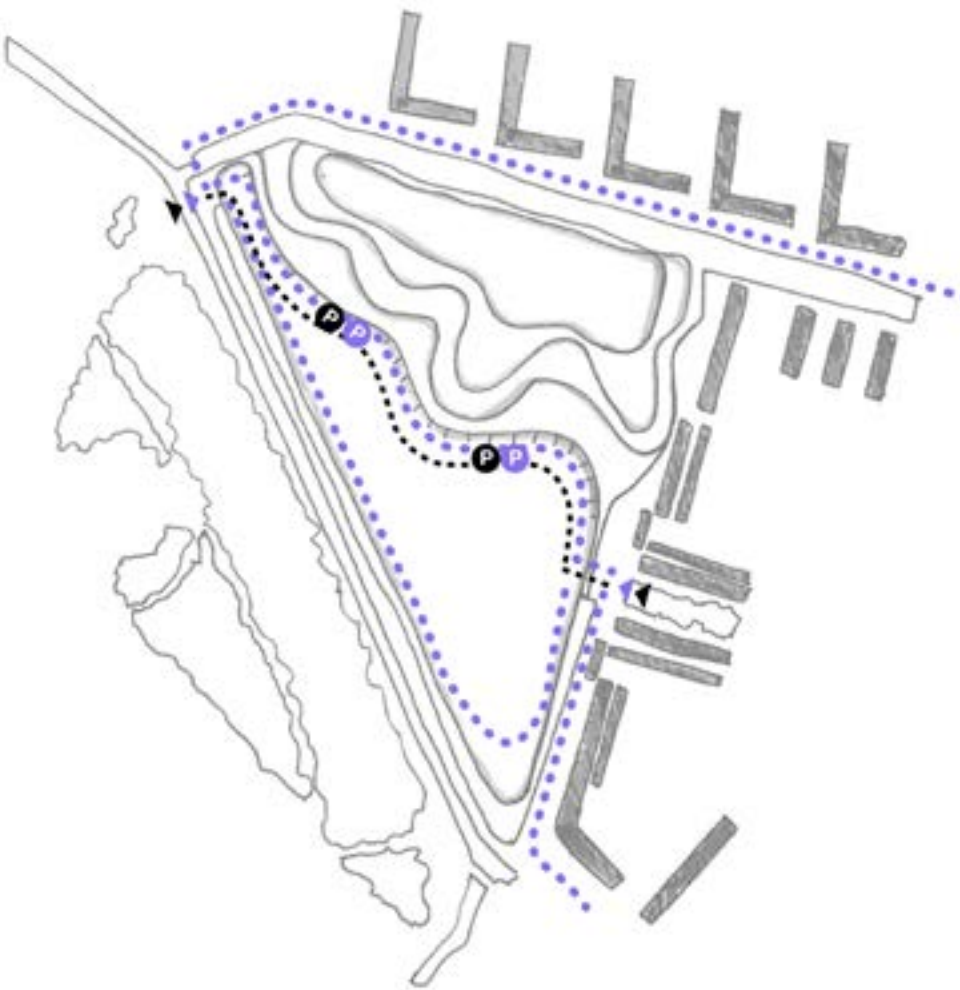
The main walking route follows along the river and the wetland on the eastern side, offering scenic views. The two sides of the river are interconnected by multiple secondary routes and bridges, allowing for convenient access and exploration of the entire area.

### Canoe Routes and Docking



The existing canal route is extended inwards, transforming into a water loop that provides access to the main canal system. This extension enhances connectivity and enables navigation throughout the site via the waterways.

### Car/Bike paths and parking



The main car route runs alongside the river, facilitating the distribution of materials, harvested plants, and providing access to the educational facility. This route serves as a convenient transportation pathway for various purposes within the site.

# Scenario III Riverscape

Moodboard



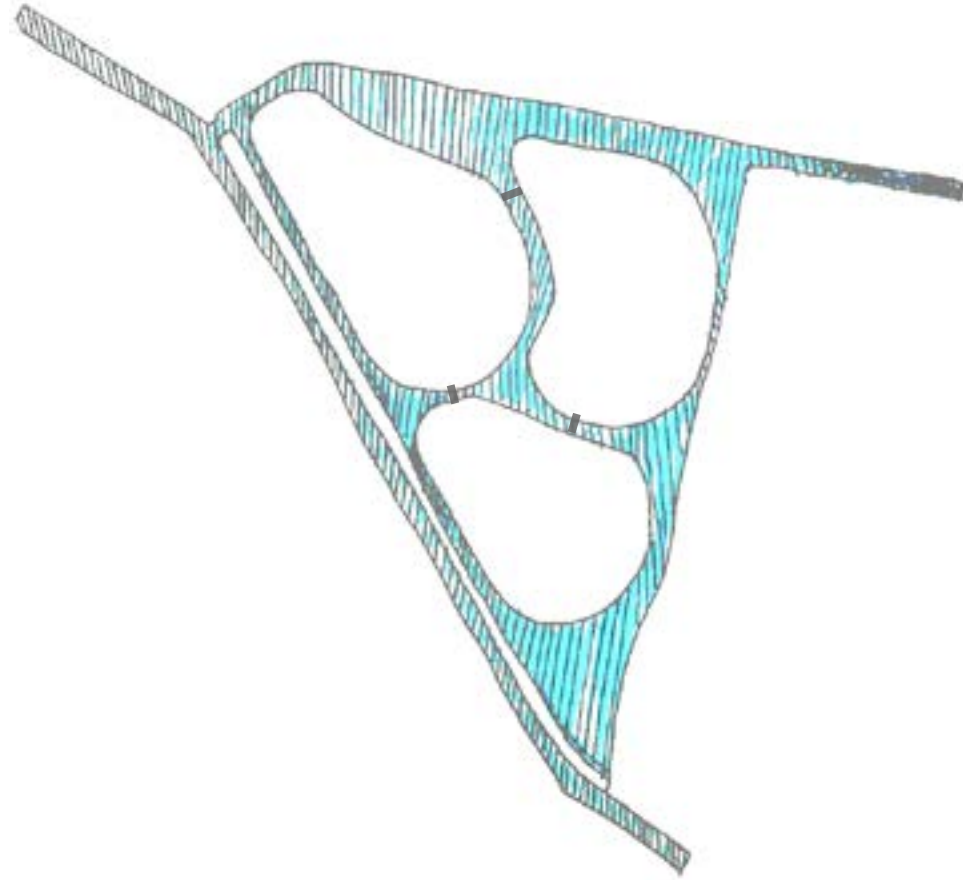
### 3. Scenario IV - Donut



# Scenario IV Donut

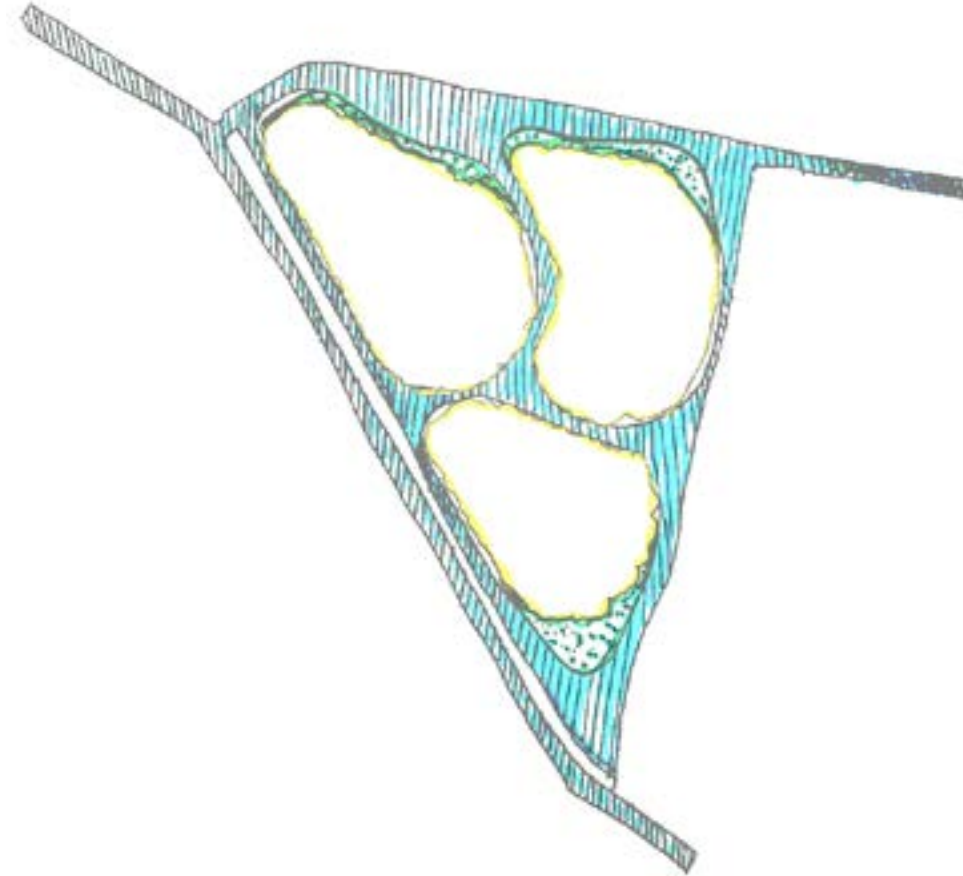
## Landscape Strategy

### Waterscape



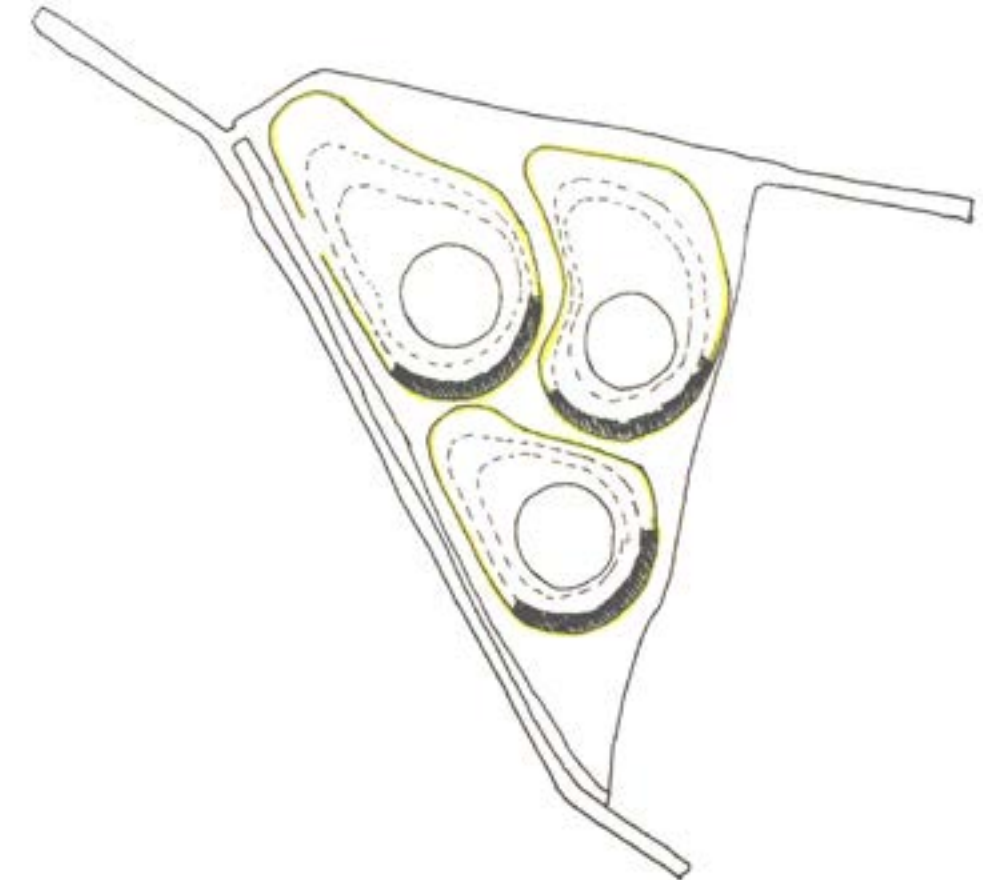
The waterscape surrounds the three islands and is divided into two types. The first type is a natural extension of the existing canal system, seamlessly integrating with the surrounding waterways. The second type, located internally between the islands, is highly controlled and separated by water locks, allowing for precise management of water levels and navigation between the islands.

### Naturescape and Landscape Transition



Due to the high technological and structural enhancements of the islands, there is overall minimal transition between wet and dry land. The islands are designed to be self-contained and efficiently managed. However, there are occasional wetland patches oriented towards the outer areas, adding pockets of natural and ecological elements to the surrounding landscape.

### Landform



The three islands form three distinct educational landscapes. Each island features a central circular core, resembling a void, where the built program is situated. The edges of the islands are steeper on the inside, creating a sense of enclosure and focus within the core, while they gradually smoothen out towards the outside, blending harmoniously with the surrounding environment.

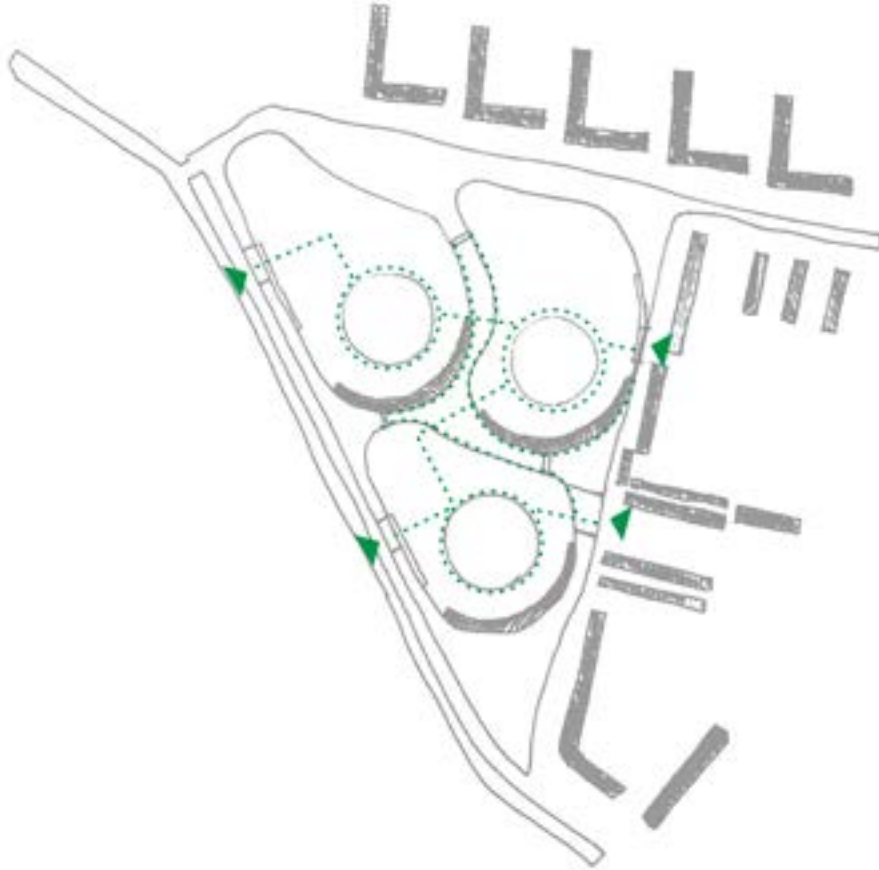




# Scenario IV Donut

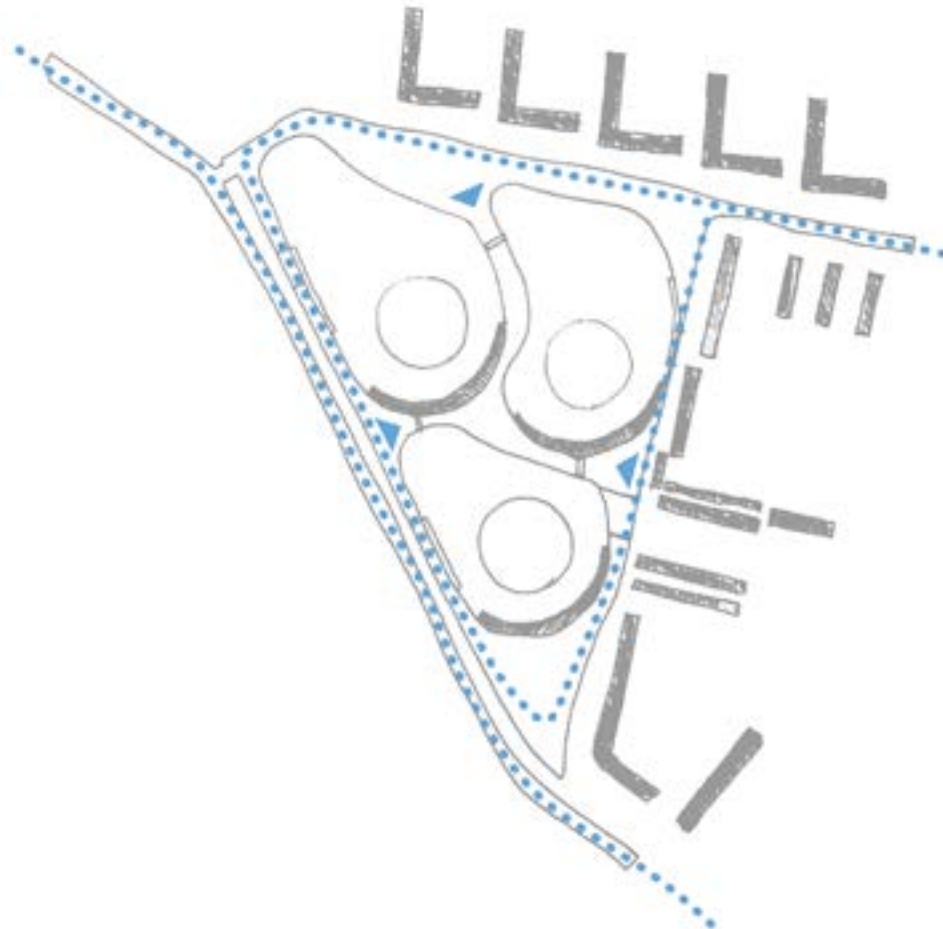
## Flows and Accessibility

Walking routes



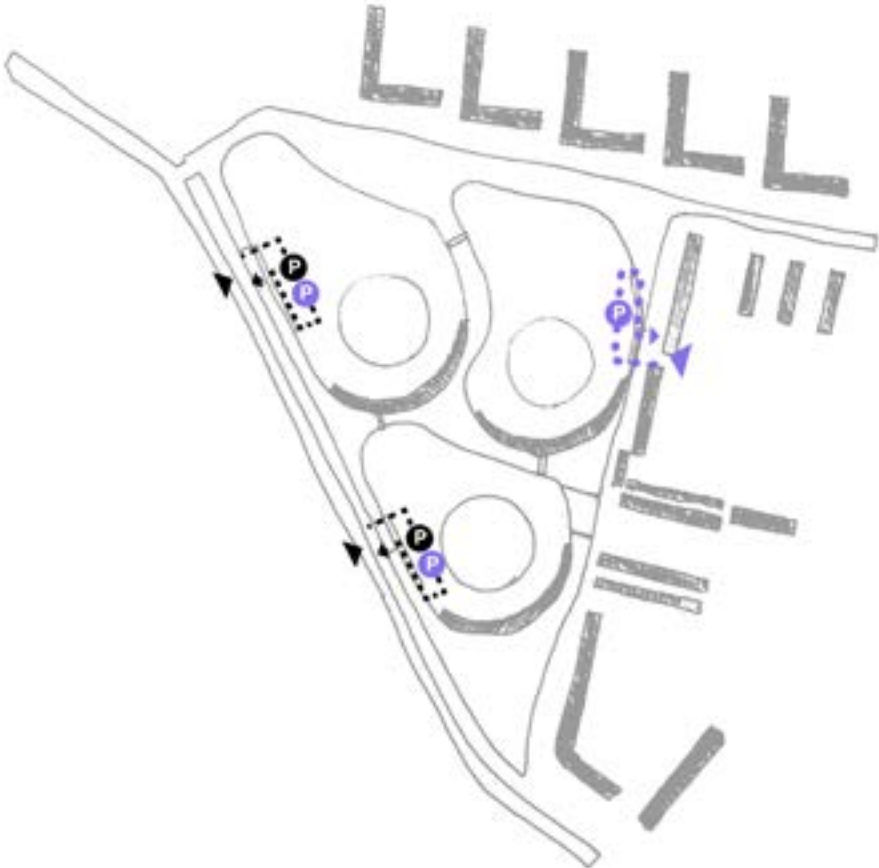
Each island can be accessed through a designated route that is linked with the corresponding parking lots, providing convenient access to the internal courtyards of each island. Movement on top of the islands is unrestricted, allowing visitors to explore and navigate freely within the educational landscapes.

Canoe access



The water route forms a loop around the three islands, encircling them, and featuring three inlet points that lead to a highly controlled internal waterscape.

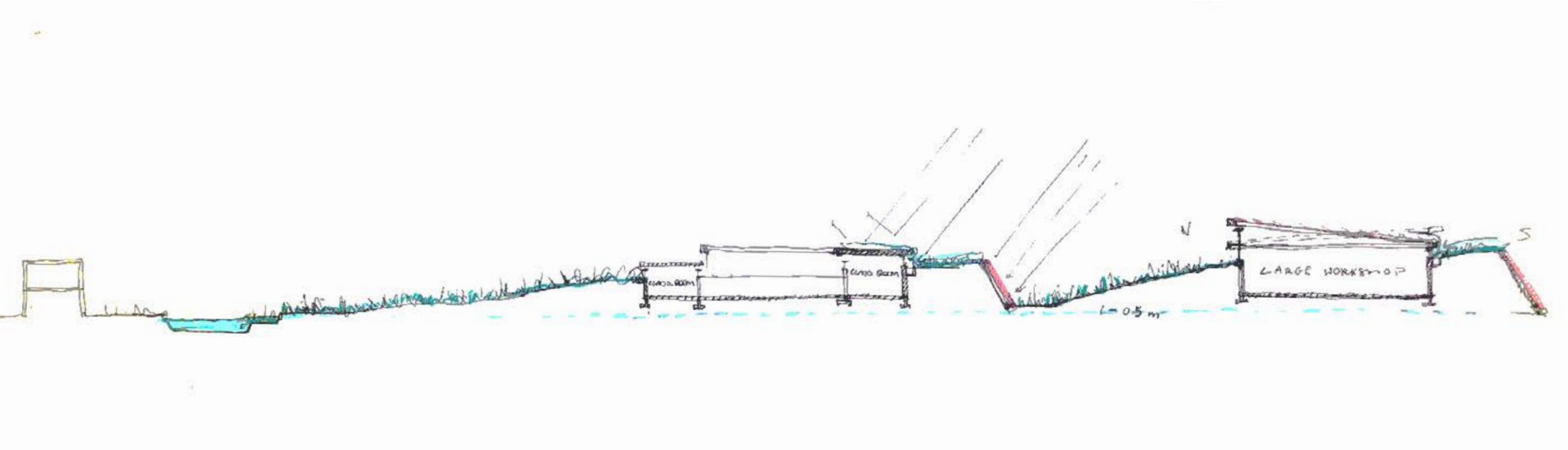
Access by bike and Car



The parking lots are seamlessly integrated with each island, forming an underground space that is connected to the internal courtyards through corridors. This design approach ensures convenient access and a smooth transition from the parking areas to the internal areas of the islands, maintaining a cohesive and efficient layout.

# Scenario IV Donut

Section through the Landscape



# Scenario IV Donut

## Moodboard



# Conclusion

## Comparing the Four Scenarios

**Fort**



In our “Fort” scenario, we adopt a compound approach to address the water conditions present on the site. The design is characterized by robustness and emphasizes a highly protected and static internal zone, which is surrounded by dynamic edges. This approach ensures a secure and stable environment within the fort while allowing for the dynamic fluctuations and interactions with the surrounding water features.

**Dunescape**



In our “Dune’scape” scenario, we adopt a dynamic approach to the landscape, where everything is in a constant state of flux. The design embraces the responsive nature of the environment and allows for continuous adaptation to changing environmental conditions. The landscape fluctuates throughout the seasons, showcasing a vibrant and ever-changing natural setting that reflects the dynamic interactions between land, water, and other elements of the ecosystem.

**Riverscape**



In our “Riverscape” scenario, we envision a dynamic core that is in a constant state of flux, responsive to the changing environmental conditions. This dynamic core serves as the focal point of the landscape, showcasing the ever-evolving interactions between water and land. Surrounding this dynamic core is a more controlled and robust forest landscape, providing a stable and resilient backdrop to the dynamic core. This combination of dynamic and controlled elements creates a harmonious and diverse riverscape that balances adaptability with stability.



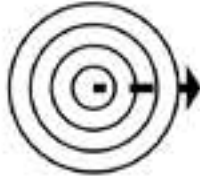






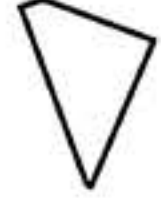


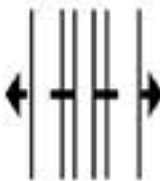


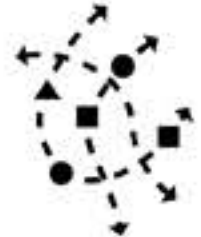






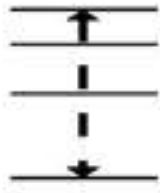

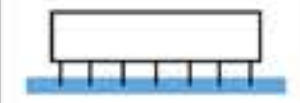







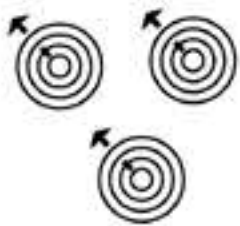

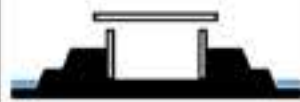
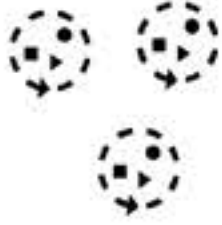
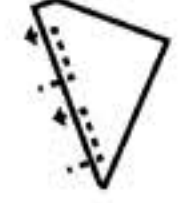



**Donut**



In our “Donut” scenario, we imagine three highly controlled and regulated islands that are designed to be resistant to environmental fluctuations. These islands are meticulously planned and constructed to minimize the impact of unexpected natural occurrences and formations. There is a distinct and sharp division between the man-made land and the water, leaving little room for unexpected natural processes to shape the landscape. The emphasis is placed on maintaining a controlled and predictable environment within the defined boundaries of the islands.

# Strategy

## Matrix for Design Intervention

	landform	waterscape	landscape transition	water - land dynamic	building adaptation	landscape dynamism	landscape function	function distribution	car circulation	access by car	access by canoe	access by bike
Scenario I Fort						controled/static landscape	Historical experience					
Scenario II Dunescape						dynamic landscape	expanded playground					
Scenario III Riverscape						dynamic landscape	food forest					
Scenario IV Donut						controled/static landscape	technological landscape					

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