

BOOKLET

Architecture and Urban Space Design
group C

Table of contents

Phase 1

Phase 2

Team agreements :)

1.1 The sponge system

- 1.1.1. System Reference
- 1.1.2. System Argument
- 1.1.3. System Model
- 1.1.4. System Plan
- 1.1.5. System Axonometry
- 1.1.2. X

2.1 Exploring the structure

- 2.1.1. Structure Reference
- 2.1.2. Structure sketches
- 2.1.3. The Narrative

1.2 The deconstructed landform

- 1.2.1. Terrain Reference
- 1.2.2. Terrain Argument
- 1.2.3. Terrain Model
- 1.2.4. Terrain Procedure

1.3 The site

- 1.3.1. Site Argument
- 1.3.2. Site Model
- 1.3.3. Situation Plan
- 1.3.4. Situation Axonometry

1.4 The parasite

- 1.4.1. Detail Reference
- 1.4.2. Detail Argument
- 1.4.3. Detail Procedure

1.5 Hybrid landscape

- 1.1.1. System Reference
- 1.1.2. System Argument
- 1.1.3. System Model
- 1.1.4. System Plan
- 1.1.5. System Axonometry

Phase 1

The sponge system

Pollution from industries around Gothenburg has made an impact on the soil in the ground and also the water. Even though many industries have been shut down, their impact still lives on. Today our cities are facing new challenges as the climate is changing dramatically.

The system that we have studied closer is the sponge. A sponge is a “multicellular organism that have bodies full of pores and channels allowing water to circulate through them”

In the references we looked at, several projects have used the system of a sponge to prevent flooding. As a way for nature to heal from flooding, the system of a sponge serves as an organ that can filter and store polluted water. Its pores will suck the excessive water and work as a buffer keeping the waterflow from flooding. In that way it can change its form - expand when it keeps water.

Another source of pollution in water comes from rainwater that gathers dirt from streets and then flows down in the rivers and lakes. The sponge system will then also filtrate the dirty rainwater before it reaches any body of water.

Thus the sponge will have its roots in the soil and it can take care of the pollution and excess water. (Similar to the phytoremediation system).



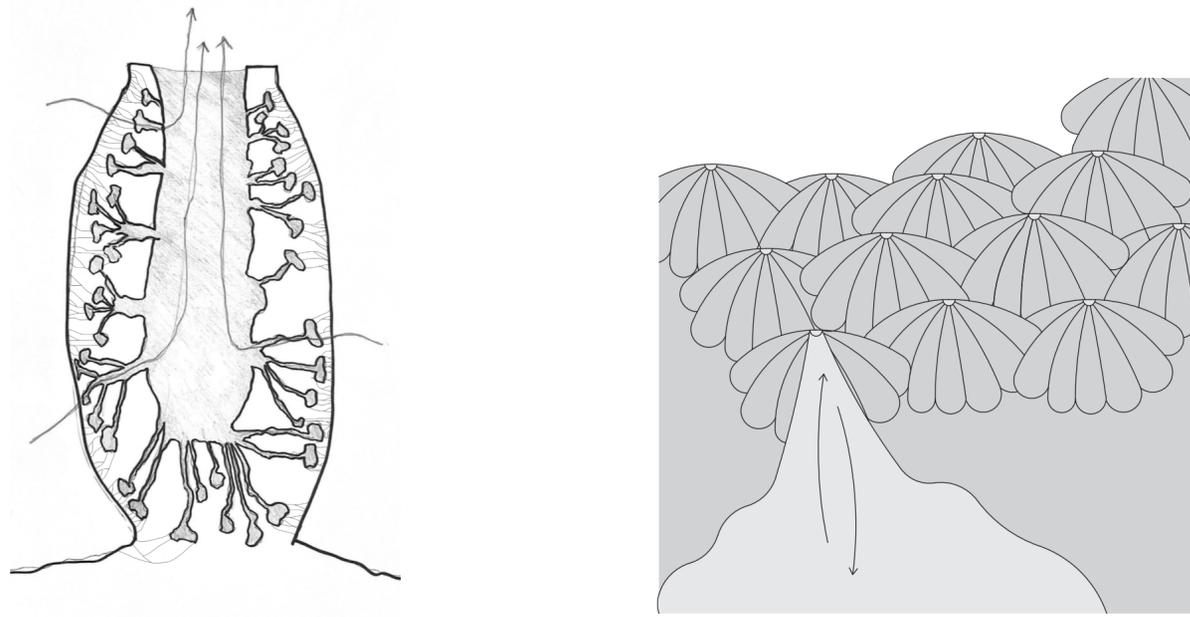
REHABILITATION & REMEDIATION

A healing water system that can filter and clean water in order to rehabilitate its quality. The water will pass through a filtering process before it returns to its natural stage. The water will therefore “move” slower and will prevent the risk of floods. Wetlands and mangroves are part of this system.



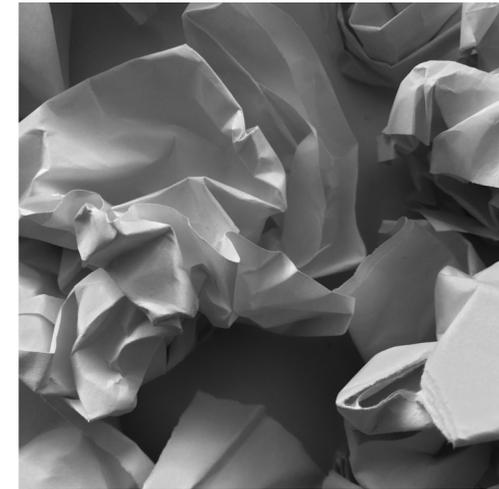
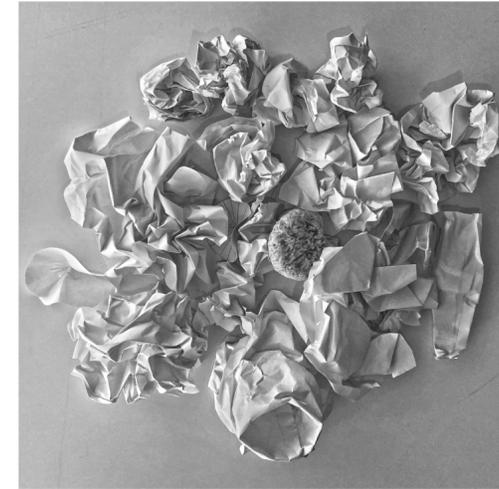
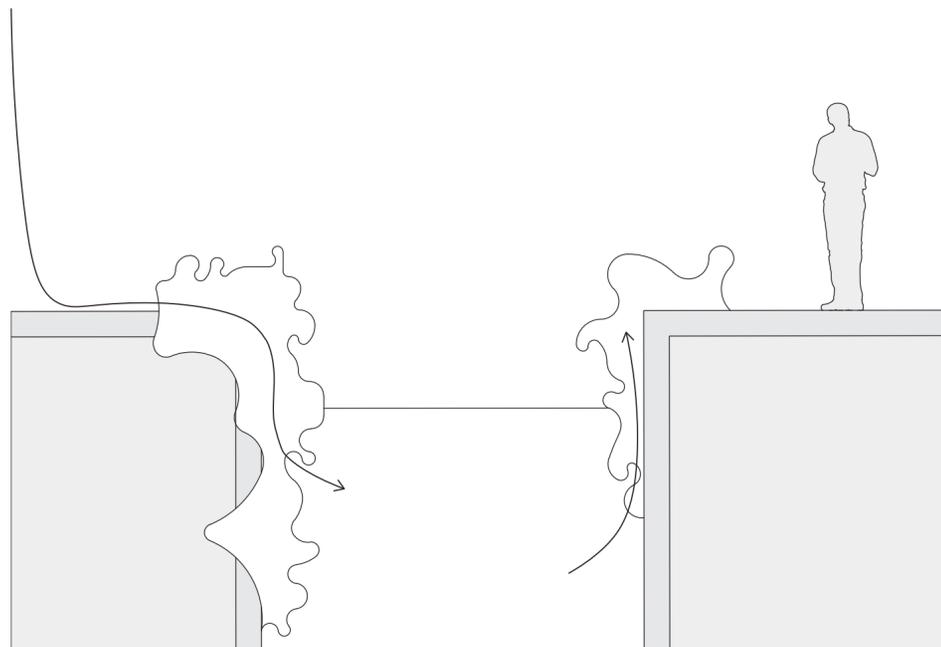
ADAPTIVE

Using a sponge system in order to absorb and store water. This system can be used to prevent flooding by dealing with storm water.



THE SPONGE

By looking at the anatomy of a sponge to understand its mechanics of absorbing water. The water gets absorbed by small pores that covers the “skin” of a sponge. It is then stored inside of the sponge, and because of its soft tissue the sponge has the ability to expand and change its form. The more volume of water it stores, the bigger in size it gets.





Model of the sponge

The deconstructed landform

By looking at different landforms separately in relation to our water system we have categorized them by their form, scale and behavior to determine a sort of hierarchy.

This hierarchy determines how the different landforms act together as components of a large, hybrid landform.

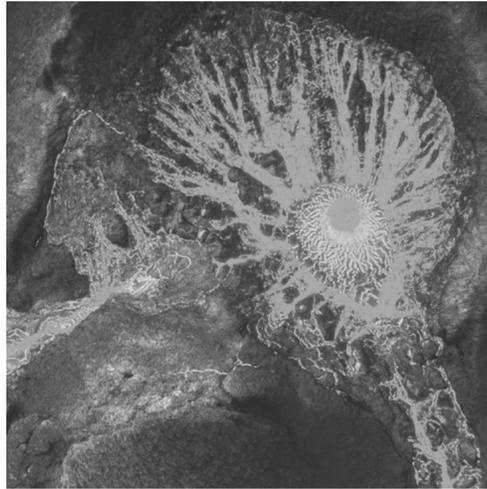
Our landform terrain is based on a order of a fixed core with a system of branches out from it. The idea of the core is also where the water gets collected. As the landforms are dependent on the dynamic of water, it is inevitable that the landform itself also is dynamic. For this, the core will be the most dynamic part of the landform because of the water being gathered there. The branches from the core function as roads or nerves where the water can flow to the core.

The landform takes care of the flow of water in a cycle where the water flows through the branches to the core, where it gathers until it gets released and can go back.



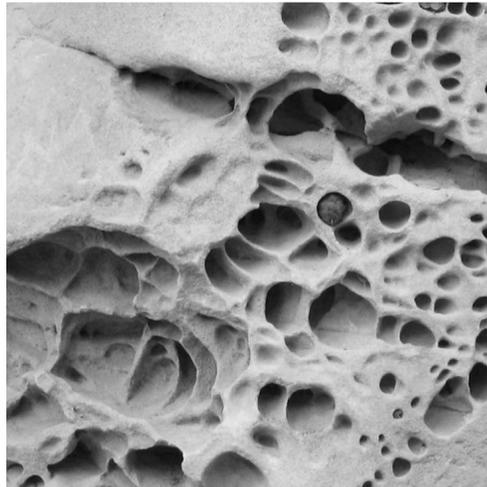
DE-CONSTRUCTED LANDFORM.
A landform created by various landforms put together.

	<u>WATER BEHAVIOUR</u>	<u>SPACE</u>	<u>INCLINATION</u>	<u>SIZE</u>	<u>DIAGRAM</u>	<u>LANDFORM</u>
WETLAND	Flood Slow movement Absorbing Filtered / Nourish	Archipelagos Mysterious Agglomeration Fairytail Apocalyptic/Dark/Wild No mans land Boundaries Renewing	→	XL		Negative Flat
HONEYCOMB WEATHERING	Water and wind erosion Gathered Reservoir	Cavities Parasite Inca graves Creepy Carved constructions Ruin Sponge Pores Bone marrow	↑ → ↗	S		Negative
SEA CAVE	Erosive Strong current	Dome Dangerous Chapel Historic Carve - sculpture Ornaments Stalactites Claustrophobic Mystic	↑	M / L		Negative
VOLCANO	Cool lava down Shape - Pressure	Fountain Monumental Erosion One - way Powerful Uncontrollable Climax Hot Drama Devastating	↑	XL		Positive
AEOLIAN LANDFORM	Slide (Rain) Water free area	Arbitrary / random Shape shifter Unknown lifeforms Alien	↑	S		Negative Positive
PALSA	Ice - freeze Push land up Absorb	Cold Archipelago Pattern Calm Uneven Fairytale Everchanging Reservoir Sponge	→ ↑	XL S		Positive
TAFONI	Water and wind erosion Gathering	Cavities Holes Pores Fox holes Reservoir Nest	↑	XS		Negative
SALT AND TIDAL MARSH	Movement Floods Tides Absorbs and nourishes Moon control	Flow Cold Time passing by Growing Changing Absorb	→	XL		Flat



VOLCANO

The core as seen as a swelling part where water is gathered. At some point, when it holds the maximum volume of water it will erupt.



TAFONI

As it resembles pores in a sponge it works as absorbing the water so it can run into the branches.



The site

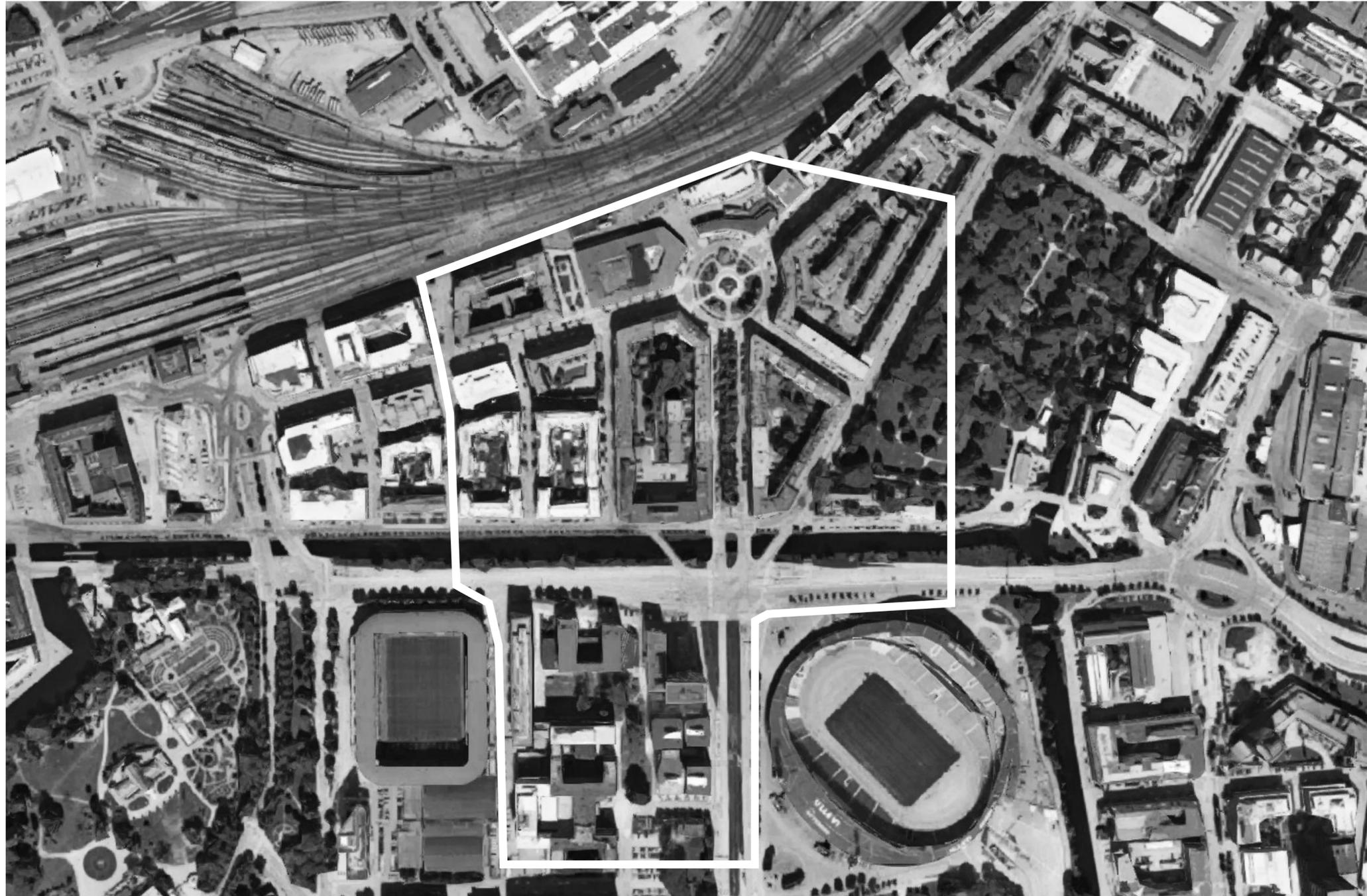
The project is set in the area of Gothenburg called Stampen, between Ullevi and the Central station. It is a part of the city that is heavily embossed by infrastructure with few green areas. There is a clear direction of movement and it is also clear that most people just move past this part, rather than it being a destination. However, there is a large residence area that almost act as a satellite in relation to other parts of the city. The relationship between the trafficked roads and calm residential area creates a harsh deviation and boundaries.

In the sense of public spaces the area is quite poor, even though the building for the police department as well as the court is situated here. There was a lack of human scale and moving through this area as a pedestrian felt almost overwhelming.

On the aspect of water, the river Fattighusån runs through the site, which connects to the canals of the city center.

The river and bordering green areas are quite wide, approximately 30 meters in width. This is one of the site assets.

Looking further into the quality of the water and soil we found out that there is a lot of pollution (from traffic and x).



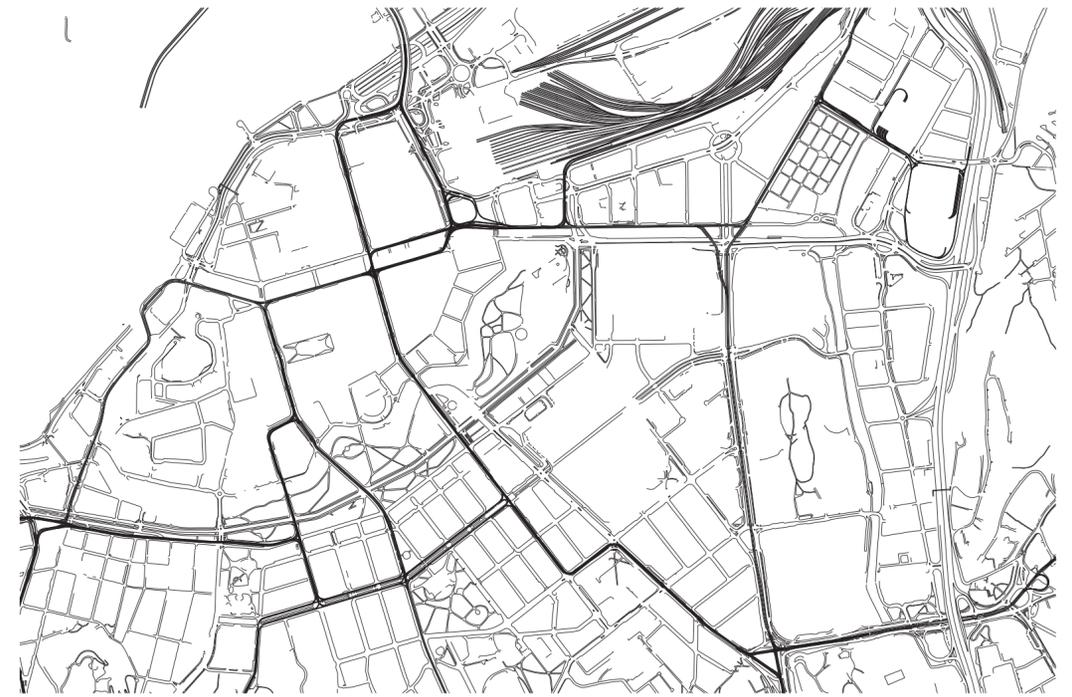
THE SITE BOUNDARY



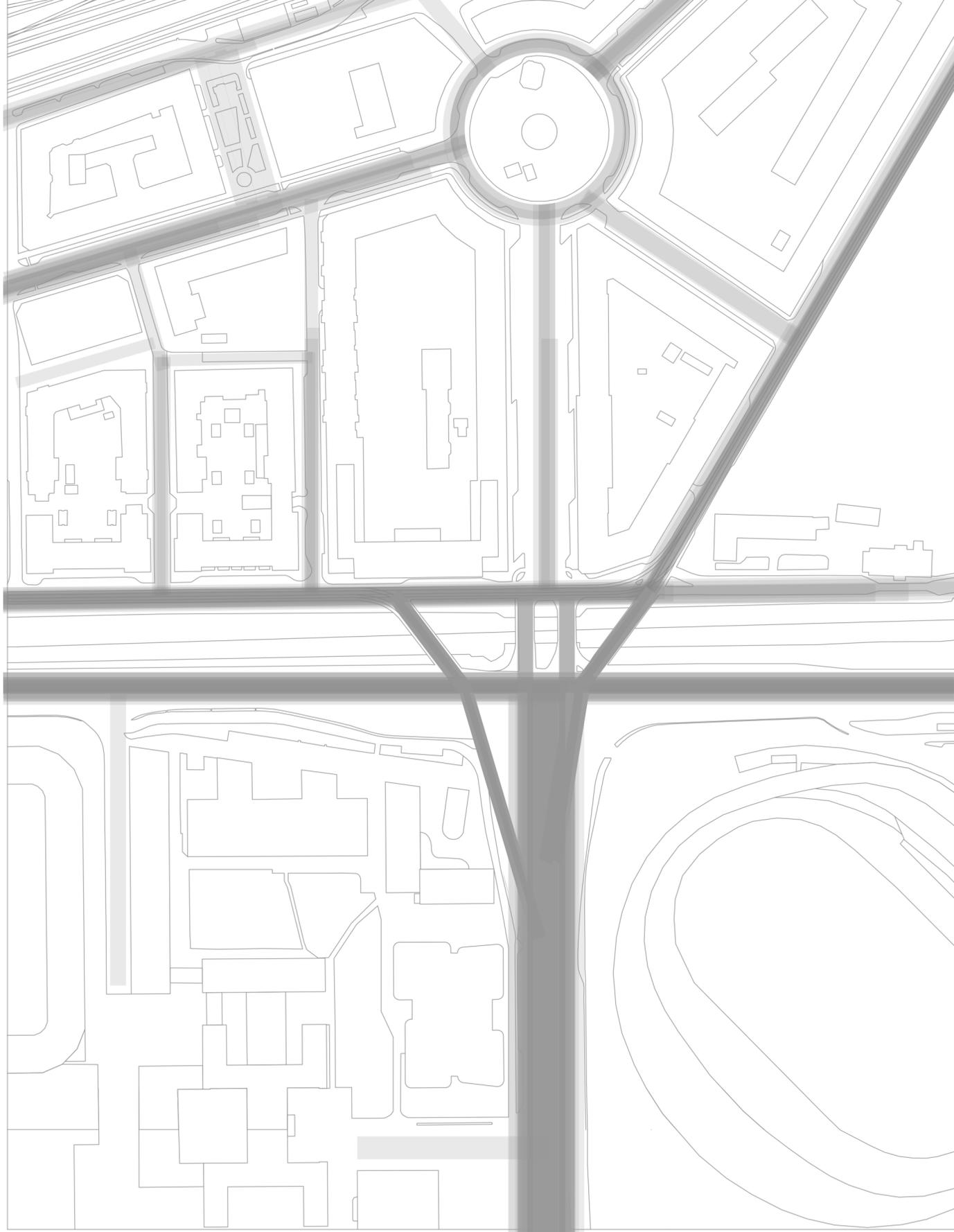
BUILT CITY



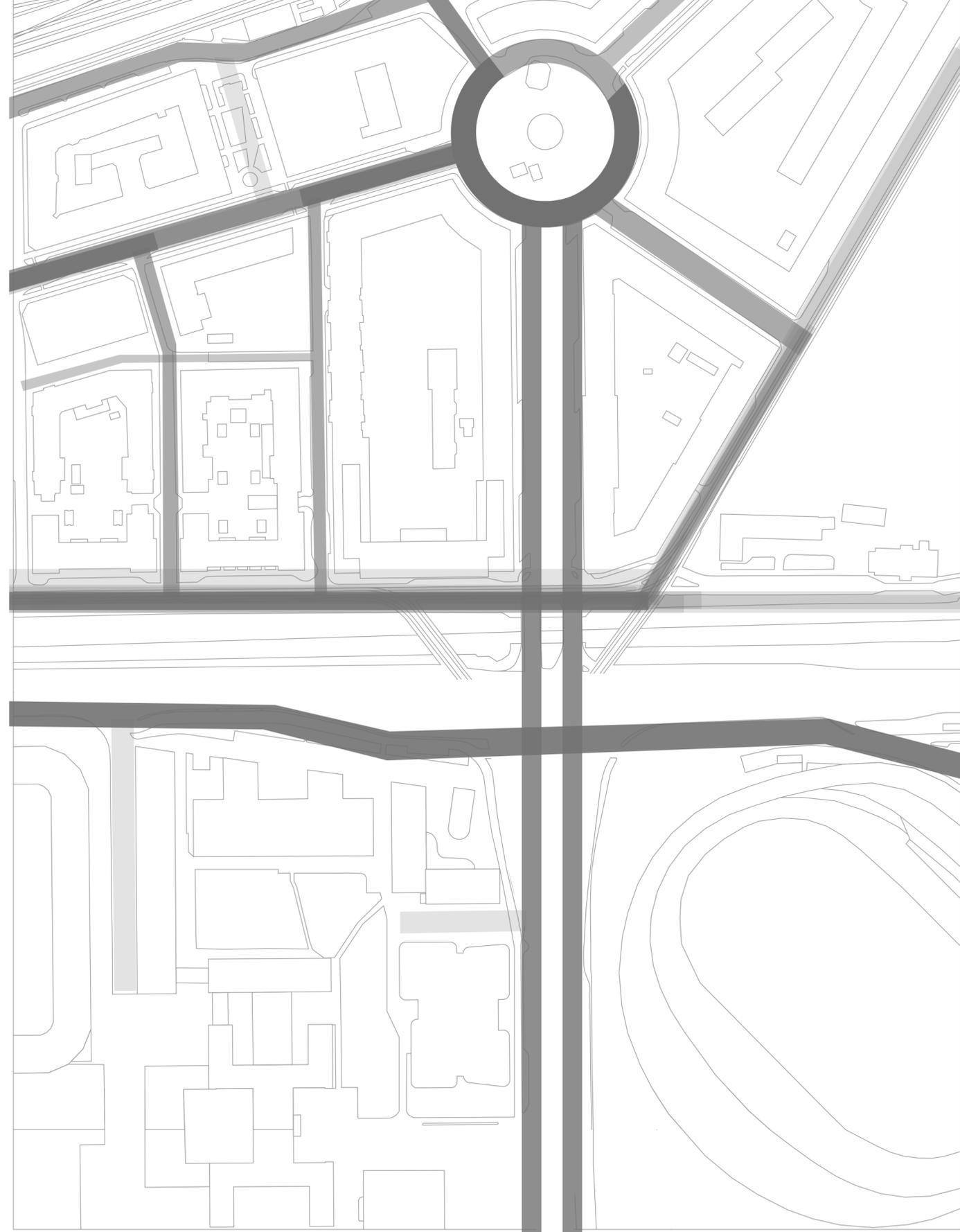
BODIES OF WATER



INFRASTRUCTURE NETWORK



Flow of traffic



Flow of people



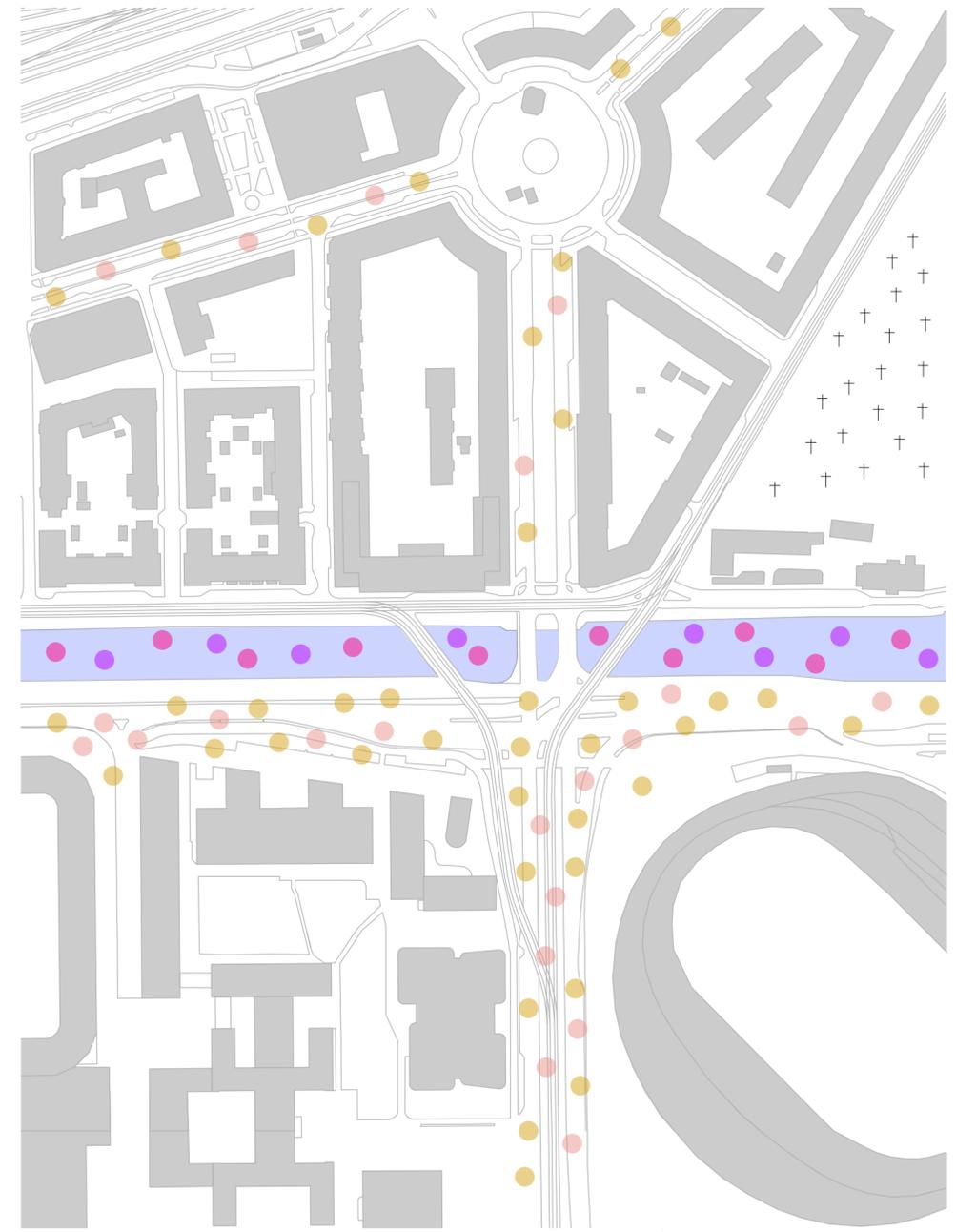
Drainage mapping



Water accumulation



Sketch of the terrain shape



- Nonylphenols
- Phthalates
- Car pollution
- Sound pollution

Pollutants

The Parasite

Imagine a future where Gothenburg is affected by heavy storm water. A dense city that needs to take care of its own waste and the challenges in dealing with flooding.

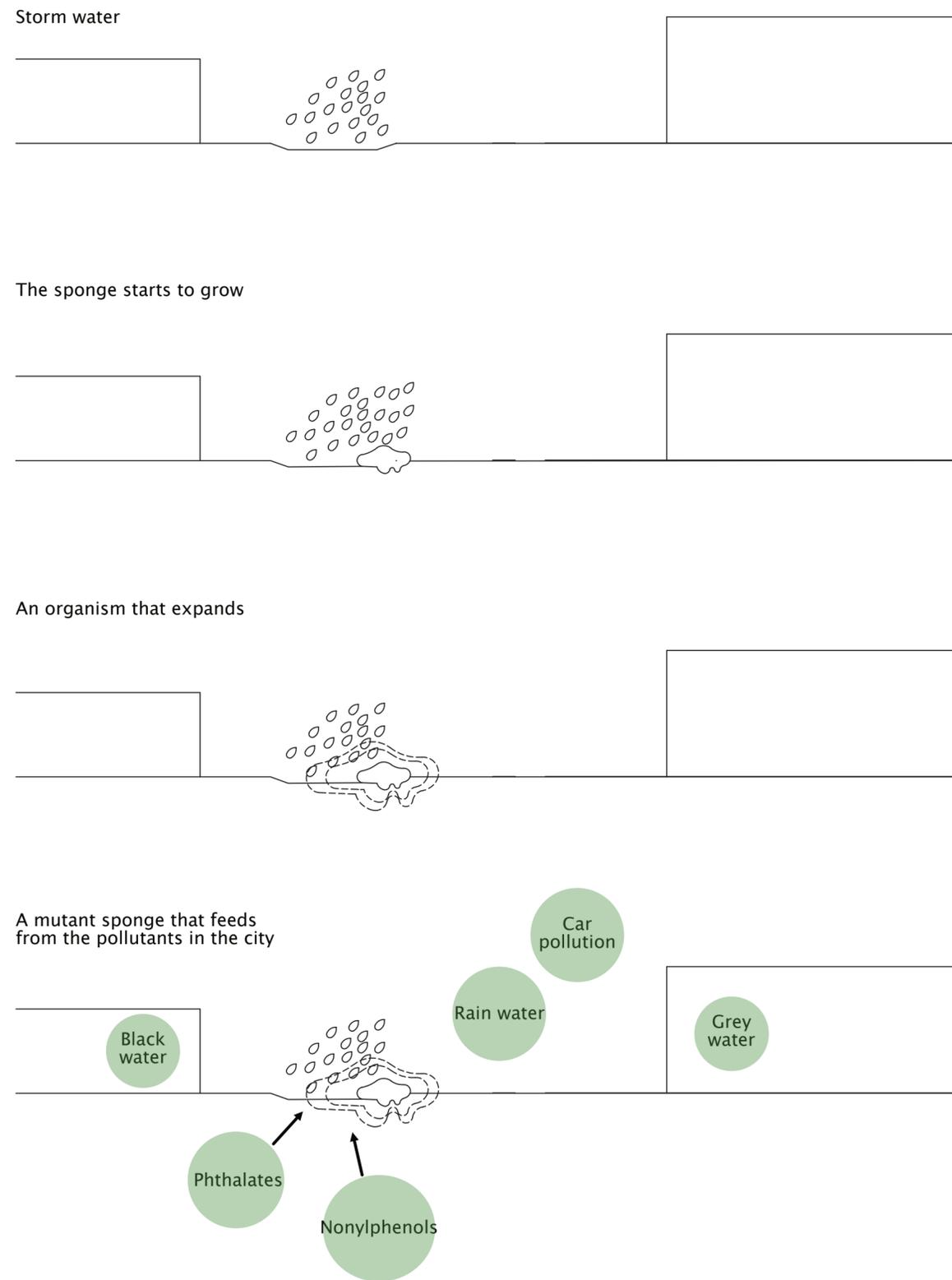
In this future Gothenburg, a living organism that has the ability of cleaning the water will come alive. It will act as a protection against flooding and an ever changing landscape to wonder around upon.

This terrain, this organism is a mixture of several water systems and terrains that exist today.
(From the underground, this organism grows and grows until it erodes to above ground.)

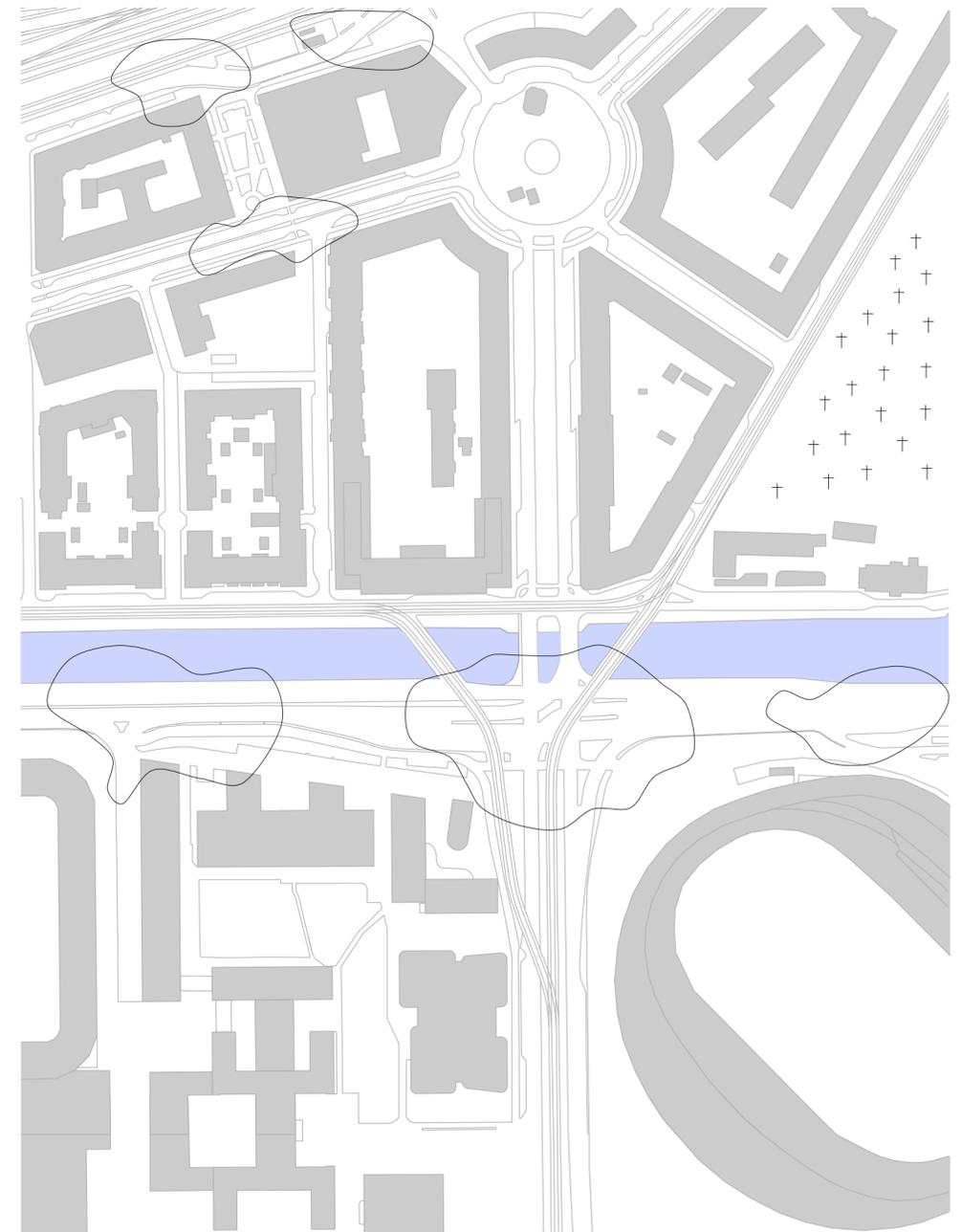
The pollutants that are flushed with the rainwater will thereby get taken care off by the sponge-organism before the water gets back into the river.

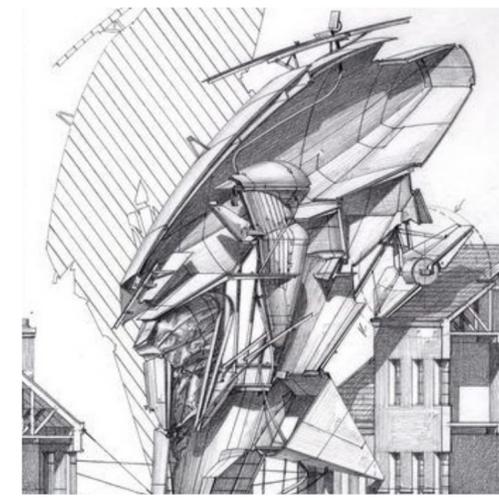
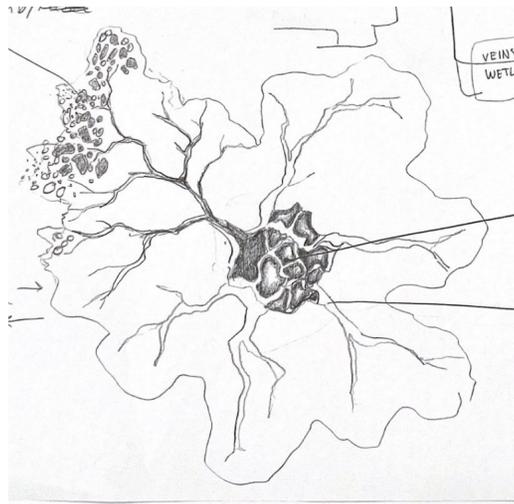
As it grows and takes over the city, it has the behavior of a parasite and uses the city as its mother ship. However, its qualities are more symbiotic rather than damaging in the sense of dealing with the rainwater.

THE BIRTH OF THE SPONGE

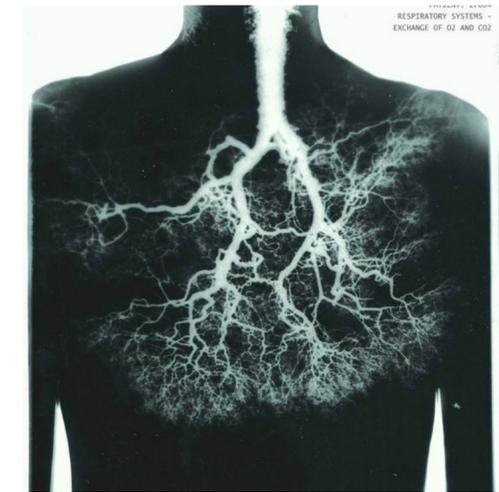
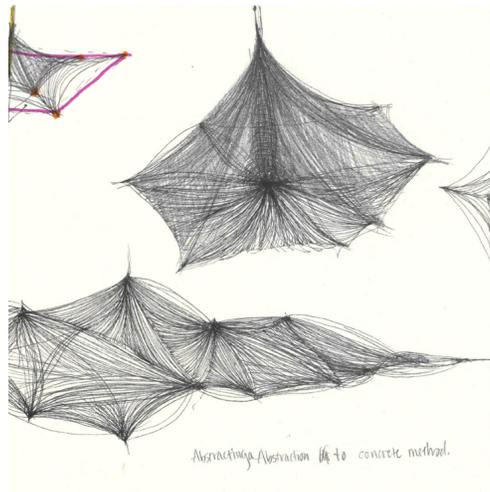


Departure for the sponge

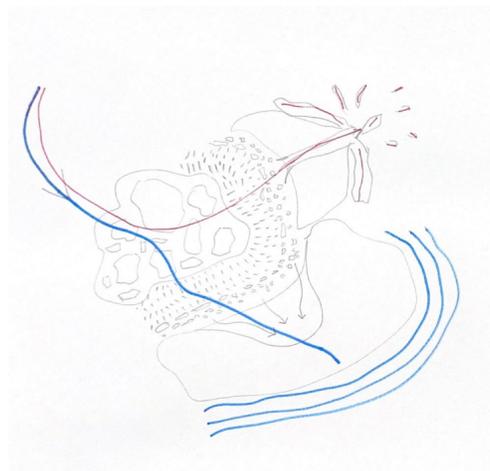




Deconstruction



Alike by nature



Decaying - living

A hybrid landscape

As it is this ever changing landscape, the boundaries within the city will be erased making it possible to wonder in the city as if it was in nature.

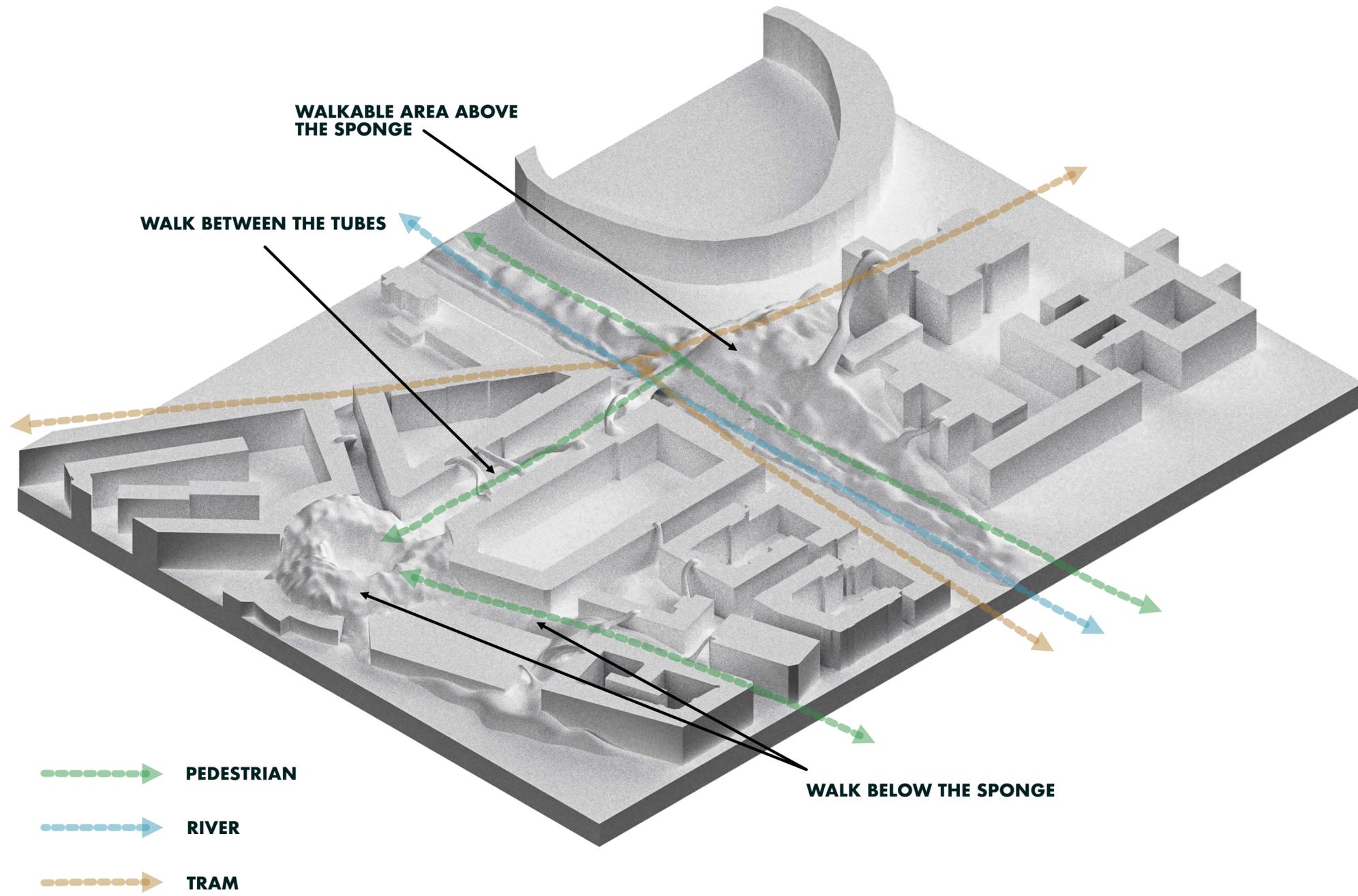
This landscape will regenerate and heal the wounds in nature that have been caused by human exploitation. As it will provide a place of calmness and recreation for humans and other species.

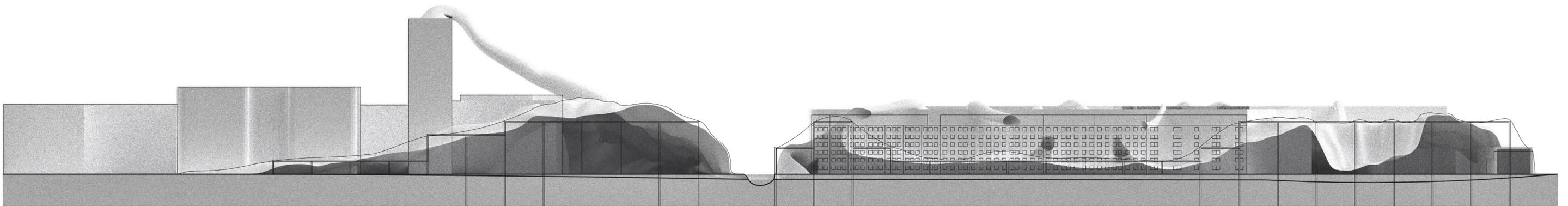
It is also about water and rain. During periods of rain the landscape has the capability to change in shape, creating different opportunities for different climates.





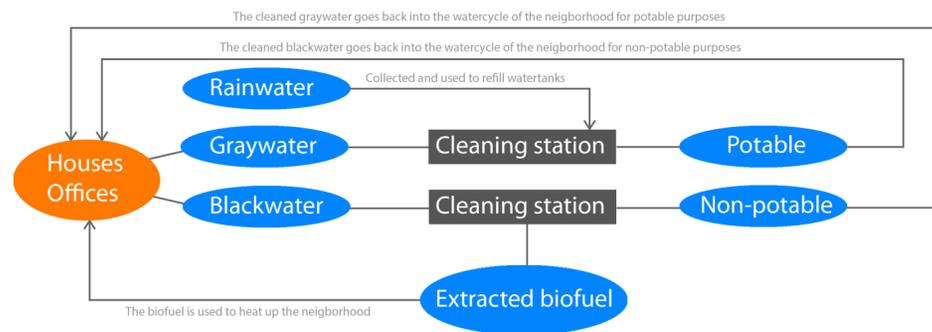
AXONOMETRY - OVERVIEW OF FUNCTIONS



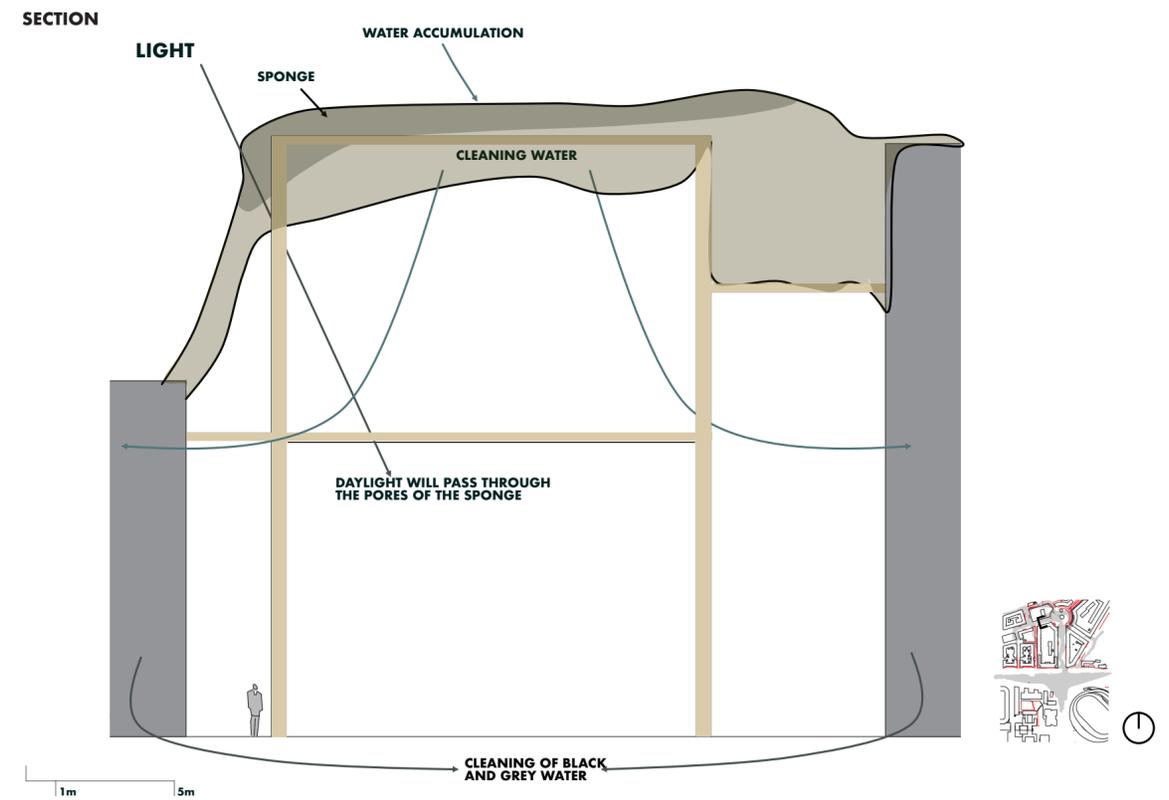
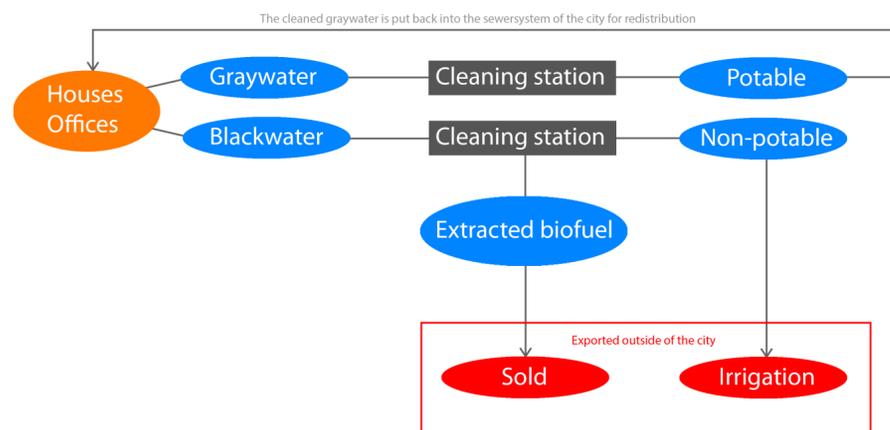


Section 1:1500

New local wastewater system



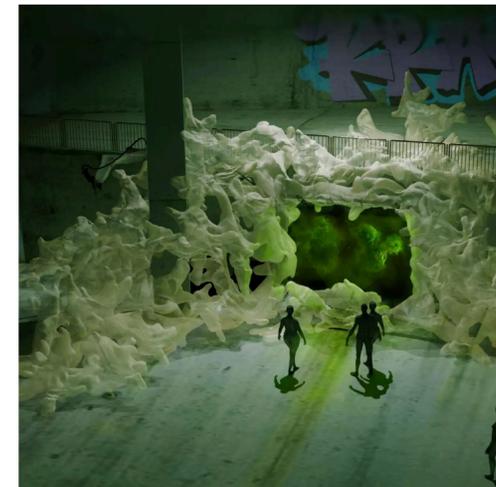
Basic wastewater system

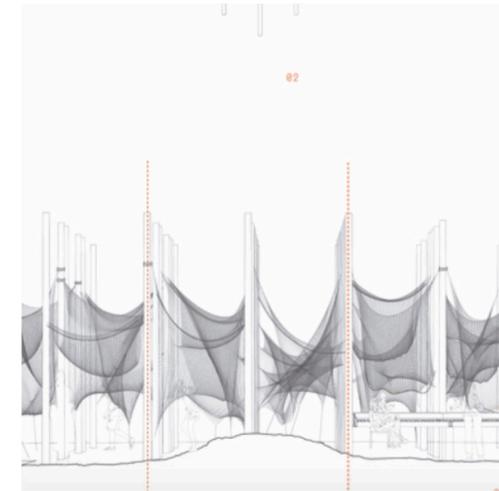
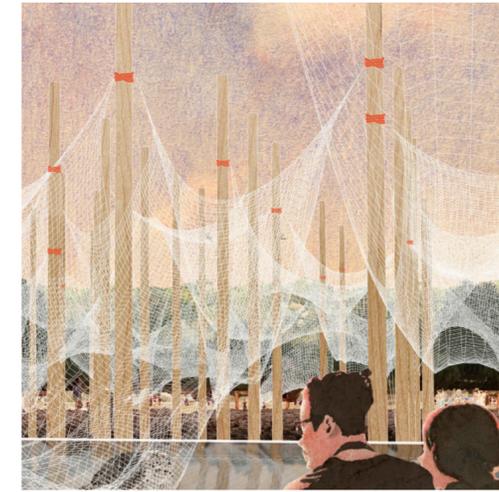
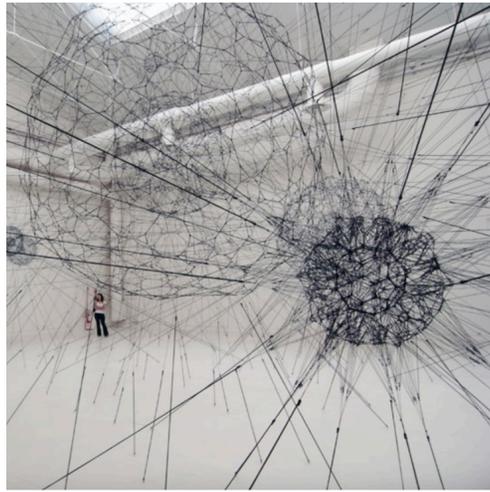
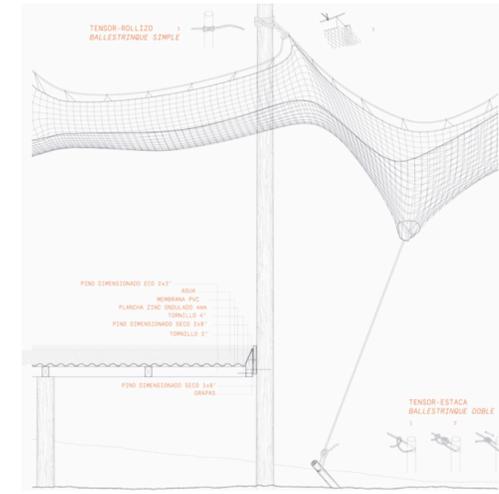




Phase 2

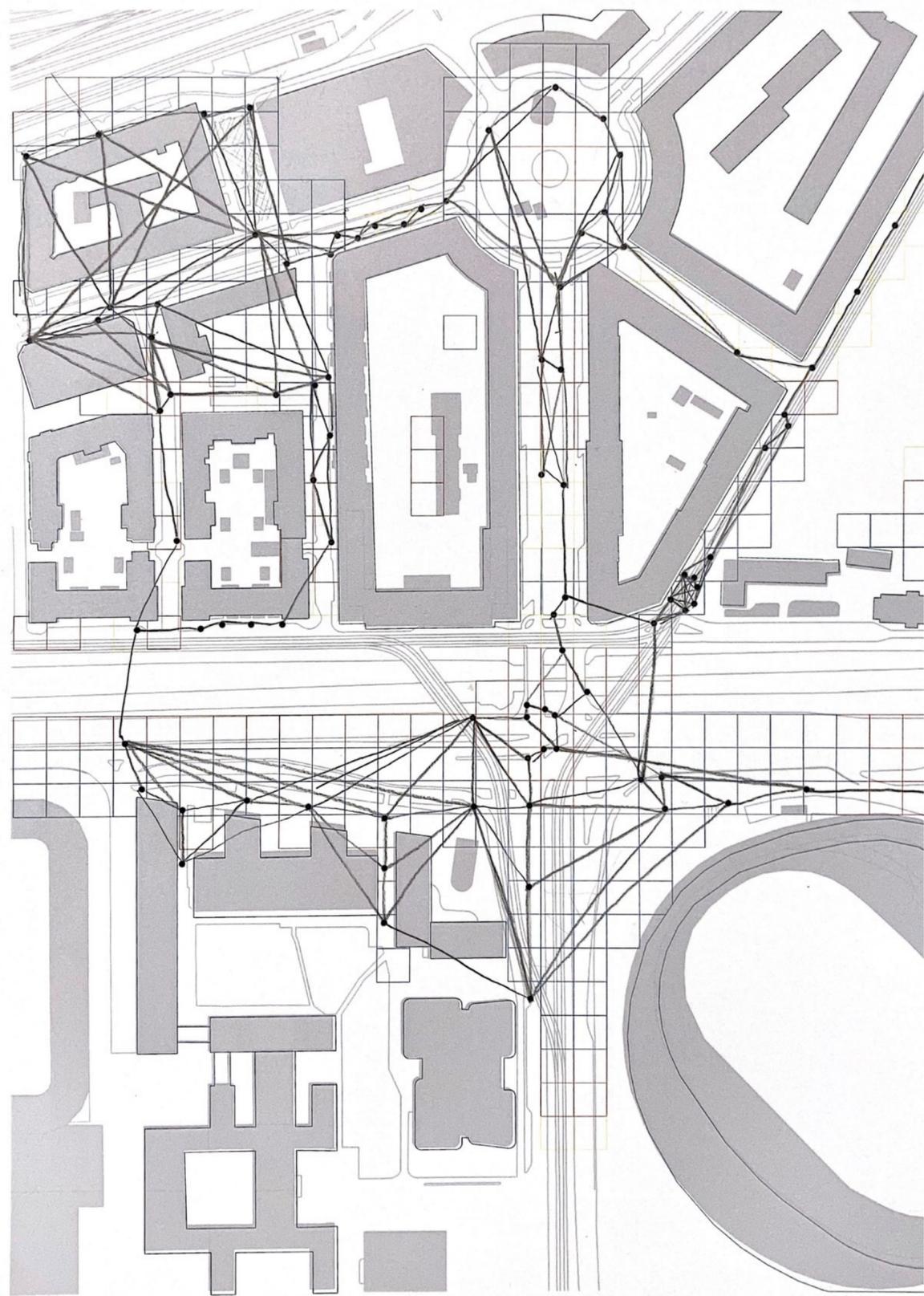
Exploring the structure



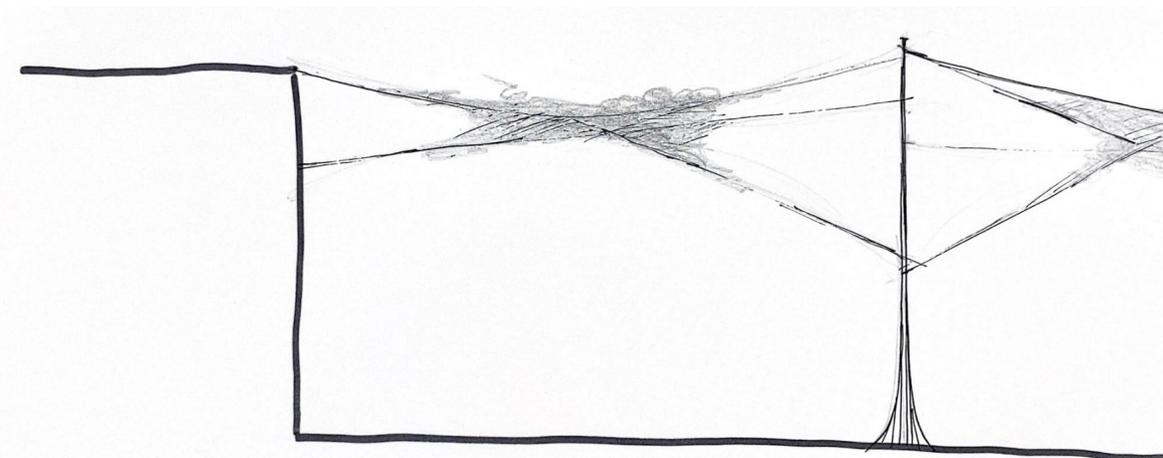
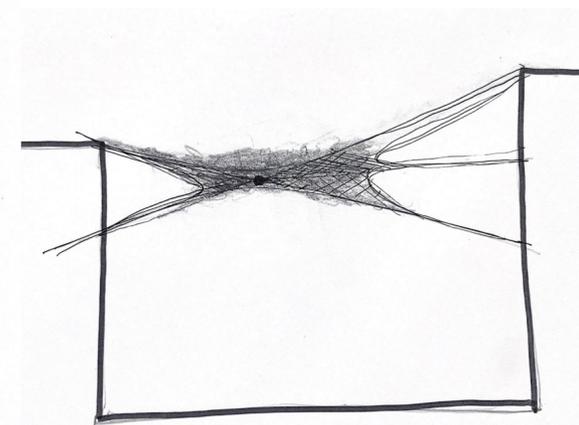
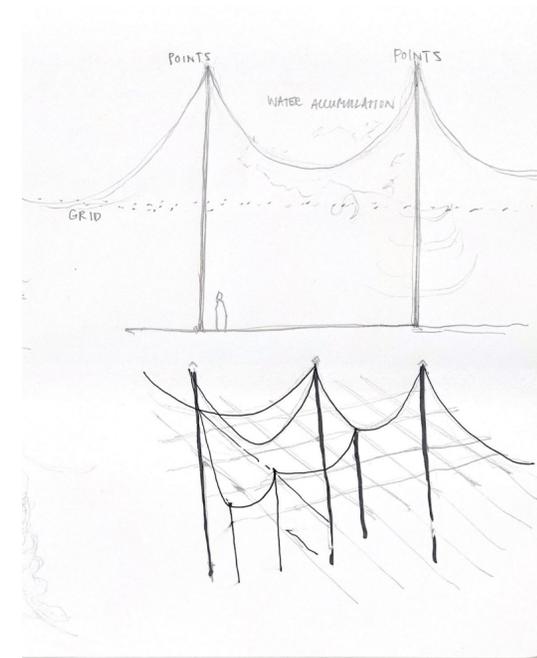
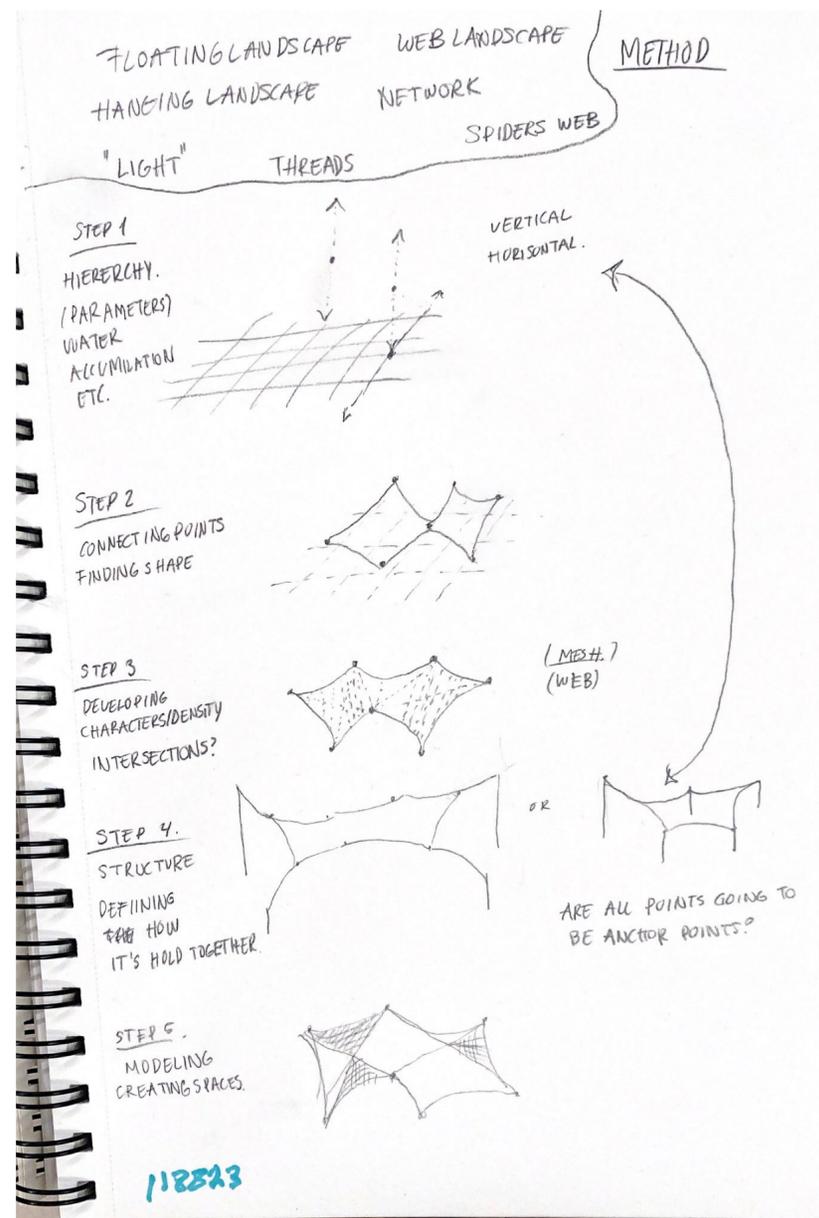


References: Tomas Saraceno

References: 5,5 kg pavillion



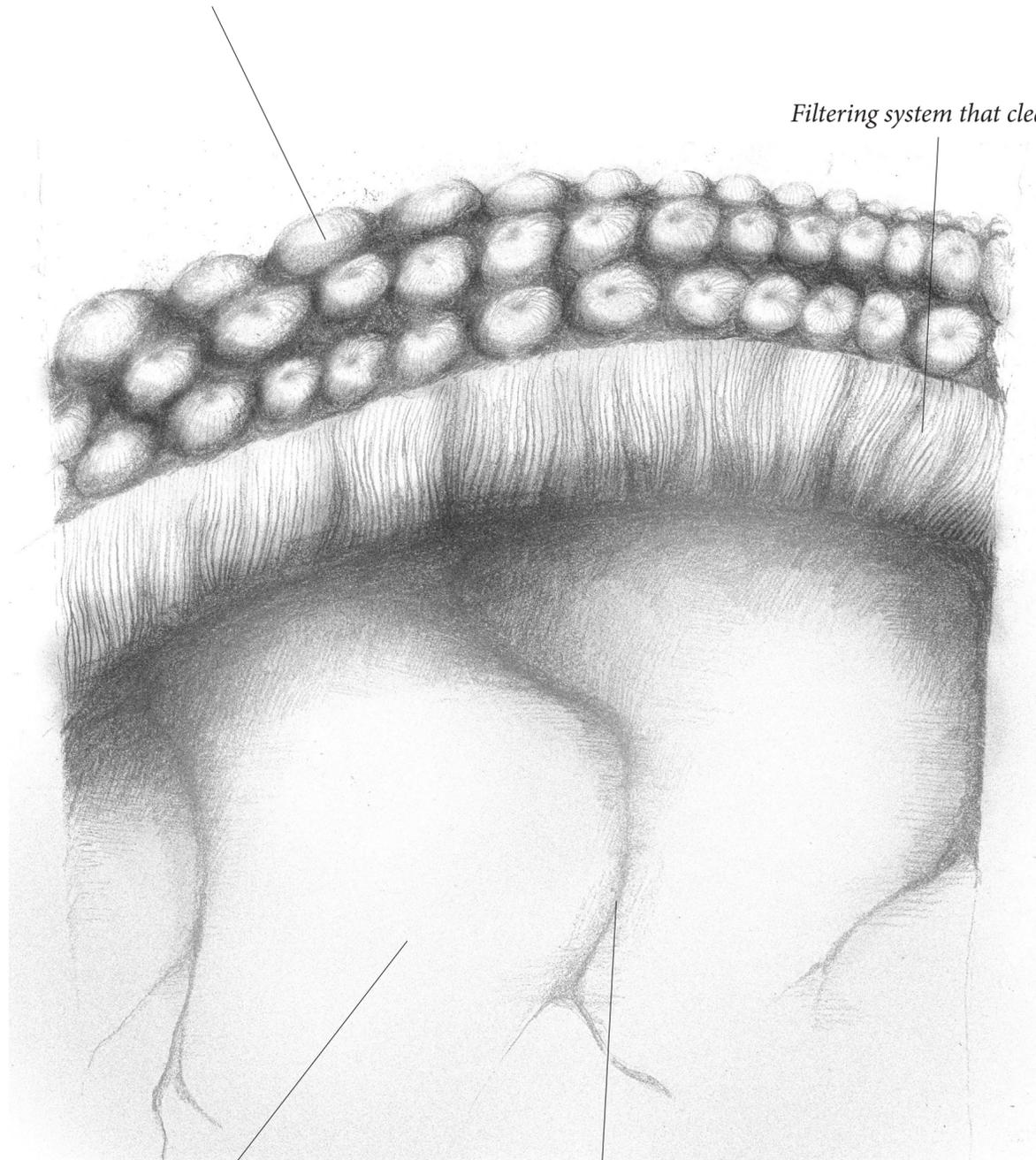
Anchor points for the web that holds the organism.



Sketches on the structure of the net that holds the organism.

Membrane that sucks the water.

Filtering system that cleans the water



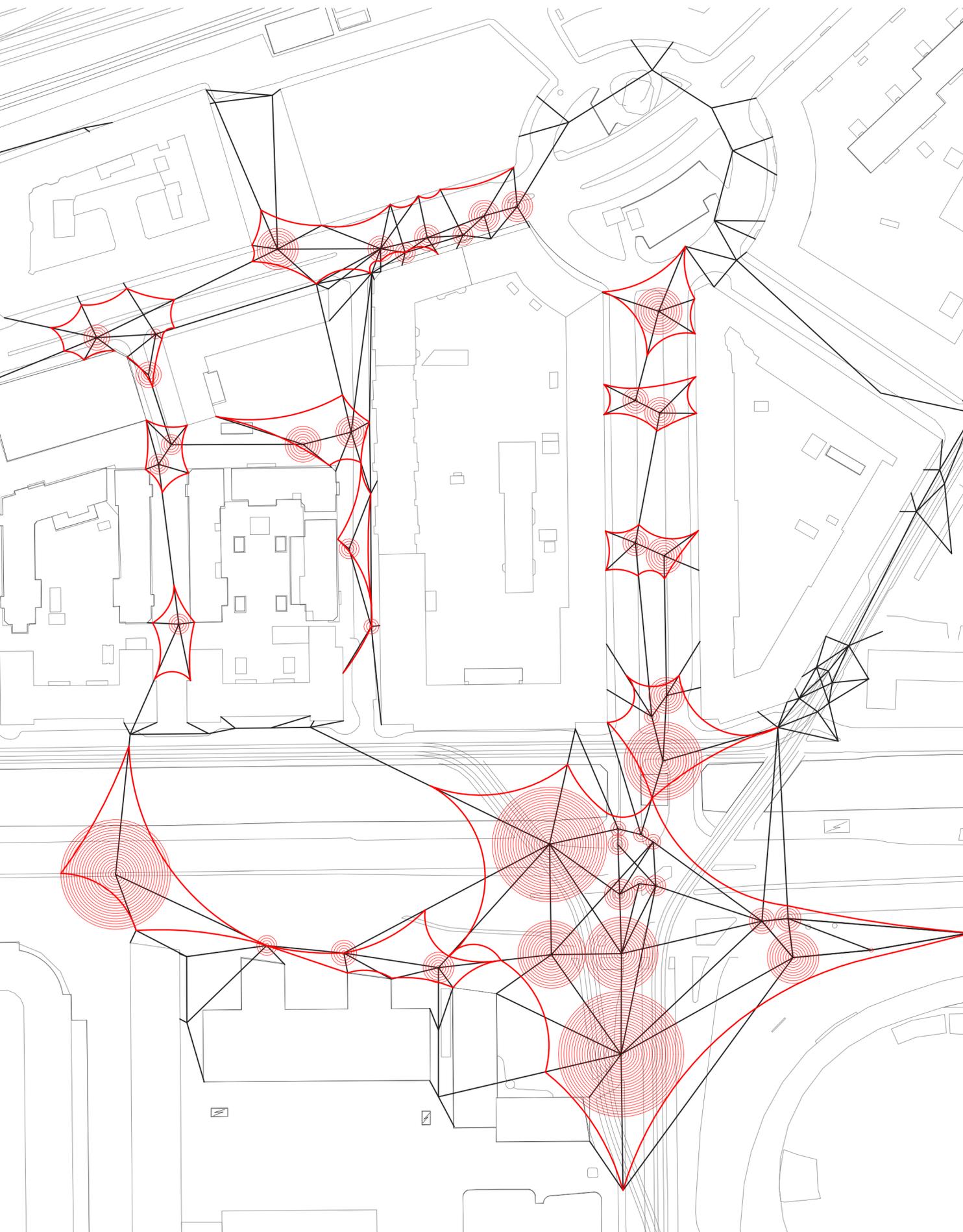
Water storage

*Veins that distributes
the water*

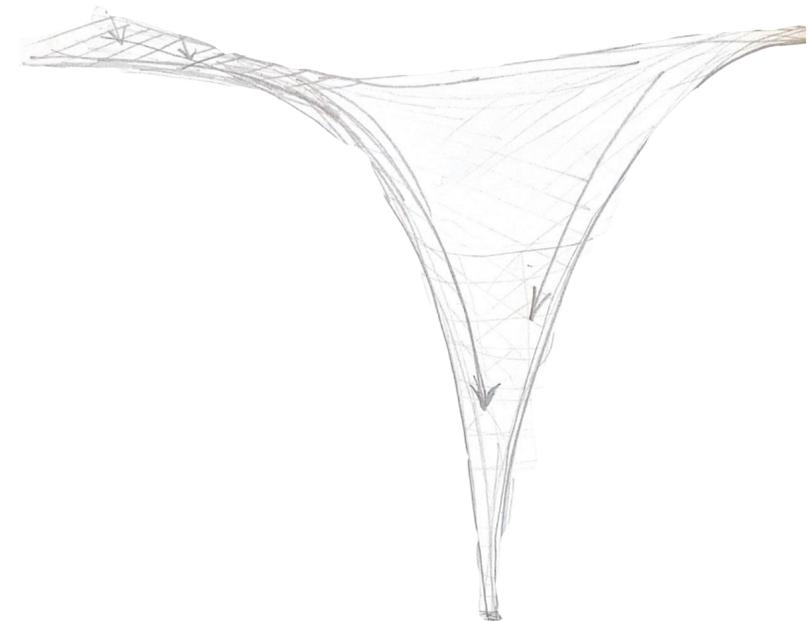
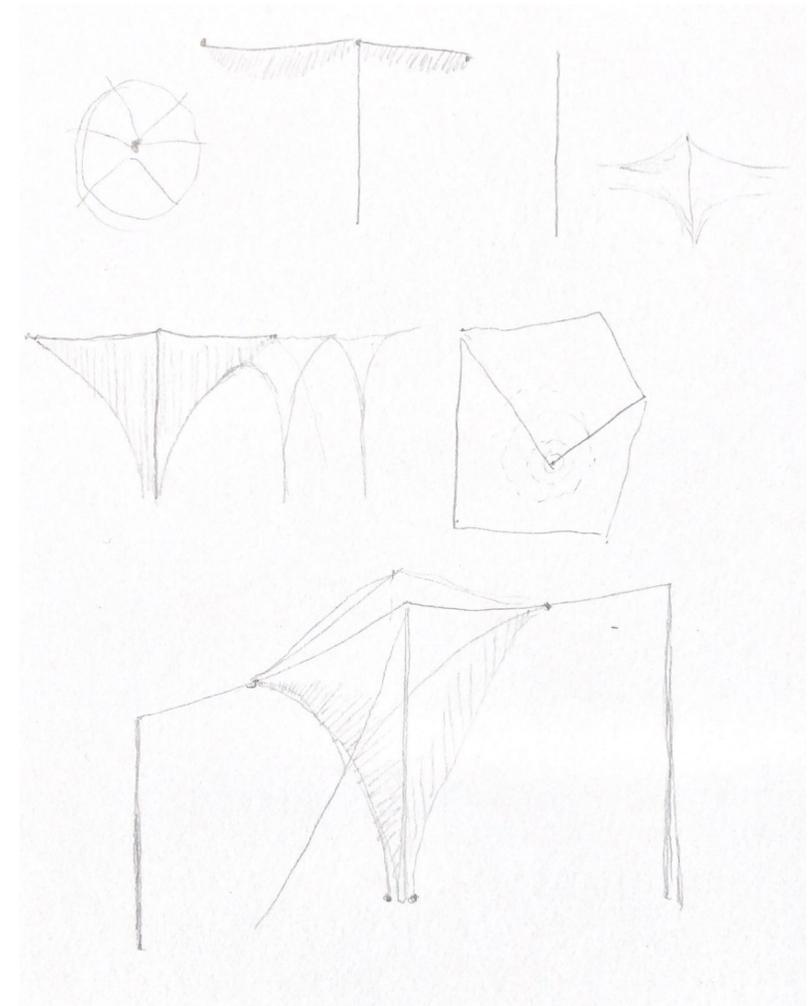
Section of the organism



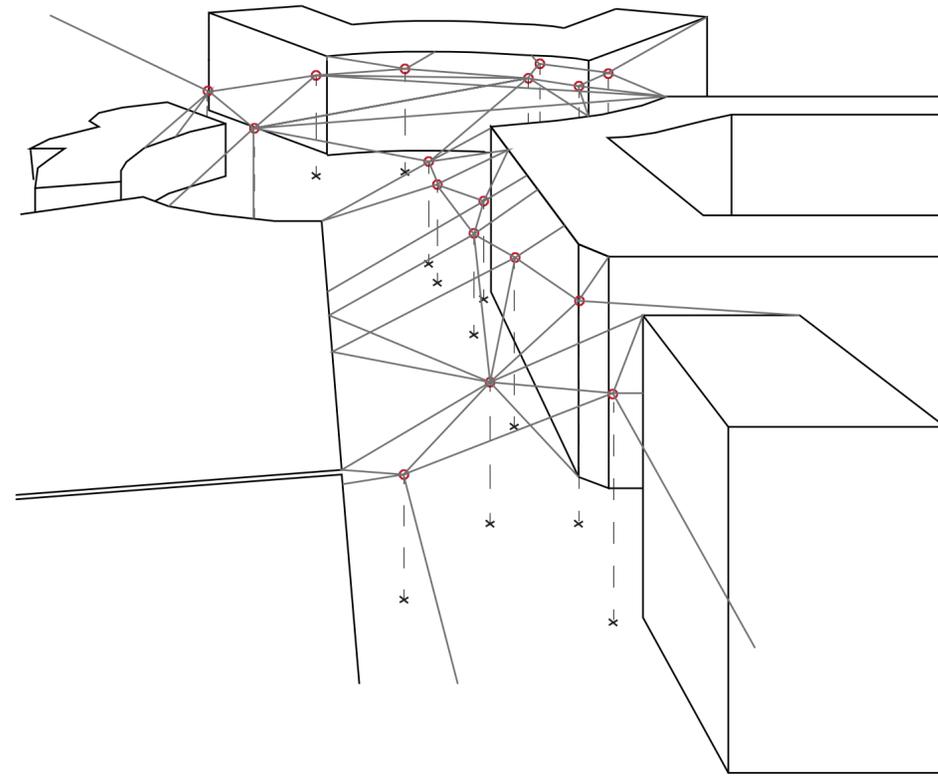
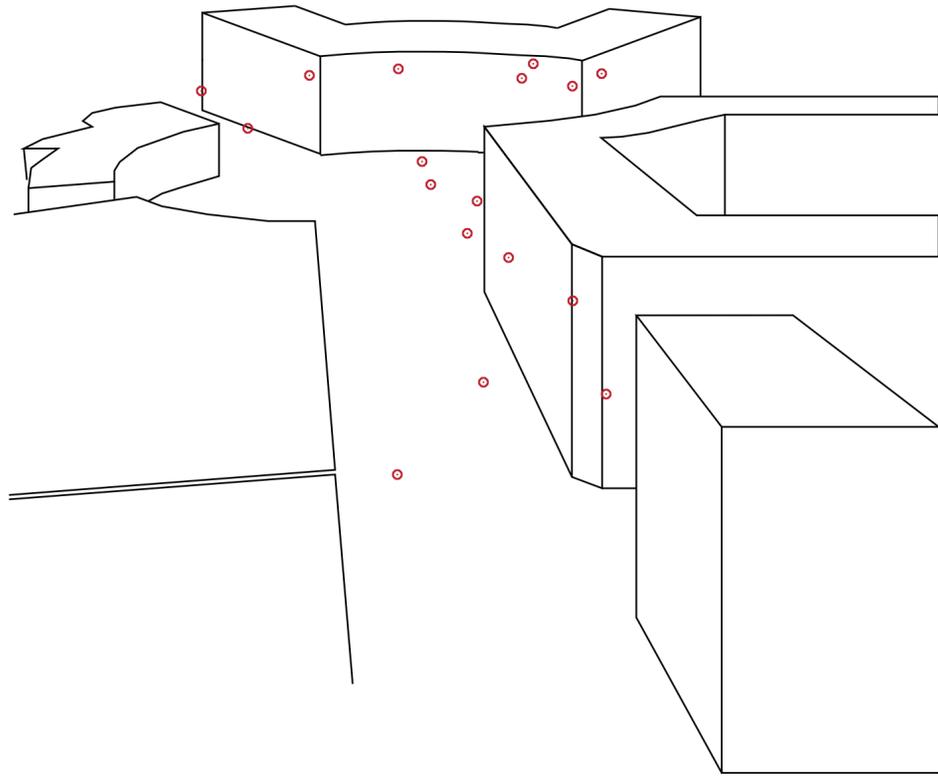
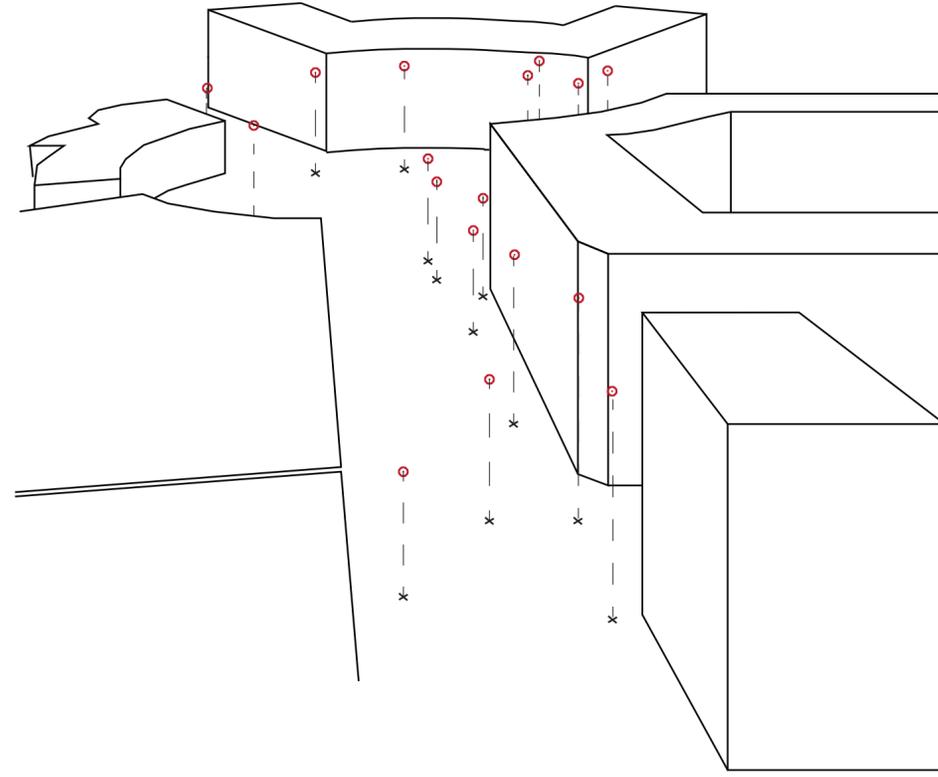
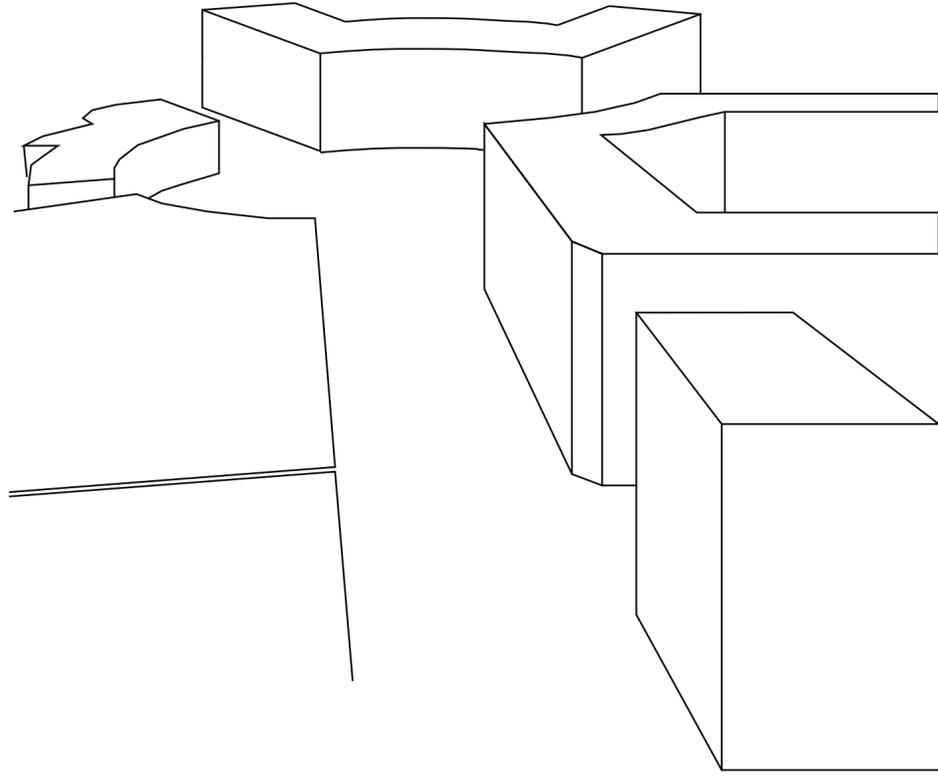
Close up top view of organism.

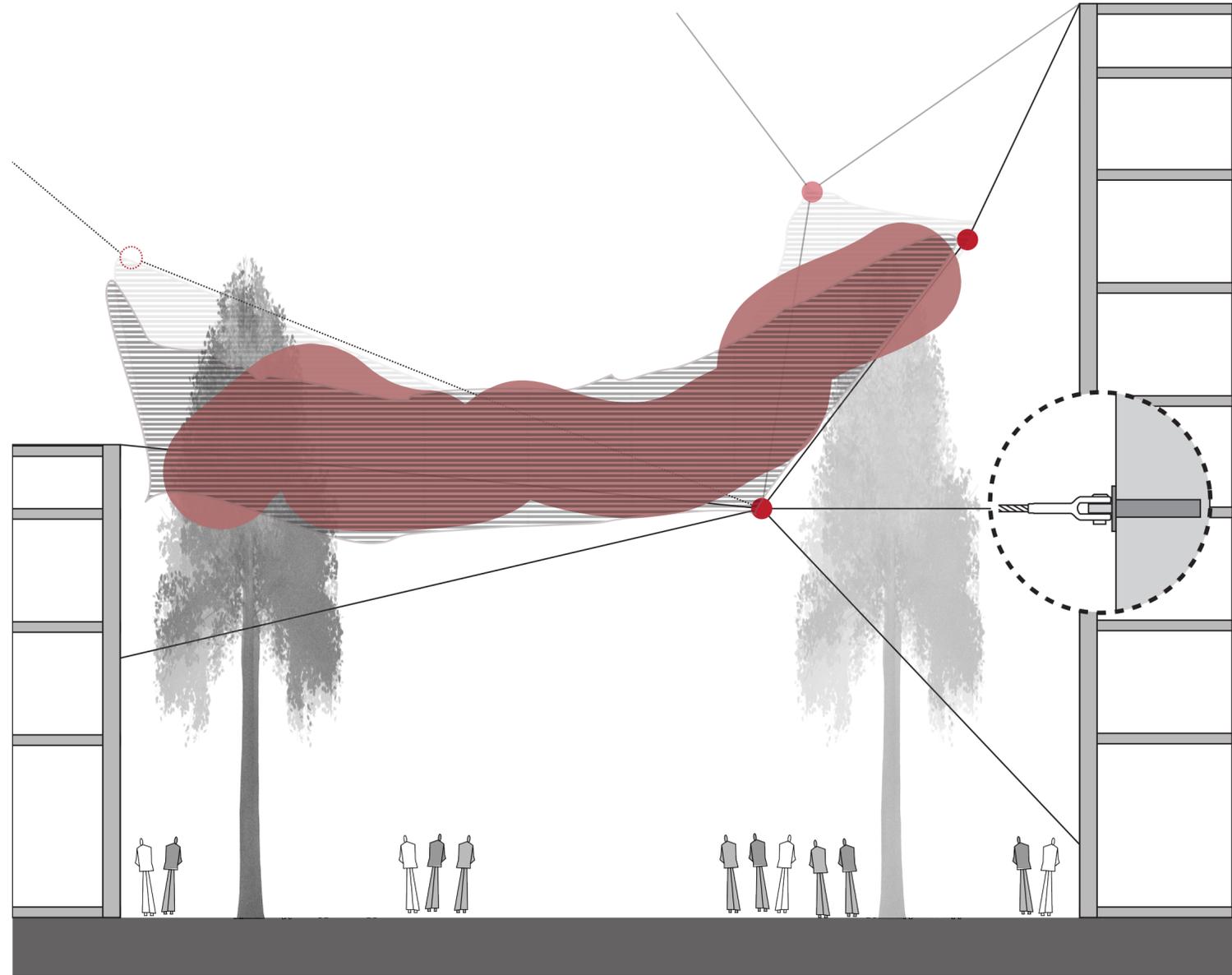
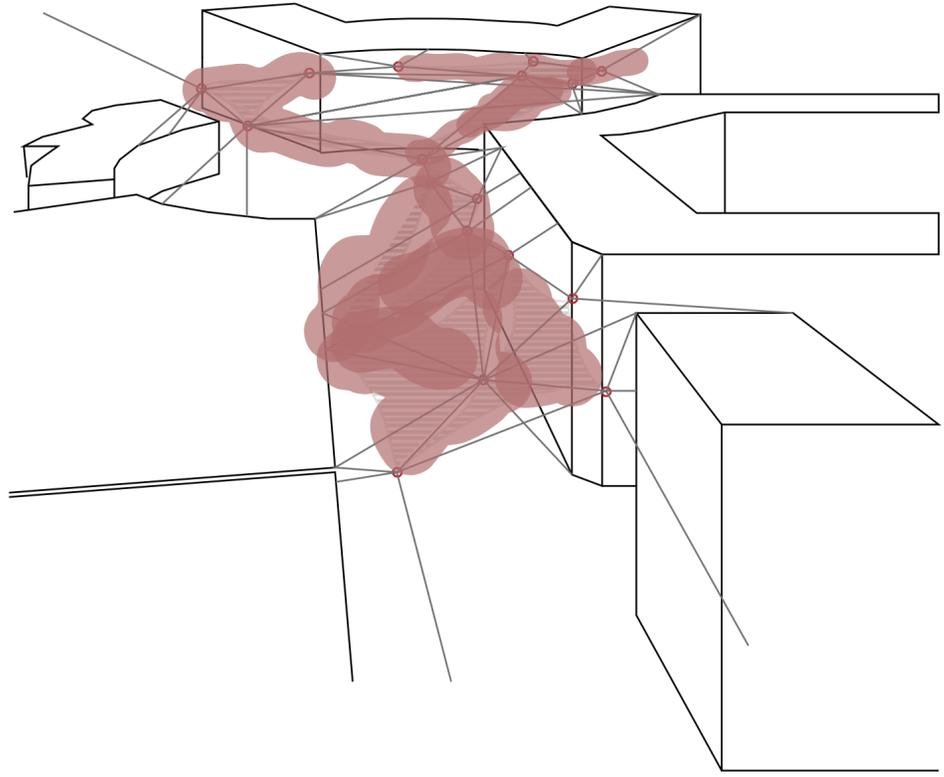
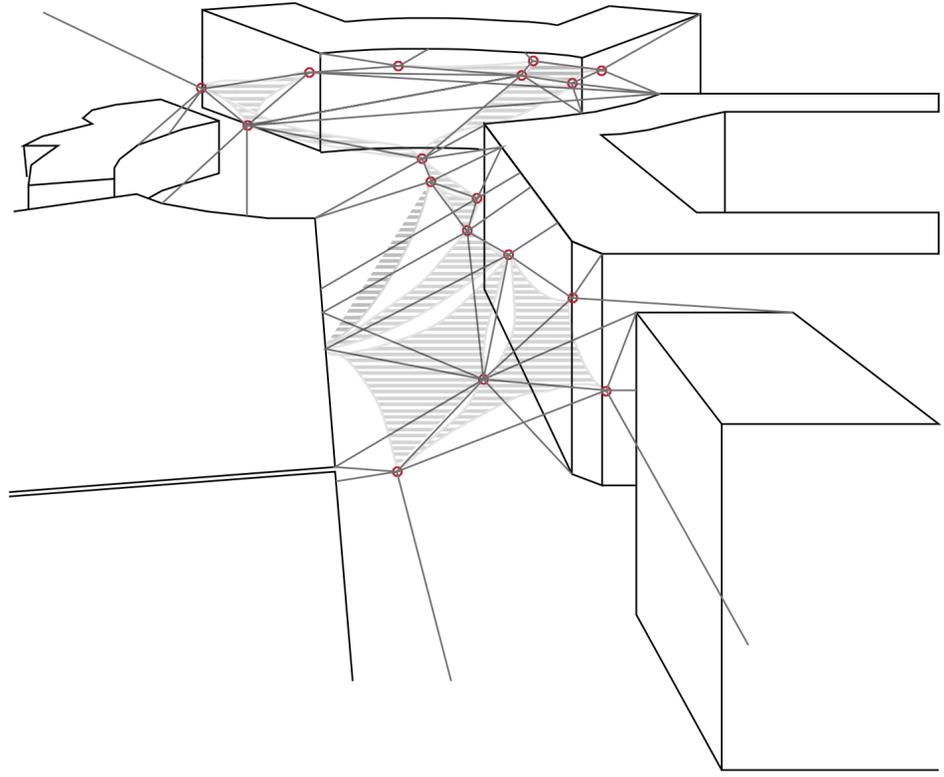


Plan view of net system.



Sketches on how to navigate the water down





Gothenburg year 2621

The narrative



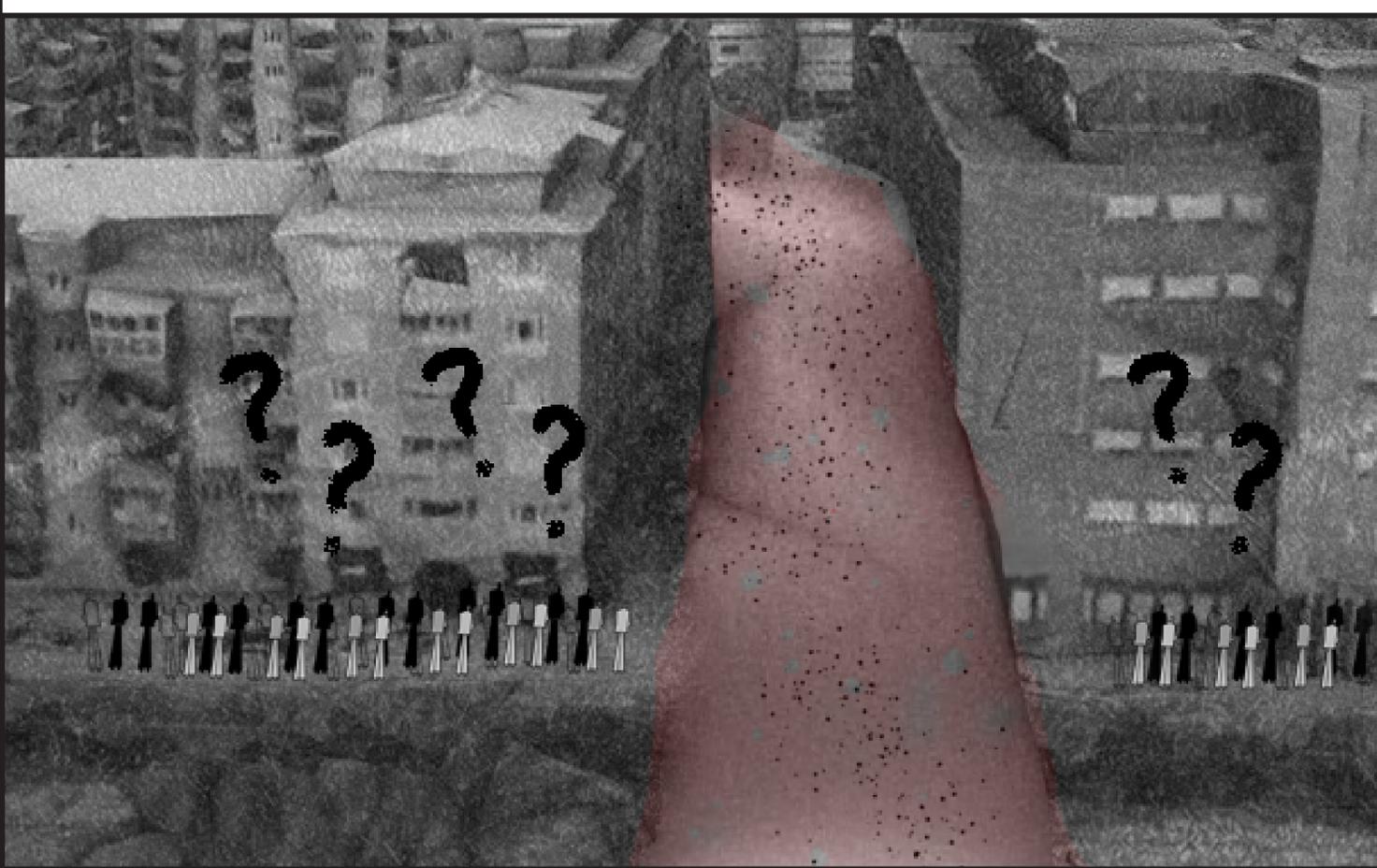
Heavy rain fall is causing trouble for the city. Flooding in the streets and toxic water fills the river.



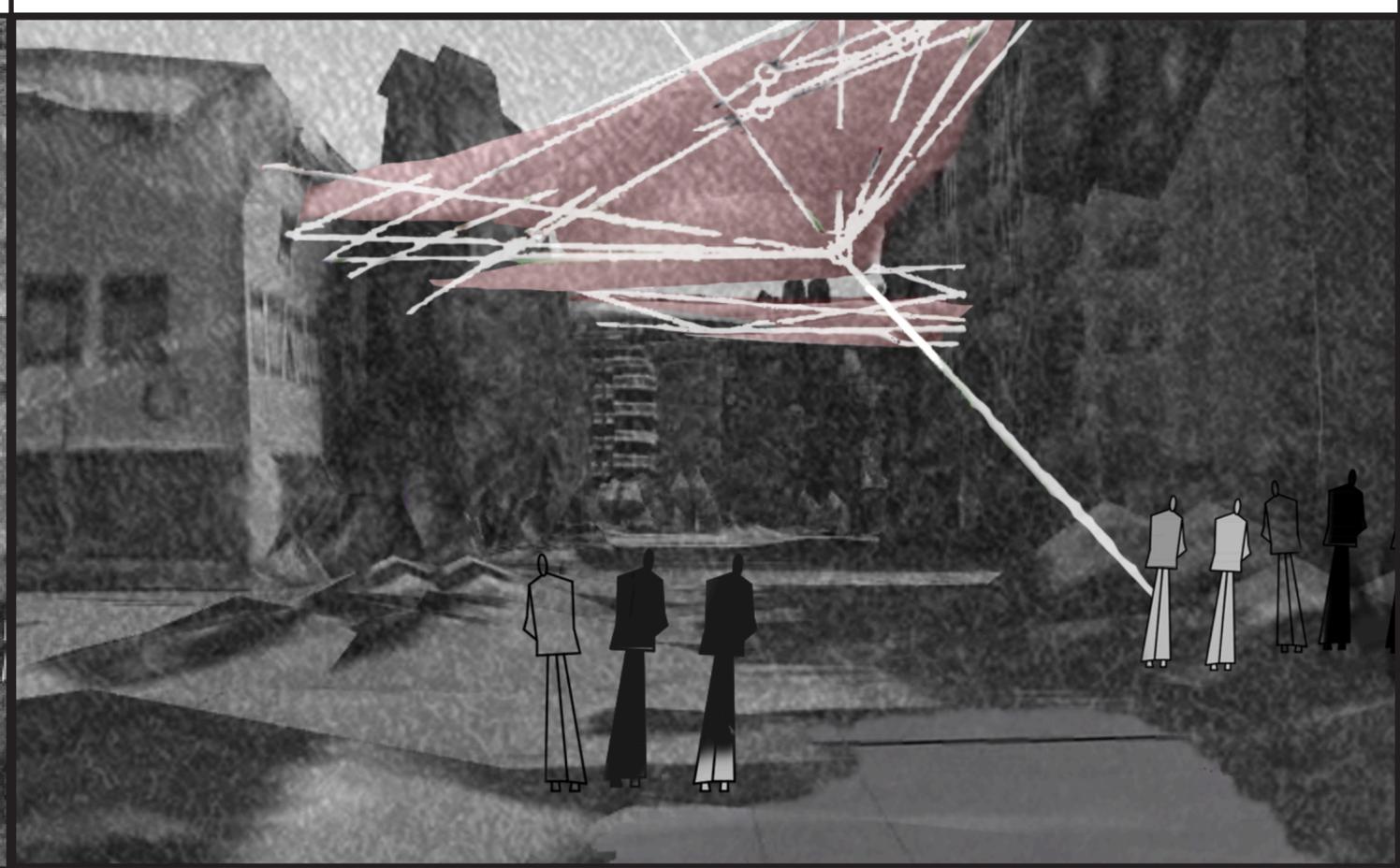
In the river "Fattighusån" a peculiar organism is being born. It feeds from water and pollutants.



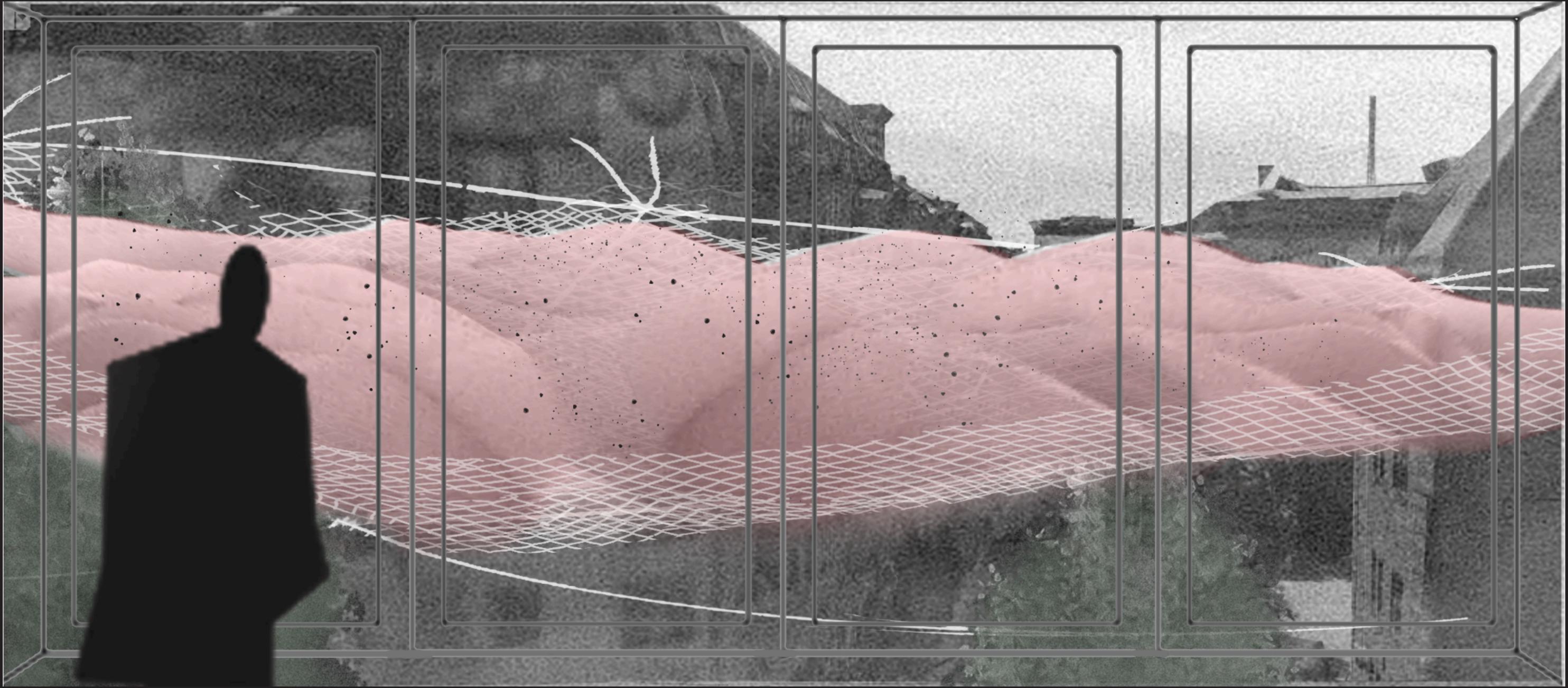
The inhabitants discover that the organism omits moisture during heat waves and stores the water during flooding.



The citizens of the neighbourhood Stampen are perplexed and hopeless about the invasive creature.



As the organism takes over the inhabitants build a structure of wires to catch the organism.



The End