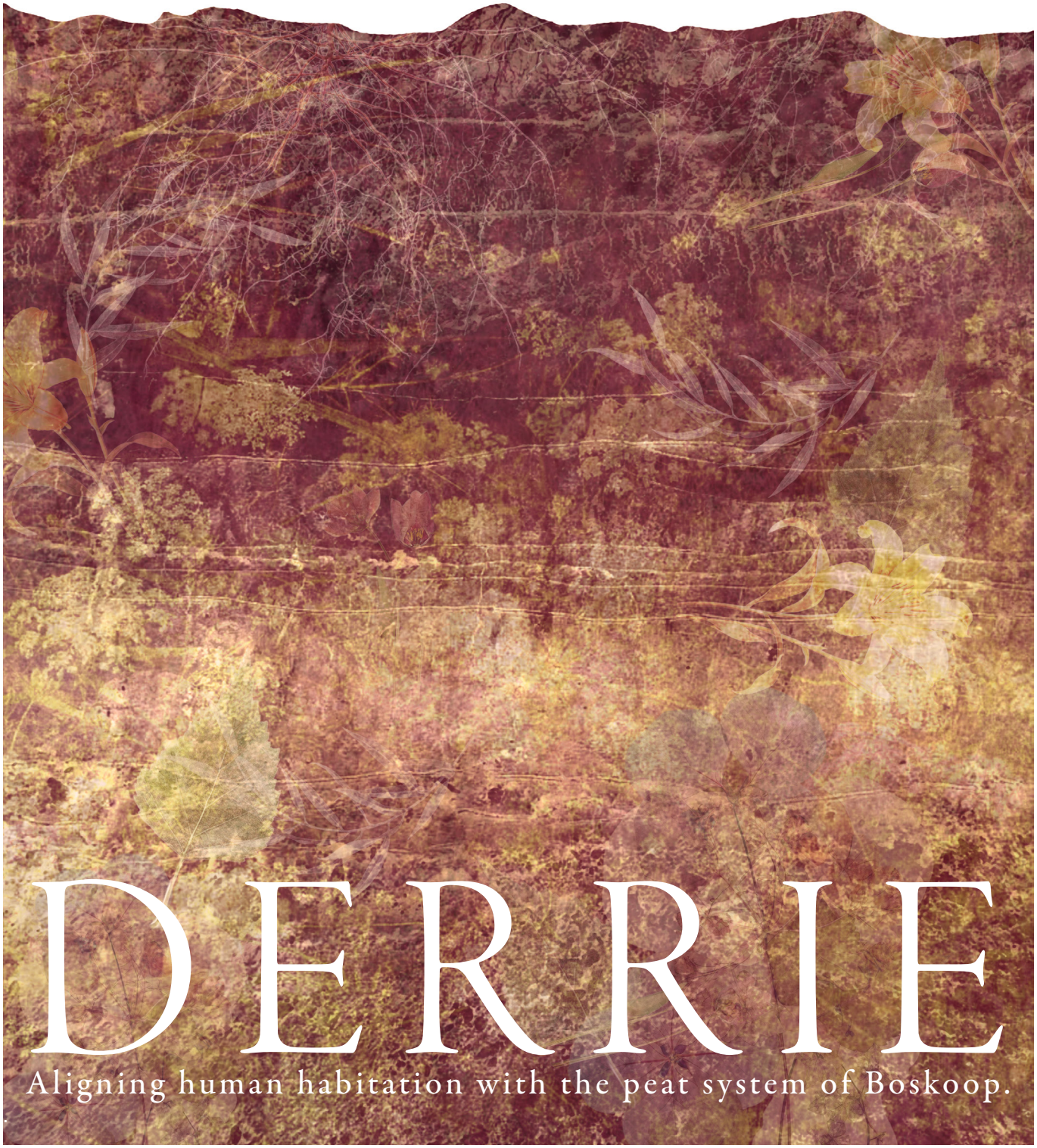

DERRIE

Aligning human habitation with the peat system of Boskoop.

MSc Thesis

TU Delft

Evelien Cok

Derrie - “Laagveen” (Fenland)
Boskoops Boomkwekers Woordenboek
- Vuile, dikke brij, stront: *‘trap niet in de derrie’.*
Dikke van Dale

In Dutch, the word *derrie* carries two meanings. It is an old Boskoops word for the peat soil that supports this landscape. At the same time, it refers to something dirty, filthy, and worthless. This double meaning captures our contemporary relationship with the peat soil. It forms the foundation and the reason for the existence of landscapes such as Boskoop and many others in the Netherlands. Yet it is treated as dirt. Something we drain, ignore, and degrade.

Delft University of Technology
Faculty of Architecture and the build environment
Department of Landscape Architecture

MSc Thesis
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Evelien Cok
6291147

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Responsible supervisor:Dr.ir. Inge Bobbink
(department of Landscape Architecture)

Second mentor: Dipl.-Ing. Ulf Hackauf
(department of Urbanism)

External examinor: Dr.Ir, Robert Gorny

Circular Water Stories #8

All visual material has been produced by the author if not stated otherwise.

Map 01.
Peat soil in the Netherlands
Note. Based on *Paleogeografische kaart 2000 n.Chr*, by Rijksdienst voor het cultureel erfgoed, 2022

← *Derrie*, peat soil, in the Netherlands. The pin locates the site of the project, Boskoop.

ABSTRACT

This project researches how a future landscape of Boskoop can align human habitation with the peat landscape. Currently, peat oxidation, subsidence, CO2 emissions, and an increasingly vulnerable landscape are the result of a misalignment between habitation and the peat system. The research follows a research through design methodology, in which spatial design is used to explore how habitation can adapt to the peat conditions. The project starts with an analysis of the peat system of Boskoop, from which guiding ecological interventions are derived. The main intervention is raising the water level to ensure peat functioning, which is supported by strengthening the peat system through designing for biodiversity. These ecological principles are guided by habitation principles: maintain the horticultural identity of Boskoop and the spatial quality of Boskoop's building structure along the linten.

Together, these principles are translated into a framework, rather than a fixed master plan. The framework consists of two layers: rules and regulations applied on the scale of the plots, and structures and conditions implemented at the landscape scale. Within this framework, habitation is able to unfold and adapt to the peat landscape. The framework is spatially tested through the design of polder ‘t Rietveld. Different types of inhabitants are highlighted to show how habitation could take different shapes. Supported by a phasing strategy and storyline, the project imagines how the landscape can function over a decade.

By taking the ecological functioning of the peat landscape as the guiding condition for development, while leaving space for inhabitants to shape their own environment, habitation can align with the peat system. This results in reducing oxidation, subsidence, and emissions while also renewing the relationship between people and the peat landscape, offering a future for the landscape of Boskoop.

Figure 01.
Bird's-eye view of Boskoop
Note. Adapted from *Greenport Boskoop*, by Greenport Boskoop, n.d.

↑ An aerial view on a part of Boskoop, the pattern of small plots, horticulture and the many ditches in clearly visible.

DERRIE

We have to understand this “dirt” as a living system that supports habitation in many places in the Netherlands, such as Boskoop. The village that is shaped through its relationship with the soil, resulting in a unique form of habitation. The horticultural habitation is recognizable through the many small rectangular plots surrounded by ditches. Peat soil is almost framed within this pattern to make horticulture possible and productive. However, this structuring and draining of the peat has resulted in problems such as peat oxidation, subsidence, and CO2 emissions. As we inhabit this landscape, we often forget that we are dependent on it. By harming the ecological system, we are eventually harming ourselves. This unawareness makes Boskoop a vulnerable landscape, which is increasingly unsuitable for the way horticulture is practiced today. The growing pressure on the landscape results in a changing Boskoop. Smaller soil connected nurseries disappear, plots are transformed into grassland for easier maintenance, and the unique identity of the landscape risks fading away with this transition.

This project explores how this transition can take another direction; instead of continuing to control the peat landscape, it proposes a future in which habitation is aligned with the peat landscape. The project is part of the Circular Water Stories lab, which is focused on the relationship between water, humans, and other organisms shaping landscapes. This relationship is central in searching for a future landscape of Boskoop. Only by adapting habitation to the ecological conditions of the peat system can people experience, understand, and form habits in relation to the landscape. *Derrie* can become much more than dirt; it can become the ground condition on which the future habitation of Boskoop is built.

← The tower of the Flora building, once the centre of Boskoop's horticulture sector. Flora functioned as a flower exhibition space visited by many global visitors, and even the queen.

→ A truck passing one of Boskoop's narrow bridges, illustrating the close relationship between water and horticulture.

↑ A field of ilex, the specie that replaced many of Boskoop's Buxus fields after the arrival of the Buxus moth.

↑ Plants in pots placed on plastic covered fields, disconnected from the wet soil beneath. In the back a water basin which supplies irrigation.

← View over the Gouwe, once a peat river, now a dammed canal. In the background the Hefbrug of Boskoop, a recognizable landmark in the landscape.

↓ A traditional houtakker in the background, with wooden poles in the foreground prepared for reinforcing the “schoeiing” that protects the peat edges from eroding. The little boat in front is used to access the houtakker for maintenance.

INDEX

GROUNDING 01

The introduction

← Me as a child, at my parents nursery, helping with planting in the peat soil.

ROOTING
Raised on peat

In my projects, I have always returned to the soil, no matter the location, no matter the scale. My colleagues joke that peat runs through my bones. It might be true. I was born and raised on it. The land that bounced when my sister jumped meters away. The soil was black and soft when I helped my father plant hydrangeas on his nursery. The land consists of multiple islands connected by bridges and dams. Back then, I did not understand exactly what the ground I lived on was, but I saw the patterns and rhythms. How the edges of the land crumbled away, how our small swimming pier sank crooked, and how every year we had to put extra soil on the land to keep it from subsiding and sinking underwater.

Being in this landscape gave me a sense of its vulnerability long before I really understood the technical processes behind it. My father, as a horticulturist, gave me an understanding of agriculture. The passion and logic he felt, almost as a duty, to work with the land. He taught me that agriculture is a form of borrowing, not only extracting from the landscape. He believed that his part of the land was part of a bigger system, one that needed care. When he bought a plot to turn it into a bird island, people laughed. He did it anyway.

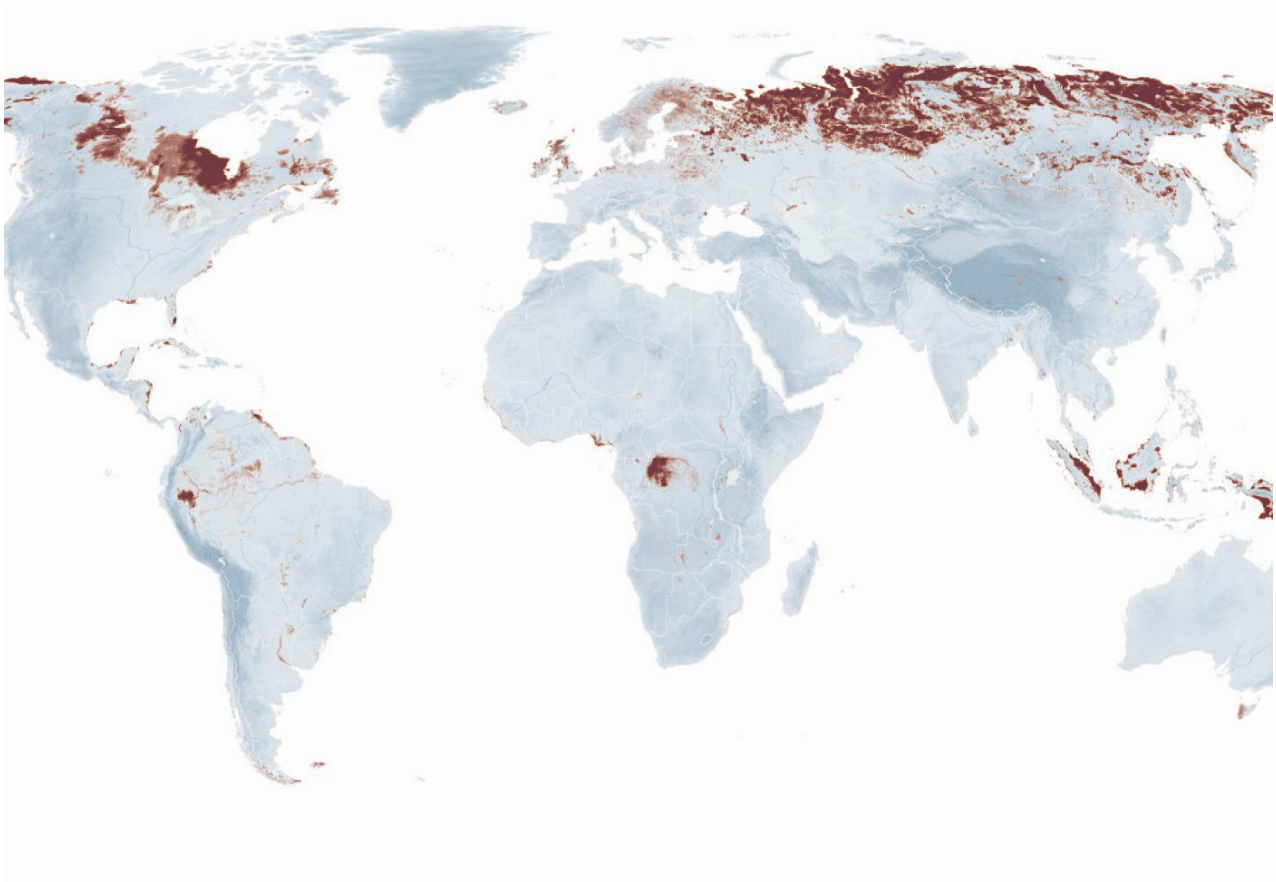
My father passed away just before starting this project, yet his world-view is present throughout this book. My curiosity about how we inhabit and work with the landscape was planted long before the start of my landscape architecture study. This project follows that curiosity, exploring a deeper connection between people and the peat landscape and discovering a future way of inhabiting this vulnerable but remarkable landscape.

UNFOLDING
Misaligned habitation

Derrie, or peat, is one of the most powerful and least understood ecological systems on earth. It is formed over thousands of years by many layers of partially decomposed vegetation that remain submerged under water. In these wet conditions, the plant materials do not fully decompose, and the soil that forms is known as peat. Peat acts as a sponge that regulates water and stores immense amounts of carbon. Under stable wet conditions, peat lands are among the most effective carbon sinks on Earth. Making them just as vital for human existence as healthy forests and oceans (Joosten, 2012).

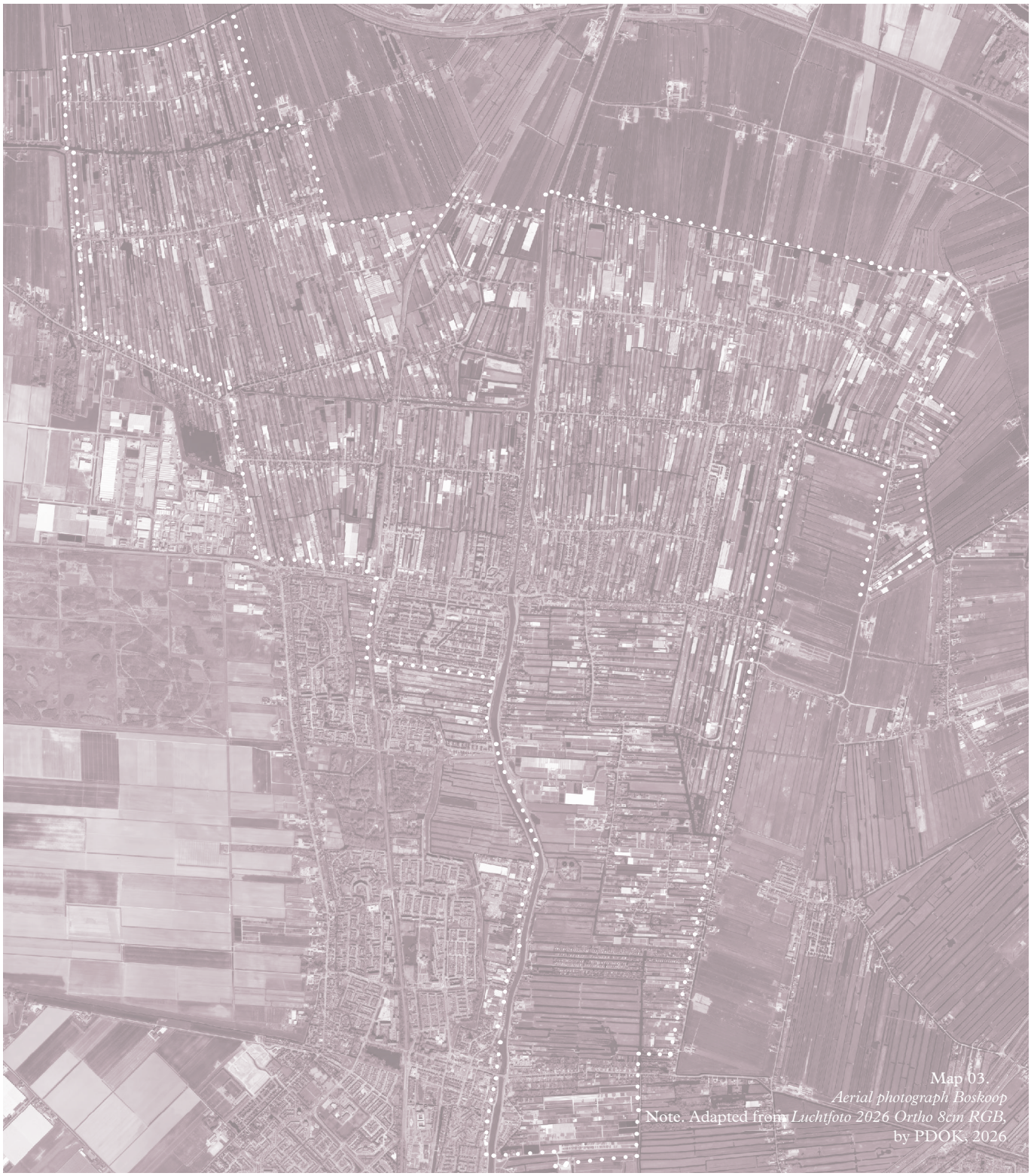
These valuable peat systems are spread across the world and appear in many different forms, from wetlands and raised bogs to tropical peat lands. What they have in common is not one specific appearance, but their ecological importance. By storing carbon, regulating water, mitigating environmental risks, and hosting unique and rare habitats, peat lands play an important role in the functioning of our earth (Page & Baird, 2016).

Peat landscapes are also closely connected to human habitation. Across the world, they have been used differently by different cultures. Historically, dried peat has been mined and used as fuel, mainly in places where other burning materials were scarce. Next to that, peat is extracted and used as material for gardening and the horticultural industry. Today, the biggest transformation of peat lands comes from the drainage of lands for agricultural use. To make peat suitable for agriculture, the water level is lowered. This exposes peat to oxygen, causing oxidation and the release of CO2 into the atmosphere. Where peat lands once acted as a carbon sink, they are now transformed into a carbon source (Page & Baird, 2016).



Map 02.
Peatland distribution
Note. Adapted from *The Global peatland Map 2.0* by Global Peatlands Initiative, 2022

↑ Distribution of peatlands across the world. Human intervention in these unique ecosystems results in approximately 5% of global annual anthropogenic carbon emissions (Wils et al., 2025).



Map 03.
Aerial photograph Boskoop
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026

Peat soil in Boskoop is known by the term *derrie*. It's recognizable in the landscape by its long, narrow plots and many ditches. These ditches function as drainage channels, which constantly move water out of the landscape that now lies below sea level. In Boskoop, the peat soil is cultivated for horticultural production. Here, peat does not have to be mined and exported as composting material for the horticultural industry; it happens directly in the ground itself.

The landscape of Boskoop is neither purely natural nor fully artificial. It is a cultural landscape continuously shaped by human habitation and ecological processes. Following cultural landscape theory, habitation is understood as not only settlement, but also includes living, working, cultivating, moving through, and forming habits in relation to the landscape (Smith, 2013). In Boskoop, habitation mainly takes shape through horticulture, which has long connected the inhabitants to the peat soil.

Once internationally known for its specialized nurseries and unique landscapes, Boskoop is now undergoing a social and economic transition. The historical relationship between the village and the landscape is weakening. Small-scale nurseries struggle to remain profitable on these vulnerable, fragmented plots. Leaving the plots vacant or transformed into easier forms of land use. While pressure to scale up and compete globally pushes cultivation towards more intensive forms of production that are disconnected from the peat soil. Ironically, the peat soil that once enabled Boskoop to develop as a horticultural village is now often seen as a limitation. Continuous drainage to support the nurseries and settlement has caused ongoing peat oxidation, causing land subsidence, ecological degradation, and carbon emissions (Ritzema & Stuyt, 2015).

A growing misalignment exists between the way Boskoop is inhabited and the way the peat system functions. Boskoop's horticulture in many places is nowadays literally disconnected from the peat soil that once formed the ground of its development. As climate change increases pressure on the system, this misalignment raises questions about the long-term possibility of habitation on peat soils. Boskoop is at a transition point. Something has to change. If habitation is to continue into the future, new relationships between inhabitants and the peat landscape have to be imagined. This does not mean abandoning the horticultural identity of the area; it requires rethinking how habitation can once again develop from the ecological logic of the peat system.

How can Boskoop align human habitation with the peat system?

If Boskoop is to remain inhabited, habitation can no longer be imposed onto the peat system. It must develop from its ecological functioning. The design research therefore explores a radical spatial experiment on how future forms of living, horticulture and water management can adapt to the functioning peat system.

"To explore how habitation in Boskoop can adapt to a peat system in which ecological functioning becomes the guiding condition for future development."

↓ A greenhouse and container field. Common way of cultivation in Boskoop

APPROACHING
Methodology

A possible future for the peat landscape of Boskoop is explored by a research through design methodology. With this approach, spatial design is not only used to represent ideas but also as a tool to produce knowledge and test ideas (Lenzholzer et al., 2013). Rather than searching for one final solution in shape of a master plan, the research focuses on developing a framework that sets the conditions within which new forms of habitation can unfold. The main research question is split into multiple sub-questions, each represented by a chapter. The starting point of the research lies in the two central concepts of ecological functioning and habitation. These two themes form the first part of the research and are described through nouns: PEAT and HABITAT. The later chapters focus on understanding and designing the relationship between these themes. These chapters are the active part of the research and are therefore described through verbs: ALIGNING, ADAPTING, IMAGINING.

The research starts with the analysis of the two main subjects, peat and habitation. In PEAT, Boskoop is approached as a peat system in which the ecological perspective is central. The chapter is framed through a theoretical position that approaches ecology rather than nature as the guiding concept. Theory is therefore not treated as something separate but as part of the design process itself. Through knowledge-based literature study, GIS mapping, and sketching of the ecological processes, the peat system is analysed. The findings are translated into ecological interventions that help to create the basis of an ecological functioning peat landscape. In HABITAT, Boskoop's peat landscape is researched as a human habitat. Framed through a theoretical approach on the concept of human habitation and habitat. The chapter studies how human habitation historically shaped the landscape and how this relationship changed over time. Historical analysis, site visits, mapping, and analysis of current land use are used to identify the misalignment and qualities of Boskoop as a human habitat.

In the second part of the research, the process shifts from analysing the conditions towards actively designing the relationship between habitation and the peat landscape. In ALIGNING, the ecological conditions derived from PEAT are translated into a spatial framework for the whole of Boskoop. These conditions are complemented by habitation guidelines derived from HABITAT, ensuring that the spatial and cultural identity of Boskoop remains embedded within a future landscape. These two perspectives are combined in a prospect for Boskoop.

ADAPTING explores how different forms of habitation could develop within this framework. It envisions possible ways inhabitants can adapt productive land use, build and infrastructure to the new conditions, using conceptual sections. These models are supported by precedent studies which have a similar context or offer an interesting solution. Finally, in IMAGINING, the framework and principles are tested and further developed by applying them to the specific spatial context of polder 't Rietveld. A phasing strategy is for the whole polder is developed. In addition, different types of habitation are explored through a plot design, supported by zooms ins that highlight specific elements. A spatial sequence further shows how the landscape could be experienced. In this way, the chapter imagines how this future landscape of Boskoop could function.

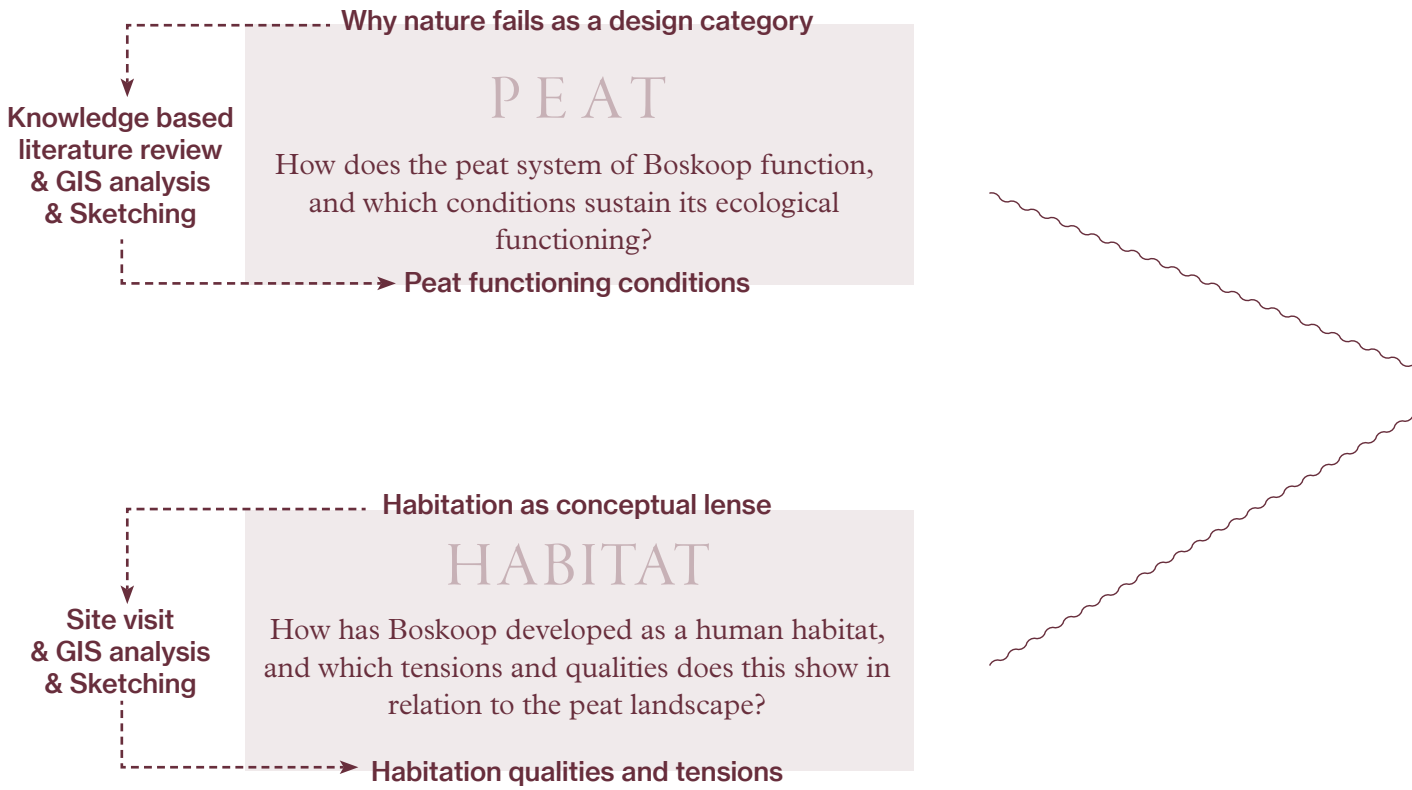
PEAT: How does the peat system of Boskoop function, and which conditions sustain its ecological functioning?

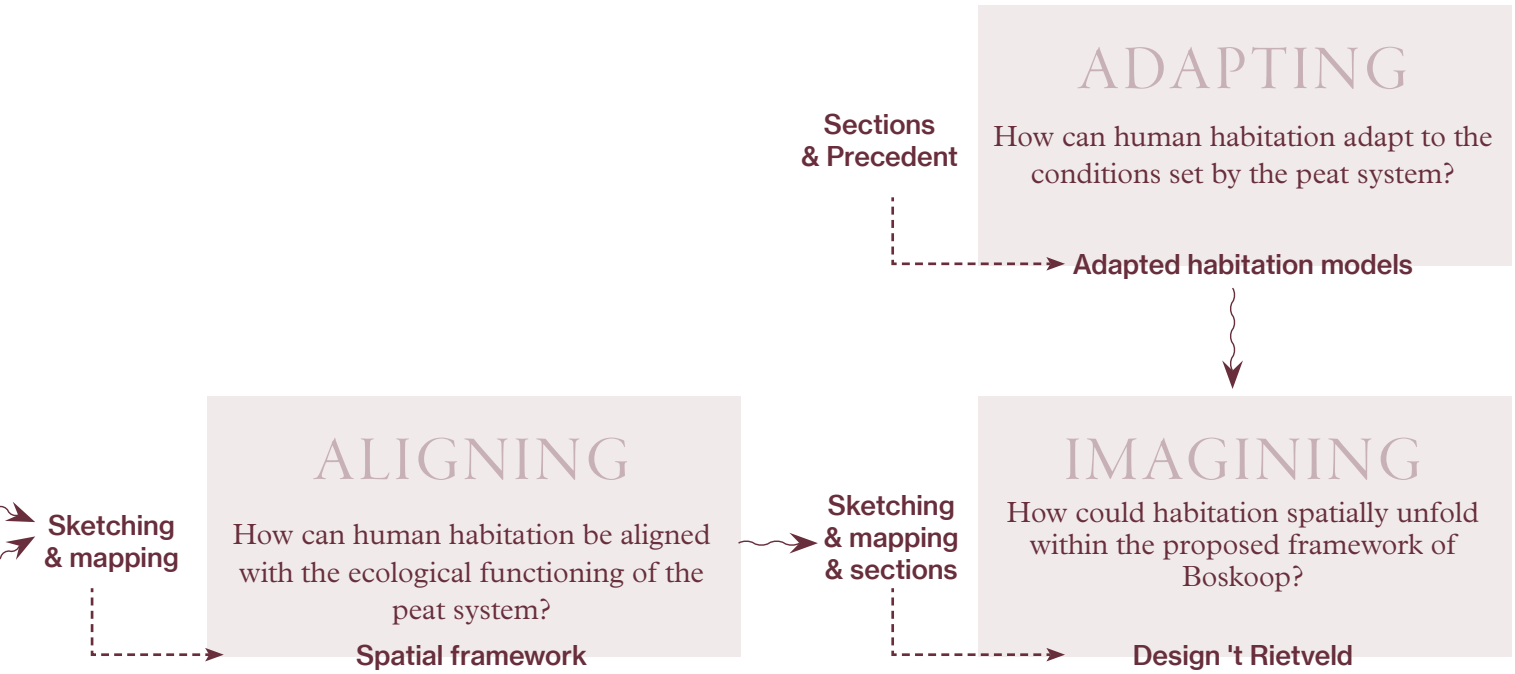
HABITAT: How has Boskoop developed as a human habitat, and which tensions and qualities does this show in relation to the peat landscape?

ALIGNING: How can human habitation be aligned with the ecological functioning of the peat system?

ADAPTING: How can human habitation adapt to the conditions set by the peat system?

IMAGINING: How could adapted forms of human habitation spatially unfold within the proposed framework for Boskoop?


Why nature fails as a design category
Knowledge based literature review & GIS analysis & Sketching
PEAT
How does the peat system of Boskoop function, and which conditions sustain its ecological functioning?
Peat functioning conditions
Habitation as conceptual lense
Site visit & GIS analysis & Sketching
HABITAT
How has Boskoop developed as a human habitat, and which tensions and qualities does this show in relation to the peat landscape?
Habitation qualities and tensions


ADAPTING
How can human habitation adapt to the conditions set by the peat system?
Sections & Precedent
Adapted habitation models
ALIGNING
How can human habitation be aligned with the ecological functioning of the peat system?
Sketching & mapping
Spatial framework
IMAGINING
How could habitation spatially unfold within the proposed framework of Boskoop?
Sketching & mapping & sections
Design 't Rietveld

NAVIGATING
Reading itinerary

PEAT - Boskoop as peat system

The ground beneath Boskoop may appear to be stable; in reality, this ground is layers of partially decomposed organic material held together solely by the presence of water. Once this landscape is drained, the soil starts to slowly oxidise and thus disappear. As the ground subsides, carbon is released into the atmosphere. This process makes the landscape of Boskoop vulnerable. In order to align habitation with the peat landscape, it is necessary to first understand the peat system itself and the conditions that sustain the ecological functioning of this system. PEAT explores Boskoop as a peat ecosystem. By researching the peat landscape, interventions can be identified which can support the ecological functioning of the system.

HABITAT - Boskoop as habitat

Boskoop is a cultural landscape, meaning that habitation actually developed together with the peat system. The narrow plots, many ditches, bridges, and nurseries are all results of generations adapting their way of living and cultivating to the wet conditions of the peat soil. Historically, habitation was more closely connected to the peat landscape. While draining the land has been an important human intervention for over a thousand years, the landscape still set conditions, and the inhabitants adapted to them.

Over time, this relationship slowly changed, with the focus on efficiency and technology, contemporary habitation became more and more disconnected from the conditions that originally shaped the landscape. Nowadays, horticulture is mainly done on plastic layers covering the soil, supported by an irrigation system. Cultivation does not use the qualities of this landscape anymore. While horticulture is changing, it is still deeply embedded in the economic, social, and spatial characteristics of the area. HABITAT researches Boskoop as a human habitat by looking at both historical and contemporary forms of inhabiting the landscape. It then becomes possible to identify where misalignment lies, but also which qualities remain valuable for imagining a future of Boskoop.

ALIGNING - Habitation with the peat system

In order to design for a possible future, habitation in Boskoop has to be realigned with the peat system. It is important to understand that alignment is not about finding a perfect solution but acknowledging trade-offs and realizing the dependency of human habitation on the ecological system. ALIGNING explores how the peat system can form a framework within which habitation is guided. The landscape architect does not fully determine how the landscape will develop, as landscapes are eventually shaped by the people inhabiting them. Instead, this chapter focuses on establishing the structures, conditions, rules, and regulations that allow habitation to unfold while remaining aligned with the peat system. In a future landscape of Boskoop, the relationship between habitation and the peat will again become the core of its identity.

ADAPTING - Habitation to the peat system

The wet conditions set by the alignment framework require different elements of habitation to adapt. Adaptation is more than a limitation; it offers new possibilities for how people can live, cultivate, and move through the new landscape. As wet conditions are not unique for Boskoop, precedents from other similar landscapes will offer strategies or techniques to deal with specific challenges. While every inhabitant will respond differently to the conditions, a number of main strategies can be identified. ADAPTING explores a direction on how different elements of habitation can adapt to the peat landscape.

IMAGINING - A spatial peat landscape

Adapting habitation to the peat landscape will result in a different landscape from the one we know today. Wetlands, floating horticulture, and water-based living will shape the character of Boskoop. To better understand the qualities of this proposed landscape and test the framework, the polder ‘t Rietveld is designed. Known for its water village where some houses can only be reached by boat, the polder already has an interesting relationship between water and habitation. The existing qualities of this landscape are the starting point for imagining a future landscape. By applying the framework and seeing how different forms of habitation could unfold within it, the design becomes tangible. Almost being able to experience the new landscape of Boskoop, the water networks, wetlands, and different ways of inhabiting the landscape.

PROPOSING
Hypothesis

This project hypothesizes that habitation in peat landscapes can remain when the ecological functioning of the peat system is treated as a structuring principle, rather than as a constraint. By adapting habitation and horticulture to these conditions, we do not continue to drain ourselves deeper below sea level, but can learn to live in this new landscape. The project approaches the question as a radical experiment, exploring what these ecological conditions are and how habitation adapts to them.

For Boskoop, adapting habitation means remaining connected to its horticultural identity and the knowledge in the area. Horticulture is one of the elements that connect people to the landscape. However, this should not happen through increasing efficiency. Boskoop has never been an efficient landscape; its fragmented plots and vulnerable soils make large-scale production difficult. If efficiency is the goal, there are many other landscapes where horticulture can expand more easily. Boskoop's strength lies elsewhere, in its specificity, its craftsmanship and its close relationship with the landscape. The future habitation of Boskoop should be built upon this. In doing so, horticulture can again become something that attracts visitors and residents who value this unique landscape. Next to that, Boskoop could play a role in its surroundings. For example, by supplying greenery to cities such as Rotterdam and Amsterdam, which are partially built on peat. These horticultural practices should be adapted to the new conditions, for example, by floating green beds and building on poles. Adapting habitation to the ecologically functioning landscape allows Boskoop to maintain its identity, remain partially productive, and become rooted in its soil again.

→ An irrigation system waters plants grown in pots on moving tables, while the peat soil beneath layers of structures and plastic is fully saturated with water.

FRAMING
Relevance

This research addresses an important and relevant question, not only in the Netherlands, but all over the world: How can we continue to inhabit vulnerable landscapes under increasing pressure without undermining the systems that sustain us?

Large parts of the Netherlands are located beneath sea level and rely on the management of hydrological systems for their habitability. Accelerated climate change and biodiversity loss are forcing us to reconsider how we use our lands and the role agriculture plays in our landscape. These questions are not unique to Boskoop but can be asked globally where human habitation and ecological vulnerabilities are intertwined. Within these debates, agriculture and cultivation of the landscape are often seen as external to nature, or even seen as obstacles to ecological recovery. When ecological functioning is prioritized, agriculture is often removed and replaced by "nature," creating a division between human use and ecological systems . This project challenges that division; it builds upon the understanding that humans are part of nature, not something separate (Haraway, 2016). And that habitation is a two-directional relationship in which humans shape landscapes and landscapes shape humans.

Boskoop serves as a case study within this bigger context. As a horticultural village built op the peat, it is shaped by centuries of interaction between cultivation, habitation, and hydrology. The friction between habitation and the ecological functioning of a system is very present in Boskoop, because the peat landscape is very vulnerable, the landscape is used intensively, and is of a small scale. It is therefore the perfect place to experiment with alternative forms of habitation on a functioning peat landscape. While Boskoop can function as a case study, solutions can not be copied one to one. Working with a very specific landscape as Boskoop's horticulture landscape, solutions that work in Boskoop may not work somewhere else. Still, the approach, or specific interventions, could be applied to other similar landscapes.

POSITIONING
As landscape architect

For me, landscape architecture starts with the recognition that landscapes are not designed in one moment by one person. Landscapes are layered systems formed over time by everyone who has lived on them, worked with them, and moved through them. Farmers, water boards, inhabitants, governance, animals, and ecological systems, they all continuously shape the landscape. The landscape architect, as we know the profession today, is only one of the last additions to this list.

Historically, the landscape architect focused on the design of gardens, parks, and estates, often operating on a small scale. In many countries, this still remains the main domain of the profession. In the Netherlands, however, the landscape architect developed differently. Here, the profession evolved into a discipline capable of combining spatial design skills with scientific methods (Meeus & Vroom, 1986). This positions the landscape architect on different scales, ranging from the garden to the region. When working across these scales, it is important to realize the difference in design. When drawing a line on a garden plan, the line becomes a path or planting bed. When drawing a line on the regional scale, a line is a less fixed object and more an indication of possible development. Large-scale designs therefore work with a different degree of openness, rather than determining space, it establishes directions, structures, and conditions through which landscapes can evolve overtime. Working on this scale, I find it important to realize that as a designer, you should, and cannot, plan everything. And leaving open space actually creates value; some of the best landscapes actually happen spontaneously.

This is also the approach that is used in this project. Because the project operates at landscape scale, for me, it is neither possible nor desirable to design every detail. In Boskoop, much knowledge about the landscape is already embedded in the horticultural practices and experiences of the inhabitants. The project therefore proposes a framework rather than a fixed final design. The design aims to ensure peat functioning while allowing habitation to adapt over time. Giving inhabitants agency in the design process is essential as the landscape evolves with the people who inhabit it. While horticulture is expected to remain important in Boskoop, habitation can also develop differently overtime.

→ A house in water village 't Rietveld. The house is surrounded by water and only accessible by boat. Creating an interesting relationship with the water

DEFINING
Glossary

Alignment

Alignment in this project refers to a condition in which habitation develops in relation to the ecological functioning of the system, instead of undermining or exploiting it. When making conscious spatial, ecological, and cultural choices that fit the peat system, habitation is aligned. However, alignment does not mean balance, compensation, or optimization; it can be understood as a constant negotiation rather than a fixed state.

Derrie

- "Laagveen" (Fenland)
  Boskoops Boomkwekers Woordenboek
- Vuile, dikke brij, stront: 'trap niet in de derrie'.
  Dikke van Dale

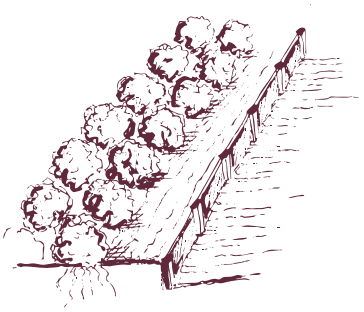
In Dutch, the word *derrie* carries two meanings. It is an old Boskoops word for the peat soil that supports this landscape. At the same time, it refers to something dirty, filthy, and worthless. This double meaning captures our contemporary relationship with the peat soil. It forms the foundation and the reason for the existence of landscapes such as Boskoop and many others in the Netherlands. Yet it is treated as dirt. Something we drain, ignore, and degrade.

Ecological functioning

The functioning of processes that sustain ecological communities and their environment. Defined by interactions between biotic and abiotic conditions. The functioning of these processes is crucial for predicting response to environmental change and supporting productive ecosystems (Montgomery, 2025).

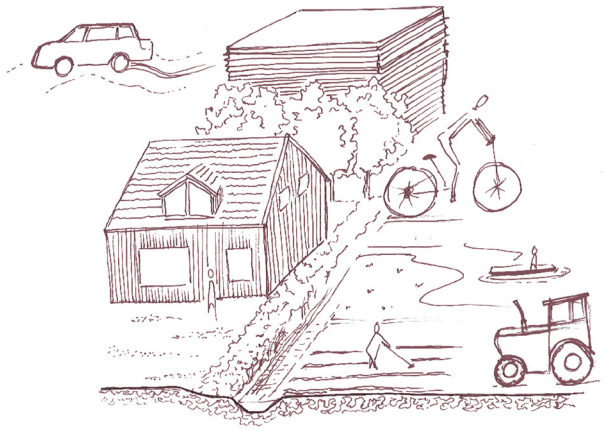
As we are developing a future for Boskoop that can deal with environmental change while staying productive. The concept of ecological functioning is used as a lens to evaluate whether the peat system is "healthy". By researching which interactions between biotic and abiotic conditions can strengthen the functioning of this ecosystem.

Horticulture



Horticulture is the cultivation of plants for economic purposes. In Boskoop, horticulture takes the form of the boomkwekerij (tree nurseries), characterized by small trees and shrubs growing on the wet soil. Horticulture In the project is not treated as a separate economic sector, but intertwined in the social and spatial identity of Boskoop. It is therefore seen as the primary form of Boskoop's human habitation.

Human habitation

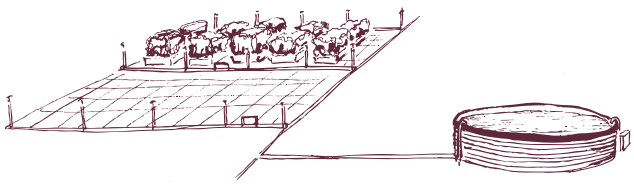


The full spatial and ecological context of human existence, it describes the interaction between humans and their environment (Ingold, 2000).

In this project, the concept of human habitation is used to describe more than only a purely residential understanding of living somewhere. Habitation emphasizes the relationship between humans and the landscape. The concept is derived from ecology's habitat, identifying humans as species whose existence depends on the functioning of this environment.

This project talks explicitly about human habitation and places the other organisms in the ecological perspective of the project. However, the definition of habitation can be applied to all flora and fauna.

Misaligned Habitation



When human habitation is misaligned, human practices do not fit the ecological conditions of the landscape. Often by exceeding the limits or over exploiting the land.

In Boskoop, this misaligned habitation is expressed through continuous drainage, soil subsidence, and loss of ecological functioning to maintain the current habitation practices. This misalignment threatens both the peat system and the cultural landscape built upon it.

PEAT

Boskoop as peat system

02

The ground beneath Boskoop may appear to be stable; in reality, this ground is layers of partially decomposed organic material held together solely by the presence of water. Once this landscape is drained, the soil starts to slowly oxidise and thus disappear. As the ground subsides, carbon is released into the atmosphere. This process makes the landscape of Boskoop vulnerable. In order to align habitation with the peat landscape, it is necessary to first understand the peat system itself and the conditions that sustain the ecological functioning of this system. PEAT explores Boskoop as a peat ecosystem. By researching the peat landscape, interventions can be identified which can support the ecological functioning of the system.

Why nature fails as a design category

We often talk about nature as something that can be contained, a forest or wetland with fences around it, a green polygon on a map. By placing nature within a defined area, it is implied that with its boundaries something else begins, housing, agriculture, infrastructure, economy. This way of thinking reduces nature to something that can be placed, protected, negotiated or compensated (Morton, 2009). By putting nature in a box, we ignore the most important aspect of ecological systems, their functioning does not stop at the boundaries we draw.

Landscapes are not arrangements of separate objects, like the object nature or the object recreation. Landscapes are built out of systems that operate through the scales and without fixed boundaries. Water moves through different areas, soil processes function at every scale and organism move across territories. As Haraway argues, humans were never separate of these systems (Haraway, 2016). When nature becomes an object in a plan, designers lose sight of how these systems form the basis of all spatial conditions, including our own existence.

For this reason, nature is not used as a design concept in this project. The term suggests something external to humans, something we can step in and out of. Instead, this project approaches humans as a species that is part of the broader ecological system by using concepts from ecology. To replace nature, the term ecological functioning. This term is derived from the ecological concept of ecosystem functioning. It refers to the interactions between biotic and abiotic conditions, and the degree to which a system can sustain itself overtime (Montgomery, 2025). In a place like Boskoop the landscape can not be divided into nature and culture, as it is formed through centuries of interactions between peat, water, non-humans and humans.

If nature fails as a design category, the solution is not to add more of it. Instead ecological functioning and habitation must be understood as coexisting in the same system. Human habitation has to support the functioning of the system that sustains it. This shift is not only relevant for Boskoop. It suggest a bigger shift in spatial design, habitation should follow up on the specific ecological conditions of a site. This may seem limiting, as if ecology just takes up more space. However, this is not the case at all, when ecological functioning is seen as the base, it offers possibilities for more diverse and qualitative landscapes.

↑ *Crumbeling Derrie, an edge where peat transitions into the water. these kind of edges are not often seen in Boskoop.*

PEAT
2.2 The soil

Peat soil is made out of partially decomposed plant material that accumulates under high water level conditions. Because decomposition requires oxygen, the plant material does not fully break down when it remains submerged (Worm et al., 1993). As a result, peat can only exist in the presence of water, making water a crucial part of the peat soil.

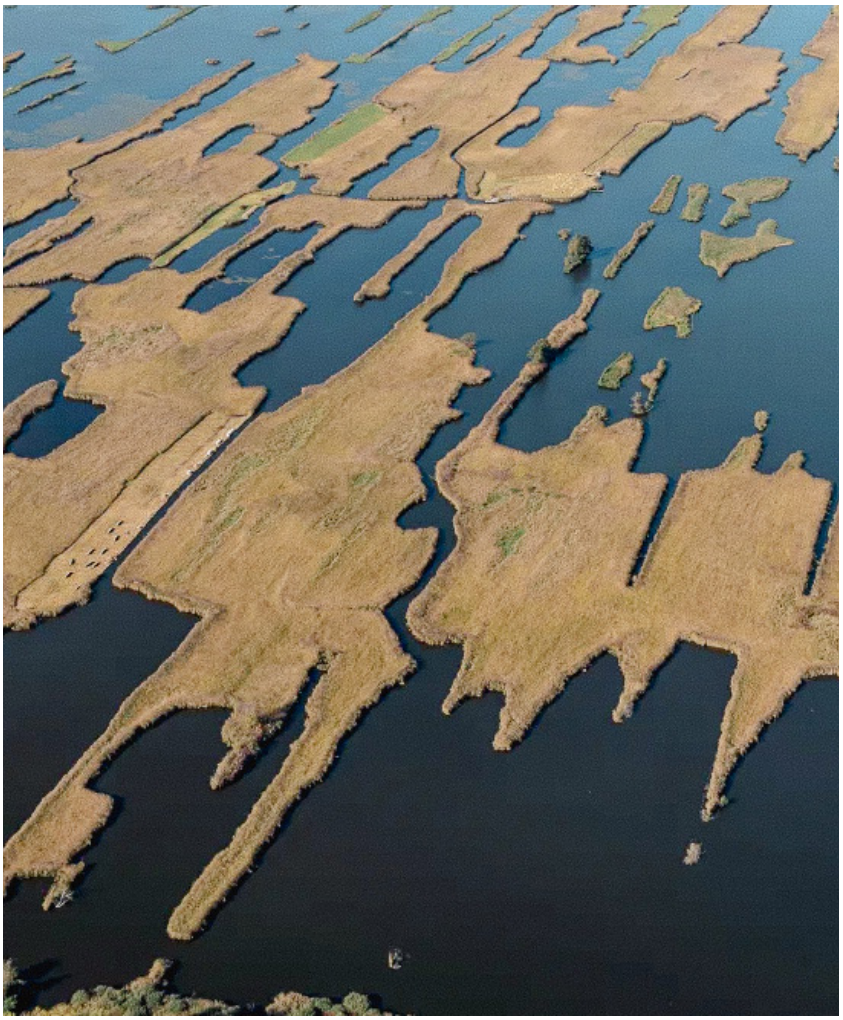
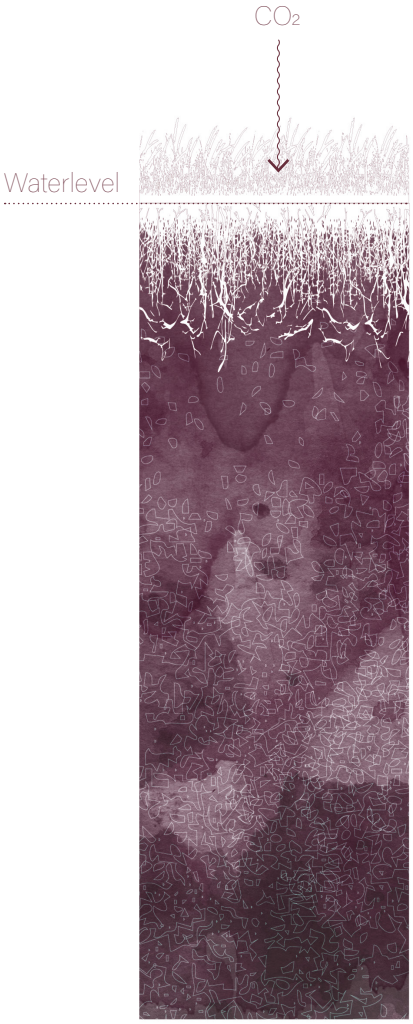
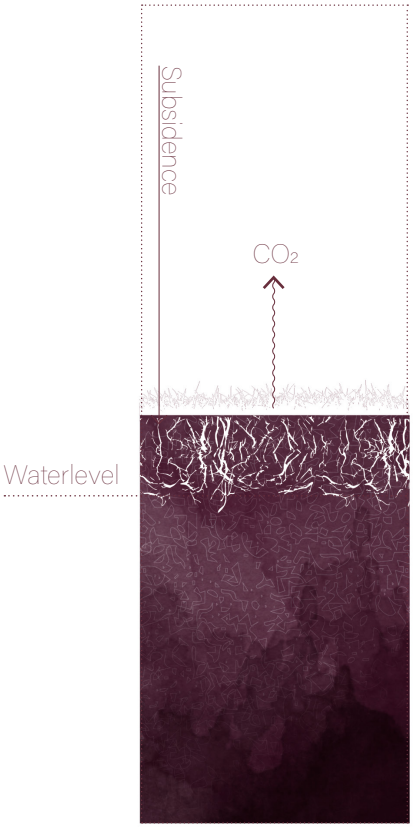


Figure 02.
The relationship between peat and water from above
Note. Adapted from *Laagveen - petgaten*, by Wageningen university, n.d.



Peat as carbon sink

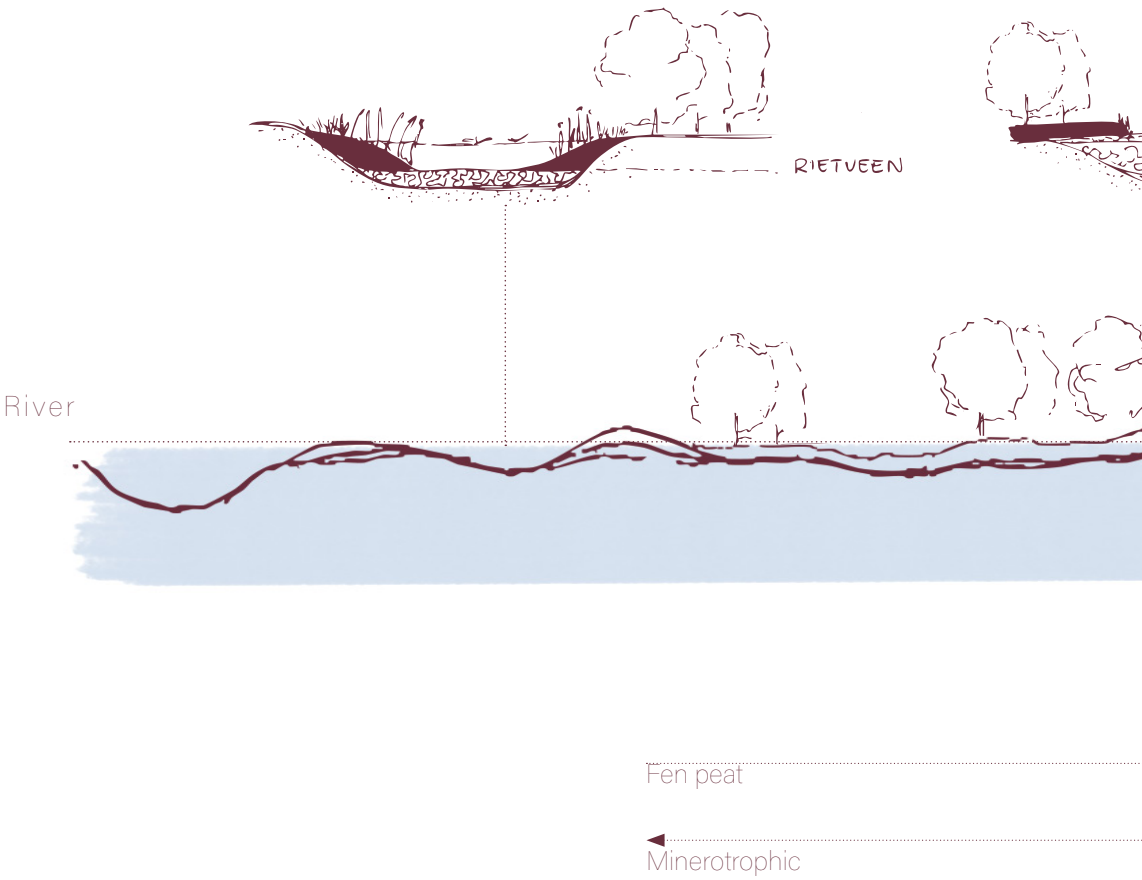


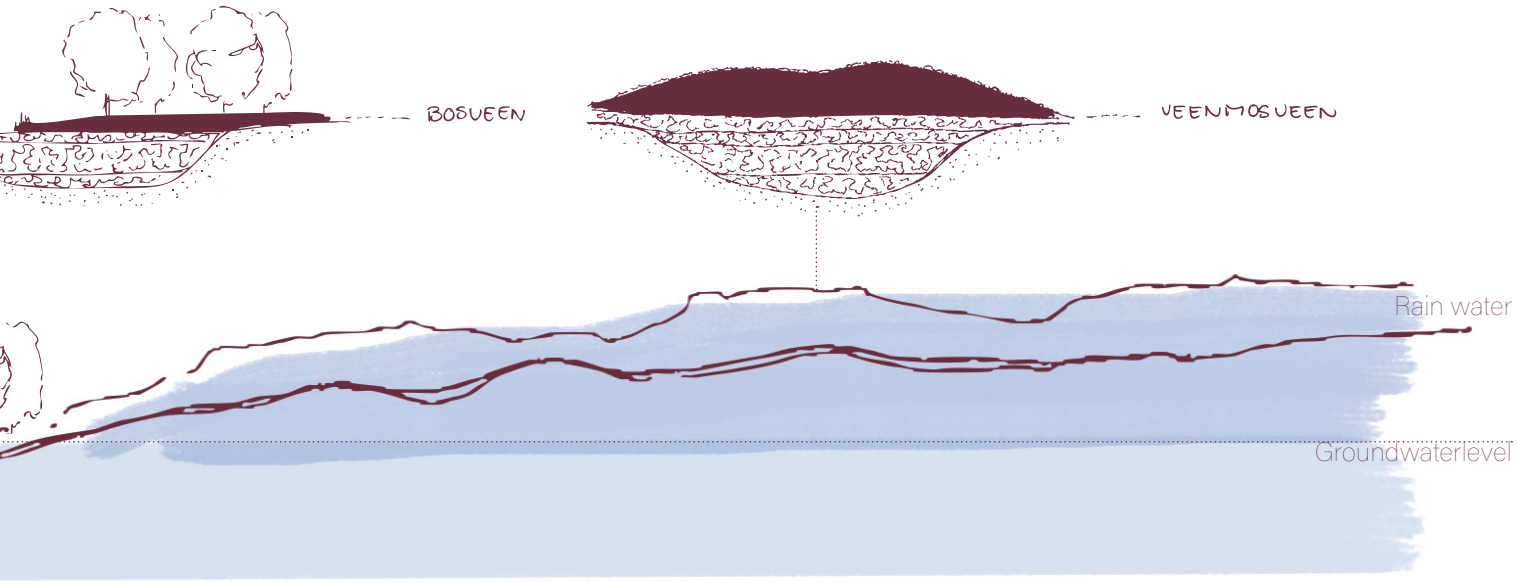
Peat as carbon source

Under submerged conditions, peat functions as a carbon sink. Through photosynthesis, plants capture carbon from the atmosphere and store it in their biomass. When these plants die, the lack of oxygen prevents full decomposition and results in the capture of carbon in the peat soil. These soils are therefore one of the only soil types that consists almost entirely of dead or alive organic materials (Bakema, 2023).

However, this balance shifts when peat is drained. Lowering the water level means introducing oxygen into the soil, leading to decomposition. As the organic material breaks down, the soil subsides, and carbon is released into the atmosphere. In the Netherlands, emissions from drained peatlands are around 2-3% of the total greenhouse gas emissions (Bakema, 2023).

Different types of peat form under different hydrological and nutrient conditions. In nutrient-rich, groundwater-influenced conditions, fen peat may form, also known as *rietveen* or *zeggeveen*. As the surface becomes higher and drier, woody vegetation can grow, forming *bosveen*. Eventually, peat can grow out of the direct influence of mineral-rich groundwater. When the system becomes rainwater-fed, sphagnum mosses can form raised bog peat or *hoogveen*. This peat body can grow above the surrounding landscape (Craft, 2016).





Raised bog peat

Mesotrophic

Over the past 3000 years, the Netherlands transformed from a landscape largely covered in peat lands to the fragmented distribution of peat we know today. While natural processes such as sea-level fluctuation played a role, the disappearance of peat in the last 1000 years is primarily the result of human intervention in the landscape (Vos, 2021).

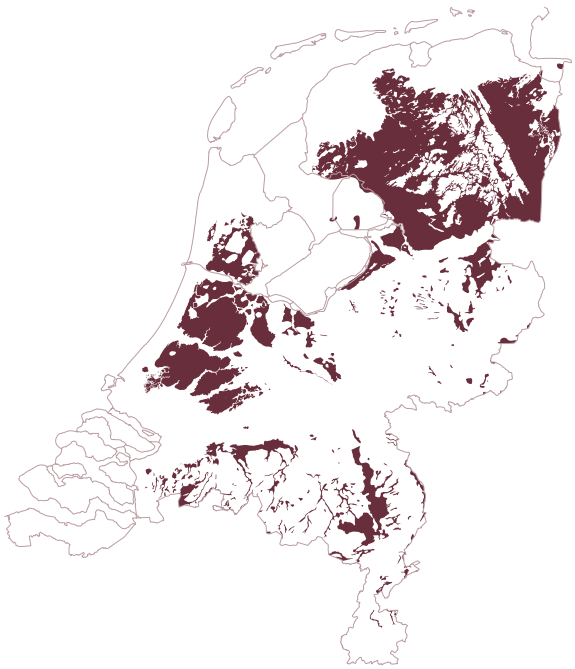
500 B.C.

Peat developed in the low-lying areas behind the coastal dunes and riverbanks. Here, water was retained and organic material accumulated slowly, forming peat lands. These peat lands covered a large part of the Netherlands (Vos, 2021).

800 A.D.

Breaches in the coastal dunes, particularly in Zeeland, allowed the sea to enter inland. These floods leaded to the erosion of peat lands. Around the same period, the Romans invaded the country, and early forms of drainage and land cultivation began to develop. These interventions lowered the water table, starting with the first stages of peat degradation (Vos, 2021).

Map 04.
Development of peat soil through time
Note. based on *Paleogeografische kaarten*,
by Rijksdienst voor het cultureel erfgoed, 2022



1500 A.D.

From the late Middle Ages, human impact on the landscape intensified. Rivers and marshes were diked, reducing the natural dynamics of the water essential for peat formation. At the same time, as the number of inhabitants grew, the demand for fuel and food increased. Peat was extracted for fuel purposes while large areas where drained and used for agricultural purposes. This led to the characteristic plot structure still visible today (Vos, 2021).

2000 A.D.

Centuries of drainage and water management have resulted in continuous peat oxidation. What remains today are fragmented and highly managed peat areas scattered around the Dutch landscape (Vos, 2021).

PEAT
2.3 Boskoop

Boskoop, the site of the project, is located on peat soil and approached as a peat system. Systems theory emphasizes the relationships between components of a system, rather than treating these components as isolated objects (Lai & Huili Lin, 2017). This is an essential perspective, as the core of the project lies in analysing the relationship between peat functioning and horticultural habitation.

When researching or designing a system, it is important to realize that a system never stands alone; it always operates on different levels and is always part of a larger system. Systems continuously exchange input and output with their environment. To research a system properly, a boundary must be defined. Not because the system truly ends here, but because it allows us to understand its functioning in a structured way. Boskoop is part of the systems. It is shaped by ecological systems, such as water, soil, and ecosystems, but also by social, cultural, and political systems. Each of these systems comes with its own boundaries. Boskoop is part of a water board, municipality, an economy, and a peat landscape.

Because the project focuses on horticultural habitation, the boundary is defined by the nursery landscape. The nurseries form a recognizable spatial structure that distinguishes Boskoop from its surroundings. This boundary also corresponds to the polder structure, which often follows from the logic of elevation and soil conditions. Defining this boundary helps the project to remain concise. However, it does not mean that Boskoop functions in isolation; it continuously exchanges input and output with its surroundings.

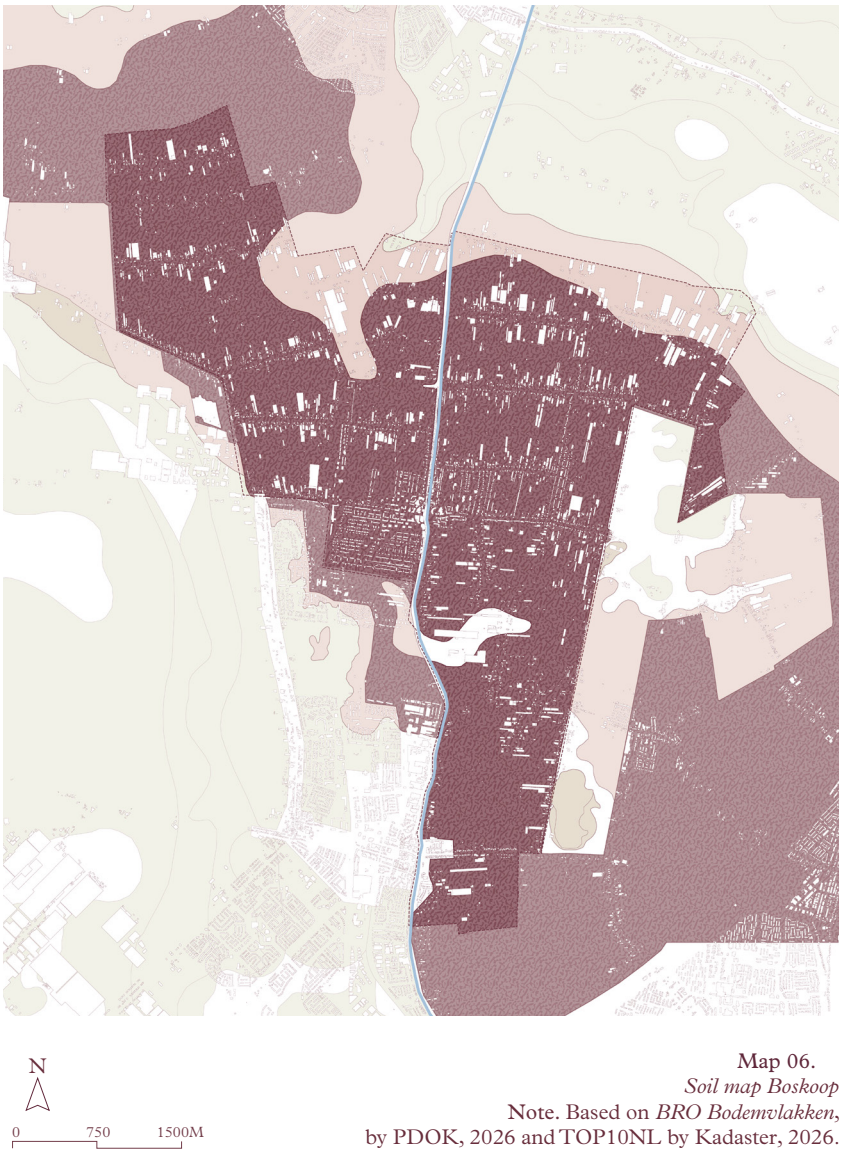
Map 05.
Administrative and landscape boundaries of Boskoop
Note. Based on boundary data from Kadaster, Het Waterschapshuis, CBS, Provincie Zuid-Holland and PDOK.


GEMEENTE ALPHEN AAN DEN RIJN
THE PROJECT SITE
GREENPORT BOSKOOP
HOOGHEEMRAADSCHAP VAN RIJNLAND

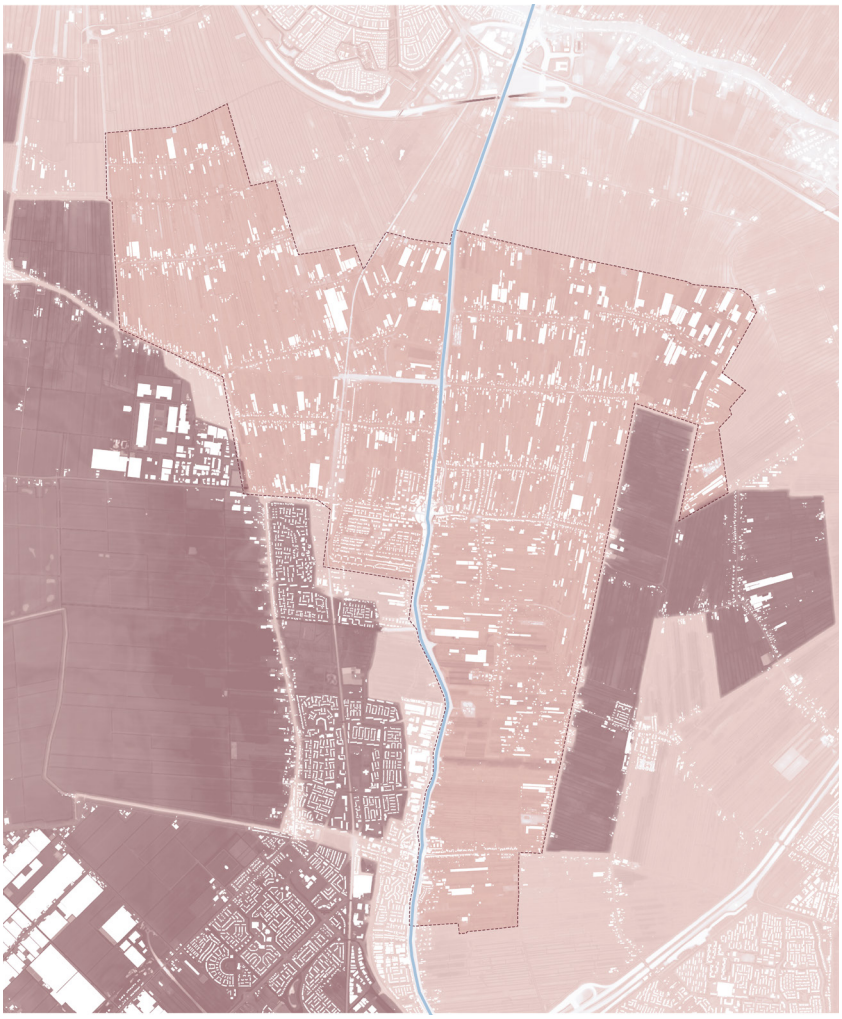
Abiotic - Soil

As stated before, the soil of Boskoop consists of peat. Towards the surrounding areas, this peat gradually transitions into a soil with less organic material. On both sides of Boskoop, the peat soil eventually transitions into clay soil, but with a different origin.

On the western edge, sea clay can be found, as this area was once a lake that was later drained. On the north-eastern side of Boskoop, the soil consists mainly of river clay, deposited by the Rhine.



Map 06.
Soil map Boskoop
Note. Based on *BRO Bodemvlakken*, by PDOK, 2026 and TOP10NL by Kadaster, 2026.



Map 07.
Elevation map Boskoop
Note. Based on *AHN4 DTM*, by Actueel Hoogtebestand Nederland and TOP10NL by Kadaster, 2026.

N

0 750 1500M

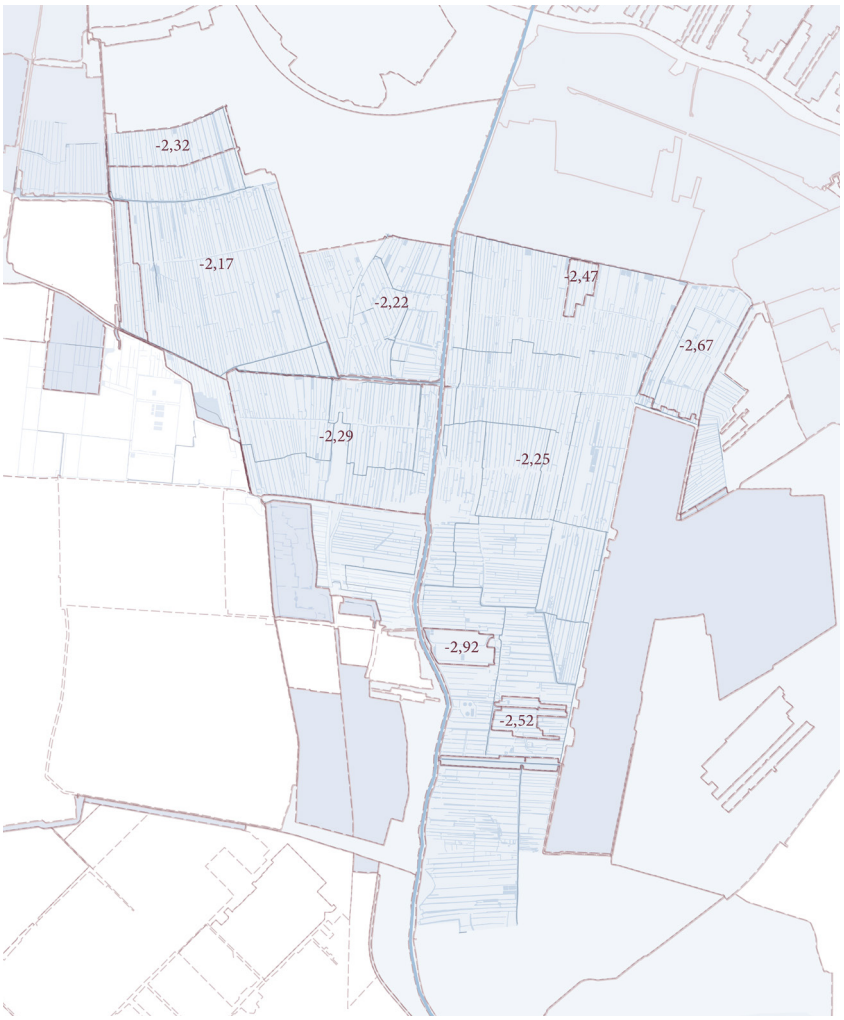
2 - -6

Abiotic - Elevation

The elevation of the area corresponds with the soil types. The clay soils along the Rhine are located at the highest point, as these are relatively firm soils. The peat soil of Boskoop lies lower, around 2 metres below sea level. Historically, the peat soil was much higher, rising high above the surrounding clay soils, but through drainage and subsidence, it has gradually lowered overtime. The lowest areas are found where peat was excavated for fuel. These areas turned into lakes, which were later drained. Here, sea clay now lies at the surface, at around 5 meters below sea level.

Abiotic - Water

The water system in Boskoop is divided into different polders, all draining into the Gouwe. Because of the peat soil, the water levels within the polders are kept constant throughout the year. These water levels vary only slightly per polder. Illustrating the small difference between land and water in the area.



Map 08.
Water map Boskoop
Note. Based on Legger peilbesluiten by Het Waterschapshuis and Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.

↑ *One of the sluices that makes transport possible between the different polders*

↑ *The River Gouwe, dammed in between the houses of Boskoop. The river functions as drainage channel and as transport routing for schips.*

Biotic - Flora

Looking at the biotic conditions in Boskoop, an interesting contradiction appears. Boskoop is a horticultural landscape where small trees and shrubs are grown, but there are relatively few large trees in the area. Keeping the landscape quite open. The trees that are presented are concentrated along the linten. At the same time, horticulture is often monoculture and uses pesticides. Because of this, these productive lands often do not have high ecological value.

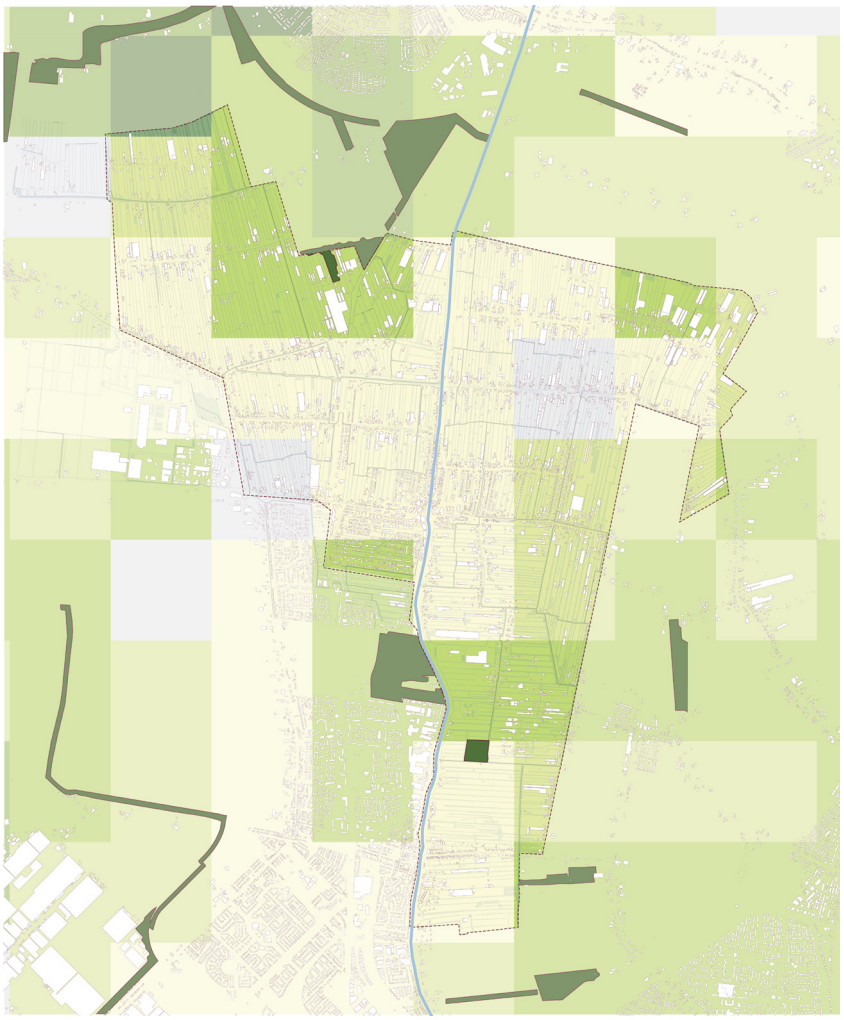
Map 09.
Trees Boskoop
Note. Based on *Bomenkaart Nederland*, by RIVM, 2025, and TOP10NL by Kadaster, 2026.

↑ *The current green structures of Boskoop are mostly concentrated along the infrastructure.*

Biotic - Fauna

The fauna of Boskoop is mainly concentrated in and around the water as it forms the main connecting structure in the area. The diversity on the nurseries themselves depends on the diversity of land use, and on wether the edges have a certain degree of shallowness.

When looking at the species diversity of red list species in Boskoop, the diversity appears to be low. This can be linked to the fact that the main horticultural practices do not have an high ecological value, and that no part of Boskoop is included in the Nature Network Netherlands.



Map 10.
Species diversity red list species
Note. Based on *Soortendiversiteit o.b.v. Rode-Lijstsoorten*, by NDDF, 2017, and TOP10NL by Kadaster, 2026.

↑ *The Meerkoet or Coot is standing on a piece of raised sand next to an newly build embankment.*

↑ *The Nijlgans or egyptian goose is an invasive exotic species living on the waters of Boskoop*

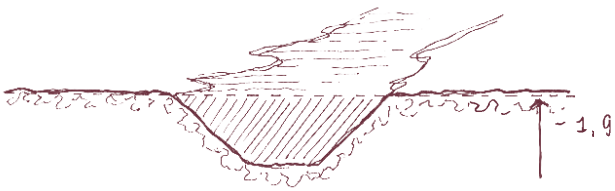
PEAT
2.4 Towards a healthy peat landscape

The project is about setting sharp ecological conditions to design for an ecological functioning peat system of Boskoop. The concept of ecological functioning is grounded in the concept of ecosystem functioning. Within ecology, ecosystem functioning refers to the active processes and interactions between biotic and abiotic conditions that maintain an ecosystem's health, resilience, and productivity. The interactions between biotic and abiotic conditions determine whether a system is functioning, degrading, or collapsing (Jax, 2010). Understanding the functioning of the system is crucial for predicting response to environmental change and for supporting productive ecological systems

For me, using the concept of ecosystem functioning is not about searching for a "perfect" ecosystem state. I do not believe such a state exists; ecosystems are continuously changing, shaped by both natural processes and human actions. Instead, the concept gives a theoretical frame, a way to focus on what is important when designing a landscape that can remain healthy and resilient overtime. Ecosystem functioning is about relationships between abiotic and biotic conditions. Abiotic conditions, such as soil, hydrology, and climate, create conditions on which biotic conditions, flora, fauna, fungi, and humans interact. When these relationships are strong, the system functions well. When they are weakened, the system becomes vulnerable (Gottschall et al., 2022).

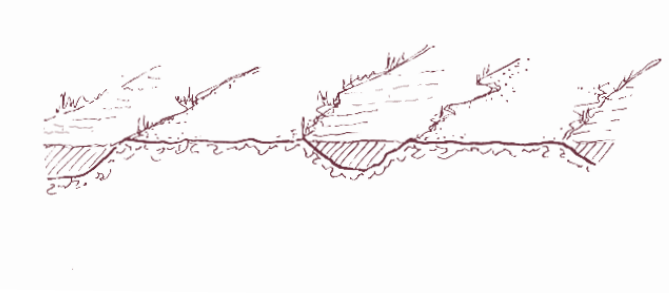
Because humans are part of the biotic world, and not separate from it. The only way we can influence ecosystem functioning is through our relationship with the abiotic environment and with other biotic factors. Our actions can strengthen the functioning of a system or degrade it. In order to design a functioning ecosystem, we have to design this relationship.

ENSURE PEAT FUNCTIONING



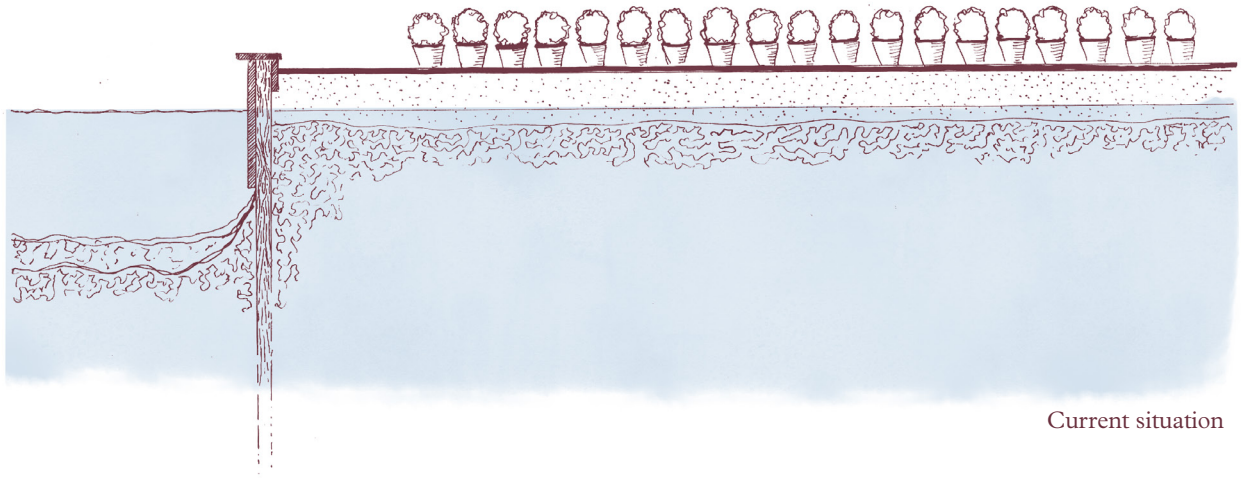
Raise groundwater level

One of the key interventions to ensure peat functioning is through ensuring a high ground water table. This is important as peat soil only exists under wet and oxygen-poor conditions (Kustina et al., 2025). Because the hydrological system of Boskoop is already highly managed, raising the water level itself is an easy intervention. Peat has an optimal water level in which carbon emissions will be limited the most. The optimal groundwater level lies between 0 and 20 centimetres below ground level (Bestman et al., 2019).

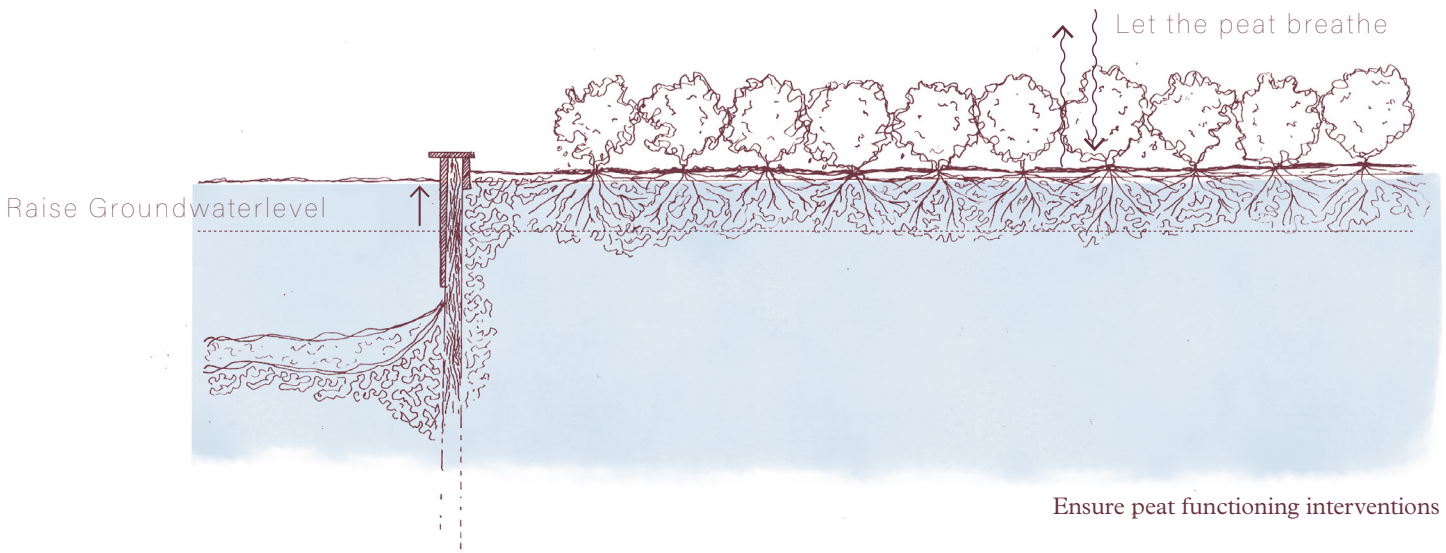


Let the peat breathe

While raising the water table is the most important and probably the most influential intervention in the area, this on itself will not ensure a functioning peat system. Looking at the current landscape of Boskoop, a lot of the soil is covered by sand layers and plastic surfaces. Because peat is essentially submerged organic matter, its functioning depends on the continuous interaction with other living systems. Exposing the peat and letting it breathe is therefore the second intervention to ensure peat functioning.



Current situation



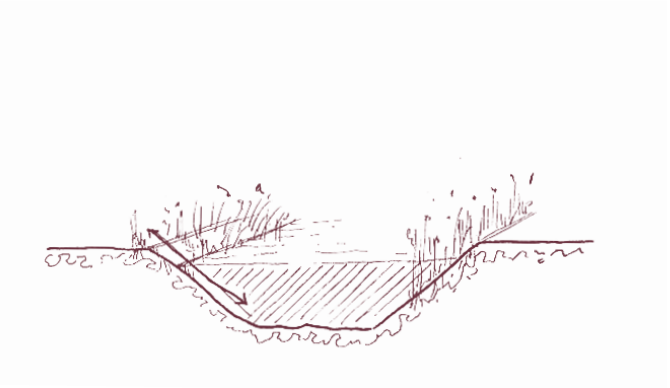
Ensure peat functioning interventions

DESIGN FOR BIOLOGICAL DIVERSITY

Land use variety

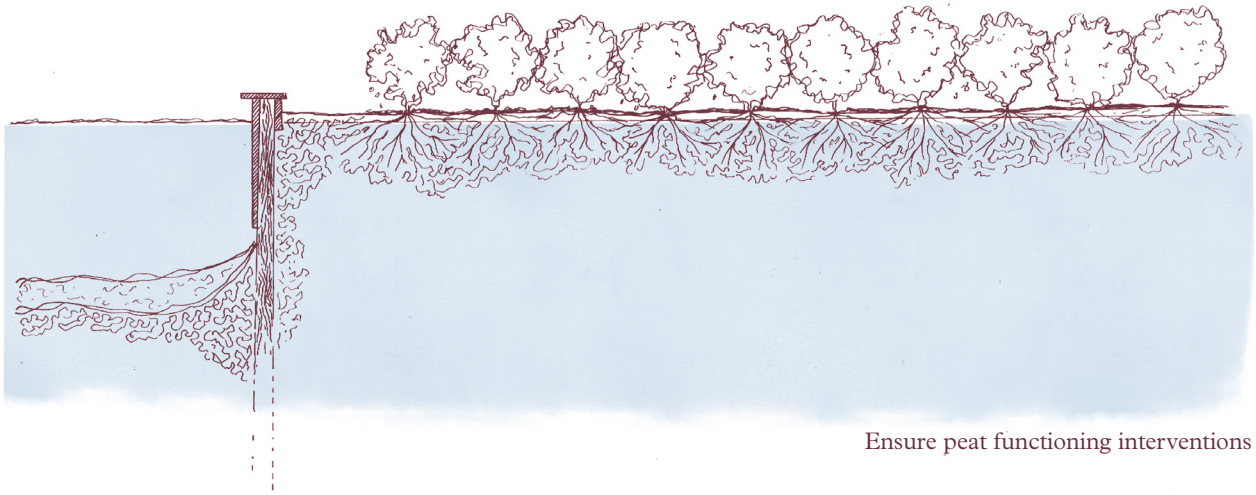
Raising the water level will have a big influence on the landscape of Boskoop, which gives the opportunity to strengthen biodiversity in the area. The functioning of the peat system is not only dependent on the functioning of the soil but also on the functioning of the whole ecosystem. Designing for biological diversity can essentially be done through improving landscape heterogeneity. (Minayeva et al., 2017)

Historically, the agricultural landscape contained a more diverse land use patchwork. Nowadays, agricultural fields have become more and more homogeneous and optimized towards one form of production (Fahrig et al., 2011). Introducing a variety of land uses again within the horticultural landscape of Boskoop can create a more resilient and diverse peat landscape.

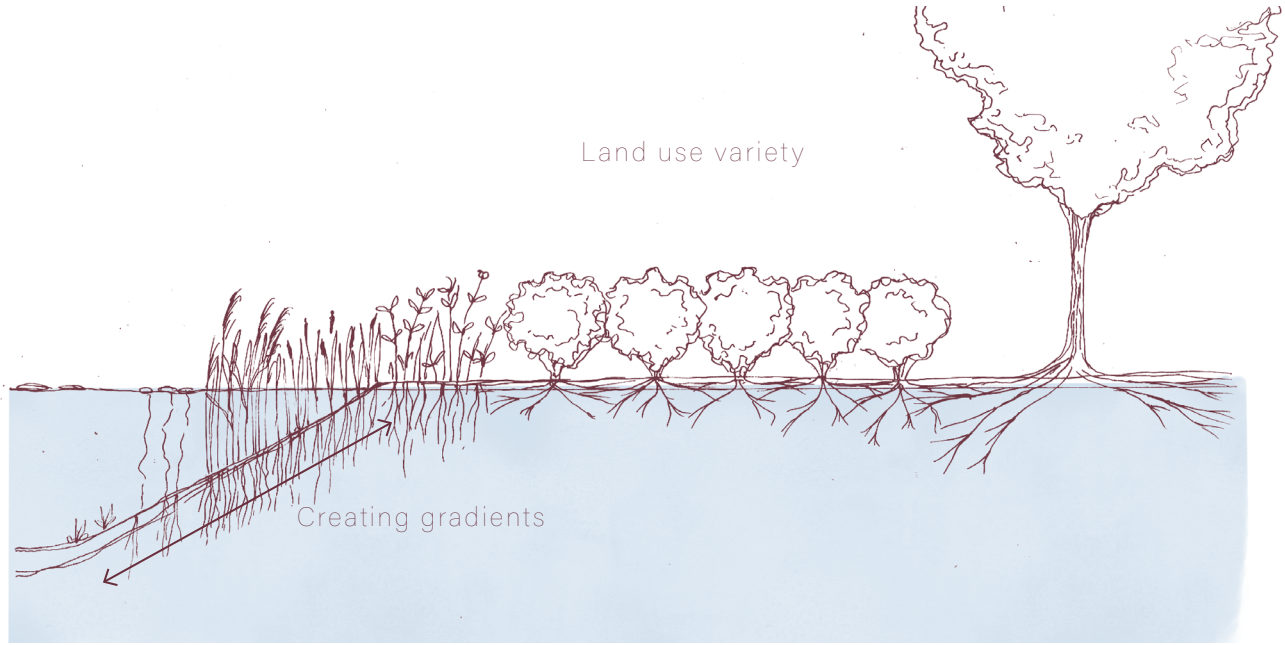


Creating gradients

In Boskoop, all agricultural land transitions into water, offering a chance to increase biodiversity. Nowadays, these edges are often very steep and harsh, allowing nothing to grow. According to edge biodiversity theory, biodiversity increases by the creating of transition zones between biotopes. By creating a less steep slope and allowing different types of vegetation to grow, creating a transition zone between land and water (Minayeva et al., 2017).



Ensure peat functioning interventions



Design for biological diversity interventions

In order to design for a healthy peat landscape, water levels have to be raised to limit peat oxidation as much as possible. Next to that, by removing the sand and foils covering the soil, the peat system will be allowed to breathe again. Such an intervention has a big influence on the landscape of Boskoop, creating space for strengthening biodiversity by introducing more variety in land use and creating gradients along the many edges of Boskoop. While a healthy peat system is important, Boskoop should not be treated as a nature reserve. Human habitation on this landscape is still possible and should be further explored. When inhabiting a landscape, people create relationships to these environments that sustain them.

HABITAT 03

Boskoop as habitat

Boskoop is a cultural landscape, meaning that habitation actually developed together with the peat system. The narrow plots, many ditches, bridges, and nurseries are all results of generations adapting their way of living and cultivating to the wet conditions of the peat soil. Historically, habitation was more closely connected to the peat landscape. While draining the land has been an important human intervention for over a thousand years, the landscape still set conditions, and the inhabitants adapted to them.

Over time, this relationship slowly changed, with the focus on efficiency and technology, contemporary habitation became more and more disconnected from the conditions that originally shaped the landscape. Nowadays, horticulture is mainly done on plastic layers covering the soil, supported by an irrigation system. Cultivation does not use the qualities of this landscape anymore. While horticulture is changing, it is still deeply embedded in the economic, social, and spatial characteristics of the area. HABITAT researches Boskoop as a human habitat by looking at both historical and contemporary forms of inhabiting the landscape. It then becomes possible to identify where misalignment lies, but also which qualities remain valuable for imagining a future of Boskoop.

History as a design tool

When designing for the future, it is necessary to question what moving forward actually means. Progress is often understood as becoming more efficient, scaling up, or becoming more technologically advanced. However, as many landscapes are approaching their ecological limits, progress should also be measured by the capacity of a landscape to remain inhabited under changing conditions. Historical analysis could help to rethink how habitation might again become more closely aligned with the ecological system that sustains it.

Historically, habitation was often more directly shaped by local ecological conditions. The development of technology to reshape the soil, water, and ecosystems to meet human needs changed this relationship. In the Netherlands, this shift can be traced back to the late Middle Ages. At this time, the peat lands in the western part of the country were reclaimed for habitation purposes (Vorst, 2023). This reclamation marks the beginning of a longer process in which ecological dynamics were more and more organized to serve human needs. The methods transformed from digging by hand, to drainage mills, and eventually to automatic pumping stations.

Nowadays, many Dutch landscapes are approached as technical systems that can be controlled and optimized. Soils are drained, waters are dammed, and ecosystems are managed to become profitable. These landscapes may seem stable, but they depend on constant input of money and energy, becoming vulnerable under the pressure of climate change, subsidence, and biodiversity loss. Recent projects such as Room for the River and the Sand Motor show a shift in Dutch landscape practices towards working more with natural dynamics. Yet ecological functioning is still often treated as an additional design layer instead of the base condition for a functioning society.

This is where historical research becomes relevant. Not because everything in the past was better or that historical landscapes should be reconstructed. But because earlier forms of habitation were often forced to adapt more to local conditions. Historical systems can show us relationships between habitation and ecological functioning that have been replaced by technical solutions. The past can and should not be reproduced literally; it should be complemented by contemporary technical solutions. However, it can help answer the question of how we can align human habitation more with the ecological system.

This is not the only importance of doing historical research. Because technical solutions are often generic, they result in increasingly homogeneous landscapes. Standard methods of drainage, infrastructure, cultivation, and urbanization often erase layers of ecology, heritage, and local cultures that make the landscape meaningful. Historical solutions are therefore not only decorative layers, but history can serve as a design tool. A way to understand historical relationships between habitation and the ecological system. To recognize what part could still be useful and how we can interpret these into a future landscape. Not as an act of nostalgia, but as a way of identifying future possibilities.

← The sun is shining through the blossom of this small *prunus*. The tree is standing in front of a old shed, which can be found throughout the landscape of Boskoop and give a view back into history.

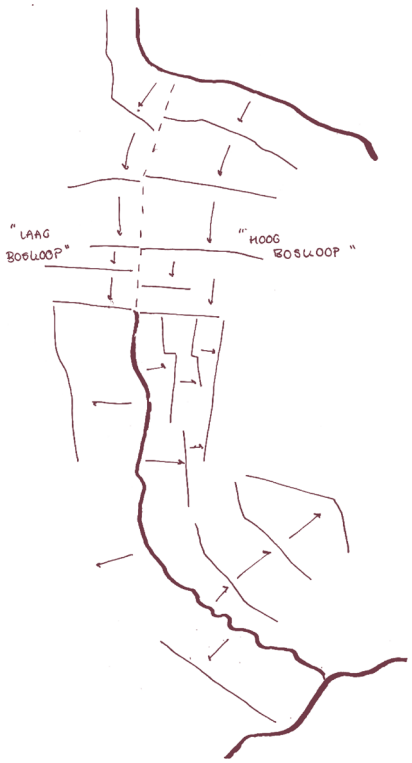
Boskoop as historical HABITAT

HABITAT
3.1 History of habitation in Boskoop

WILD LANDS <1200

As illustrated in the previous chapter, large parts of the Netherlands were once covered by a thick layer of peat. These wetlands were often seen as wilderness, a place where people did not belong. Around this time, settlements such as Alphen a/d Rijn already existed on the firmer clay soils along the river. Boskoop itself did not yet exist as the inhabited horticulture landscape we know today. The river that Boskoop now knows as the Gouwe was then no more than a small peat river, welling up around the centre of Boskoop. From here, the water drained from Boskoop towards the IJssel. This tells us something about the landscape; the peat around Boskoop formed one of the highest parts of the area, reaching around 8 meters above sea level (Vuyk, 1966).

Figure 03.
Peat wetland with river
Note. Adapted from "*Ruige wildernis met veenriviertje*",
in Boskoop: Vijf eeuwen boomkwekerij, 1466–1966, by A. Vuyk, 1966.



1200 RECLAMATION

Because the surrounding cities needed more agricultural land, people started to slowly move into the peat lands. The peat river of the Gouwe formed a logical starting point for this reclamation. At that time, the river lay lower than the surrounding peat soil, making it useful as a main drainage canal. The first reclamations were therefore laid out perpendicular to the Gouwe, allowing the land to drain towards the river. The northern part of the Gouwe as we know it now did not yet exist; it was probably once a drainage ditch but was later excavated into a wide waterway.

After the reclamation, the lands were first used for growing crops such as rye and barley, providing food for the surrounding settlements. In many other areas around Boskoop, the peat was cut, dried, and used as fuel. Through this process of *vervening*, large lakes emerged. These lakes became a constant threat to the surrounding lands. With the invention of windmills, these lakes were eventually pumped dry, revealing the clay soils at the bottom. The soils of Boskoop were never *verveend*. Why this did not happen is not fully certain, but there are two probable explanations. One possible reason is that the peat of Boskoop contained too much clay and was therefore not suitable as fuel. Another explanation is that the Rijnsburg Abbey, to which Boskoop belonged, did not allow peat extraction. *Vervening* would have brought one time profit, while cultivation of the land provided yearly incomes.

EARLY TREE CULTIVATION LATE 15TH CENTURY

As the first colonists of the newly reclaimed lands were mainly dependent on themselves, they had to grow trees for practical purposes. Trees were needed for shade around the house, as windscreen in the open landscape, for wood and as fruit trees for consumption. This way inhabitants slowly developed knowledge of sowing, cutting, grafting and tree cultivation. Around 1450, Boskoop was still a small village with only around fourteen houses, giving an impression of the scale. As tree cultivation was mainly focused on utility, ornamental cultivation was not yet present. However, trees were already being sold to people from nearby cities and to the abbey. Because trees brought in more money than ordinary farming, cultivating trees became more and more attractive. Overtime, farmers became established in growing fruit trees, especially apples and pears.

The Boskoopse Schone, later known as the Goudreinet, originated in Boskoop. In this phase, cultivation was still closely connected to farming, but the first movement towards specialization has begun. With the infrastructural improvement over water, especially over the Gouwe and later towboat connections, trees could be moved in and out of Boskoop more easily. This strengthened the trade and increased the number of tree cultivators in the area.

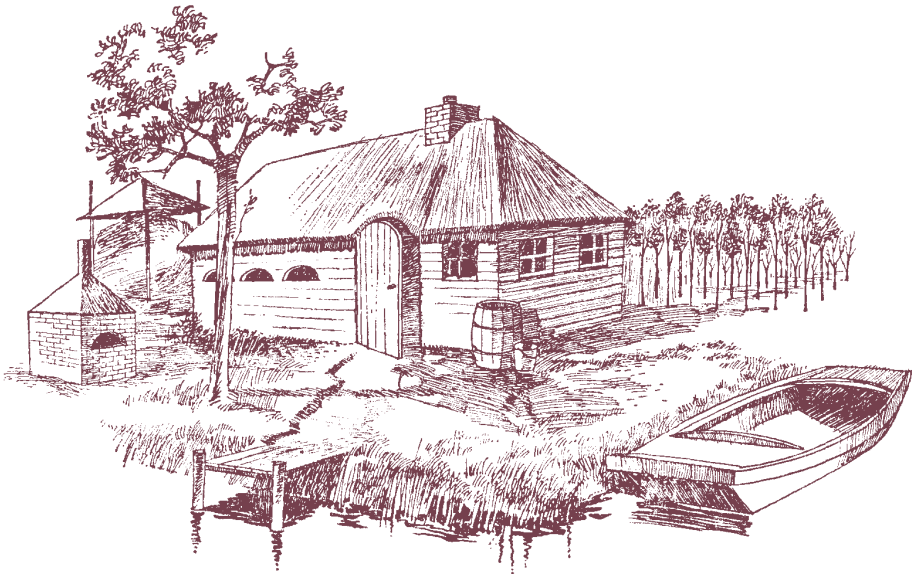


Figure 04.
House of farmer and tree nurser
Note. Adapted from "*Woning van Boskoopse boer- boomkweker*", in Boskoop: Vijf eeuwen boomkwekerij, 1466–1966, by A. Vuyk, 1966.

1700 - 1900 FROM FRUIT TREES TO ORNAMENTAL GREEN

In the 17th and 18th centuries, Boskoop slowly developed as a nursery village. The cultivation was still mainly focused on fruit trees and berries, but the structure of the village was increasingly organized around tree cultivation. This specialization was strongly connected to the water, as Boskoop depended on its water for the transport of trees and groceries. A network of skippers connected the nurseries to other places, often sailing fixed routes at fixed times. The Gouwe made it possible for the plants of Boskoop to be transported to the rest of the Netherlands.

In the second half of the 19th century, the focus shifted from fruit tree cultivation towards ornamental greenery. Growing prosperity in the Netherlands created a greater demand for ornamental plants, gardens, and parks. At the same time, transport improved through steamships and railways. Boskoops' nurses started to realize that ornamental cultivation could be more profitable than the standard fruit trees.

This shift also changed the knowledge in the village. Horticulture became more than a farming practice alone. Horticultural education started in Boskoop with the Rijks Tuinbouw Winterschool and the first experimental garden. With this education and experimentation, Boskoop became more and more specialized in ornamental green, and the village started to develop the identity that would later make it internationally known (Vuyk, 1966).

THE FLOURISHING 1900 - 1960

Around 1900, Boskoop entered one of its most prosperous periods. The village flourished through the growing trade in ornamental plants. This prosperity became visible in the landscape itself. Large nursery traders built stately houses and villas, while small nursers built more modest houses, sheds, and greenhouses. The village grew, and the horticulture shaped the structure. In these years, Boskoop became the horticultural village, for which it is known all over the world. Workers from the surrounding agricultural areas came to Boskoop as the wages on the nurseries where higher and offered the chance of becoming an independent grower themselves. After the economic crisis and the Second World War, Boskoop entered a period of recovery. The reconstruction of the Netherlands and the expansion of cities created new demands for ornamental green. This gave a new impulse, giving Boskoop the chance to further build upon its specialized knowledge, export network, and reputation as a nursery centre. In this phase, Boskoop's wealth is at its peak, and its horticultural identity reaches one of its strongest moments.

"Almost half of the working population was active in the horticulture world, a sector that reached into the capillaries of the village, almost literally. The civil servants in the town hall and the employees of the Rabobank looked out from behind their desks onto the nurseries and houtakkers of Laag-Boskoop. The sector could not have been closer." (Van Wijk, K., 2024)

Workers from the surrounding areas came to Boskoop, as the wages on the nurseries were higher and the work offered the possibilities of eventually becoming an independent grower themselves. Horticulture became more than an economic sector, is was the way through which people in the village could build a life. After the economic crisis and the Second World War, Boskoop entered a period of recovery. The reconstruction of the Netherlands and the expansion of cities created new demand for ornamental green. This gave Boskoop the chance to further build on its specialized knowledge, export network, and reputation as a nursery centre (Vuyk, 1966).

1960 - TODAY TECHNOLOGY AND EFFICIENCY

From the sixties onwards, horticulture in Boskoop started to change. There had always been a focus on innovation and renewal, but in this period, innovation took the shape of growing plants in pots, on foils, and layers of sand. This way of cultivating had clear advantages: plants were easier to transport, the growing season became longer, and plants could be sold more easily to private customers. Trees grown in open ground could only be moved during winter rest, while potted plants could be moved year-round. This form of cultivation changed the relationship with the landscape. Plants were no longer connected to the peat soil, but depended on computer controlled irrigation systems that supplied water and nutrients. At first, there was resistance against this development, as Boskoop is also strongly attached to its traditions. But overtime, more and more nurses started to understand the economic benefits of this way of cultivation. Because this type of cultivation was less dependent on the drainage of the soil, the structures of the plots also started to change. Ditches were filled to create larger and more efficient nurseries. Leading to the plots becoming broader and the horticultural landscape becoming more technical (Kroon, 2009).

The governance structure of Boskoop also changed. Although Boskoop had long been its own municipality, in 2013 it became part of the larger municipality of Alphen a/d Rijn. Still, Boskoop continues to have a strong village character. Many people in the area will never describe themselves as Alphenaar, but remain strongly connected to the village of Boskoop with its own identity. Looking at Boskoop in the current days, it becomes clear that innovation is again becoming important. Many inhabitants understand that the current form of horticulture is not sustainable in the long term. They see that it is becoming less profitable, and that more and more plots are becoming vacant. New initiatives are being developed in the sector, such as more water storage and vertical gardens.

The initiatives show that there is already an awareness that Boskoop has to change. The ambition of the village to become the green pearl of the Randstad in 2037 shows that Boskoop is already searching for a new direction (Historische vereniging Boskoop, n.d.). These goals do not yet ensure a functioning peat system; for that, a stronger ecological intervention is needed. But they do show that the village is capable of change, and that innovation has always been a part of the inhabitants of Boskoop.

HABITAT
3.2 What to remember

To further research the solutions used throughout Boskoop's history, this subchapter looks into specific elements where the relationship between habitation and the ecological system becomes visible. By studying these historical practices, history can become a design tool, a way to identify possibilities for the future.

"Water infrastructure"

Because of the many waters in the area, Boskoop was once largely dependent on its water infrastructure. Most transportation of plants took place over water. Skippers navigated the waterways of Boskoop along fixed routes and at fixed times. Transporting passengers, trees, plants, and groceries. Most of the horticultural transport was done with the *Boskoopse Schouw*, a historical boat type characteristic of Boskoop (Vuyk, 1966). Nowadays, this infrastructure has largely been replaced by road infrastructure. Still, in some places, such as *Vaardorp het Rietveld*, water remains the primary way of access. Showing how strongly Boskoop's habitation was once connected to its waterways.

Figure 05.
Transport of trees by boat
Note. From untitled photograph by J. den Hengst, n.d., Boomkwekerijmuseum Boskoop.

Figure 06.
Houtakkers
Note. From *Houtakkers op kwekerij het Groene Huis in Boskoop* by M. Delobel, 2025, de Volkskrant.

"Houtakkers"

Houtakkers are small wooded plots which can historically be found in Boskoop's peat landscape. Originally, these plots were planted as a wind screen to protect the fruit trees from the polder wind. As the land prices rose and the area shifted towards horticulture, a lot of these plots where transformed into nursery plots (Wijk, 2024).

These plots are interesting landscape elements because they combine cultural history with ecological value. They can provide structural and species diversity, therefore helping to strengthen biodiversity in the area while also being a spatial element that reflects Boskoop's rich history.

Figure 07.
de Pootplank
Note. From untitled photograp, n.d., Boomkwekerijmuseum Boskoop.

"de Pootplank"

The *pootplank* was used when planting young trees and shrubs in the soft peat soil. By standing on a wooden plank, the nurser spread their weight over a larger surface. This reduced the pressure on the soil and prevented compaction. Although it is a simple tool, it reveals an important principle. Moving on the peat should be light, distributed, and temporary rather than heavy, concentrated, and permanent. This principle can be translated into forms of small-scale infrastructure. Instead of hard, heavy, and fully sealed surfaces, infrastructure should be designed as structures that relate to the soil carefully. Raised board walks, removable paths, floating decks, or narrow plank structures could allow people to move through the landscape while limiting compaction and sealing of the peat.

"Biezen en riet"

In Boskoop, one of the main roads is still called de Biezen. *Biezen* are plants similar to reeds and grow in wet conditions. They were historically used for weaving and braiding. They show that wet landscapes do not always have to be drained to become productive. Today, reeds and similar wetland crops can again become a relevant productive land use. As they can grow under wet conditions, help filter water, provide habitat, and can produce biomass that can be used for building material, insulation, and other biobased applications.

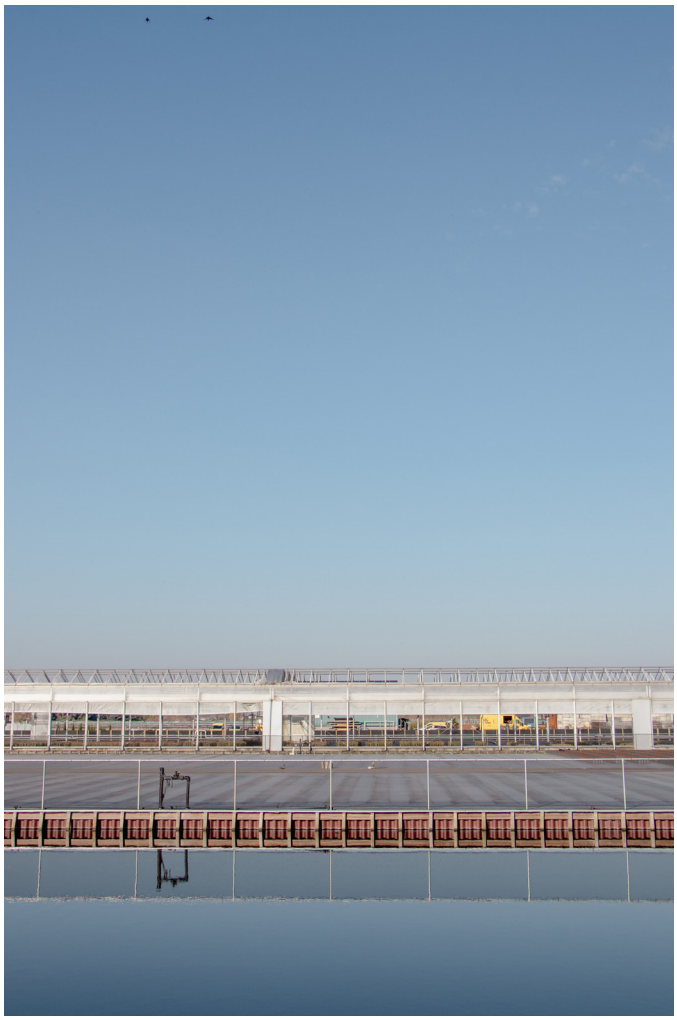
Figure 08.
Harvesting reeds
Note. From *Oogsten van den "Biezen"* n.d., Biesbosch Museum.

Human habitation as conceptual lens

When studying people and their relationship with the landscape, we cannot limit ourselves to residence or housing alone. For me, landscape architecture deals with the full existence of human life translated into space. How people live, work, move, cultivate, and depend on their environment. The project needed a concept that refers to the totality of human presence. The concept of dwelling emerged early in my research. Heidegger's wohnen describes a broad human way of being, beyond the physical building alone. However, in architectural practice, dwelling is still connected to the residential aspect of housing. It is not used to describe the wider practice through which humans shape and are shaped by land, through, for example, agriculture, work, or mobility (Malpas, 2012).

Habitation, when understood ecologically, does allow us to understand the full scope of human existence. Ecology defines habitat simply: "Wherever an organism is provided with resources that allow it to survive, that is habitat." (Krausman, 1999) If we look at humans as organisms, this definition gives an interesting perspective. Like other animals, humans have habitat needs: water, shelter, food, and space to move and forage. These are originally a direct and physical relationship with the land. However, over time we as humans have created systems that distance us from this connection. We no longer harvest our own food; we earn money to buy it. We no longer build shelter from local materials; we import them. Our habitat has become global and complex, while our dependence on the local ecological functioning remains. This has created two layers of the human habitat. The local ecological habitat, which includes the soils, water, and ecological conditions that sustain us. The second layer of human habitat is the extended social and economic habitat, which is the global systems that supply our needs indirectly.

This global expanded habitat has brought us many benefits. It has brought us knowledge, the ability to specialize, to trade, to support large populations, and different forms of life. It has allowed us to create economies, cultures, and networks that reach far beyond the scale of our immediate environment. But these expansions do not remove our dependency on local soils, water systems, and biodiversity, even if this dependence is no longer directly visible in our daily routines. The landscape of Boskoop reveals the tension between these two layers of habitation. The global habitat allows for expansion and efficiency, while the ecological system imposes limitations. In the peat system of Boskoop, the ignorance of these limits leads to subsidence, carbon emissions, and degradation of the ecosystem. This is the reason that habitation in this project is used as a conceptual lens. By focusing on the full human habitat and therefore the connection between people and landscape, the project explores how these layers can be reconnected. Seeing habitation as a space for developing habits (Bastons & Armengou, 2016), shifts the focus of design from simply ordering space towards designing a habitat: Engaging with how people move, work, cultivate, and adapt to their environment overtime.



← A container field with a greenhouse on the background. The "schoeiing" is clearly visible, with a mesh fence installed above it. The fence protects the pots from being blown over by wind. Because there are few big trees in Boskoop, the open nurseries can become quite windy.

Boskoop as contemporary HABITAT

HABITAT
3.3 Habitat elements

"De tuin"

If a nurser goes to the nursery, they often say they are going to the *tuin*. A *tuin* can consist of one or multiple plots. Traditionally, there are two types of plots within Boskoop. The smallest type is the *één breed tuin* (one-with nursery), on which a path runs along the side of the plot. The larger type is the *twee breed tuin* (two-with nursery), where the path runs through the middle. Many of the plots can still be identified as one of these types. Nowadays, some of the ditches between the plots are filled to create bigger and more efficient nurseries.

Figure 09.
Nurseries
Note. Adapted from *Kwekerijen* by A. Spruijt, 2023, Boskoop in beeld.

↑ *Één breed tuin*, one wide nursery. With a path on the side

Figure 10.
Nurseries
Note. Adapted from *Boskoopse Kwekerije* by A. Spruijt, 2023, Boskoop in beeld.

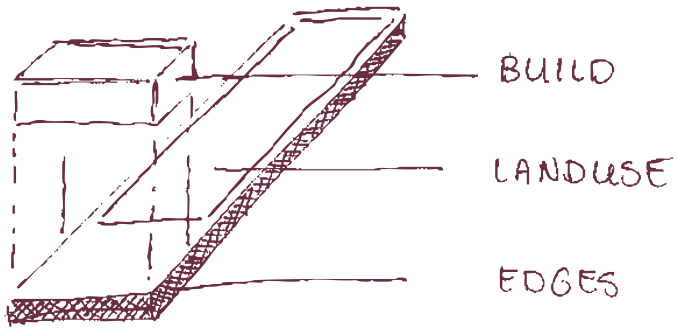
↑ *Twee breed tuin*, two wide nursery. With a path in the middle

Figure 11.
Nurseries
Note. Adapted from *Coniferen plantgoed in kweektray* by A. Buitenhuis, 2023

↑ A former narrow plot structure where the ditches have been removed to create a broader and more efficient nursery.

← *The northern edge of Boskoop, where the meadow landscape near Alphen aan den Rijn transitions into the characteristic plot structure of Boskoop.*

Figure 12.
The nursery edge
Note. Adapted from *Toegangswetering* by A. Spruijt, 2022, Boskoop in beeld.



The plot

Categorization

As Boskoop has a structured, almost mathematical landscape, the plots can be categorized. As the plots are often structured in a similar way. Almost all plots have some type of building along the road, a connection to this road over the water a type of edging of the plot and a type of land use often related to horticulture. Together these elements form the characteristic spatial structure of Boskoop.

While Boskoop still remains a living landscape and not all plots follow the same measurement or categories. The simplification helps us to better understand the characteristics of Boskoop as Habitat.

LAND USE

Open field cultivation
"*Volle grond teelt*"

This is the oldest way of cultivating in this landscape. Plants are grown directly in the peat soil, often larger species such as shrubs. Because the cultivation stays connected to the wet soil, the plants have to tolerate the wet soil conditions. At the same time, this direct connection with the peat means that irrigation is often barely needed.

Container field cultivation
"*potten*"

This type of cultivation emerged to increase efficiency and control over the growing conditions. A layer of sand is placed over the peat and covered with plastic, and on top, smaller plants in pots are grown. Because the cultivation is disconnected from the wet soil beneath them, they rely on irrigation systems for water. Water basins are spread out throughout the area for this purpose.

Raised container cultivation
"potten"

In this cultivation type, plants are grown in pots on movable tables. These stables stand on raised structures, allowing them to be easily transported and accessible. The cultivation fields are often covered with additional structures that protect the plants from wind and sunburn. Like container field cultivation, this method is fully dependent on irrigation systems because the plants are no longer connected to the peat soil itself.

Grassland

As nurseries struggle to compete within the global market, some growers stop cultivating or are not continued by the next generation. Searching for a form of land use that requires easy maintenance, more and more former nursery plots are transformed into grassland. This results in the sight of cows grazing between the remaining nurseries, revealing the transformation of Boskoop's horticultural landscape.

BUILD

Pile supported foundation

Many houses in Boskoop and on the peat soils more generally, have to be supported by pile foundations. Before a building can be placed, piles are driven into the ground reaching the more stable sand layer underneath. The piled buildings are often recognizable by small stairs at the entrance, as the garden ground continues to subside while the building itself remains in place.

Pile supported foundation

After a while, the foundation can start to shift, resulting in houses sinking crooked. This can lead to cracks in the structure of the building.

Floating

At the Otweg, along an inlet of the Gouwe, several houseboats are located. Although this is not a common way of building in Boskoop, it suits the wet conditions of the landscape.

CONNECTIONS

Draw bridges

Draw bridges can be seen throughout Boskoop . They are used to connect plots to the road, but also as part of the main infrastructure. and is not only used to connect plots to the road but also over the main infrastructure. These bridges work with a lifting system, allowing the bridge to open and close and let boats through.

Swing bridge

A swing bridge uses a turning movement. It can be rotated inwards onto the land, allowing access over the water when needed. These bridges are often used on a smaller scale, as they require less technical construction than a drawbridge.

Fixed bridge

Fixed bridges are also used throughout Boskoop. They are used in places where passage through the water infrastructure is not necessary. In current times, this applies to many places, and thus, fixed bridges are used more and more. They can be made of wood, concrete, or other materials.

Dam

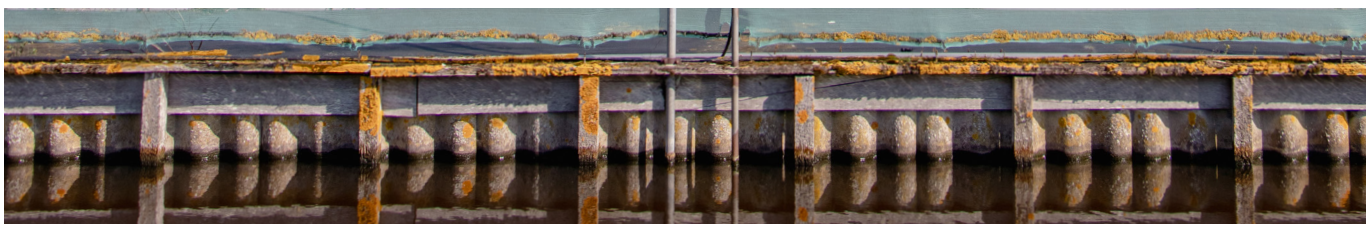
In places where the water does not have, or no longer has, a connective function, dams can also be used to connect the plot and the road. A culvert is often placed within these dams, allowing water to flow through.

EDGES

↑ *Natural edge*

↑ *Natural embankment*

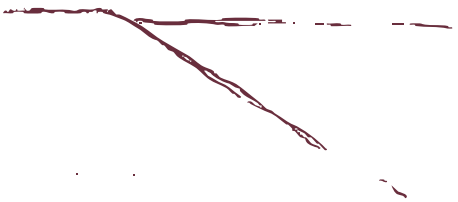
↑ *Wooden Schoeiing*



↑ *Schoeiing with corrugated scheets*

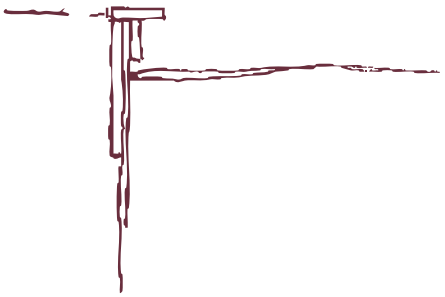
Natural edge

Because there are many small plots in Boskoop, there are also many edges. While the natural shape of these edges is quite unique in Boskoop, they are still present in some of the meadows. When planted with trees or vegetation, a natural embankment is formed, which helps against erosion of the drained peat.



Schoeiing (bank protection)

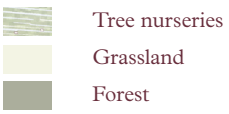
To maintain the strict plot pattern of Boskoop and allow efficient use of the plots, edge protection is required. Most edges in Boskoop are protected with *schoeiing*. Traditionally, this was done with wooden constructions. Over time, more industrial materials such as corrugated sheets and plastic poles have increasingly been used to strengthen and stabilize the edges.



HABITAT
3.4 Habitat structures

Habitat structures -
Land use

The habitation elements identified in the previous sub-chapter come together in habitation structures. These structures are bigger patterns that can be identified in Boskoop's landscape. As stated before, Boskoop's identity is strongly built around horticulture. This is also visible in the land use map, where horticulture can be seen as the main land use within the area. At the boundaries of Boskoop, the land use abruptly changes into grassland, showing how specific the horticultural landscape is for Boskoop.



Map 11.
Habitat structures - land use
Note. Based on TOP10NL by Kadaster, 2026.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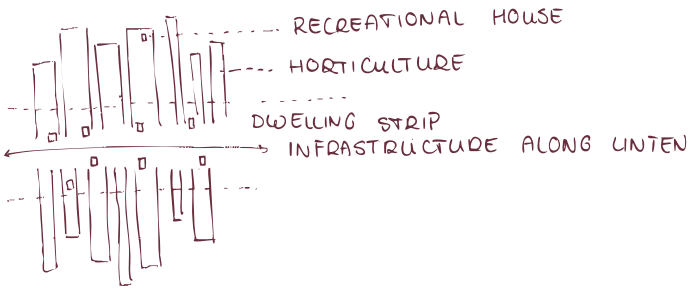

Habitat structures -
Build

The buildings in Boskoop are quite spread out over the area. Boskoop does not have many typical neighbourhoods, apart from the Snijdelwijk and some smaller neighbourhoods around the centre. Most of the housing is concentrated along the *linten*. Because the nurseries are relatively small, many growers could live close to each other along these roads. This results in built and lively roads, while the nursery fields remain open. This contrast between built *linten* and open nursery fields can be identified as one of the main spatial qualities of Boskoop.

⟷ New *linten*
⟷ Old *linten*

Map 12.
Habitat structures - build
Note. Based on TOP10NL by Kadaster, 2026.
and Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.


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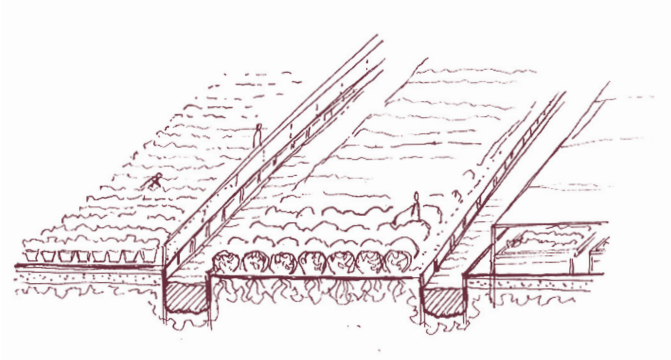
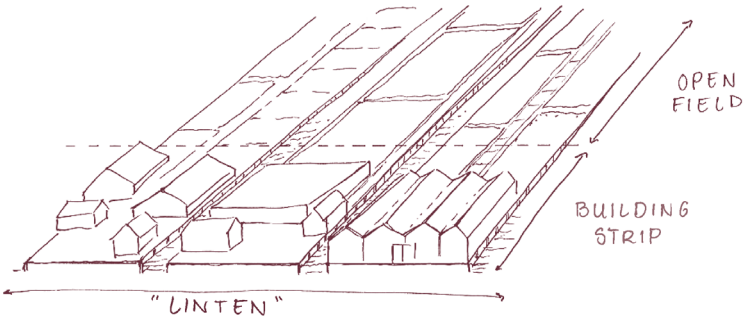
HABITAT
3.5 Qualities

Qualities -
Horticultural habitation



Looking at the structures and elements that together form Boskoop as a habitat, two main qualities emerge. One is that habitation in Boskoop really revolves around horticulture. As it is not only the economic revenue model of the area, but it is also embedded into the social and even the spatial structure of the area. This way of horticultural habitation should be facilitated in the future landscape of Boskoop.

Qualities -
Spatial habitat structure



The translation of horticulture into space mainly happens through the concentration of buildings along the *linten*. While the *linten* remain lively and can be quite densely built, the fields remain open. Allowing for both qualities to exist closely next to each other. When designing for a future landscape of Boskoop These qualities should be taken into account as they embed the design in the current habitat of Boskoop.

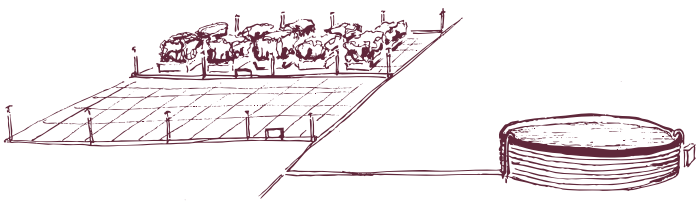
Layers of sand applied to a new building site. ↓

↓ *Drainage of the peat soil by piping.*

Raised horticulture disconnected from the peat soil, with a water basin in the background to supply the irrigation system. ↑

↑ *Houses on de Zijde sand crooked and vibrate when the many cars drive on the busy road.*

Conclusion -
Misalignment



Boskoop has a rich history in which habitation and the peat landscape were closely connected, mainly through horticulture. Where this relationship was once more balanced, it has shifted over the last half century. The increasing focus on efficiency has created a misunderstanding between people and the peat landscape. Boskoops peat landscape is not, and will never be, an efficient landscape. Its limits, but also its opportunities, have to be understood differently.

The horticultural habitation of Boskoop is misaligned with the peat system, meaning that the habitation practices do not align with the ecological functioning of the peat system. Cultivation has become increasingly disconnected from the water system and the peat soil. Through the drainage of soil to facilitate contemporary habitation, houses and roads are continuously subsiding because of peat oxidation. Layers of sand are added to try to do an effort in keeping the land stable; eventually, these layers lead to more compaction of the peat soil. In this way, habitation is more and more imposed onto the landscape, instead of developing in relation to it.

ALIGNING 04

Human habitation with the peat system

In order to design for a possible future, habitation in Boskoop has to be realigned with the peat system. It is important to understand that alignment is not about finding a perfect solution but acknowledging trade-offs and realizing the dependency of human habitation on the ecological system. ALIGNING explores how the peat system can form a framework within which habitation is guided. The landscape architect does not fully determine how the landscape will develop, as landscapes are eventually shaped by the people inhabiting them. Instead, this chapter focuses on establishing the structures, conditions, rules, and regulations that allow habitation to unfold while remaining aligned with the peat system. In a future landscape of Boskoop, the relationship between habitation and the peat will again become the core of its identity.

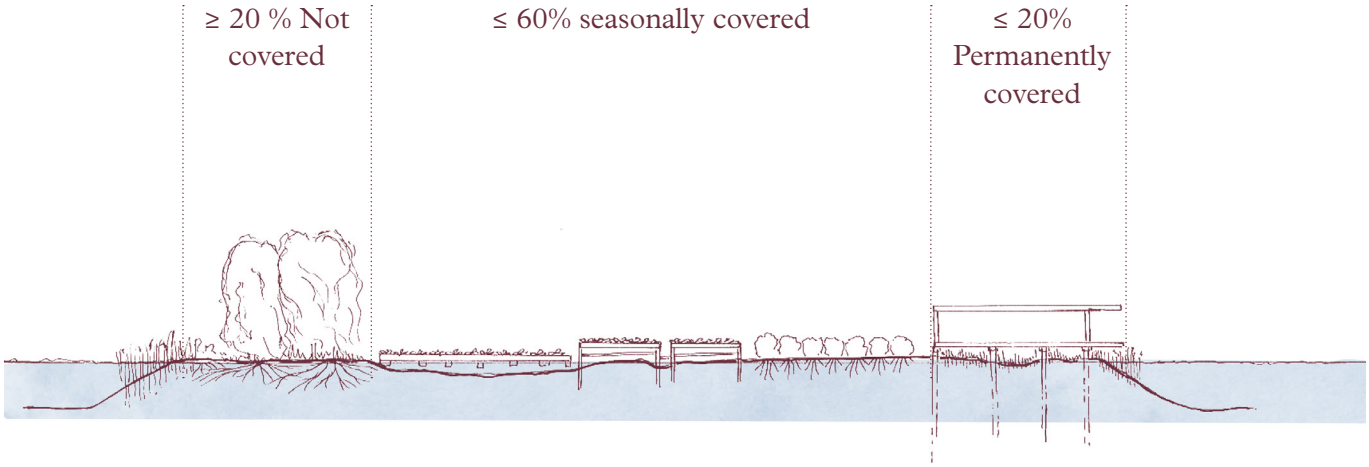
ALIGNING
4.1 A spatial framework

As landscapes are built out of layers of relationships between ecological processes and inhabitants, the landscape architect is only one of many contributors. When designing for a far future and on a large scale, it would thus not be suitable to create a fixed master plan. Processes and systems can not be fully designed, as this would not suit the dynamics of the landscape and the people inhabiting it. Next to that, the strongest places often emerge through a certain degree of spontaneity. A place where people shape the landscape, and the landscape shapes people in return. This project therefore works with a framework, something that gives direction without fully designing the outcome. In this project, the direction means moving towards a landscape where habitation can be sustained over time.

The framework is derived from the analysis of Boskoop as a peat landscape and Boskoop as a habitat. As ecological functioning is necessary to sustain future habitation, the ecological interventions form the basis. These are complemented by habitation guidelines, which build upon the existing qualities of Boskoop and help maintain its identity.

The framework consists of two layers. The first layer is formed by rules and regulations, applied at the scale of the plot and thus often by the inhabitants themselves. The second layer consists of conditions and structures, applied at the scale of the village. These interventions are implemented by governance, mainly the municipality or water board, in collaboration with landscape architects and other experts.

ALIGNING
4.2 Peat functioning



ENSURE PEAT FUNCTIONING

Raising the water level is the main intervention to ensure peat functioning; this is done at the level of the landscape. Multiple scenarios were tested: raising the water level per polder or combining the polders into one polder. While the last approach aligns with the ambition of creating a more self-functioning peat system, fewer areas remain within the optimal groundwater range. Eventually, the polders are simplified, and thus the two scenarios are combined.

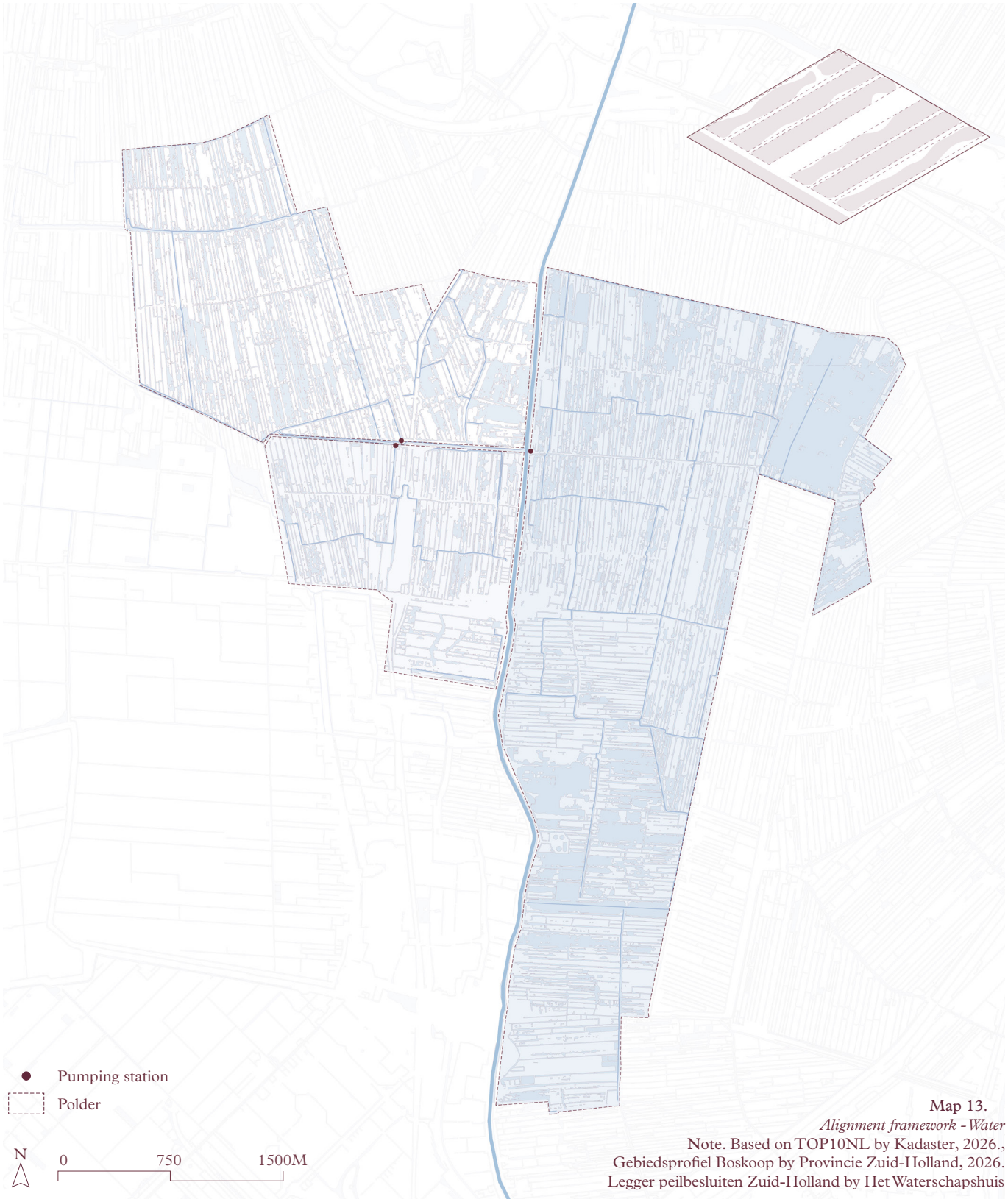
To ensure the peat functioning further peat has to breathe, and thus the plots have to be adapted. Less than 20% has to be permanently covered, meaning structures that are at least 50 cm raised above ground level. 60% of the plot can be seasonally covered, meaning that raised or floating horticulture can happen in one specific spot in one year. This horticulture then has to move, giving the landscape time to adapt. 20% of the plot should always be open wetland.

Rules and regulations - Inhabitants

- ≤ 60% seasonally covered
- ≤ 20% Permanently covered
- ≥ 20 % Not covered
- No extra sand
- No foil covering the soil

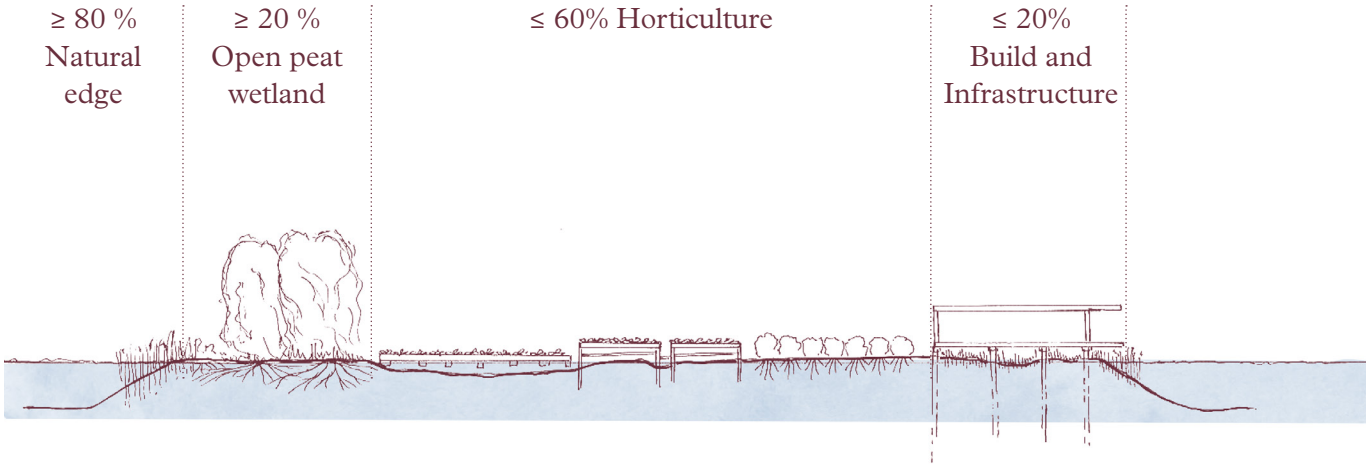
Structures and conditions - Municipality

- Raise water level 27 cm



Map 13.
Alignment framework - Water
Note. Based on TOP10NL by Kadaster, 2026.,
Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.
Legger peilbesluiten Zuid-Holland by Het Waterschapshuis

ALIGNING
4.3 Biological diversity



DESIGN FOR BIOLOGICAL DIVERSITY

To strengthen biodiversity in the area, two main interventions on the scale of the plot are proposed. The first is the creation of natural edges. By transforming the many plot edges of Boskoop into gradual transitions, these can start to function as ecological gradients. Secondly, to stimulate the creation of different biotopes, no more than 60% of the plot should be used for horticultural practices, while at least 20% should be open peat wetland.

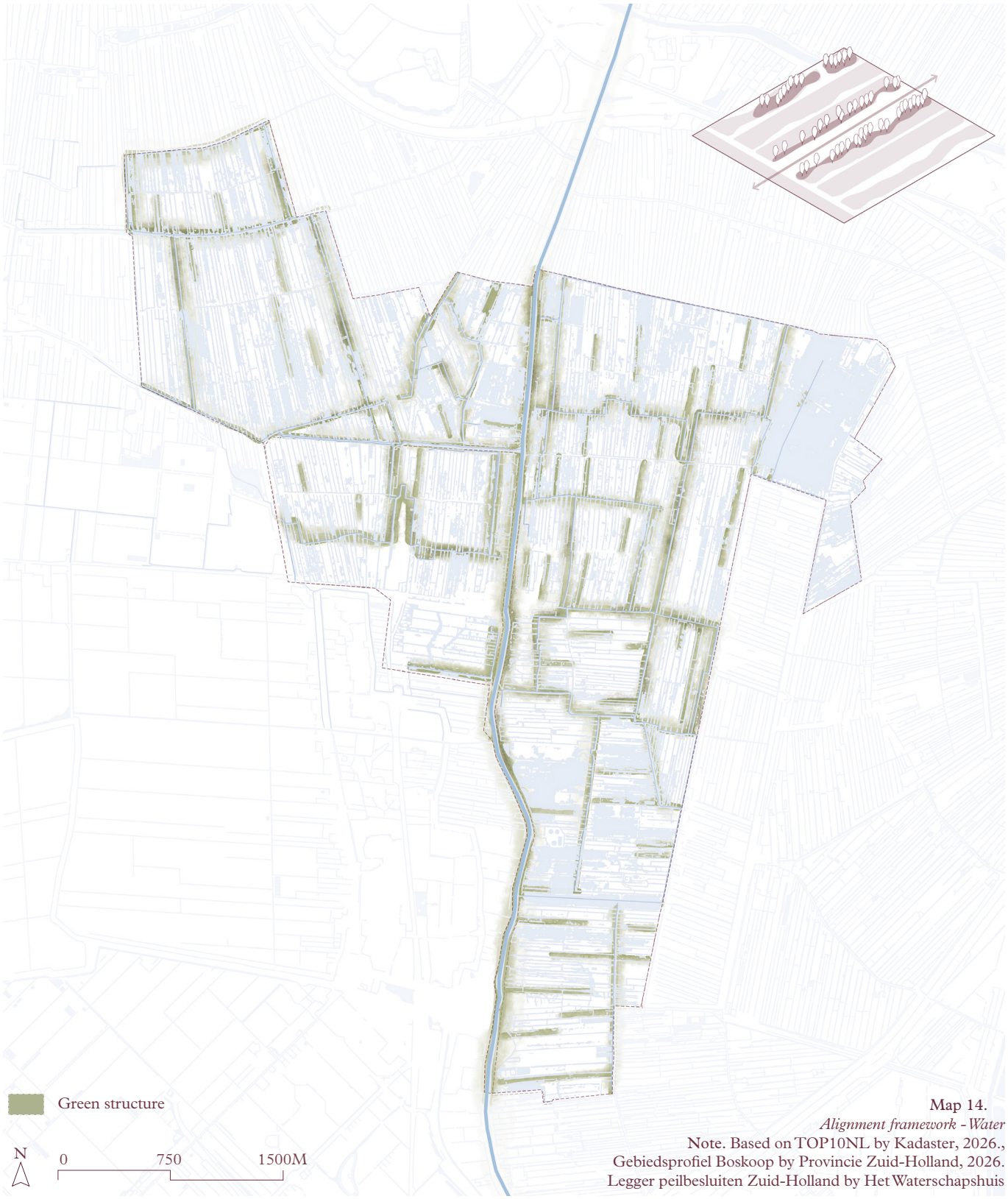
To connect these different biotopes, a larger green structure is implemented. This structure uses the existing water network as the basis for ecological connection. To further strengthen this structure, some vacant plots are transformed into *houtakkers*. These are traditional landscape elements of Boskoop, but also create valuable habitats and variation within the future landscape.

Rules and regulations - Inhabitants

- ≥ 80% Natural edges
- ≤ 60% Horticulture
- ≤ 20% Build and infrastructure
- ≥ 20% Open peat wetland

Structures and conditions - Municipality

- Create green structure through the area
- Transform some plots into *Houtakkers*

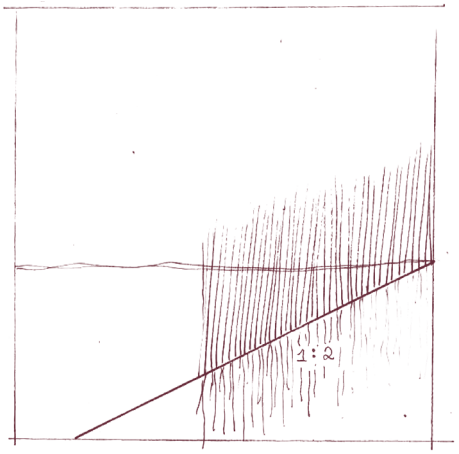


Map 14.
Alignment framework - Water
Note. Based on TOP10NL by Kadaster, 2026.,
Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.
Legger peilbesluiten Zuid-Holland by Het Waterschapshuis

NATURAL EDGES

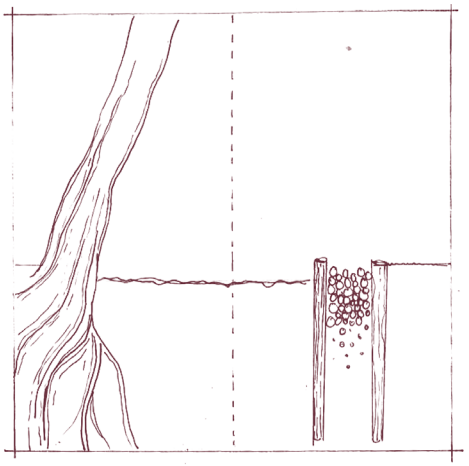
To create gradients in the area the many wateredges of Boskoop are used. A mininal slope of 1:2 is needed to ensure the growth is edge plants and the allowance of animals to transfer from water to land (Verhagen & Vossen, 2009).

≥80% natural edge



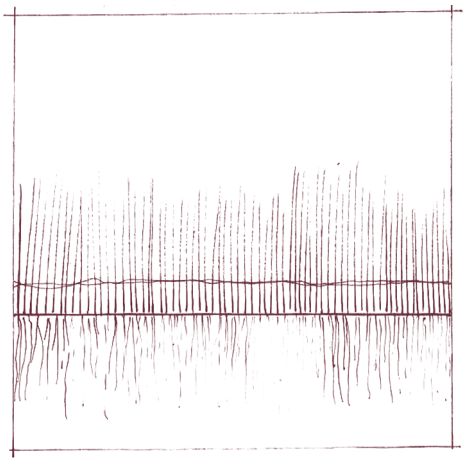
If a slope of minimal 1:2 is not possible other types of natural embankment can be used, allowing a steeper edge while still giving space to different flora and fauna. For these edges willows could be used produced in the area.

≤20% natural embankment

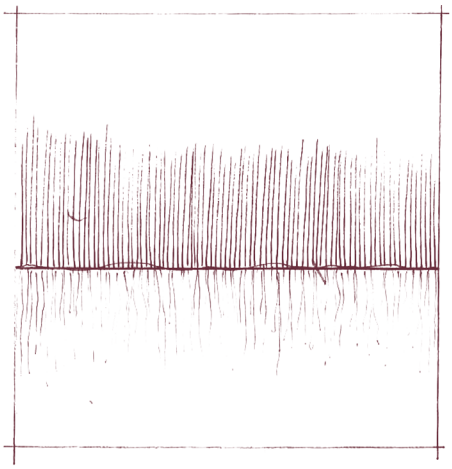


Another way to increase biodiversity on the edges is by the introduction of *plasbermen* or *drasbermen*. With the water level raise these will naturally develop through the area. These places have a reinforcing effect on biodiversity (Verhagen & Vossen, 2009).

plasberm



drasberm



FLORA AND THE NATURAL EDGE

Ceratophyllum demersum (Grof Hoornblad)

OPEN WATER

Nymphaea alba (Witte Waterlelie)
Nuphar lutea (Gele plomp)

DEEP MARSH

Typha latifolia (Grote Lisdodde)
Phragmites australis (Riet)

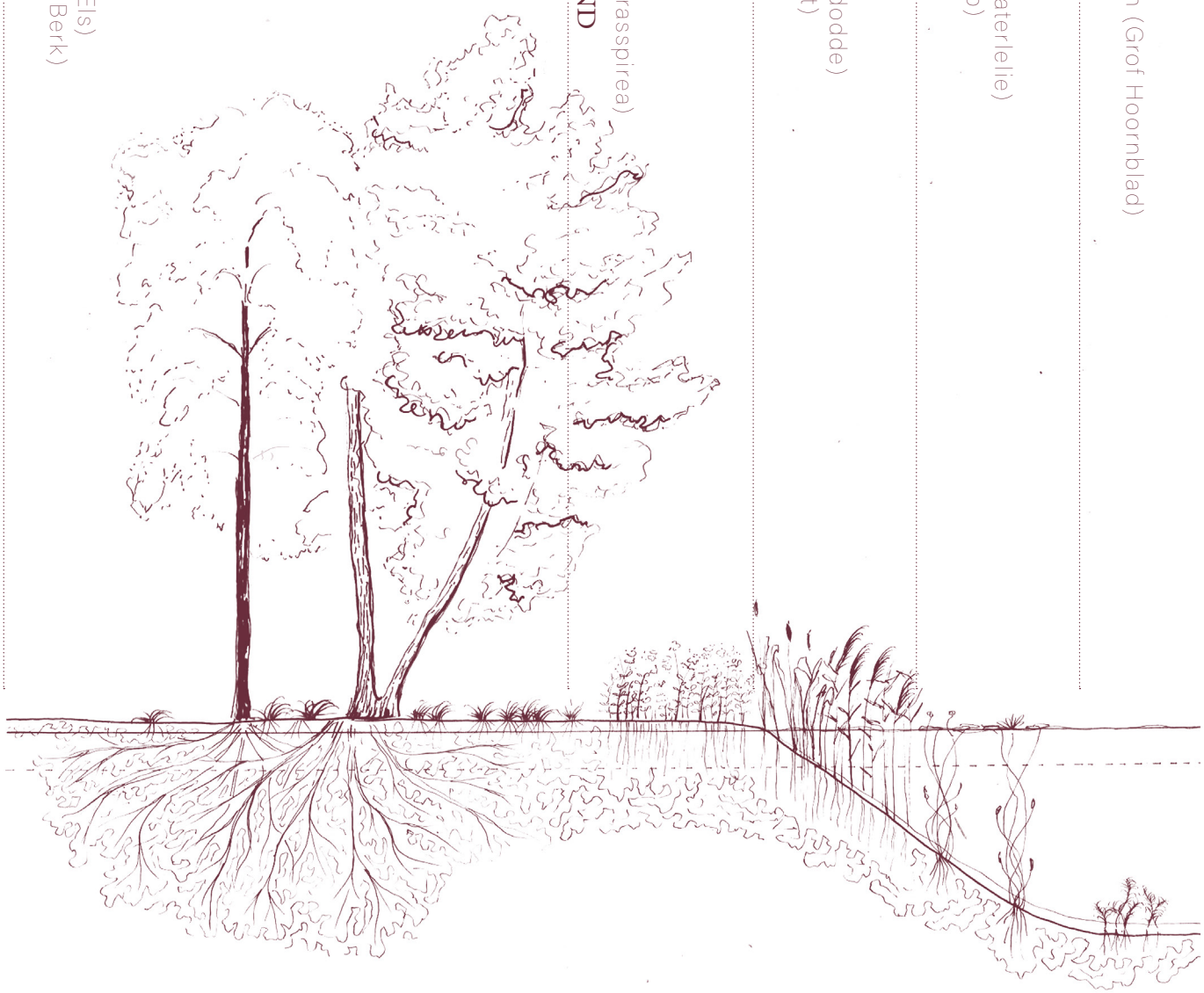
SHALLOW MARSH

Filipendula ulmaria (Moerasspirea)

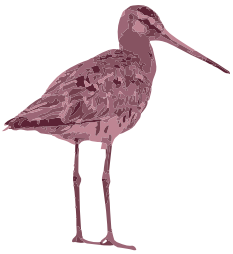
HERB RICH GRASSLAND

Alnus glutinosa (Zwarte Els)
Betula pubescens (Ruwe Berk)

WETLAND FOREST

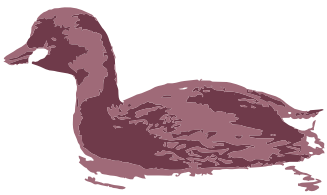


Sorex araneus Linnaeus
(Gewone bosspitsmuis)



Limosa limosa
(Grutto)

Pyrrhosoma nymphula
(Vuurjuffer)



Tachybaptus ruficollis
(Dodaars)

Lutra lutra
(Otter)

Introduction of more natural edges in the area will not only create space for different flora, it also results in the presence of different species in the area. A big diversity of species tells us something about the functioning of the ecosystem.

FAUNA AND THE NATURAL EDGE

Lutra lutra (Otter)

OPEN WATER

Tachybaptus ruficollis (Dodaars)

DEEP MARSH

Pyrrhosoma nymphula (Vuurjuffer)

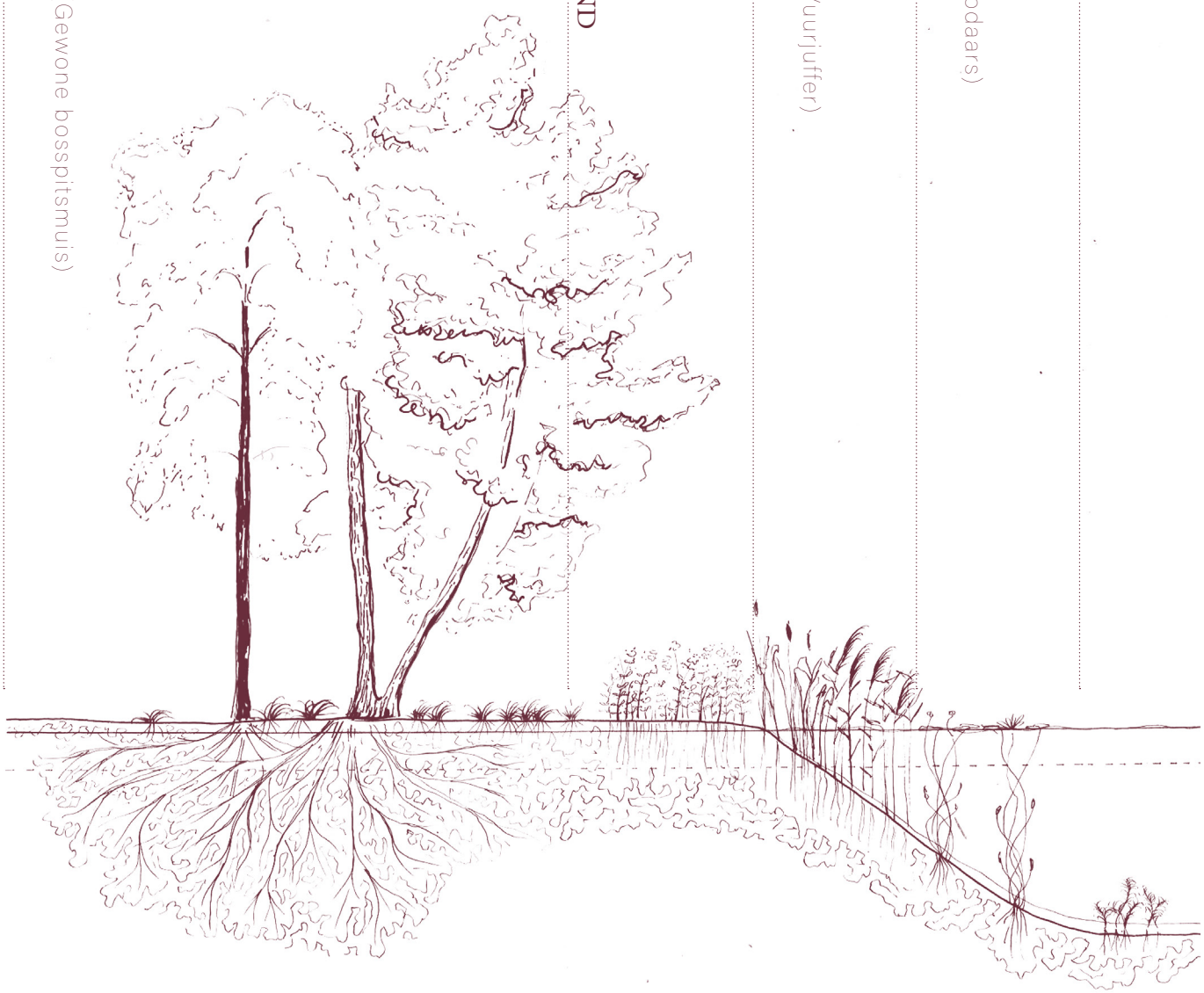
SHALLOW MARSH

Limosa limosa (Grutto)

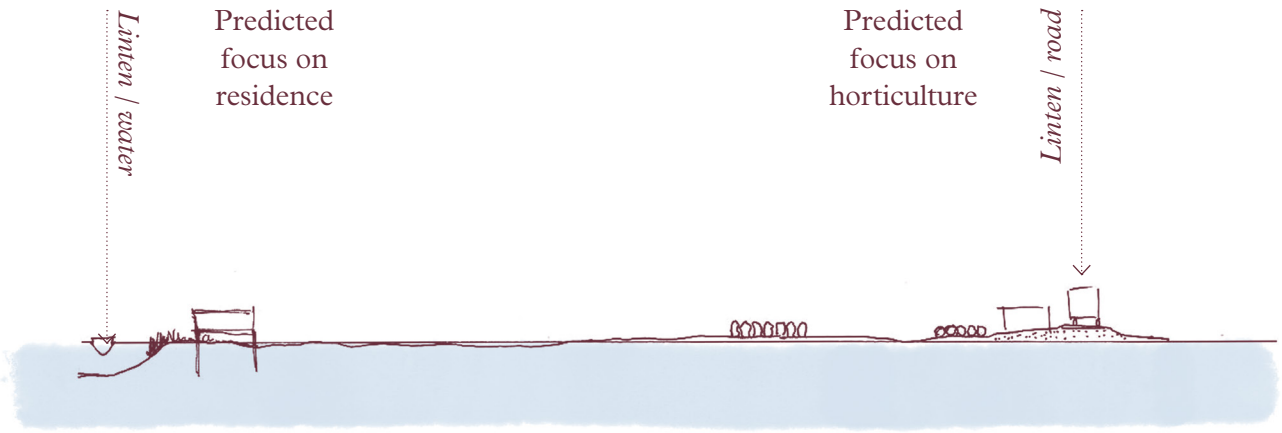
HERB RICH GRASSLAND

Sorex araneus Linnaeus (Gewone bosspitsmuis)

WETLAND FOREST



ALIGNING
4.4 The horticultural identity



FACILITATING HORTICULTURE

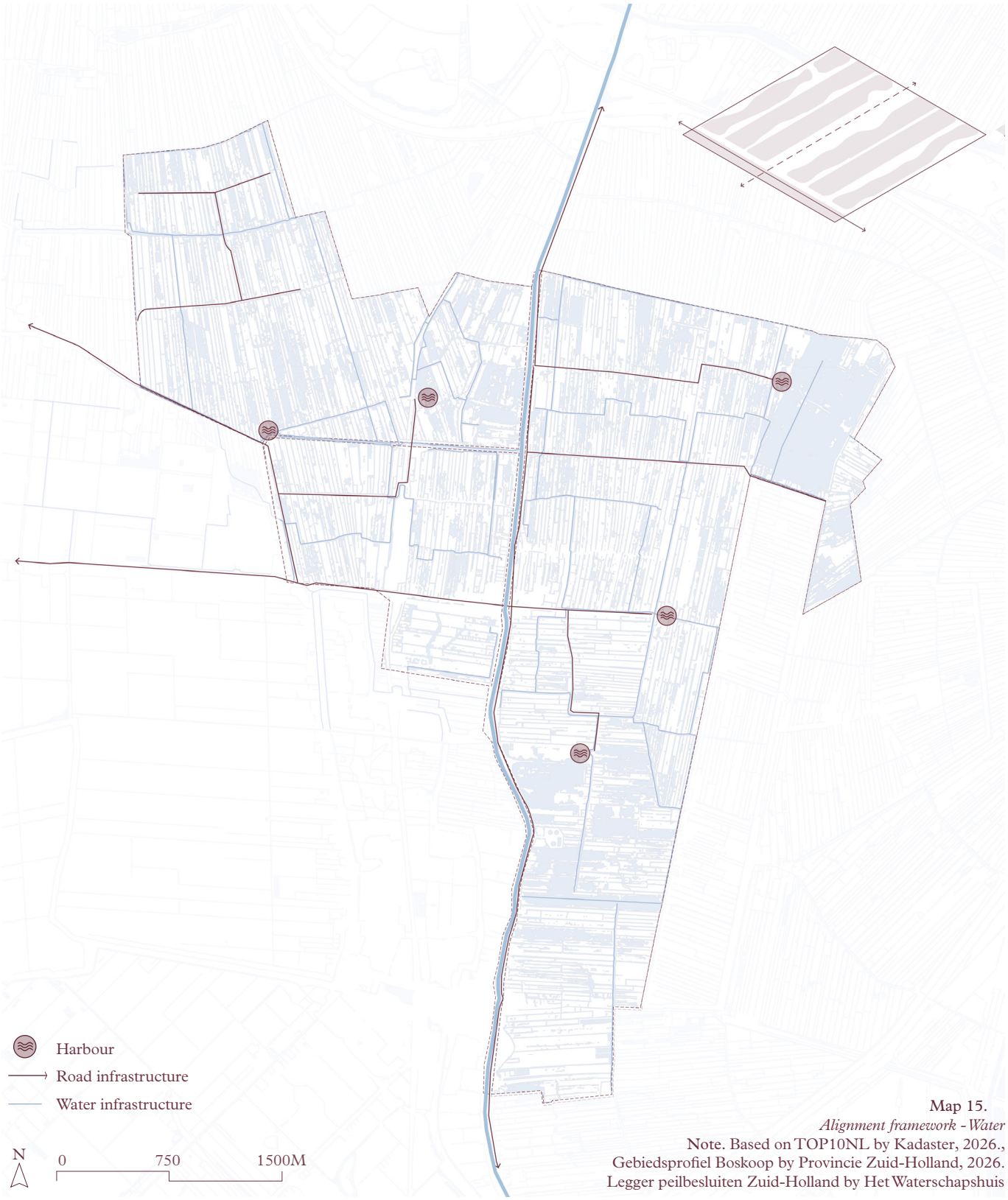
As horticulture is deeply embedded in the identity of Boskoop, a possible future landscape should facilitate this form of habitation. Horticulture depends on the trading and transport of plants, and therefore on infrastructure. This infrastructure is not only needed to export plants, its also used to invite people into the area. This way, horticulture can remain more than only the economic model of Boskoop.

Because the future landscape of Boskoop will have to deal with much wetter conditions, some connections have to be replaced with water infrastructure, allowing the whole area to remain accessible. To make this system work, a harbour is needed as a transition point between road and water. While water infrastructure can support movement in the area, it can handle larger-scale export. Therefore, these types of horticultural practices are expected to remain concentrated around the road infrastructure that lies above the future water level and can continue to be used.

Rules and regulations - Inhabitants

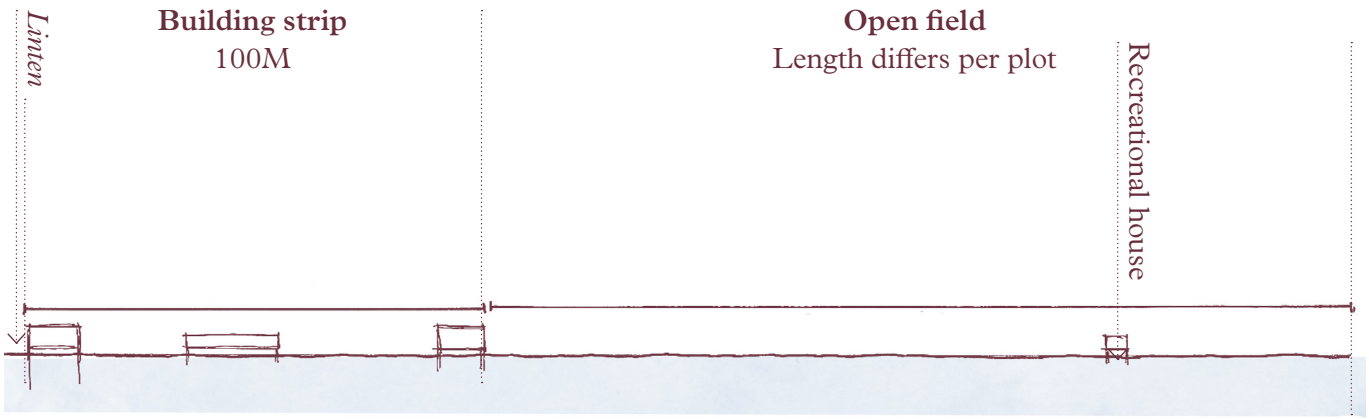
Structures and conditions - Municipality

- Implement water infrastructure
- Create bridges, the harbour and parking place



Map 15.
Alignment framework - Water
Note. Based on TOP10NL by Kadaster, 2026.,
Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.
Legger peilbesluiten Zuid-Holland by Het Waterschapshuis

ALIGNING
4.5 Building strips



PRESERVE SPATIAL QUALITY

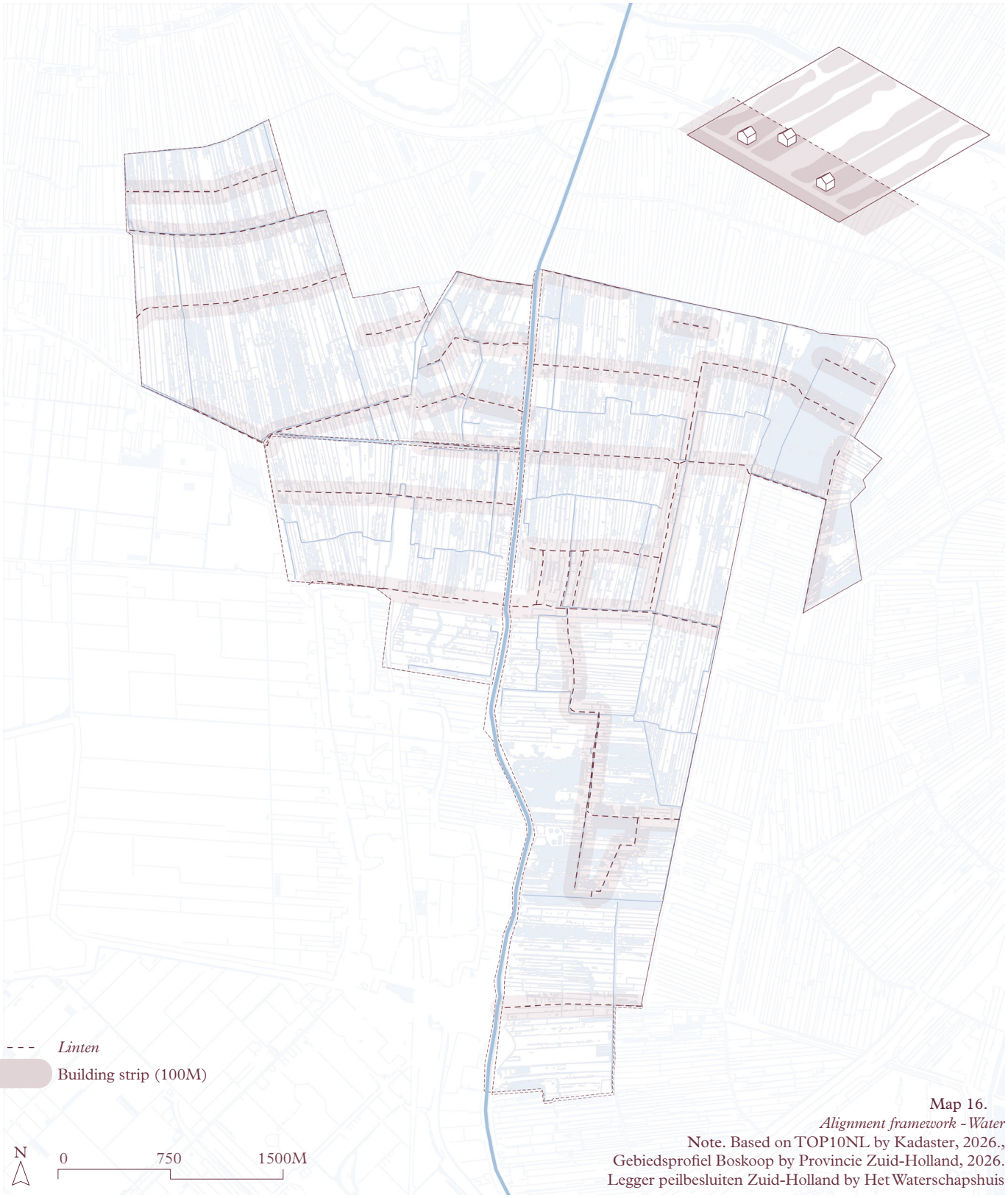
In order to maintain the current spatial quality of the area, the structure of the concentrating buildings along the *linten* is continued and strengthened in the future design. By setting a building strip with the limit of 100 metres of the existing *linten*, the roads will remain lively and can remain while the fields stay open. Within these open fields, small recreational houses of less than 50 square metres are allowed. Making it possible to experience the wet landscape more closely without disturbing the larger spatial structure.

Rules and regulations - Inhabitants

- Build in the building strip.
  Only small recreational buildings
  (≤50m² with recreational function)
  are allowed elsewhere on the plot

Structures and conditions - Municipality

- Building strips

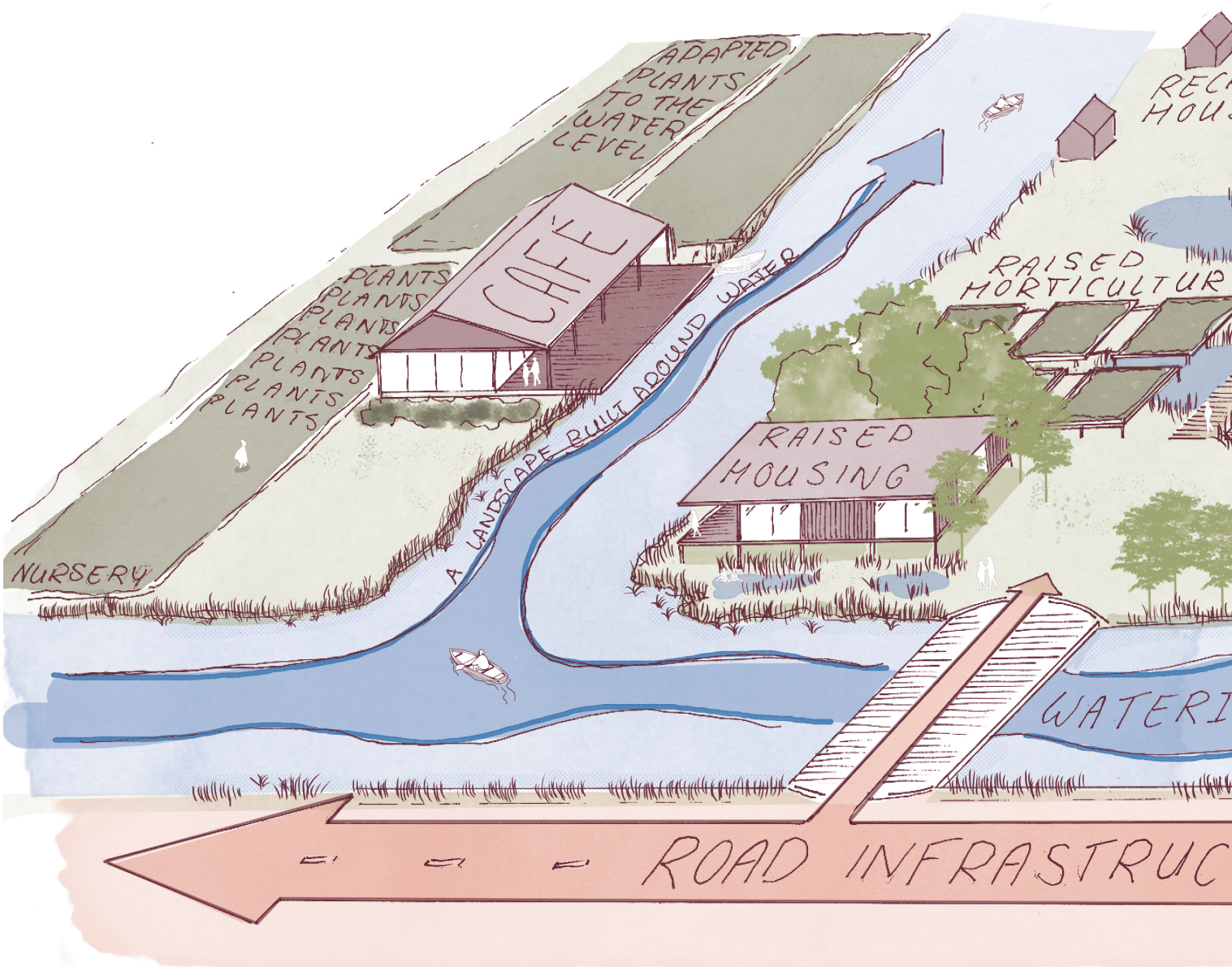


Map 16.
Alignment framework - Water
Note. Based on TOP10NL by Kadaster, 2026.,
Gebiedsprofiel Boskoop by Provincie Zuid-Holland, 2026.
Legger peilbesluiten Zuid-Holland by Het Waterschapshuis

THE FRAMEWORK OF ALIGNMENT

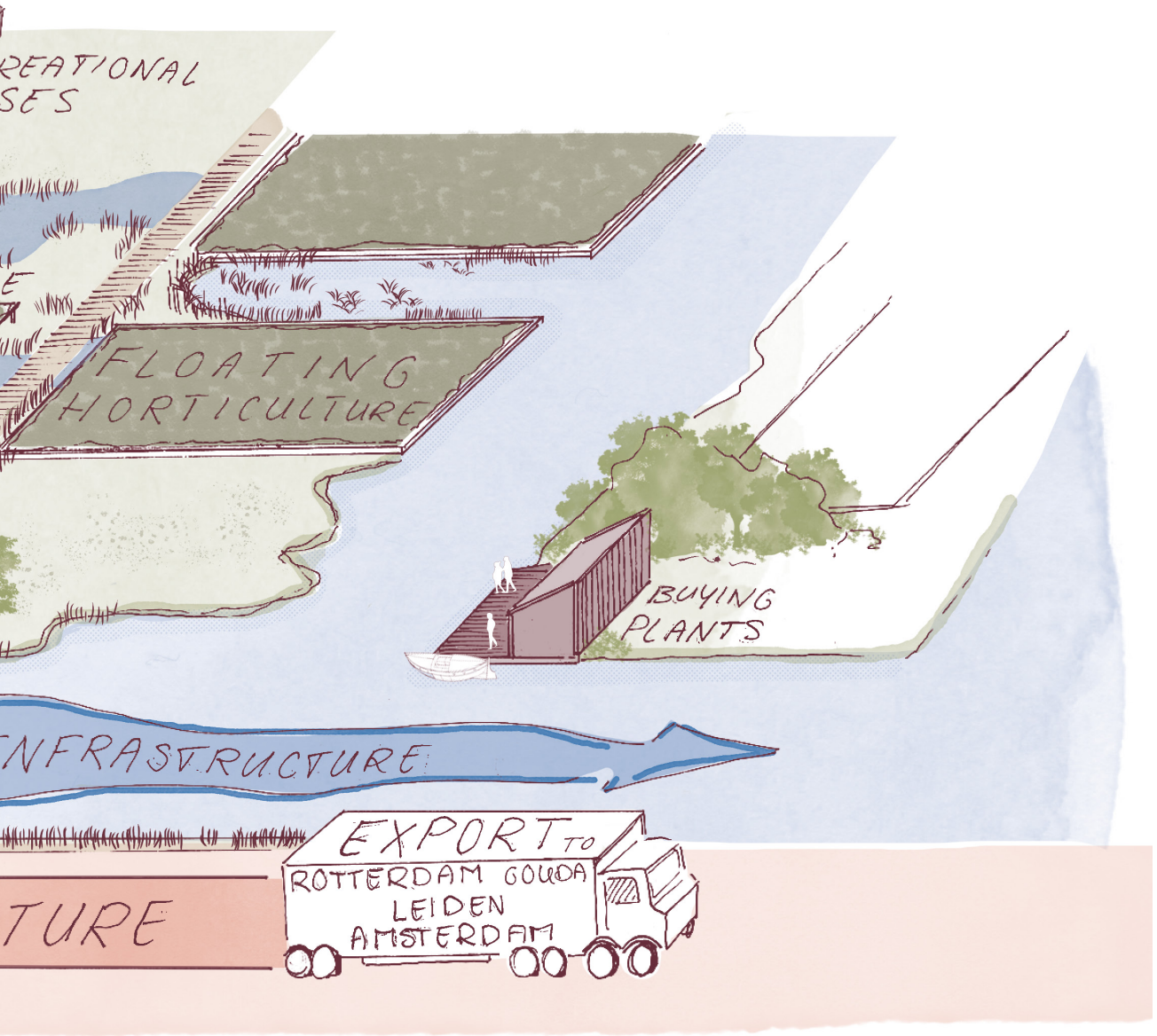
Combining the layers of alignment to the scale of Boskoop, the framework of alignment is formed. Map 17 illustrates the framework on village scale formed through the combination of structures and conditions. The rules and regulations will be applied on the plot scale and thus are not visible on a big scale. Together these form the collective framework of alignment. Which guide habitation that can unfold within It is important to state that this is designed on the scale of the village and thus designed with a certain level of uncertainty. To strengthen the framework adapting habitation should be tested.

Map 17.
Alignment framework


ADAPTED PLANTS TO THE WATER LEVEL
CAFE
PLANTS PLANTS PLANTS PLANTS PLANTS PLANTS PLANTS
NURSERY
A LANDSCAPE BUILT AROUND WATER
RAISED HOUSING
RAISED HORTICULTUR
WATERI
ROAD INFRASTRUC

When applying the framework to Boskoop, the future landscape could get a whole new perspective. By becoming a cooperative water landscape boskoop can partially depend on its water infrastructure. By growing plants suited to the wet conditions, it can reinvent its horticultural identity. These plants could be bought by people visiting the area because of its ecological and cultural valuable landscape. Or traded with surrounding municipalities that deal with similar soil conditions. In this way, Boskoop could become specialized in the greening of inhabited wetlands across the Netherlands.

This perspective creates opportunities beyond production alone. Nursers could develop additional activities such as bed and breakfasts, tea garden or educational routing for the people visiting the area. At the same time, the wet landscape could attract inhabitants who want to live in a landscape where water is part of daily life. In this way, the relationship between people and the peat becomes the core of Boskoops identity again.



ADAPTING 05

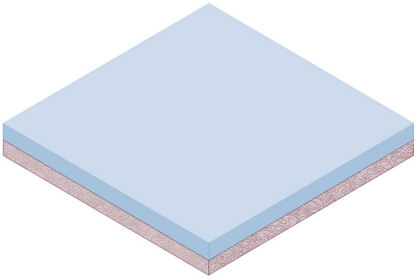
Peat habitation

The wet conditions set by the alignment framework require different elements of habitation to adapt. Adaptation is more than a limitation; it offers new possibilities for how people can live, cultivate, and move through the new landscape. As wet conditions are not unique for Boskoop, precedents from other similar landscapes will offer strategies or techniques to deal with specific challenges. While every inhabitant will respond differently to the conditions, a number of main strategies can be identified. ADAPTING explores a direction on how different elements of habitation can adapt to the peat landscape.

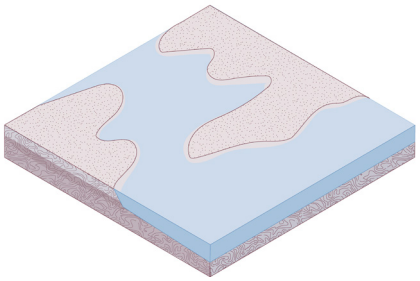
ADAPTING
5.1 Habitation

Raising the water level is the main intervention of the alignment framework. It also has the strongest influence on the landscape and therefore requires the most adaptation. The conditions that this intervention creates can be abstracted into three categories: wet, marshy, and moist. The wet condition refers to land that is fully submerged. The marshy condition is a land that has both shallow puddles and drier land. The moist condition is the driest of the three, but is still wetter than the landscape as we know it today.

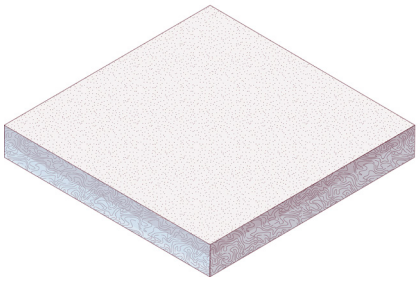
This new landscape can still be inhabited and could actually offer a much more rewarding way of living with the landscape. However, the way we inhabit them has to change. To understand this adaptation, this chapter looks at three important elements of habitation in Boskoop and explores how each of them could respond to wet, marshy, and moist conditions.



WET



MARSHY



MOIST

ADAPTING
5.2 Productive land use

As habitation of Boskoop is built around horticulture, many inhabitants are economically connected to productive land use. While this current way of inhabiting the landscape does not suit the landscape, productive land use has to be adapted to the ecological conditions of the landscape. Horticulture can still have a place in the future landscape of Boskoop, but not in the way it is today. Other forms of production may also become part of the landscape. To explore which other forms of land use are suitable for the wet peat landscape, Land van Ons is used as a precedent study.

Land van Ons, Universiteit Leiden

Polderlab Oud-Ade

Figure 13.
Growing rice in the Netherlands
Note. From *Sander in Rijstveld*, n.d., Land van Ons.
and *Rijstoogst Oud Ade* by T. van der Eb, 2023, Leidsch Dagblad

Land van Ons is an initiative that owns several polders in the Netherlands. The initiative conducts research into a more sustainable future for the Dutch polder landscape. The polder is Oud Ade is one of their locations and has a similar peat soil as that of Boskoop, although its main land use is grassland. Experiments on wet condition agriculture are done in the polder, mainly focussing on growing food crops under marshy conditions.

While food production is not the aim of the project in Boskoop, the cultivation techniques of this initiative are relevant. They show how productive land use can be redesigned around higher water levels by introducing species that can tolerate this water level. The polderlab is therefore not a direct reference for cultivation in Boskoop, but this principle can be used.

The initiative can also be a source of inspiration in another way, as the polder functions as a place where inhabitants of the surrounding areas can come and experiment. This principle can be applied in the landscape of Boskoop. By creating a pioneer polder where the water level could be raised earlier in time, inhabitants can research and experiment with adapted ways of cultivation.

WET CONDITIONS

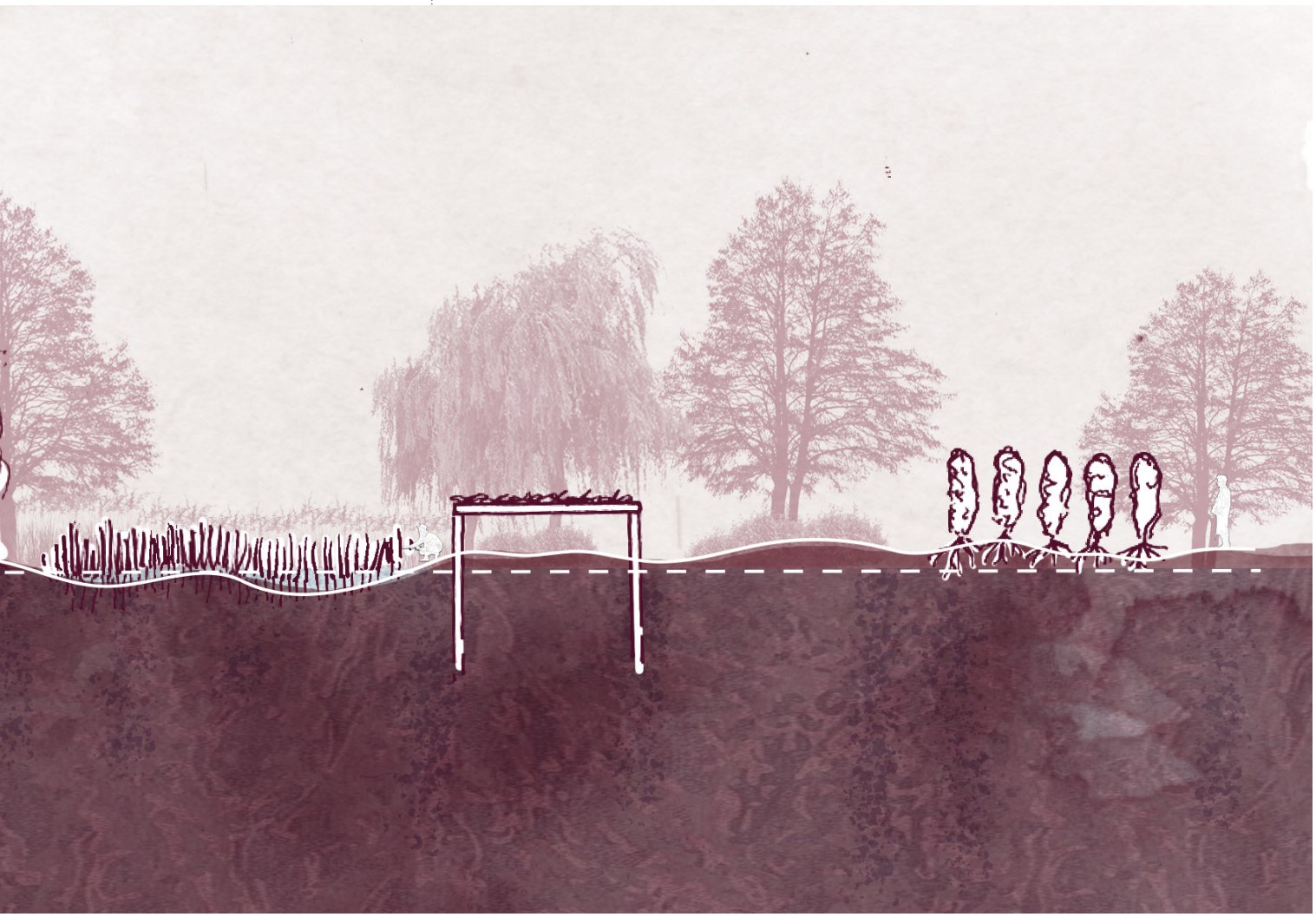
Productive land use adapted by floating horticulture, submerged horticulture and raised horticulture

SWAMPY CONDITIONS

Productive land use adapted by raised horticulture, productive wetland forest, Growing reeds, submerged horticulture

MOIST CONDITIONS

Productive land use can adapt to moist conditions by raised horticulture, or soil connected normal horticulture



ADAPTING
5.3 Infrastructure

The overall infrastructure of the future Boskoop area will be implemented by the municipality on landscape scale level. However on plot scale, inhabitants will have to adapt the infrastructure themselves. The landscape scale infrastructure is based on a dual structure of road and water infrastructure. Thus, the infrastructure on the plots has to be connected to these structures.

Buro Landschap, Tractebel

Fietsbrug Terhills

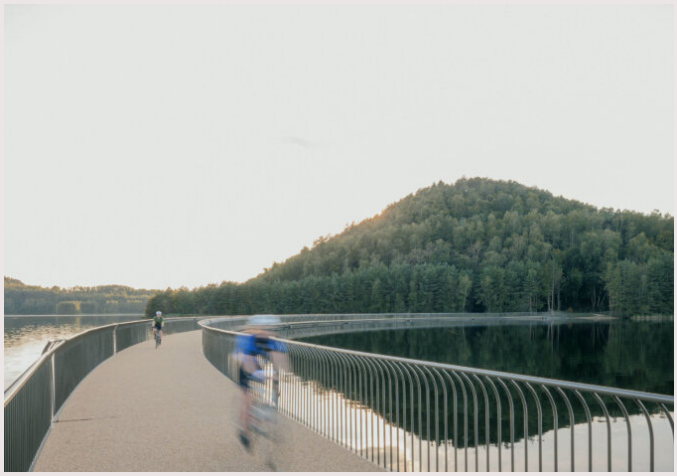


Figure 14.
Cycling bridge
Note. From *Cycling Between Terrils* by P. Rabijns, 2025, Dezeen.

Cycling bridge ter hills is a 380 meters long ponton bridge in an eastern province of belgium. While this big architectural element works really well between the scenic hills. In Boskoop such a big round structure would probably feel out of place. When applying the technique of floating infrastructure, which is a really interesting technique, a more subtle small scale structure would suit the area better.

WET CONDITIONS

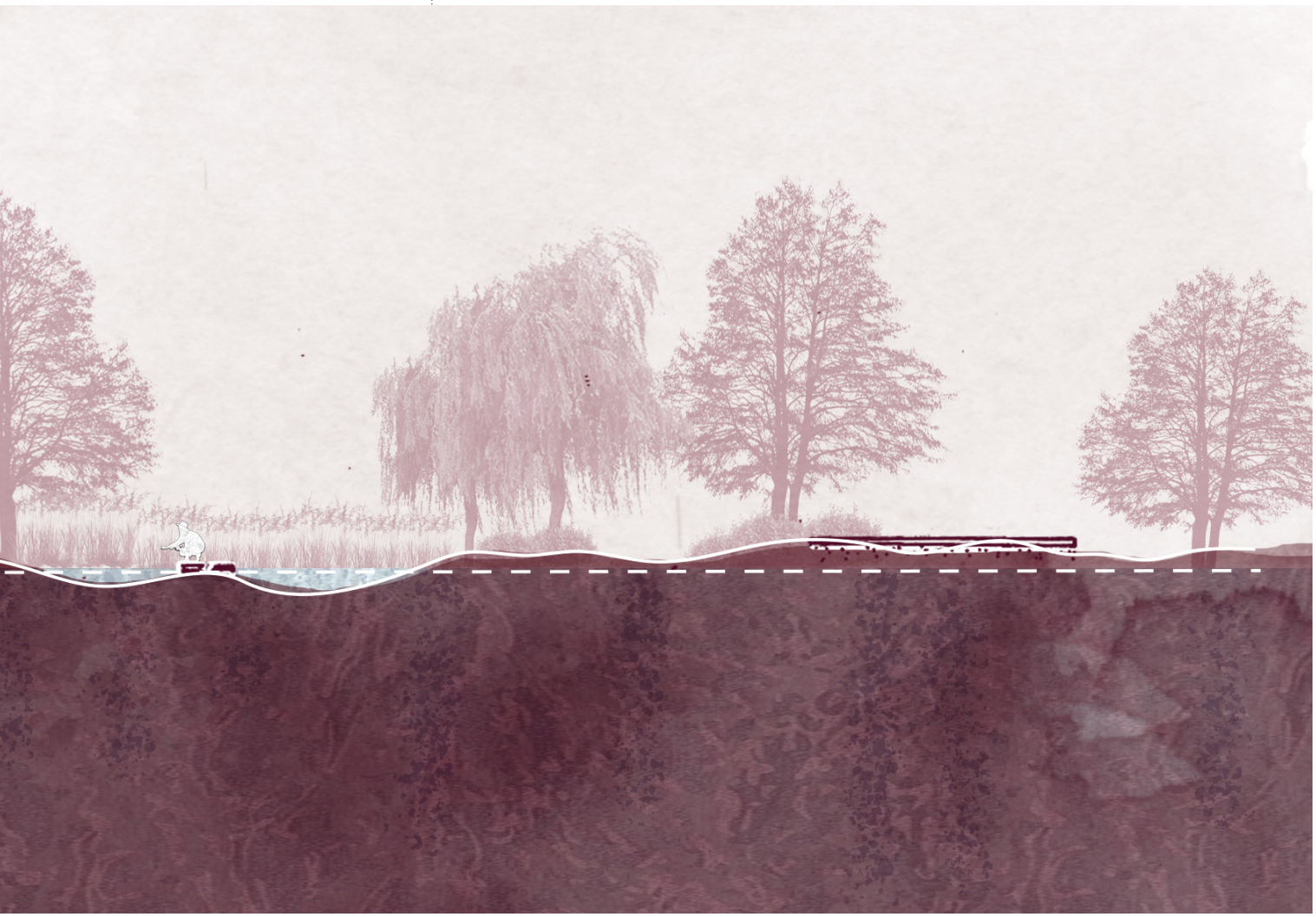
Infrastructure can adapt to wet conditions by shifting to water infrastructure, relying on floating or raised decks.

SWAMPY CONDITIONS

Infrastructure can adapt to swampy conditions by raised decks. Planks through the landscape, or tolerating wet feet.

MOIST CONDITIONS

Infrastructure can adapt to moist conditions by raised decks, paths through the landscape or old infrastructure that is still located high enough to be used.



ADAPTING
5.2 Build

Buildings in the area also need to be adapted to the new conditions. These buildings are both residential building but also sheds and greenhouses. These structures can be adapted by using the same techniques used in the previous adaptations.

Bosch&Slabbers, Kolpa Architecten

Park de Reeuwijkse plassen

Figure 15.
Raised houses on the peat
Note. From *Verblijfsrecreatie Reeuwijkse Hout*, 2016, Boschslabbers.

Park de Reeuwijkse plassen is a vacation park located in Reeuwijk, close to Boskoop. The park has a similar landscape, as it is also located on peat soil. The interesting thing about this project for me is the architecture and the way the houses are raised above the landscape. All houses have covered decks, creating the feeling of an outside space without having a fully usable garden. This aspect of the design is something that can also be implemented in the future landscape of Boskoop.

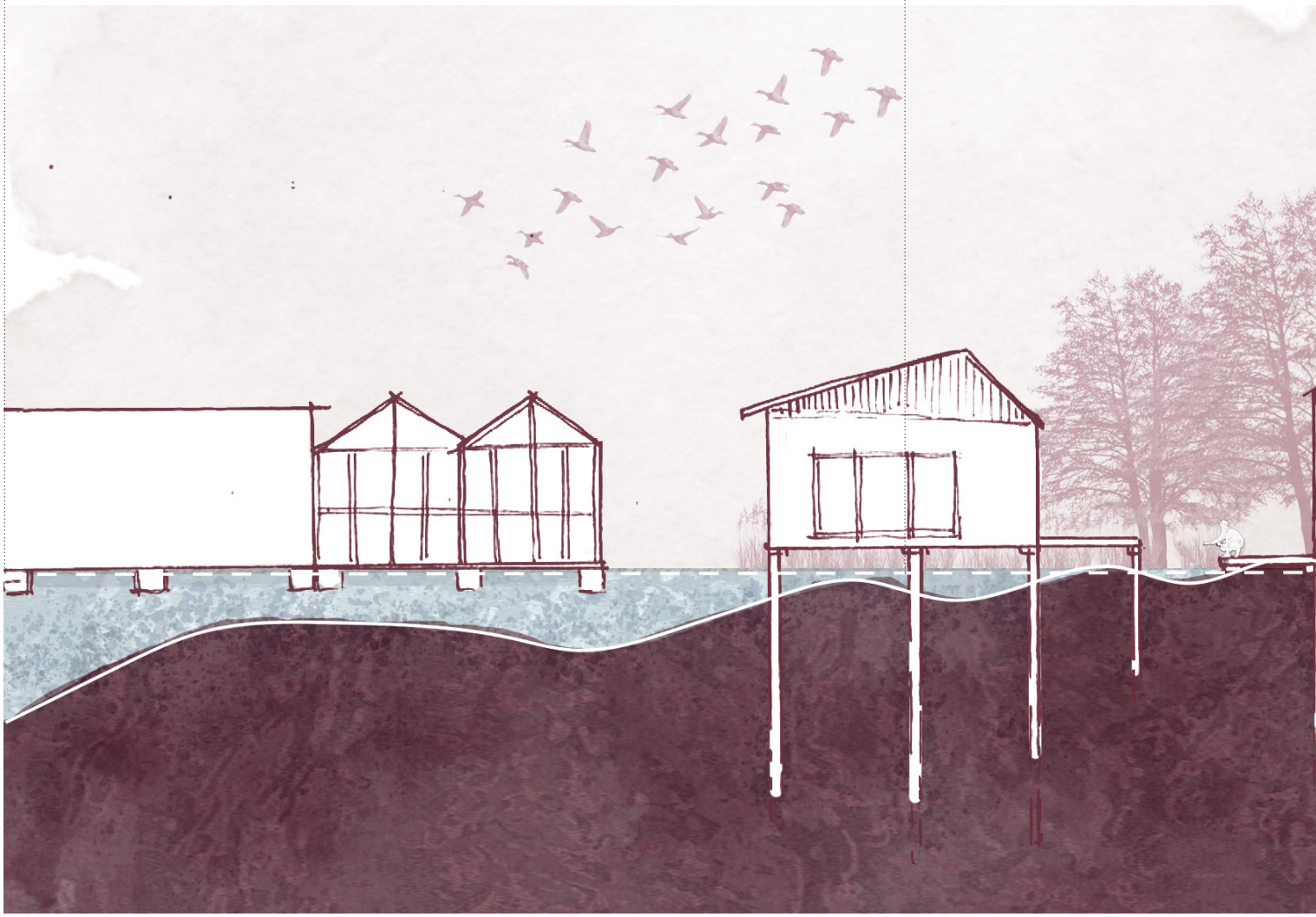
However, these houses are located on a vacation park, and while it is not easy visible on these images, quite densely packed together. In Boskoop, the landscape surrounding the buildings should have more space. Giving residents and visitors the opportunity to experience the landscape more.

WET CONDITIONS

Build can adapt to wet conditions by floating or raised structures. These structures can both function as productive spaces, such as small greenhouses or sheds. Or as residential spaces, such as housing.

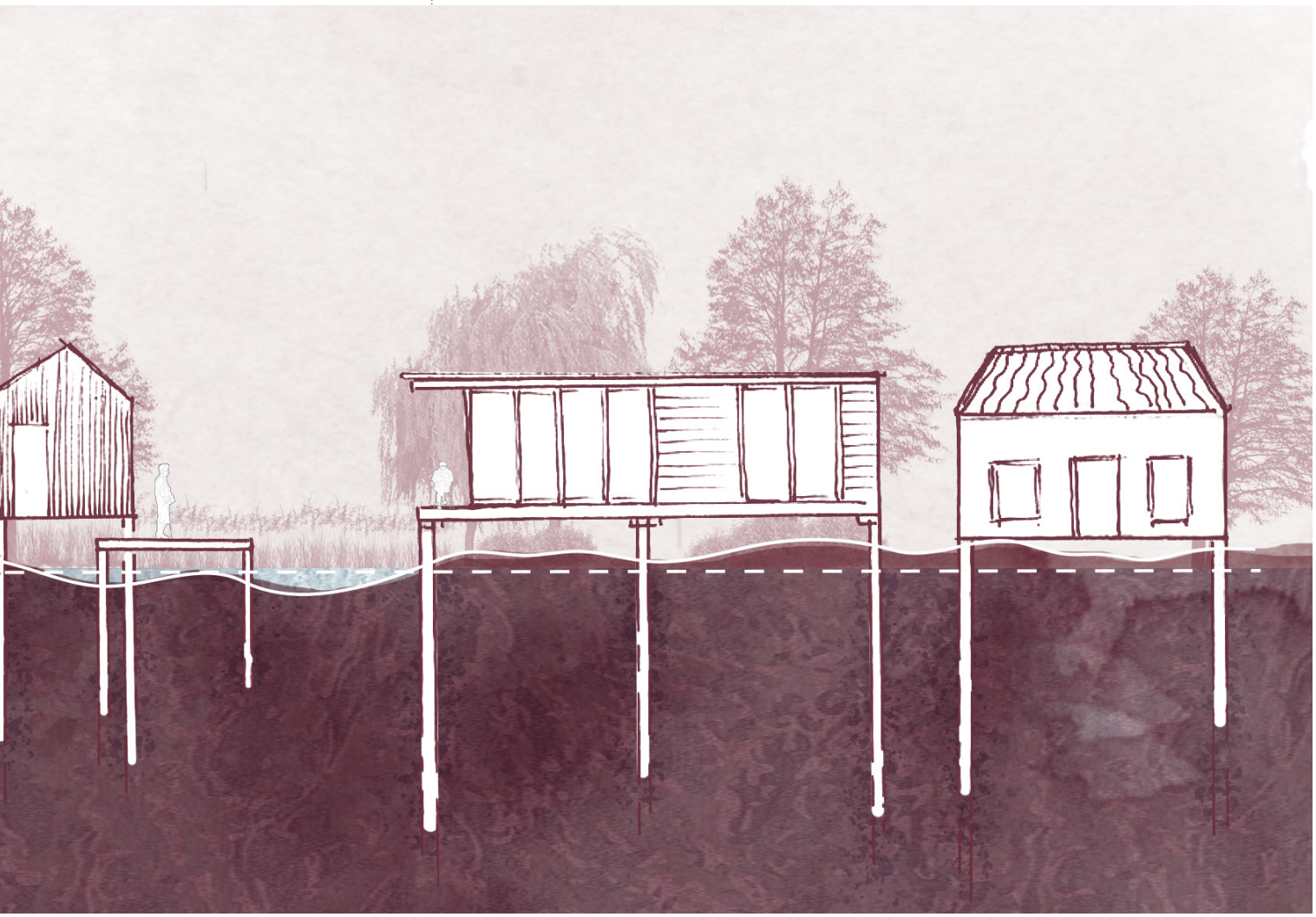
SWAMPY CONDITIONS

Build can adapt to swampy conditions by mainly using raised structures. Not only houses can be raised, also terraces that form a garden together with the peat landscape



MOIST CONDITIONS

Infrastructure can adapt to moist conditions by raised structures. Or rely on current structures that are still high enough to function wet landscape. Original structures can also be raised to become suited for the new landscape.



ADAPTING habitation elements to the peat conditions can happen in multiple ways. While each element of habitation responds differently, a few main techniques can be identified: raising above the landscape, floating on the landscape, or submerging within it. The precedent studies offer useful insights into how these techniques could work, but more research is still needed.

This is especially the case for horticulture. Boskoop is highly specific, and its horticultural practices are not directly found under the same conditions elsewhere. Therefore, future cultivation methods need to be tested further. A way to implement this within the project is through the introduction of a pioneer polder, inspired by the Polderlab. In this polder, inhabitants, growers, and researchers can experiment with adapted forms of cultivation in an earlier stage of the project implementation.

IMAGINING 06

A spatial peat landscape

Adapting habitation to the peat landscape will result in a different landscape from the one we know today. Wetlands, floating horticulture, and water-based living will shape the character of Boskoop. To better understand the qualities of this proposed landscape and test the framework, the polder ‘t Rietveld is designed. Known for its water village where some houses can only be reached by boat, the polder already has an interesting relationship between water and habitation. The existing qualities of this landscape are the starting point for imagining a future landscape. By applying the framework and seeing how different forms of habitation could unfold within it, the design becomes tangible. Almost being able to experience the new landscape of Boskoop, the water networks, wetlands, and different ways of inhabiting the landscape.

IMAGINING
6.1 Polder 't Rietveld

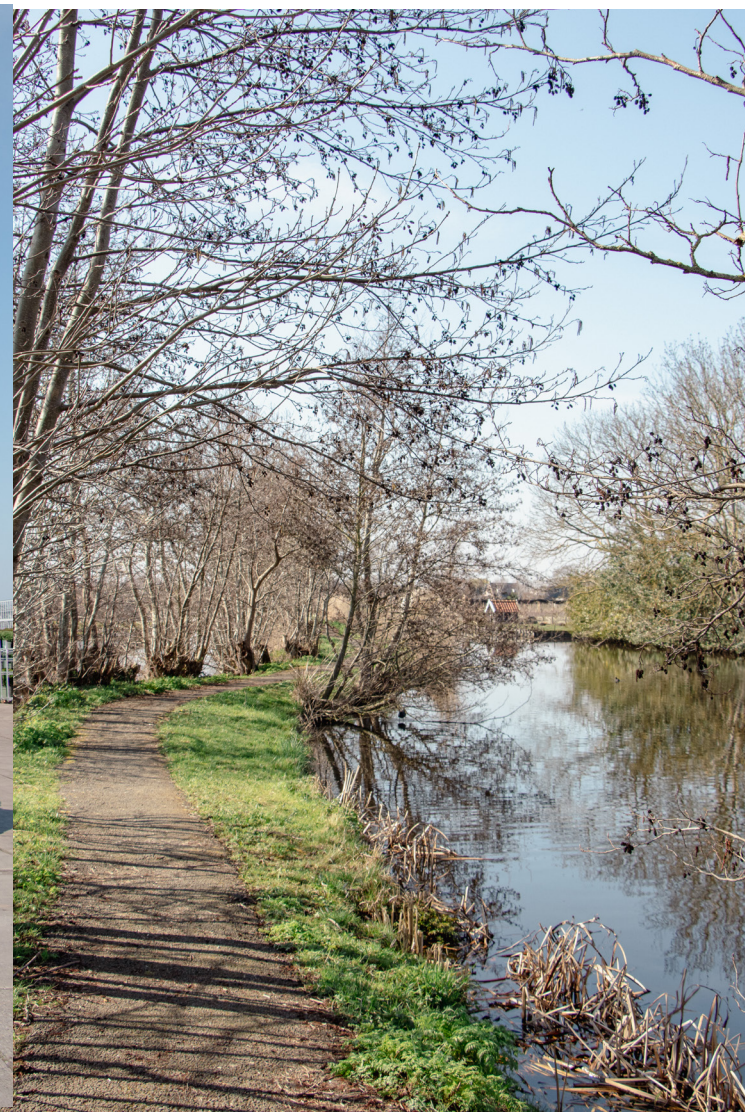
“De Rietveldse polder” is a polder located on the north east of the area. Here water village 't Rietveld is located. This is a former water village, where some people still reach their residency by boat only. As waterinfrastructure is already somewhat embedded in this place it suits well as a starting point for the testing the design.

↓ An aerial picture of the watervillage, here the typical plots of Boskoop can be recognized.

↓ A View into water village 't Rietveld, from the main bridge crossing the village

↓ An edge of a greenhouse, *Deense karren*, which are used to transport potted plants are stored.

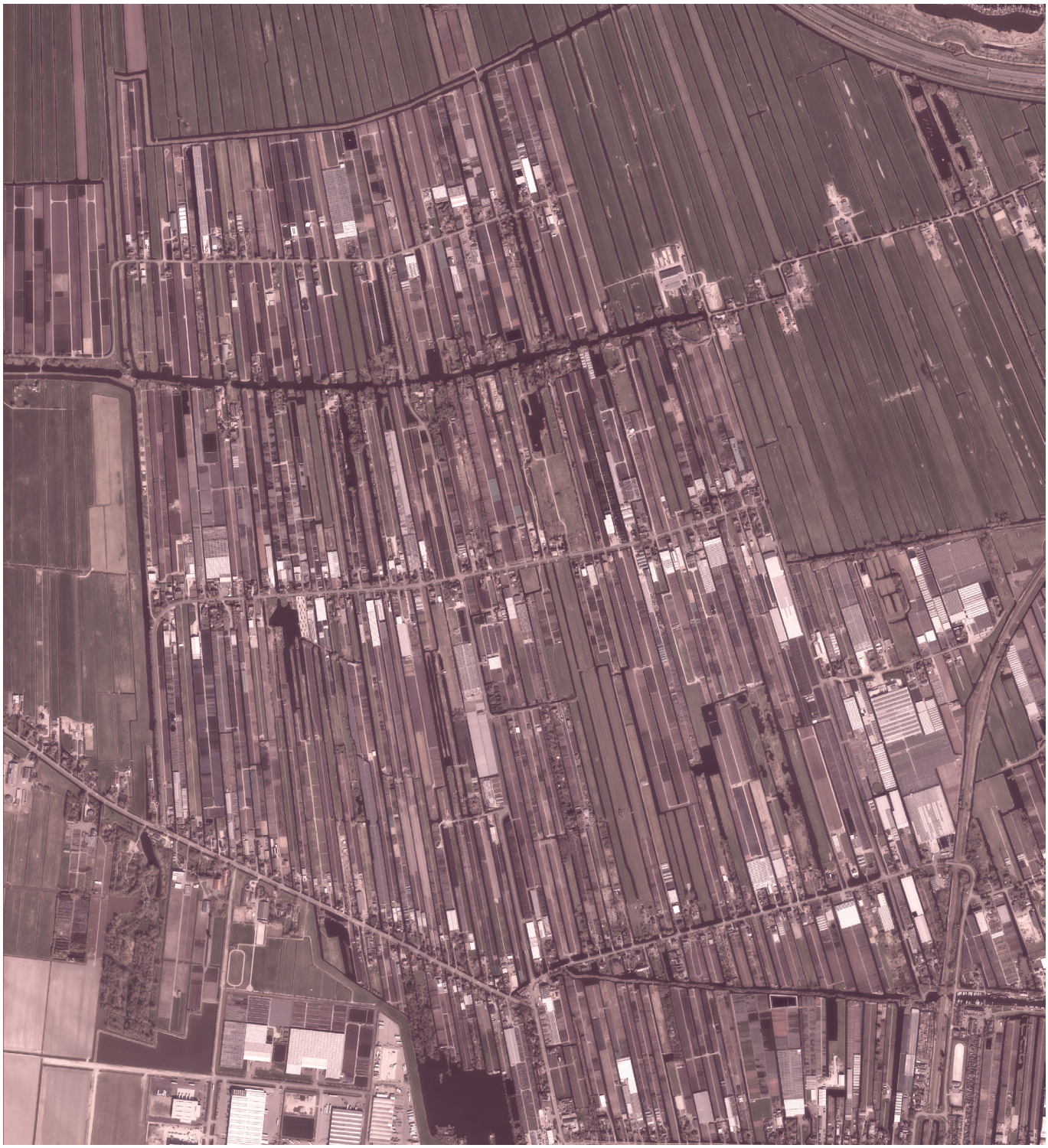
↑ A docking station to export the plants grown on the nursery in the polder. The bags in front are potting soil of a brand that works with peat free potting soil.



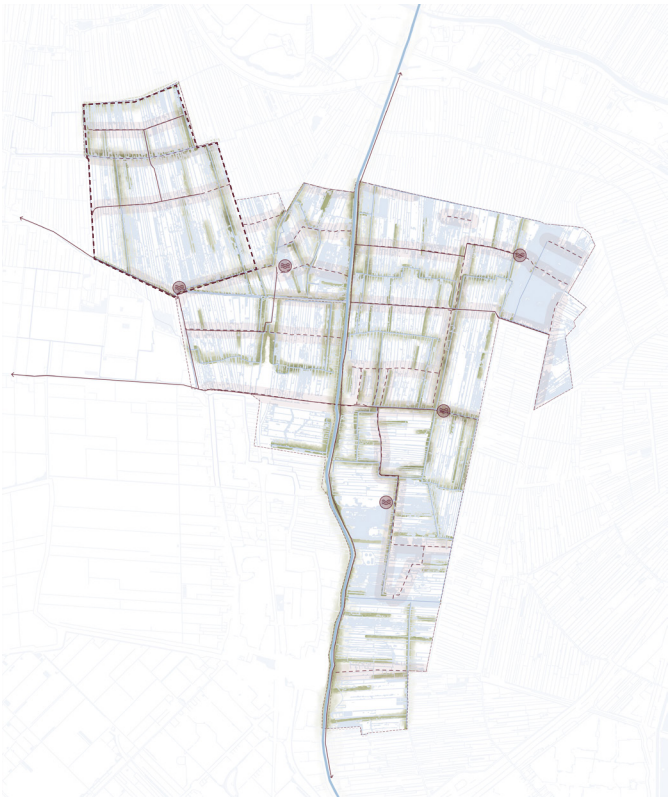
The polder is not only known for its water village character. It has quite an interesting contrast between the old and the newer *linten.* Where the old linten still have a lot of old buildings, the new linten are mainly focused on horticulture housing some of the bigger nurseries of Boskoop

↑ The path known in Boskoop as the Piskade, or oficially known as de Padesche Wetering. Forms the soutch borders of the polder. It functions as a popular walking and cycling path

↓ An old farm located on the Loeteweg. Because the late horticultural reclamation of the polder this farms has functioned until quite recently.



Map 18.
Aerial photograph 't Rietveld
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



IMAGINING
6.2 Alignment framework

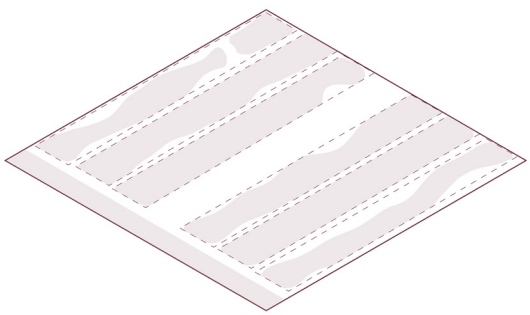
The principles of alignment derived from the ecological and habitational perspective are translated here into a spatial framework. When working with these principles, a distinction can be made between rules and regulations on the one hand, and conditions and structures on the other hand.

Rules and regulations are applied at the scale of the individual plot. They define how broader goals are spatially translated into the small scale. These principles have to be applied by inhabitants themselves as they relate to how the plot is used and maintained. Conditions and structures, on the other hand, operate at the scale of the landscape as a whole. These are interventions that can not be implemented on plot level and therefore are part of governmental responsibility. For example, raising water tables or establishing larger green structures. Together, conditions and structures set the framework of the landscape, while rules and regulations guide how habitation reacts to it.

Map 19.
Structures & Conditions - Water level raise

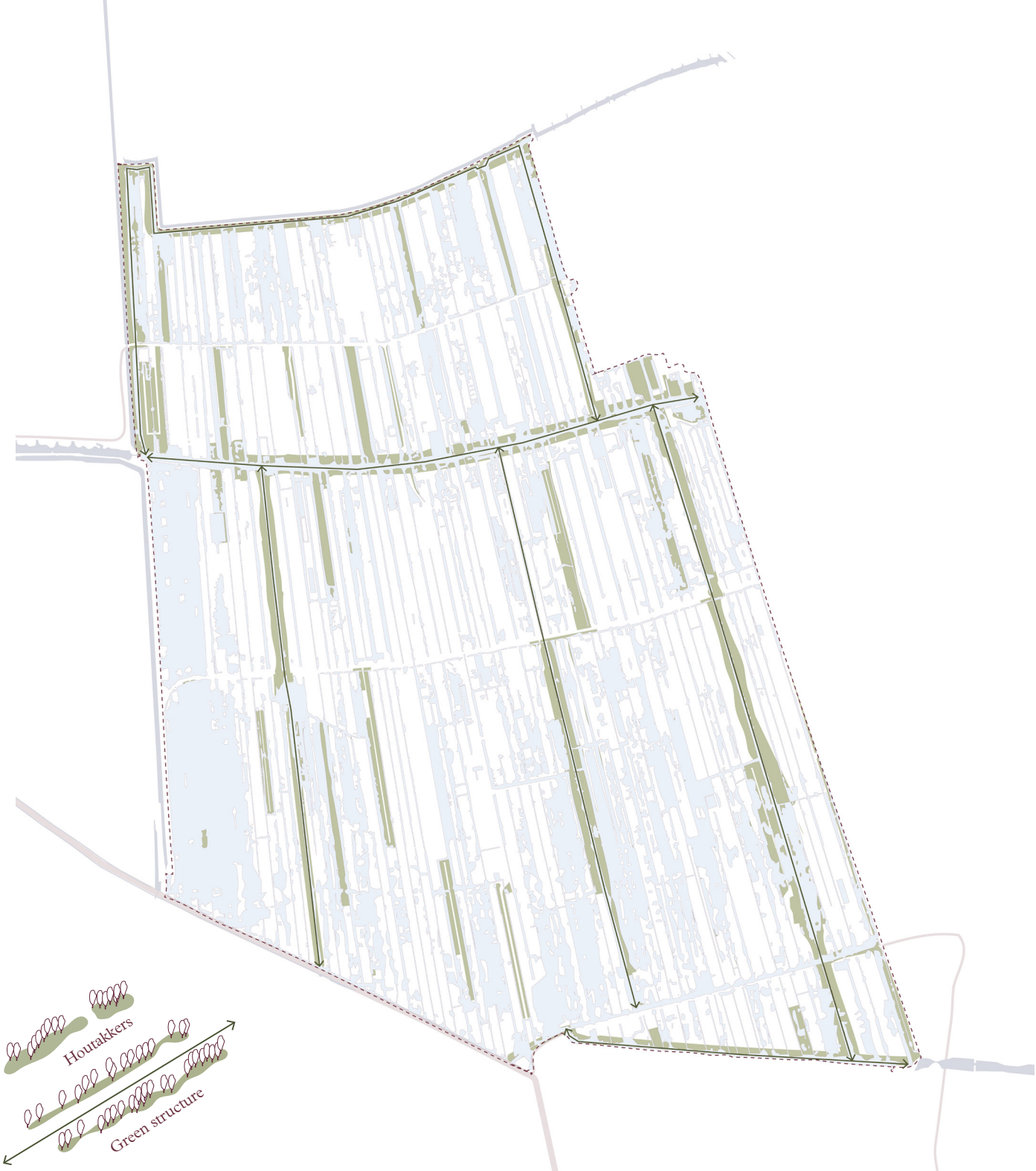
IMAGINING
6.2 Alignment framework

Raising the water level is the main intervention in polder 't Rietveld to ensure the functioning of the peat system. The water level raise creates a landscape in which wet, marshy and moist conditions alternate. On the plot level the peat functioning is strengthened by a coverage strategy.



Structures & Conditions

Rules & Regulations



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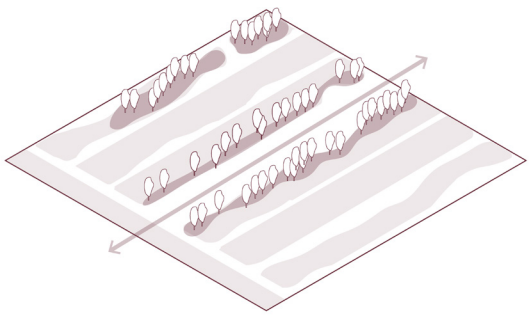
Map 20.
Structures & Conditions - Greenstructure

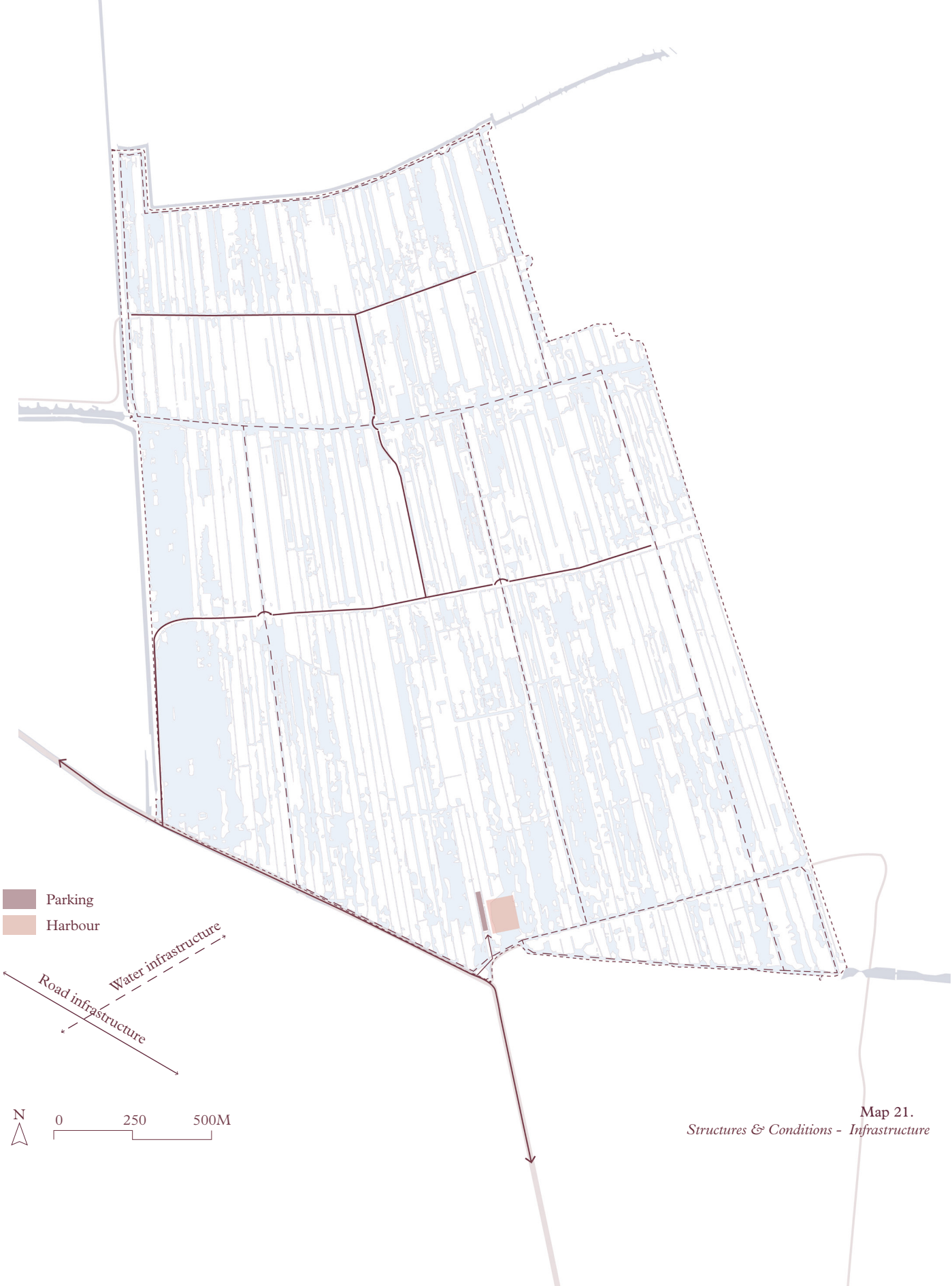
IMAGINING
6.2 Alignment framework

The water level raise is complemented by a green structure. This structure follows the main drainage channels of the area, as these have always functioned as connecting elements in Boskoop. Some vacant plots are transformed into *houtakkers*, strengthening the green structure and adding more overall quality to the landscape.



Structures & Conditions

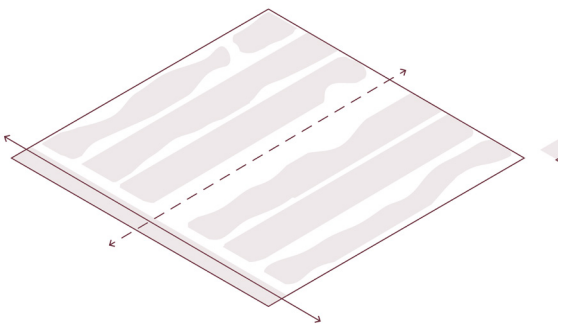
Rules & Regulations



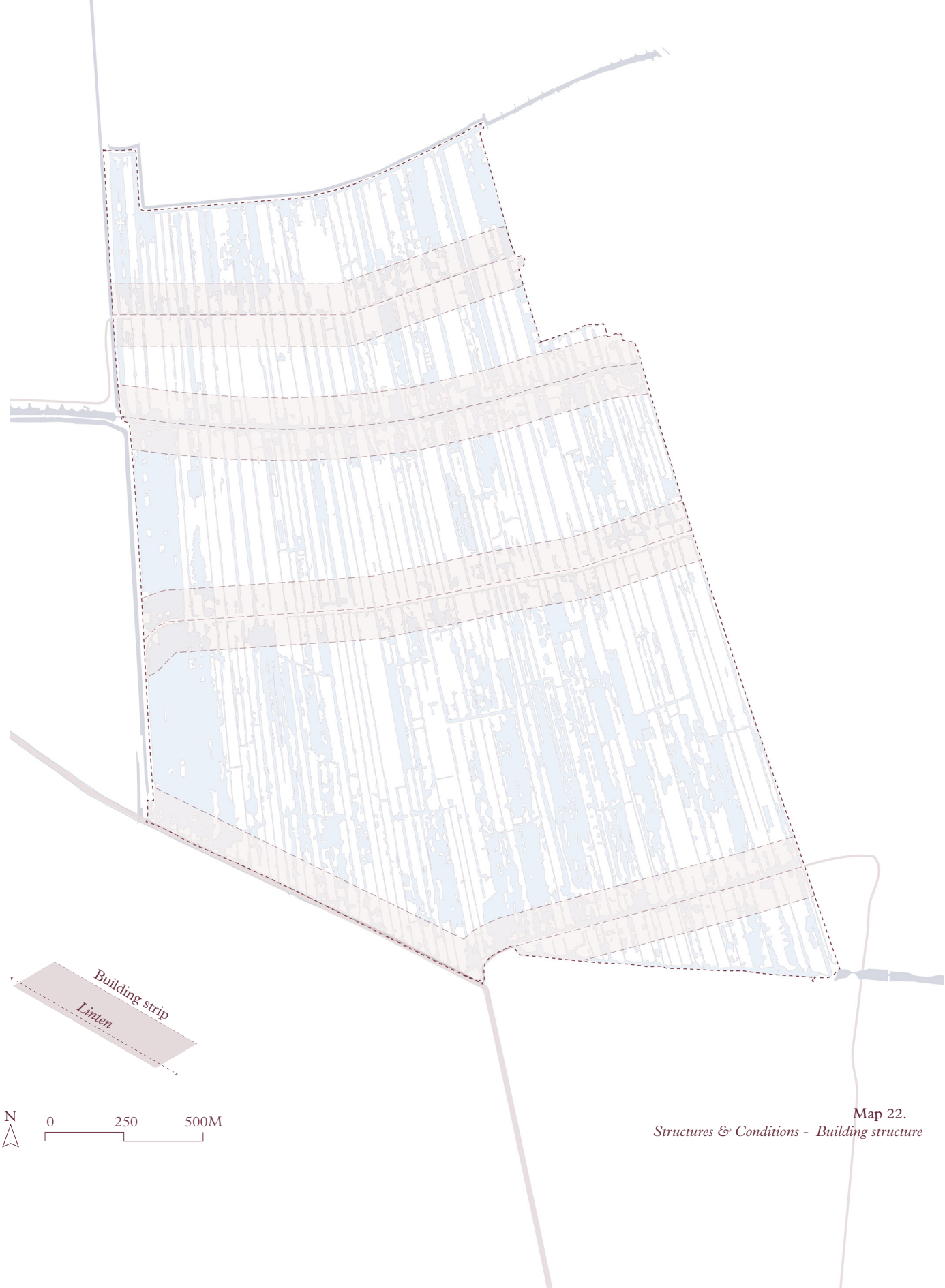
Map 21.
Structures & Conditions - Infrastructure

IMAGINING
6.2 Alignment framework

Habitation in the area is facilitated through the introduction of a dual infrastructural network. Based both on road infrastructure and on water infrastructure. The harbour in the south east of the area plays an important role in the transition from land to water and the other way around.



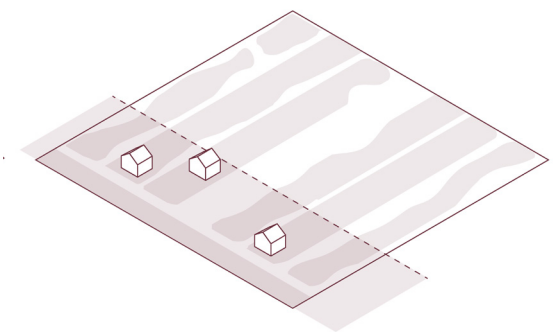
Structures & Conditions



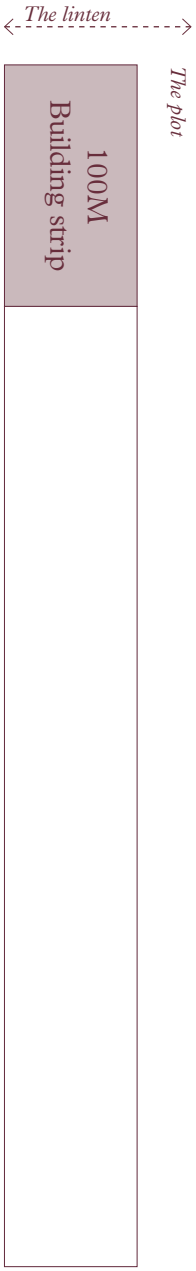
Map 22.
Structures & Conditions - Building structure

IMAGINING
6.2 Alignment framework

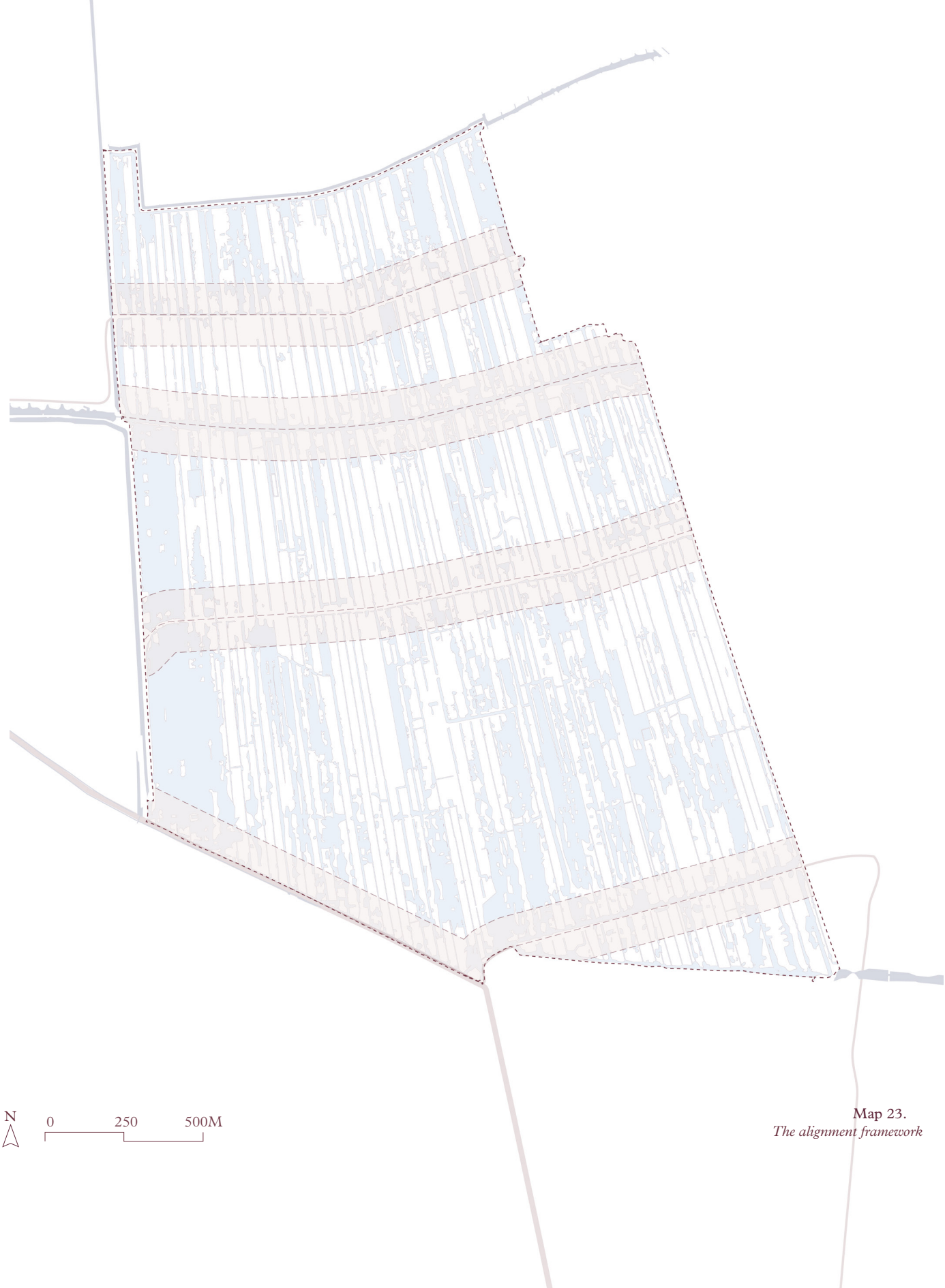
The building strips gives the polder two different characters. On the one hand, it creates lively *linten* along both road and water. On the other hand, it keeps the fields open, allowing the wet landscape to be experienced.



Structures & Conditions

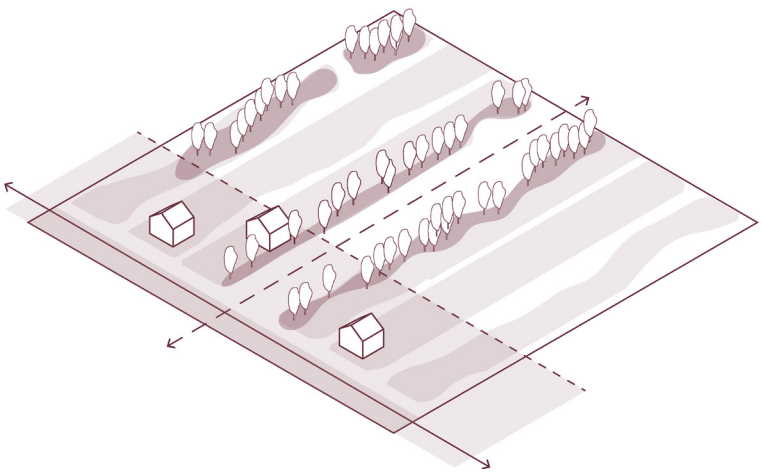


Rules & Regulations



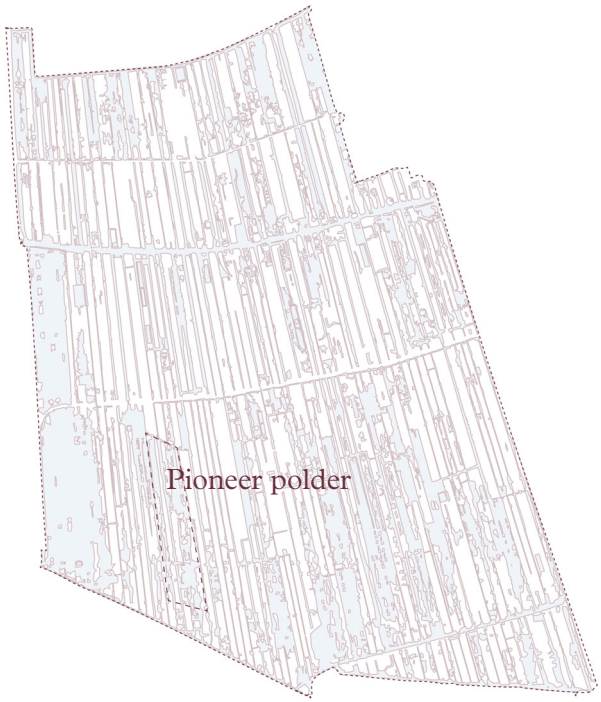
Map 23.
The alignment framework

IMAGINING
6.2 Alignment framework



IMAGINING
6.3 Phasing

An important part of the implementation of the framework is the phasing strategy. Because the water level raise is an intervention with a large impact on the area, the landscape and its inhabitants need time to prepare. On the one hand, the timespan allows for the natural replacement of housing, infrastructure, and inhabitants. Allowing for renovations or replacement that already respond to the future conditions. This creates space for a gradual transition instead of forcing immediate change.



The pioneer polder

As stated before, the pioneer polder is an important measure within the implementation of the plan. It creates space to research how cultivation can adapt to wetter peat conditions before applying the changing conditions over the whole polder. In the polder, inhabitants, researchers, growers, and other people interested in the project can test different forms of adaptation. The polder therefore does not only function as a research location, but also as a social place where inhabitants can meet and exchange knowledge.

nent

Adaptation phase

Functioning phase

75 2100 2125

Current situation

To illustrate the phasing strategy spatially a section through time is used. On this plot *ilex* now grows, these perfectly round plants are a common cultivation in Boskoop

Initiation phase 0 - 10 years

Rules and regulations - Inhabitants

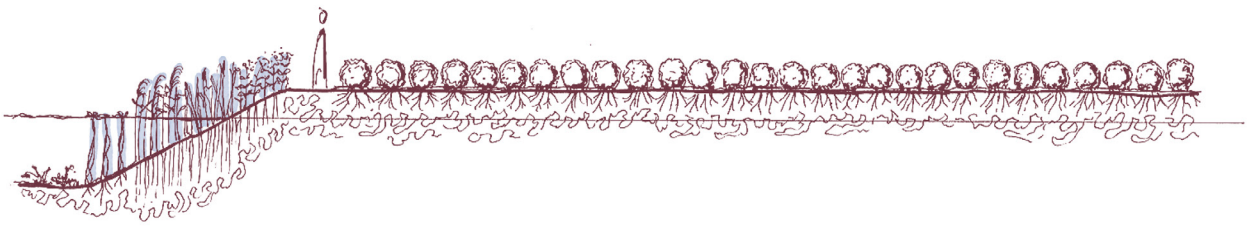
- Start the implementation of rules and regulations that have to be applied later, like the creation of natural edges

Structures and conditions - Municipality

- Set up pioneer polder
- Start with greenstructure

The most important part of the initiation phase is informing and involving the inhabitants early in the process. Communication mainly takes place in the social space of the Pioneer Polder. At the end of this phase, the water level in this polder will be raised.

During this period, inhabitants also have time to start implementing the rules and regulations that will become necessary in the next phase. For example, they can start by naturalizing the edges. The municipality can also start with the first implementations of the green structure.



Preparation phase 10 - 50 years

This phase prepares both the inhabitants and the landscape. Because the height difference in the area is very small, raising the water level by only 27 cm already has a major impact. As many things need to be adapted before the water level raise, the phase has to be quite long.

For the inhabitants, this means that edges have to be naturalized, coverage of the peat has to be removed, and buildings and infrastructure have to be adapted to the coming wet conditions. Buildings outside of the building strip have to be moved or recycled.

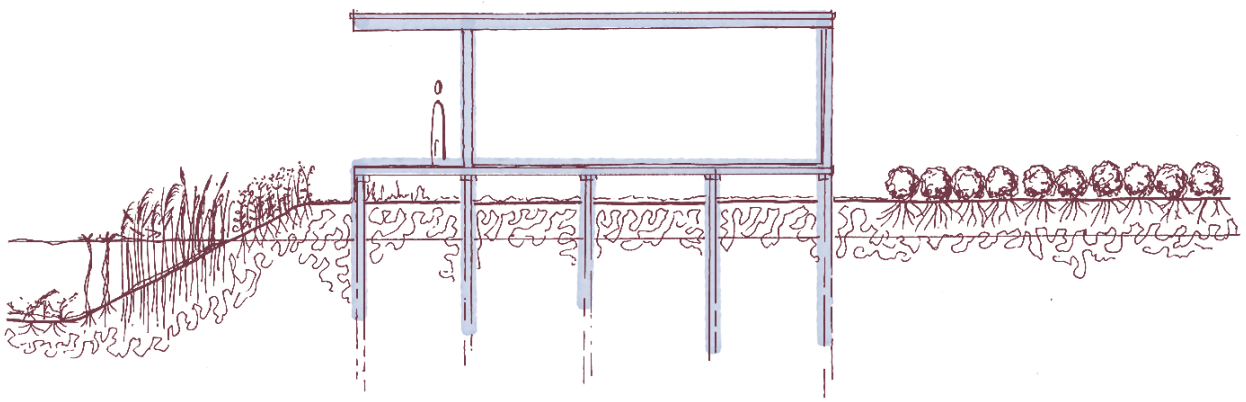
For the municipality, this is also an important phase. The water system has to be prepared, the harbour with parking spaces has to be built, and the green structure has to be completed. Because this phase includes many preparations, it needs time.

Rules and regulations - Inhabitants

- Naturalize 80% of edges
- Remove foils
- Prepare build and infrastructure for the water level raise
- Remove buildings outside the building strip

Structures and conditions - Municipality

- Water - strengthen edges, adapt water system
  Infrastructure - Create harbour with parking space
  Green structure - finish green structure



Hydroshift moment

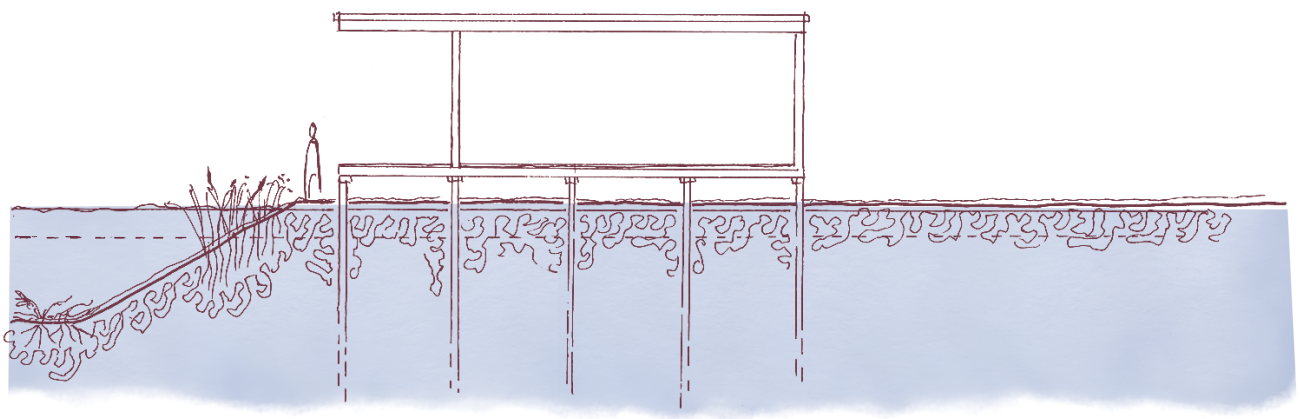
Rules and regulations - Inhabitants

•

Structures and conditions - Municipality

• Raise water level 27 cm

The Hydroshift is the moment when the water level is raised. This moment is referred to as a shift because it happens at one point in time and has a large impact on the landscape. This moment is important for creating awareness among inhabitants. At the moment, pumping water out of the polder happens automatically, often without people really noticing. Raising the waterlevel is technically quite simple, but the spatial consequences are large. As the conditions will become wetter, many plants will not be able to handle the sudden change in conditions. Creating a second layer of ecological awareness among inhabitants.



Adaptation phase 50 - 70 years

After the hydro shift, a phase of adaptation is needed. In this period, the landscape has to adjust to the new conditions. New plants will start to grow in places where they did not grow before, while new organisms will slowly take their position in the landscape.

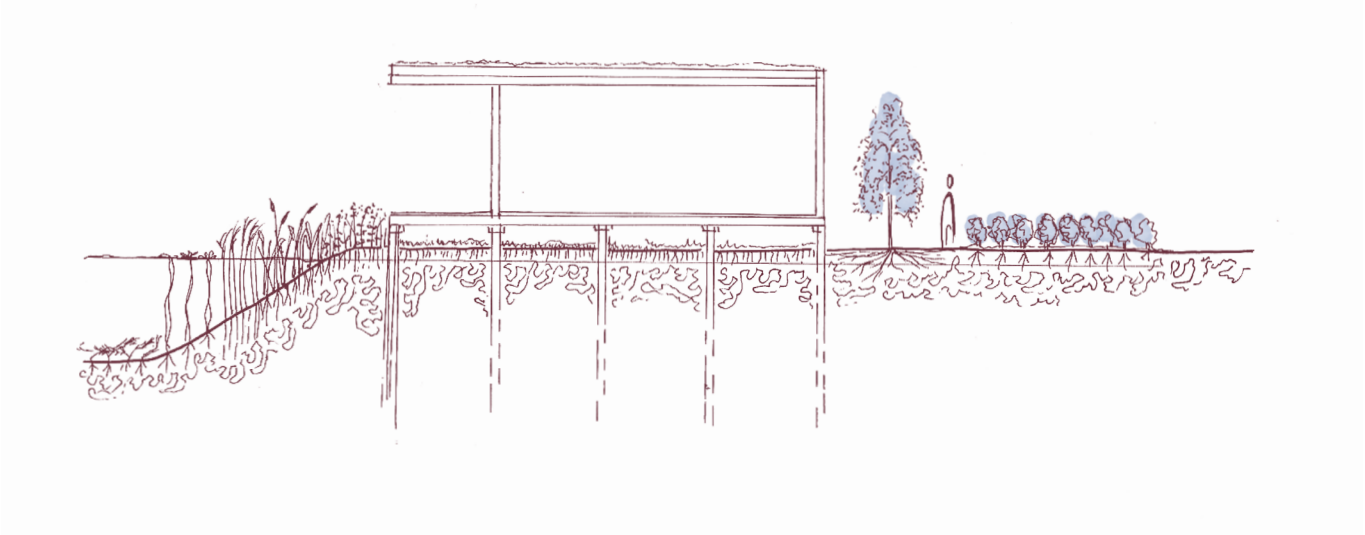
Not only the landscape but also the people will have to adapt. The new conditions may take some time to get used to, as access and cultivation will change. However, because many preparations have been made in the previous phase, the transition should be less abrupt.

Rules and regulations - Inhabitants

- Adapt land use to the new conditions and ensure maximum 60% horticulture

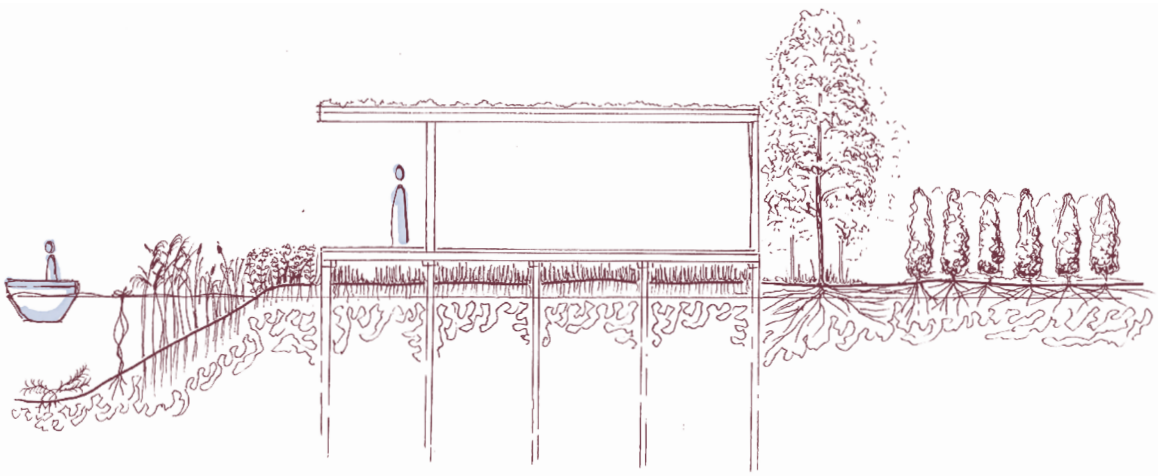
Structures and conditions - Municipality

-



Functioning phase 70 →

After around 20 years, the landscape can be understood as having shifted from an adaptation phase towards a functioning phase. By then, the peat system will have had time to develop into a relatively stable state (Kreyling et al., 2021). It will also be the phase where inhabitants have fully adapted, and hopefully have created a new relationship with the peat landscape around them



IMAGINING
6.3 Inhabitants

When working with a framework, it is important to test how the framework spatially works. In this project, this is done by designing different types of habitation. This shows possible ways the future landscape of Boskoop could look, but does not propose a fixed design. As all inhabitants are different, they have different wishes and different resources. The inhabitants used in the design are abstractions based on real people and ways of living that can be found in the area. While no person can be reduced to one of these abstractions, they show the diversity of possible land use. Still, the chosen sites are currently used by similar types of inhabitants, embedding the design in real spatial conditions.

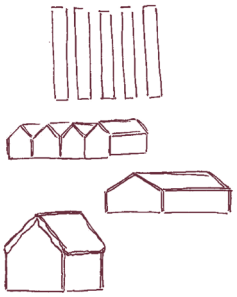
The inhabitants used in the design are divided into four categories: the dweller, the hobby grower, the horticultural household, and the horticultural business. The dweller inhabits the landscape mainly for residential purposes and does not have a productive activity on their plot. The hobby grower combines another profession with small-scale horticulture. Illustrating how horticulture in Boskoop can be much more than an economic activity alone, for a lot of people, it is their passion. The horticultural household represents the first inhabitant whose main profession is built around horticulture, often supporting one household. Horticultural households are just like other agricultural household build around the horticulture; the children grow up in it, learn to help and work when they are small, and sometimes grow into the company. The largest scale horticulture is represented by the horticultural business, who differences from the others by owning multiple locations. These types of businesses are more likely to use forms of cultivation that are no longer connected to the soil as they are more focused on efficiency.

The dweller

House
1 - 1.5 plots

Hobby grower

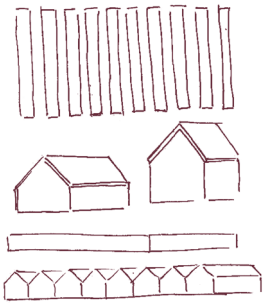
House + Shed
1 - 2 plots



The horticultural household

House + Shed + Greenhouse
2 - 5 plots

1 - 5 employees



The horticultural business

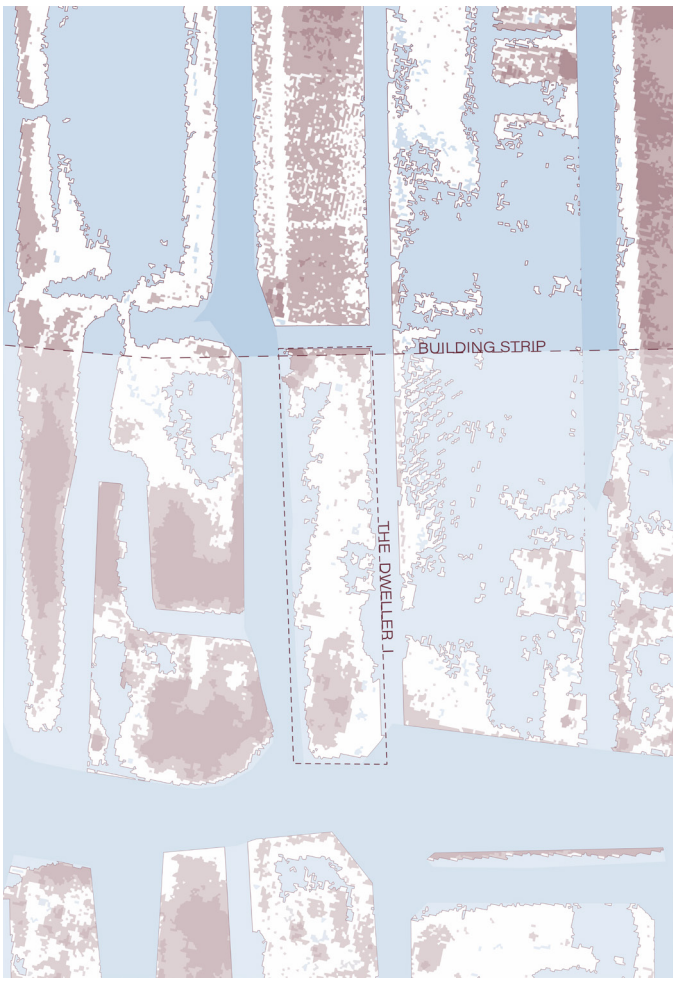
multiple houses + Sheds + Greenhouse
5 - 10 plots

> 5 employees

Inhabitants -
The dweller I

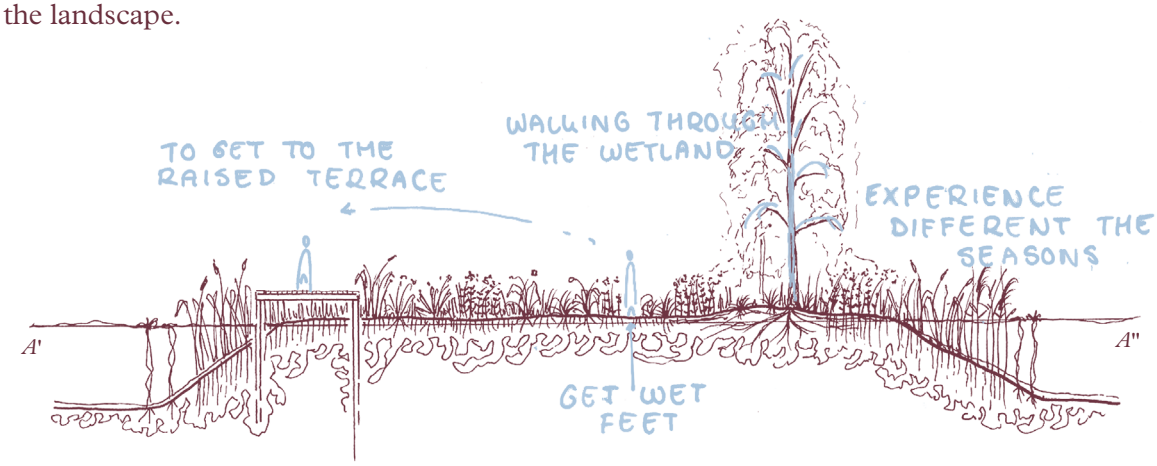
Lives in Boskoop for the calmness, water, and openness of the landscape rather than for the horticultural production itself. Wants a place with some liveliness where friends and visitors occasionally arrive by boat. This is why the location around the old water village is chosen. The house almost functions as a retreat into the landscape, combining architecture, art, and living closely with water. The garden is not strictly maintained but changes with the seasons and water levels. The dweller enjoys observing these changes and sees the landscape rather as something that is living than controlled.

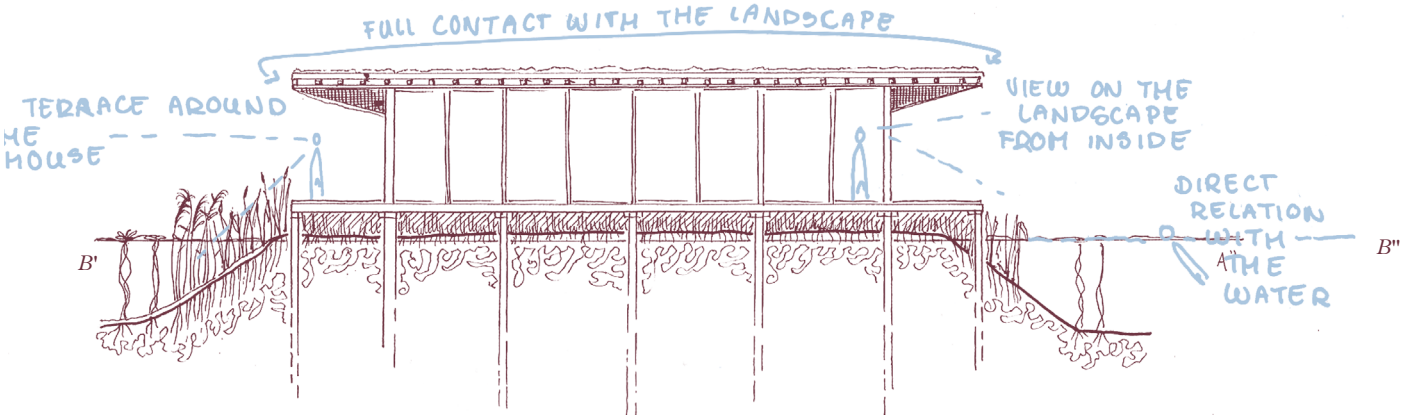
Map 24.
Aerial picture Dweller I
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



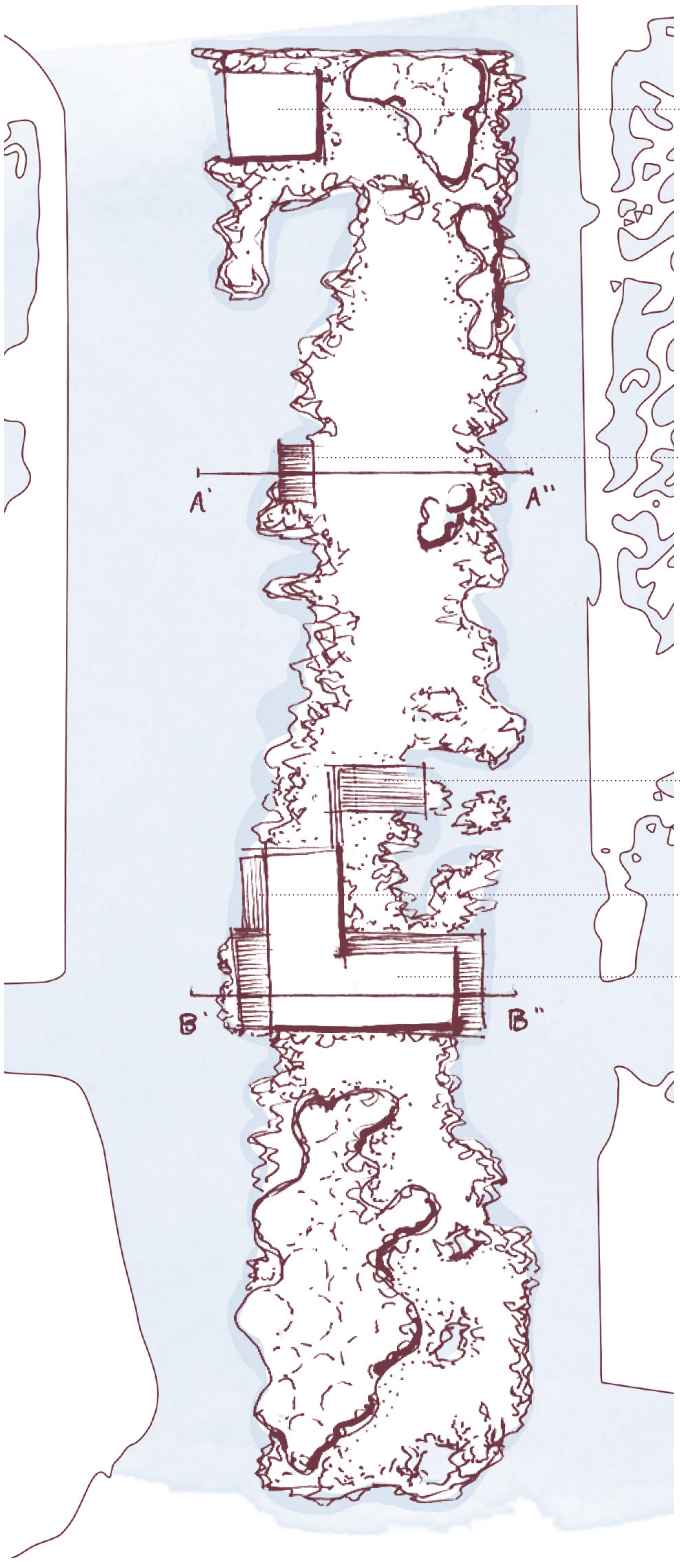
Map 25.
Water conditions Dweller I
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN

In the new landscape of Boskoop, a garden does not always mean it is accessible everywhere. Sometimes wet feet are needed to reach certain parts of the garden, for example, this raised deck. Really walking through the landscape creates an awareness of the conditions of the landscape.





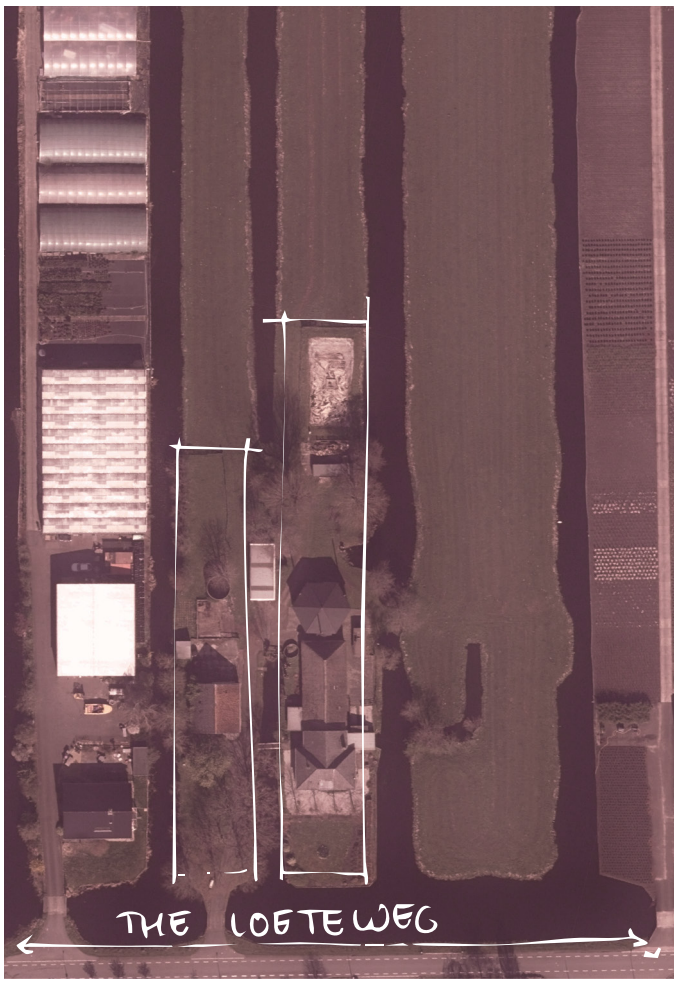
The type of housing creates a connection to the landscape. The big windows and surrounded terraces create an all year view and awareness on the landscape and its processes. Inhabitants can experience the seasons, the water, the lifecycle of plants, and thus the lifecycle of the peat soil.



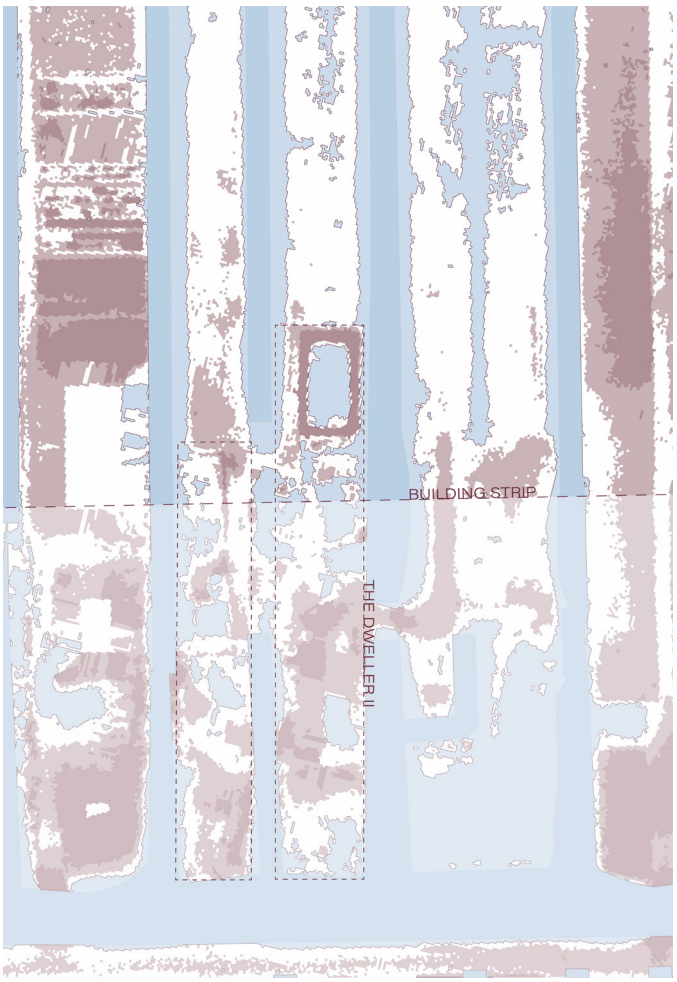
Map 26.
Design Dweller I

Inhabitants -
The dweller II

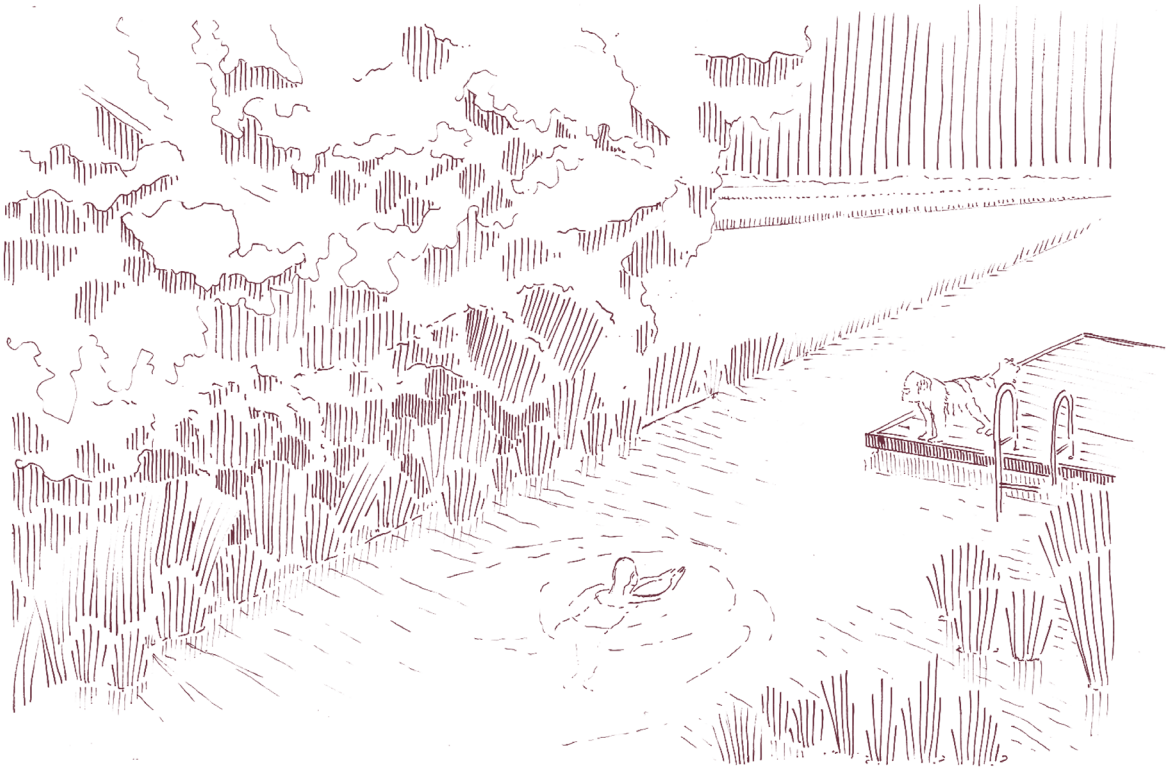
The existing old farm is preserved and lightly protected by a really small dike and raised pathways. A small vegetable garden provides food while the former nurser slowly transforms the rest of the land into wet forests. As a former nurser he understands the landscape well, but now feels the need to do something back for nature. Swimming, fishing, and moving through this wet landscape are now part of everyday life.



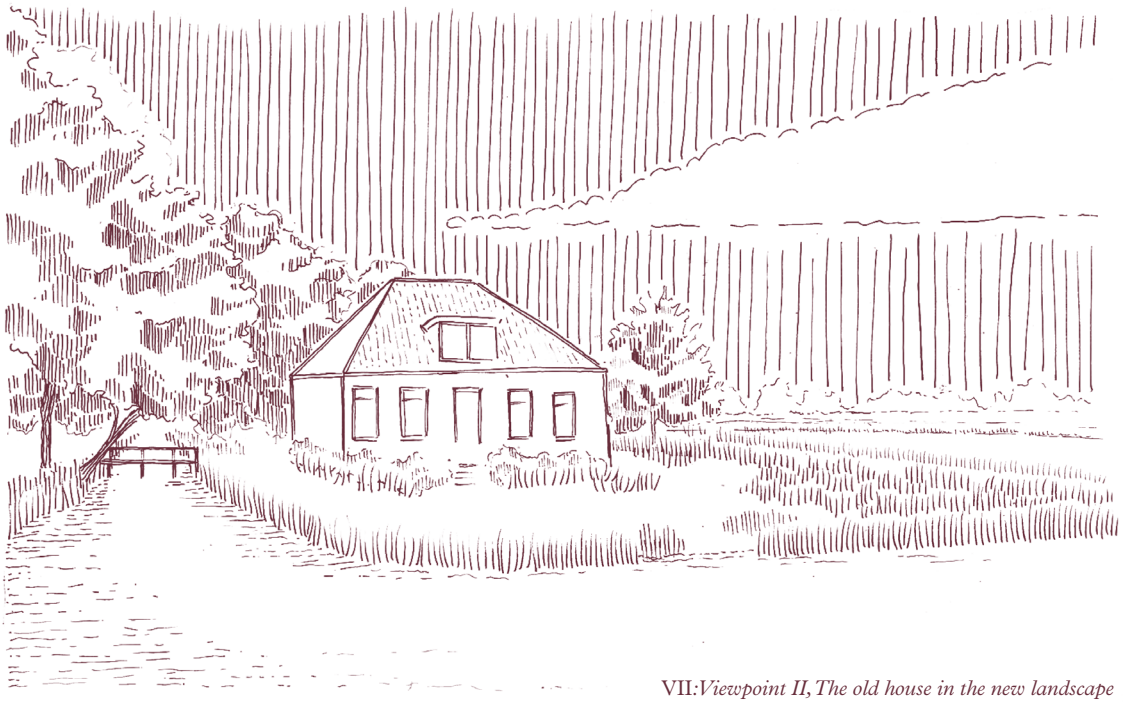
Map 27.
Aerial picture Dweller II
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



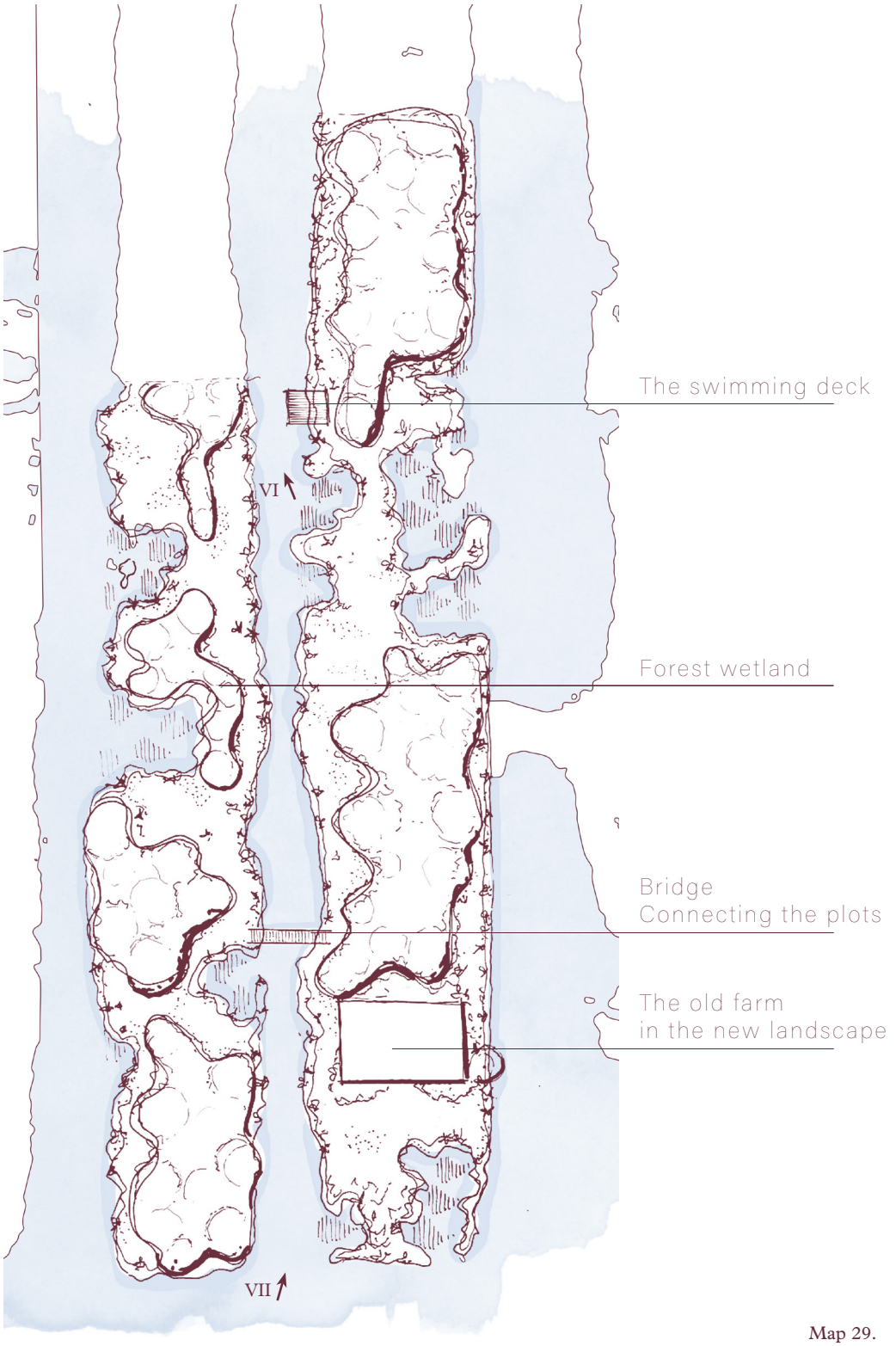
Map 28.
Water conditions Dweller II
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN



VI: *Viewpoint I, The ditch functions as swimming pool*

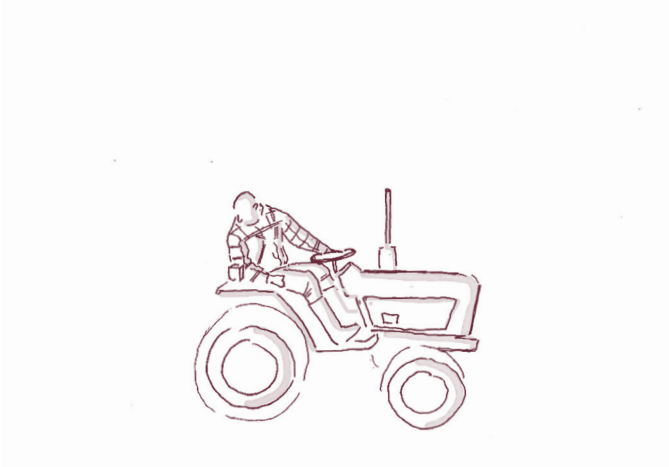


VII: *Viewpoint II, The old house in the new landscape*

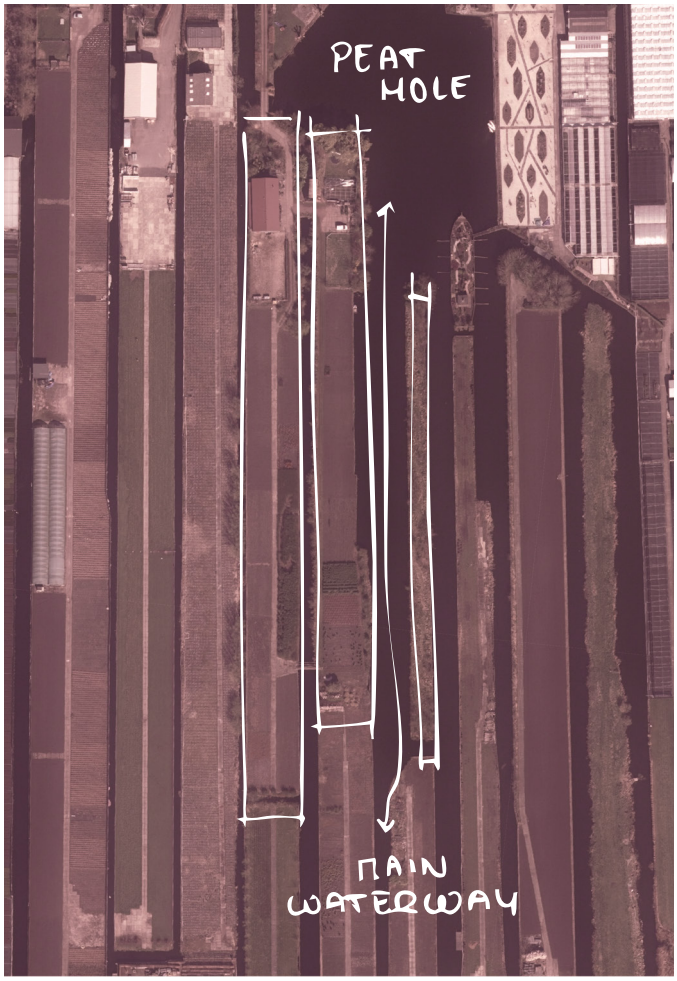


Map 29.
Design Dweller II

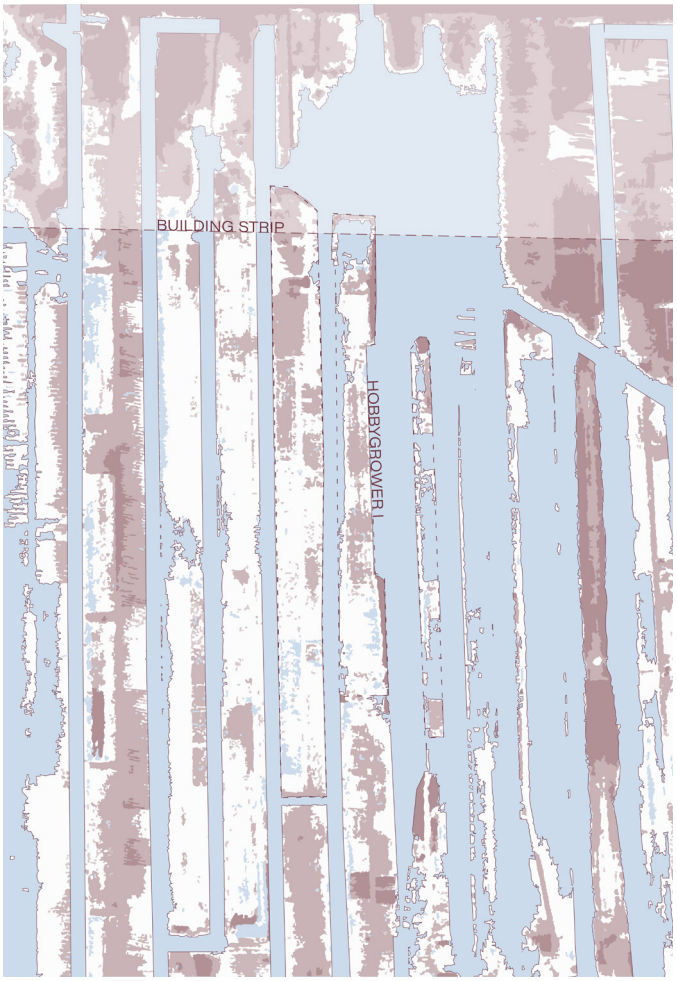
Inhabitants -
The hobby grower I



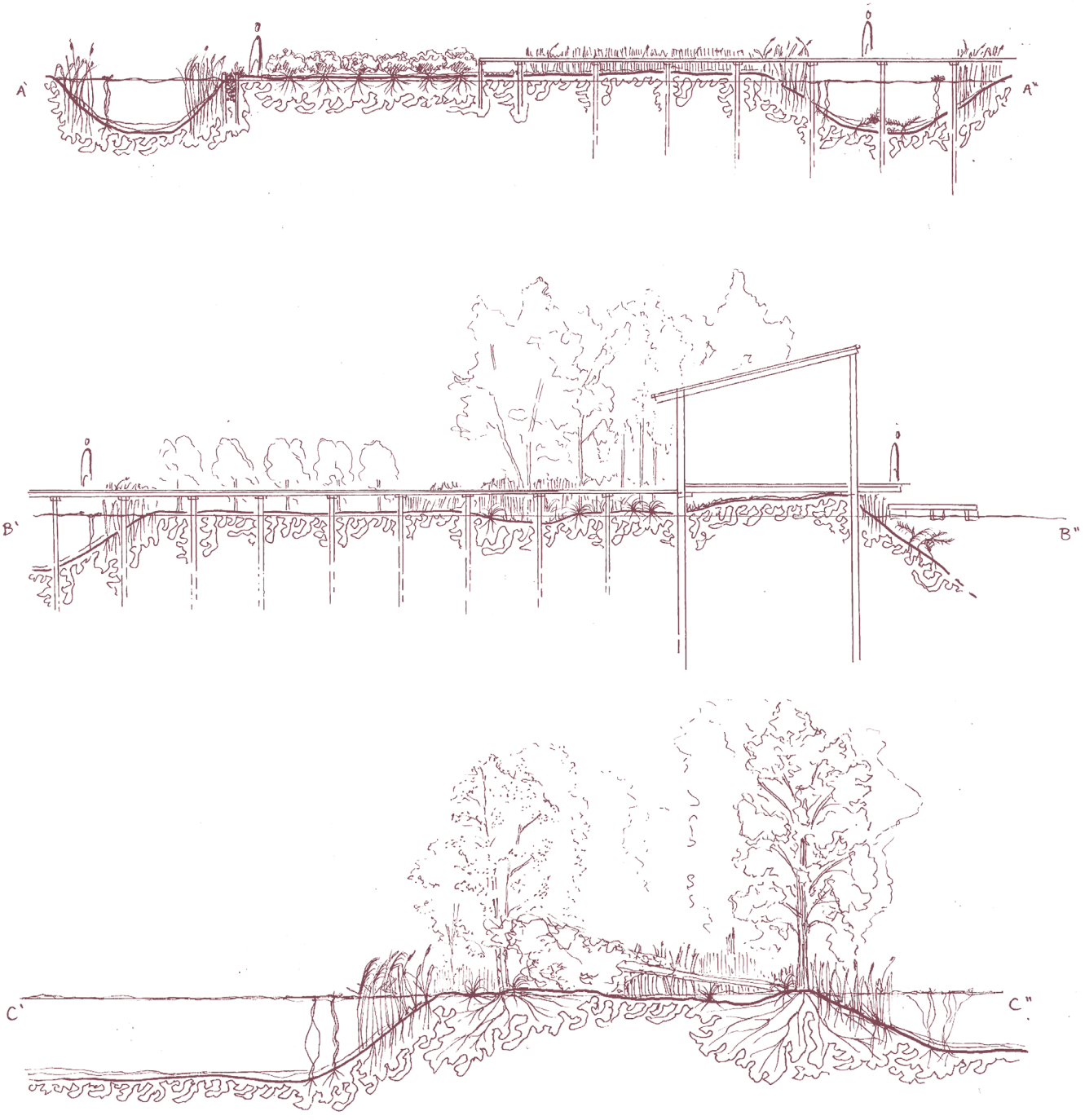
The hobby grower cultivates plants out of curiosity and passion rather than for economic purposes. During the days, he works elsewhere, while evenings and weekends are dedicated to the nursery. Because he is not fully financially dependent on production, there is space to experiment and grow unusual species. He has an obsession with Japanese plants as he ones lived there and worked on the nurseries there. The hobby grower values peace and silence. Planting beds are spread out over the plots, with a few small recreational cabins hidden between the greenery which provide additional income while allowing visitors to enjoy the landscape as much as he does.

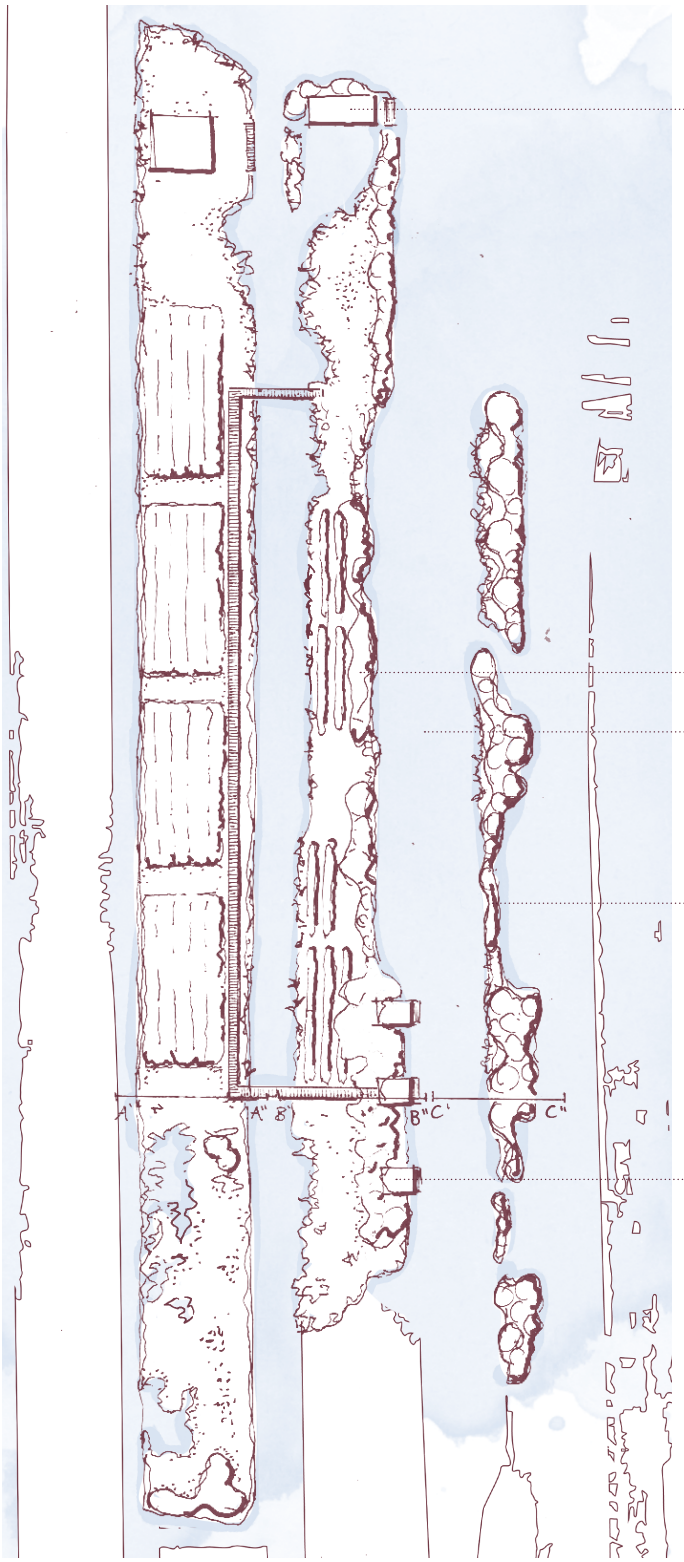


Map 30.
Aerial picture Hobby grower I
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



Map 31.
Water conditions Hobby grower I
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN

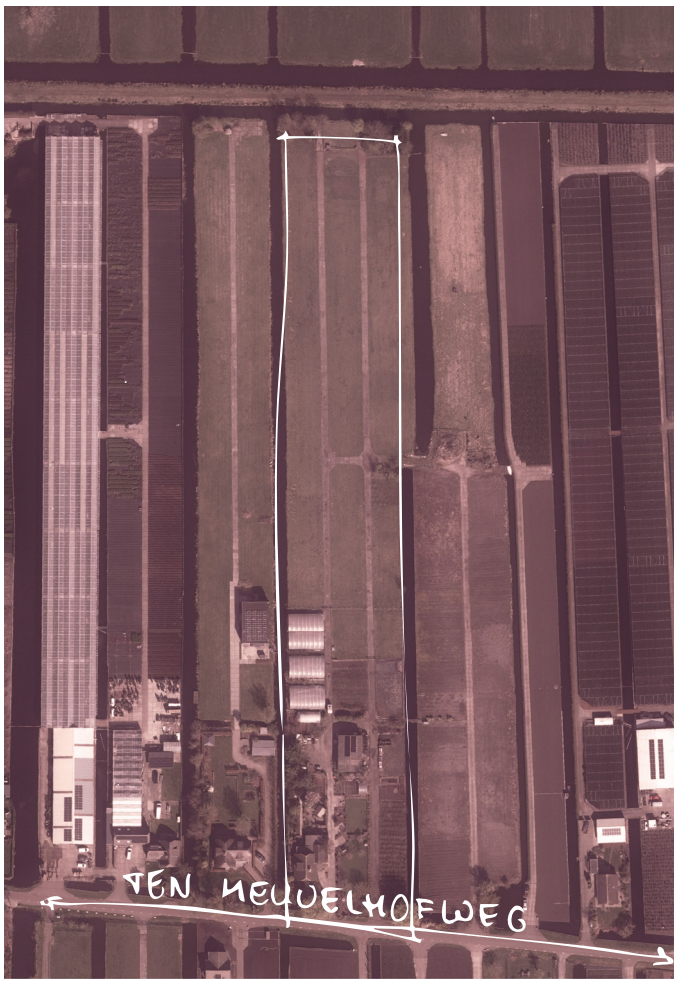

A'
A"
B'
B"
C'
C"



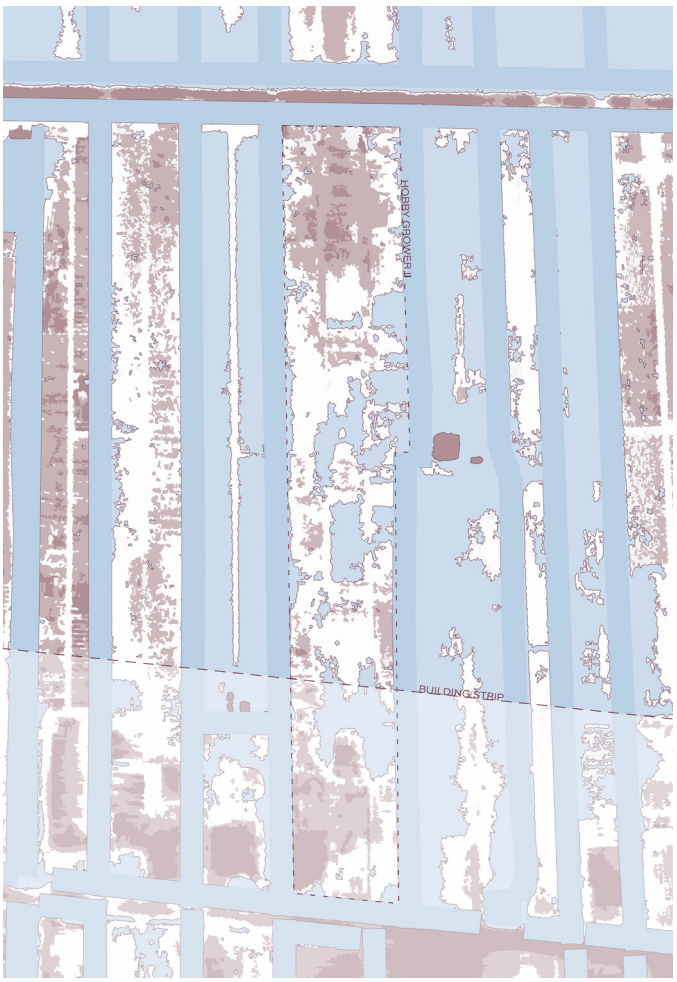
Map 32.
Design Hobbygrower I

Inhabitants -
The hobby grower II

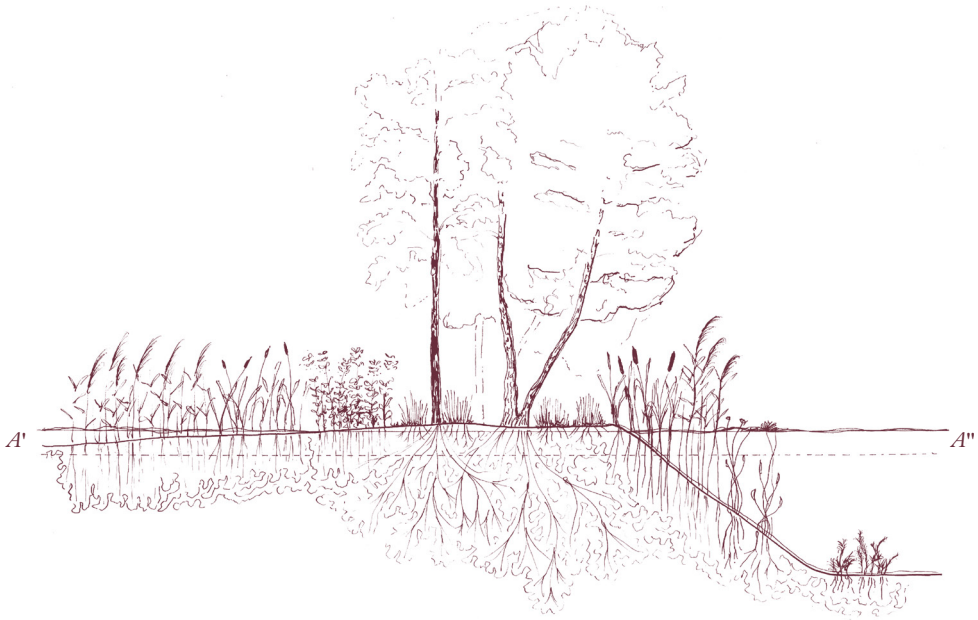
Traded traditional horticulture for another way of working with trees and the land. She is a furniture maker who grows trees on her own plots specifically for use in her workshop. The trees grow on the “houtakkers” and are processed in the wood workshop connected to the small house. Visitors can arrive by boat to buy furniture directly from the workshop. She even owns a boat to deliver the furniture to the parking place or other places connected by the waterways, as her shop is only accessible by boat.



Map 33.
Aerial picture Hobby grower II
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



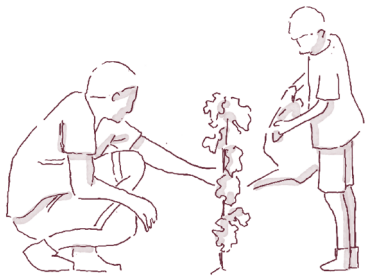
Map 34.
Water conditions Hobby grower II
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN


A'
A"


B'
B"

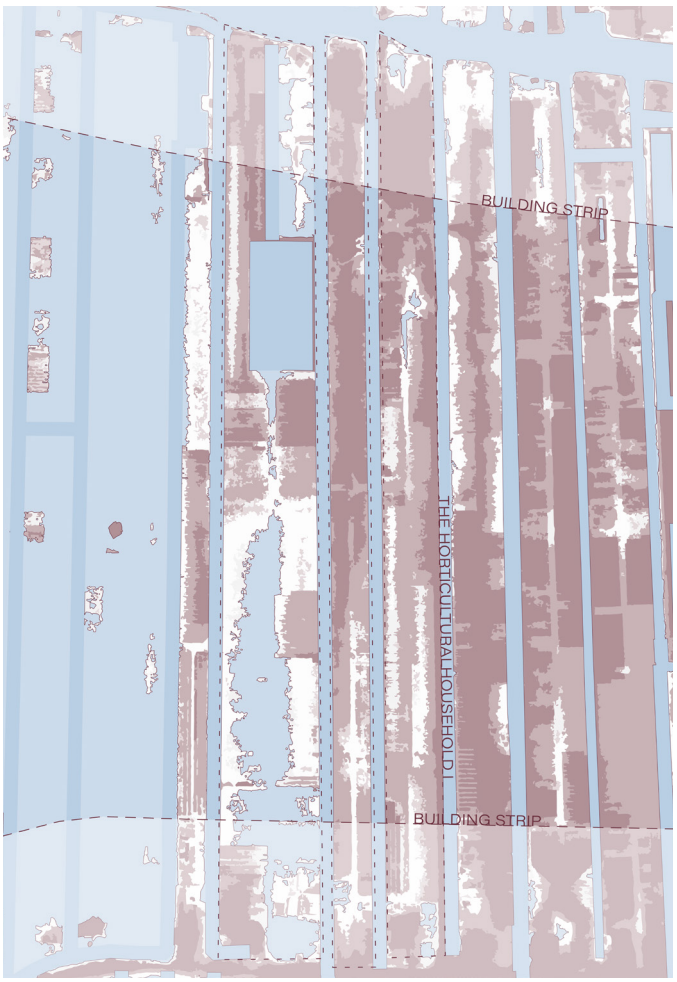
Map 35.
Design Hobbygrower II

Inhabitants -
The horticultural household I

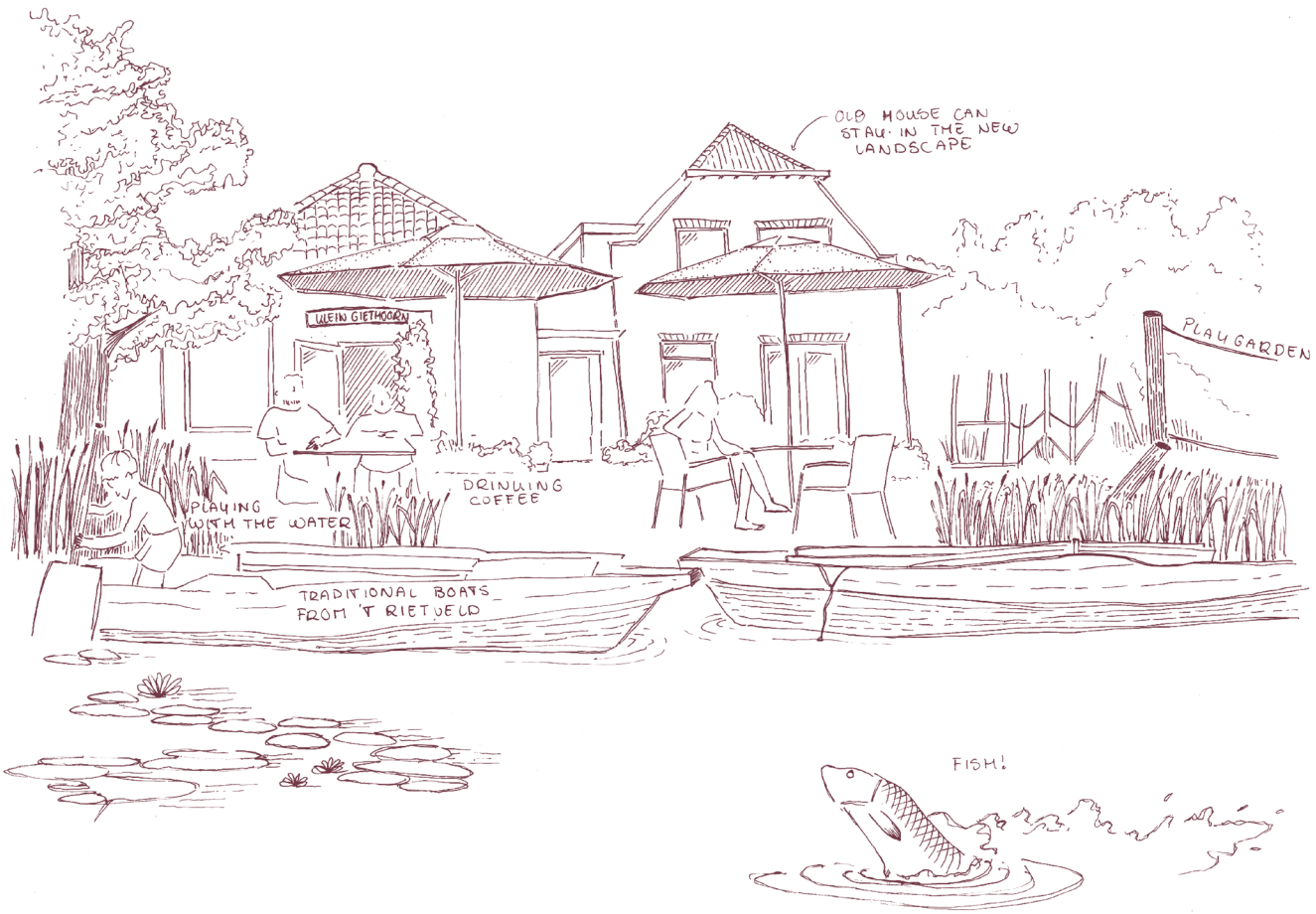


This horticultural household combines cultivation with education; the nursery functions partly as a demonstration landscape where visitors can experience new ways of cultivating with these wet conditions. The family sees horticulture not only as production but as cultural identity, which is worth showing to the world. At the back of the plots lies the old café “Klein Giethoorn”, which still operates independently but is closely connected to the nursery landscape. Visitors can explore the area here in old rowing boats, which are more than 200 years old.

Map 36.
Aerial picture Horticultural household I
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



Map 37.
Water conditions Horticultural household I
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN



VI: Having a cup of coffee at the traditional café Klein Giethoorn

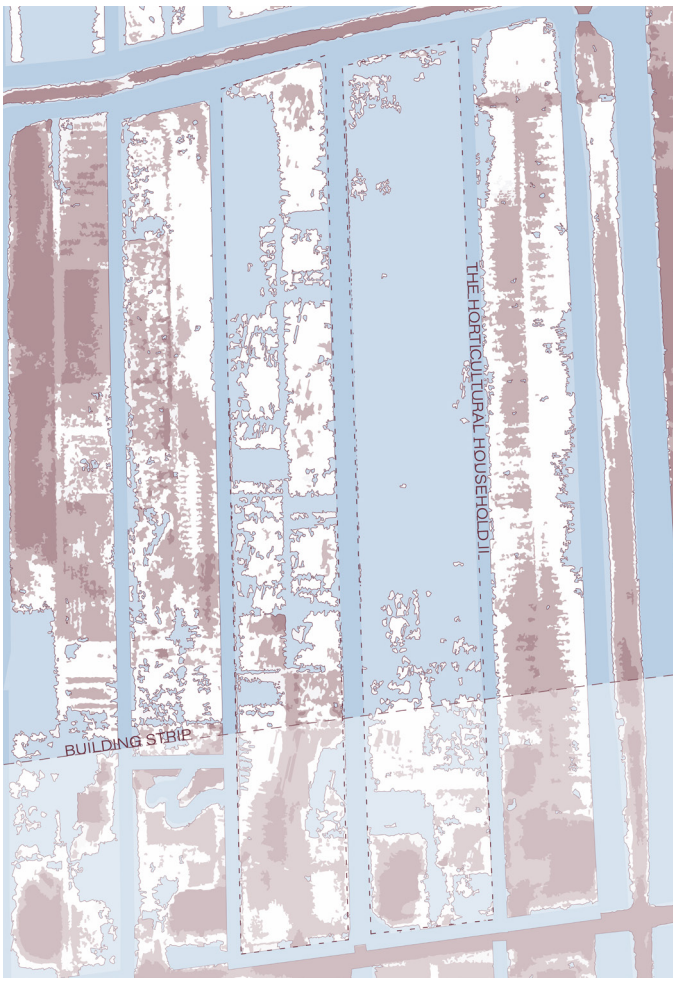
VI

Map 38.
Design Horticultural household I

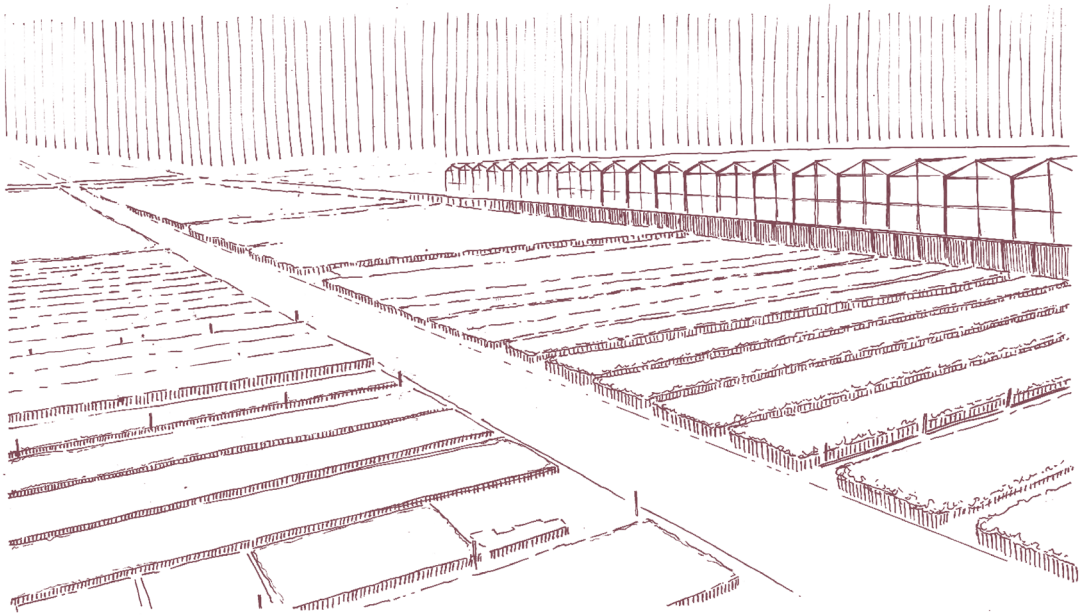
Inhabitants -
The horticultural household II

This horticultural household specializes almost entirely in aquatic and wet-condition planting. Because the conditions of the land are too wet for many traditional cultivation methods, the nursery shifted towards plants that benefits from these conditions. The owner became known across the Netherlands as a specialist in these aquatic plants. The nursery combines floating plant beds with shallow water cultivation. The house and sheds are clustered on the front of the plot, where the grounds are slightly raised, while the rest of the plot remains open and wet.

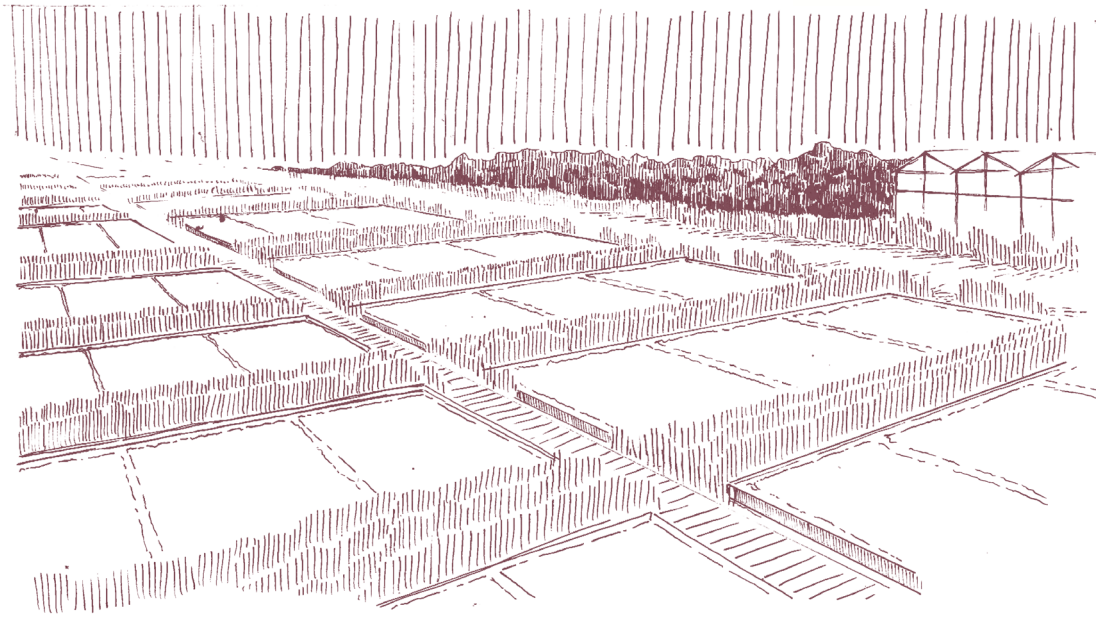
Map 39.
Aerial picture Horticultural household II
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



Map 40.
Water conditions Horticultural household II
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN

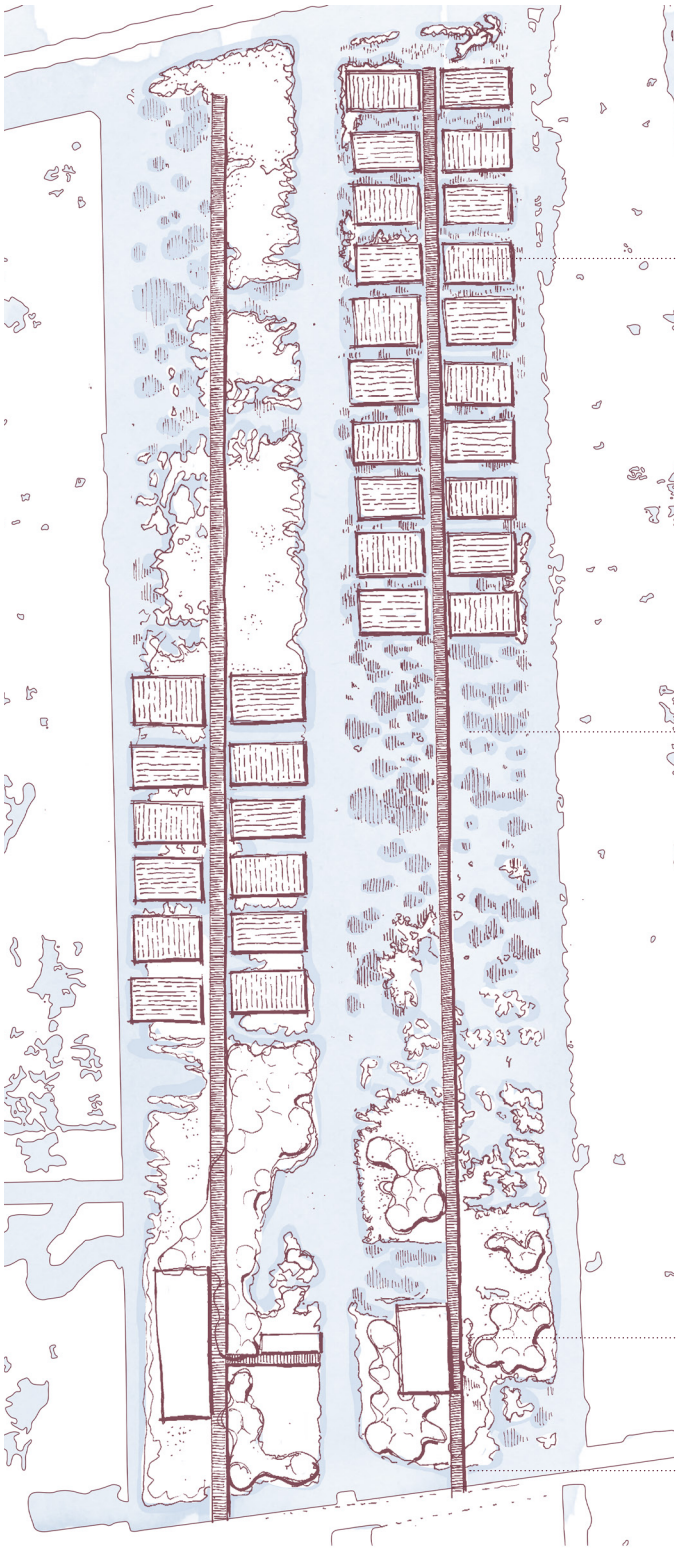


Current situation



Floating horticulture with reeds in between, in a future Boskoop

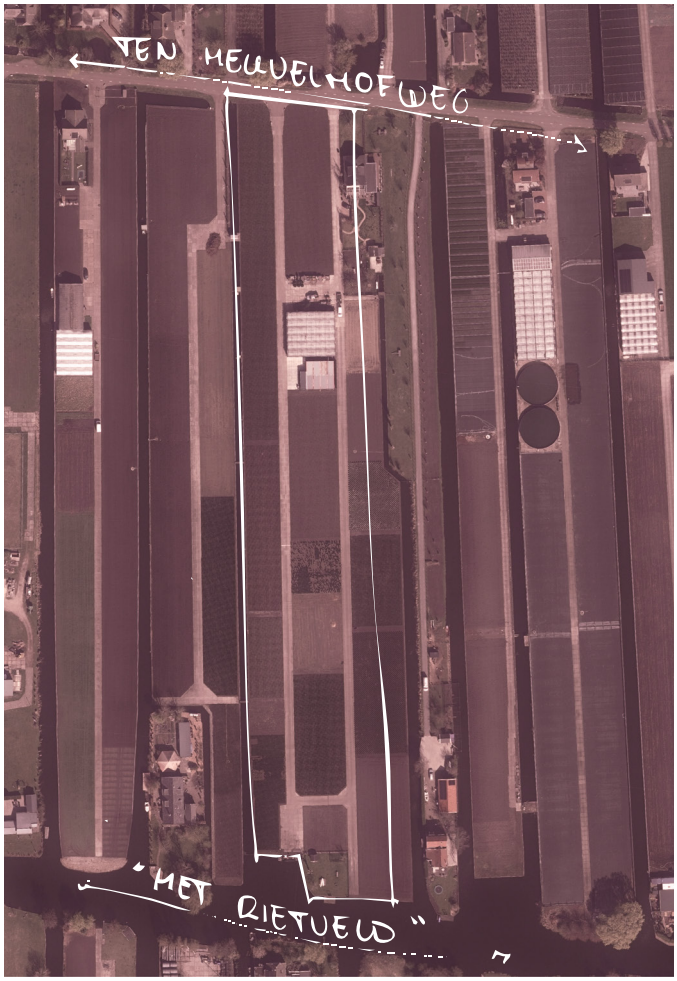
This nurser specializes in aquatic and floating horticulture. Because the plant beds are movable they change location every year to give the landscape beneath time to recover. There is space in between the plant beds that are accessible by a board walk. In this space water plants such as different types of reed grow, creating an interesting landscape.



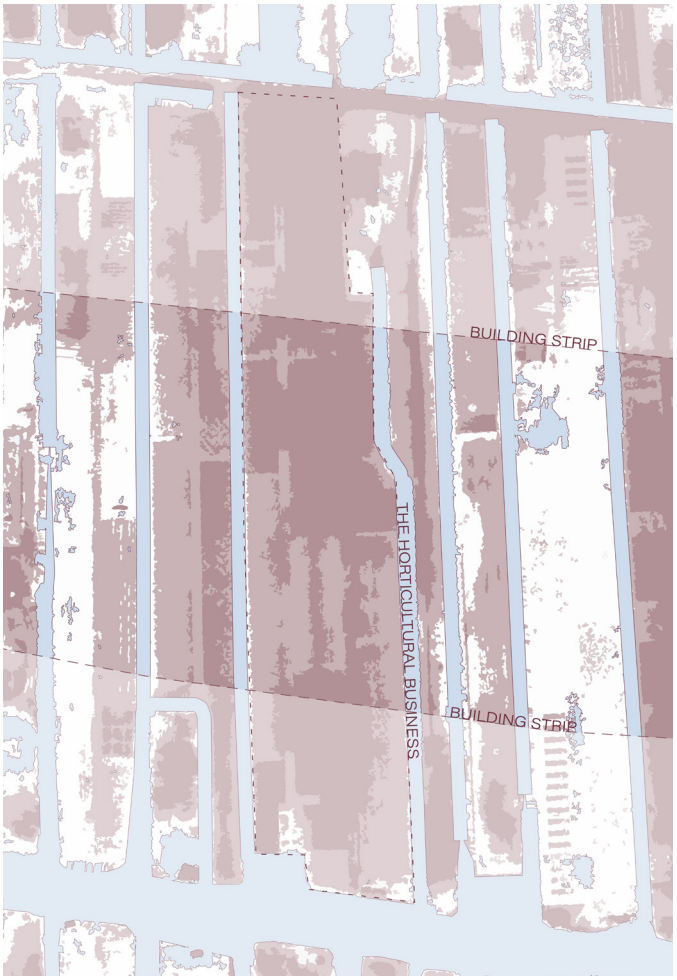
Map 41.
Design Horticultural household II

Inhabitants -
The horticultural business I

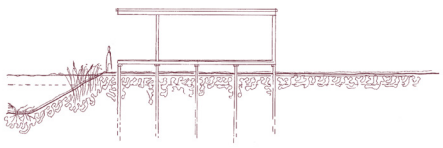
This horticultural business owns multiple locations across Boskoop and is run by several generations of the same family. Different plots specialize in different plant species, creating a diverse offer of plants. The nursery combines its still quite traditional soil bound cultivation with education by regularly opening their plots to schools and guided tours. Family members live across these different locations.

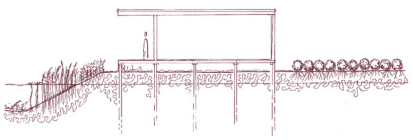


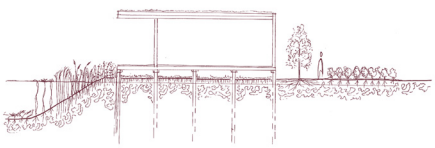
Map 42.
Aerial picture Horticultural business I
Note. Adapted from *Luchtfoto 2026 Ortho 8cm RGB*, by PDOK, 2026



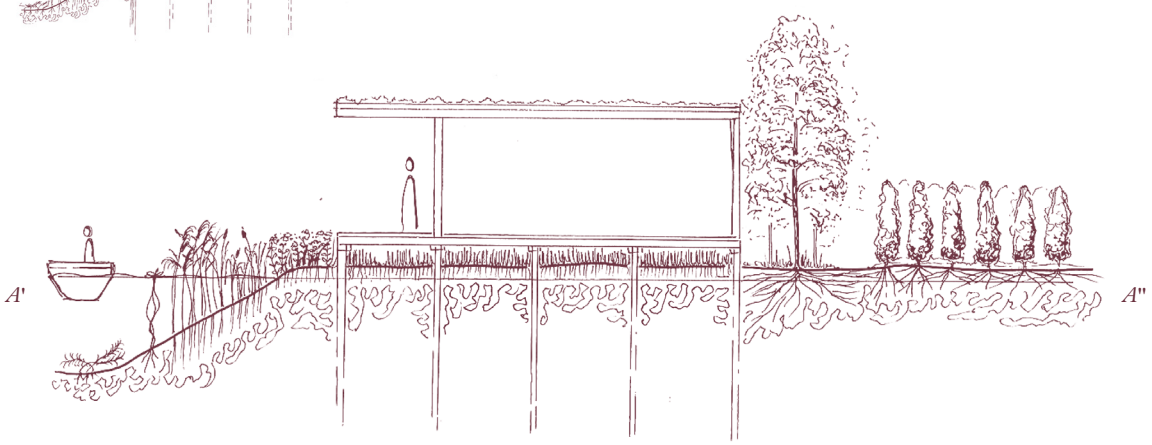
Map 43.
Water conditions Horticultural business I
Note. Adapted from *TOP10NL* by Kadaster, and *AHN4* by AHN

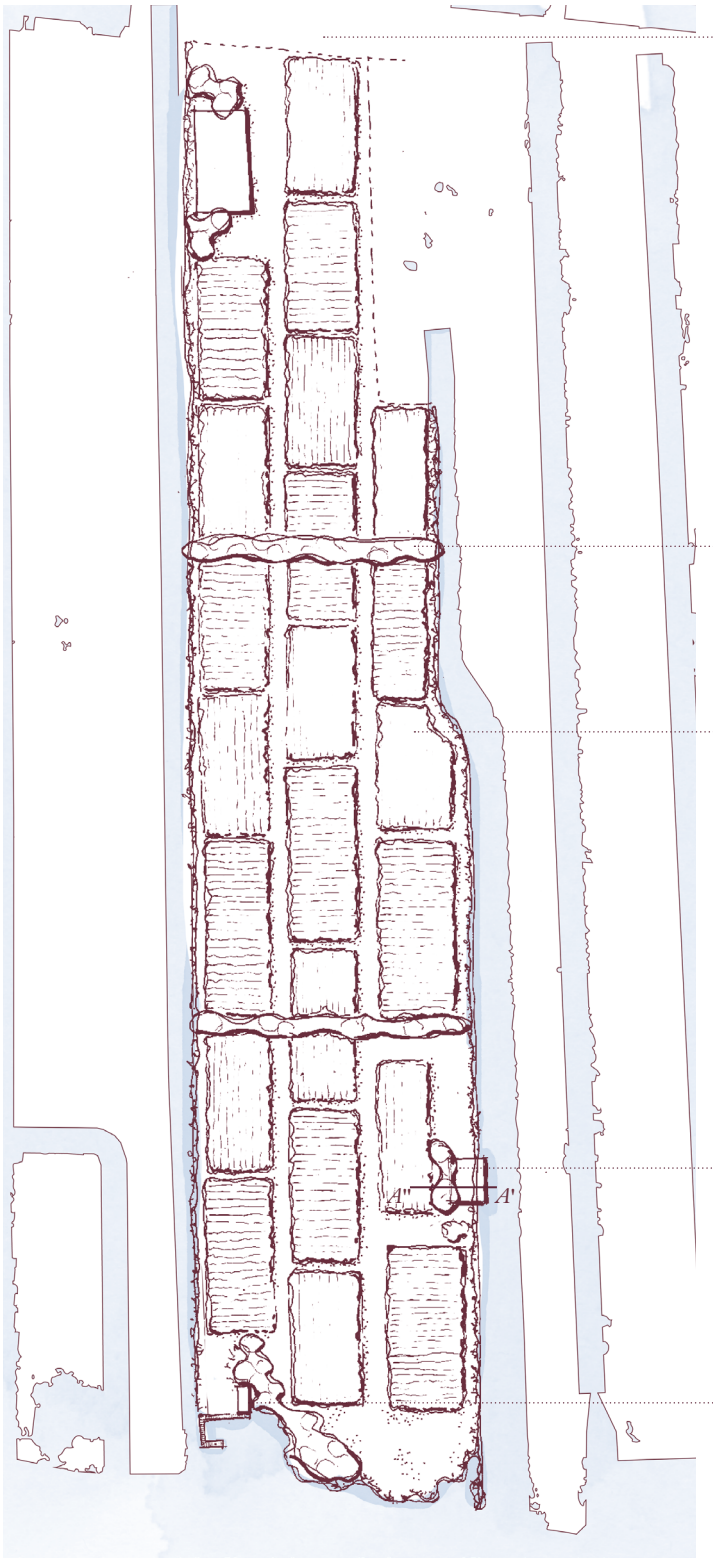






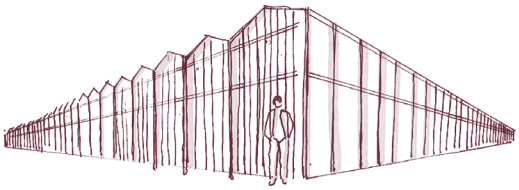
In the phasing strategy applied on the plot of the business it can be clearly seen how the implementation of the project can go gradually. The slow transition from horticulture monoculture, to a place where the nurser can live on a much more diverse but still productive landscape can be seen.





Map 44.
Design Horticultural business I

Inhabitants -
The horticultural business II



This business chose to leave Boskoop. Over time, the owner realized that the type of cultivation he did demanded stable soils and maximum efficiency. Production was dependent on large scale greenhouse systems that no longer aligned with the ecological conditions of the peat landscape. Rather than fighting continuously against limitations, the company relocated to a landscape much more suitable for its intensive production.

Adapting to a landscape does not always mean that every form of habitation can stay. Aligning habitation with a certain system also means acknowledging its limits and being honest about whether the thing you want to do is suitable here. The peat landscape offers possibilities, but not every practice can or should stay. This is not a weak choice; leaving can be a strong decision. If a form of habitation depends on continuously forcing the landscape into conditions it cannot support. Then the practice has to be adapted, or search for a place where it fits the conditions. Alignment is not only about opportunities but also about accepting boundaries.

In the current time, we have to ask ourselves more honestly if a certain type of habitation fits a certain type of landscape. As we have the opportunity to take more and more into our own hands. Instead of squeezing a landscape into a fixed direction until it no longer functions on its own, we have to make a choice. Adapt our practice to the condition, or acknowledge that this practice belongs elsewhere. That is not giving up, it's taking the landscape seriously.

IMAGINING
6.4 The experience of Boskoops future landscape

The harbour

"The trip starts at the harbor, where the Roemer meets the Loeteweg. I arrived here by car from Leiden and parked it nearby, but I could just as easily have come by bus. The public transport here shifts from road to water as the bus goes into the area. The harbor feels lively; children are fishing along the edges, and people are cycling and walking around. Just as I arrive, the mailman comes in as well, standing along the edge, opening one mailbox after the other; there are many of them. These many mailboxes show the inhabitants of the area; this is not only a place to recreate, but people are really living here. Making the many boats not accessories but part of people's everyday life.

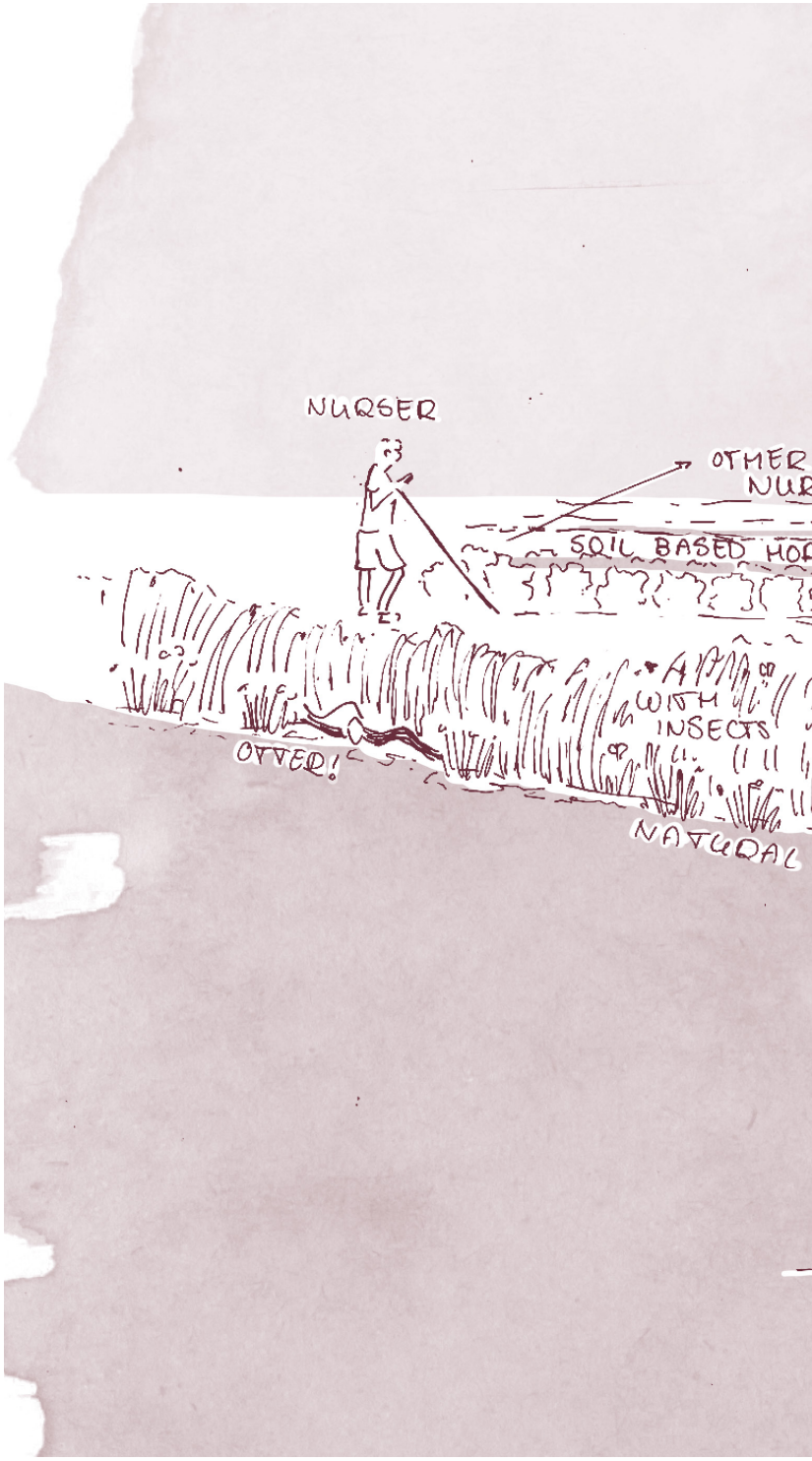
I rent a boat to continue my journey through this area. The choice is simple, a canoe or an electric whisper boat, I choose the whisper boat. It allows me to carry things, as I plan to stop along the route to pick up a few plants to take back with me to my garden in Leiden, which has the same growing conditions as the peat landscape of Boskoop."

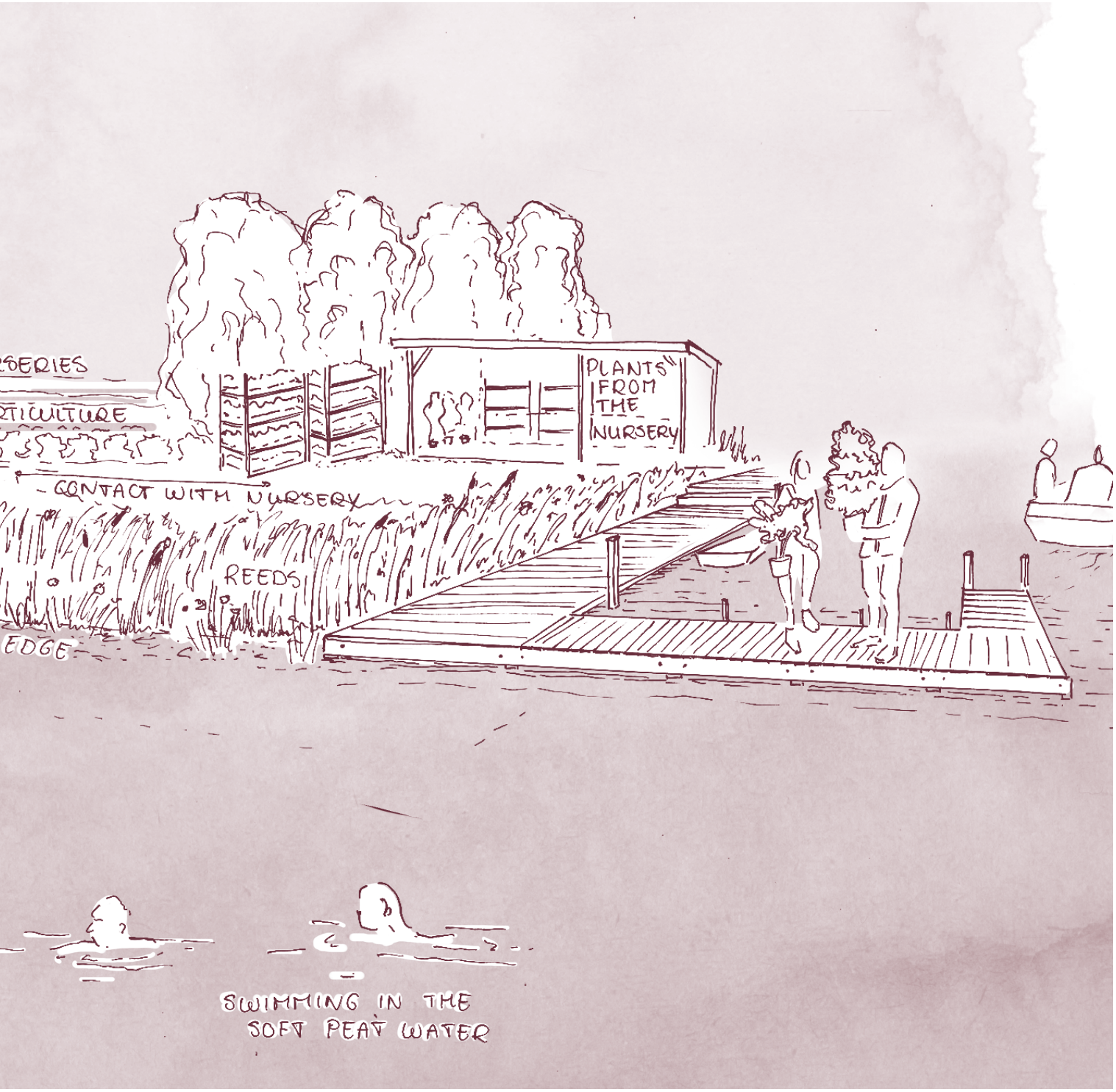
Buying plants
The horticultural business I

"As I continue along the water, I pass several small stands along the canals selling plants from the edge of their plots. They appear and disappear in the landscape. Despite the temptation to stop, I am heading to a specific nursery further into the area, one known for its wide variety of plants.

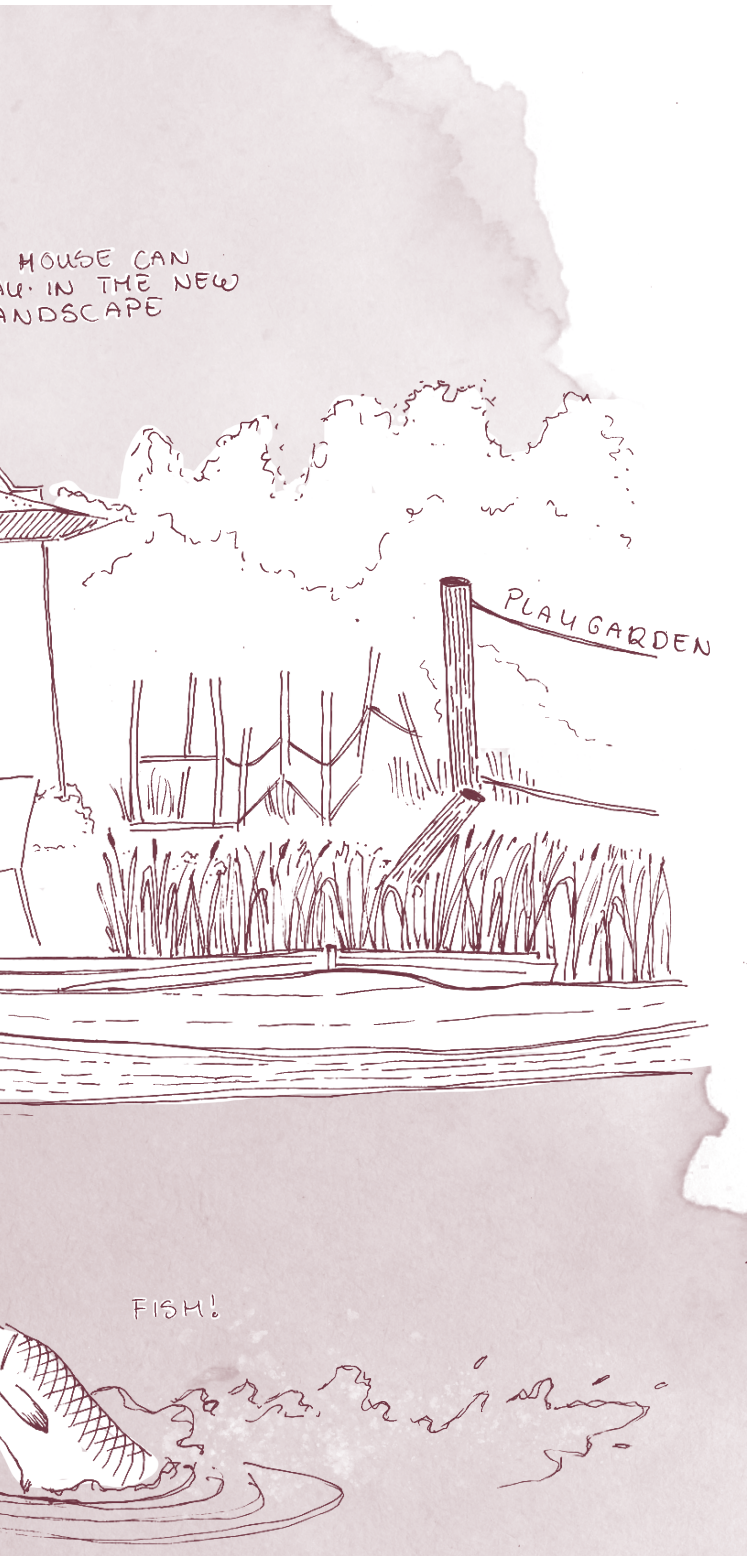
When I arrive, it is already lively, not crowded but lively. People have tied their boats along the small dock, carrying boxes and baskets for their future plants. At the same time, the place feels inhabited by more than just people. Birds move through the reeds, insects fly above the water, and a bit further away, I get a glimpse of something moving. Could that be an otter?

Next to the shop, the nursery opens up. Here, the nurser is working in between his plants; there is no clear boundary between production, landscape, and everyday life. Everything seems to flow into one another. Because it is a hot day, people are swimming in the soft peat waters. I am tempted to jump in, but decide to save the moment for later, when I reach the place I will spend the night."




ERIES
TICULTURE
CONTACT WITH NURSERY
PLANTS FROM THE NURSERY
REEDS
EDGE
SWIMMING IN THE SOFT PEAT WATER


OUD
ST A
LA
KLEIN GIETHOORN
DRINKING
COFFEE
PLAYING
WITH THE WATER
TRADITIONAL BOATS
FROM 'T RIETVELD



Klein Giethoorn
The horticultural household I

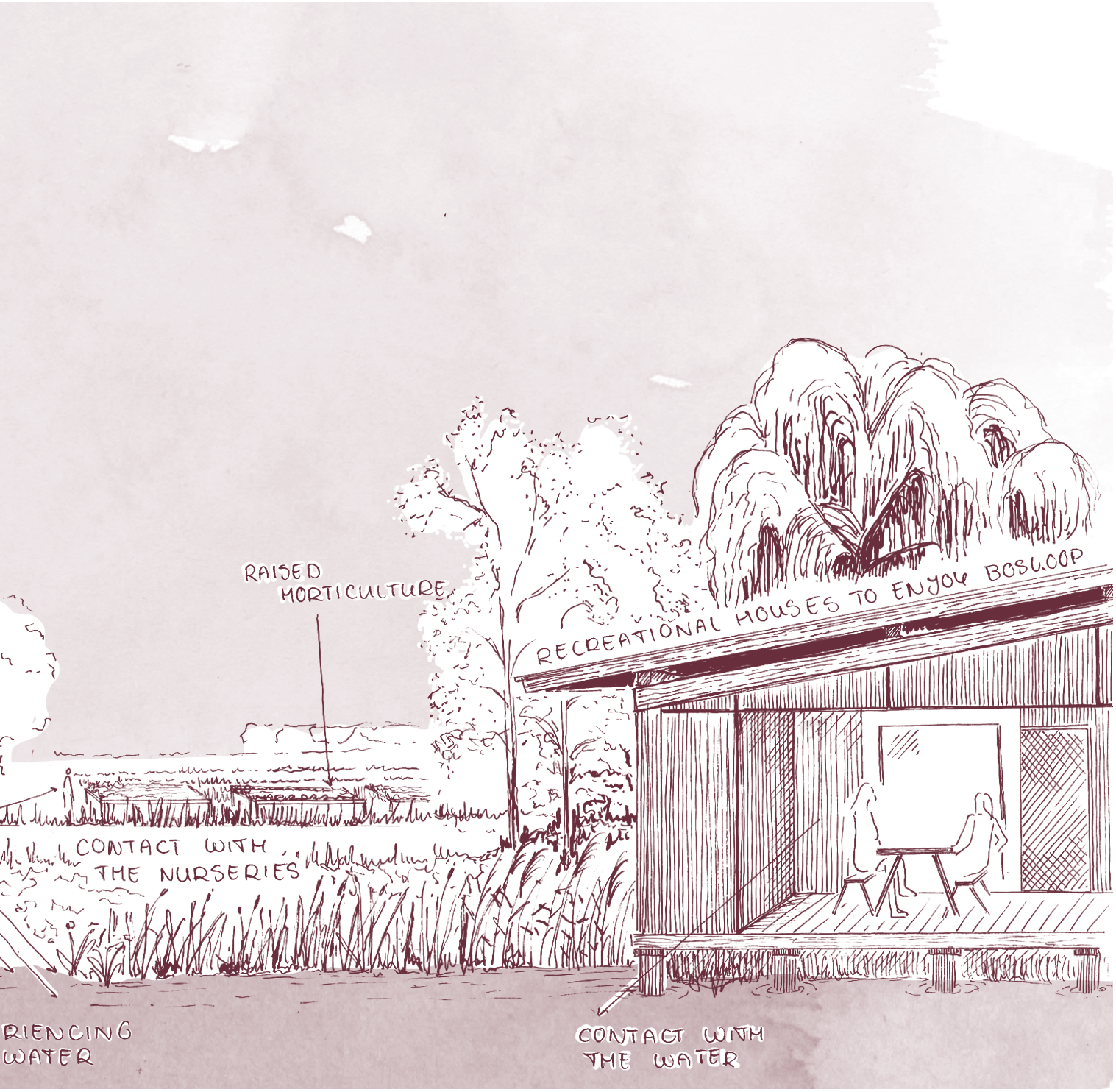
"I follow the water further into the area. Along this line, many older houses appear close to the water, a reminder that this has been a water-based village for centuries. The canal is not an addition to the settlement; it is the settlement. Movement, transport, and everyday life have been organized along these waters.

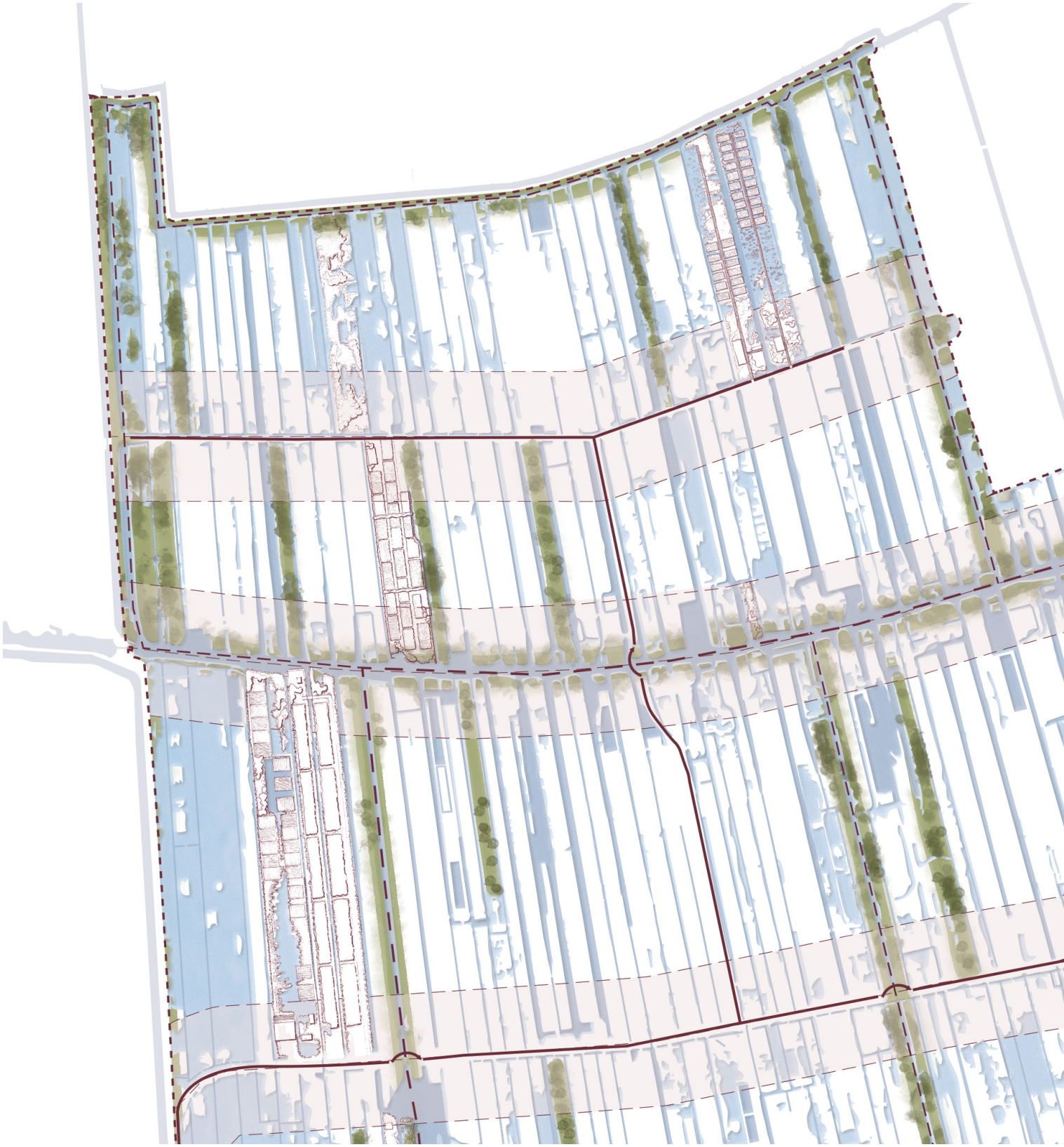
At one of these older buildings, I stop to have a cold soda. The place is called "Klein Giethoorn", a name which is often used to describe Boskoop because of its similarities to Giethoorn, another water based village in the Netherlands. I cannot dock at the front of the café; that place is reserved for the historical wooden rowing boats that are still used here. In the past, these boats were essential. They where used to transport everything through the village, people, milk, building materials, cows, and even caravans. While boats are still essential, they do not have to be powered by human force anymore.

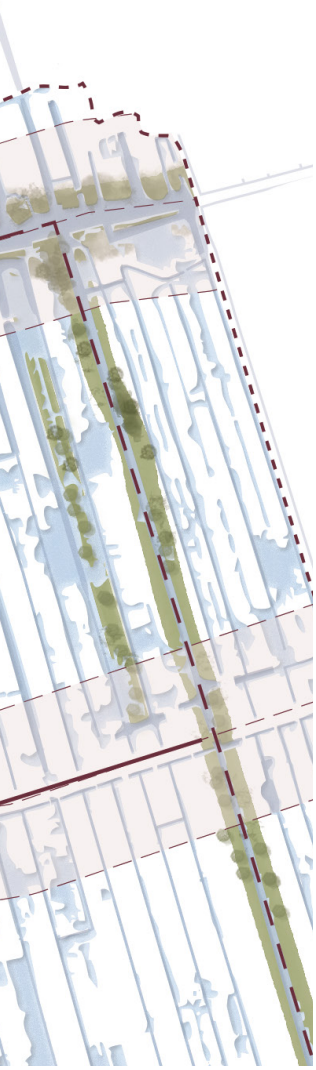
People are sitting on the terrace, watching their children play in the garden next to it. Children step through shallow puddles and climb through the reeds. Water here is not something to be avoided, but is part of how the space is used. I sit down with my soda and take in the view. Boats slowly pass, and the soft sound of movement fills the background. The place is lively, but does not feel rushed. Here it becomes clear how lives are built around this water landscape by learning how to live with the water instead of pushing it away."

Spending the night
The hobby grower I

"As the sun lowers behind the windmill, I decide to continue towards my sleeping place for the night. I follow the waters deeper into the area. On the way, I notice the contrast; the lively strips of buildings along the main canals, full of movement and activities. Followed by the quiet openness of the fields. The sleeping houses are positioned within this calm, away from the residential building strips. Their scale is modest, and they blend easily into the landscape. As I approach, I already see my friends sitting on the porch. I dock my boat and step onto the deck of the house. They are in the middle of a card game, and I join them. The day transitions into the evening, visible because of the quiet peat landscape around us. For me, the day is complete, just being in the middle of this landscape."


RAISED
HORTICULTURE
RECREATIONAL HOUSES TO ENJOY BOSLOOP
CONTACT WITH
THE NURSERIES
RIENCING
WATER
CONTACT WITH
THE WATER





IMAGINING adapted forms of habitation can take different shapes, as inhabitants have different wishes, demands, and ways of using the landscape. A horticultural business will adapt its plot differently from an inhabitant who only dwells there. Next to that, adaptation can also mean acknowledging the limits of the landscape. If a certain form of horticulture does not fit the peat conditions anymore, leaving can also be a form of alignment.

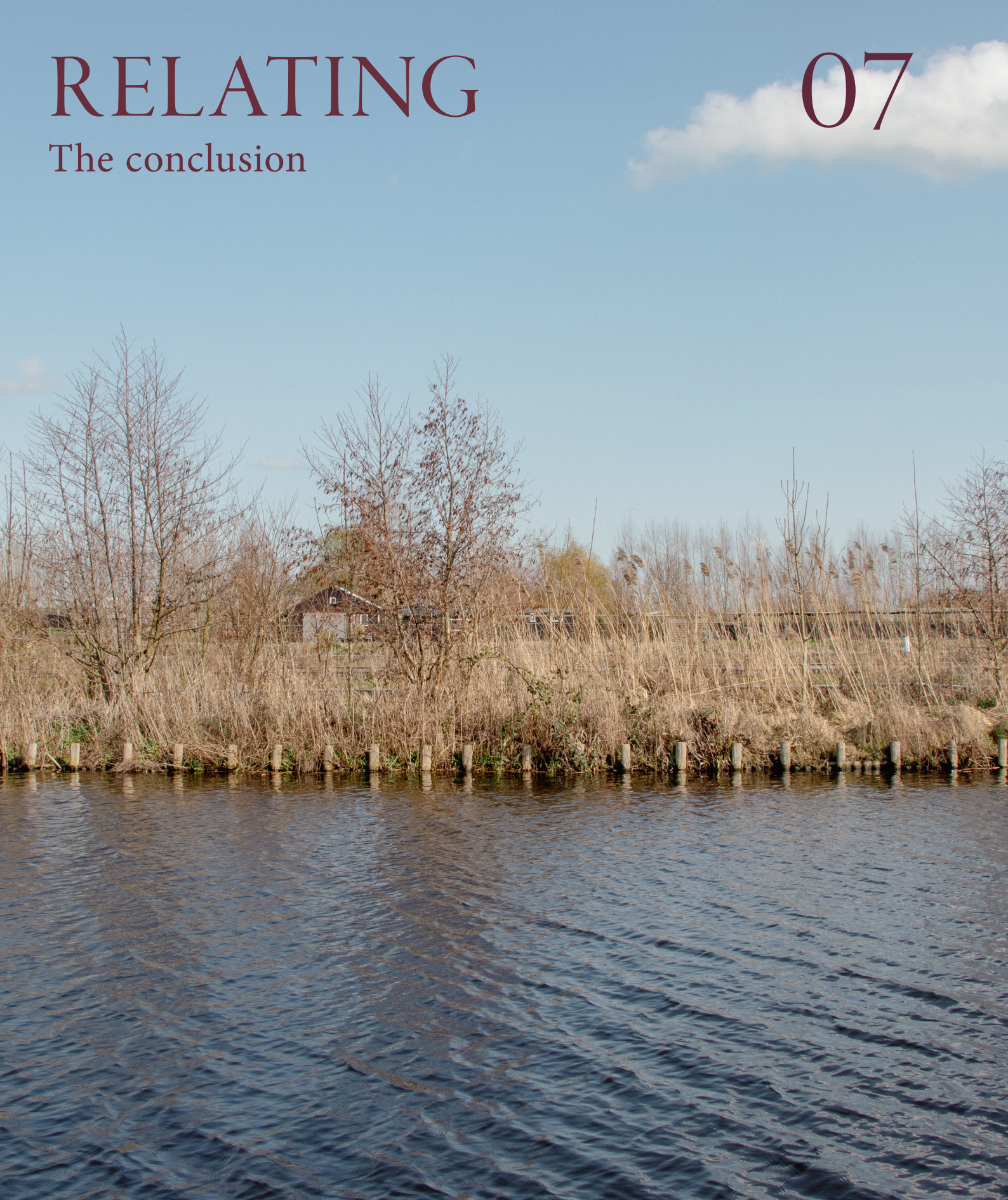
What these adapted ways of habitation have in common is that they create a different relationship between inhabitants and the peat landscape. Houses are raised above the land or float on the water, while terraces and large windows open towards the changing seasons and conditions of the landscape. Cultivation has to respond to the wetter soils and ecological limits. Through this, inhabitants gain new knowledge about the landscape they are dependent on.

The landscape itself also changes with this adaptation. Lines of reeds, floating horticulture, spontaneous houtakkers, and open nurseries shape a new landscape while still carrying the horticultural identity of the area. This landscape is not only experienced by people living there. Visitors can also move through it by taking a boat through the area, buying plants at a specialized nursery, stopping for coffee in an old cafe, and eventually finishing the day between the trees, water, and nurseries. The adapted landscape of Boskoop becomes a landscape in which people are brought closer to the peat again.

RELATING

07

The conclusion



CONCLUSION

A future landscape of Boskoop can align human habitation with the peat system by taking its ecological functioning as the foundation for spatial development. The research proposes that this alignment can be best achieved through a framework that guides habitation, rather than through a fixed master plan. Within this framework, ecological interventions form the basis for future development. Raising the water level is the key intervention, as it limits peat oxidation, reduces subsidence, and strengthens the functioning of the peat system. This intervention has a big impact on the landscape, but it also creates opportunities to further strengthen the peat system. By designing for biodiversity through diverse land uses and gradual transitions, the landscape can become more ecologically resilient.

To ensure that this transformed landscape remains connected to the existing qualities of Boskoop, the ecological framework is supported by habitation guidelines. Horticulture remains facilitated, as it forms the core of Boskoop's relationship with the landscape. At the same time, the spatial quality of the area is maintained by concentrating buildings along the existing linten. Together, the ecological interventions and the habitation guidelines form the framework within which habitation can adapt.

Adaptation of human habitation can happen in different ways. Building typologies such as piled or floating structures can be used for horticulture, housing, or recreational purposes. Cultivation can happen on floating or raised tables or directly in the soil under wetter conditions.

The design of polder ‘t Rietveld shows that adaptation is not one fixed solution. Different inhabitants can respond to the ecological conditions in different ways, depending on their form of living, working, and cultivating. The design also shows that the implementation has to happen in phases. This gives time for the gradual replacement of buildings and structures. But also gives inhabitants the time to research, test, and develop adapted ways of habitation. The project shows that by taking ecological functioning as the guiding condition for development. Peat oxidation, subsidence, and CO2 emissions can be reduced while the landscape remains inhabited. Habitation shifts from being imposed on the landscape to something that develops in relation to it. Creating more landscape awareness and strengthening the relationship between people and the places they inhabit. Allowing the Derrie of Boskoop to become the ground for future habitation.

Derrie - "Laagveen" (Fenland)
Boskoops Boomkwekers Woordenboek

- Once understood as dirt. Now understood as the wet peat soil that grounds the future landscape of Boskoop and sets conditions for human habitation.

"Wet grounds, water, the softness of the soil and its instability will once again become part of daily life in Boskoop. Habitation will follow the water conditions, bringing people into direct contact with the peat landscape. What is now hidden beneath the surface will become visible and experienced. By living with these conditions, inhabitants will get an understanding of the soil they depend on. Derrie becomes part of everyday routine, shaping how people move, build, and cultivate. In this way, habitation is no longer misaligned but develops in relation to it. Derrie is no longer something to be removed or avoided, but something to live with. It becomes more than dirt; it becomes the ground condition that supports and shapes the future of habitation in Boskoop."

DISCUSSION

This project explores how habitation in Boskoop can develop when the peat landscape becomes the guiding condition for development. To ensure an ecologically functioning peat system, the water level has to be raised. A radical intervention with a high impact on the area. The project can therefore be understood as a radical experiment. At the same time, rather than proposing a master plan, the project proposes a framework that sets ecological conditions, while leaving space for inhabitants to adapt over time.

This distinction is important. The project does not claim to know exactly how horticulture under wetter conditions should technically work. The designs for Polder 't Rietveld are therefore explorations of what could be possible. However, the wishes and inhabitants are abstractions of reality. In real life, these adaptations would be very different and probably much more diverse.

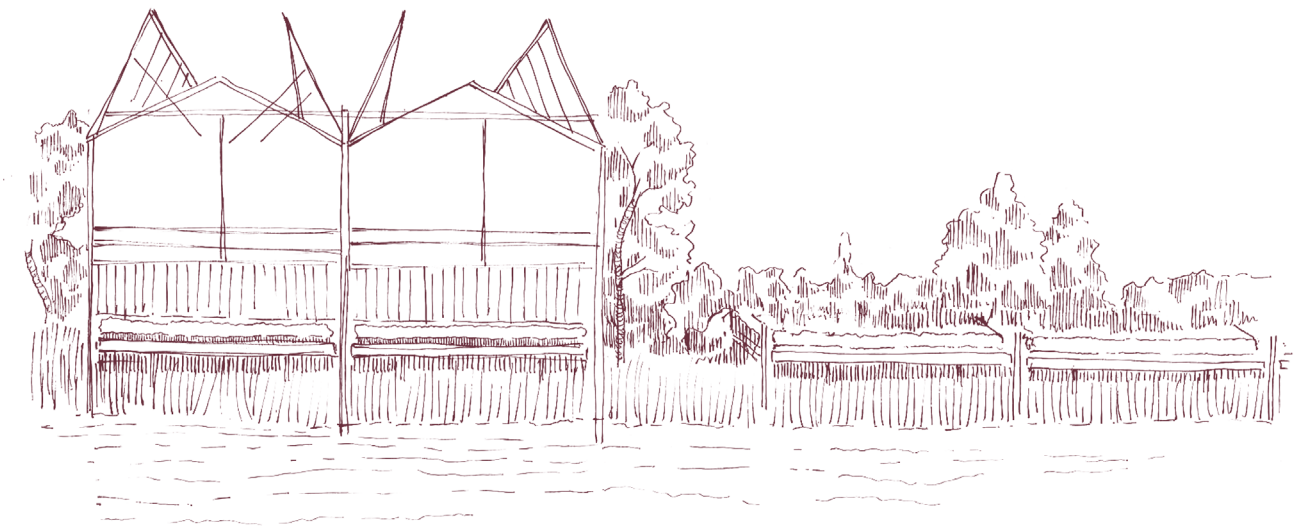
This is also where the role of the landscape architect becomes relevant. In agricultural landscapes, the designer should not try to design every detail of future practice. Nursers themselves know much more about horticulture than I can possibly understand. The task of the landscape architect is therefore to set the spatial and ecological conditions for the landscape, so that cultivation can become sustainable in the long run.

For these specific ecological conditions in Boskoop, further research is needed. To define the exact water levels for limiting peat oxidation, the best moment of the water level raise, and the specific ecological rules and guidelines. While these are all based on literature and discussed with an ecologist, research on the specific site has to be done. The project, for example, now chooses one hydroshift moment because this makes the transformation in the landscape readable

and keeps the water system connected as infrastructure. However, a gradual implementation could also be possible, illustrating the tension between ensuring an ecologically functioning system and facilitating human use.

This is also the reason why peat growth is not taken as the primary goal in this project. While this is an interesting long term goal, the process is slow and complex, which takes enormous time and needs intensive management. Therefore, the project focuses on limiting peat oxidation and not on growing peat, while aligning habitation with the peat system. However, by raising water levels and adapting buildings and infrastructure, the project could form a good base point to start peat growth over the longer term.

The project is thus a first spatial exploration rather than a technical solution. The value of it lies in showing that agricultural landscapes do not have to transform into empty nature restoration landscapes, but can remain to be inhabited and partly productive. By setting clear ecological and spatial boundaries while leaving room for agricultural agency, habitation can work with the peat again instead of against it.

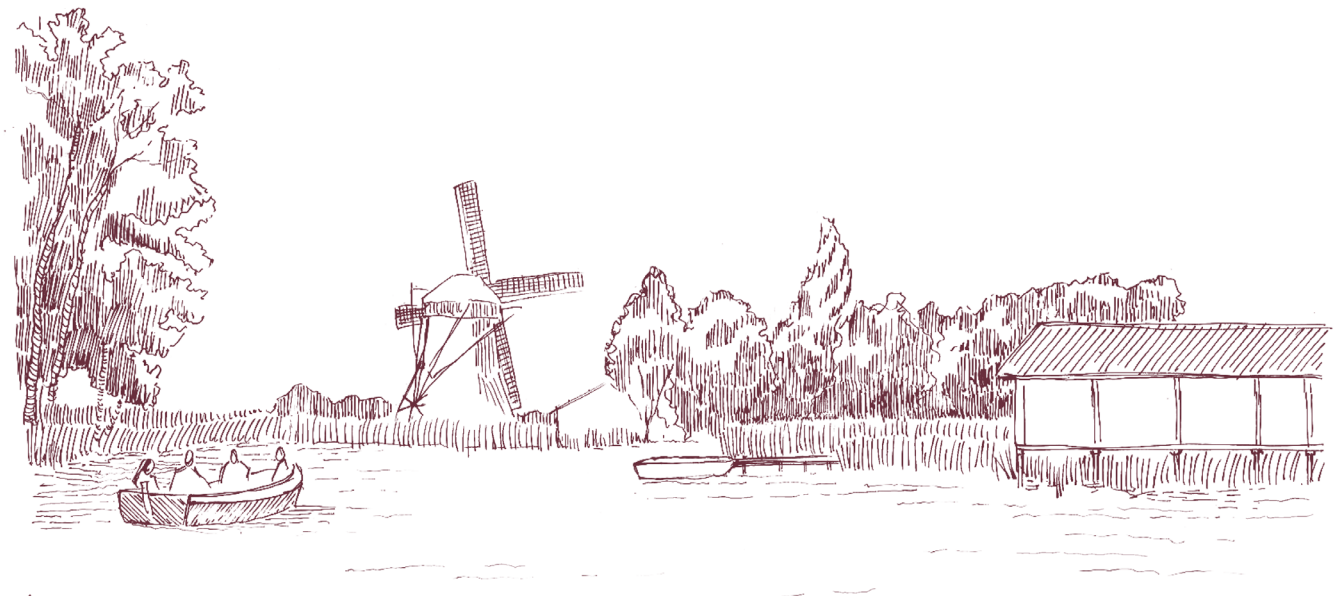


REFLECTION

Looking back, choosing Boskoop as my graduation site was both valuable and difficult. Because I know the site so well, I already had many stories to tell, observations to translate, and ideas of what the landscape could become. This gave the research depth, but also made the start of the project a bit unclear. If you normally start at a new site, you logically start by doing an inventory and analysis of the site. But because I knew the site already, I did not do this naturally. However, overtime I realized I just had to do what I already did so many times before, and that a structured analysis was needed to ground the project.

During the project, this familiarity with the site became more and more a strength. The amount of knowledge that, in the beginning, overwhelmed me eventually made designing come naturally. It eventually shaped the approach of the whole project: a strong ecological intervention, combined with a more gentle implementation. Because I understand the cultural identity and the role of horticulture, I am very aware of the consequences that a radical intervention such as raising the water level would have on its inhabitants. But I also understand the capability and power of giving the inhabitants agency in the project.

This also changed how I understand my role as a landscape architect. I could not put my finger on it, but now I understand better. In agricultural landscapes, farmers have a direct relationship with land, understanding practices, routines, and technical details that I can not fully understand from the outside. The task of a landscape architect is therefore not to replace this knowledge, but to create conditions in which it can develop in a certain direction.



The four lenses of landscape architecture perception, palimpsest,process and scale continuum helped me to further reflect on this project within the broader discipline of landscape architecture (Bobbink & de Wit, 2021).

Through the lens of perception, the project is about changing how people relate to the peat landscape. I do not design this perception directly, as the project works with a framework rather than a fixed design. However, by changing the conditions of the landscape, the framework can create more awareness of the system that sustains habitation. The lens of palimpsest is translated through the use of history as a design tool. Boskoop is understood as a landscape built up out of layers of horticulture, water infrastructure, linten, and houtakkers. The project builds upon these layers without freezing the landscape in the past. Through the lens of process, the peat landscape is understood as something dynamic. The design does, therefore, not propose one fixed end point. However, working more with these dynamics, for example, by showing differences in season, the project could become stronger. Last, the lens of scale continuum showed me the importance of working through the scales. The framework at the scale of Boskoop only became concrete when it was tested at the polder and the plot scale. This made me realize that vision maps on a larger scale do not say enough on their own; they need to be tested in specific places. This is something I already realized but did not understand fully yet.

Together, these lenses show once again that my project is about the relationship between people and their environment. Through this project, I also realized that this is what landscape architecture is about for me: creating conditions to facilitate a deeper relationship between people and a healthy environment.

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During the preparation of this work Chatgpt was used as a writing support tool to review grammar, wording and sentence structure. The generated suggestions where critically assessed, reviewed and edited. All texts, analyses, design decisions and conclusions remain the authors own.

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