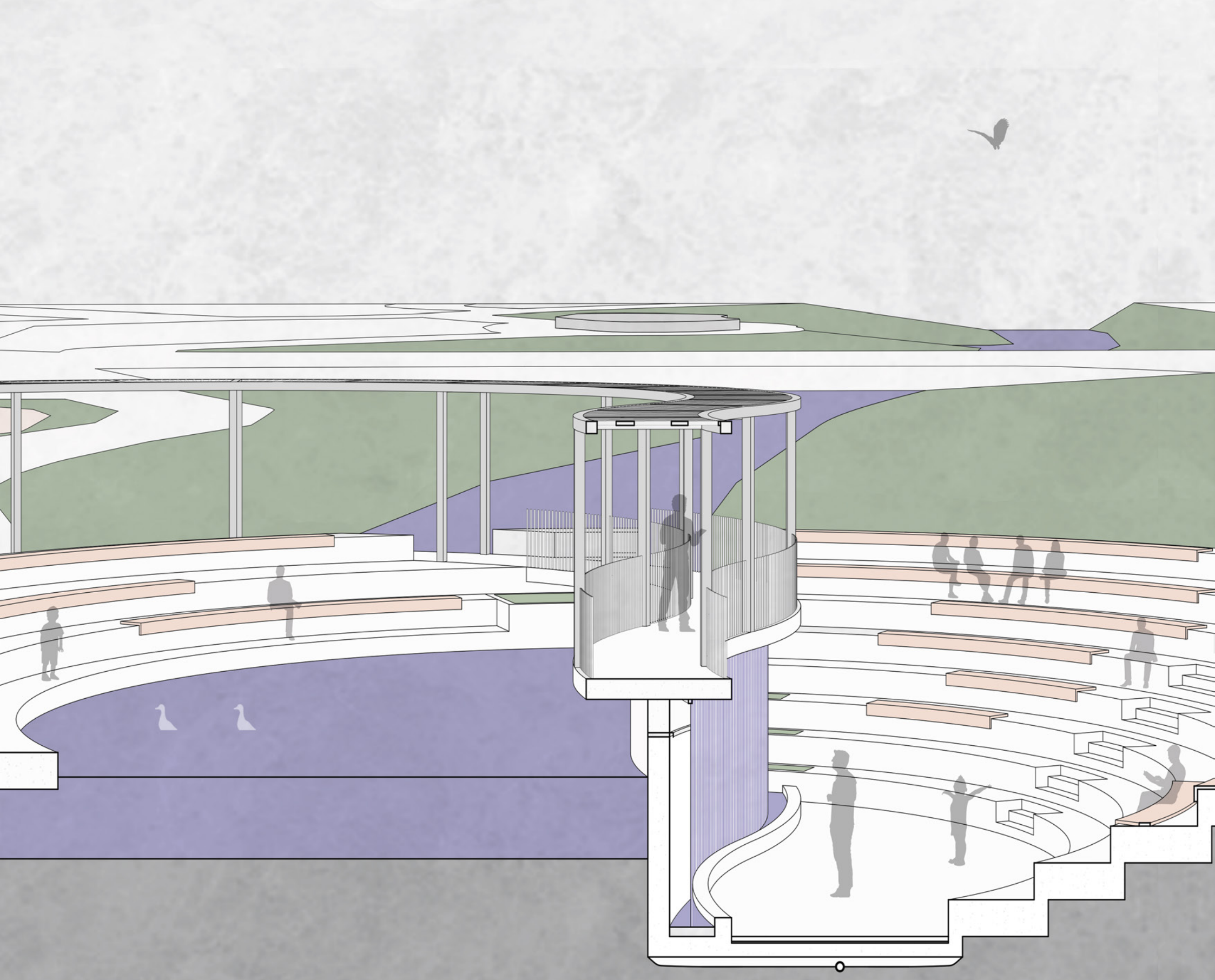
Kvillebäckan

VATTEN TORG



Sai Sita Lakshmi Nagappan

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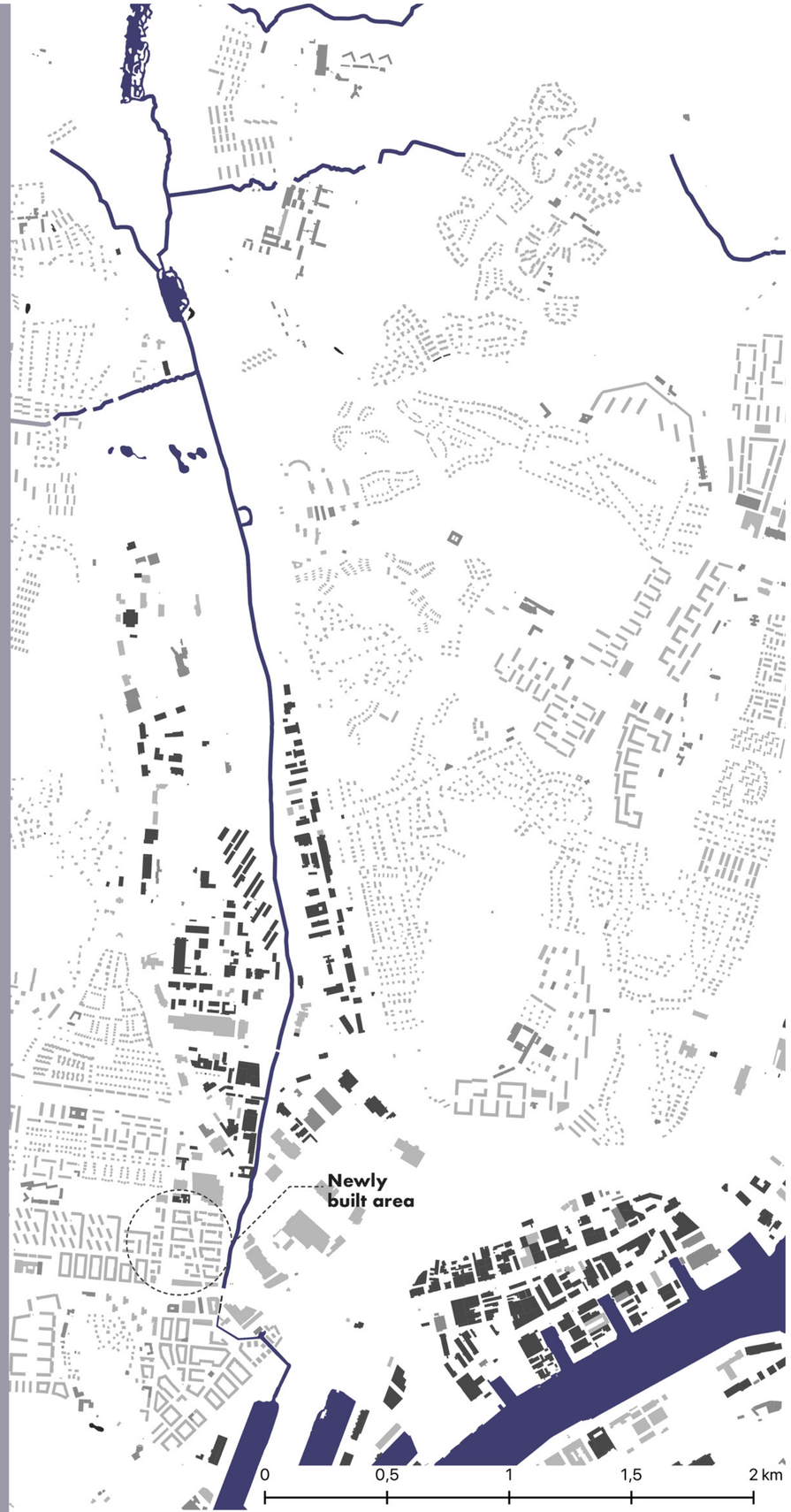
1 / VALLEY

We were flooded with such different experiences as we walked along the Kvillebackän valley. Sometimes the valley took us into nature and the golf course, at other times we were amidst the industrial settlements. It took us near the shopping complexes and residential buildings and finally ended at Jubiliemsparken which was brimming with so much activity. Certain parts of the valley were privatized creating breaks in the walk along the channel. With a few environmental analyses we as a group identified a few interesting points to work on further. A few areas we wished to work in were to increase the attractiveness of the water channel and walkway, increasing the natural value of the green corridor and mitigating the flooding risk which is prominent in the area.



Topographical map of Kvillebäcken
Scale 1:15000
Building functions around Kvillebäcken

2 / TRANSECT

The **Kvillebackäan valley** can be segregated into different zones, namely:

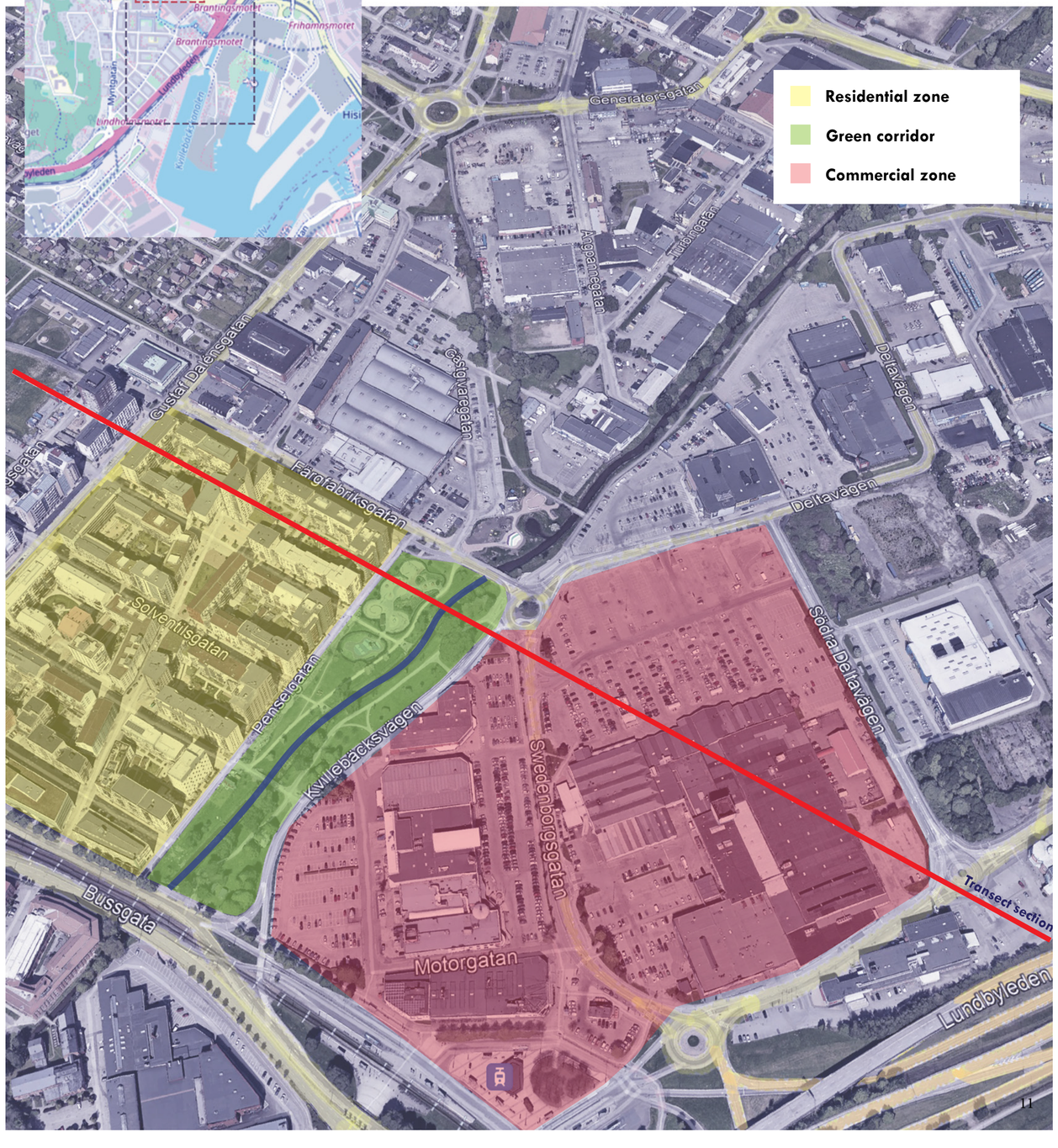
Natural zone: On the North part of the valley which included the natural walkways, hills and golf course. This zone had a serene experience to it. (A)

Industrial zone: Middle of the valley. This zone included fenced walkways, medium to large containers dotting the channel and industrial blocks. (B)

Commercial zone and residential zone: Kvilletorget/ Backaplan. South of the valley. Includes the Backaplan Köpcentrum, a few other commercial complexes and a newly constructed residential settlement. (C)

We as a group of two wished to work with zone C closely with the residential and commercial spaces. The transect section is chosen in a way that it cuts through the residential block, commercial complex, parking lots and green corridor. Through the transect section we wanted to understand the interaction between these zones and how well the transition between them was seen and experienced. We wish to further develop the experience and value of this area with interesting public inserts.

The transect section is chosen in a way that it cuts through three different zones - Residential, commercial and green corridor. Through the transect section we wanted to understand the interaction between these zones and how well the transition between them was seen and experienced.



TRANSECT PLAN (1:200)

commercial area

residential area

public s (playground)

channel

green corridor

nodal junction

parking space

prevailing
wind direction

TRANSECT SECTION (1:200)

arrow

gull

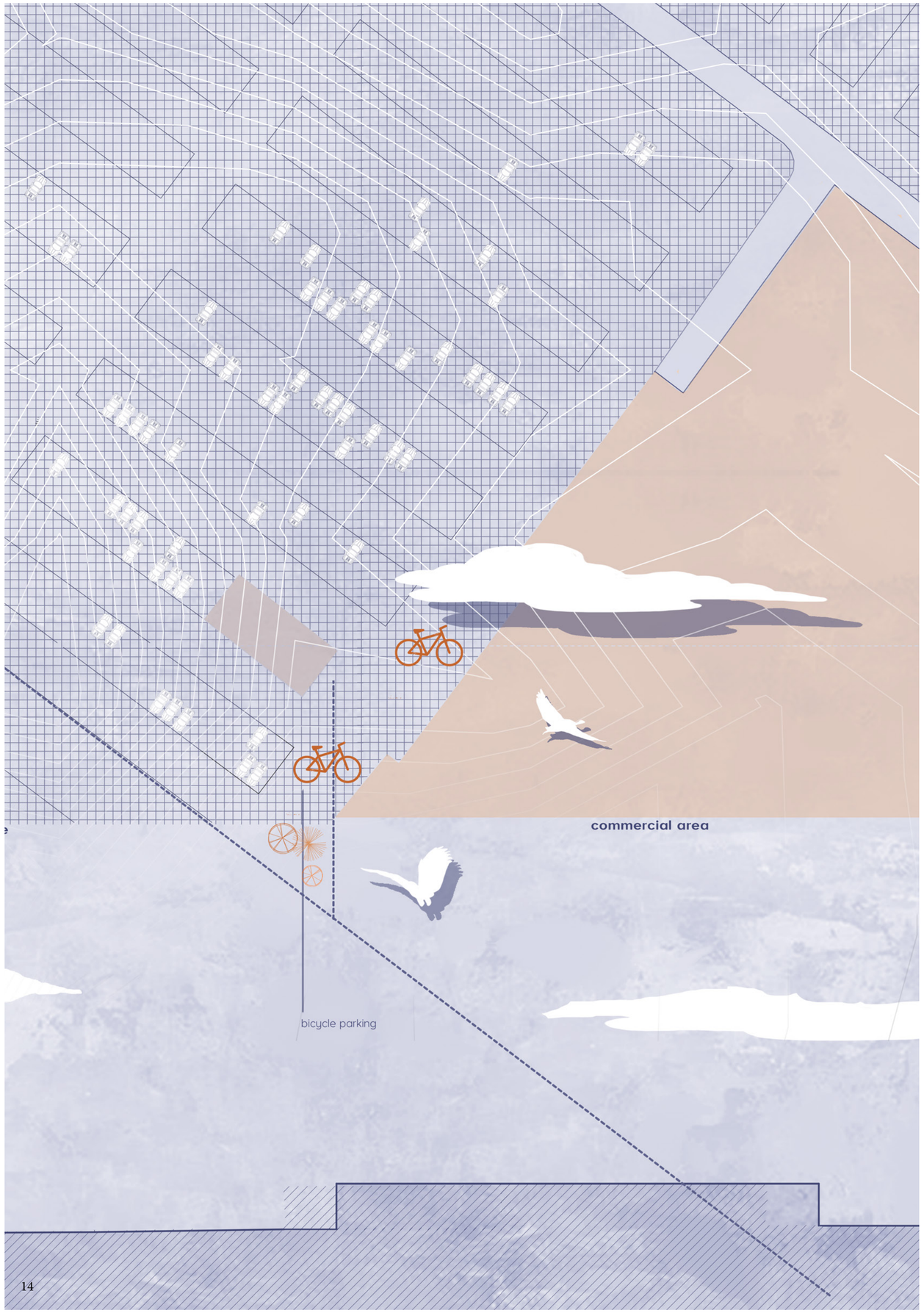
linden

oak

blackbird

contaminated land - high risk

noise pollution 60Db



Findings

Along the residential blocks

1. The green corridor is designed to be less interactive.
2. The area feels quite busy with human as well as vehicular traffic.
3. Increased flooding risk.

(There is a potential for an urban prototype to exist which will help mitigate flood and also increase the interaction with the green corridor and water channel.)

Along Backaplan Köpcentrum

1. A large gray parking infrastructure which is not put to 100% use.
2. Certain level of soil contamination.

(There is a potential for an urban prototype to exist which will improve the quality of the grey infrastructure as well as add on to the whole shopping experience.)

3 / CONTEXT

I have chosen to explore further the potential for an urban prototype closer to the water channel along the residential blocks.

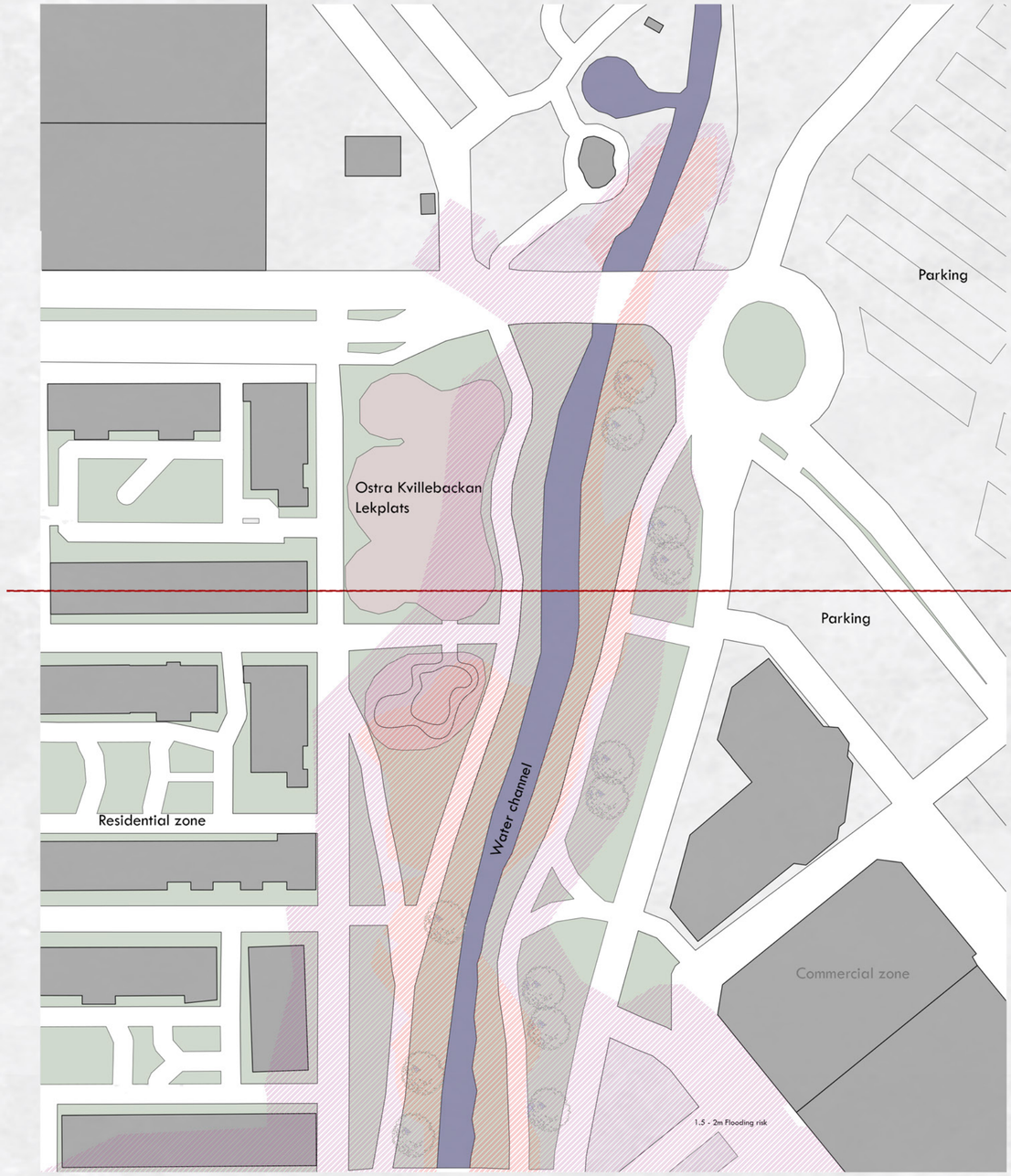
Problematization:

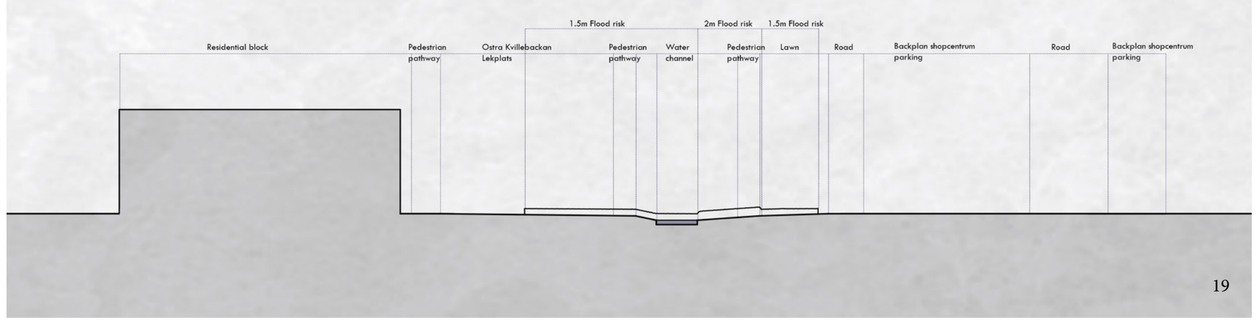
1. **Bypass:** Clear barrier created by the pathways separating the commercial and residential spaces completely.

2. **Flooding risk:** The topography generates flooding during heavy rainfall in the area.

3. **Lack of publicness:** The area is used only for commuting purpose. There is no potential for public interaction.

SITE PLAN & SECTION (1:1000)





3 / DESIGN

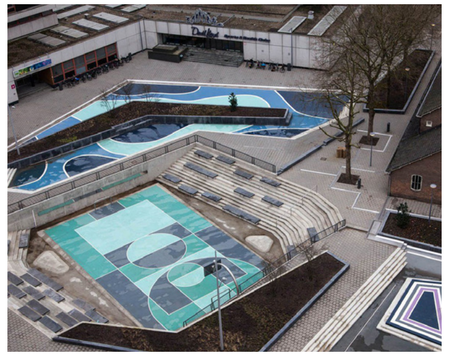
INSPIRATION

Hailing from the city of Chennai in India, heavy rains and flooding have become two inevitable things. Flooding is the result of urbanization and expanding city boundaries. A lot of our actions have already pushed us into the Anthropocene era, so I feel it is good to be prepared for the future. I look at this prototype as one solution to making our cities more floodable.

I have always been inspired by Danish architecture and how they are trying to design spaces and public infrastructures for future flooding scenarios like the SLA park flood basin. I also take inspiration from the Indian step wells. Step wells are water cisterns with series of steps leading down to the water level. One can find them in dry lands where there is a need to store rainwater as well as extract ground water. A step well is dug deep till it reaches the aquifer. Water from the aquifer fills the well and provides people with usable, drinkable water. Using these concepts, I wish to develop a prototype which will function as a public space and help mitigate floods.

References

Barbican Center, London



Benthempleim Water Square, Rotterdam

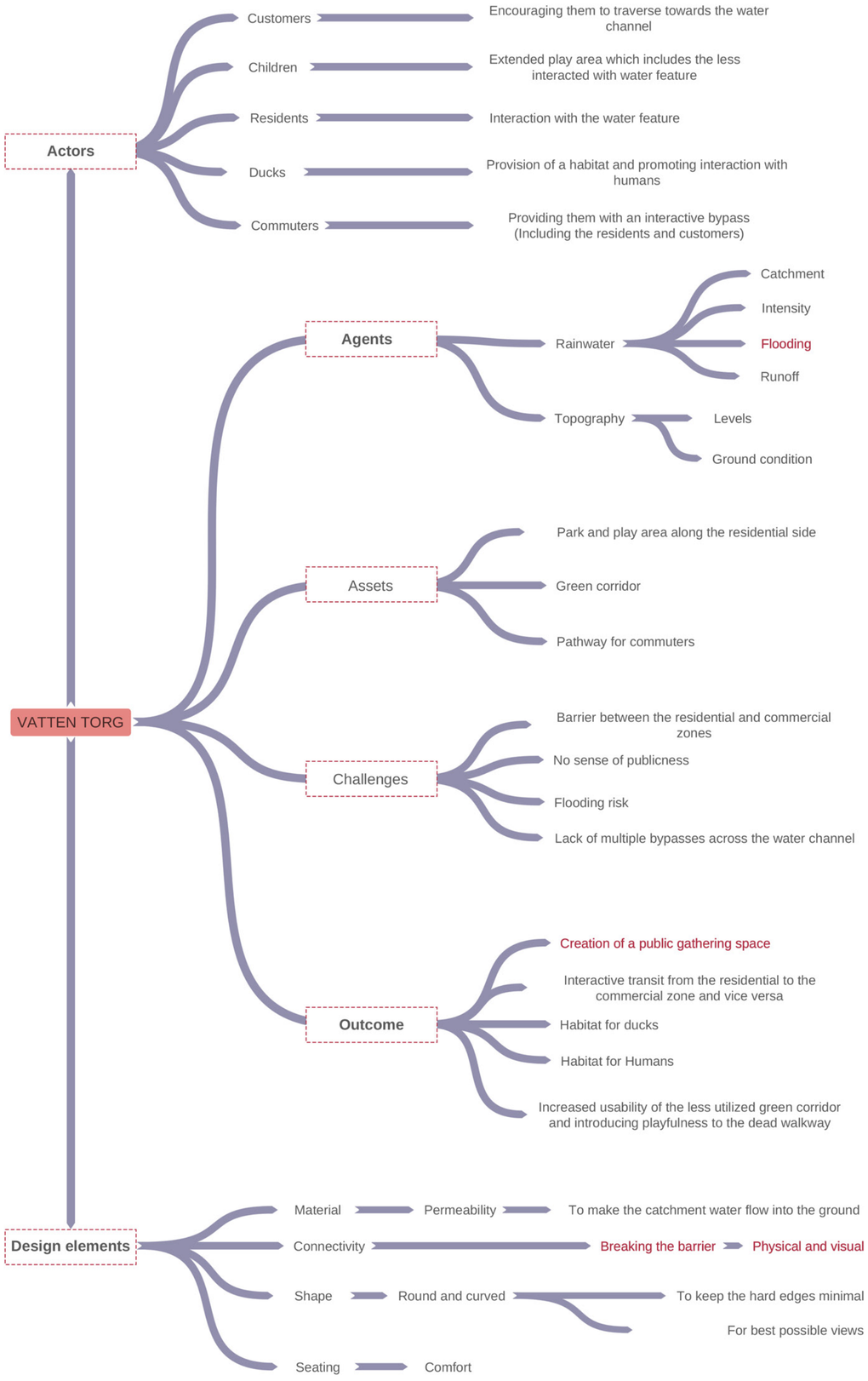
Brain Embassy Amphitheatre, Warsaw

Polytechnique Museum, Wowhaus

Ramkund Stepwell, India

SLA Park Flood basin, Denmark

COOGLE DIAGRAM

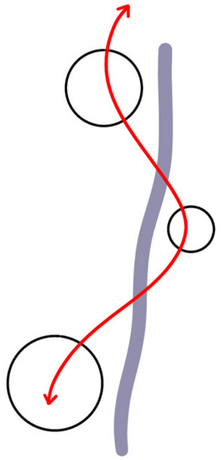


BRIDGE

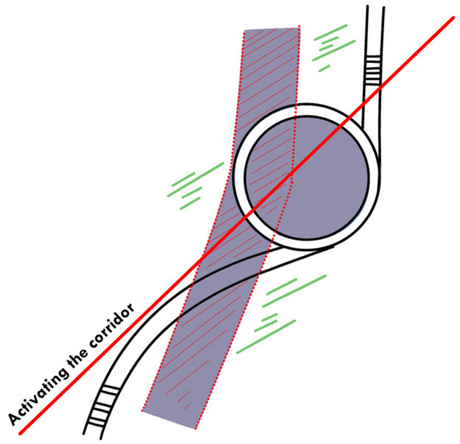
FLOODING

GATHERING SPACE

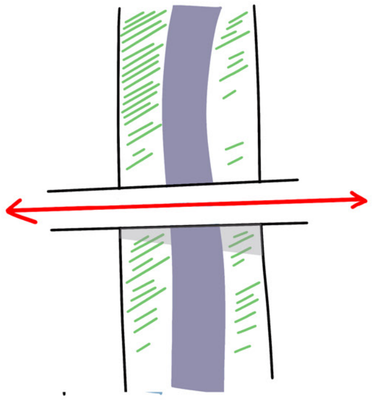
EVOLUTIONARY TREE



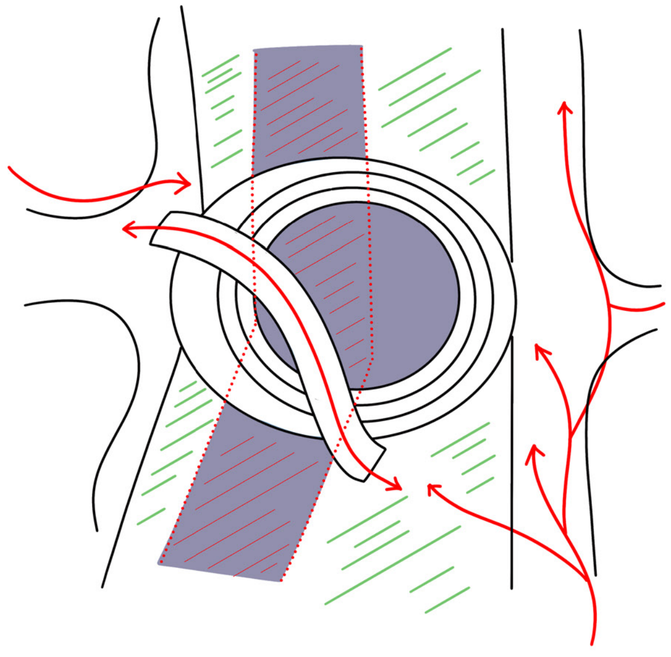
Developing a social corridor

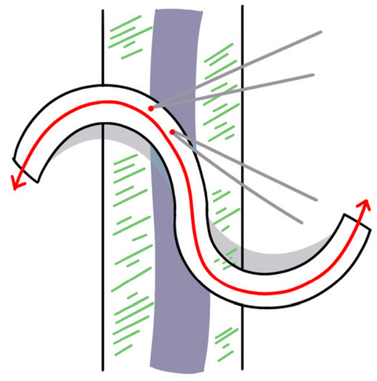


Developing one part of the social corridor into a public space that will increase interaction with the existing water feature.



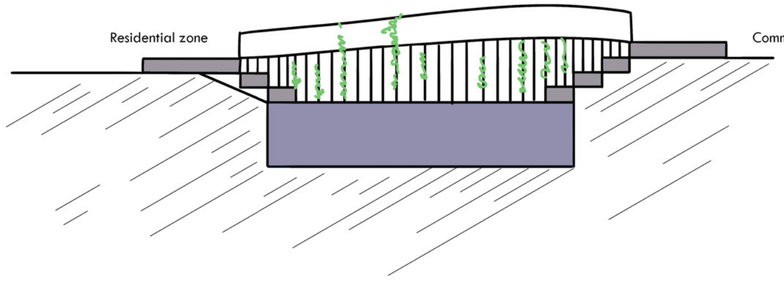
A typical straight bridge to connect both the commercial and residential zones



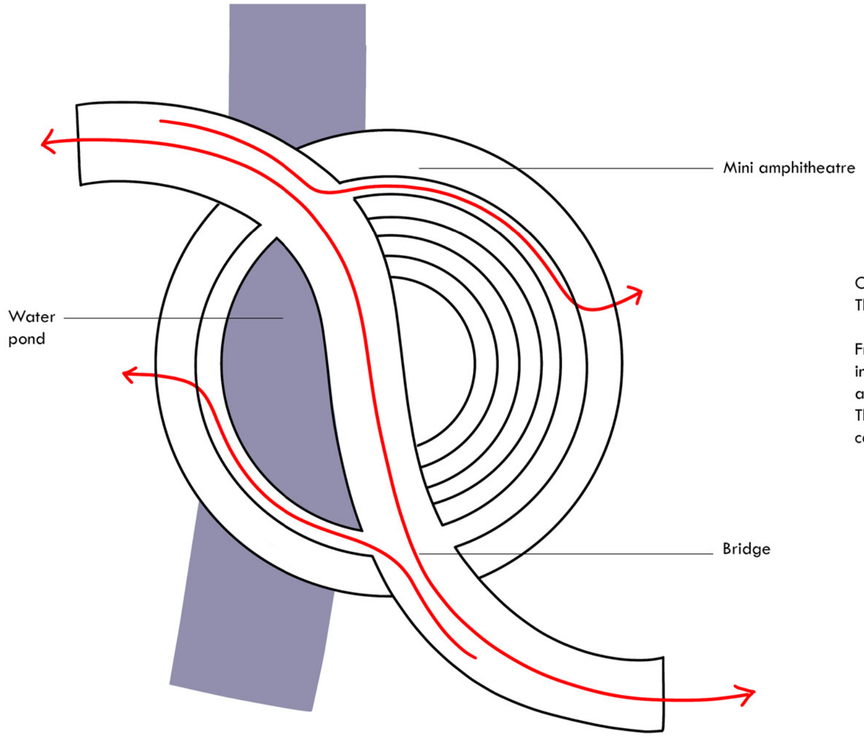


A curved bridge allowed for natural views along the curved path

Plan - Iteration 1
The public space was intended to act as a interactive bypass between the residential and commercial zones. The initial was to have one large water basin which could be flooded more during events of heavy rainfall.



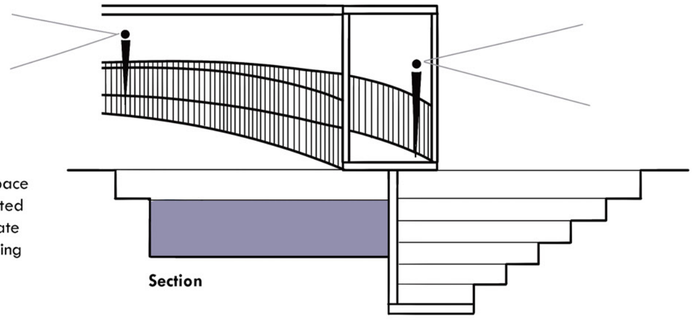
Section across the water channel



Plan

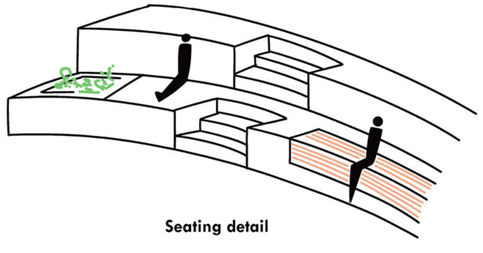
One of the main actors are humans. The main agent is flooding.

From just being a public space the intended urban protoype doubles up as a flooding court during heavy rains. The mini amphithatre becomes a catchment area.



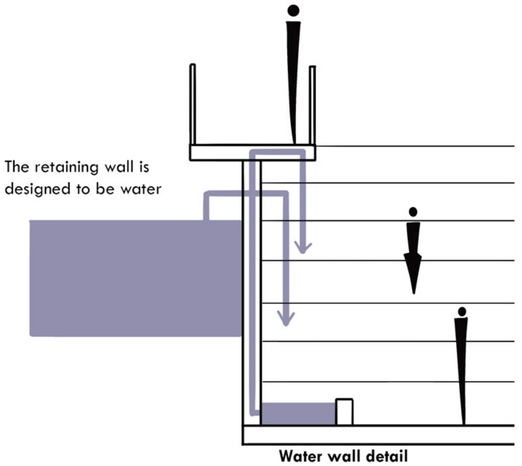
Section

Indoor to make the people stay for use the space for a longer period of time the seeating created needs to be comfortable and should also create interesting and varying experiences. The seating of the mini amphitheatre is visualised to be a combination of modular tables, sofas and benches accompanied with a few planters.



Seating detail

The retaining wall is designed to be water



Water wall detail

PLAN (1:100)

Ostra
Kvillebackan
Lekplats

Pedestrian walkway

Bridge

Seating along the commercial area
(Dry zone)

+0.45 0.00 -0.45 -0.9

Water feature/
Duck pond

(Part of the existing
water channel)

-3.15 -2.7 -2.25 -1.8 -1.35 -0.9 -0.45 0.00 +0.45

Seating along the residential area
(Wet zone)

Rain
garden

Bridge

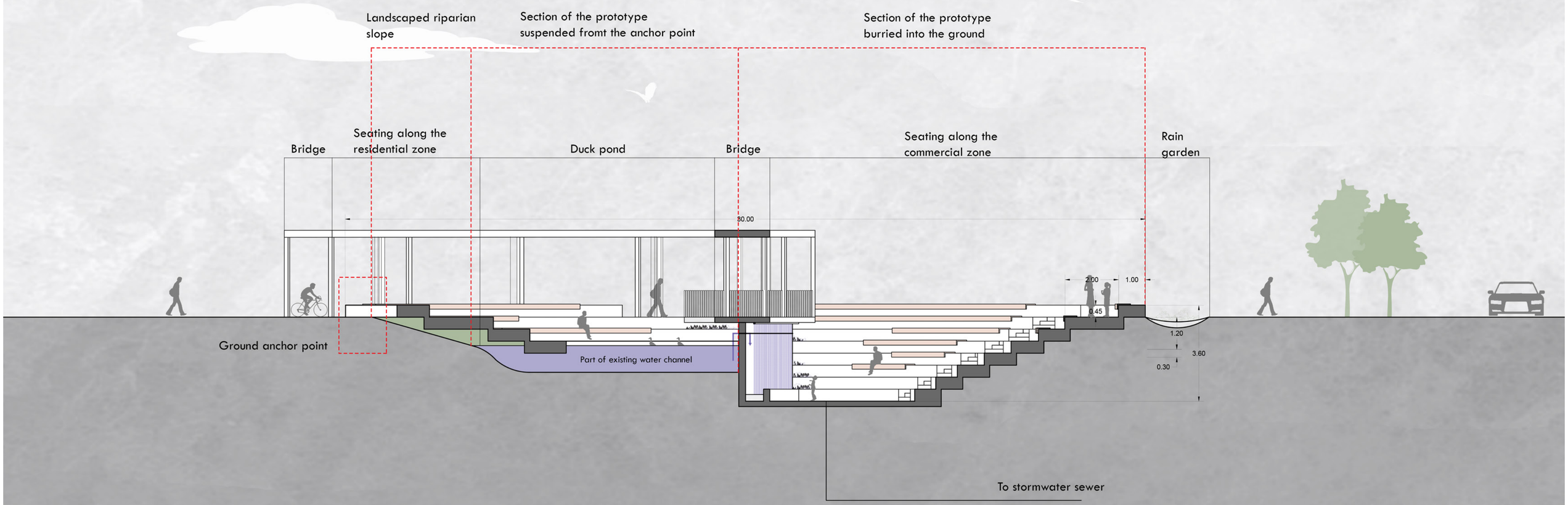
Existing water channel

Pedestrian walkway

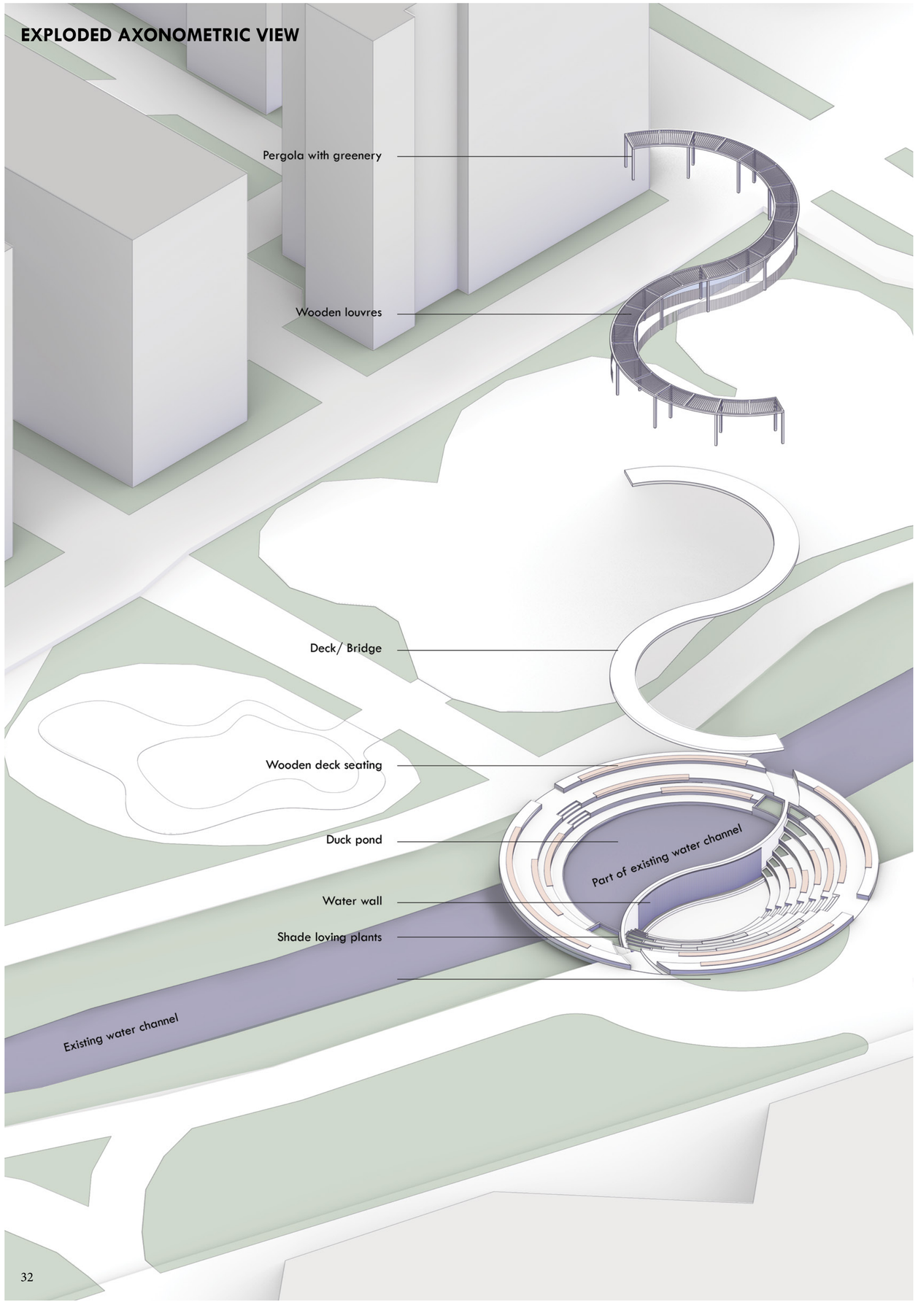
Landscaping

Profile of existing water channel

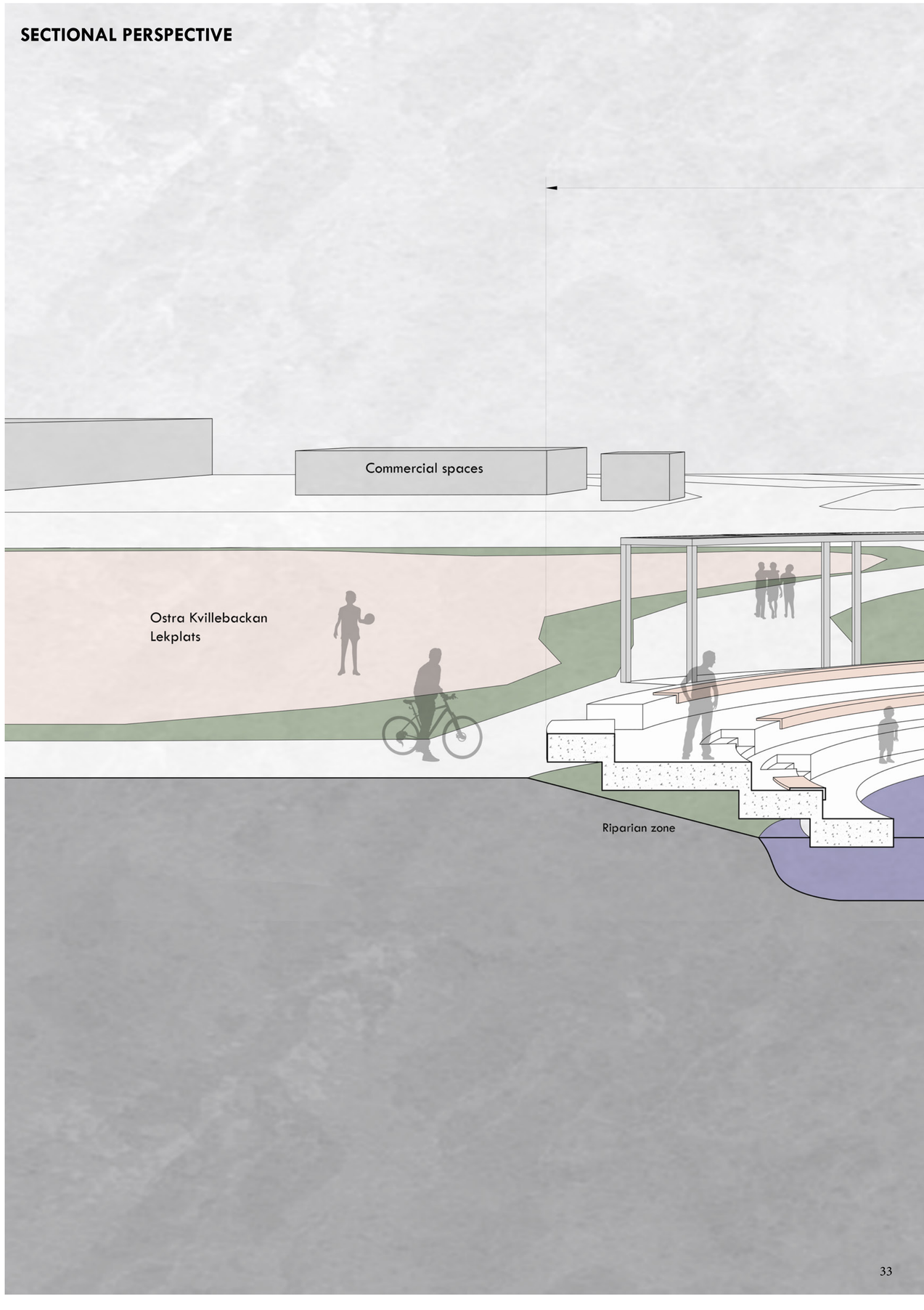
SECTION (1:100)

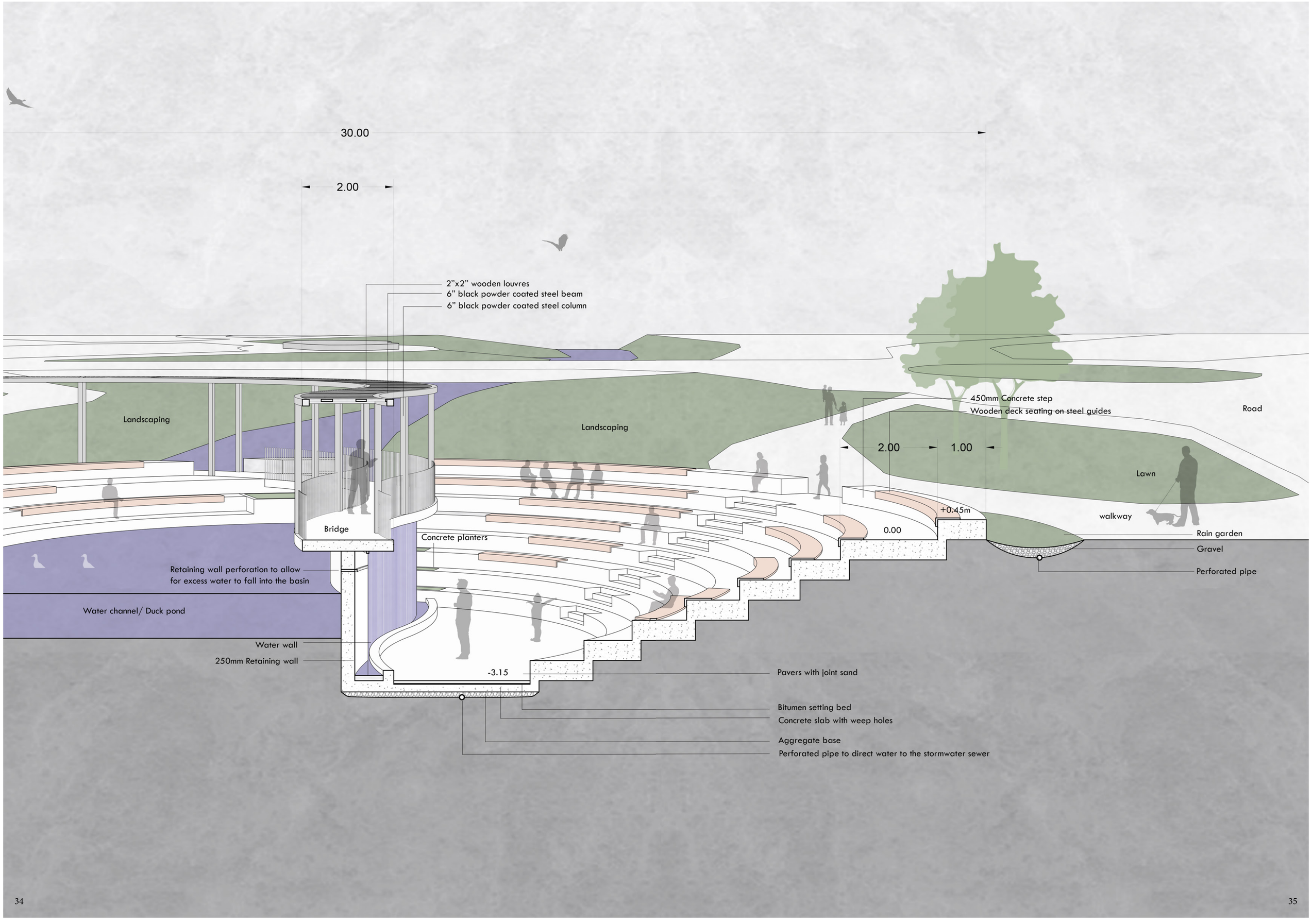


EXPLODED AXONOMETRIC VIEW

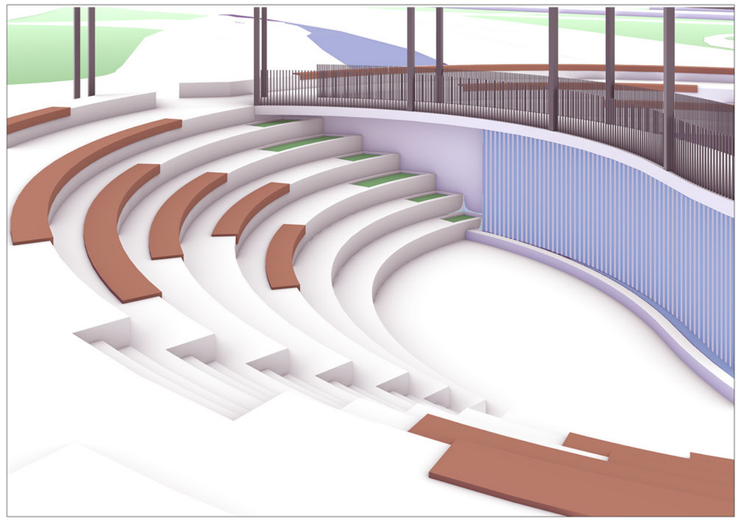


SECTIONAL PERSPECTIVE

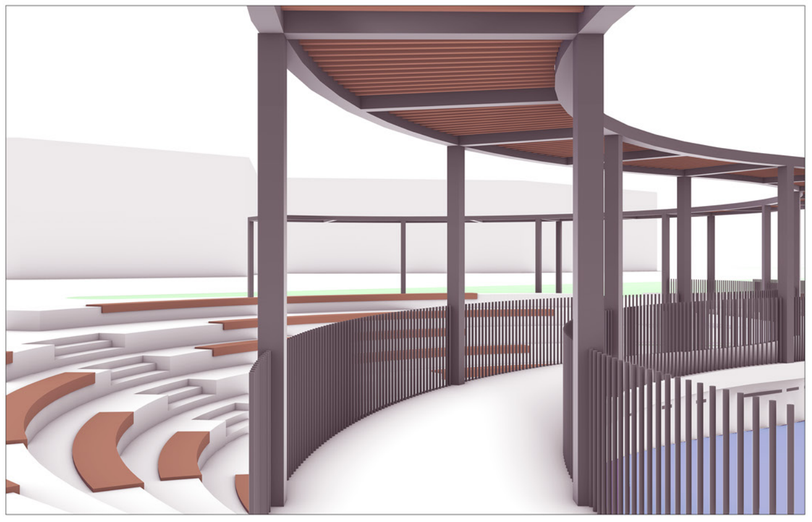



30.00
2.00
2"x2" wooden louvres
6" black powder coated steel beam
6" black powder coated steel column
Landscaping
Landscaping
450mm Concrete step
Wooden deck seating on steel guides
Road
2.00
1.00
Lawn
walkway
Bridge
Concrete planters
+0.45m
0.00
Rain garden
Gravel
Perforated pipe
Retaining wall perforation to allow
for excess water to fall into the basin
Water channel/ Duck pond
Water wall
250mm Retaining wall
-3.15
Pavers with joint sand
Bitumen setting bed
Concrete slab with weep holes
Aggregate base
Perforated pipe to direct water to the stormwater sewer

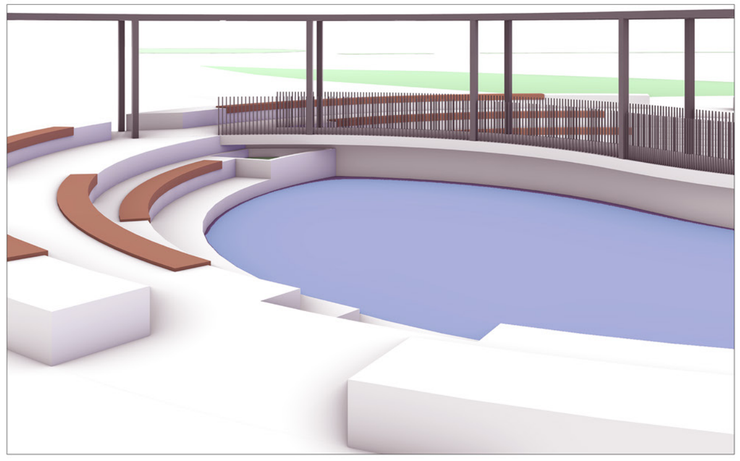
EXPERIENCE INSIDE THE SPACE



View of the prototype along the commercial zone

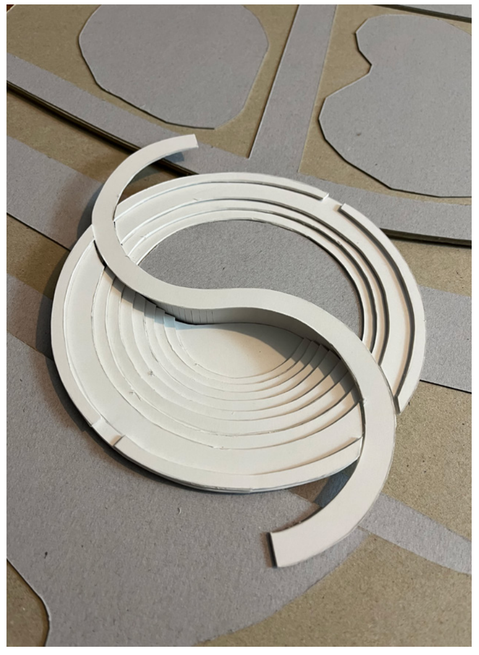


View of the bridge

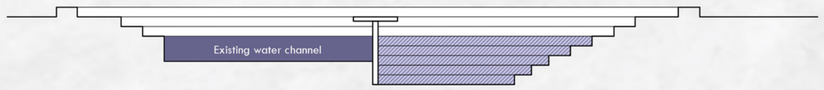


View of the prototype along the residential zone

PROCESS PHOTOS

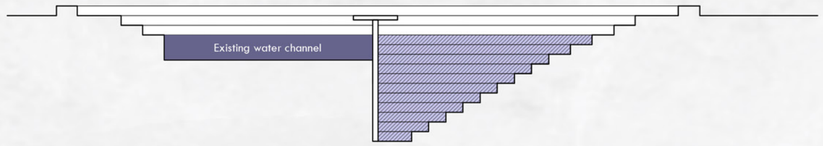


GROWTH

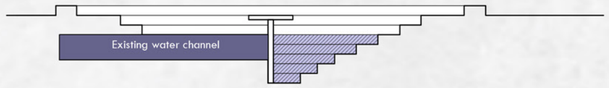


Current prototype

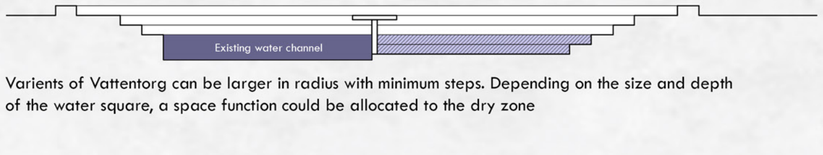
Flooding water storage capacity
(The values are determined by the radius of the protoype)



Depending on the amount of water to store within the basin during flooding and also the amount of open space available for such a protoype to exist will help determine the size and depth of it at the various other locations



Varients of Vattentorg can be smaller in radius with maximum steps



Varients of Vattentorg can be larger in radius with minimum steps. Depending on the size and depth of the water square, a space function could be allocated to the dry zone

SWOT ANALYSIS

Strength:

- **Publicness:** Sense of socialness which the prototype imparts into the surrounding.
- **Bridge:** Interactive transit option. Such a prototype will help people to interact well with each other as well as their immediate surrounding. The vertical and horizontal elements of the prototype help attract people into the green corridor thereby blurring the physical and visual boundaries.
- **Flood mitigation:** The dry zone doubles up as a flooding basin/court during heavy rainfall.

S

Weakness:

- **Topography:** Relevance only where there is a site slope. (For the natural runoff to flow into the basin)
- **Seasonal usage:** Less use of the dry zone during the rainy and winter seasons.
- **Not deployable:** The structure being grounded cannot be deployed and transported to another location.

W

O

Opportunities:

- **Growth:** Existence of multiple similar prototypes in helping develop a social corridor.
- **Material:** Exploring the use of alternative materials.
- **Shape:** Relevance of other shapes and orientations could be explored.

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T

Threats:

- **Climate change:** Adverse flooding events.
- **Humans:** Loss of interest and involvement of the people.

CONCLUSION

Measures of slowing surface runoff into the water canal, thereby helping mitigate flooding in urban areas, by introducing an interactive public infrastructure is explored as a part of this project. The project is envisioned to be a flooding court which serves as an amphitheater cum gathering space during summer and doubles up as a flooding court during the rainy season. The rising water levels in the dry zone will be a site to watch.

Using the elevation of the terrain the whole water square has been sunken into earth, this way it becomes easier to direct the surface runoff into the basin. The flooding court is visualized as a natural sink. The water from the catchment slowly penetrates the ground with the help of the permeable paving on the lowest level of the basin.

This prototype will help elevate the social experience along the existing green corridor and increase the interaction with the water channel.