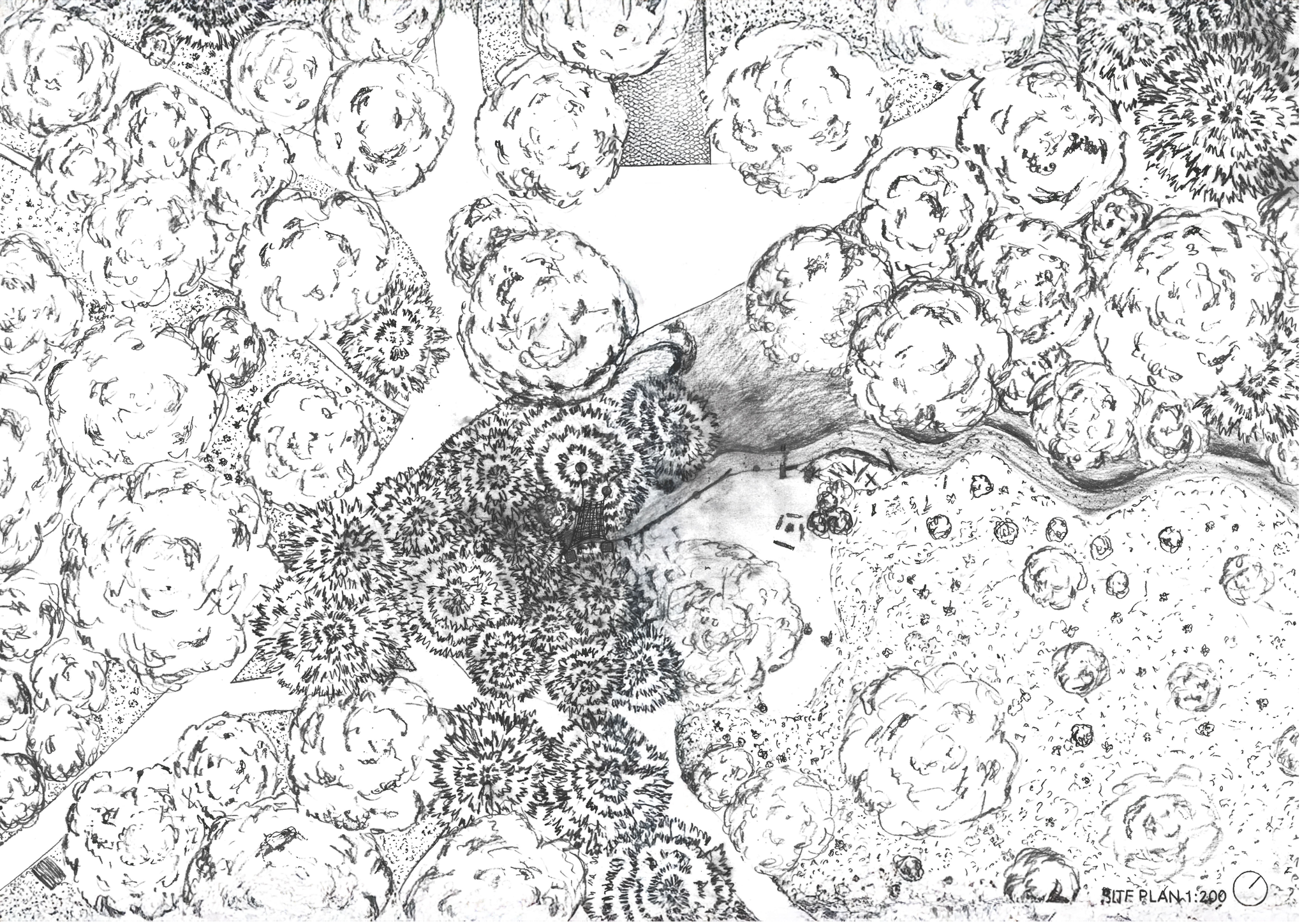
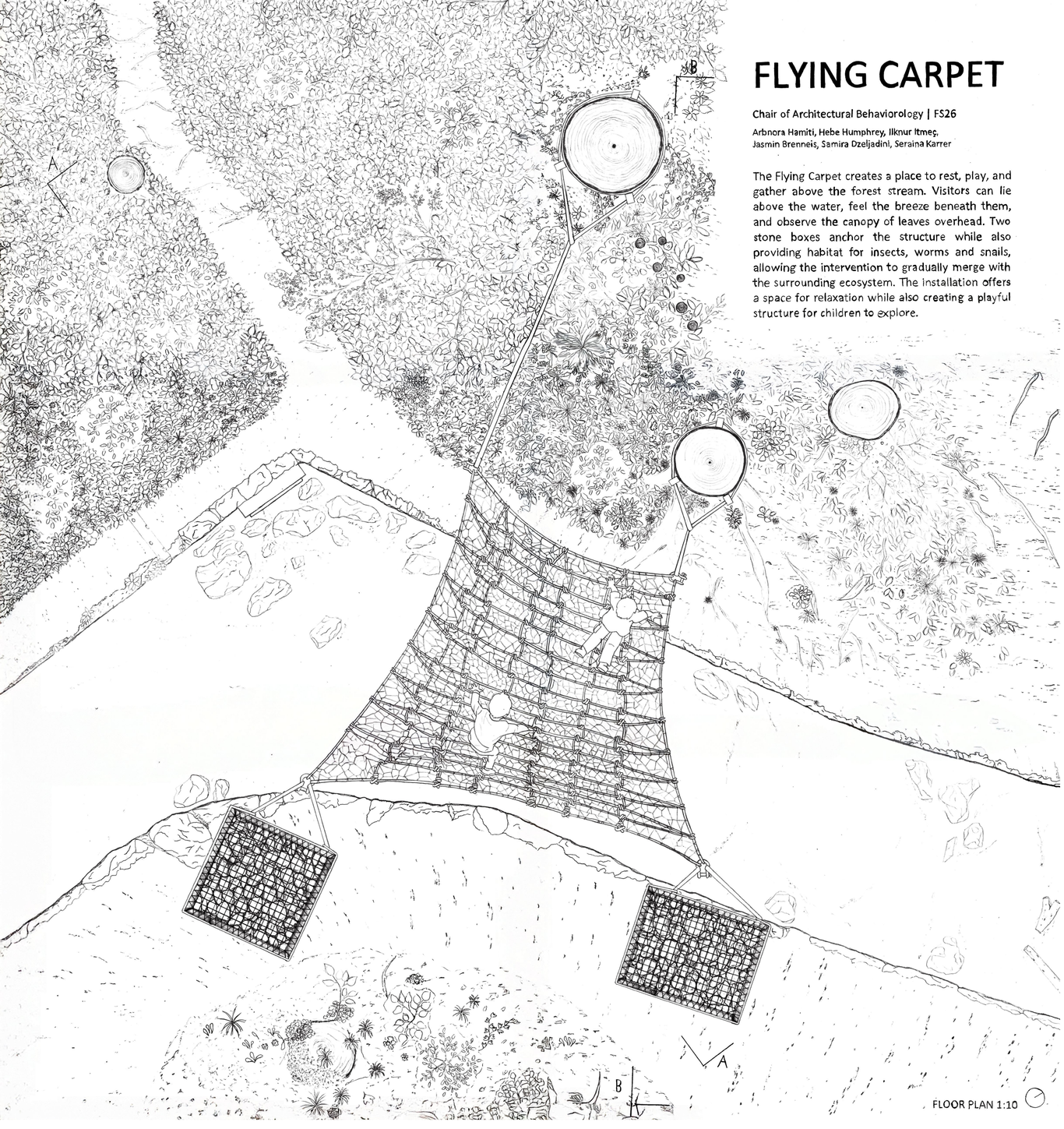

SITE PLAN 1:200

FLYING CARPET

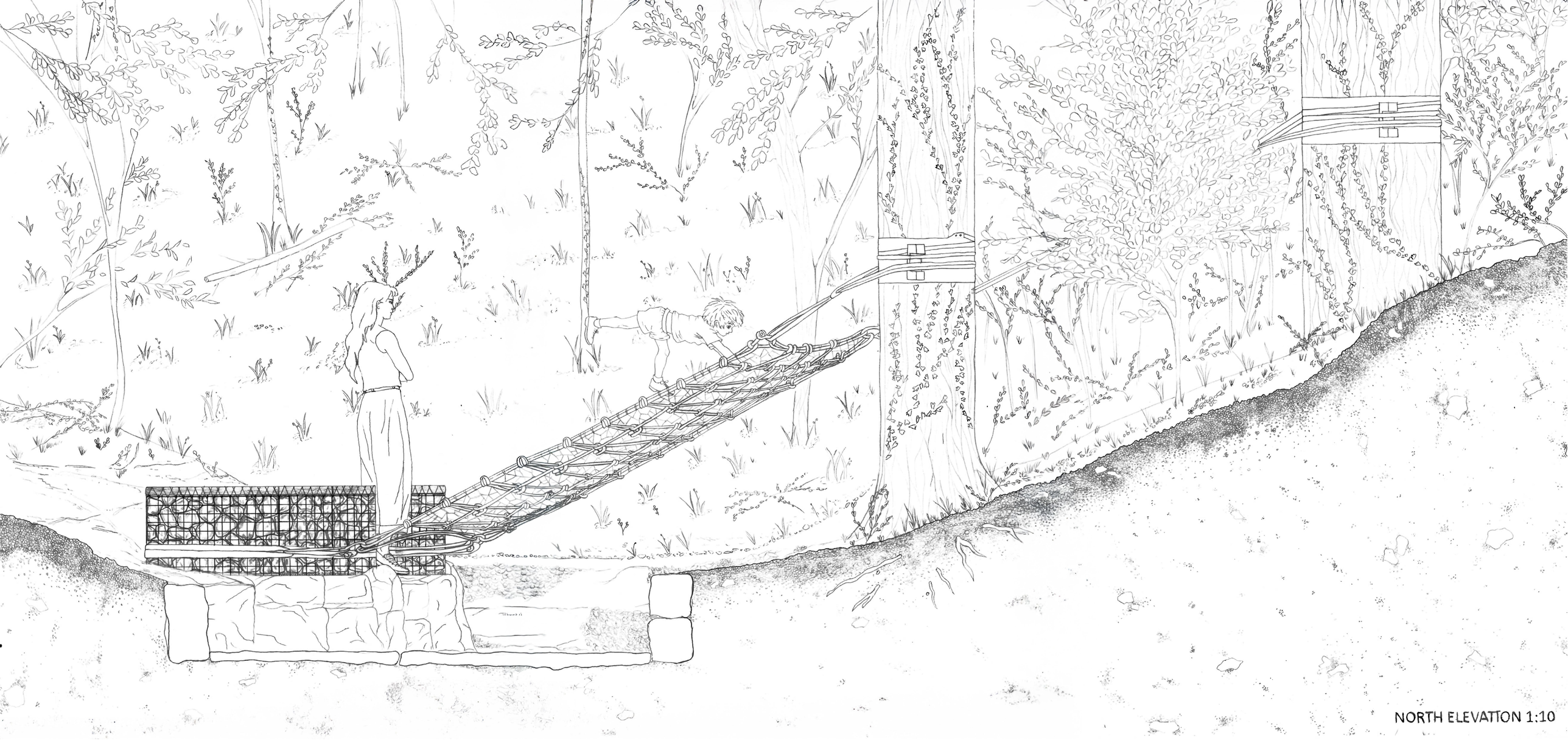
Chair of Architectural Behaviorology | FS26

Arbnora Hamiti, Hebe Humphrey, Ilknur Itmeç,
Jasmin Brenneis, Samira Dzeljadini, Seraina Karrer

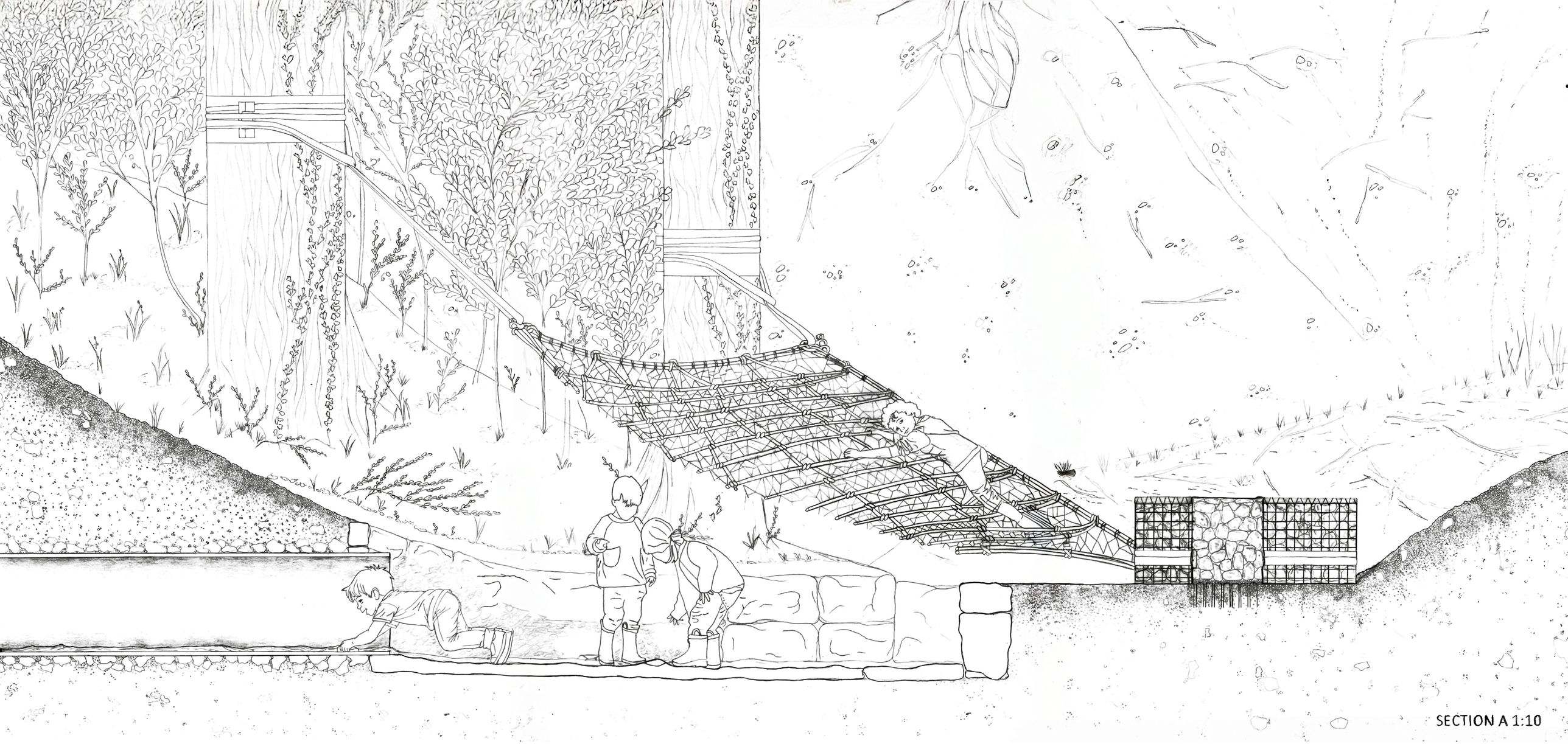
The Flying Carpet creates a place to rest, play, and gather above the forest stream. Visitors can lie above the water, feel the breeze beneath them, and observe the canopy of leaves overhead. Two stone boxes anchor the structure while also providing habitat for insects, worms and snails, allowing the intervention to gradually merge with the surrounding ecosystem. The installation offers a space for relaxation while also creating a playful structure for children to explore.



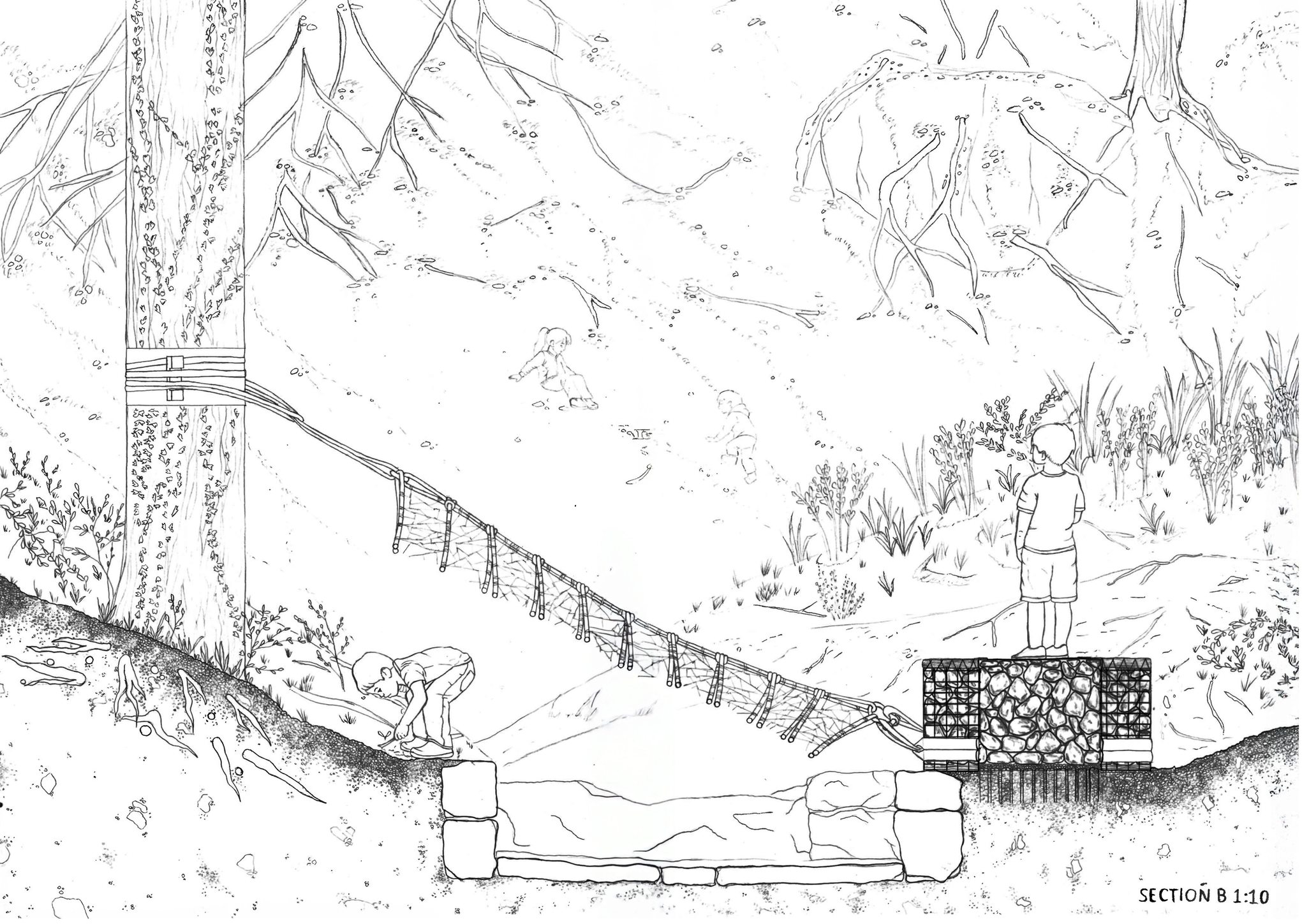
FLOOR PLAN 1:10



NORTH ELEVATION 1:10



SECTION A 1:10



SECTION B 1:10

TYPOLOGY

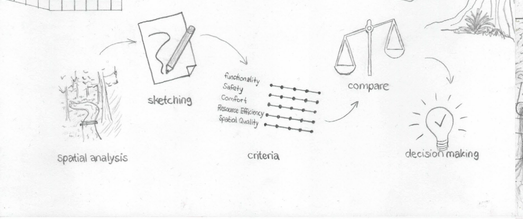
What spatial type emerges from the structure and placement of our intervention in the landscape?

Chair of Architectural Behaviorology, FS26

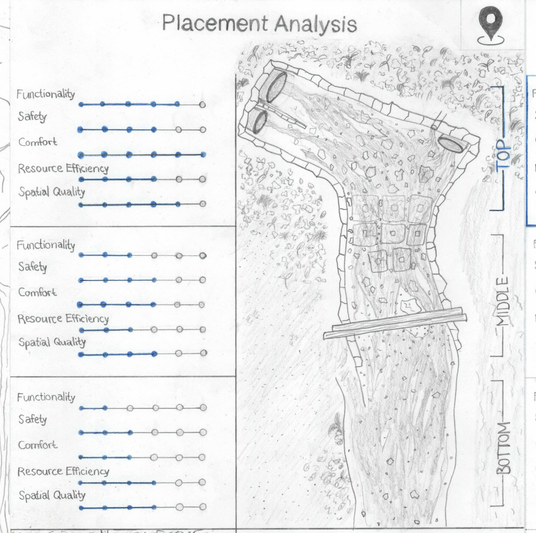
Arbnora Hamiti

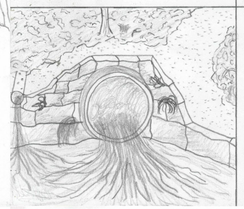
This research explores the spatial typology of an architectural intervention in a forest landscape. It looks at how placement, wind, vegetation, and site conditions influence the formation of space. The project creates areas for rest and movement within nature. The analysis focuses on placement, platform design, composition, and spatial character to understand the overall spatial type. It also reflects on how visitors perceive the intervention and whether it feels integrated into the landscape or stands out from it.

Methodology: Comparative design analysis



Placement Analysis

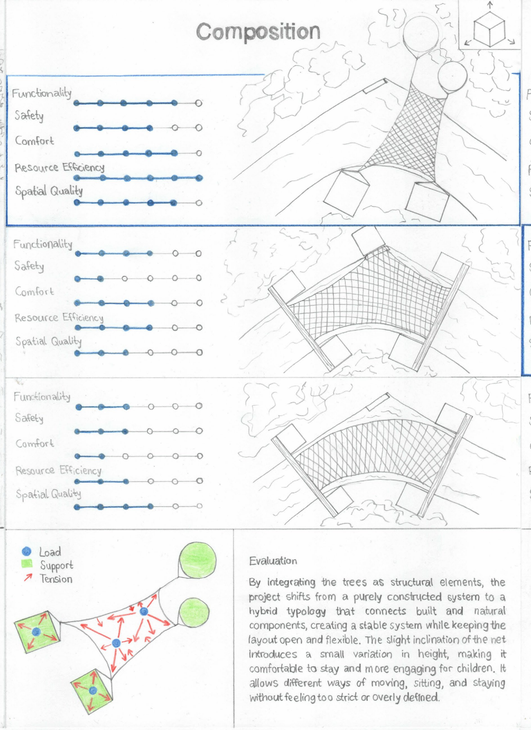




Evaluation

The top of the river near the water pipes has a dense vegetation combined with a calm, slightly hidden atmosphere. The greenery moves with the light breeze, making the wind visible and creating a quiet and focused experience of the surroundings.

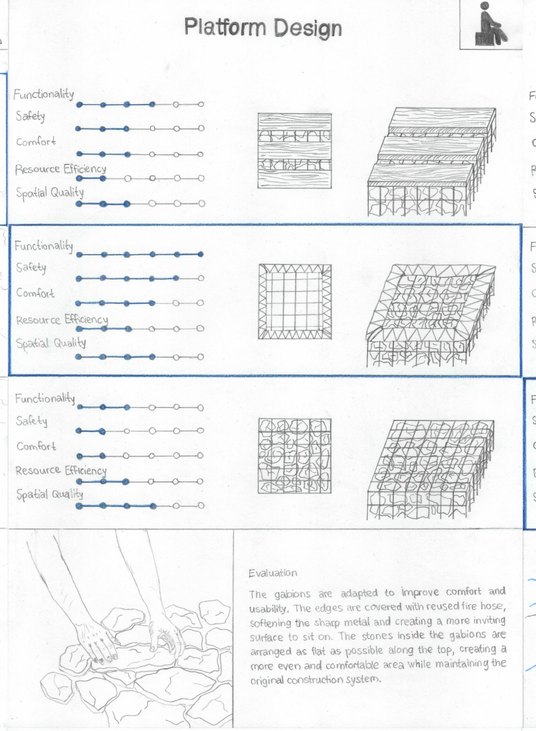
Composition



Evaluation

By integrating the trees as structural elements, the project shifts from a purely constructed system to a hybrid typology that connects built and natural components, creating a stable system while keeping the layout open and flexible. The slight inclination of the net introduces a small variation in height, making it comfortable to stay and more engaging for children. It allows different ways of moving, sitting, and staying without feeling too strict or overly defined.

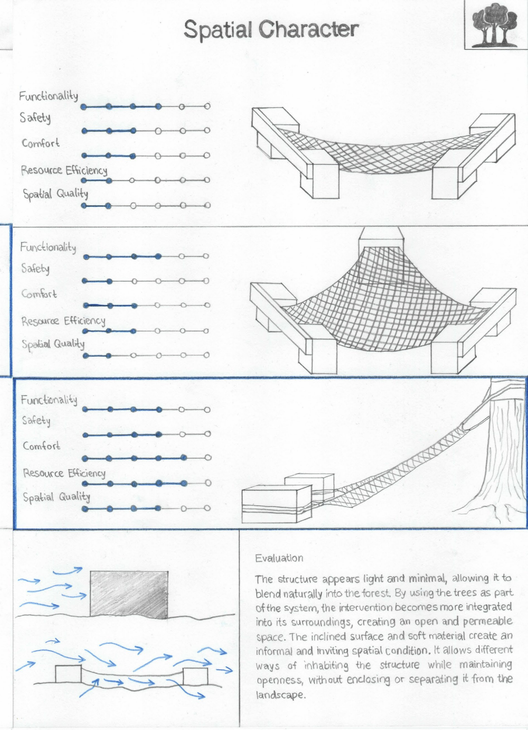
Platform Design



Evaluation

The gabions are adapted to improve comfort and usability. The edges are covered with reused fire hose, softening the sharp metal and creating a more inviting surface to sit on. The stones inside the gabions are arranged as flat as possible along the top, creating a more even and comfortable area while maintaining the original construction system.

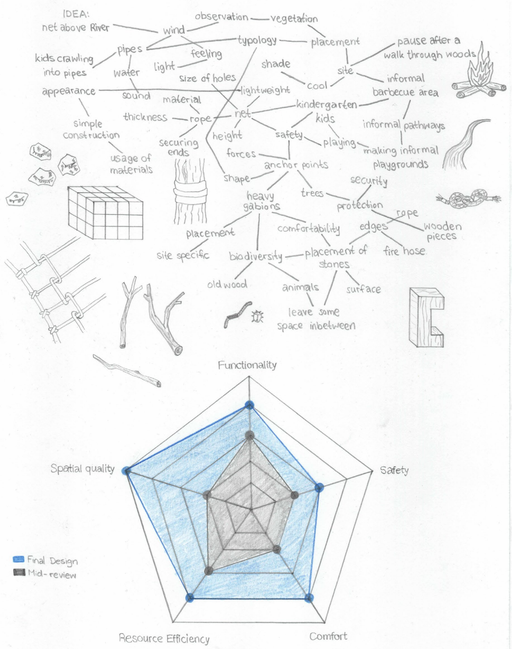
Spatial Character



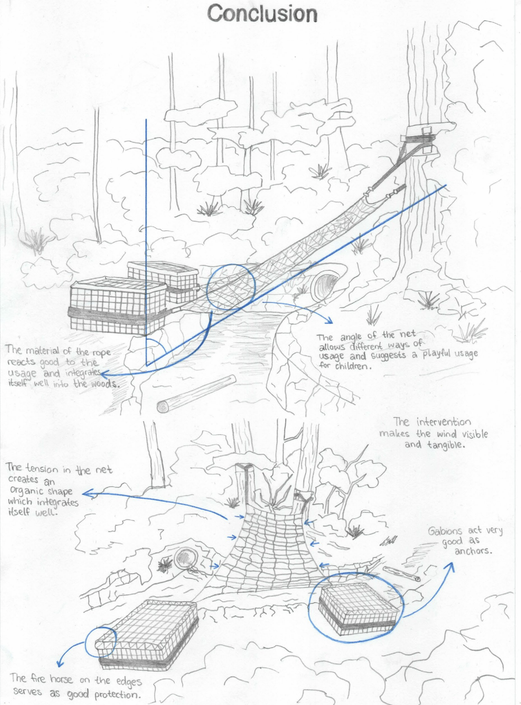
Evaluation

The structure appears light and minimal, allowing it to blend naturally into the forest. By using the trees as part of the system, the intervention becomes more integrated into its surroundings, creating an open and permeable space. The inclined surface and soft material create an informal and inviting spatial condition. It allows different ways of inhabiting the structure while maintaining openness, without enclosing or separating it from the landscape.

Graph



Conclusion



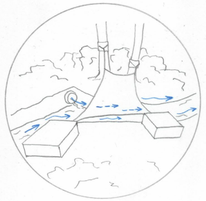
Observation



The stones contribute to the local biodiversity, which becomes visible through the presence of insects. Small species are observed crawling and inhabiting the gaps between the stones, indicating that the structure is already being integrated into its natural surroundings.

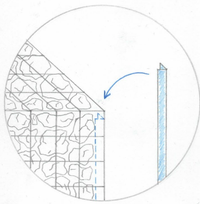


The net sags more than initially expected, creating a deeper curvature in section. Despite this, it maintains a sufficient distance from the water and remains usable, while the increased flexibility enhances the feeling of immersion and interaction with the structure.



When lying on the net, the cool wind can be clearly felt along the body. The airflow is intensified by the pipes, making the wind more perceptible. At the same time, the net allows a wide view into the surrounding vegetation and its movement.

Reflection



If rebuilt, all gabions would be reinforced with L-shaped metal profiles at the corners before being filled with stones. This would prevent local deformation caused by concentrated forces and ensure a more stable and durable structure over time.



The access to the intervention could be more clearly defined and improved. Due to the sloped terrain, a more stable and comfortable pathway would make movement easier and safer, especially in wet conditions, while guiding visitors more intuitively towards the structure.



Learnings

The project shows that typologies in landscape interventions are not fixed but evolve through research and direct experience. It highlights the importance of working with existing site conditions and making use of what is already present, rather than adding unnecessary elements.

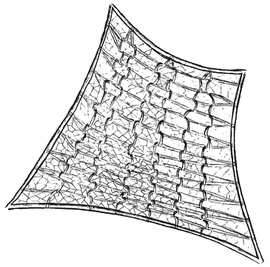
ROPE & NET

MATERIAL and DENSITY, KNOT OR WEAVE & SAFETY, NET CONSTRUCTION, KNOTS FOR PARAMETER & PRIMARY ROPE

CHAIR OF ARCHITECTURAL BEHAVIOROLOGY, FS26

PUBLIC SPACE BEHAVIOROLOGY IN SWITZERLAND

SANIRA DZELJADINI



The net is an important and complex part of our project. This research report examines the key aspects, from the rope to the net itself and discusses the results. The aim is to identify the best materials, density and knots to construct the ideal net. This is being investigated in accordance with regulations, human needs and the forest environment. The results are compared, and the strengths and weaknesses shown. This will enable us to construct the most suitable net.

ROPE

Material & Density

Polypropylen

Polyhemp rope

Weather resistance
Weight
Expansion
Cost

Hemprope

Weather resistance
Weight
Expansion
Cost

PES (polyester) rope

Weather resistance
Weight
Expansion
Cost

The best rope would be made of natural fibres, but this is not strong enough and cannot withstand all weather conditions. That is why the best solution is to use polyester rope which is a synthetic alternative that can withstand all weather conditions. In the forest, and is strong enough to form an entire net that you can move around on. Also it is the cheapest option.

4mm

Strength
Flexibility
Tranglibility
Cost

6mm

Strength
Flexibility
Tranglibility
Cost

12mm

Strength
Flexibility
Tranglibility
Cost

16mm

Strength
Flexibility
Tranglibility
Cost

We need to use two different densities. The first rope must be 4mm and is used for the inner net, the mainly weaving method. And for the parameter rope we use 12 mm rope, and we use two strands for the primary net we also use the 16 mm rope.

NET

Knot or weave & Safety

Snake knot

Time requirement
Amount of rope
Comfort
Simplicity
Strength

Reef knot/
Square knot

Time requirement
Amount of rope
Comfort
Simplicity
Strength

Weave

Time requirement
Amount of rope
Comfort
Simplicity
Strength

We will weave the net because we do not have a rectangular shaped net so it is easier to weave and with weaving we can create more tension.

25cm

Safety
Amount of rope
Comfort
Efficiency

7mm

Safety
Amount of rope
Comfort
Efficiency

The size of the net makes a difference: firstly, we must work according to regulations, so we must use the 7 cm net. Also it is more comfortable and safer for children to play.

NET

How to construct the net ?

Parameter Rope

Primary Net

Stability
Safety
Comfort

Stability
Safety
Comfort

Stability
Safety
Comfort

Stability
Safety
Comfort

Stability
Safety
Comfort

The net construction we choose is the best because it is the safest and the most comfortable. It needs more rope but because of the other criteria we choose that construction.

NET

Which knots should be used for the perimeter and primary rope?

Double fisherman's knot

Technique
Stability
Comfort
Safety

For the parameter and primary net we use knots to connect them. We choose knots that are simple to knot and are safe.

Constrictor & Barrel Knot

Technique
Stability
Comfort
Safety

Overhand Bend Knot

Technique
Stability
Comfort
Safety

Strangle Knot

Technique
Stability
Comfort
Safety

Rolling hitch

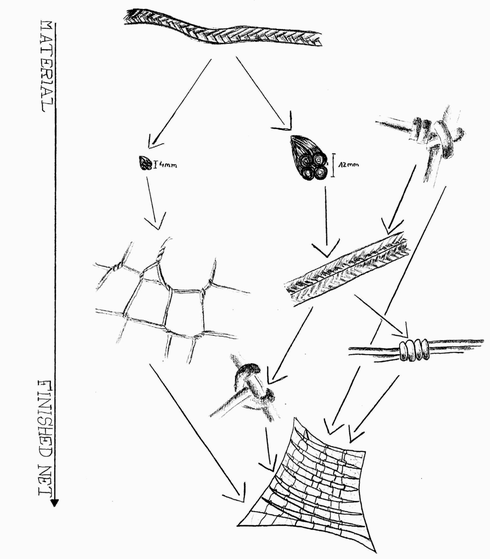
Technique
Stability
Comfort
Safety

Clove hitch

Technique
Stability
Comfort
Safety

The knots on the ends are the most important so the ends of the rope don't get loose.

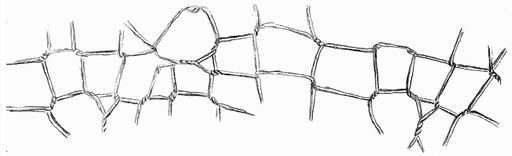
GRAPH



CONCLUSION



The rope was the right choice. It's suitable for the net and cheaper too. The 4 mm was the perfect thickness for the inner net, and the 12 mm was just right as well. Even as a support rope, it's sturdy, even though we used it doubled and didn't opt for the more expensive, thicker rope.

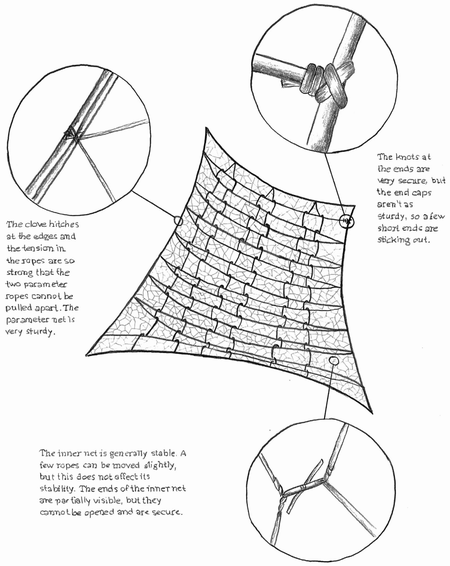


Weaving the net was a good decision, we were able to build up enough tension. It also gave the whole net a more natural look, as the shapes aren't perfect. We were also able to achieve the right size through weaving.



Overall, the structure has become very sturdy, and all the components have come together to form a cohesive whole. It looks great and blends in well with the surroundings, and has become a new highlight for children.

OBSERVATION



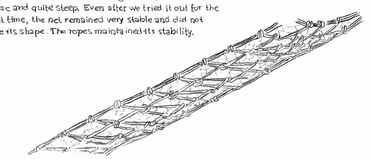
The clove hitches at the edges and the tension in the ropes are so strong that the two parameter ropes cannot be pulled apart. The parameter net is very sturdy.

The knots at the ends are very secure, but the end caps aren't as sturdy, so a few short ends are sticking out.

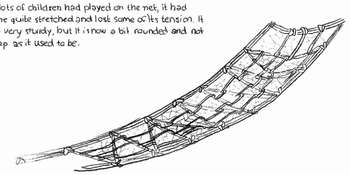
The inner net is generally stable. A few ropes can be moved slightly, but this does not affect its stability. The ends of the inner net are partially visible, but they cannot be opened and are secure.

REFLECTION

When we had finished installing the net, it was very tense and quite steep. Even after we tried it out for the first time, the net remained very stable and did not lose its shape. The ropes maintained its stability.



After lots of children had played on the net, it had become quite stretched and lost some of its tension. It is still very sturdy, but it is now a bit rounded and not as steep as it used to be.

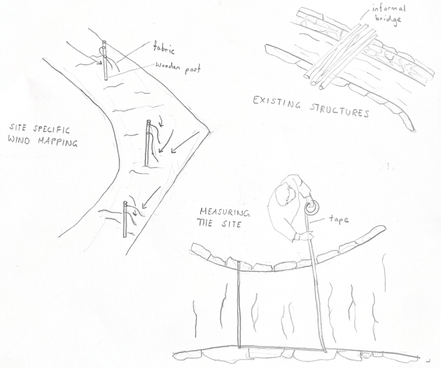


We might have had to use a steel cable for stabilisation to prevent deformation. Furthermore, when choosing the rope, we would have had to prioritise elasticity, although this would have made the net considerably more expensive.

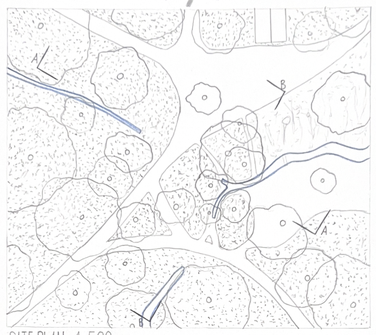
Site Analysis & Placement

RESEARCH REPORT
CHAIR OF BEHAVIOROLOGY FS 26
HEBE HUMPHREY

This paper explores the placement of our intervention on the site through the analysis of wind, natural conditions, and the properties of the woods. Our goal is to create a structure quietly embedded in the site and working to its advantage. This investigation is based on literature, discussions with the Waldlabor, hands-on experimentation, and documentation. The result is a construction that blends in and continues the forest floor, grounded in simplicity and respect for its environment.

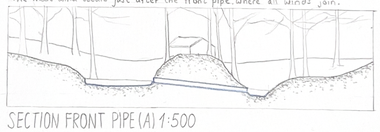


1. Wind Analysis

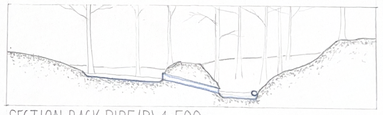


SITE PLAN 1:500

The wind passes along the topography and accumulates in the river. The two tunnels slope downwards, causing the wind to intensify at their exit. The most wind occurs just after the front pipe, where all winds join.



SECTION FRONT PIPE (A) 1:500

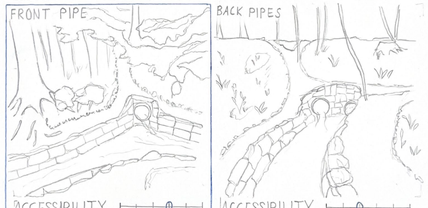


SECTION BACK PIPE (B) 1:500

2. Site Analysis

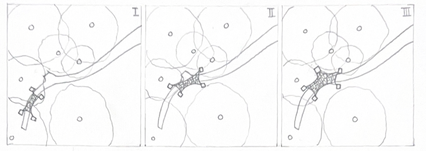


	SLOPE	FIREPLACE
ACCESSIBILITY	0	0
WIND	0	0
TRANQUILITY	0	0
SHADE	0	0
VIEW	0	0

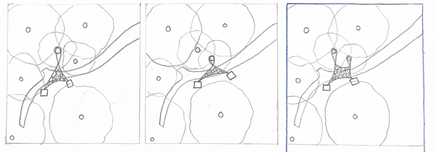


	FRONT PIPE	BACK PIPES
ACCESSIBILITY	0	0
WIND	0	0
TRANQUILITY	0	0
SHADE	0	0
VIEW	0	0

3. Placement

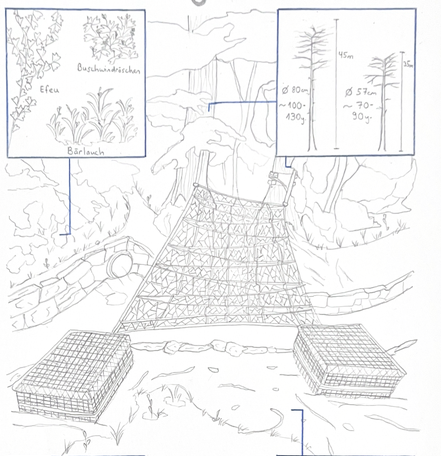


	I	II	III
ACCESS	0	0	0
WIND	0	0	0
COMFORT	0	0	0
FORCE	0	0	0
DISTRIBUTION			

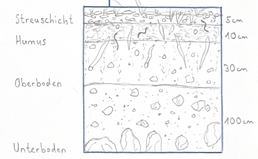


	I	II	III
ACCESS	0	0	0
WIND	0	0	0
COMFORT	0	0	0
FORCE	0	0	0
DISTRIBUTION			

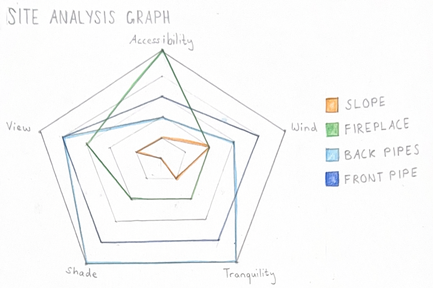
4. Surroundings

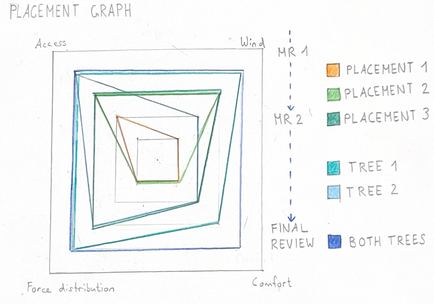


The dense forest, mature trees and existing soil structure determine the placement of our project. The spaces are placed on rocky terrain, minimizing ground intervention. The microclimate and wind can be experienced on the project.



5. Graph



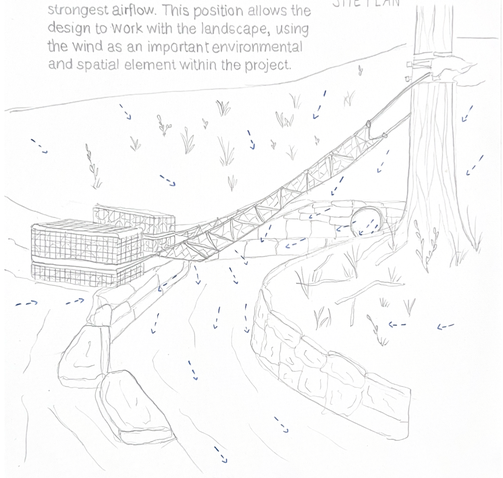


6. Conclusion

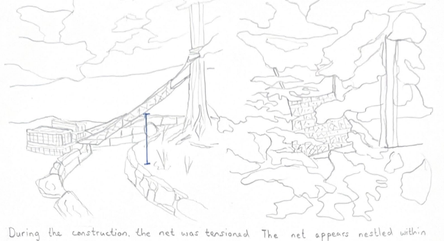
The chosen location takes advantage of the natural wind flow across the site. Wind follows the topography and is channelled through the pipe-like passages, where it increases in speed as the terrain slopes downward. Our structure is placed directly after the main pipe, where the different wind streams combine and create the strongest airflow. This position allows the design to work with the landscape, using the wind as an important environmental and spatial element within the project.



SITE PLAN

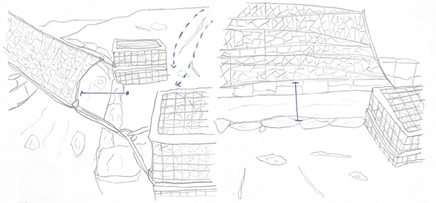


7. Observation



During the construction, the net was tensioned multiple times to ensure it won't sag. Despite this, the net hangs through a lot more than expected after 1 week of use.

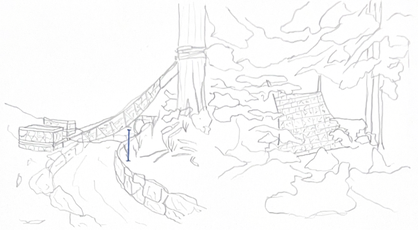
The net appears nestled within the woods, between the branches. This creates an element of surprise when approaching the site.



There is a decent gap between the edge of the stones and the start of the net due to how strongly we tensioned the net.

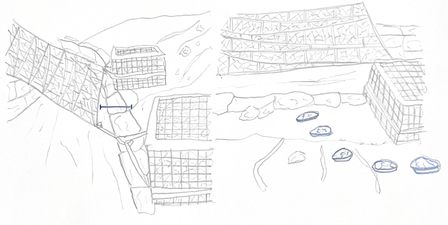
The access to the net becomes difficult when the weather is rainy.

8. Reflection



After 1 week of use, the net hangs through and would have to be re-tensioned regularly.

After some time, the leaves will grow more densely and our project will be more embedded in the site.



The lower rope could have been tensioned even more during construction for easier access.

A solution could be to place stones or wooden platforms for easier access. During experimentation we noticed that this still becomes slippery.

USERS & INTERACTION

RESEARCH REPORT

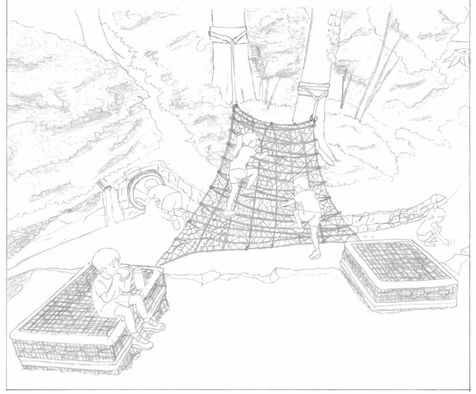
ILKNUR ITMEÇ

PUBLIC SPACE BEHAVIOROLOGY: WIND | CHAIR OF ARCHITECTURAL BEHAVIORLOGY | FS 26

This research focuses on understanding different user groups on the site, their interactions with the space and their spatial requirements.

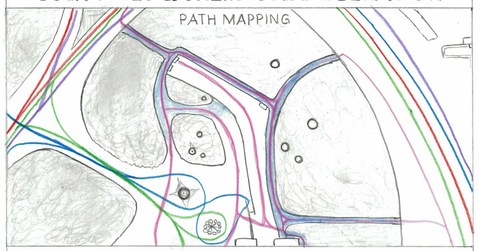
Data was collected through on-site observations and behavioral analysis. Activities such as lingering, social interaction, sitting, relaxing, and engagement with wind and water were examined. Based on these observations, user groups and their spatial needs were identified.

The aim is to better understand site usage and support design interventions that improve comfort and interaction with wind.



USER TYPES & THEIR SPATIAL BEHAVIOR

PATH MAPPING



CHILDREN



Children stay a long time on the site and primarily use the site in an active and exploratory way. They move dynamically through the space, run, climb, and interact with their surroundings. They often use elements such as pipes, tree trunks, or terrain differences as play structures.

NEEDS: safe but stimulating environments, climbable and flexible spatial elements.

BUGS



The site is home to countless small creatures such as spiders, ants, ladybirds, snails, worms and similar fauna.

NEEDS: shelter and protected spaces such as small gaps, loose soil, stones, wood, and shaded humid areas that provide protection from heat and predators.

GROUPS



Groups tend to occupy the space for longer periods. They gather next to the informal firepit on the site, socialize, grill or relax.

NEEDS: generous seating areas, social stones and shade

PASSERBY (4 DOGS)



Passersby generally do not enter the site and often observe it from a distance. While some briefly pause, most continue walking. Sometimes some enter the site with their dog.

NEEDS: spatial conditions that invite to visit the site

JOGGERS



Joggers move continuously along paths above the site, occasionally casting brief glances toward the river, though most pass without entering the site.

NEEDS: opportunities for cooling down and spatial conditions that invite short pause



WEATHER

What stood out during the observation was that children played on the site regardless of the weather, whereas adults tended to spend time there only when the weather was nice.



TIME

On weekends and holidays there are more people on the site.

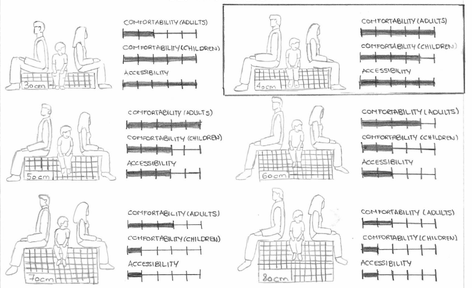
SPATIAL REQUIREMENTS

ANTHROPOMETRY

Anthropometry is a fundamental tool in spatial design, providing measurable data on human body dimensions and proportions.
The following anthropometric references serve as basis for defining spatial requirements for accessibility and comfortability for the intervention.



SEATING HEIGHT



EVALUATION
With a seat height of approximately 40cm, the gabions offer the perfect balance for all age groups: children can easily climb the gabions, and all age groups can sit comfortably.

DIFFERENT LYING POSITIONS

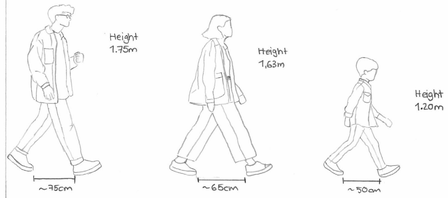
Designing an ergonomic lying surface requires precise adaptation to body size. The table below shows the space requirements for adults and children in the 3 most common resting positions:

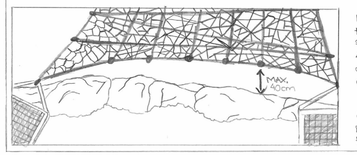
	175 cm	163 cm	120 cm
Laying down	~200 cm	~180 cm	140 – 150 cm
Reclined	160 – 170 cm	150 – 160 cm	110 – 120 cm
Extended legs	110 – 120 cm	105 – 115 cm	75 – 85 cm

EVALUATION
Designing for a multigenerational user base requires balancing adult and child needs. A flexible or modular approach means both 185cm adults and 120 cm children find ergonomic positions.
A surface length of approximately 160-170cm provides the ideal baseline, allowing adults to recline comfortably while giving children enough space to lie down fully.

USAGE & ACCESSIBILITY

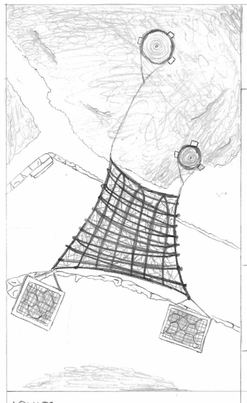
ACCESSIBILITY NET





Maximum distance from the net to the ground should be approximately 40 cm, so that both children and adults can easily step onto the net

Access to the net is provided between the two gabions.

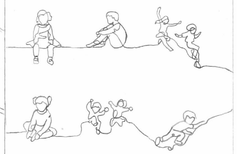


USAGE

The project supporting both social interaction and biodiversity.

CHILDREN

The intervention is designed primarily for children as the main user group. The flexible hammock structure encourages climbing and jumping, creating an active play element within the landscape, while also providing spaces to sit and rest.



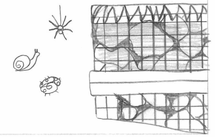
ADULTS

The intervention accommodates adults by offering spaces for sitting/resting, and relaxation on the gabions and net.

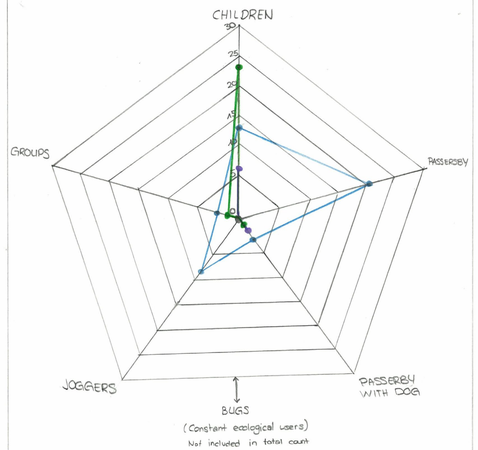


BIODIVERSITY IN GABIONS: SMALL INHABITANTS

Tiny animals are also considered users of the project. The gabions provide small cavities, shaded gaps, and protected spaces for worms, spiders, snails, ants, and other small inhabitants. The irregular arrangement of untreated natural stones creates microhabitats that support shelter, movement, and resting opportunities.



GRAPH

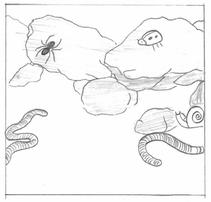


CONCLUSION



CHILDREN

The path mapping and graph analysis showed that children are the main actors interacting with the site. Unlike most other users, they actively enter the area, remain on the site for longer periods, and engage with the landscape in an exploratory way.
Their movement patterns revealed repeated climbing, running, balancing, and interaction with terrain differences, tree trunks, and existing spatial elements.
Based on these observations, the research identified the need for a flexible, climbable, and stimulating spatial structure that supports active movement and playful interactions.

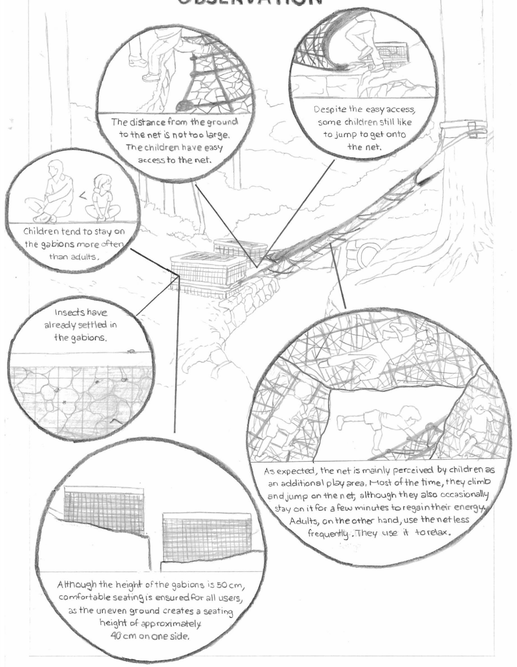


BUGS

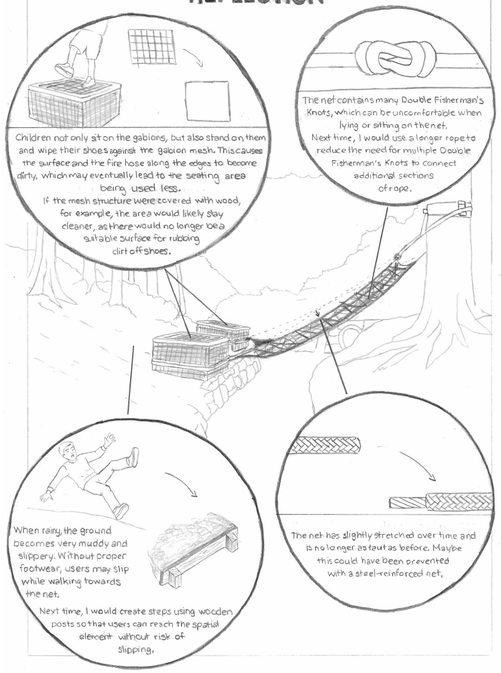
Insects and small fauna are constant users of the site. Observations showed that the forest floor, loose soil, shaded humid areas, stones and untreated natural materials already provide important ecological habitats.
These findings highlighted the ecological sensitivity of the site and the importance of preserving sheltered cavities and natural microhabitats within the intervention area.
The research therefore considered biodiversity not as a secondary aspect, but as an integrated spatial requirement of the site.

OTHER ACTORS
Although children were identified as the dominant interacting group, the research showed that adults and other actors still use the site regularly in different ways.
Their spatial requirements were therefore also analyzed throughout the research process, particularly regarding accessibility, comfort, opportunities for short-term rest and social interaction.
Based on the anthropological and ergonomic studies, the intervention includes seating and reclining possibilities for adults.

OBSERVATION

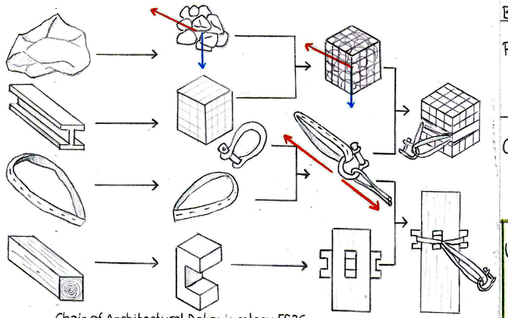


REFLECTION



SUPPORT STRUCTURE MATERIALITY

This research is based on a combination of on-site observation, thematic research and advise from structural experts. While the project site was analyzed to understand spatial and environmental conditions, material knowledge was primarily developed through targeted research and comparative evaluation. Materials are evaluated based on ecological impact, constructability, reversibility, and cost. Additional focus is placed on ecological enhancement and sourcing strategies. The study combines material performance with contextual considerations, leading to a solution that balances structural requirements with environmental sensitivity.



Chair of Architectural Behaviorology FS26

Jasmin Brenneis

1. MATERIAL COMPARISON & USE

	Wood	Stone	Metal	Synthetic Textiles
Ecology				
Low Impact				
Reversibility				
Construction				
Budget				
Pros	◦ easy to process with simple tools ◦ low cost ◦ lightweight	◦ highly durable ◦ low maintenance ◦ high mass and compressive strength	◦ highly durable ◦ high compressive and tensile strength	◦ lightweight ◦ flexible ◦ easy to assemble
Cons	◦ weathering/ aging ◦ weak to moisture ◦ low durability ◦ low tensile strength	◦ very heavy and difficult to transport ◦ difficult to process	◦ expensive ◦ energy intensive production ◦ difficult to process	◦ UV degradation over time ◦ abrasion sensitive ◦ material not biodegradable
Use	◦ tree protection ◦ Stabilizor for anchoring System	◦ counterweight for the tensile force of net	◦ Gabions as stone container and anchor	◦ flexible anchoring systems ◦ round slings ◦ Fire hose tree protection

2. GABION ECOLOGY

Problem: Industrial gabions aren't ecological/biodiverse

Industrial application

- stacked walls
- stabilize slopes, canalize rivers, stop erosion
- rapid stabilization stops natural sediment movement and microhabitats

Stone fill

- Stones are:
  - uniform
  - tightly packed
  - industrially processed
- view cavities
- no space for microhabitats

Ecology

- Steel mesh production
- Galvanization
- Transport of heavy material
- big energy consumption and carbon footprint

Adjustments

Water Interaction

- singular gabions as permeable element
- water passes through bigger cavities
- softer transition to river edge

Diverse Stone Fill

- local Stones
- natural, different sized Stones
- reduced transportation
- creation of cavities & microhabitats for

Vegetation Integration

- Ground layer of dead wood
- habitat creation
- fungal growth
- moisture retention zones
- organic matter development

3. WOOD PROTECTION

	Wood Oil	Wood stain	Burned Wood
Efficiency			
Durability			
Touch/Use			
Cost			
Pros	◦ easy to apply ◦ low cost ◦ smooths surface ◦ natural look/feel	◦ easy to apply ◦ more resistant than oil ◦ also protects against UV	◦ high water protection ◦ lasts for years ◦ resistant to UV, fungi, insects
Cons	◦ lowest durability ◦ lasts a few months	◦ only creates surface layer ◦ uneven wear/peel ◦ less natural appearance	◦ only creates surface layer ◦ can rub off/stain ◦ rough to feel

Application Wood Oil

1. Preparation

- sanding to open surface
- remove dust

2. Application

- apply oil
- thick application on beam ends
- wait 10-20 min
- wipe off excess

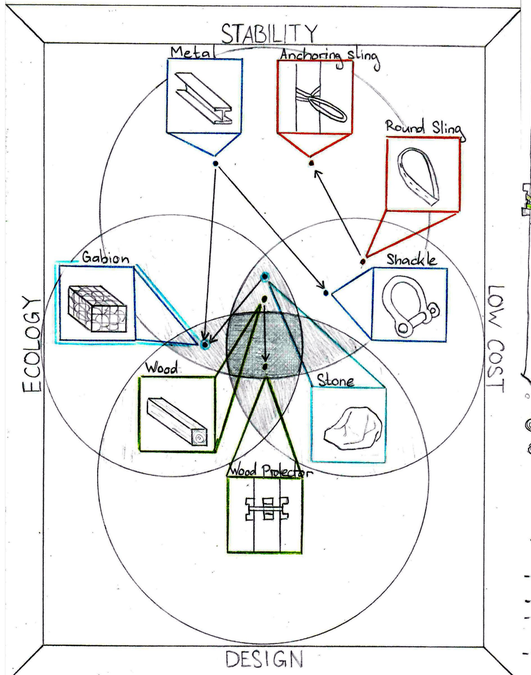
3. Drying

- let it dry for 6-12 hours
- Shouldn't be sticky anymore
- 2nd layer (Optional)

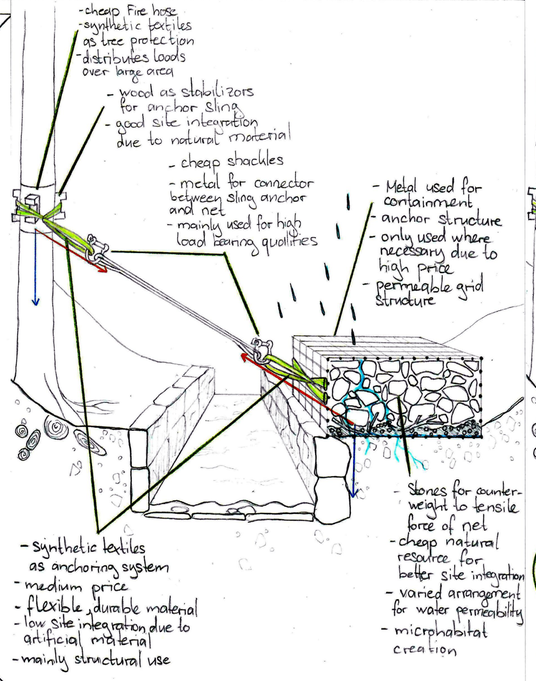
4. SOURCING & PRICING

	Wood Protection	Gabions	Shackle	Stones	Round Slings
Dimension Amount	6 x (20x8x8cm)	1.0 x 0.5 x 0.82 m 0.32 x 0.5 x 0.9 m	4 x 4.75 t Shackle	800 kg per gabion	2 x 1.5 m 1 x 2.5 m 2 x 3 m 1 x 5 m
Sourcing	Second Hand ◦ low cost ◦ irregular sizes ◦ bigger pickup effort	Second Hand ◦ low cost ◦ wrong sizes	Hardware Stores ◦ low cost ◦ Shackles too small	Industrial Stones ◦ expensive ◦ not ecological	Hardware Store ◦ low cost ◦ limited sizes
	Timber Supplier ◦ lower cost ◦ flexible sizing & cutting ◦ bigger pickup effort	Hardware Store ◦ expensive ◦ wrong sizes	Local Lifting Supplier ◦ directly available ◦ Short transport distance ◦ varied selection of sizes	Second Hand ◦ many people want to get rid of Stones ◦ often free ◦ bigger pick-up effort	Local lifting Supplier ◦ directly available ◦ short transport distance ◦ varied selection of sizes
	Hardware Store ◦ Jumbo ◦ more expensive ◦ Shorter transportation distance	Gabion Supplier ◦ Gabinova ◦ flexible sizing ◦ expensive ◦ long transport distance			
Cost					
Price per piece	CHF 14	CHF 70-90	CHF 13	CHF 0	CHF 14-40

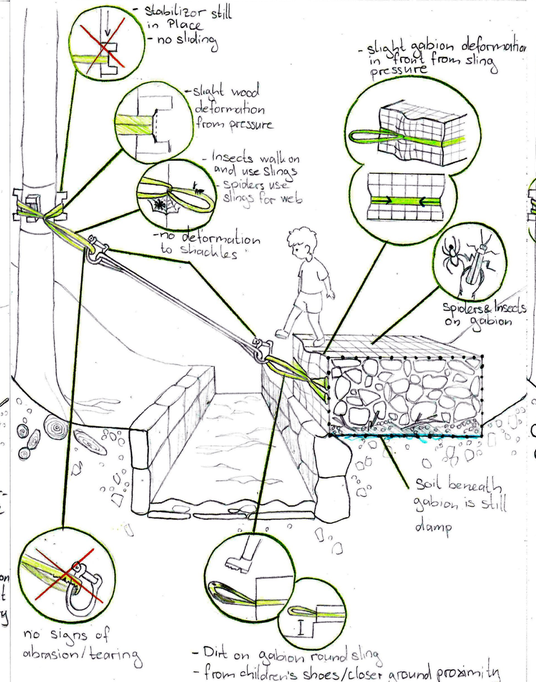
GRAPH



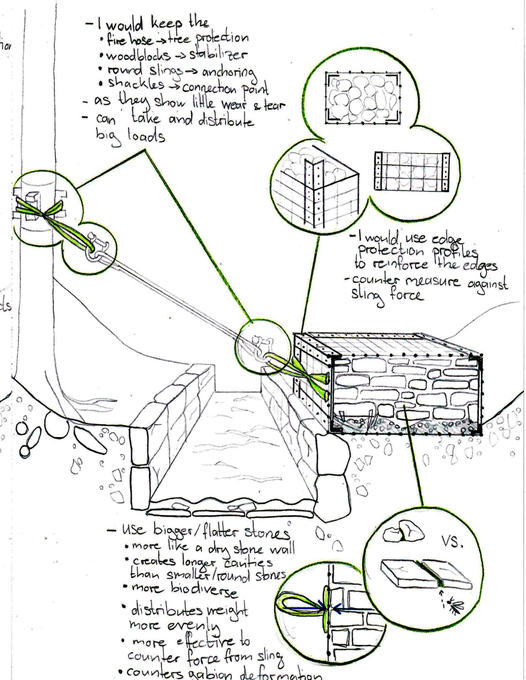
CONCLUSION



OBSERVATION



REFLECTION



STRUCTURE

FLYING CARPET

SERAINA KARRER
CHAIR OF ARCHITECTURAL BEHAVIOROLOGY, FS 2026
FINAL REVIEW

THE ORIGINAL DESIGN USING FIVE GABIONS WAS DISCARDED DURING DEVELOPMENT, WHICH WAS STRUCTURALLY TOO COMPLEX AND POTENTIALLY UNSAFE FOR US TO REALISE. REPLACING THREE GABIONS WITH TWO TREES MADE THE STRUCTURE MORE SECURE AND SIGNIFICANTLY LESS COMPLEX, WHILE FUNDAMENTALLY CHANGING ITS CHARACTER AND THE PROBLEMS LEFT TO SOLVE. THE RESEARCH COVERS THE WEIGHT AND DIMENSIONING OF THE GABIONS, THE CONNECTION OF THE NET TO BOTH THE GABIONS AND THE TREES, AND ANCHORING STRATEGIES TO PREVENT OVERTURNING OF THE GABIONS. TOGETHER, THESE ANALYSES, RESEARCH AND DECISIONS FORM THE STRUCTURAL AND CONSTRUCTIVE FOUNDATION OF THE PROJECT.

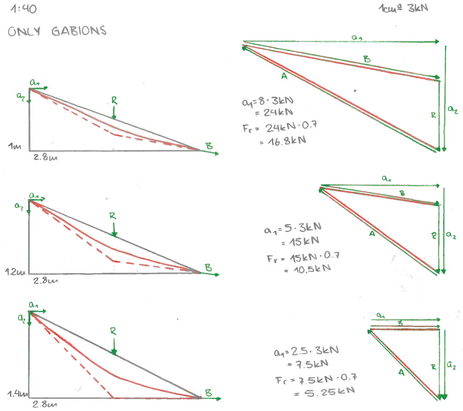


$R = 90kg \cdot 6\,(PERSONS) \cdot 1.5\,(LIVE\ LOADS) = 810kg \approx 8100N = 8.1kN$

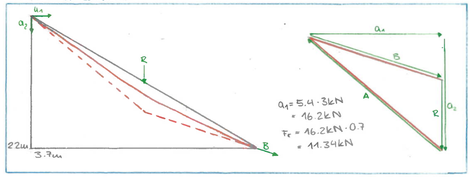
$F_r = F_g \cdot \mu_r$ μ_r FOR STONE ON STONE IS ABOUT 0.7

1:40 1cm² 3kN

ONLY GABIONS



TREE AND GABION

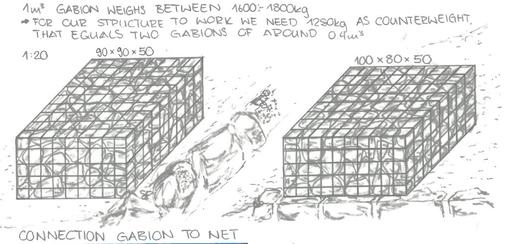


MEASUREMENTS OF THE GABIONS

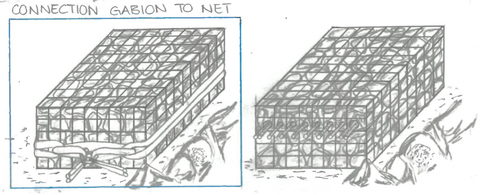
$1m^3$ GABION WEIGHS BETWEEN 1600 - 1800kg

→ FOR OUR STRUCTURE TO WORK WE NEED 1250kg AS COUNTERWEIGHT. THAT EQUALS TWO GABIONS OF AROUND $0.4m^3$

1:20



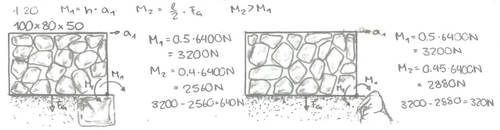
CONNECTION GABION TO NET



MOMENTUM OF THE GABIONS

1:20 $M_1 = h \cdot a_1$ $M_2 = \frac{2}{3} \cdot F_a$ $M_2 > M_1$

100×80×50



WOODEN STAKES

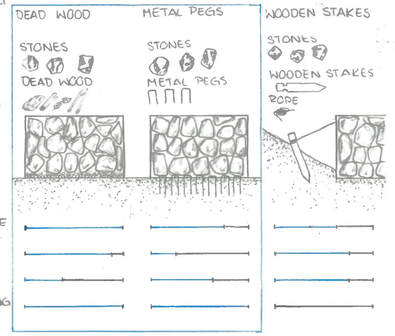
EXTRACTION FORCE = SURFACE FRICTION × SURFACE IN THE GROUND → FOR CLAY around 20-40kN/m²

EXTRACTION FORCE → 100kg ≈ 1kN

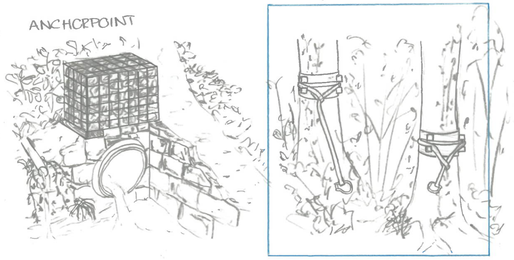
$1kN = d \cdot \pi \cdot h \cdot 30kN/m^2$ → $h = 0.3m$

$d = \frac{4kN}{\pi \cdot 0.3m \cdot 30kN/m^2}$ $d = 0.035m \rightarrow 4cm$

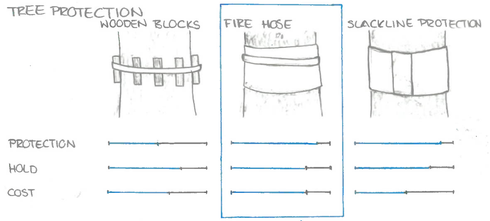
ANCHORING



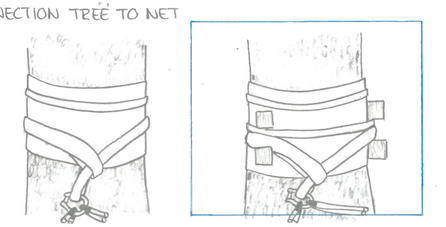
ANCHORPOINT



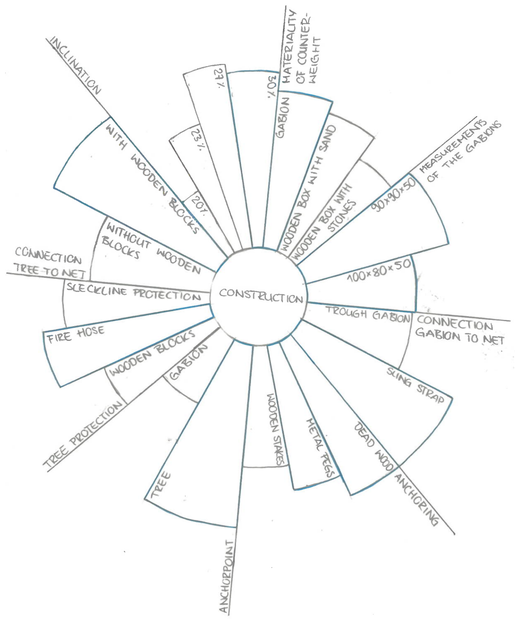
TREE PROTECTION



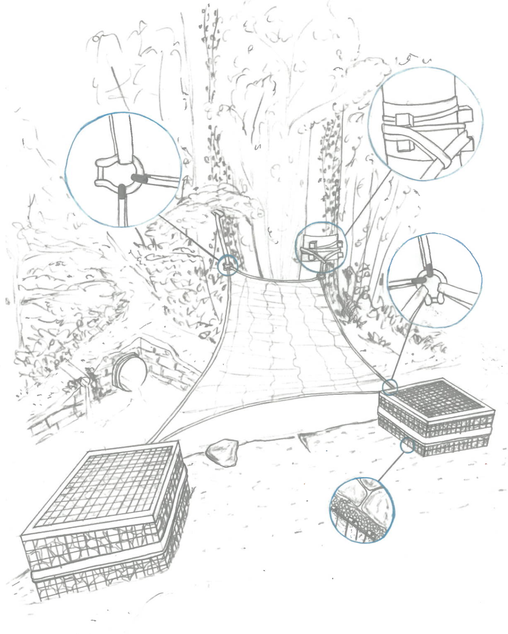
CONNECTION TREE TO NET



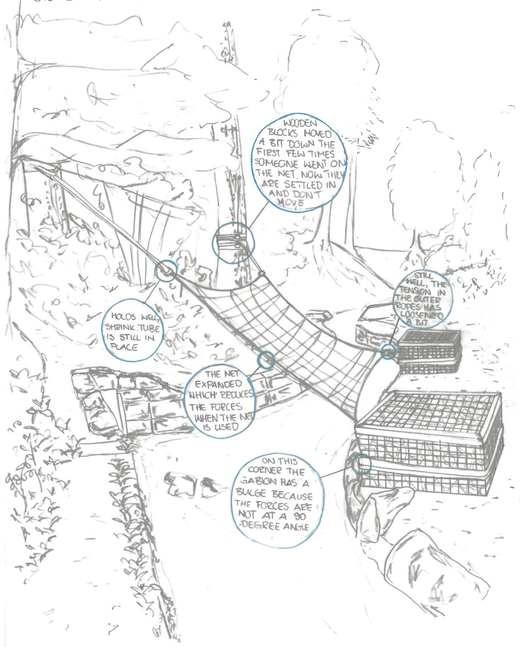
GRAPH



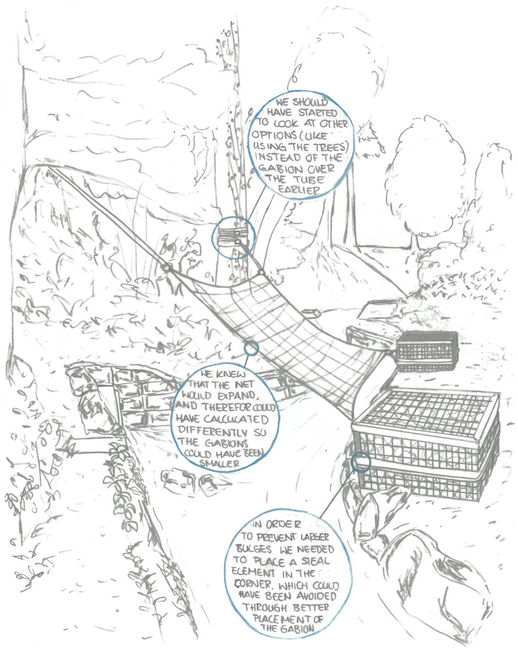
CONCLUSION



OBSERVATION



REFLECTION



https://kaijima.arch.ethz.ch/wp-content/uploads/2026/05/260526_26FS_Final-Review_10-River_Video.mp4