

Tactility & Balance

STINA NYBERG

MATTER SPACE STRUCTURE
MASTER THESIS, SPRING 2016

Examiner: Morten Lund
Supervisor: Johannes Luchmun



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Stina Nyberg

Master Thesis in Architecture
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Matter Space Structure Studio
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and all my friends in the studio

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ABSTRACT

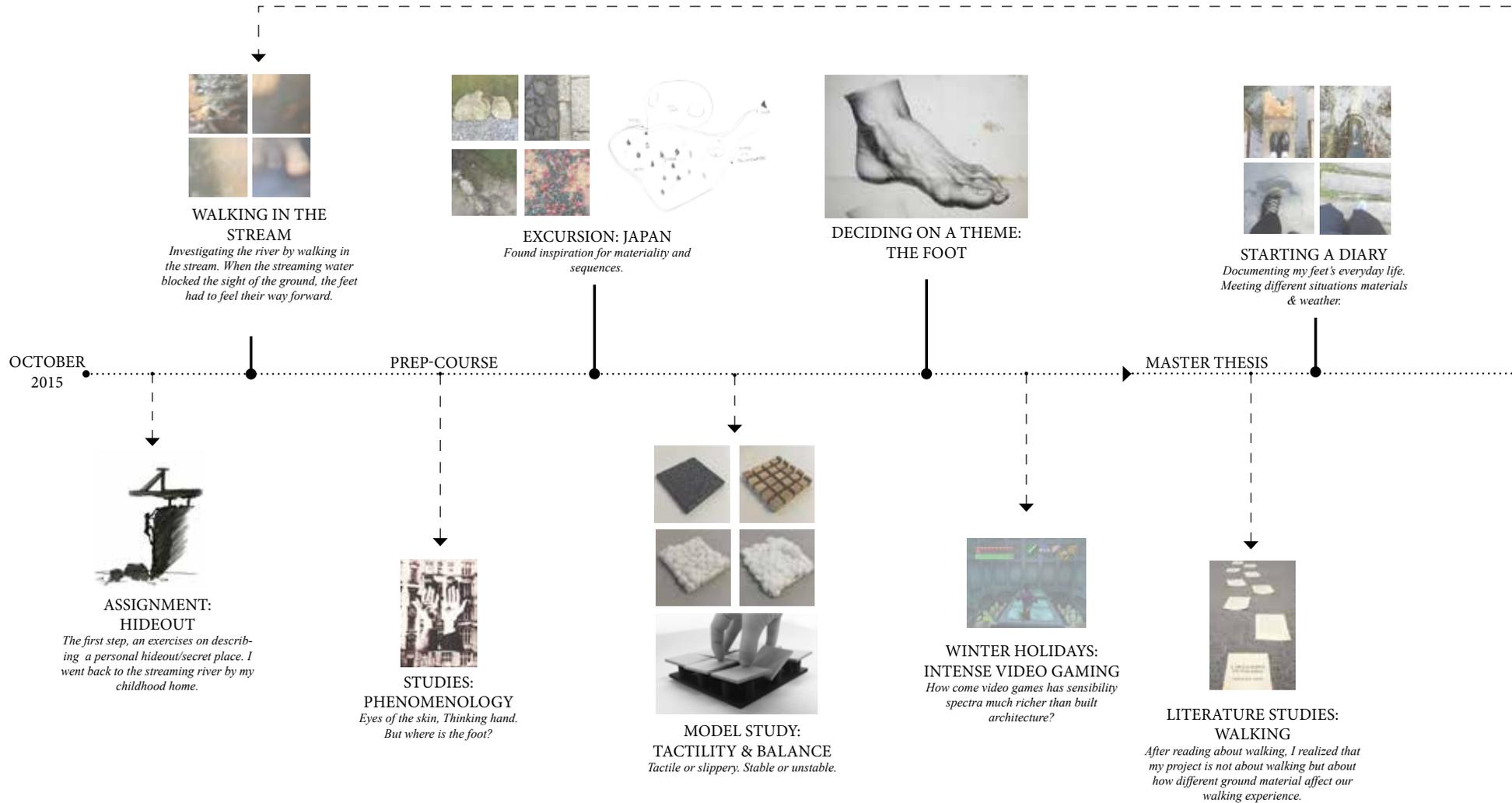
We experience architecture through our feet every day, without even noticing. Perhaps we're taking it for granted, perhaps it's too far from the perspective that were used to see the world. This master thesis is moving down the perspective to the foot. So we could see the world as if our mind was in our feet.

The feet recognises materiality through stability, texture, firmness and temperature. We measure distance with our step, we sense pace in the paving and we feel inclinations and irregularities of the ground. These factors affect how we move. If we walk fast or slow, carefree or careful, if we pay attention or just walk on by. But it doesn't just affect how we walk, it affects our whole experience of space and architecture.

This is an investigational project, exploring architecture through several investigations on how the senses of touch and balance through our feet. From study visits, reference studies, literature studies to model studies and sketches.

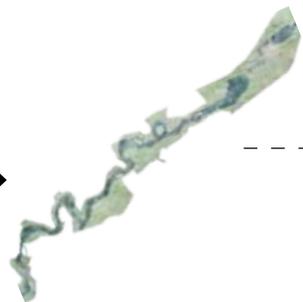
The results of these investigations takes form in a design proposal consisting of five small spatial events focusing on different aspects of the connection between the foot and architecture. These spatial events are placed as stops along a recreational foot trail at a nature reserve throughout S ave an, north of Gothenburg, in the same site where the idea of this project first started.

The aim of this Master Thesis is to emphasize and broaden the perspective of how the ground we walk on can affect the experience of architecture and space. By awakening curiosity, sensitivity and resume up the lost relation with the feet and focus on the ground.

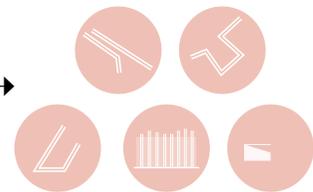




**CHOOSING A SITE:
BACK TO THE STREAM**
*Chose the site at the entrance of the nature reserve,
By the old water treatment plant.*



EXTENDING THE SITE!
*Extending the small site of the entrance of the nature
reserve to the whole recreational walk along the
river.*



**FIVE
STOPS ON THE
FOOTPATH**

MASTER THESIS

MAY
2016



FINDING A SCALE
Installation, exhibition, building
*Images: Richard Long, Olafur Eliasson,
Carlo Scarpa*



MODEL STUDIES
*Studied five situations in the
cemetery and analysed them through
different senses.*



REINTERPRETATIONS
*Tried find the essence of the
places.*

**FIVE SITUATIONS:
FIVE CHARACTERS**



REFERENCE STUDY: TOMBA BRION
*Small cemetery with great richness in materiality, spatiality
and patina.*



STUDY VISIT



STARTING POINT: THE STREAM

Growing up with the river as closest neighbour, the stream is one of my first memories and experiences of nature. Whenever I was angry or sad I went climbed down the bridge and watch the water stream. Eventually my sad thoughts went away, either the floated away with the stream or they drowned by the rumbling sound of the river.

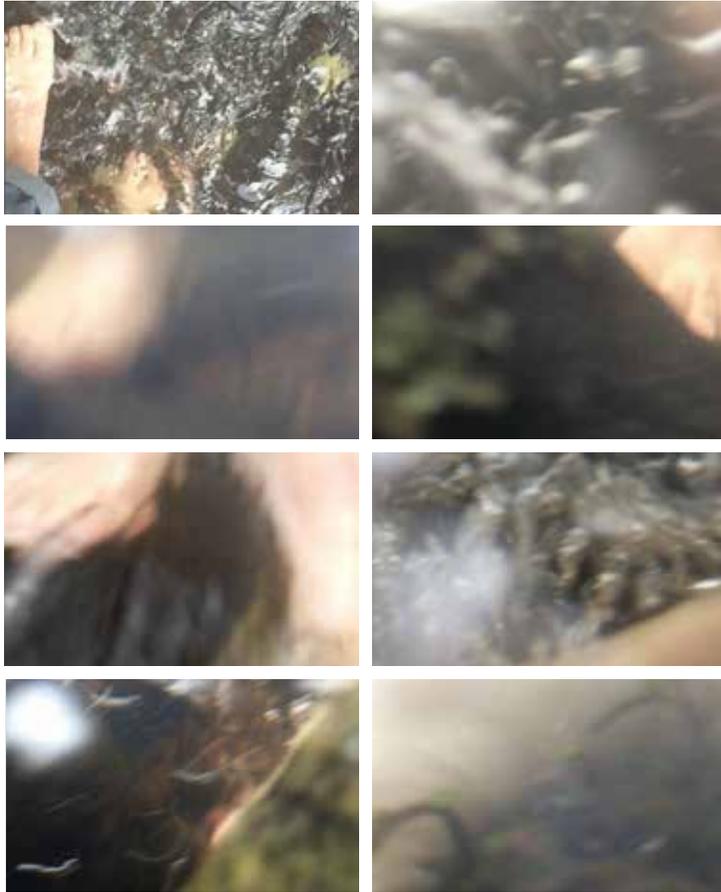
The stream was also an empowering and happy place. The playfulness of hopping on stones trying not to get wet or the adventure of overcoming the natures forces and crossing the stream. The stream symbolises energy, journey, barrier, time. Its a quite interesting thing.



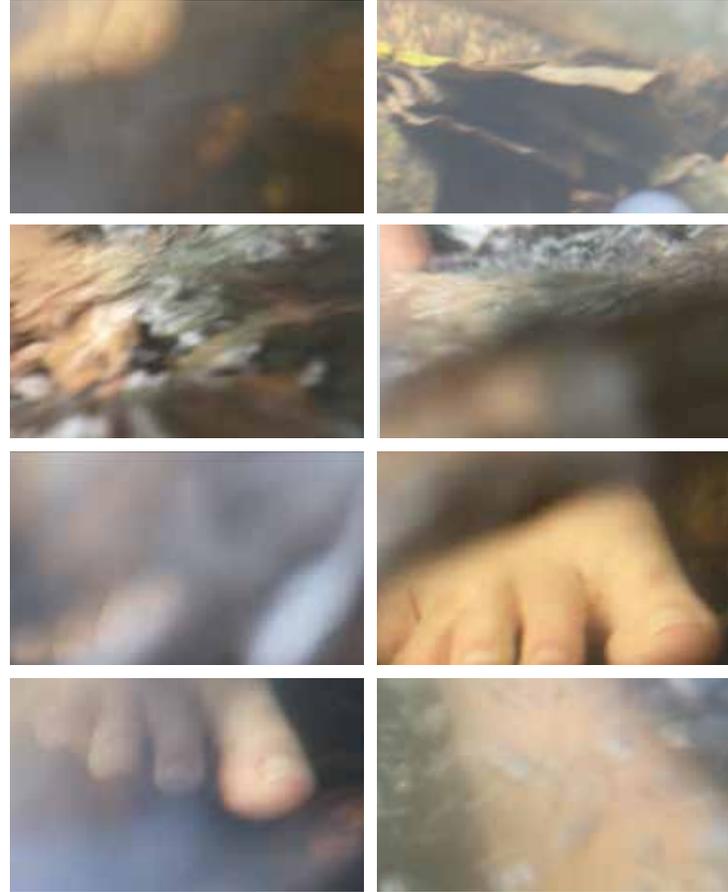
EXCURSION 1; THE RIVER

In October 2015 I went to walk in the stream of Sävån north of Gothenburg. Even though it was already autumn and cold I decided to walk through the water barefooted to be able to feel the pressure from the water, concentrate my balance not to fall and sense the texture of the ground.

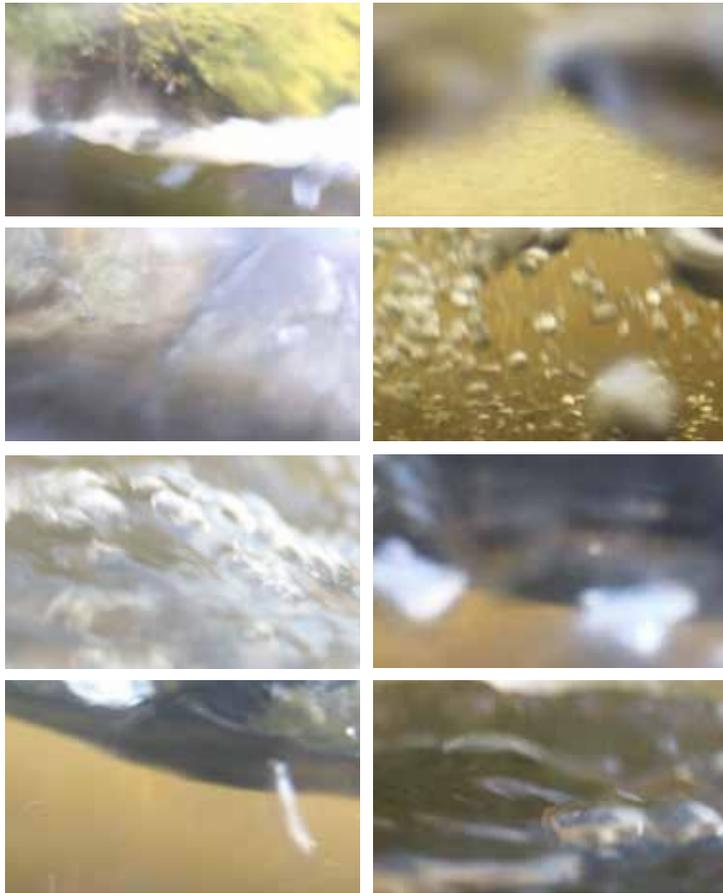
I documented this walk with film and categorise the different characteristics in to four different scenarios.
See next spread.



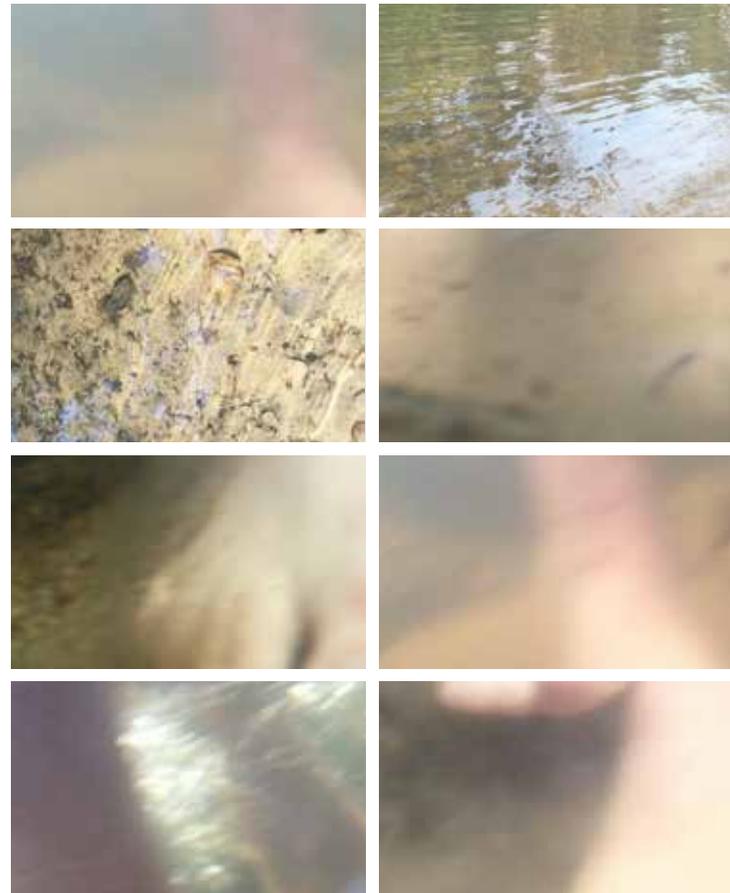
Shallow stream



Pebble stream



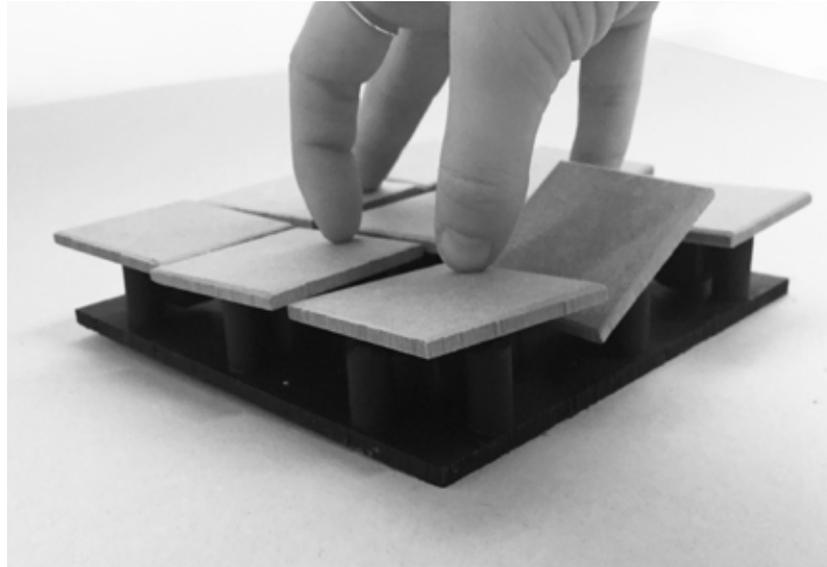
Intense, deep stream. A barrier



Silent stream. Sand lagoon



PHOTOS OF TACTILITY MODELS



PHOTOS OF BALANCE MODEL



LITERATURE STUDIES

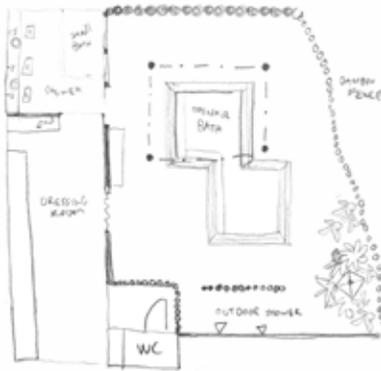
After the walk in the stream I started to read a lot of literature of phenomenology, To learn more about the relationship between architecture, spaces and senses. The books that had most impact was Juhani Pallasmaas classical work Eyes of The Skin and The Thinking hand. After reading these books I realised that these books doesn't say very much about the sense of the feet. Perhaps I was entering new field of discussion?

After choosing the foot as a theme the spring term I started to read more about walking. Literature as Wanderlust by Rebecca Solnit and The Philosophy of Walking by Frederic Gros. These books say a lot about walking in a political, philosophical and historical point of view. But what about stopping? Was interested of each slowly taken step rather then the meaning of a journey.



EXCURSION JAPAN

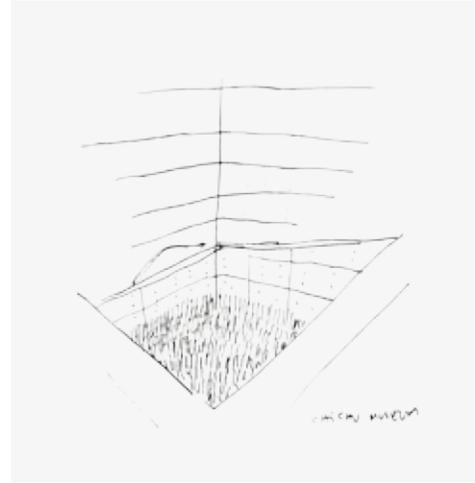
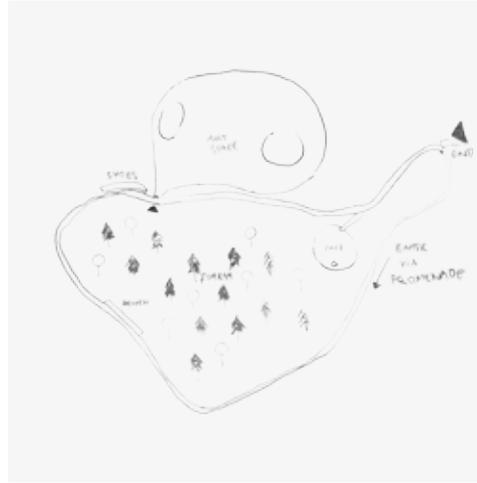
Following spreads is excerpt from the travel travel documentation from my study trip to Japan in autumn 2015, as an inspirational trip before my master thesis next semester. A summary of a 21 days long route focusing on spatial sequences and the materiality of the ground.



PATHS & WALKS

One theme of this trip has been paths, walks and sequences. How to approach, enter and walk through a building or a space. The Japanese tradition of working with sequences is very evident in both in traditional buildings as temples, gardens, onsens etc. as well as in contemporary projects such as the museums in Naoshima and Teshima.

Both of the last examples has a very obvious focus on the paths, where design of the space direct the walk in terms of where you walk, how you walk.



Teshima Art Gallery



Chichu Museum



GROUND MATERIAL

During my first investigation I focused on how we experience the world with our feet. On how the ground material is an important part on how to lead people through sequences. Wood, concrete, gravel, stone, grass.

Smooth, firm, tactile, wobbly, bumpy, slippery, different characteristics can affect our moving patterns and our experiences. This material study was my natural step to take one step forward.



Bumpy/smooth stone



Asphalted gravel



Polished pebble stones



Grass barrier



Moss, stone, gravel



Wooden water barrier



Asphalt formed as raked gravel



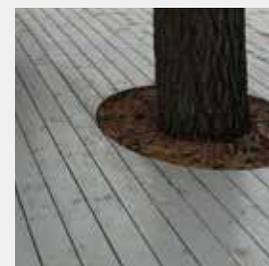
Gravel + leaves



Gravel



Stone, moss, mud



Wood, soil, tree



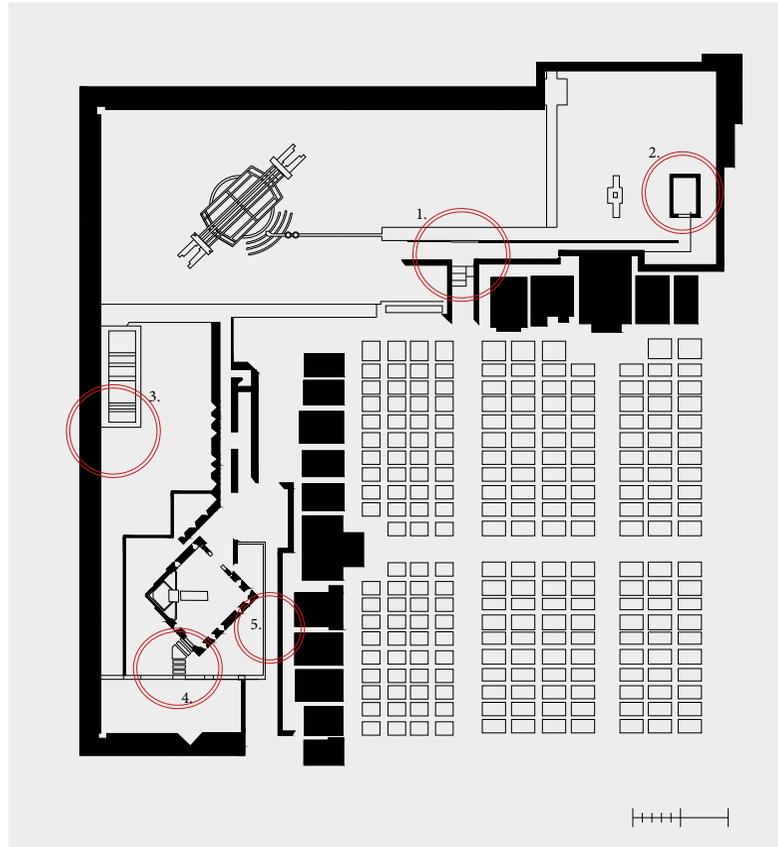
Moss mud



CARLO SCARPA / BRION CEMETERY
1970-72

A reference study on small spaces, materiality, patina and pace. This study includes five spatial studies of specific areas at the site, focusing on movement and identify different physical barriers that affect the movement. The second step was to make a reinterpretation of each specific model, finding the important elements that defines the space. This reference study ended with a study trip to the site.

PLAN



FIVE EVENTS



1.

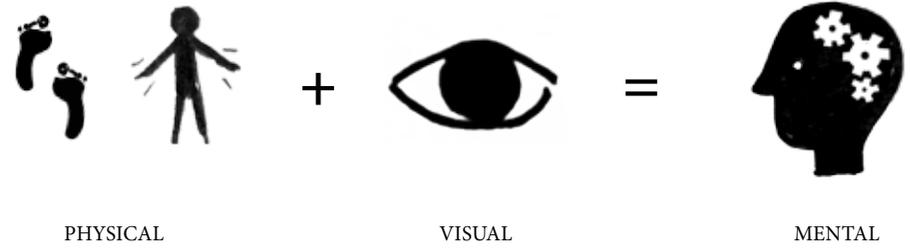
2.

3.

4.

5.

BARRIERS



PHYSICAL

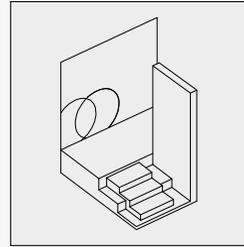
VISUAL

MENTAL

1. TUNNEL ENTRANCE



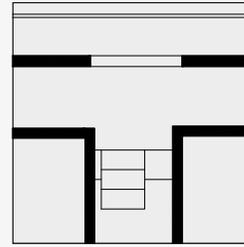
AXO



The steps of the stair leading forward create a slow pace.

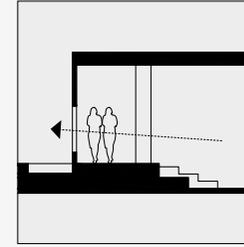
The material changes from paved stone to gravel to bigger blocks.

PLAN



The narrow and long corridor limits the body movement.

SECTION



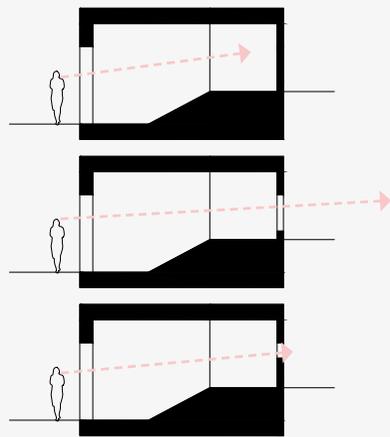
The window makes the narrow corridor grow.

MODEL

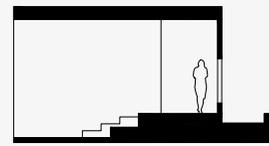


The window gives an extended sight line and leads the body forward. It also gives the mind a moment to breath.

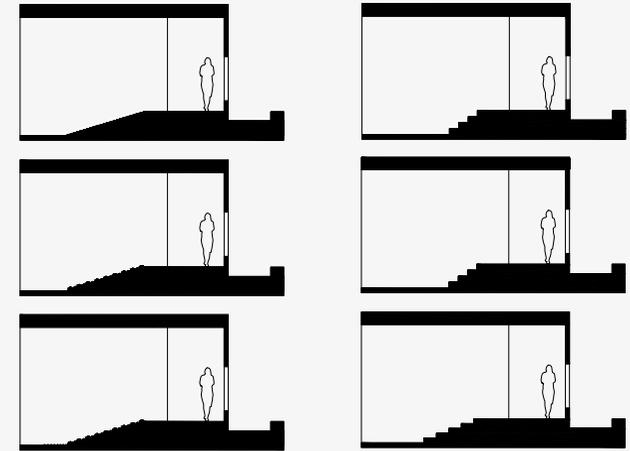
REINTERPRETATION



SIGHT LINES



**original*

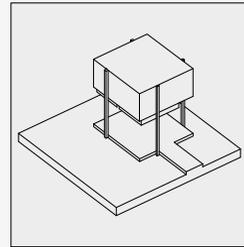


DIFFERENT STEPS/MATERIAL

2. THE BLIND ISLAND

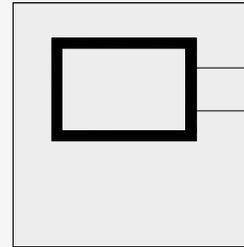


AXO



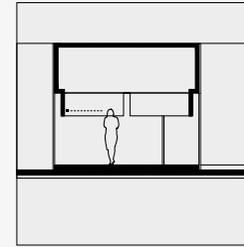
The base is limited by the surrounding water.

PLAN



The body, the arms and legs, are free of physical boundaries.

SECTION



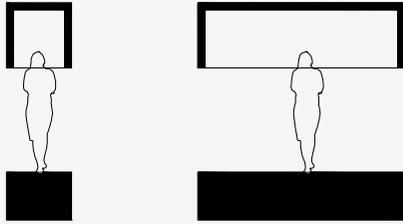
The sight is all blocked except a small strip.

MODEL

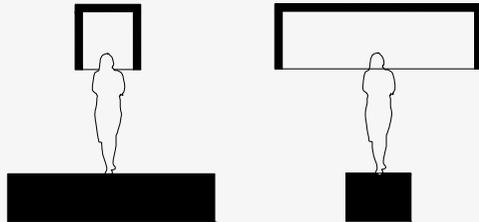
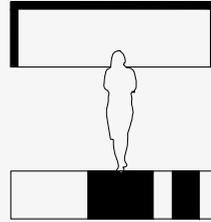


The blocked sight and base made you experience the limitation even if the body is free.

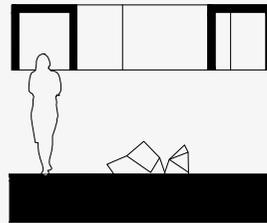
REINTERPRETATION



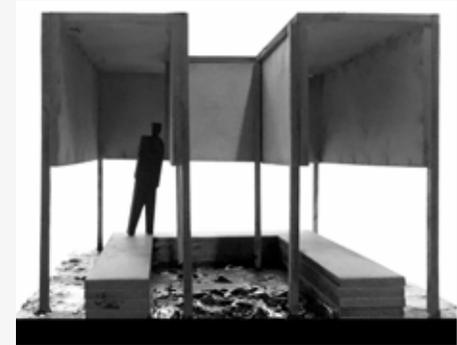
DIFFERENT WIDTH



DIFFERENT VARIATIONS

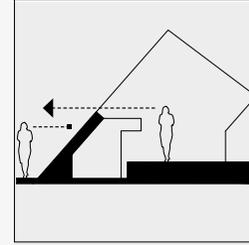
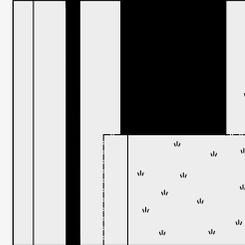
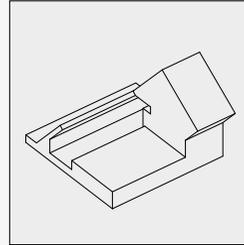


DIFFERENT WALKS



MODEL STUDY

3. LEANING WALL



This event has little to do with the barriers of the ground.



The person outside is limited by the leaning wall which attracts your interest.

Walking straight under the leaning wall



The person outside has a limited vision because of the blocking wall.

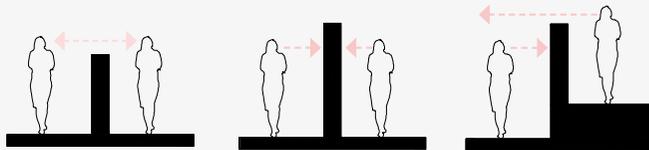
The person on the inside is able to look over the wall.



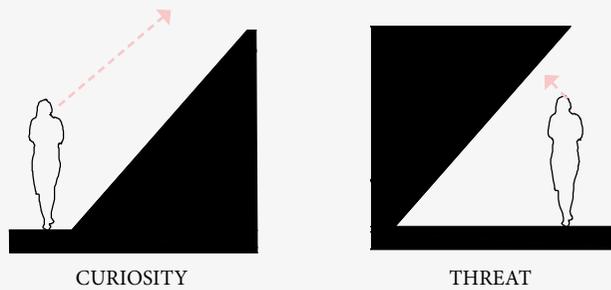
The wall leaning forward gives an threatening impression.

TUNNEL ENTRANCE

VISUAL COMMUNICATION



LEANING DIRECTIONS

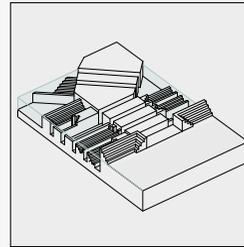


MODEL STUDY

4. STEPPING STONES

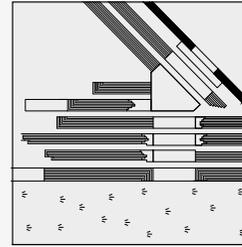


AXO



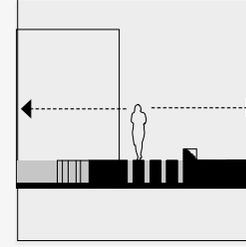
The ground is physically limited by the water. The short distances between the stepping stones makes you take small steps.

PLAN



On the hopping stones there are no physical limitations around the body. There is nothing to lean on to.

SECTION



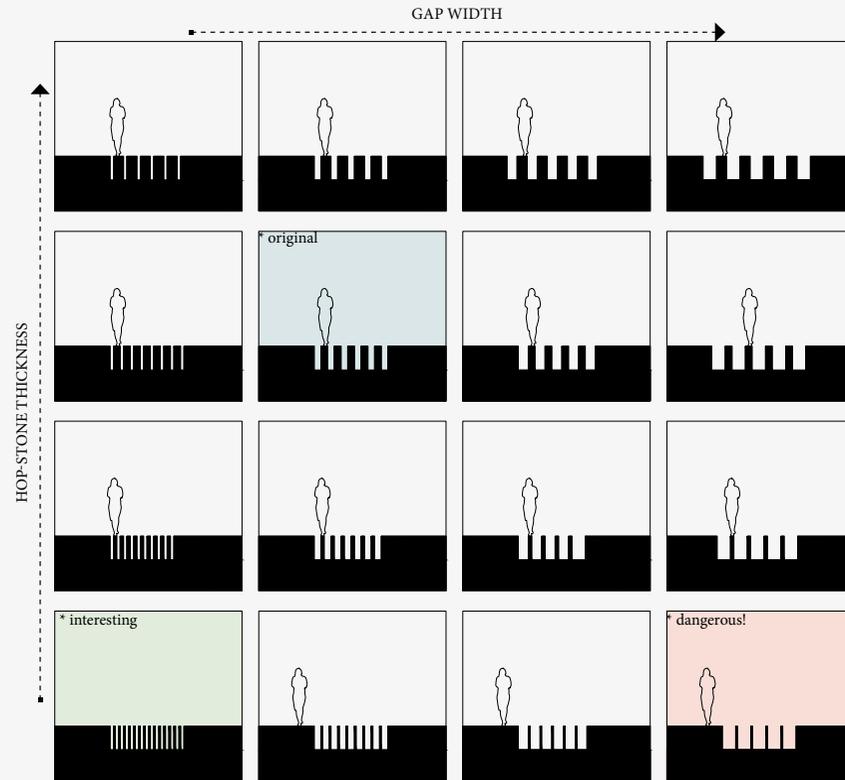
The ornaments under water lures your visual attention to your feet.

MODEL



The free physical limitations of the body gives an adventurous, independent mindset, even if the movement is very directed. It also makes you focus on the balance.

REINTERPRETATION

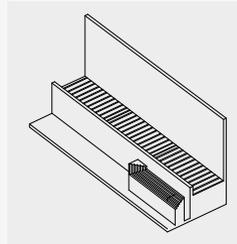


MODEL STUDY

5. LONG WALK

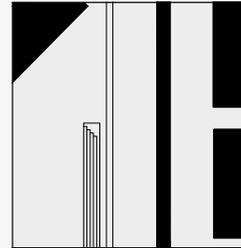


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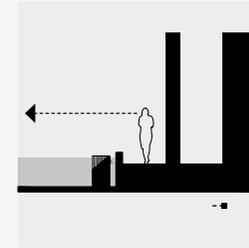
The long walk is paved with concrete planks with grass growing between. Its tactility creates a certain pace.

PLAN



One side has a solid wall, safe and limited. The other side is limited by water and a low concrete base.

SECTION



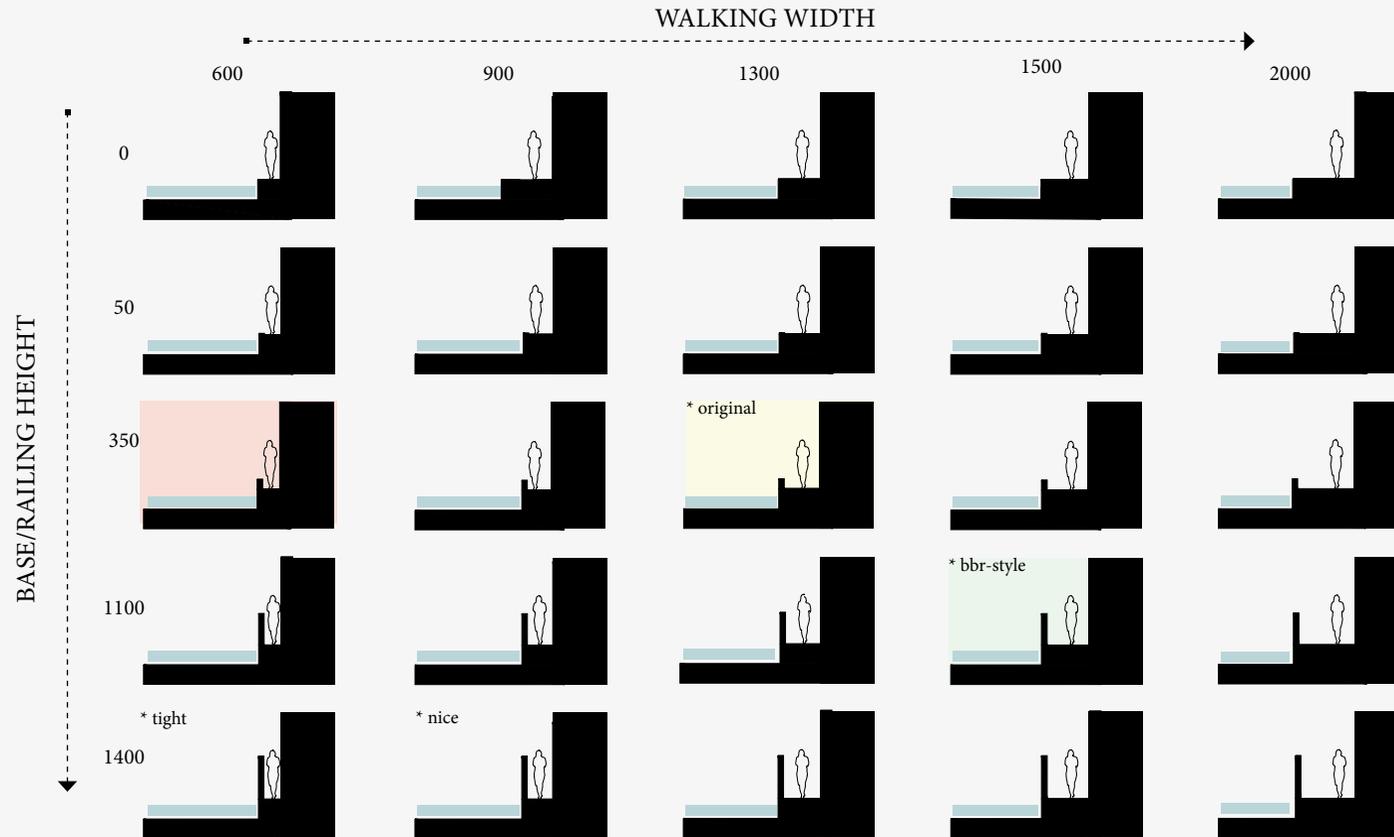
One side has a solid and safe but uninteresting wall. While the other side is open over the water with just a low rail for safety.

MODEL



The long walk along a "boring" wall gives you time to think and relax.

REINTERPRETATION





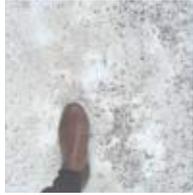
PHOTOS FROM STUDY VISIT

DIARY OF THE FOOT

A documentation of the daily experience of my feet meeting the ground.
The data is collected between Januari and May 2016.



18/1



21/1



1/2



6/2



7/2



8/2



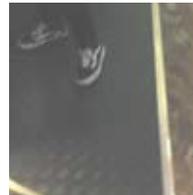
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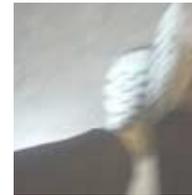
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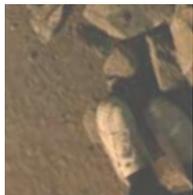
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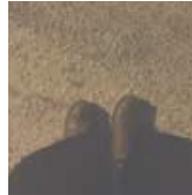
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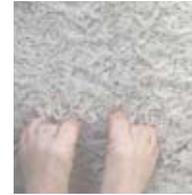
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27/2



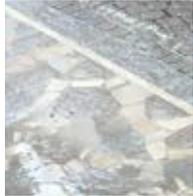
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12/3



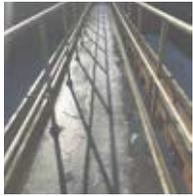
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15/3



16/3



17/3



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29/3



30/3



31/3



1/4



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3/4



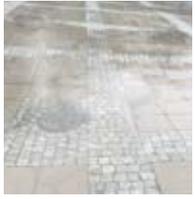
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7/4



8/4



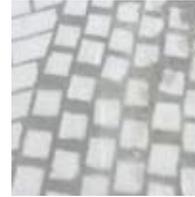
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12/4



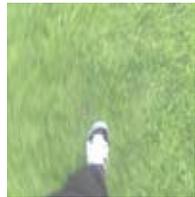
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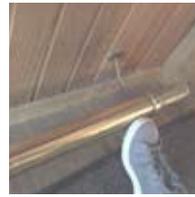
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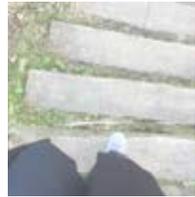
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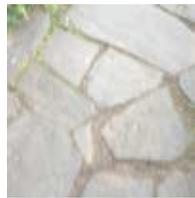
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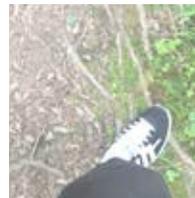
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25/4



26/4



29/4



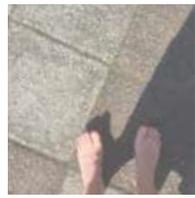
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3/5



4/5

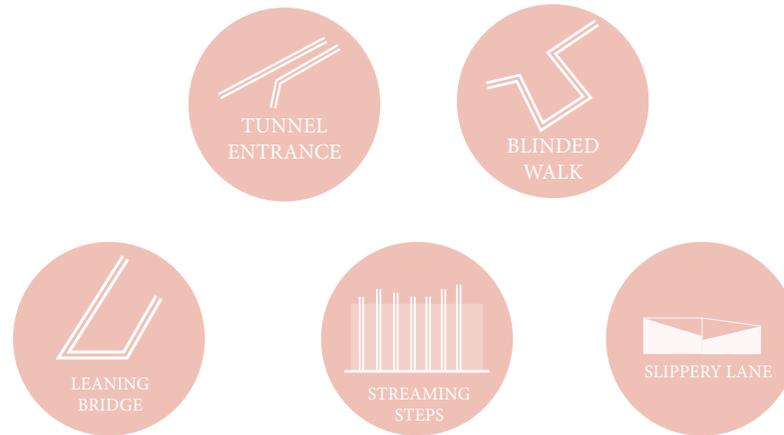


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THE SITE

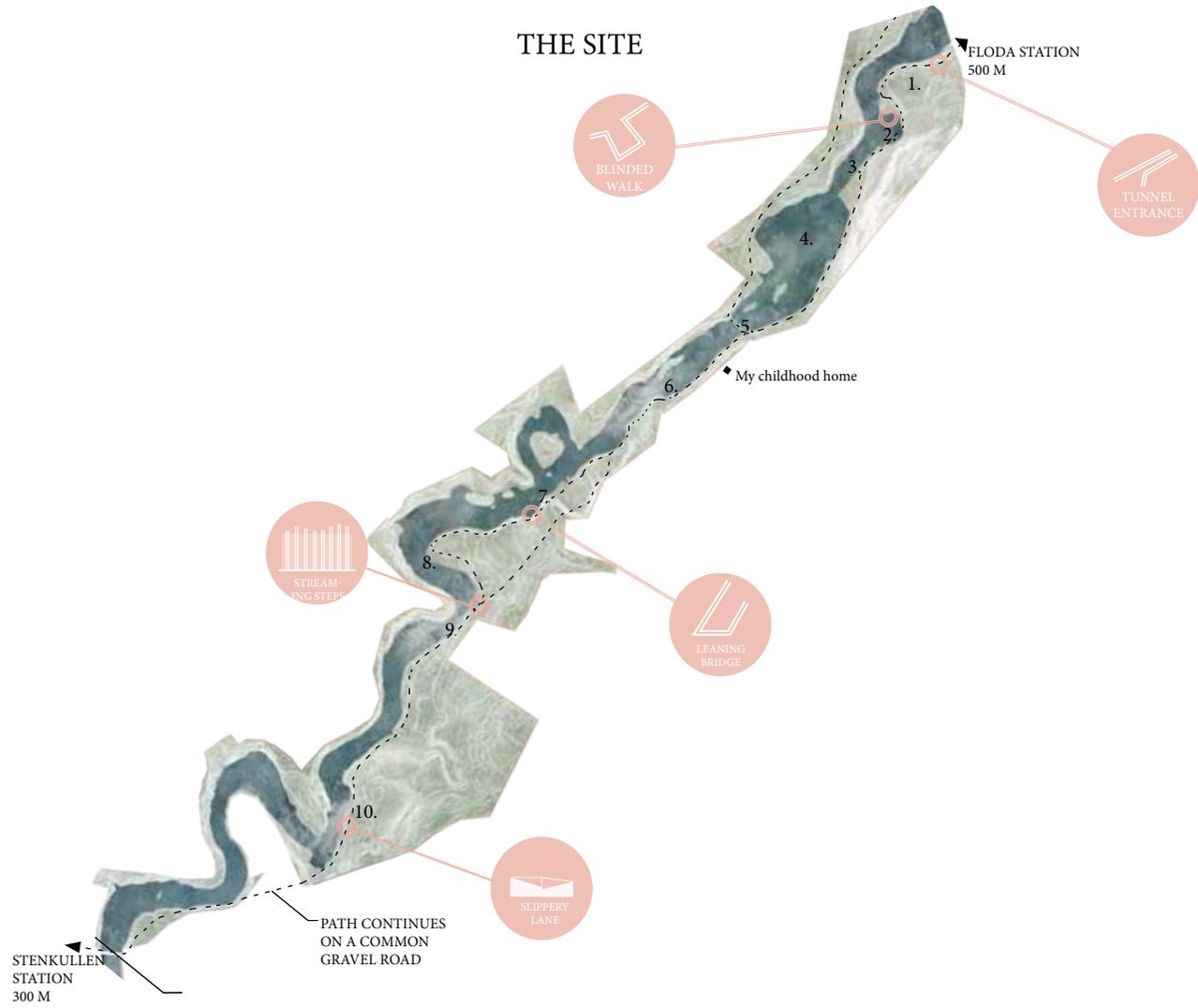
The Nature reserve Valley of Säveån is located in Lerums kommun 30 km north east of Göteborg. The recreational trail is easily accessed from Floda train station as well as from Stenkullen train station, both less than 30 minutes away from Göteborg central station.



FIVE STOPS

Experience walking, while walking. The design part of this thesis consists of five installations/pavilions along the walking trail. Each one focusing on a different experience of walking. All following the character of the landscape.

THE SITE



ANNOTATIONS



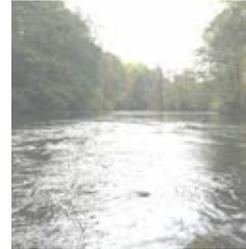
1. OLD WATER TREATMENT PLANT



2. FLOODED SWAMP



3. STRONG STREAM



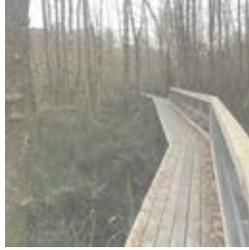
4. QUIET FLOWING STREAM



5. THE BRIDGE



6. SMALL STREAM



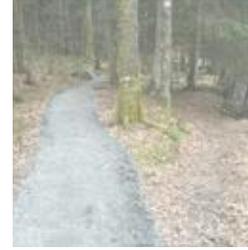
7. FIELDS OF HORSETAIL



8. CALM STREAM



9. STRONG STREAM



10. PINE FOREST WALK



TUNNEL ENTRANCE

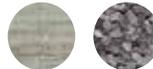
- CHARACTERISTICS -

EXPERIENCE

This Tunnel is the entrance to the nature reserve, the transition between human society and the wild nature.

The funnel-shaped entrance sucks in the visitor in the other world. The shape and the ground material makes visitors to slow down.

MATERIAL



The walls and roof of the tunnel are made of rough site-cast concrete. The ground material is gravel and stone in different sizes.

SURROUNDINGS



The Tunnel Entrance is located in a glade at the end of the road, next to the old treatment plant that closed down in 2012.

- A MULTI-SENSORY EXPERIENCE -



FEET

Gravel of different sizes gives a certain resistance for the walk. The short distance between the segments keeps the attention.



BODY

The narrow corridor strictly leads the visitor forward. If you meet someone, you'll have to stop/slow down to have them pass.



SIGHT

The massive walls hide & slow down the reading of the environment. But the small glimpses give you a hint of what is waiting.



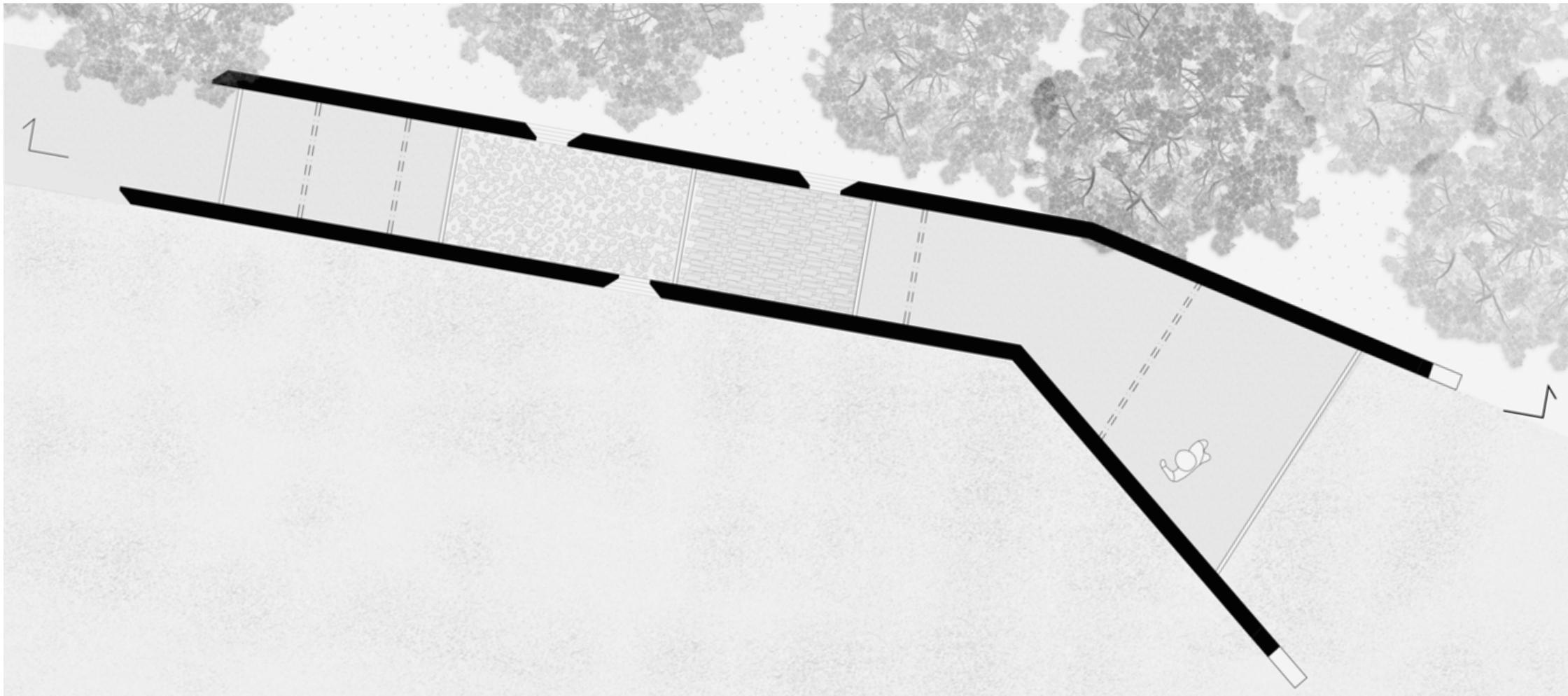
SOUND

The walls are blocking the sound of the stream and focusing on the sound of walking on gravel.

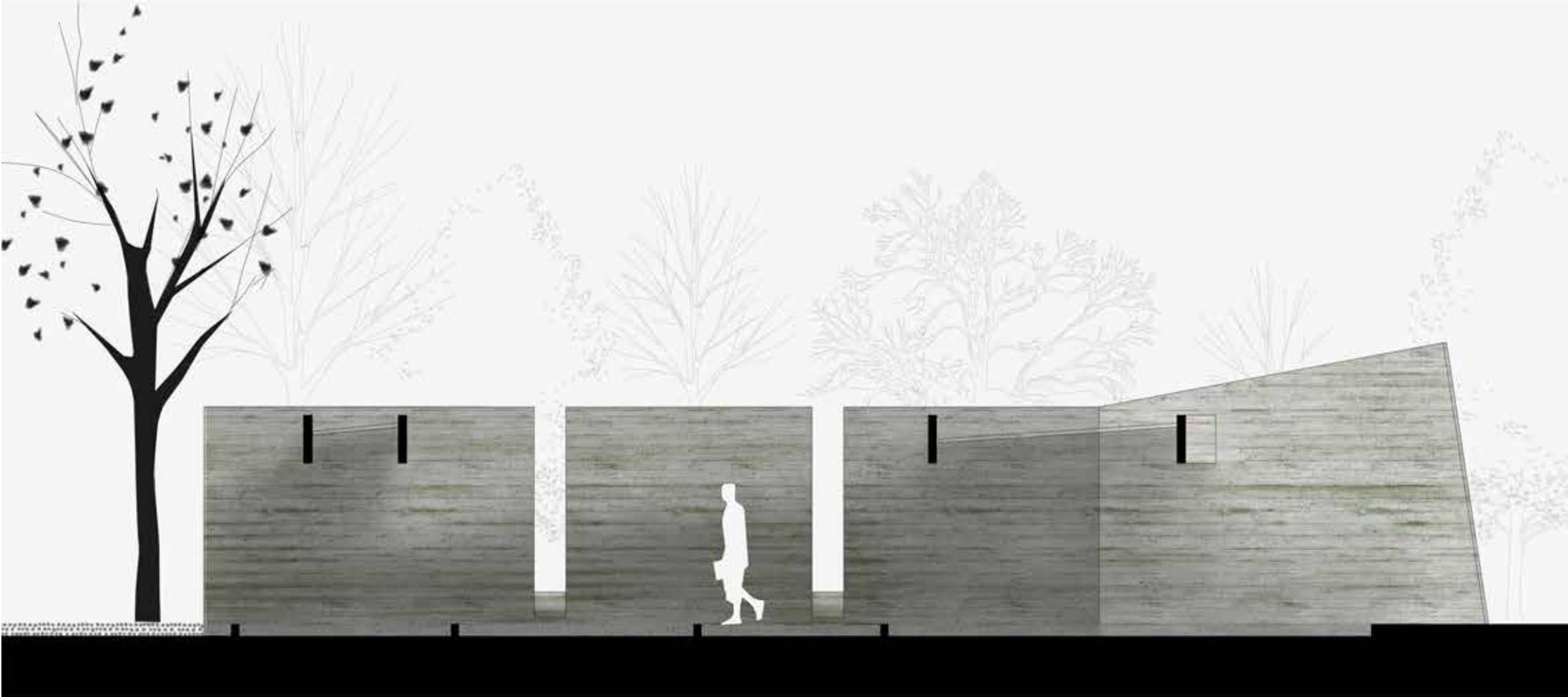


SMELL

The sky open structure allows rain to fall in and bring out the smells of the gravel.



PLAN



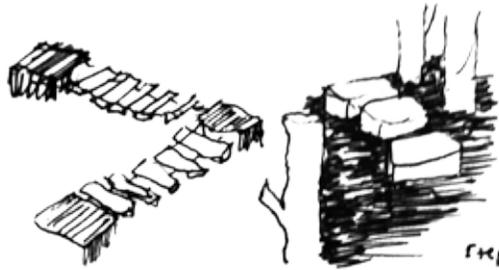
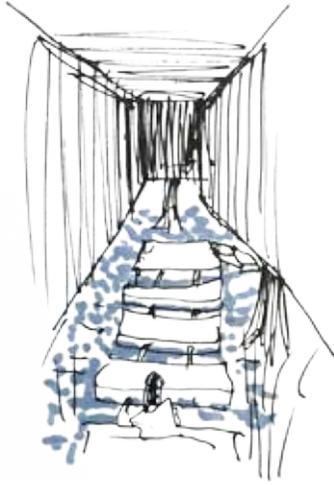
SECTION



CLOSE UP SECTION: TACTILITY



MODEL PHOTOS



HANGING
BRIDGE

Stepping
Stones

EARLY SKETCHES



BLINDED WALK

- CHARACTERISTICS -

EXPERIENCE

A trail of declining steppingstones that goes through a flooded swamp with a canopy which is like a hat over the visitor's head and block the view ahead.

The aim is to investigate the reliability of the material of the stepping stones by the pressure and touch of the feet.

MATERIAL



The surface of the "cap" is made of brown/ yellow coloured metal. The waiting stops is made of concrete and stepping stones of plastic.

SURROUNDINGS



The blinded walk is placed in a flooded swamp full of dead or fallen trees.

- A MULTI-SENSORY EXPERIENCE -



FEET

The foot feels the resistance in the floating steps. The bubbling surface of the steps provides a good grip and prevents the visitor from getting wet.



BODY

The body can move freely but too big moves could make the visitor loose balance and fall into the water.



SIGHT

The soaring "cap" blocks the view forward and makes the visitor to look down to the ground.



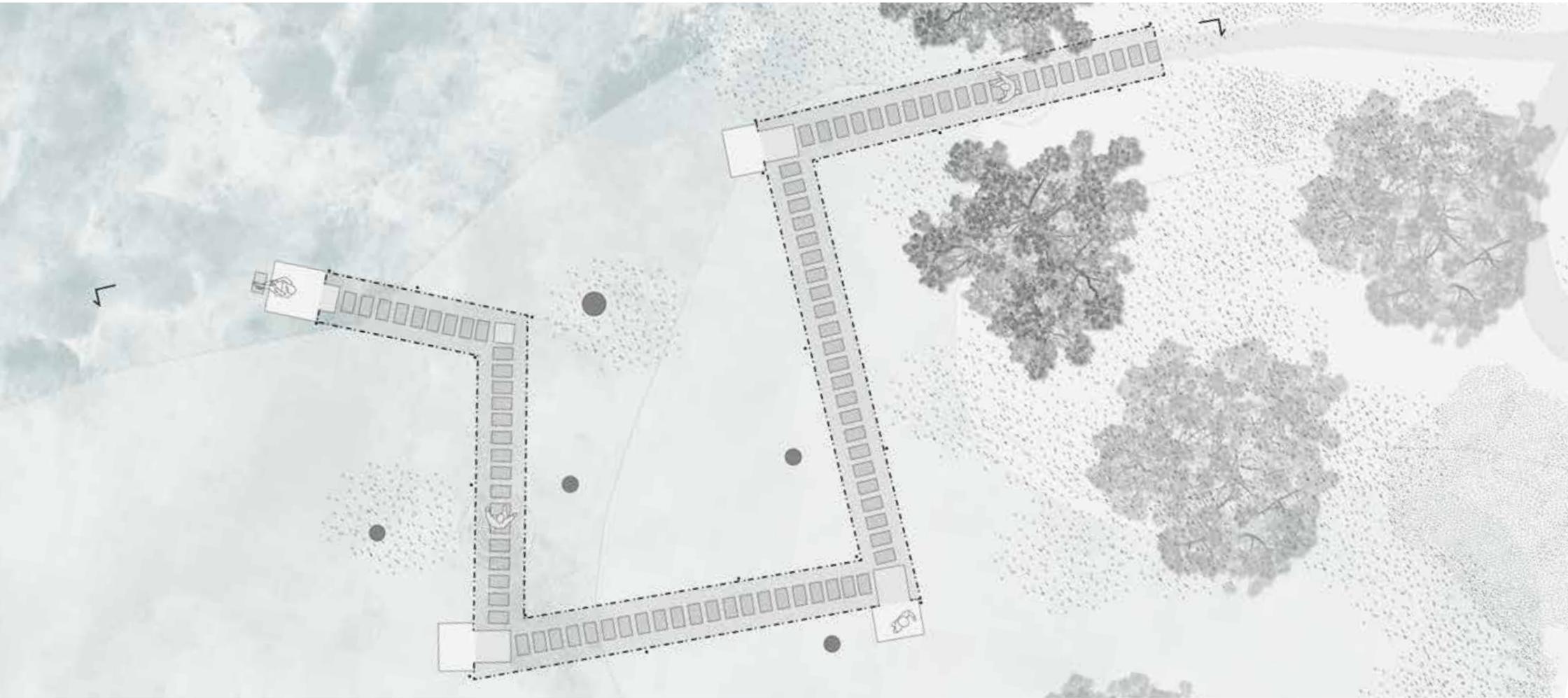
SOUND

Walking with the head in a metal tunnel creates an odd sound-scape.

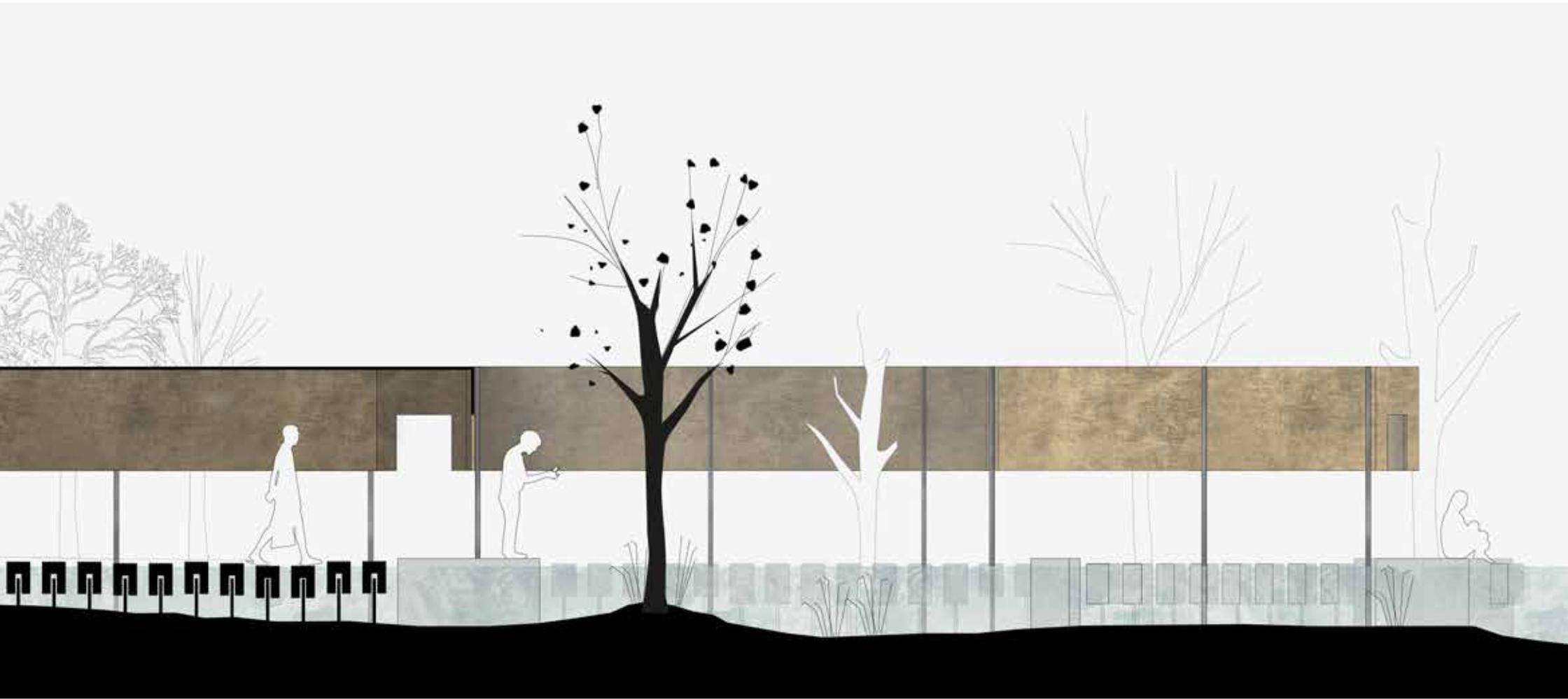


SMELL

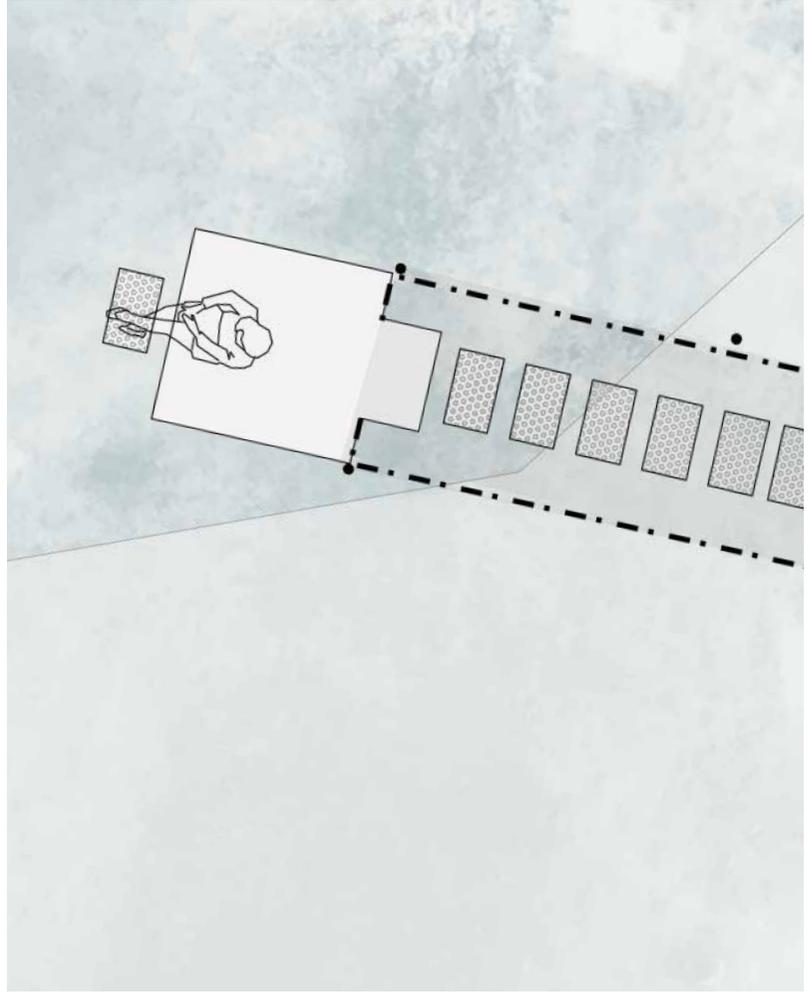
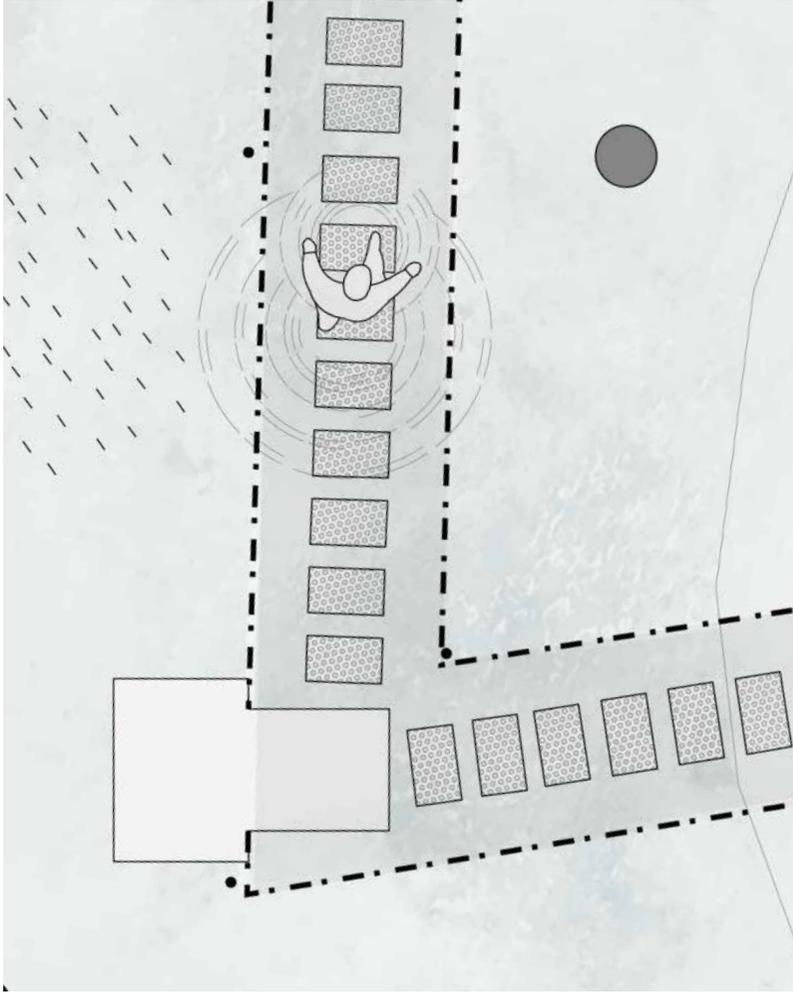
The stagnant water of the swamp brings many odours from the environment.



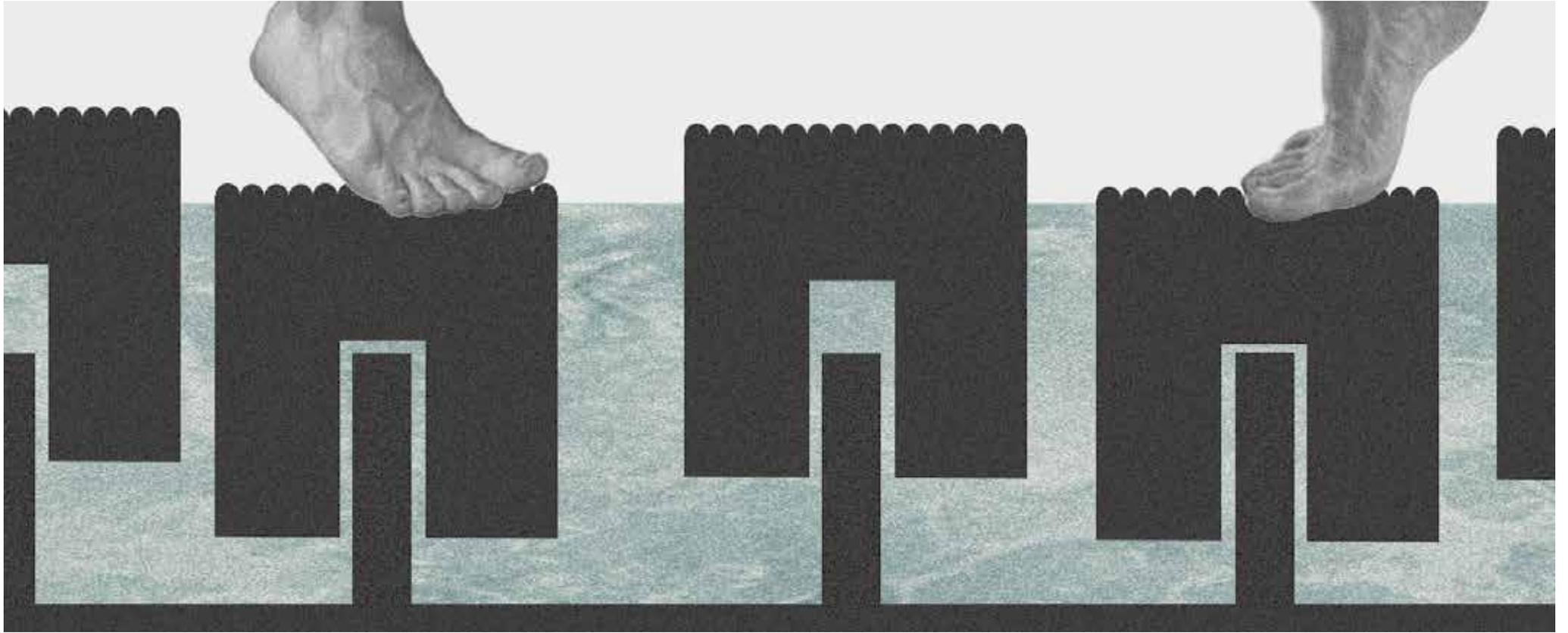
PLAN



SECTION



CLOSE-UP PLAN



CLOSE UP SECTION: PRESSURE



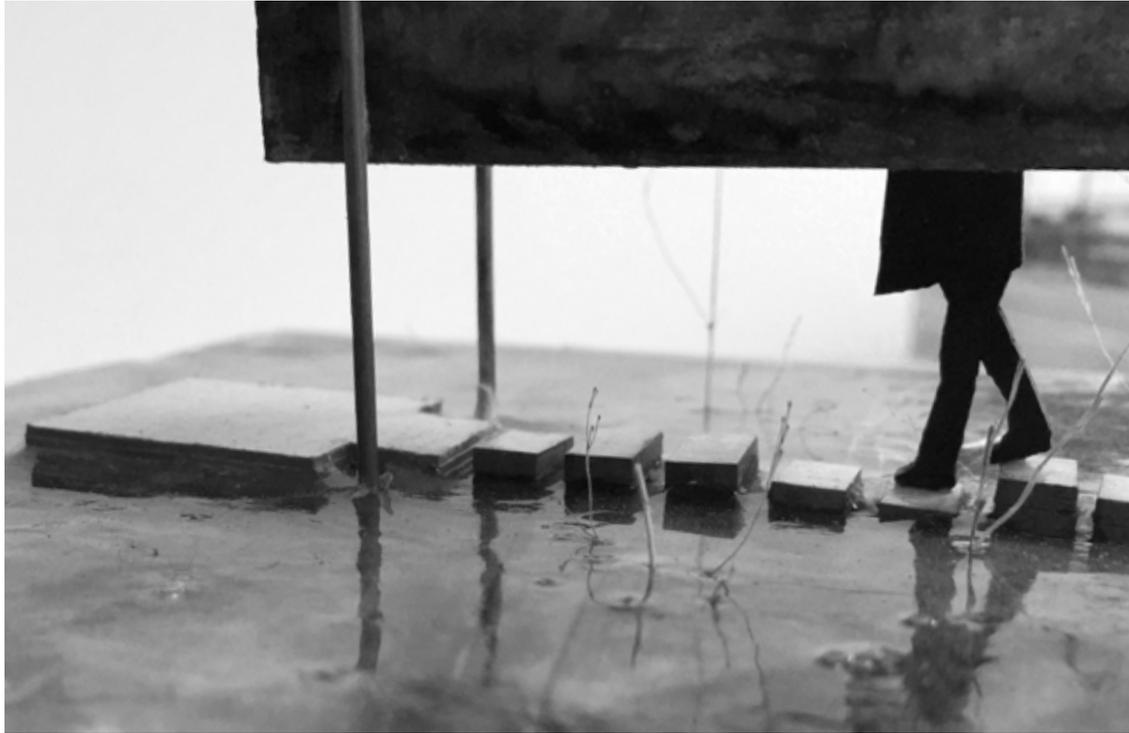
MODEL PROTOTYPE



MODEL PHOTO



MODEL PHOTO



MODEL PHOTO



EARLY SKETCHES



LEANING BRIDGE

- CHARACTERISTICS-

EXPERIENCE

A leaning bridge that makes visitors lean more and more.

The aim is to investigate balance and how much one can move the centre of gravity without falling over.

MATERIAL



The bridge is made of site casted concrete. The ground material is made of gravel that is molded in to the concrete.

SURROUNDINGS



A bridge that crosses a small babbling brook in the varying landscape by the river.

- A MULTI-SENSORY EXPERIENCE -



FEET

The feet get a good grip on the gravel that is casted in to the concrete bridge. The grip is important to help the visitor to keep balance.



BODY

The inclined walls causes the body to lean over to the side and moves the centre of gravity.



SIGHT

The curved shape tricks the visitor not to see the end of the tunnel.



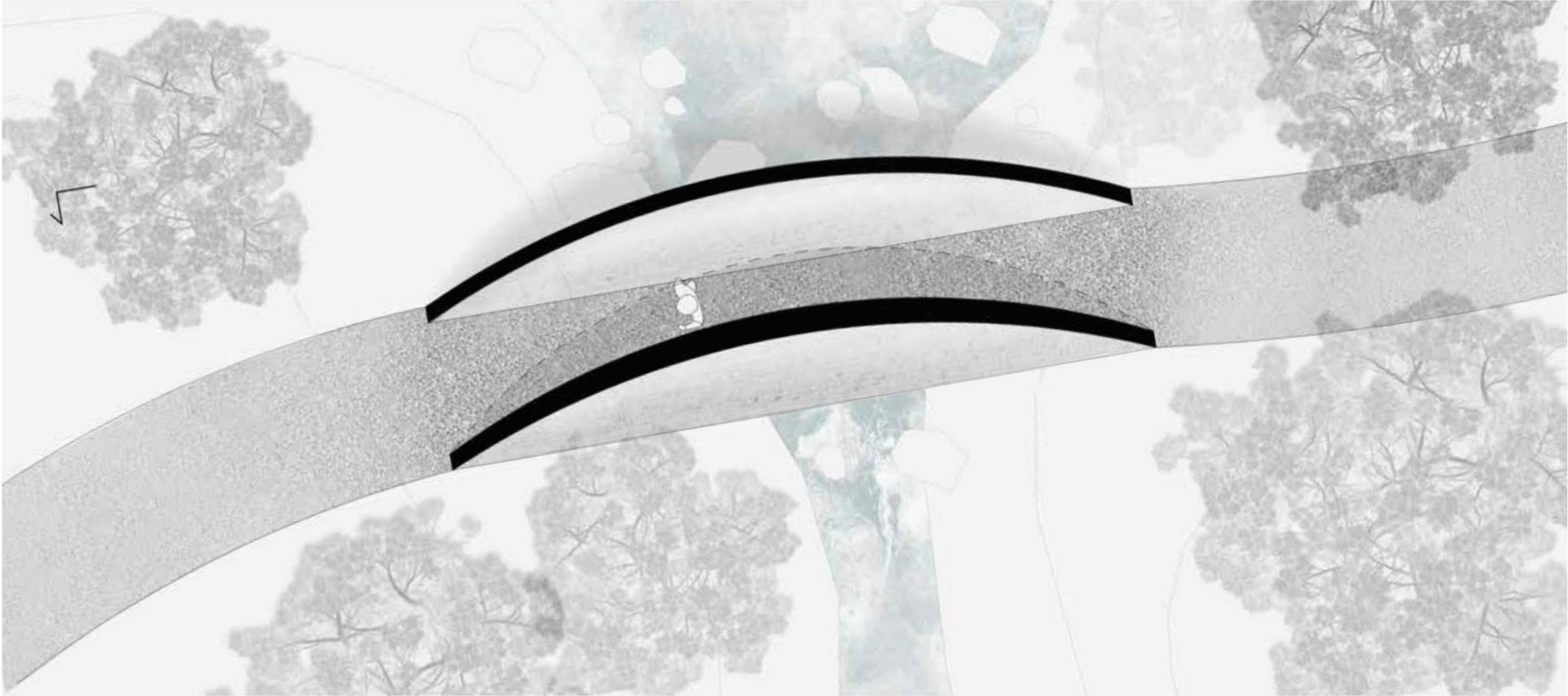
SOUND

The sound of the babbling brook sounds continuously.

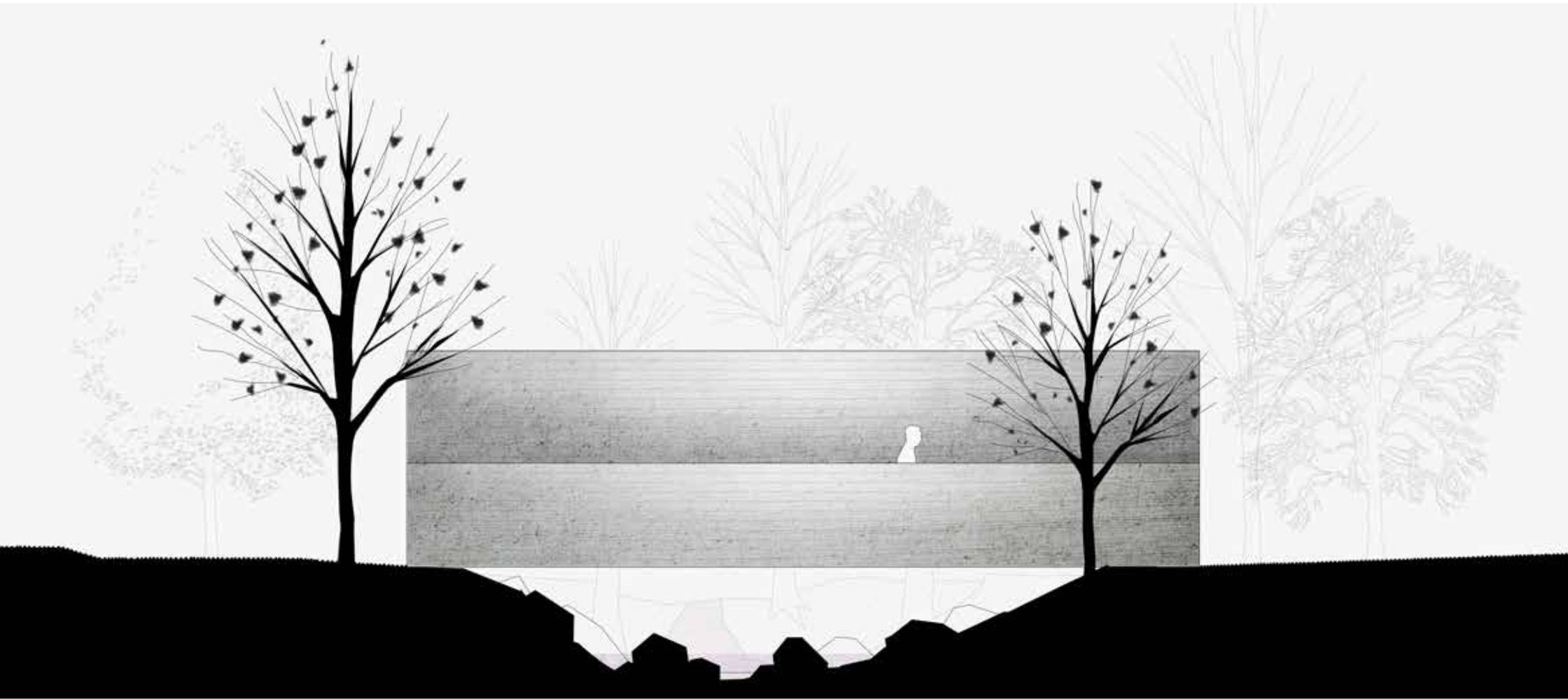


SMELL

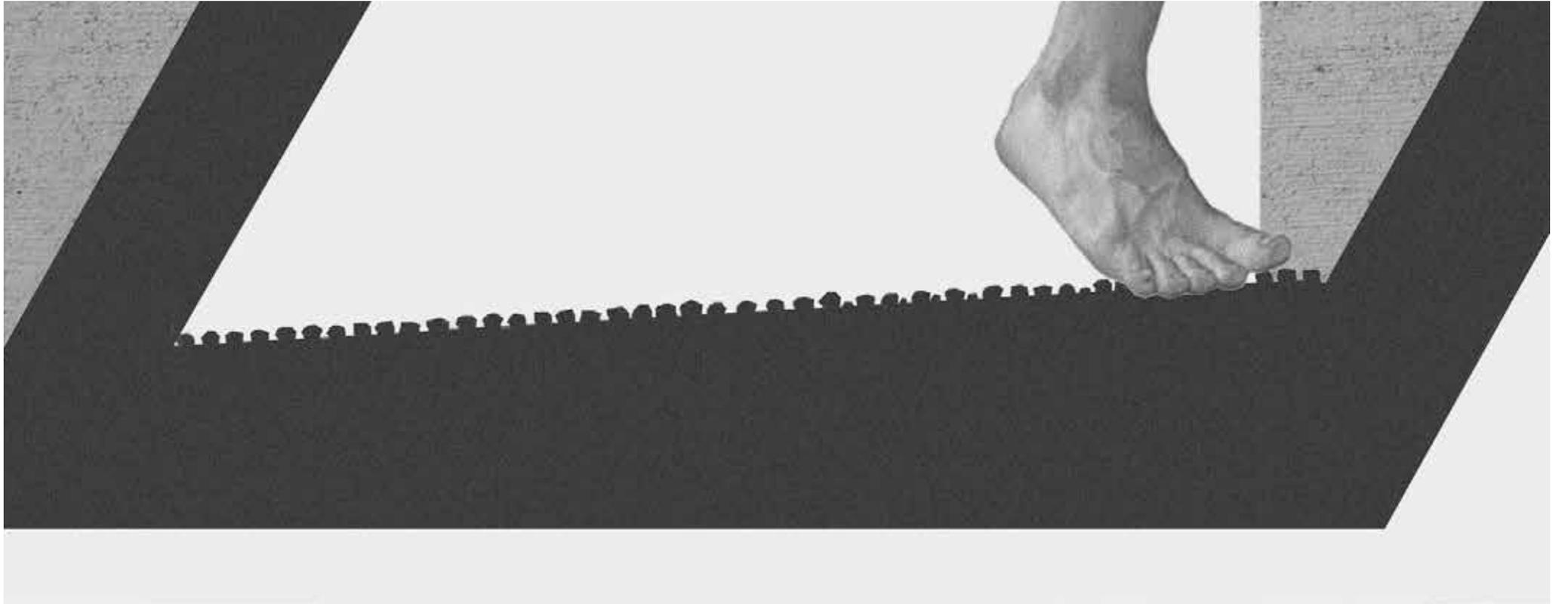
With the head just a few centimetres from the concrete, the visitors will feel the smell of concrete at close range.



PLAN



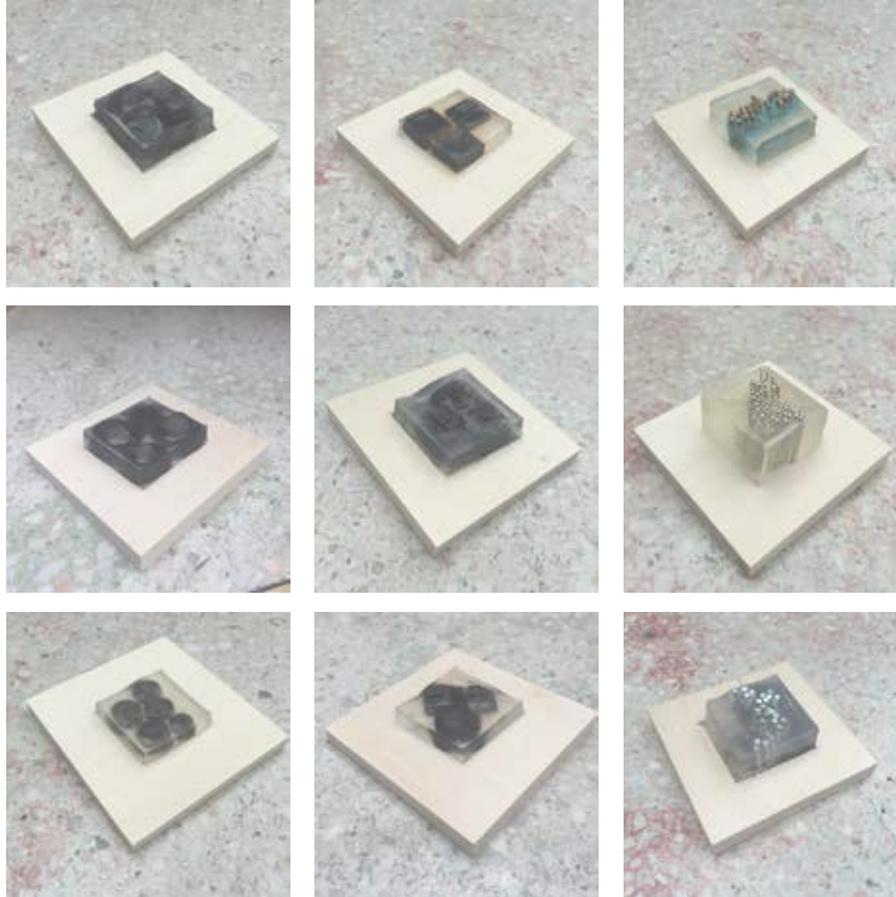
SECTION



CLOSE UP SECTION: BALANCE & MOVING CENTRE OF GRAVITY



PROTOTYPE: ENTRANCE/MIDDLE OF THE BRIDGE



SKETCH MODELS



STREAMING STEPS

- CHARACTERISTICS -

EXPERIENCE

A wavy trail of shiny metal sticks leading the visitor out to the strongest stream.

The aim is to investigate how the foot can stay balanced even with the strong forces of power. This by flexing the feet and gripping the metal sticks.

MATERIAL



Both the sticks and the railing is made of metal. The edges of the sticks will be rounded to give a the visitor a more comfortable walk.

SURROUNDINGS



This place is located just above one of the strongest currents in the nature reserve. The walk goes from more gentle waters to strong current.

- A MULTI-SENSORY EXPERIENCE -



FEET

The feet flexes on the wavy trail of sticks to be able to get a grip and stand firmly in the streaming waters.



BODY

There is a railing at the end of trail, where the stream is at it's strongest.



SIGHT

The railing in the middle of the stream is visible from far distance, but the trail to get there is only visible from close.



SOUND

The roaring sound of the stream indicates on power and danger. Which makes the visitor more conscious and concentrated.



SMELL

The smell of water.



PLAN



SECTION



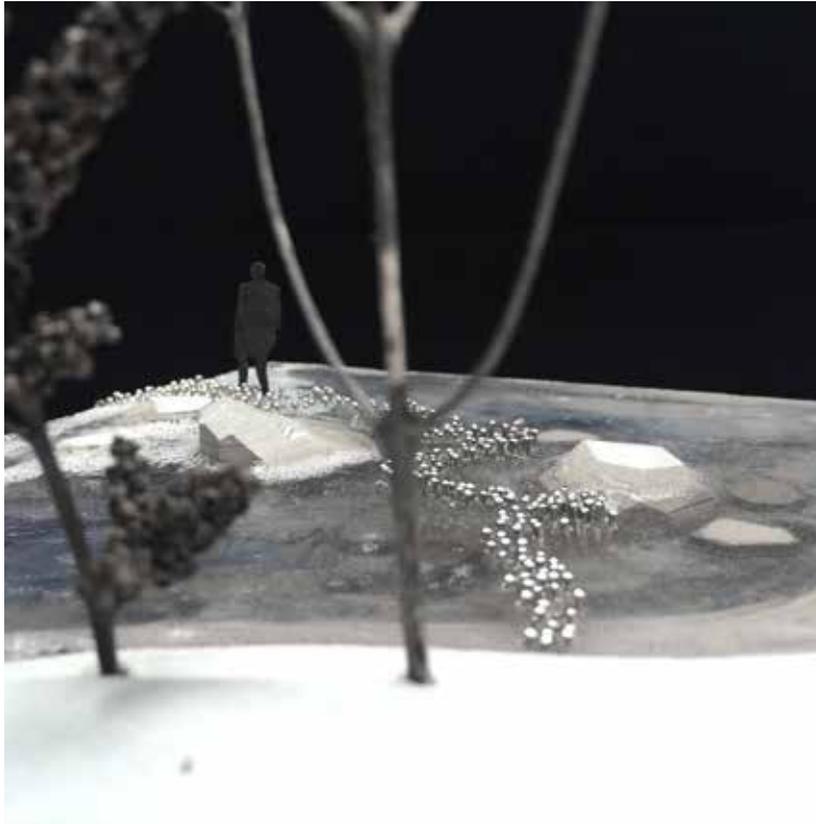
CLOSE UP SECTION: GRIP



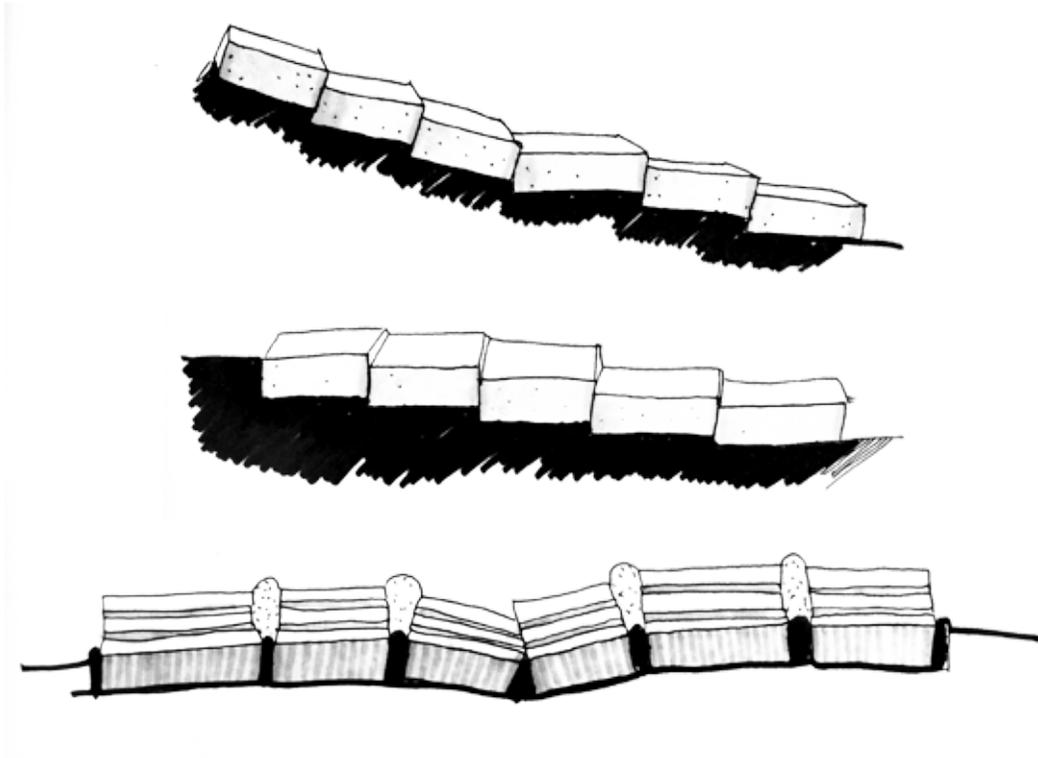
MODEL PROTOTYPE



MODEL PHOTOS



MODEL PHOTOS



EARLY SKETCHES



SLIPPERY LANE

- CHARACTERISTICS -

EXPERIENCE

A long walk through the pine forest divides into two. One is safe and firm, the other is an adventurous and slippery road towards the water. In the sky hangs shining handles that both attracts visitors and help if one loses balance. The aim of this site is to investigate slipperiness the pace generated by the continuous joints in the ground.

MATERIAL



The ground material is made of long pieces of polished stone. The hanging metal handles hangs from a metal structure.

SURROUNDINGS



The site is located in a more silent and calm place of the nature reserve. The path through pine forest splits in two.

- A MULTI-SENSORY EXPERIENCE -



FEET

The polished stone becomes slippery with water. The visitor must slowly find the joints between the stones to find grip on the promenade.



BODY

Reaching for the hanging handles is a way to prevent the visitor from slipping.



SIGHT

The long straight path gives long sight lines and good view of the surroundings.



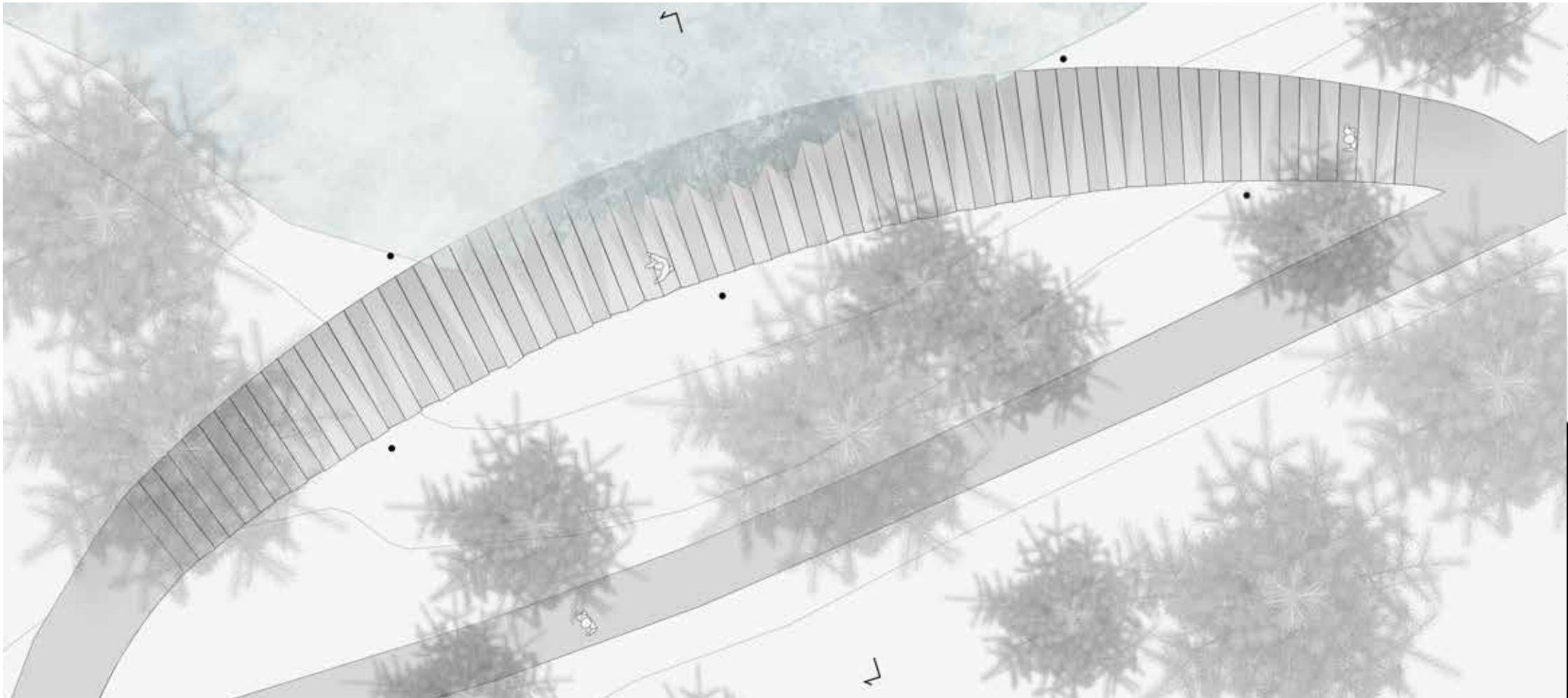
SOUND

This part of the nature reserve is quieter, with a calm stream quietly floating by. Only the sounds of the forest and the dangling handles in the sky.



SMELL

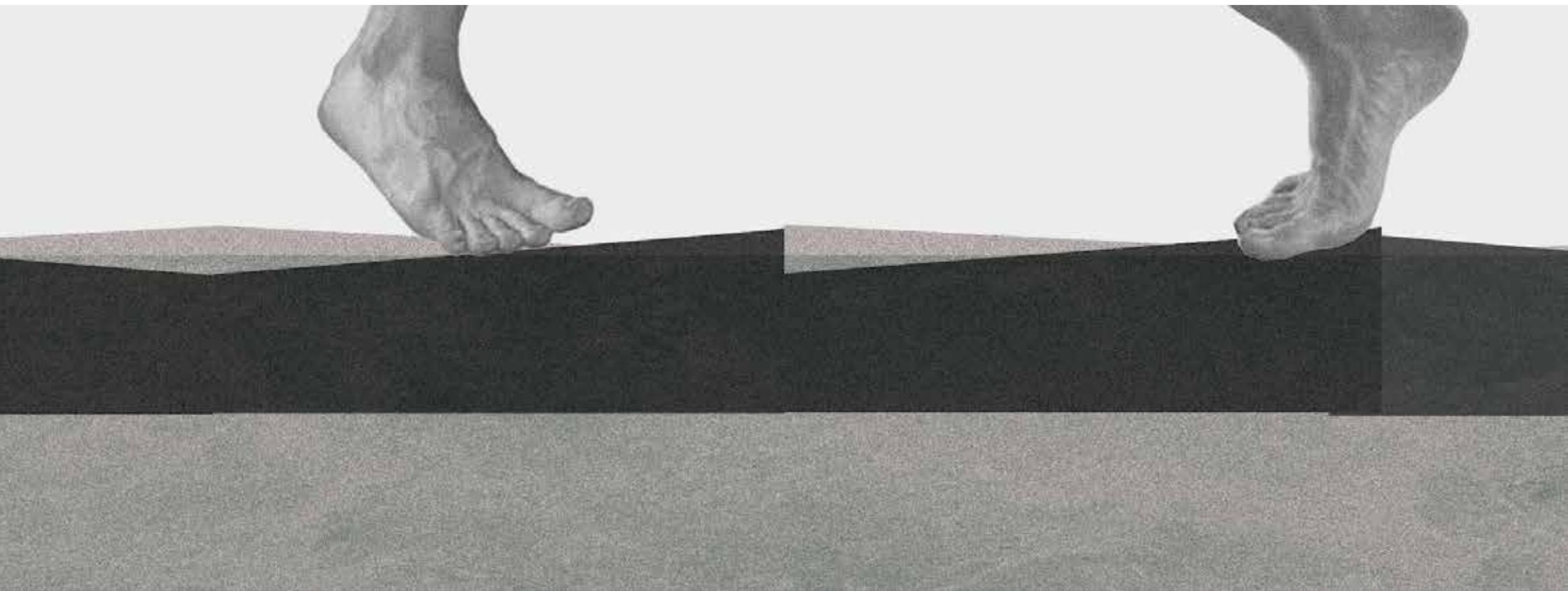
The shaded and damp site amplify the smells of the forest.



PLAN



SECTION



CLOSE UP SECTION: SLIPPERINESS



CONCLUSION

This project started out from my own personal experiences from exploring new environments. But along the process I realised that this discourse is bigger than just recognising materiality through bare feet. Its about how we are allowed to move, who's allowed to move, where we are allowed in society.

We architects need to start challenge ourselves more considering the ground we walk on, it can make a big difference. No matter if it's in a park, on an urban square or inside of a building. This project, being set in a nature reserve, made the it easier to questioning and challenging our usually flat and firm ground more freely than if it would have been in an urban context.

This project isn't an answer to any of the questions society, but the project provides toolbox of knowledge and solutions for many questions. And this toolbox is a foundation for my future projects, where I hope to use this new knowledge.