



Master Thesis

THE INVERTED ESTATE.

Reimagining inverse town planning to stimulate an improved human-nature connection, a case study for the Haagse Beemden



MSC TEHSIS LANDSCAPE ARCHITECTURE

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Abstract



The Haagse Beemden in Breda is a neighbourhood that is designed towards the concept of the “inverse town planning”. In this concept, the underlying landscape structures the layout of the neighbourhood, resulting in an urban area with the landscape at its core. In the case of the Haagse Beemden this means that the neighbourhood was built around an old “estate zone” and old green structures and waterways are still present in the design of the area, making the neighbourhood very green. The green character of the Haagse Beemden together with the used “bloemkoolwijk” structure are focussed upon creating a neighbourhood with good social values and liveability.

However, times have passed since the creation of the neighbourhood and nowadays its liveability and social values are under pressure.

This thesis focuses on analysing what spatial aspects and characteristics could possibly cause these problems and how the green structure of the neighbourhood could be improved to stimulate a better nature connectedness, as nature connectedness can act as a catalyst for better social cohesion. The result is a design proposal for an “estate park” that connects the neighbourhood to its core identity. This design is based on four created typologies (Central Green, Selective Collective, Connecting Green and Semi-Collective) that are funded by the findings in the theory and analysis phases.

Keywords:

inverse town planning, bloemkoolwijk, landscape architecture, urban forestry, estate landscape, nature connectedness, Haagse Beemden, Breda

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PART I

INTRODUCTION AND THESIS OUTLINE



figure 1.1: Location of the Haagse Beemden in Breda. (Source: Planviewer, z.d.)

Introduction

As part of the “35 icons of Dutch spatial planning”, the neighbourhood Haagse Beemden in the city of Breda is acknowledged as one of the most outstanding and honoured practices of spatial planning in the Netherlands. The reason for this is that the design of the Haagse Beemden symbolises a change in thinking within town planning. (Ministry of Infrastructure and the Environment, 2012)

Instead of looking at urban green as “leftover space” after the rest of the neighbourhood was constructed, now urban green was designed first and guided the shape of the rest of the neighbourhood.

“Green structures red instead of the other way around”.

This change in thinking was an answer to the post-war town planning.

This “inverse town planning”, as it is called, was designed more towards the human scale. Liveability and social contact with other residents became more important. A tool they used to achieve this was the use of green as a structuring element in the urban landscape. The urban structure of the Haagse Beemden is built around an old estate zone, dating back to the 1200s, and original waterways and agricultural routes are preserved and used in the neighbourhood as a green-blue network. Green is never more than 400 meters away in the Haagse Beemden.

As research suggests, urban green can catalyze social cohesion, well-being and social capital, making it a suitable tool to use when wanting to achieve a better social situation within a neighbourhood. (Jennings & Bamkole, 2019). Oh et al (2022) found that people who have a strong connection to nature and like to spend time outside, feel a stronger sense of social cohesion as well.

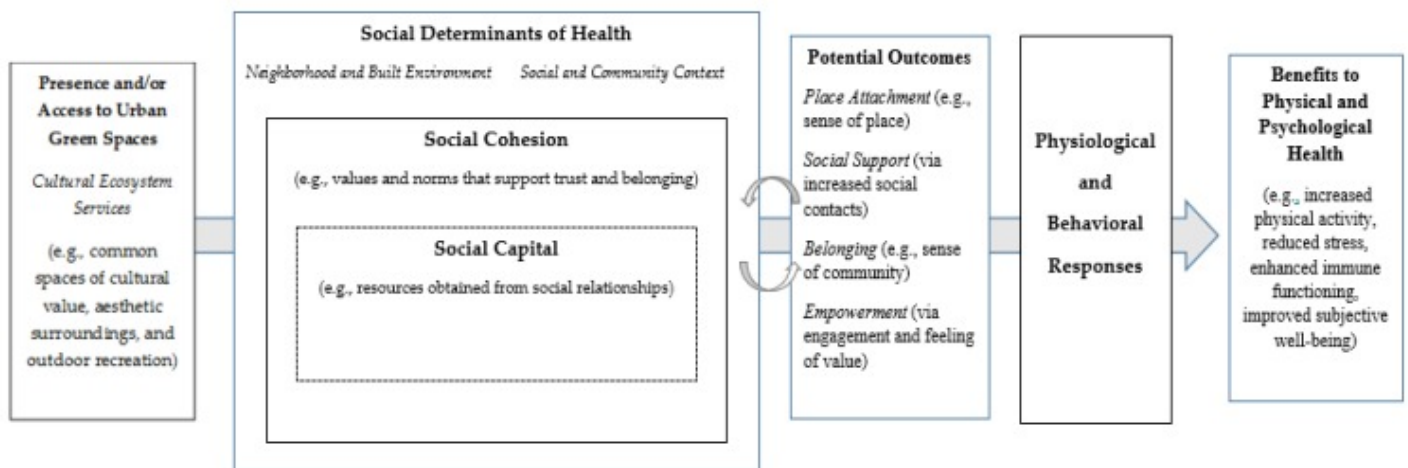


figure 1.2: Conceptual framework illustrates link between access to urban green and social and physical benefits. (Source: Jennings & Bamkole, 2019)

Figure 1.2 shows a diagram explaining how presence and/or access to urban green spaces leads to better social cohesion and in the end causes benefits to physical and psychological health.

Problem statement:

Although the initial design for the Haagse Beemden targets specifically a good social landscape, this is exactly the problem the neighbourhood is facing now. Two parts of the neighbourhood are assigned the status of “vulnerable”, meaning they suffer on multiple levels like income, opportunities, education, health, social participation, loneliness and safety. And according to Rekenkamer Breda (2021) the segregation in the city is still becoming worse, meaning that the other districts in the Haagse Beemden are likely to get the status of “vulnerable” as well in the future.

Research objective:

Finding out how it is possible that this neighbourhood suffers from these social problems. And what parts could be caused by the green structure of the inverse town planning? And furthermore, how can this inverse town planning be further developed, using knowledge from theories behind “nature connectedness” in order to better the social situation in the Haagse Beemden?

This knowledge is then applied to a future vision for the neighbourhood and specific designs for parts of it.

Research questions:

MRQ:

What is the potential of nature connectedness to rethink “inverse town planning” to create a spatial design for the Haagse Beemden in Breda that stimulates better social structure among the inhabitants?

Sub research questions:

1. What characterizes inverse town planning and how did it affect the spatial and social structure of the Haagse Beemden?
2. What are the current spatial and social challenges in the Haagse Beemden and what causes them?
3. What are nature connectedness theories and how can they contribute to a better social situation in the Haagse Beemden?

Thesis outline:

This thesis contains of five parts.

The first part, the introduction, introduces the site, the main characteristics of the site and the posed problem and aim. This is followed by the research questions and methodology.

The second part dives into the existing theories associated with this thesis topic. What is already known and what is the frame of reference used to answer the research questions?

The third part, analysis, writes more in-depth about the Haagse Beemden. What is the social and spatial situation currently and how are how is the blue-green structure built up? What are the specific problem areas and spots that have potential to be improved with a spatial intervention?

Part IV is the vision and design. Knowledge about the theory and analysis is used to form a future vision for the neighbourhood. Specific important spots are worked out in detail with a landscape architecture design.

The final part concludes the thesis with a conclusion, reflection and discussion of the research question and the relevance of the thesis on a professional level.

Methodology

Figure 1.3 shows the methodology used to write this thesis. It shows what is researched and how it is done and influences the design.



research question

What is the potential of nature connectedness to rethink "inverse town planning" to create a spatial design for the Haagse Beemden in Breda that stimulates better social cohesion among the inhabitants?

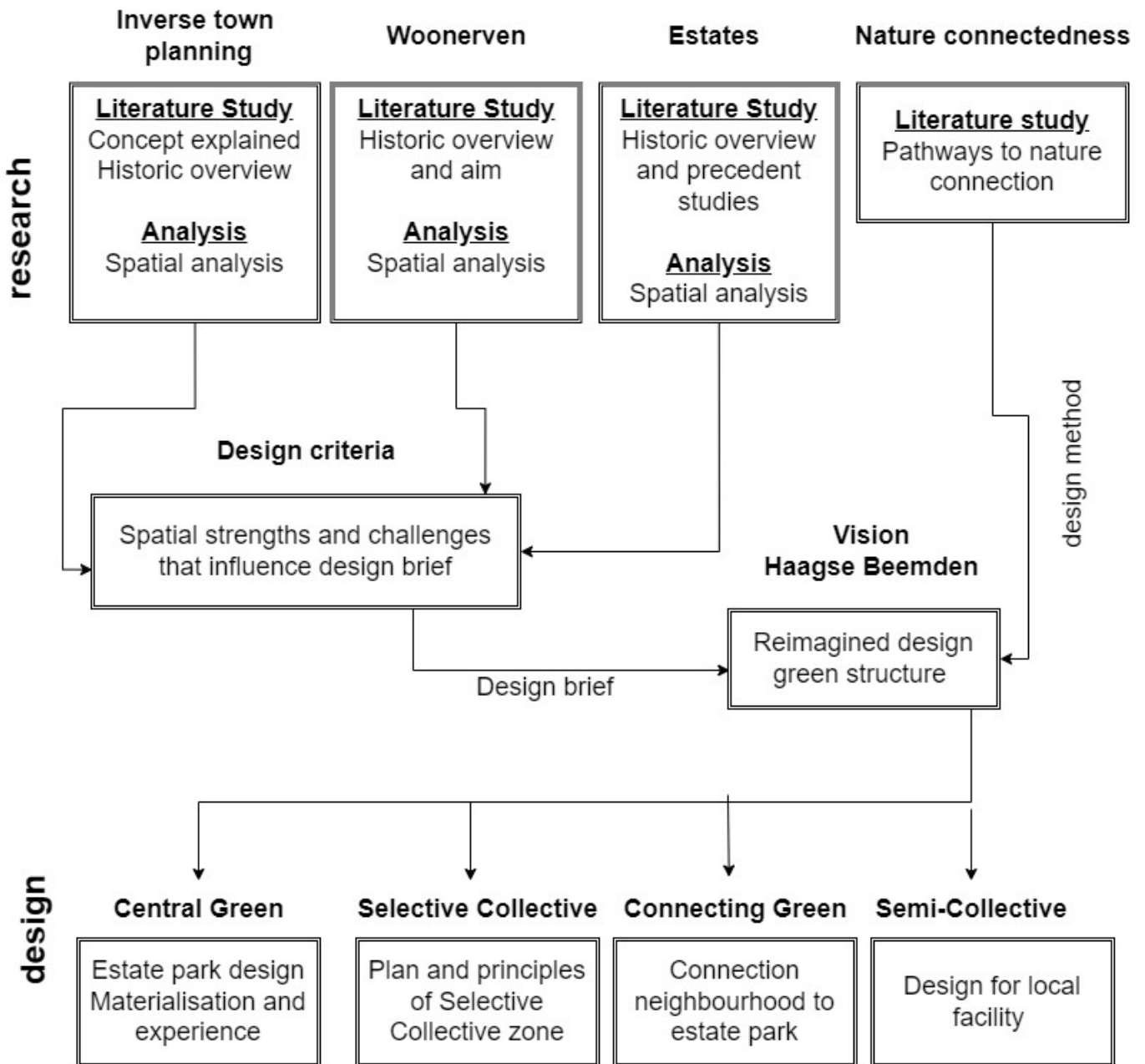


figure 1.3: Methodology. Own image



PART II

THEORY

Inverse town planning

Landscape as basis of for urban arrangement

Rural areas have been perceived as “leftover spaces” for a long time. They could become the foundation for all kinds of functions like industrial sites, roads or neighbourhoods. A thick layer of sand would cover a piece of rural area, hiding the landscape below and making it possible for large neighbourhoods to be built very quickly. This resulted in the creation of large transition zones surrounding cities that lack a certain identity or connection to either the city or the landscape, concealing the “Genius Loci”. (Tummers, 1999)

In the 1970s and 1980s, a reaction to this approach started to develop as designing with the human dimension and the underlying landscape became more important. The context of this change in approach in the Netherlands was caused by the transition from the “Tweede Nota RO” into the “Derde Nota RO” and the energy crisis of 1973 which incited the believe that excessive mobility was unwanted. Green space was no longer seen as “buffer green” but as a guiding

element in the landscape.

In practice, this meant an inversion in our way of constructing neighbourhoods.

The design used to follow the following order of importance:

1. Roads
2. Destinations
3. Landscape

Within the concept of the “inverse town planning”, the order of importance was changed into:

1. Landscape
2. Destinations
3. Roads

(Tummers, Tummers-Zuurmond, 1997)



figure 2.1: Plan Haagse Beemden 1971 vs 1979.
(Tummers and Tummers-Zuurmond, 1997)

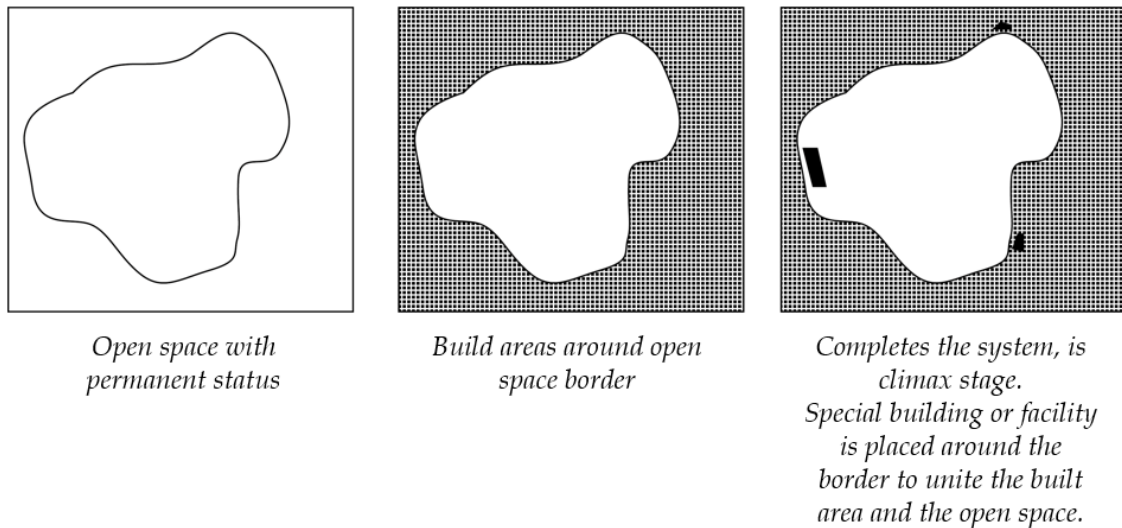


figure 2.2: Inversiedrieslagstelsel principle. Own image.

Inversiedrieslagstelsel

Tummers and Tummers-Zuurmond (1997) say that we should not look at the city as an autonomous growing entity, but instead, as a consciously designed urban metropolitan area in which open space functions as a guiding element. They have developed the "inversiedrieslagstelsel". A method that describes the critical factors a green public space should have in order to be successful within an urban metropolitan area.

Figure 2.2 shows these three critical factors.

1: The green public space has a permanent status and should be of a size that is in balance with the surrounding built area.
 2: The borders of this green space are built with urban functions and activities that use the view over the open space for their benefit. Because of the value the open space has for these buildings or houses, the future of the open space remains safe.
 3: On the edges of the green space, special landmark buildings are situated to attract visitors to enter the open green space. This landmark unites the built area with the open space.

Figure 2.3 shows how for example Central Park in New York was constructed along the lines of this concept. Buildings surrounding the park have so much value, due to the view over the park that the open status of the park will be permanent. The Metropolitan Museum of Art and the American Museum of Natural History are placed on the edge of the park, attracting a lot of visitors and inviting them to enter the park itself.

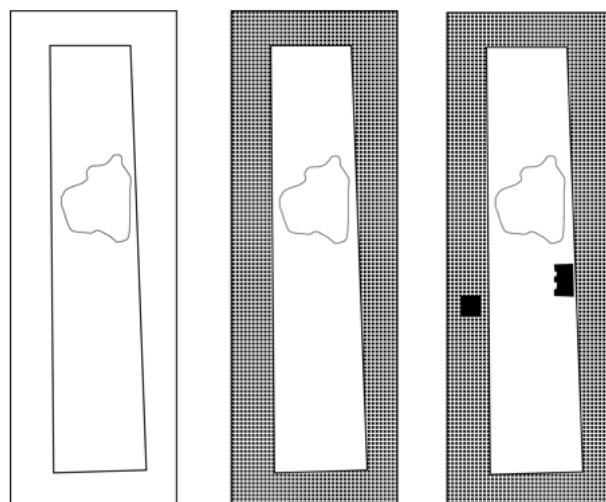


figure 2.3: Inversiedrieslagstelsel applied onto Central Park. Own image.

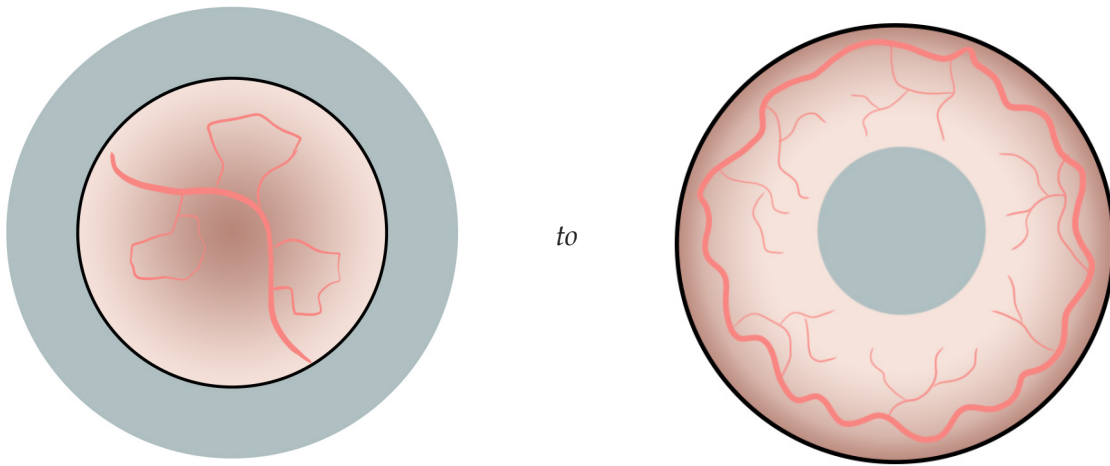
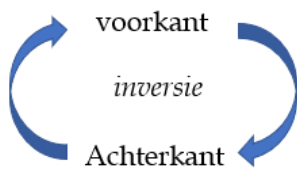


figure 2.4: Concept of inversion. Own image.

*“De afzonderlijke geïsoleerde wijken hebben
zich binnenstebuiten gekeerd tot kransen van
woonbuurten rondom
groene enclaves.”
- Tummers, 1997*

In the original brinkdorpen or esdorpen, as found in Drenthe for example, an inversion of these front and back sides took place as the "erf" became a place of shared ownership between multiple farms. It became a common erf to collect the cattle or stack up the harvest from the "esgronden". These esgronden were communal fields as well.

What used to be the back side of the farmlands became the front sides, and the original front side with ornamental gardens, orchards, and allotments was now found on the back side of the farms. (van Gameren & Mooij, z.d.)



This switching of facades is also seen in the woonerven structure. Elements that used to indicate a typical back façade of a house are placed in front of the house to create the illusion of a street that can be used as a common area for all inhabitants.

Designing the rear

With the arrival of streets that are used as collective spaces, traditional ground plans of houses had to be redesigned as the public-private relationship was redefined. Because the collective streets portray a communal "boerenerf", the "front sides" of the houses should resemble a "back side", and likewise should the initial "back sides" become what looks like a "front side".

Within the woonerven, this is done by implementing a couple of typical changes.

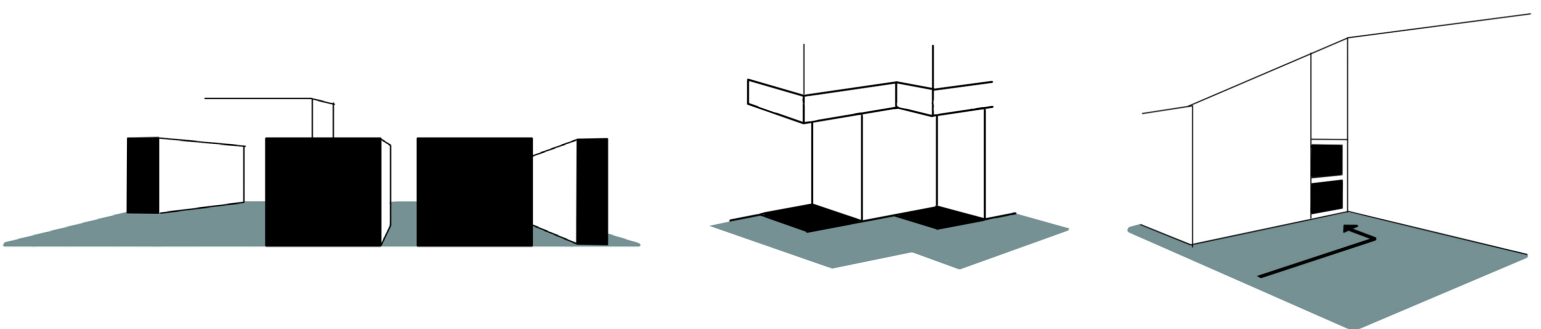
Typical for woonerven is a transition zone between public and private situated between the house and the street. With the use of storage sheds, carports, balconies, private gardens, etc., a physical and visual barrier is created between multiple domains. The borders are soft, subtle, and sometimes multi-interpretable. They are meant to guide social interactions and spatial use instead of forcing a certain behaviour. The following illustrations describe the social-spatial typology of the woonerf:

1: Storage sheds are placed in front of the house.

The extra blind walls as seen from the provide more privacy for the residents of the house. By putting the shed in front of the house instead of at the back, the suggestion is created that you're looking at a back façade instead of a front façade. Moreover, the storage space guides the route toward the front door and activates the transition zone.

2: An overhang creates a sheltered transition between private and public. The created room underneath the overhang makes it clear for people they are entering a private domain.

3. The position of the front door determines the amount of interaction with neighbours and the rest of the woonerf. The front door often does not directly face the street but is found at a 90-degree angle from the street and this leads to an indirect relationship with the woonerf. In addition to the shed found in front of the house, more privacy is created.



1. Position of sheds

2. Overhang

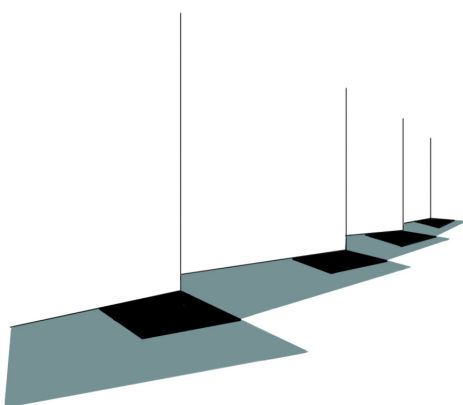
3. Position front door

figure 2.7: woonerf typology (Source: Van der Leun et al., 2008)

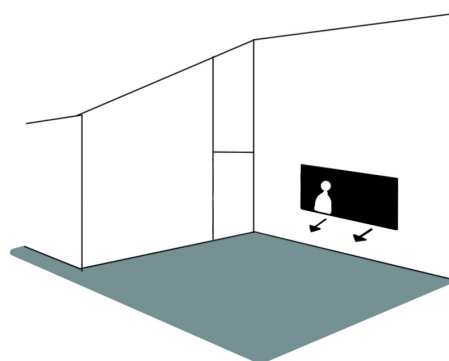
4. A front yard creates a physical distance between the private and public domain. The space itself can be arranged as the residents themselves wish: as an ornamental garden, a place to sit, more storage space, or sometimes as a parking space. The front yards are private property but also contribute to the look and feel of the public street.

5. Due to the changed orientation of the houses, the living room has changed position from the front of the house to the back of the house, facing the back yard. Because of this, the kitchen has moved towards the front of the house and has a connection to the woonerf through the kitchen window. This visual connection used to bring more social activity on the side of the woonerf as often women used to be in the kitchen during parts of the day. However, nowadays this pattern has changed and the kitchen is used less frequently. So nowadays, houses with the kitchen positioned in the front experience more privacy, as they have less contact with the street.

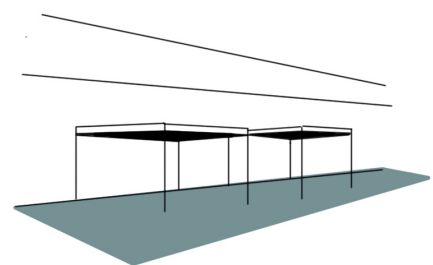
6. The design of the carport or parking spot contributes to the use and look of the woonerf. Because of the design question of where to place the cars in the street design, multiple forms of parking have been developed like drive-in houses or simple P letters written on the pavement. The chosen form of parking determines the amount of collectively on a woonerf. Because of the highly increased amount of cars throughout the years, woonerven became less collective as often every open spot is used as parking space.



4. Front yards



5. Kitchen position



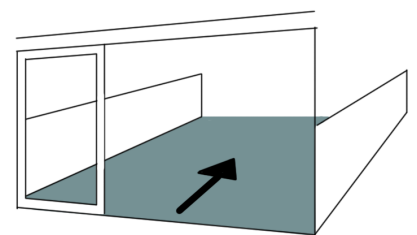
6. Carports

7. Because the kitchen is placed in the front of the house, the living room has been moved to the back, providing a clear an direct view over the back garden. The garden is mostly a very public space, but sometimes the borders between the gardens are designed in such a way that contact with the neighbours is stimulated.

8. The size of the woonerf guides the options for use and the feeling of collectively as it decides the distance between houses and the amount of space left for activities. There is a difference between a woonerf in the form of a street and in the form of a courtyard because of the different shapes.

9. Different materials and patterns define and guide in a subtle way how the space could be used. They can indicate the different "rooms" or uses of the space.

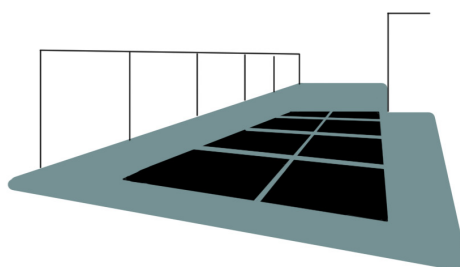
10. Repetition of elements provides legibility of the neighbourhood. These elements could be built elements or vegetation. They can at the same time give a sense of being lost in the area as the neighbourhood tend to look uniform and maze-like.



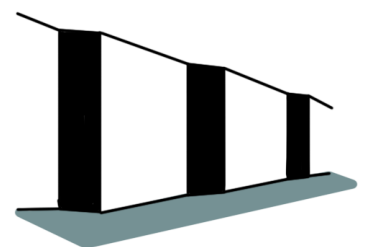
7. Garden oriëntation



8. Sizes



9. Patterns and materials



10. Repetition of elements

Estates

What is an estate?

An estate consists of a residence of extraordinary character, an ornamental garden and one or more agrarian businesses. Larger estates can influence their surrounding landscapes through their park (forests), other forests, waterbodies, buildings, lanes and "dreven". Dreven are country roads with lanes of trees, originally meant for guiding cattle to the fields.

An essential element of an estate is its economic unity. The acres, fields, and woods surrounding an estate are used for their economic benefits.

Sightlines

Estates and summer residences have originally always fulfilled a status function. The manors, castles, and other kind of buildings were made to be seen. For this reason, a lot of designs for estates, gardens, and parks, sightlines, and panorama views were used to highlight the buildings from strategic places. This also worked the other way around; views of the surrounding landscape, landmark buildings like the towers of churches, follies, or neighbouring estates.

These sightlines were often carefully designed by using open and closed spaces, prestigious trees, follies, or waterbodies. (De jong, 2013)

Estates within an urban park. President study: Birkenhead Park

Birkenhead park serves as a good example of how the ideas of an estate could be translated into a successful urban park. Birkenhead park was designed by Sir Joseph Paxton and it played a substantial role in starting a new movement for public parks in England and internationally.

Birkenhead set an example of how a suburb could be combined with a public park, using the ideas behind the program of estates. The park became the first fully public park where all citizens, of every class, were invited to spend their free time in a nice park placed in the centre of the neighbourhood.

It was the first park that was funded by public funds, making it a place from the people and for the people. ("England and Birkenhead Park: Influencing the Design of Riverside", z.d.)

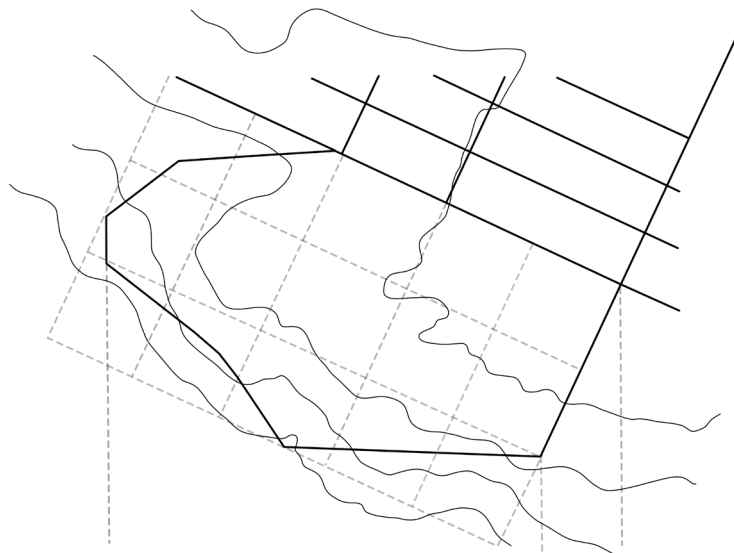


figure 2.8: Basic form Birkenhead. Own image



figure 2.9: Spatial form Birkenhead. Own image

The park contains different “zones”, separated by a path going through the park. The program of the park can be seen in figure 2.10. On the outside of the path, residential areas and facilities like schools, sport fields and medical centres can be found. They are partly physically separated from the rest of the park via the path but still are very much part of the park in total. These facilities, like schools, spatially have the function of landmarks that connect the neighbourhood to the park, and the other way around. You could say that these facilities portray the third critical factor of the “inversiedrieslagstelsel”.

On the inner side of the path we find the part of the park that is more designed towards recreation, relaxation and nature. Big pastures provide multiple possible uses like picnics, sports, events etc., while two forested areas are designed toward the ideas of the first nature. They portray an image of untouched nature and provide a feeling of wonder and adventure.

The design for this park is inspired by the design of estates, however it is a new interpretation of such. This new form presents the facilities like the schools as the manors and the park is owned by the public instead of a wealthy individual, giving the luxurious feeling of an estate to the inhabitants of the neighbourhood.



figure2.10: Program form Birkenhead. Own image

President study: Maximapark, Utrecht

In the 1990s, a new suburb for the city of Utrecht was to be constructed for 100,000 new residents. The decision was made to use a public park as the green heart of this new neighbourhood. This park brings the inhabitants together and creates a shared identity. (MáximaPark - West 8, 2022)

The park consists of four elements:

- Het Lint. A wide path for pedestrians and cyclists runs along the whole park and connects the inhabitants to the various parts of the park.
- Het Binnenhof. This is the inner core of the park. An enclosed park within the larger park that gives the illusion of paradise. This part is enclosed by the Parkpergola.
- Parkpergola. Large see-through wall that encloses the Binnenhof. The structure of the wall houses bat boxes, insect hotels and climbing plants.
- The old viking Rhine. A waterway is brought back on the location of the original arm of the Rhine. The waterway can be used for multiple activities.

The Maximapark has a large group of volunteers who maintain the park. (MáximaPark - West 8, 2022)



figure 2.11: Program Maximapark. (Source: Regio Leidse Rijn)

Pathways to nature connection

Bringing people in contact with nature is a strategy often used to increase their physical and social well-being. Studies like Jennings and Bamkole (2019) and Oh et al. (2022) also underwrite this strategy. However, it was still unclear how exactly nature connectedness could be achieved. A study done by Lumber et al. (2017) states that simply spending time out in nature or learning about nature, methods often used to increase nature connection, are in fact not contributing to a better connection. Instead, they have developed certain “pathways to nature connection” that contribute to an emotional relationship and a more meaningful interaction with nature.

The five factors that resulted from the research and were proven to be helpful in achieving a better nature connection are:

Contact - The act of engaging with nature using multiple senses like sight, smell, touch, taste and hearing.

Emotion - An emotional bond with nature through love.

Compassion - Caring about nature leads to better ethical choices.

Meaning - Natural elements can be used to tell stories or create symbolism people attach value to.

Beauty - Achieving more appreciation for nature can be done by engaging people to aesthetic qualities of nature.

This chapter tries to find ways to use urban trees and other knowledge from urban forestry to help achieve these five pathways to nature connection.

Contact

A landscape is, as defined by the European Landscape Convention,

“ an area, as perceived by people, which character is the result of the action and interaction of natural and/or human factors”

(Council of Europe, 2000).

The sensory relationship and interaction between people and the landscape is therefore very important. Granö (1929) distinguished two different types of perception, based on the distance the perceiver is from the landscape: Fernsicht and Nahsicht. He says that if a landscape is further away, we perceive it mainly by vision. This is called fernsicht. But, when we are closer to the landscape, our other senses also provide us with information. This is called nahsicht.

When we are talking about bringing people closer in contact with nature, focussing on nahsicht could be a method to use. (Dee, 2004)

The speed and the mode of transport are also of importance to the perceiver. When travelling at higher speeds and sitting in a car or bus, the landscape is only a visual experience. And the faster one travels, the fewer details are visible. Slowing down is therefore a useful strategy to make a landscape experience more detailed or multisensory.

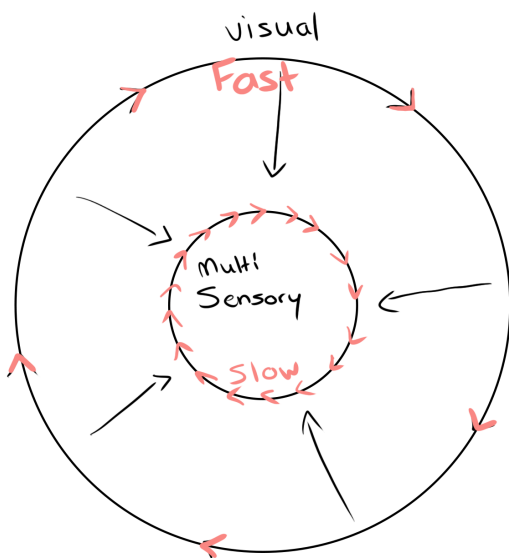
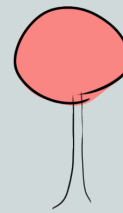
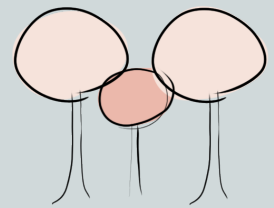


figure 2.12: Planes Fernsicht, nahsicht. Own image

Sight

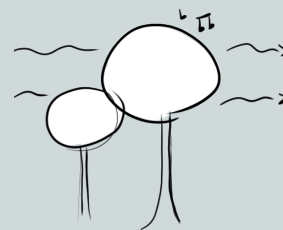


Stand out colour tree

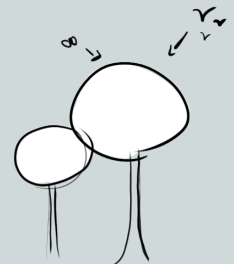


Diversity in sizes, shapes and colours

Sound



Trees create sound

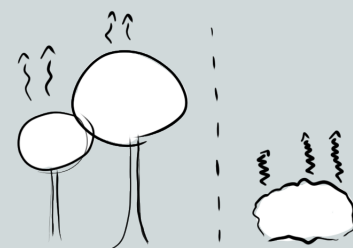


Trees attract animals

Smell



Trees emit sound



Different smells can contribute to experiencing differences in landscape

Touch



Tactile touch within hand reach



Tactile differences on the walkable path

Taste



Emotion

Landscapes are capable of stimulating a certain emotion in the perceiver. A space can make a person feel comfortable, overwhelmed or not at ease for example. According to Dee (2004), a space is an area defined in three dimensions:

- The ground plane, the surface someone walks upon.
- The "walls" or vertical planes.
- The sky plane.

Landscape architects use landscape elements to manipulate these three planes in order to create the desired spaces. Trees specifically can be used to achieve a variety of possible results as different trees have a different "tree architecture". Moreover, trees bring an experience of the passing of time. As their colours transition throughout the year, seasons pass by. And as we grow older, trees grow taller.

Trees, and other vegetation, can therefore easily be used to compose and design these three planes. (Leonardi, 2022) Examples of how different spacing, shape or foliage can effect the created spaces can be seen in figure 2.14.

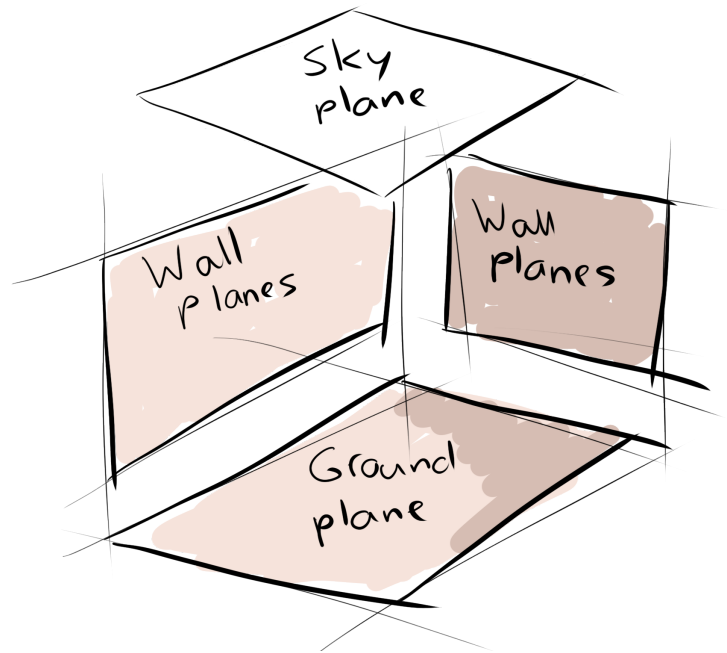


figure 2.13: Planes of space. Own image

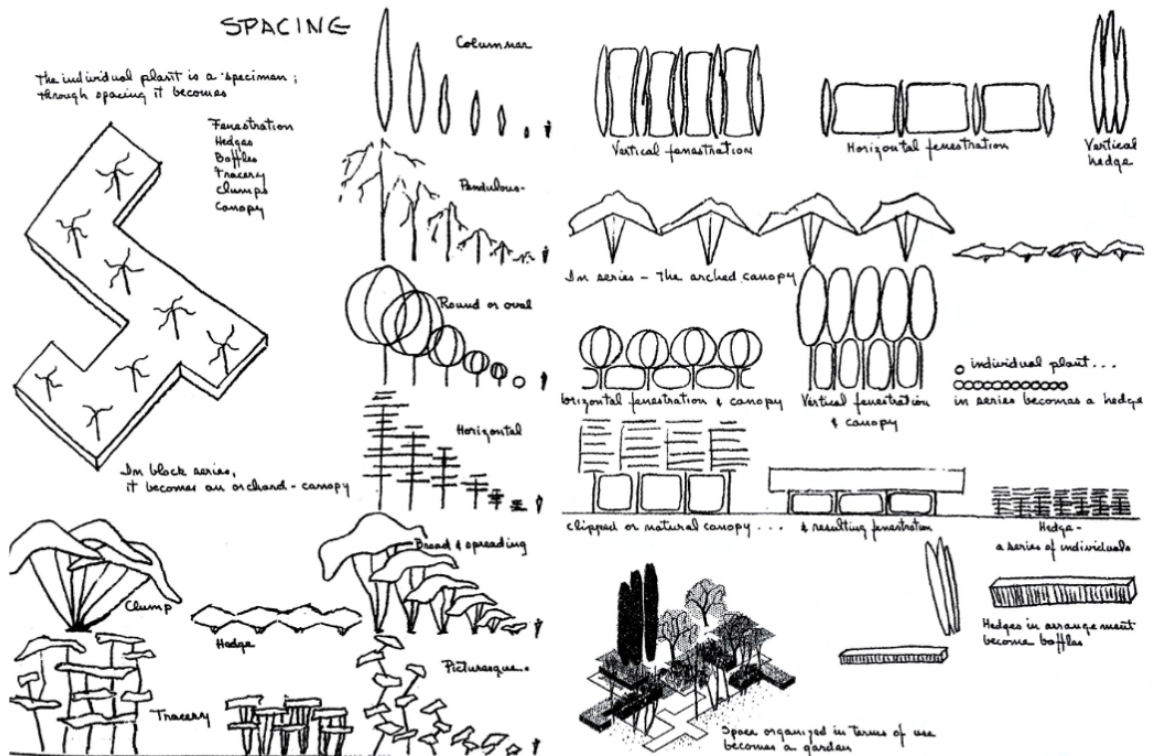


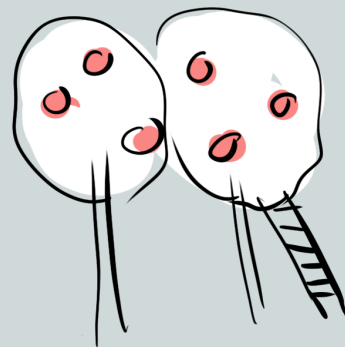
figure 2.14: Plant spacing. (Source: Rose, 1958)

Compassion

As urban populations nowadays are less and less connected to nature, also the feeling of biophilia and the feeling of an urge to preserve nature are shrinking. This is also called "the extinction of experience".

Vanderstock et al. (2022) conclude in their research that gardening has a positive effect on biophilia and therefore on pro-environmental behaviour. De Jong (2017) states that an important factor in achieving biophilia is the longing for taking care of a place. And this could be done by creating a form of shared ownership. Especially younger people feel the need to have a certain amount of control or ownership over a location. They need a space that stimulates their curiosity and imagination. (Siestrzewitowska, 2013).

Trees can, for this matter, be used to stimulate this curiosity, offer alteration opportunities or offer people products they can use like fruits, nuts and herbs.



Meaning

Forests have been giving people meaning since the very first humans existed. Often in the form of something spiritual or religious. Certain trees could be attached to these spiritual or religious values. Also, myths and other stories are often linked to trees and forests as forests can have an ambivalent character: they can be a place of love but also of fear. (Konijnendijk, 2018) A low-hanging mist, a dense and dark forest or an unexpected open place, if people are uncertain about how or why a landscape looks why it does, stories are likely to be made in an attempt to look for an explanation.

If the goal is to seduce people to attach meaning to a place, this knowledge could be useful. Using peculiar structures, forms or materials can make people wonder. Using open and enclosed spaces can lead people in a certain direction. Attaching these design interventions to locations of actual folklore or local myths can strengthen or accentuate these stories and create more meaning.

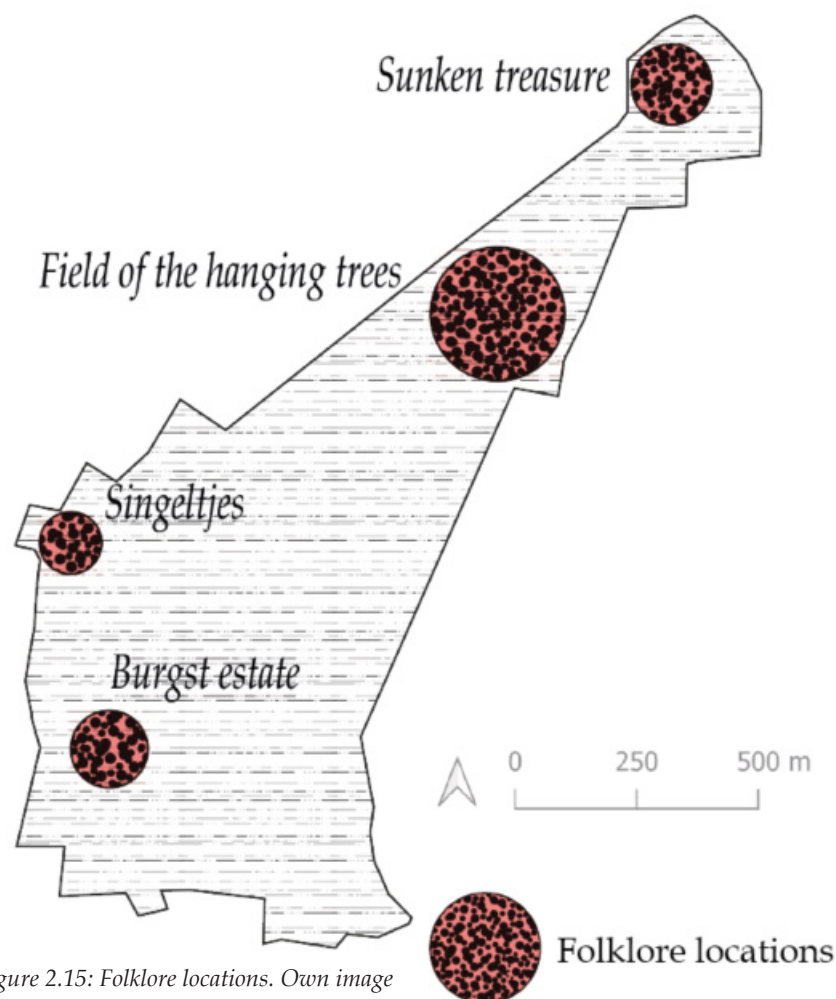


figure 2.15: Folklore locations. Own image

Beauty

What we as humans perceive as beauty is mostly a subjective matter. Culture and personal preference highly influence the way we look at the world. Do we prefer bright colours or natural colours? Stone or concrete?

However, environmental psychology is a part of science that tries to understand why we look at the world the way we do and if there is a certain common ground for all humans. This research shows that there are certain components that indicate if we feel comfortable in a specific landscape or not. They are explained on the following pages and complemented with ideas and options on how to use trees, wayfinding and materials specifically to achieve its goal. The information on using different arrangements of trees in an urban context comes from the book Atlas van Boomstad Delft by Van der Velde et al. (2023)

1: A place should offer us an optimal amount of **arousal and stimulation**. This is very subjective from one person to another. A successfully designed place should offer an array of options so the affordances of multiple people are met. (Wilson-Doenges, 2017)

Less stimulation

more stimulation

Wayfinding

Clear path



Clear path shows where people are guided to. Easy to follow.

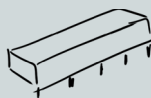
Multiple options



Unclear paths with multiple options provide choices to visitor and they have to pay more attention to the environment.

Variety

Shield



Straight lines of uniform trees provide legibility.

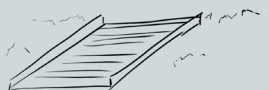
Curtain



A variety of different tree species, heights and colour provide a palette of different senses and atmospheres.

Materials

Solid materials



Paths made of easy walkable materials provide comfort and accessibility.

Natural paths



Paths made of stones, mowed grass etc require more motivation and skill to walk on

2: Prospect-Refuge Theory.

Psychologists believe that our preference for location is based on an inherited survival instinct. We prefer an environment from where we both have a clear view on the surroundings to look for potential threats and opportunities (prospect), and we have the opportunity to hide in case of danger (refuge). (Nassar and Fisher, 1992)



figure 2.16: Prospect-refuge. Own image.

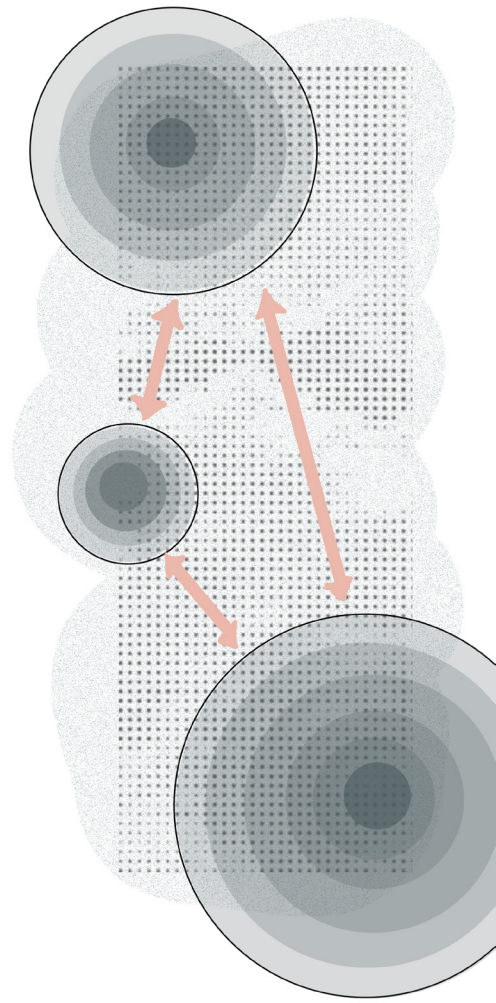
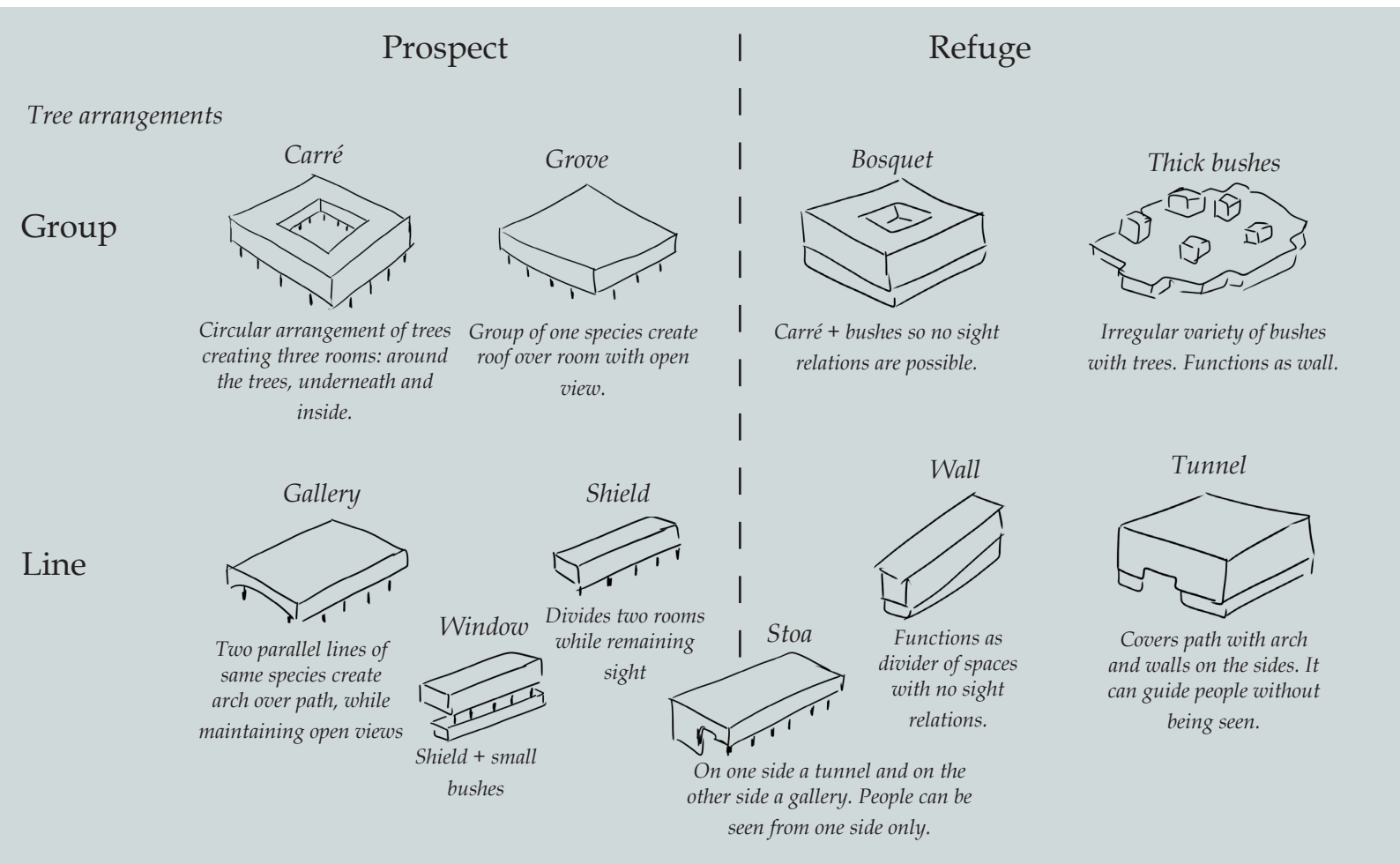


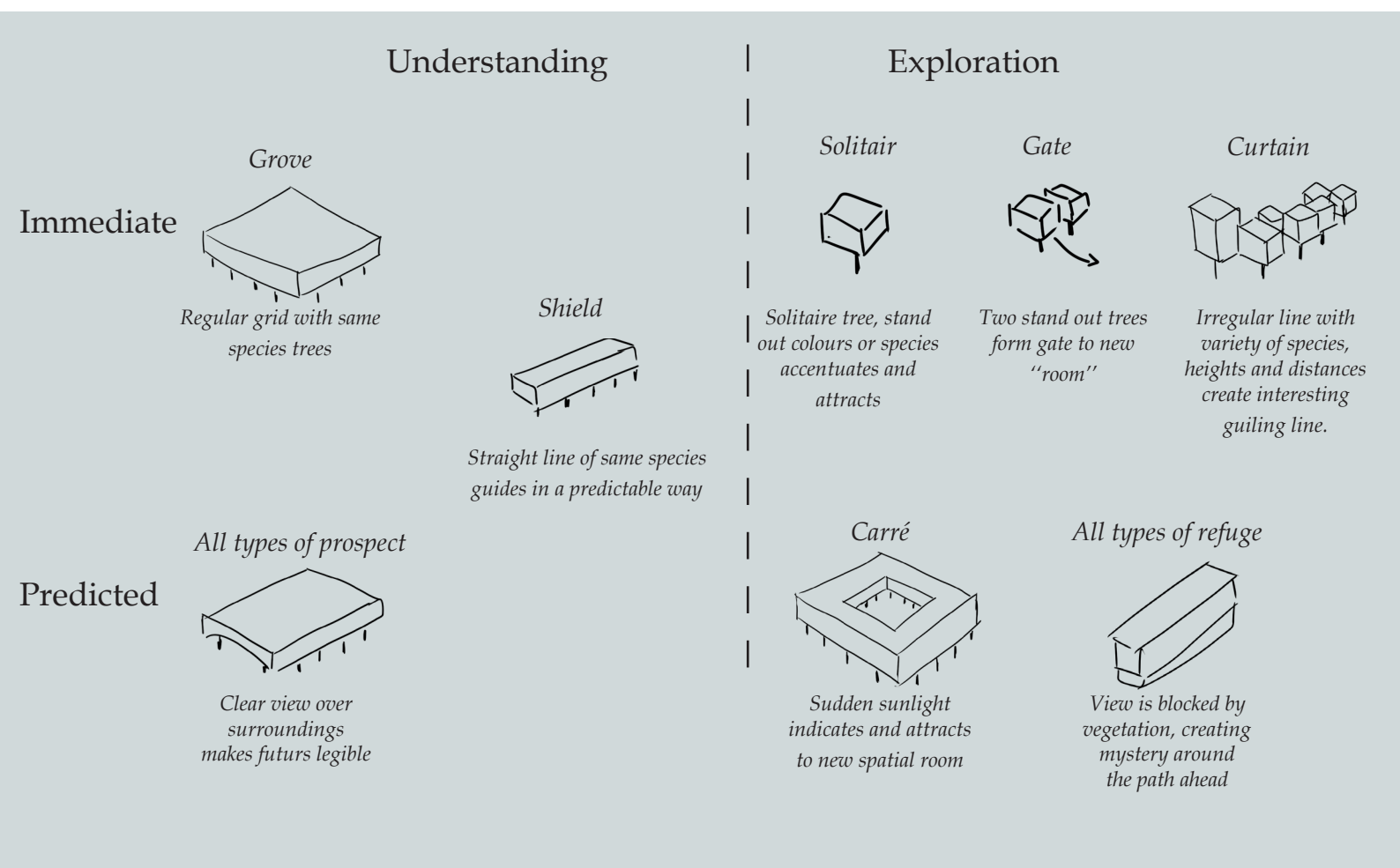
figure 2.17: When moving inwards into a forested area, the feeling of refuge becomes larger. Own image.



3: A concept introduced by Kaplan and Kaplan is called: “**environmental preference**”. A model describes that a landscape is in need of a balance between making sense and involvement. A person should be able to understand where he or she is, but at the same time be stimulated to engage with it. Too much coherence or legibility will make a place boring, but too much complexity or mystery and the place can feel unsafe or overwhelming. (Kaplan and Kaplan, 1982)

	understanding	exploration
immediate	coherence	complexity
inferred, predicted	legibility	mystery

figure 2.18: Kaplan and Kaplan preference matrix.
(source Kaplan and Kaplan, 1982)





≡

PART III

ANALYSIS



From Landscape to Neighbourhood

Inverse town planning in the Haagse Beemden

1925



figure 3.1: Green structures (forests) and allotment patterns 1925. Own image. Based on Topotijdreis.nl

2020



figure 3.2: Green structures (forests) and allotment patterns 2020. Own image. Based on Topotijdreis.nl

Between 1974 and 1975 the opportunity arose to design a large new neighbourhood in Breda using the concept of inverse town planning as Breda was appointed as a "growth city". Because of the change from the "Tweede Nota R.O." to the "Derde Nota R.O." new spatial concepts were sought after in reaction to the then dominant functional "post-war town planning". Instead, a more landscape-based living environment was looked for. The motto of that time was:

"A lively low-rise living environment in an attractive landscape".

The city of Breda already had made detailed plans for a new neighbourhood placed on the newly bought grounds that was so big it could host housing with high-rise buildings on the borders, a big industrial zone, and a cemetery. However, this design stumbled upon critiques from multiple angles. This led to an order for a new design for the Haagse Beemden in 1975, this time designed by L.J.M. Tummers and F.M. Maas. This new plan was accepted in the very same year. (Tummers & Tummers-Zuurmond, 1997)

Design approach

The first step in the new approach was determining which parts of the landscape of the Haagse Beemden were so valuable they should be preserved. This area was bordered and a contra shape around this area suggested the capacity for the number of possible inhabitants. Instead of the previously planned 50.000 people that could live in the neighbourhood, the new plan was scaled down to 30.000. The unbuilt landscape area forms the spatial backbone of the neighbourhood. It takes the existing green and blue network and builds from it. Original waterways and forested areas can still be found in the neighbourhood today, as seen in figure 3.2.

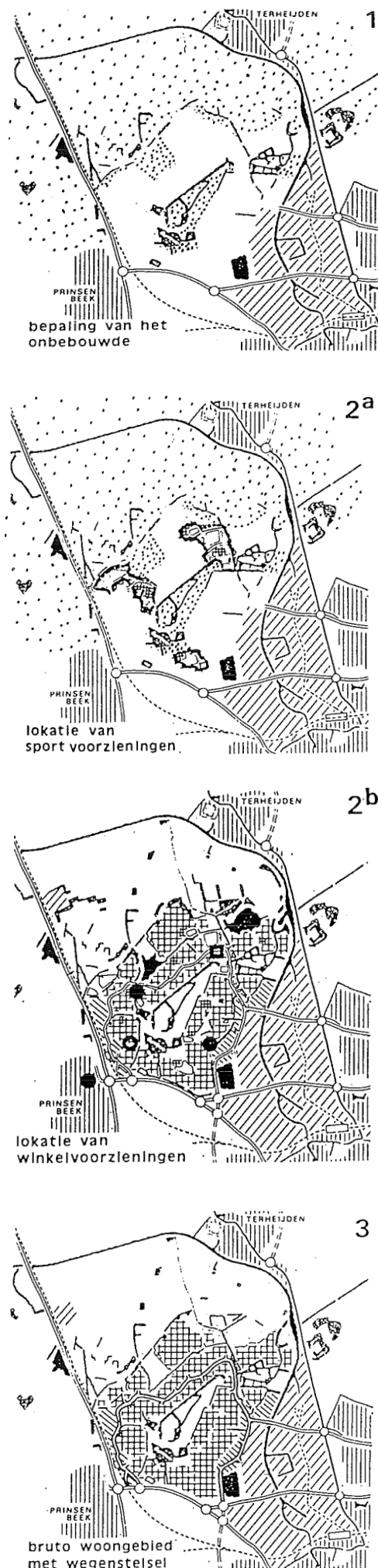


figure 3.3: Steps in design. (source: Tummers & Tummers-Zuurmond, 1997)

The second step is placing the facilities within the neighbourhood. In order to preserve the qualities of the estate zone, the contra shape is divided into two layers: A quiet zone and a busy zone, also seen in figure 3.4 The quiet zone surrounds the estate zone and facilities like schools, sports facilities and playing areas are situated within this layer. Facilities that attract more cars or emit more sounds like shopping facilities or industrial zones are placed in the busy zone. They are located closer to the main road.

The last step determines the location and trace of the main road. The decision was made to place the main road on the outer border of the southern part of the neighbourhood, moving along and through the busy zone and not disturbing the relationship between residents and the green estate zone.

Spatial analysis woonerven

Woonerven can have many forms and many different relationships with green and the underlying landscape. This spatial analysis tries to understand the different forms found in the Haagse Beemden in order to build a structured vision for the neighbourhood. Knowledge of the shape of the woonerven, car accessibility and relation to green, provided by Quaedflieg and Mooij (2013), is combined and substantiates newly constructed "woonerf typologies" which are explained further along

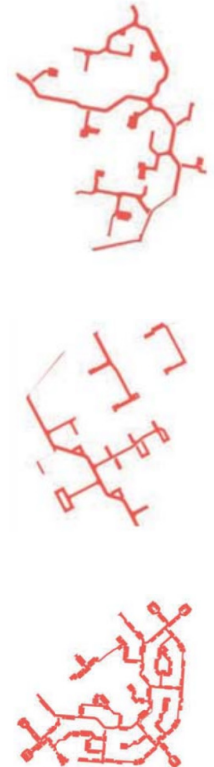


figure 3.4: Quiet and busy zone. Own image

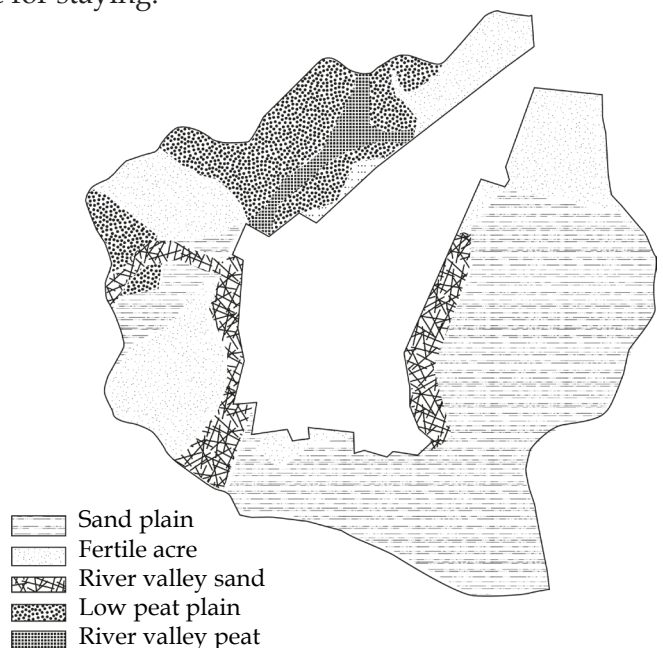
Car accessibility

Looking at the accessibility of the houses by car is a very clear analysis method to understand the shape and use of the woonerf types as the car plays an important role in the life of most inhabitants living here. We distinguish four different principles (Quadflieg and Mooij, 2013):

1. Cul-de-sac courtyards. The main road leads to small and secluded courtyards from where people can only go further using bikes or go on foot. The cul-de-sac courtyards have a public identity but in practice are only used by the residents of the neighbouring houses. The roads towards these courtyards are therefore strongly collective.
2. Blind alleys. Like the cul-de-sacs are blind alleys streets with a dead end. The difference is however is the size and linear structure. This leads to a street that is less exclusively used than a cul-de-sac and becomes a semi-public space.
3. Continuous road with squares. Bigger roads where turns and wider parts are designed as collective spaces.
4. Continuous road without squares. These roads have a strong public character a lot of people make use of these streets. They are however not collectively used as the space is not suitable for multifunctional use of other activities. The roads only have a connective function and not a value for staying.



figur 3.5: Street structures. (Source: Quaedflieg and Mooij, 2013)



figur 3.6: Soil types. Own image

Green structure

The green structure in the Haagse Beemden is the backbone of the neighbourhood, giving it a green identity. However, the amount of green does not necessarily directly correlate with the feeling of being connected to nature. This is also linked to the difference between public green and private green. Four kinds of principles behind green are discussed by Quadflieg and Mooij (2013):

1. Central public green. A public green space with the function of neighbourhood park. The park is very public due to the central location and size.
2. Spread public green. Scattered green spaces in the neighbourhood, often with a small to medium size, are part of the public space.
3. Collective green space in between districts. A collective green zone that connects different parts of the neighbourhood. The green zone is often only accessible on foot or by bike and is mainly used by the inhabitants of the surrounding parts of the neighbourhood
4. Green squares within living blocks. These often small, green squares are situated within a cul-de-sac and therefore exclusively collectively used by the residents of the cul-de-sac.

The following pages show the newly created "woonerf typologies" to further understand the design of the Haagse Beemden.

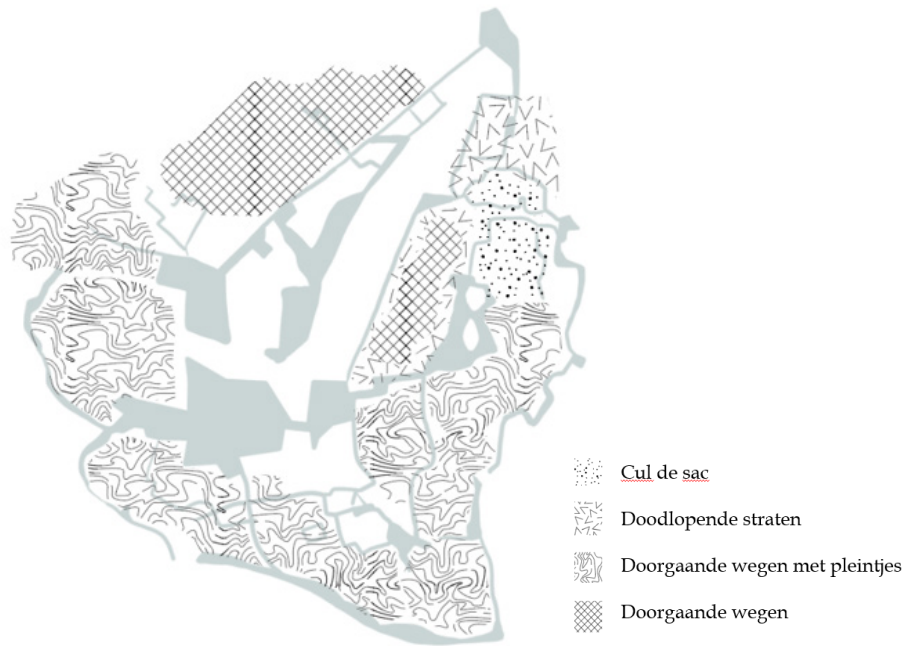


figure 3.7: Car accessibility. Own image. Based on Quadflieg and Mooij, 2013.



figure 3.8: Green structure. Own image. Based on Quadflieg and Mooij, 2013.

Central green

This typology mainly consists of the "central public green". It is a central green space of at least 2km in size to assure people are able to experience the impression of being out of the city. (Tummers & Tummers-Zuurmond, 1997) The central green is accessible from multiple directions, has a park-like feeling and therefore has a strong public character.

The estate zone in the Haagse Beemden is assigned to this typology. However, in the current situation it is hardly accessible for the residents of the neighbourhood. It has therefore not yet reached its full potential as Central green.



figure 3.10: Central green. Own image.



figure 3.9: No entrance to central green. (Source: Google Images)

Selective collective

This typology is found in cul-de-sacs. The street has a dead end and is very collectively used due to its smaller size. It is however only used by the residents living near it so it is selective to whom it is collective for. Often smaller green squares can be found here that also serve a collective purpose. The size of the green space and the position of the parked cars determine how often and for what the green space is used.



figure 3.11: Cul-de-sac. (Source: Google Images)

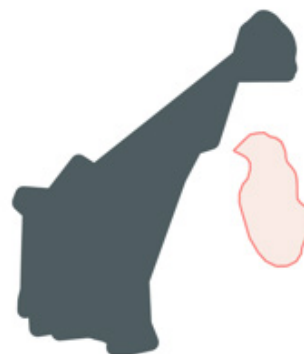


figure 3.12: Selective collective. Own image.

Local Public Space

Blind alleys create a semi-public space that is collectively used by the residents living in the street. The streets have the function of connecting but also providing places to stay. Scattered green spaces along the blind alleys can be collectively used for this.



figure 3.13: Hidden playground. (Source: Google Images)

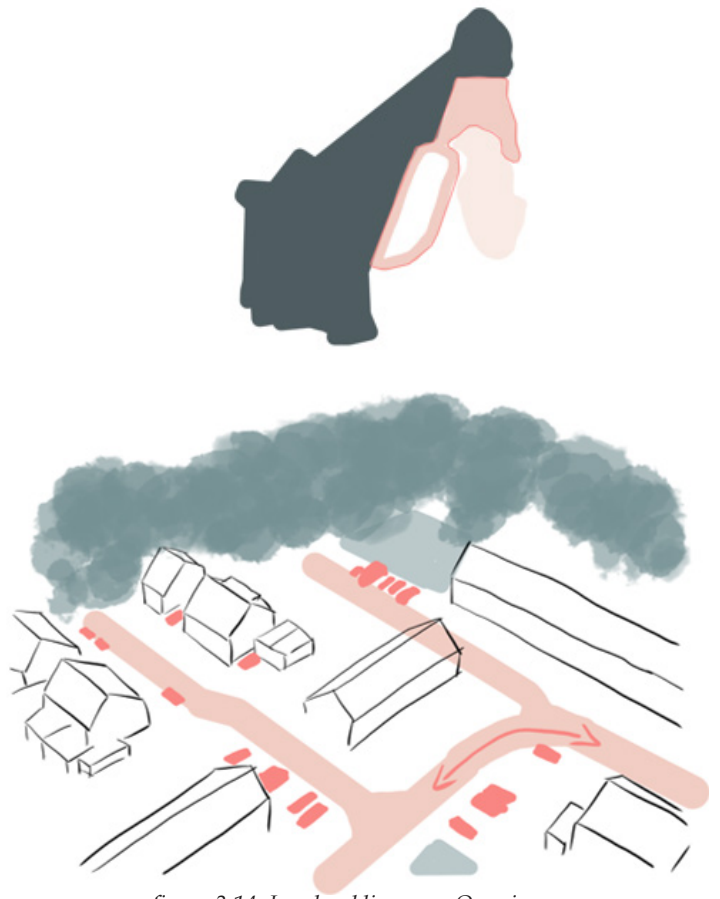


figure 3.14: Local public space. Own image.

Semi-collective space

Ongoing streets with open spaces along turns or wider parts. These open spaces are often used as parking spaces or monotone fields of grass. They are used by residents of houses in a short to medium distance from the open space. Because they have a bigger user group than the "local public space" these spaces are called "semi-collective".



figure 3.15: Parking spaces. (Source: Google Images)

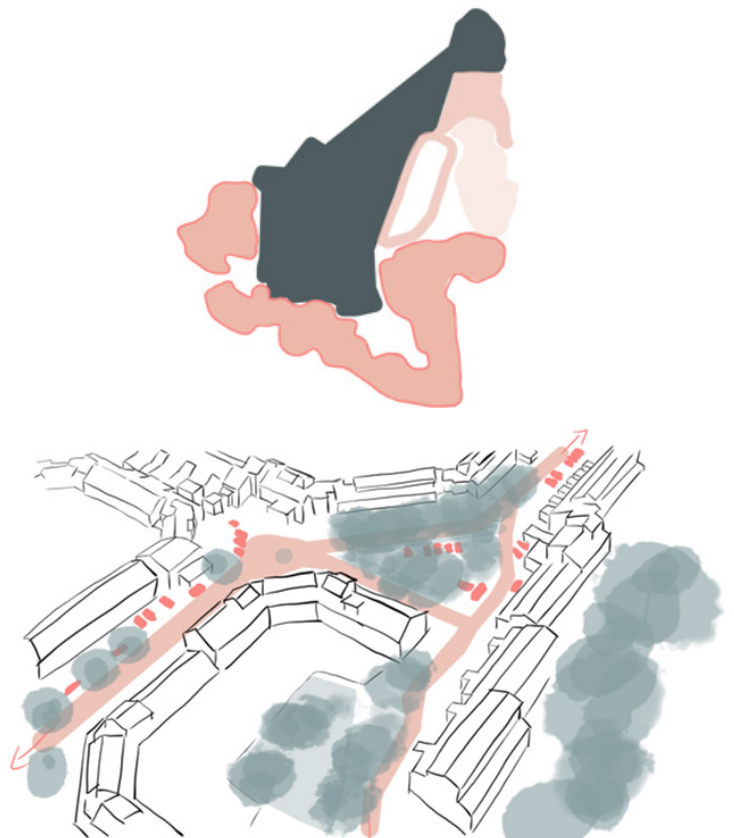


figure 3.16: Semi-collective. Own image.

Rushing space

Bigger roads are used as the main flow through the neighbourhood. It focuses on transporting people and not creating a street where people want to stay. Green spaces along the route are the ones that are most seen by people passing through the neighbourhood.



figure 3.17: Big open green space. (Source: Google Images)

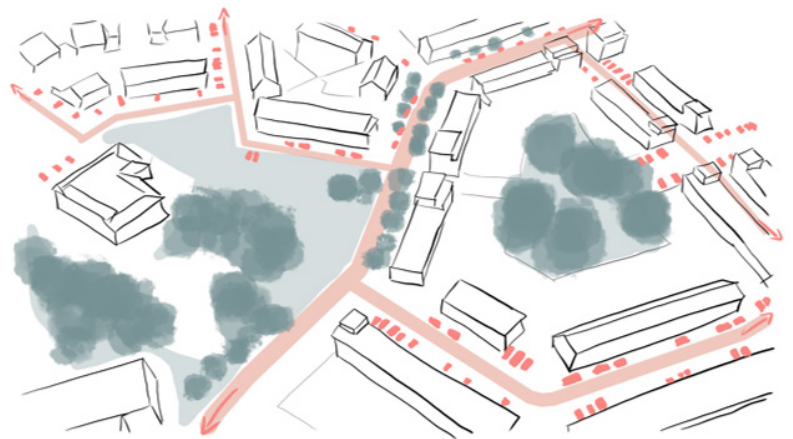


figure 3.18: Rushing space. Own image.

Connecting green

A collective green zone connects different clusters of houses. Often seen next to cul-de-sacs and along the original forest line in the neighbourhood. The connecting green can only be entered by foot or by bike, making it a space where passers-by would not come across.



figure 3.19: Connecting green. (Source: Google Images)



figure 3.20: Connecting green. Own image.

Conclusion

The analysis done on the different woonerf typologies is generalizing. It is an abstraction of the whole truth, which is more complex. However, it does provide a good global insight into the structural differences of the neighbourhood and provides some valuable insights.

- When wanting to focus on presenting outward, focus on the "rushing space". This typology is found along the main roads on which people pass through the neighbourhood by car or bus and get an impression of the neighbourhood.

- "Connecting green" and "central green" are not accessible by car, meaning people use more senses than only visual when going through the neighbourhood. These locations could focus more on providing a multisensory experience for the visitor.

- The current estate zone does not meet the requirements of a "central public green" area as it is for the most parts not accessible for residents and visitors.

The typologies are placed with dots on figure 3.21, showing where they are situated on the scale between collective, public, and private. In order to contribute to a better connectedness between the residents and the space, the dots should be moved towards the orange triangle as a public space that gives a sense of shared ownership and responsibility are important factors. What stands out is how far away "rushing space" and "central green" are. These spaces have the largest potential to benefit from spatial interventions.

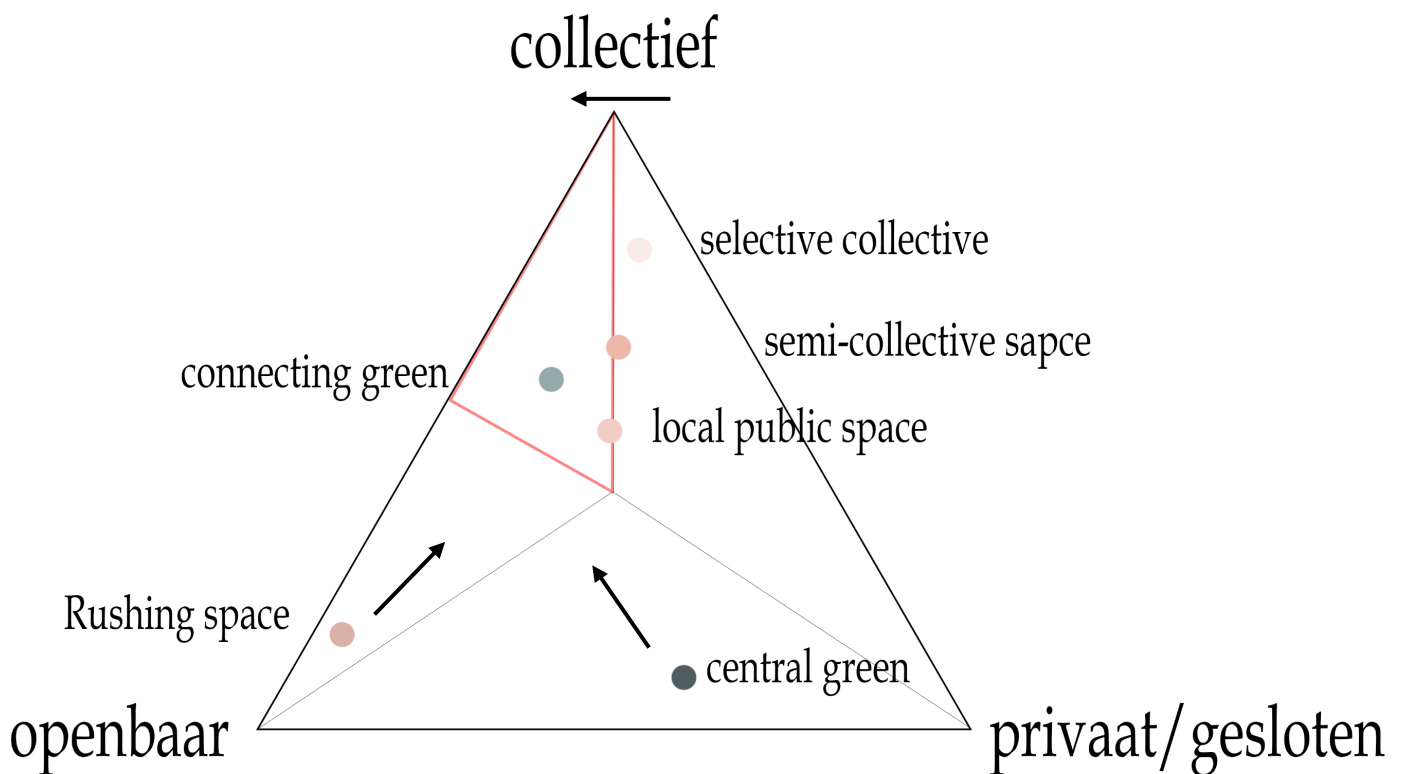


figure 3.21: Triangular scale. Own image.



figure 3.22: Image of the estate zone. (Source: Peters, 2022)



figure 3.23: Locations. Own image.

The green heart

The estate zone

The backbone of the design for the Haagse Beemden was the underlying landscape with the estate zone as central green heart of the neighbourhood. This estate zone dates back to the 1200s and the ensemble consists of an old estate, farmhouses, lanes, the medieval "cingeltjes", a duck decay and old acres. The neighbourhood is built around this green heart as it was intended to function as kind of like a "central park".

Recently, the province decided to change the status of the estate zone from agriculture to nature to better fit in with the ambitions of the Nature Network Brabant. (Plan Breda. 2021) New plans and developments are therefore currently made for the estate zone by Copijn and Natuurbalans.

Inversiedrieslagstelsel

Special about the Haagse Beemden is the direct confrontation between the residential areas and the agricultural landscape. This leads to, for example, cows that are grazing in front of the primary school windows.

The residential parts of the neighbourhood have been designed using a big variety of structures, shapes and types of architecture. This is inspired by the irregular and original allotment patterns and forms a direct contrast with the straight and clear lines of the lanes, earth walls, sightlines and allotment patterns of the estate zone.

The inversion formula is also applied and visible in the estate zone.

The borders of the valuable landscape that should be preserved were first determined. Next, a contra shape to this area confirms the permanent open status of the estate zone.

The third step, placing eye-catching and attractive buildings or monuments on the outer border of the open area or on the transition zone provides a lively connection between the open space and the built environment. In the case of the Haagse Beemden, these attractors are the primary schools. They are all placed along the border of the open area and have a visual connection to the estate zone. Children and their parents have in this way an incentive to come near the central green space.

However, the schools are not connected to entrances to the estate zone so it is not actually possible to enter the open green space from here. It can therefore be argued whether the third step of the inversion formula is successful or not.

The drawings and photos below illustrate how two of the schools are connected to the enclave. As can be seen, the first one is visually and physically blocked from the enclave by thick bushes and a tree lane. The second school is separated from the open space by a wide waterway. This one however does have a visual connection.

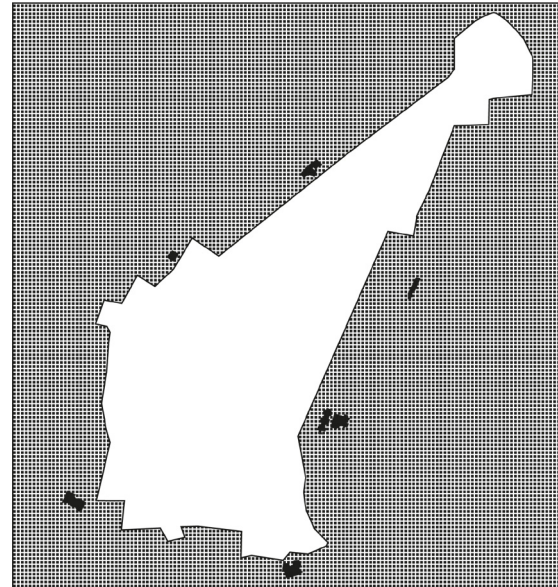


figure 3.24: Drieslagtelse applied onto estate zone with primary schools as landmark buildings. Own image



figure 3.25: Border separating Burgst primary school from estate zone. Own image

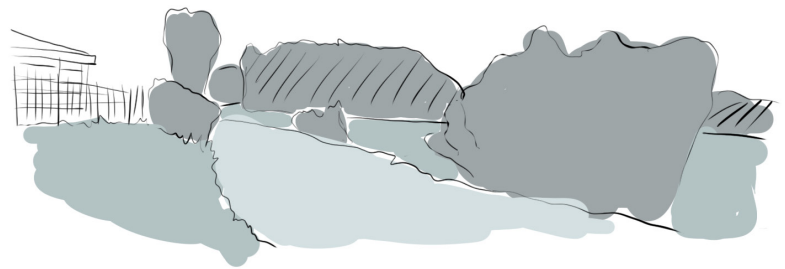


figure 3.27: Border separating Hoogakker primary school from estate zone. Own image



figure 3.26: Burgst primary school, relation to estate zone. Own image

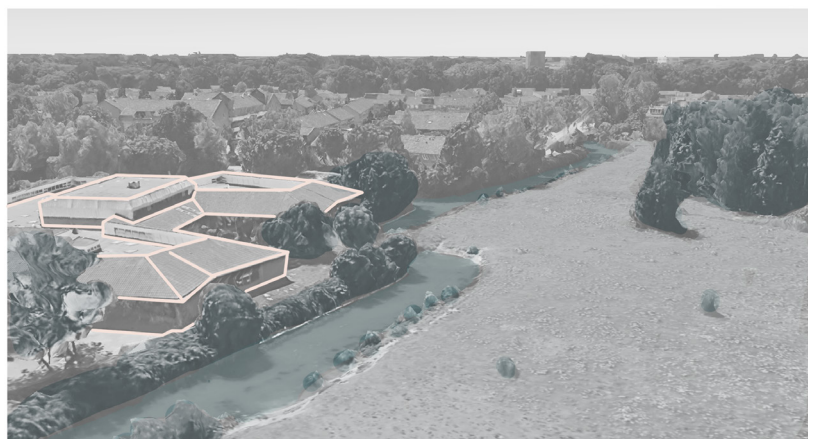


figure 3.28: Hoogakker primary school, relation to estate zone. Own image

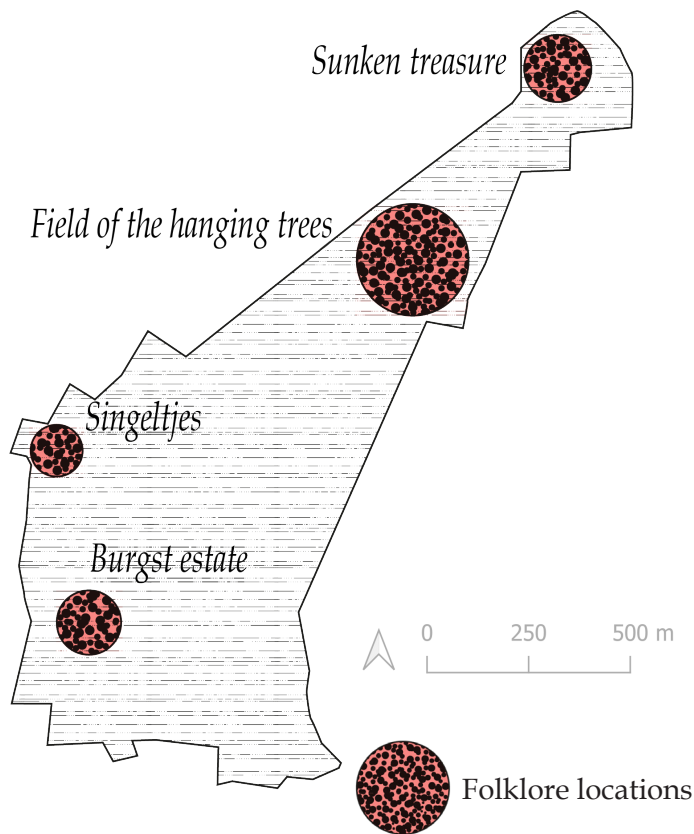


figure 3.29: Folklore locations. Own image

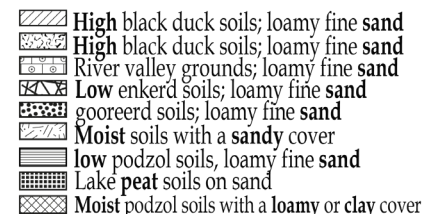
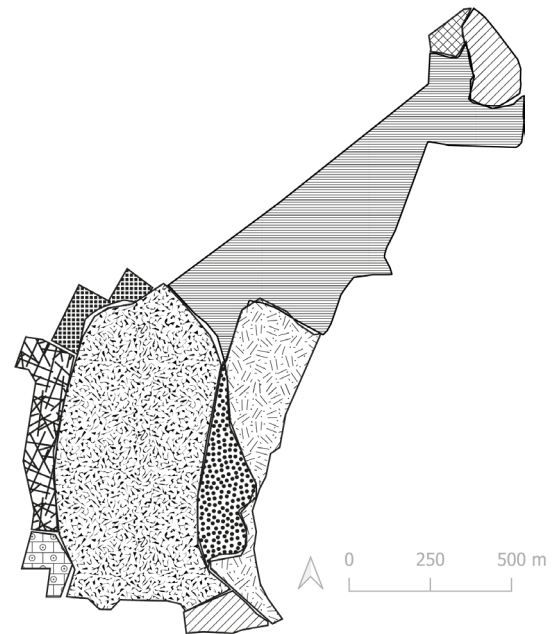


figure 3.30: Soil types. Own image

Local folklore

Dating back to the 1200s, it is no wonder that a couple of interesting folklore stories can be found about the estate zone. Parts of these stories, often myths, can still be traced in the landscape today.

The Cingeltjes: On the west side of the enclave, where two water streams meet, an interesting structure of circular dikes and waterways can be found. According to the stories, a wooden house, fortress or tower stood in the middle of these circular structures. It was first written about in 1474 and it is likely that it used to have the function of prison as the remains of a corpse were found here. (Koevoets, 2013)

Estate Burgst: The estate dates back to the 1200s, but the manor as is still found today was built in 1790. Multiple stories are found about the presence of witches or wizards in the manor, but also physical traces can still be found. Bamboo grows around the lake and was brought there by Baron Huibert Gerard Nahuys who brought it with him from the Dutch East Indies. (Nierse, 2017)

Field of hanging trees: a big plot of land, north of Burgst, is known as the "galgenakker". Although no clear evidence was found that this land was indeed used as a place to hang people, there are local stories that this was the place where convicted people, held in the prison found on the "cingeltjes", were hung on black oak trees. These trees were also known as the hanging oaks. (St. Bewonerscomitee Haagse Beemden, z.d.)

Sunken treasure of Hekselwiel: The name "Hekselwiel", the shopping centre and northern part of the Haagse Beemden, got its name from the "wiel", a deep waterbody found in the landscape after a dike breach, that is found in the northern part of the estate zone. The story goes that during the 80 Years' War a treasure was hidden in this wiel by a priest who wanted to hide the valuable treasures from the neighbouring church from the protestants during the iconoclasm. This treasure is according to the stories bewitched and can never surface again. (Urselmann, 2019)



figure 3.31: Roads and paths in Hampstead Heath. Own image

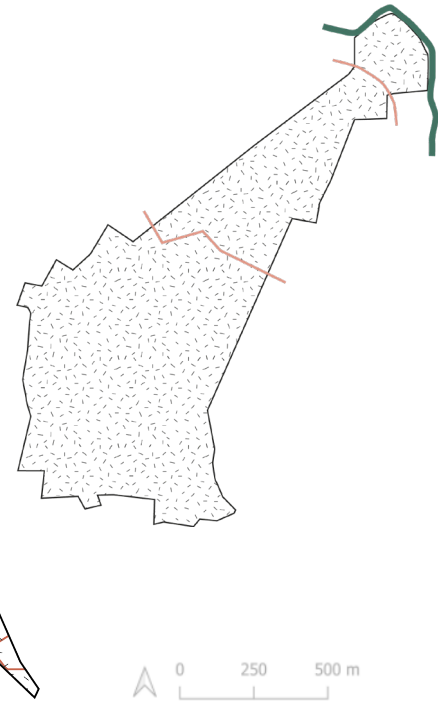


figure:3.32 Roads and paths in the estate zone. Own image

Accessibility

Both the estate zone of the Haagse Beemden and Hampstead Heath, a green enclave within an urban area near London, are categorised as open spaces of medium size, meaning they have a width between 2 and 4 kilometres.

An open and natural space of this size makes it possible for visitors to feel like they are out of the city.

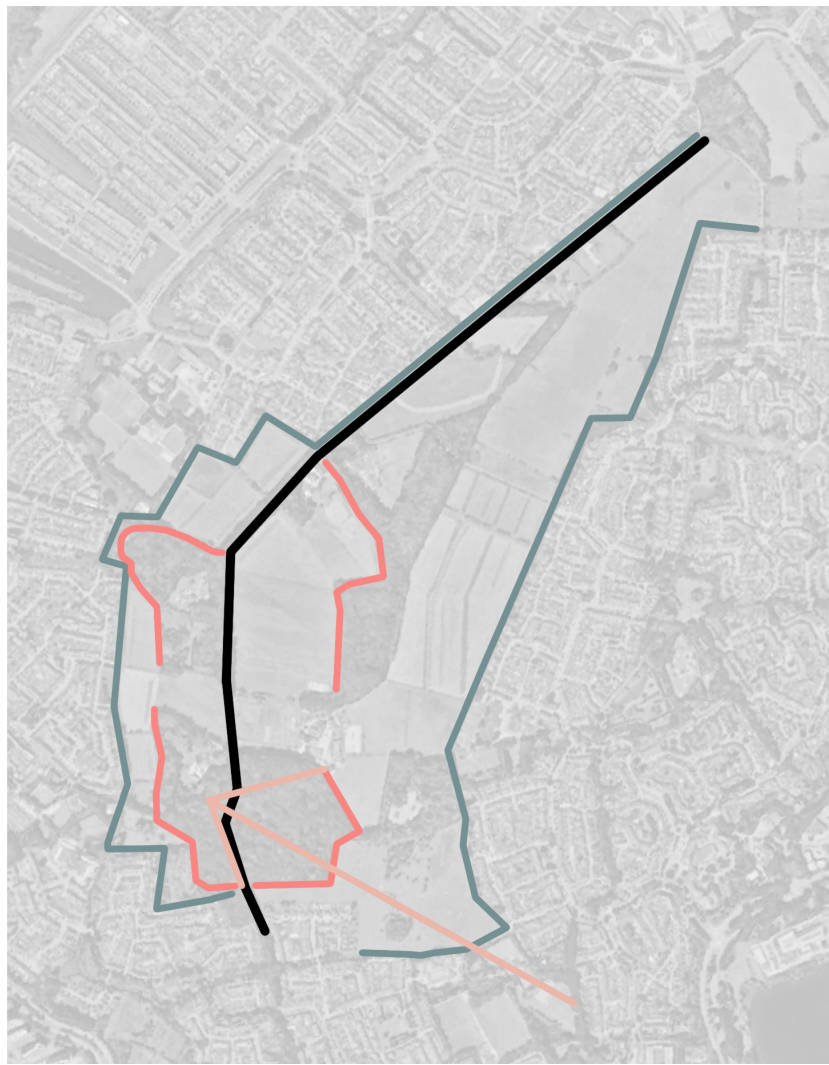
Both enclaves also have a large contrast between open space surrounded by an urban structure, and house an estate.

When looking at the accessibility of both enclaves, there is however a difference between them. Hampstead Heath has a car road crossing through the park and a lot of unpaved paths. The enclave is frequently visited by recreants that visit the place to swim, row a boat, sport or visit the estate which has become a museum. Hampstead Heath really functions as a central park where inhabitants can escape the urban environment. (Tummers and Tummers-Zuurmond, 1997)

The estate zone of the Haagse Beemden on the other hand has far fewer paths. The grounds of the estate Burgst used to be open to the public in the past but nowadays are closed off. Visitors or residents cannot really enter the park besides of the two cycling paths and the visual connections that can be seen from the edges of the urban area.



figure 3.33: Signs in the estate zone indicating a private zone. Own image



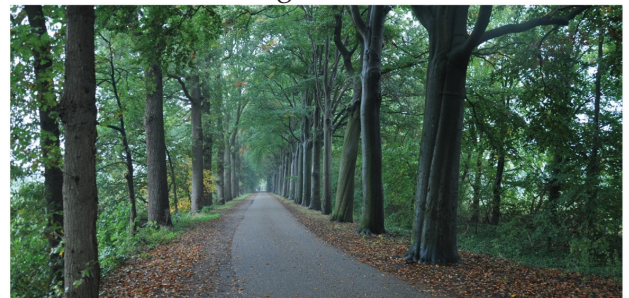
- Burgste Dreef
- original waterways
- earth walls
- sightlines

figure 3.34: Old authentic structures in landscape. Own image

Recognizable lines

The estate zone has a rich history. It was placed on a fertile and higher “donk”, making agriculture possible. The fertile acre was bordered by an earth wall, protecting it from cattle. The classical manor housed multiple important historical persons. Some traces from this time can still be found in the current landscape.

Burgste dreef



Waterways



Earth wall

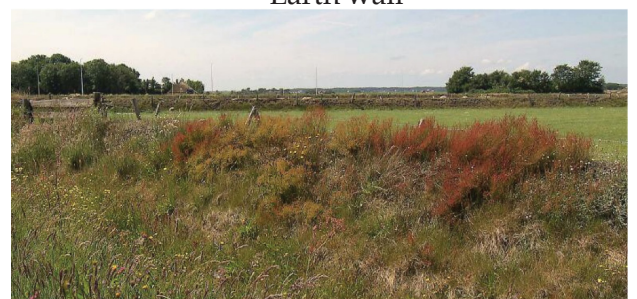


figure 3.35: Photos. (Source: Google images)

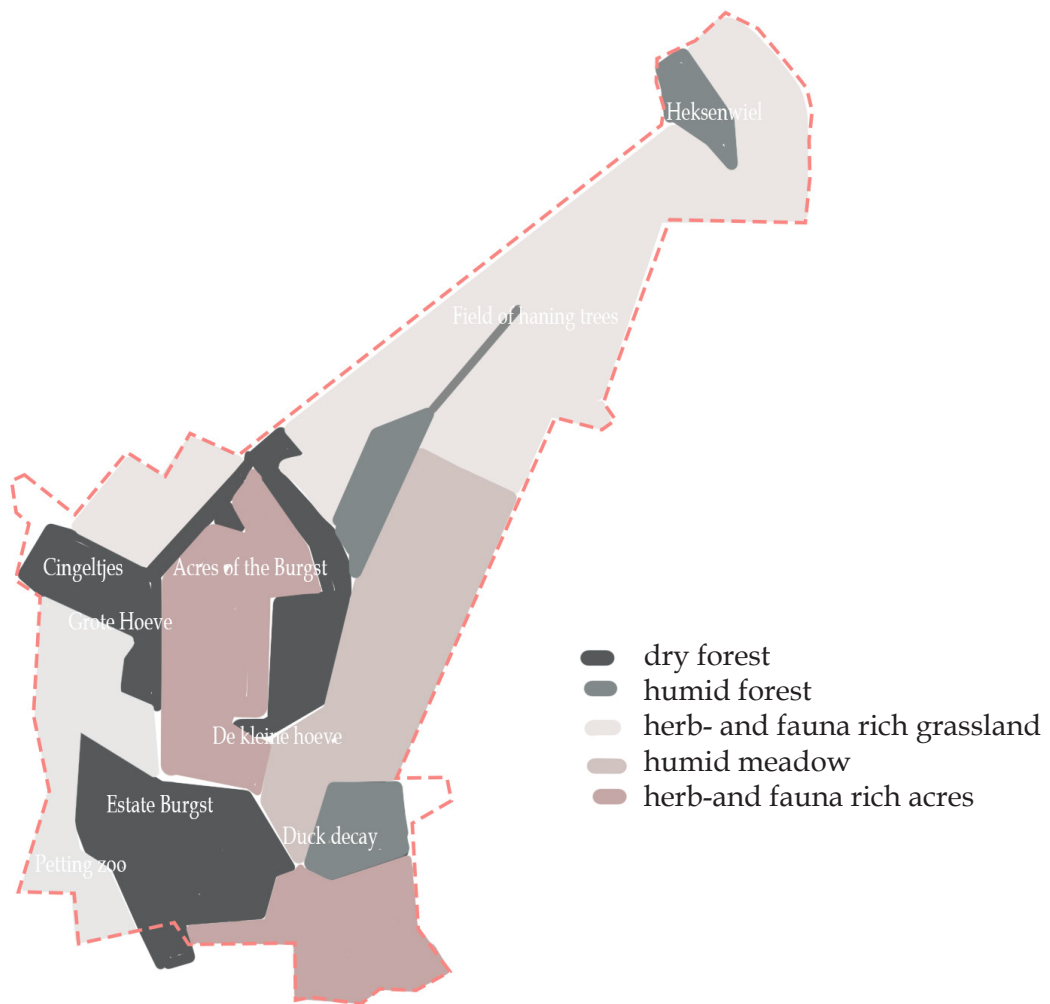


figure 3.36: Nature ambition. Own image

Nature ambition

The province has decided that the status of the area has changed from agriculture to nature. This is done because the estate zone is part of the Nature Network Brabant and adding more ecological values to the area makes it more valuable. (Plan Breda, 2021)

The map shows the desired nature types, determined by the height differences, water level and soil type. It also shows the important locations in the estate zone.

humid meadow



herb- and fauna rich grassland



herb- and fauna rich acre



figure 3.37: Photos. (Source: Google images)

Current nature values

The variety in soil, relief and landscape leads to a great diversity in natural values. The transitions from the higher to the lower grounds and from dryer to wetter grounds provide many vegetation types and suitable homes for animals to live in, taking into account the quiet and peaceful nature of the estate zone as well. Generally speaking, the following sections show the different tree and plant species that can be found on the higher and dryer grounds, and on the lower and wetter grounds.

- : Border high/ low grounds
- : Meadows
- : Hillen
- : Old course of river Mark
- : Course river Mark 1750
- ▨ : Swamp like grounds
- ▨ : Valley on the low grounds
- ▨ : Donk
- : Low sand grounds
- : Low ridge
- : Higher ridge
- ▨ : Valley on the high grounds
- ▨ : Lowest place
- : Dune

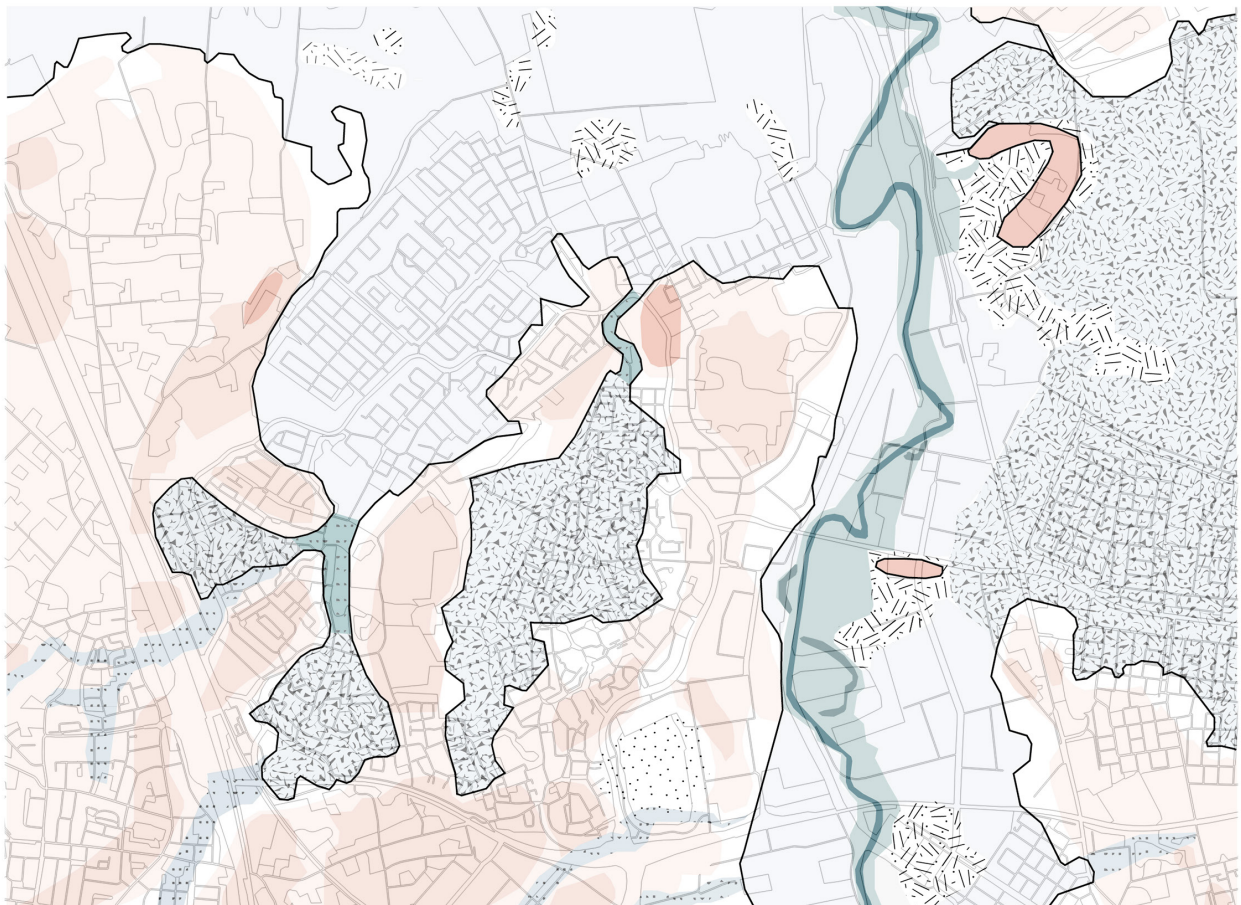
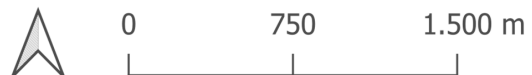


figure 3.38: Landscape types. Own image



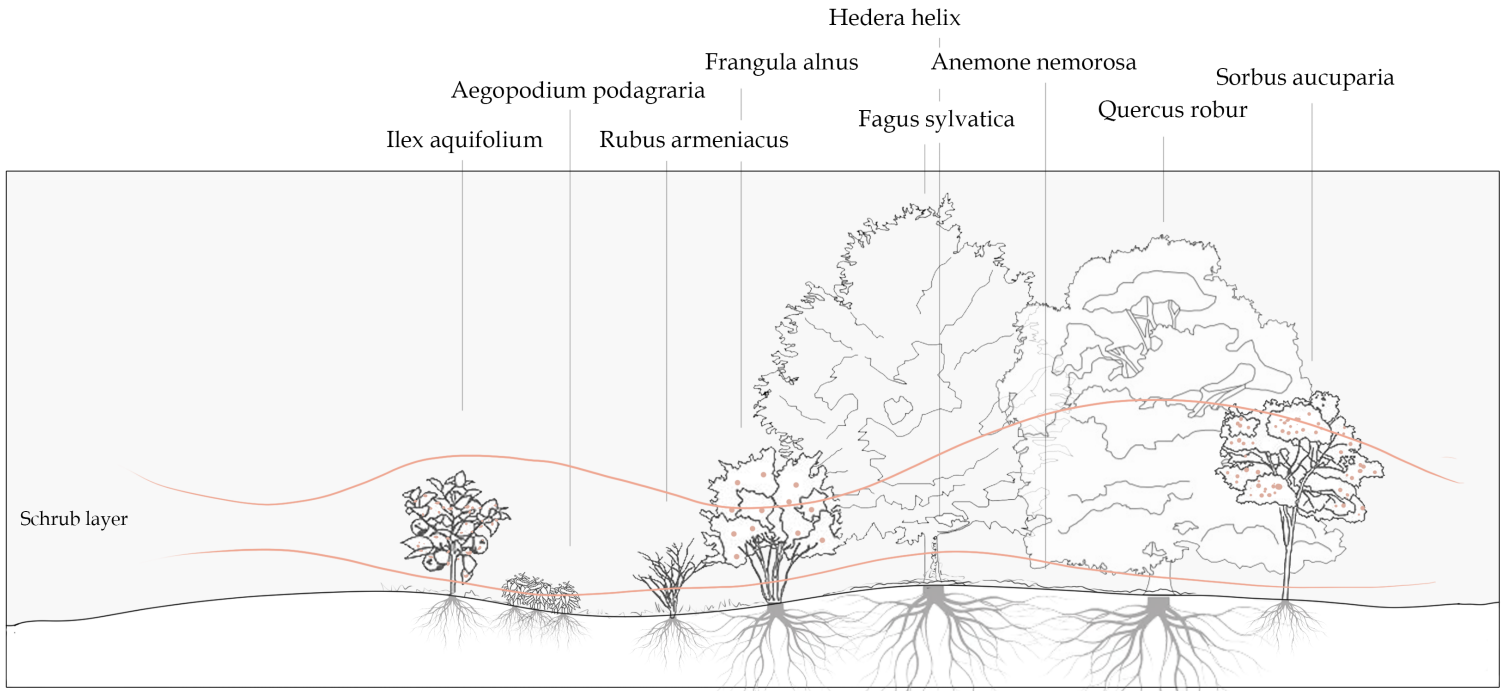


figure 3.39: Vegetation higher grounds. Own image

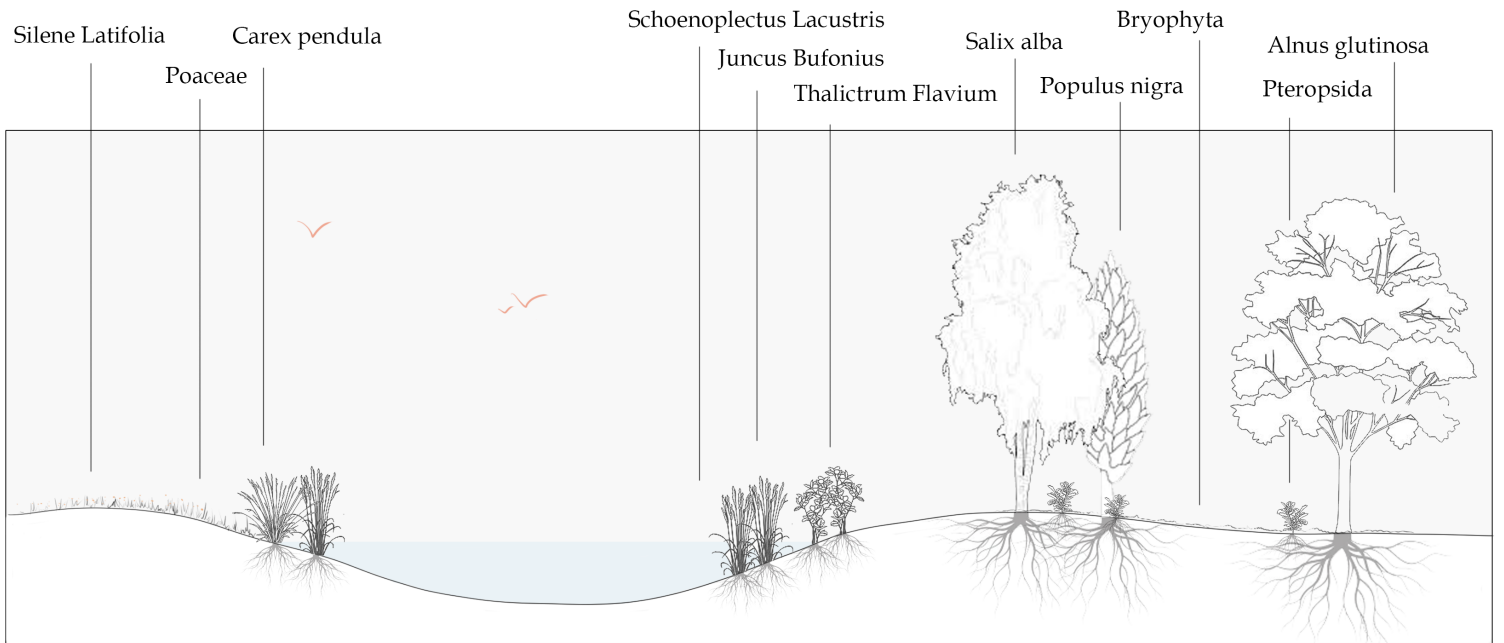


figure 3.40: Vegetation lower grounds. Own image

Comparing the estate zone to president studies.

When looking at the spatial program of the estate zone in the Haagse Beemden, it becomes clear that a substantial part of the open area is not accessible as it is private property of the owner of the manor. These parts of the estate zone are totally closed off from the public. Next to the physical accessibility as previously discussed, there are some visual connections to the estate zone from the paths and surrounding residential areas. These visual connections are explained in Appendix 1.

Within the estate zone, only a couple of facilities can be found; a petting zoo, a biological shop and care facilities for people with special needs. Outside of the enclave, just over the border, the primary schools can be found which are physically separated from the estate zone. Further outward we can find the sports facilities and shopping areas.

If we abstract this spatial program into a diagram, we see the following circle.

It becomes interesting if we do the same for Birkenhead park and the Maximapark in Utrecht. These are both examples of big urban parks that function as a successful green center of the neighbourhood and both contain similarities to an estate. It is therefore interesting to see what the differences are on the programmatic level to understand how the estate zone of the Haagse Beemden could possibly transform into a more successful green center for the neighbourhood.

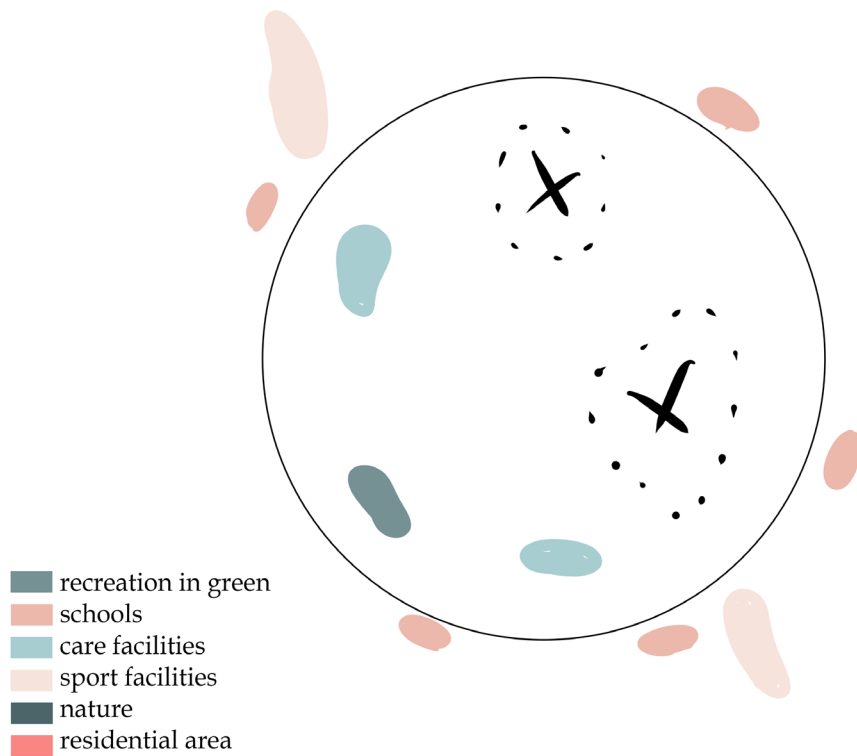


figure 3.41: Program diagram Haagse Beemden. Own image

Differences with Birkenhead:

- Birkenhead has an extra path running through the park.
- Birkenhead doesn't have private areas.
- In Birkenhead, the space can be used in a multifunctional way.
- The border of Birkenhead is made clear by using a fence.
- The function of the Birkenhead park is a green center. The estate zone is a badly accessible piece of landscape without the function of a center.
- The roads are pointed towards Birkenhead park. This makes the distance inhabitants have to walk to the park significantly shorter.

Program diagram Birkenhead

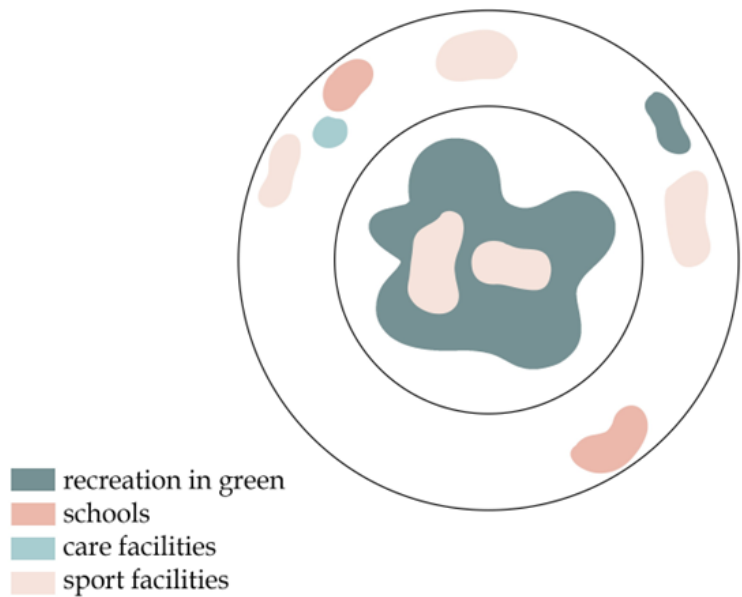


figure 3.42: Program diagram Birkenhead. Own image

Differences with Maximapark

- Maximapark has an extra path, the Lint. This path runs close to the outside border, making it easy to access for visitors and inhabitants.
- A train track crosses the park, roughly dividing it into two zones: a nature area and an area more focussed on recreation.
- A folly-like wall separates a "buitenhof" from a "binnenhof". It creates a park within a park where new facilities and landscape characteristics can be found.

Program diagram Maximapark

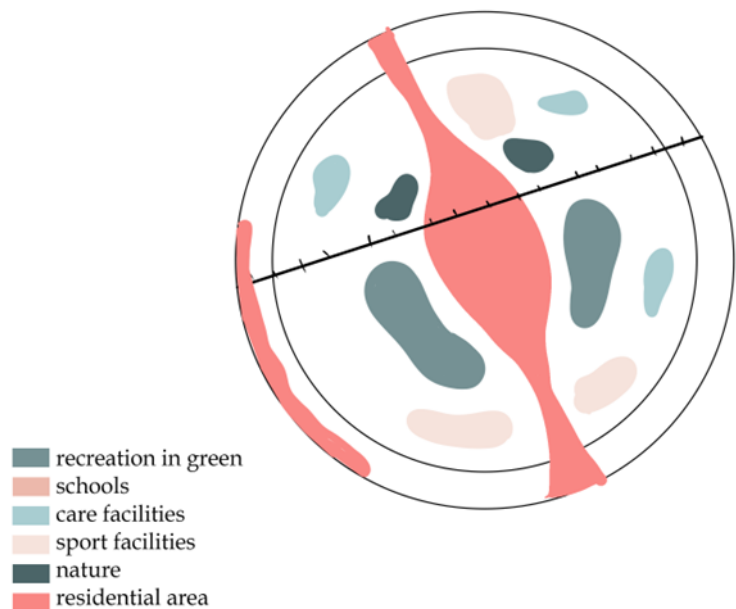


figure 3.43: Program diagram Maximapark. Own image



figure 3.44: Districts within neighbourhood. Own image

Social situation

Haagse Beemden

Growing segregation

According to a study done in 2021 by the municipality of Breda, segregation in the city is growing. Where on the one hand certain parts of the city are doing better, on the other hand, 16 neighbourhoods in total are facing worse circumstances than before. These neighbourhoods are indicated as “vulnerable neighbourhoods” or “early detection neighbourhoods” and can have problems related to income, education, health, social participation, safety or the overall quality of life. (Rekenkamer Breda, 2021)

Within the Haagse Beemden, two neighbourhoods are given the status of “vulnerable neighbourhood”: Kesteren and Muizenberg, requiring special attention. (Gemeente Breda, 2019)

Vulnerable neighbourhood

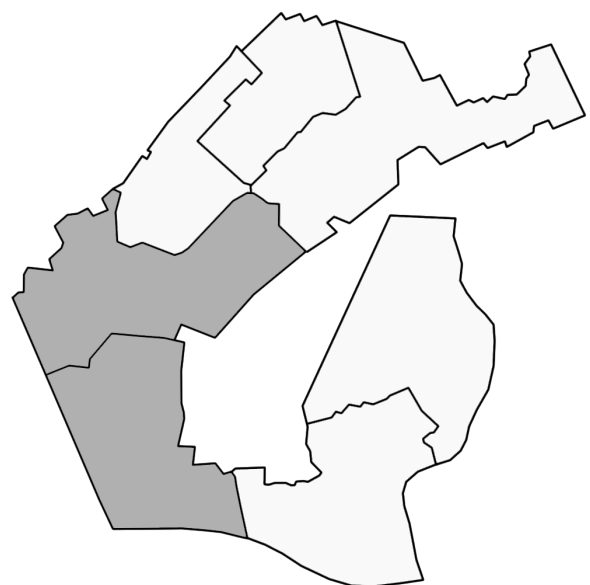


figure 3.45: Vulnerable neighbourhoods. Own image. Based on Rekenkamer Breda, 2021.

When looking at these neighbourhoods separately, certain trends can be found. First of all, the northern part is overall doing better than the southern half. These northern neighbourhoods are also the ones constructed last and are not following the "bloemkoolwijk" structure. Muizenberg and Kesteren score the lowest on "safety" and "perceived decay", but in Kievitsloop and Gageldonk the biggest issue is loneliness, especially among the elderly.

Nuisance caused by the youth is also a problem that is becoming more prominent within Kesteren and Muizenberg. (Rekenkamer Breda, 2021) Overall, the youth is also the demographic group that values the current neighbourhood the least. (Doff, 2020)

Overall liveability

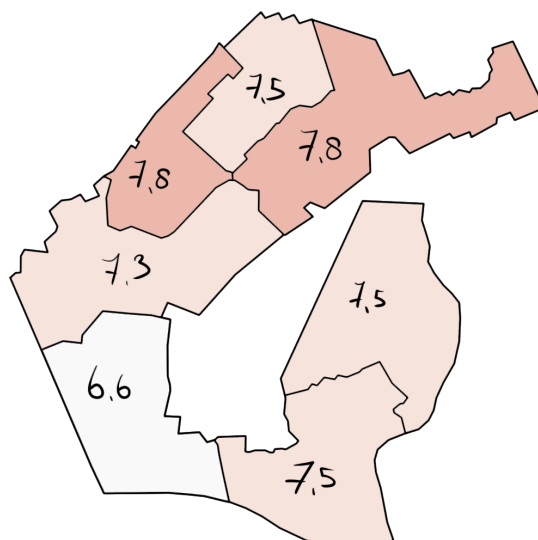


figure 3.46: Overall liveability. Own image. Based on Rekenkamer Breda, 2021.

Safety

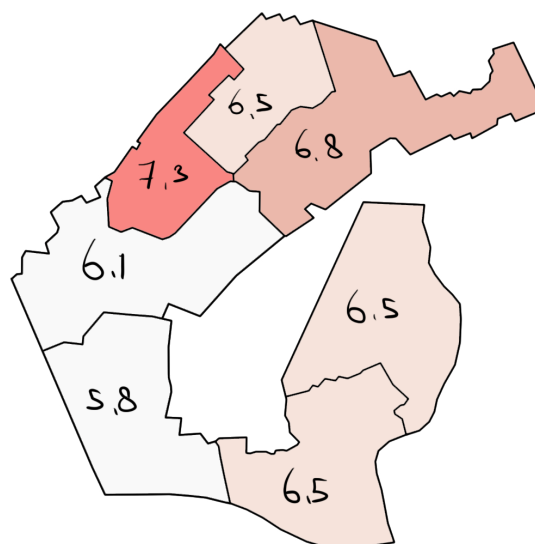


figure 3.47: Safety. Own image. Based on Rekenkamer Breda, 2021.

Perceived decay

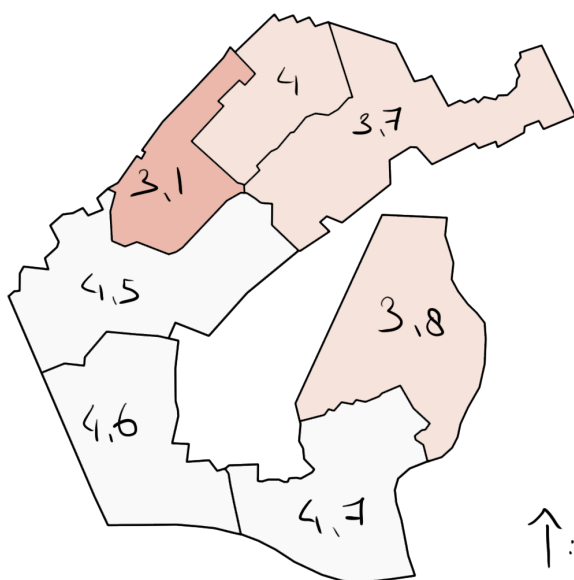


figure 3.48: Perceived decay. Own image. Based on Rekenkamer Breda, 2021.

% loneliness

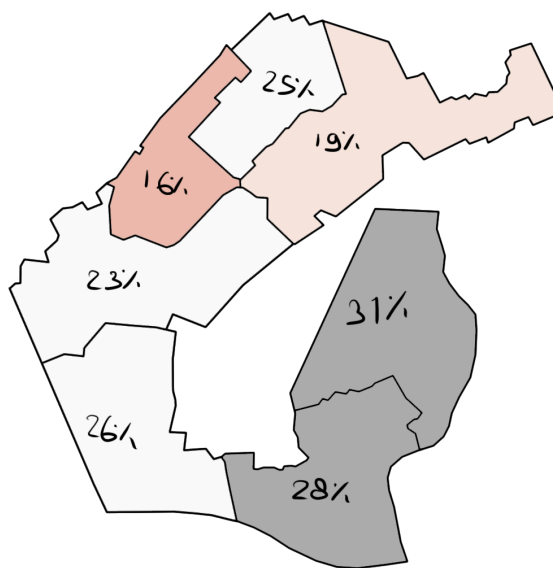


figure 3.49: Loneliness. Own image. Based on Rekenkamer Breda, 2021.

↑: more decay

A method used to try to understand more specifically what parts of the area feel the least safe is looking at the amount of "eyes on the street". According to Jacobs (1961), it is very important to incorporate eyes on the street in a plan when wanting to focus on social safety.

Social control should be achieved on the streets, as they are representing the neighbourhood to the outside world. In order to gain more social control and have more eyes on the streets, they should, first of all, host multiple functions like living, working or recreating. The more people on the streets throughout the day, the better. Also, diversity in age and aim is very important. This can be stimulated by creating a multifunctional space that resembles the hustle and social activities of a bazaar.

Good lighting and sightlines on the streets are furthermore very important for social safety.

In the case of the Haagse Beemden, an analysis was done on Kesteren and Muizenberg, the two vulnerable parts of the neighbourhood. Analyzing what parts of the road, pedestrian and cycle network do not experience eyes on the street made clear that the cycle network for the most part does not have eyes on the street, making the feeling of social safety weak. Next to this, it became clear that open public spaces come in two different forms: reversed courtyards with blind walls and squares. These reversed courtyards are mainly found in Kesteren and do not have eyes on the street.

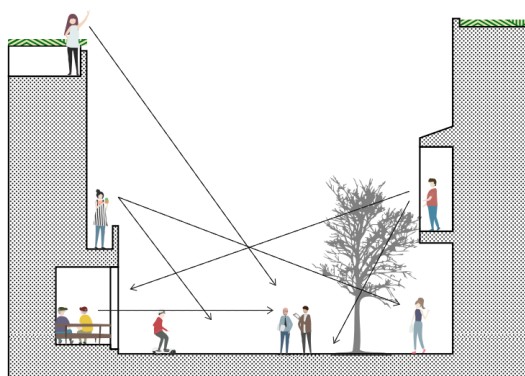


figure 3.50: Eyes on the street. (source: Doff, 2020)



figure 3.51: Blind walls along courtyards. Own image.



figure 3.52: Blind walls cycle paths. Own image.

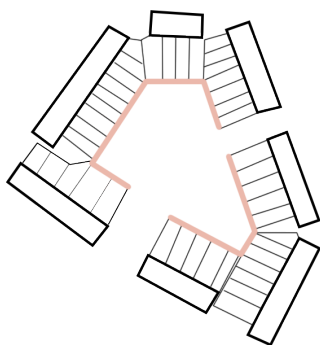


figure 3.53: Reversed courtyards. Own image.

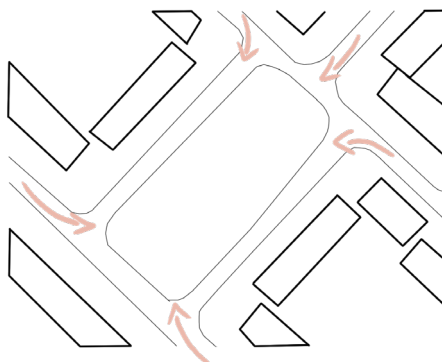
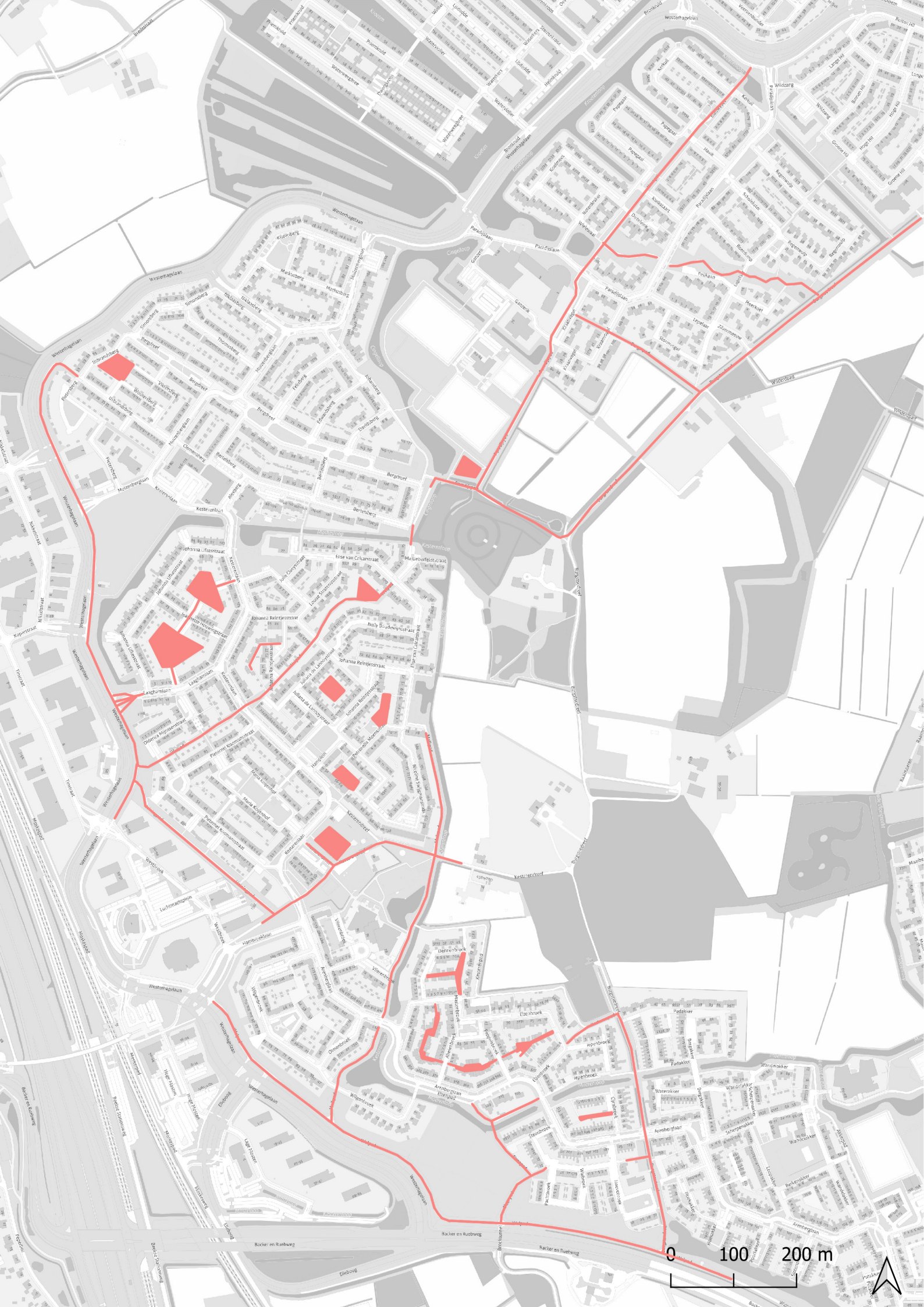


figure 3.54: Squares. Own image.



0 100 200 m



The estates

Burgst and Heksenwiel

Estate landscape Breda

The city of Breda became known as the residence of the Counts of Nassau towards the end of the 15th century. These Counts held an important role within the Netherlands during that time and them being resided in Breda attracted the arrival of other nobility. They preferred to own an extra summer residence outside of the city, next to the ones they owned within. Old existing small castles served as summer residences, but also farmhouses were bought and transformed into manors.

This development led to the creation of the estate landscape surrounding Breda that would be even further developed during the 17th century.

(Planviewer buitengebied, z.d.)

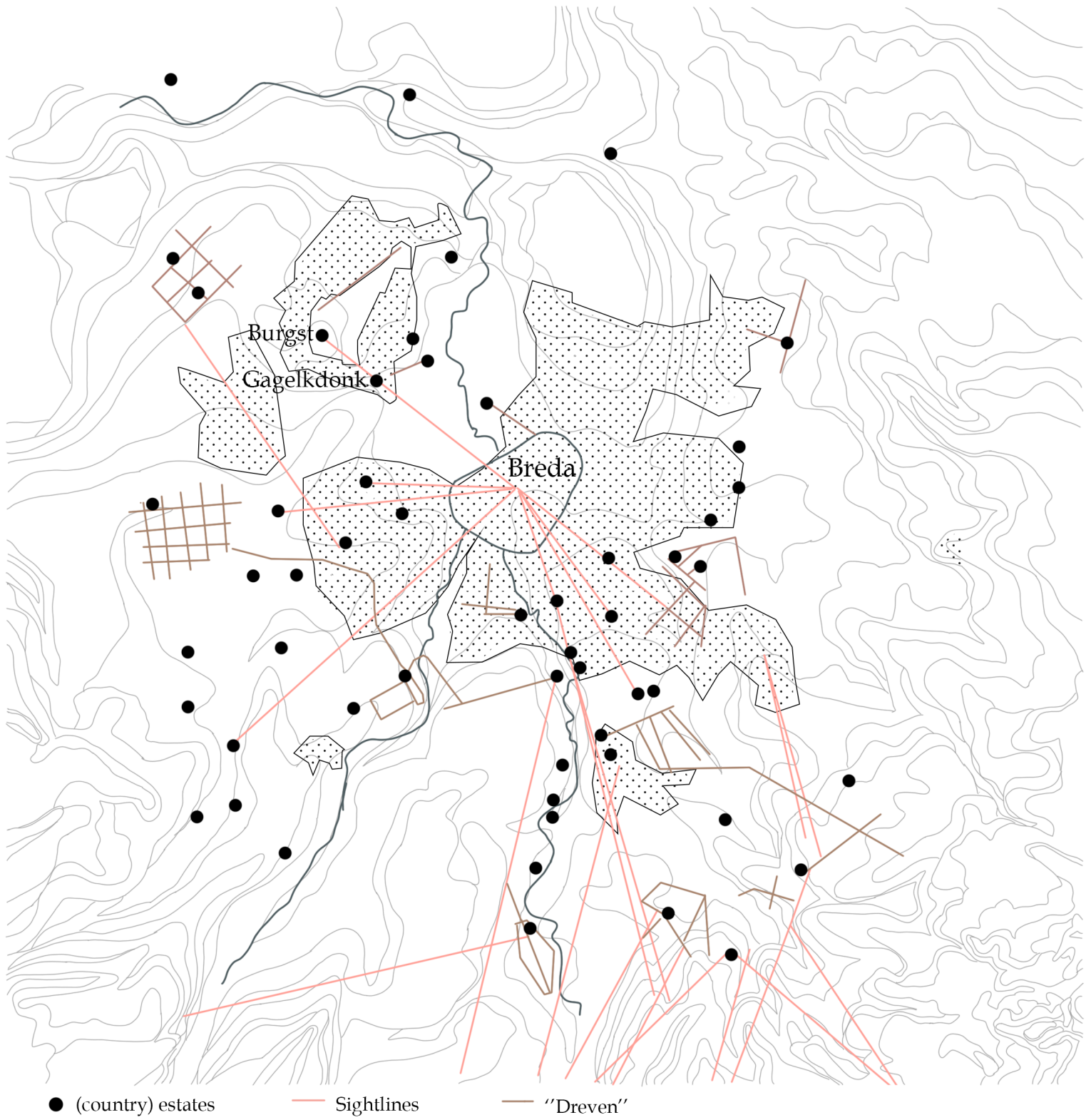


figure 3.56: Estate landscape. Own image.

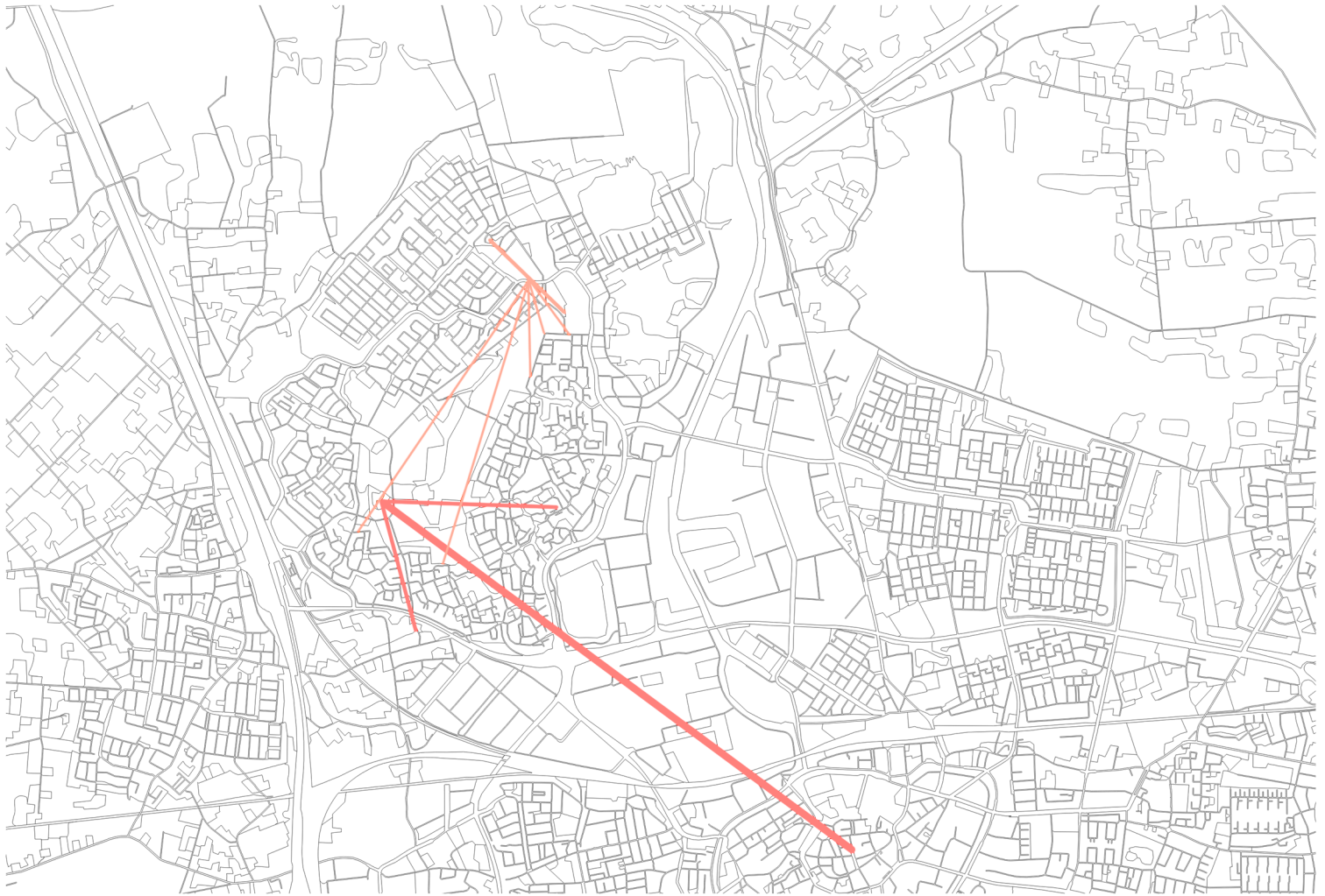
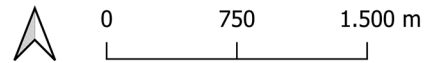


figure 3.57: Sightlines. Own image.



Estate Burgst

The current manor was built in 1790. A forest park with sightlines was designed to surround this manor. The "torendreef" was the main sightline and pointed towards the tower of the church of Breda. The sightlines are bordered by brown and green beeches. The trees in the forest park were planted with the purpose of being cut down in the future for their economic benefit.

The sightlines of this manor clearly point towards the city, the place where the owner used to live. By presenting a visual connection between the manor and the church, the owner of the manor wants to express his status and prestige.



figure 3.58: Burgst. (Source: google images)



figure 3.59: Torendreef. (Source: google images)

“Estate” Heksenwiel

Upon the completion of the neighbourhood Haagse Beemden the mall Heksenwiel was also completed.

This mall is actually also designed like an estate. A long sightline runs through the middle of the mall, eventually ending in the original “Heksenwiel”, a water wheel in the landscape on which a story is attached about a treasure, as mentioned in the paragraph about local folklore.

So not prestige or status like the old manor, but a local folklore story is the focus of this mall in the form of an estate. This mall, having a shopping function and attachment to local stories is therefore a modern rendition of what an estate is.

The mall ends in a circular shape with a big sundial in the middle. The time indicators surrounding this sundial form the basis of the spatial design of the square it sits upon. The lines are treated as sightlines, and if these lines would be extended, they would precisely run through the estate zone.

“Estate” Heksenwiel is the celebration and crown to the design of the Haagse Beemden.



figure 3.60: Central line Heksenwiel. (Source: google)

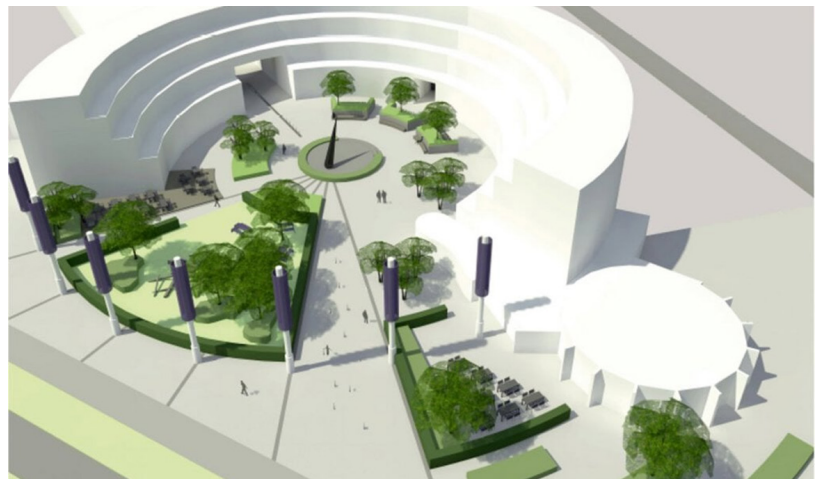


figure 3.61: Design new square. (Source: google Breda Vandaag)



figure 3.62: Story treasure of Heksenwiel. (Source: google bhic)



Conclusion analysis

The Haagse Beemden is a green neighbourhood with a lot of water on the edge of the city. The backbone of the plan and structure of the neighbourhood is the underlying landscape with its estate zone, lanes and waterways. These are still recognizable in the current plan.

However, a problem the neighbourhood is facing is that this structure is mostly facing the back sides of the houses and therefore is not clearly visible or accessible to visitors or residents. This does however contribute to better natural values. A reason for the unfortunate orientation of the houses can be found in the presence of the woonerven. These woonerven used a spatial inversion of the facades to create more small-scale and social neighbourhoods. The maze-like structure of these wooneven has a relation to the original allotment patterns of the underlying sand landscape. This structure leads to people feeling disoriented and lost in the neighbourhood. This is due to the fact that there is an uniform aesthetic used without a lot of individual character. This also counts for the open green spaces in the neighbourhood.

They are all designed as open fields of grass and are therefore not very imaginative or attractive. Furthermore, the urban trees and vegetation are in need of replacement in the near future. (Advies O-team, 2020)

Societal developments of the last couple of decades also contribute to the unsafe feeling on routes along the green structure and waterways. In our current individualistic society we value privacy more, leading to more and higher fences around the backyards. This leads to less eyes on the street and makes these routes less safe.

The fact that we have a lot more cars nowadays than 40 years ago leads to former green space or public space now being used as parking space.

Following the “drietrapsstrategie” it appears that the third criteria of adding landmarks that bring together the city and the land, does not work in this case of the Haagse Beemden as the primary schools, the landmarks, are not well connected to the estate zone. This is partly caused by the fact that a big part of the estate zone is public property and therefore not accessible.

Muizenberg and Kesteren are parts of the neighbourhood that have the most urgent problems.

The woonerf structure “rushing space” and the “green heart” on the other hand can benefit most from a spatial intervention as they can significantly improve.



figure 3.63: Problem area. Own image.



figure 3.64: Opportunities. Own image.

Design criteria

Following up on the achieved knowledge from the theory, analysis and precedent studies, the following design criteria for a new design for the Haagse Beemden can be distinguished:

Theory:

Landmarks on the border between city and land should function as third criteria of the "drieslagstelsel". They should have a visual and/or physical connection with both the city and the land.

The green space has a permanent status and is of a decent size.

The borders of the enclave should benefit from a nice view over the open area.

Paths perceived as unsafe should focus on having eyes on the street

The green structure should be easily accessible from the dwellings

Use multisensory experiences, especially within the "central green" and "connecting green"

Use planes/tree architecture. This benefits "room" experience

Use shared ownership to stimulate compassion

Use local folklore to stimulate meaning

Analysis

Design Rushing Space to achieve more prestige

Focus Central Green & Connecting Green on multisensory experience

Make estate zone more accessible

Precedents

Use an extra path/border

Include facilities more within park

Design a clear border between the park and the city

Use old specific landscape elements in design

Give facilities the function of manor

An aerial photograph of a city with a prominent river winding through it. The city's street grid is visible, and there are several large, irregularly shaped areas that appear to be parks or undeveloped land. The overall color palette is a warm, muted orange-brown.

≡

PART IV

VISION AND DESIGN

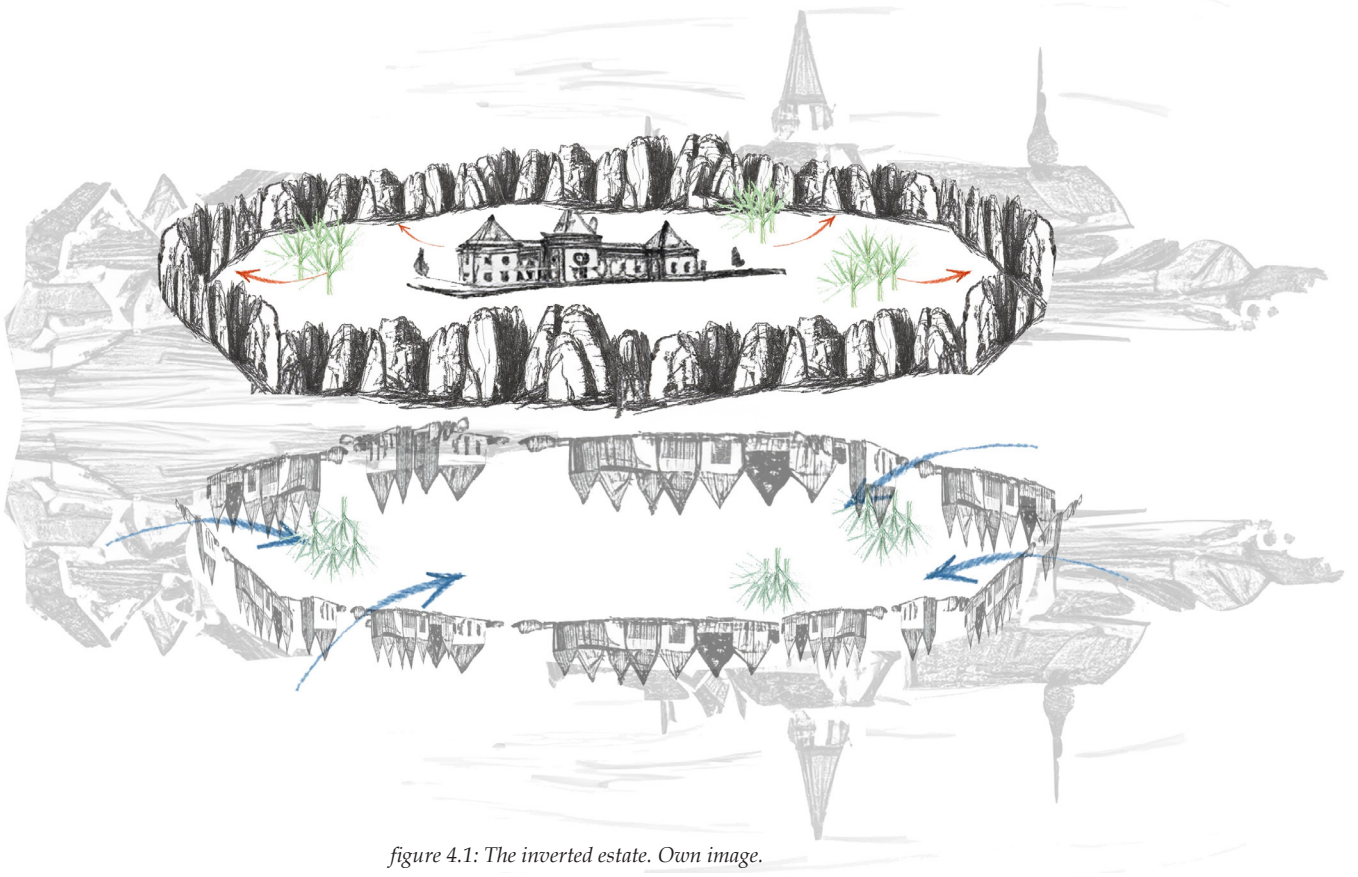


figure 4.1: The inverted estate. Own image.

Vision

The inverted estate

*Everybody needs beauty as well as bread,
places to play in and pray in, where nature
may heal and give strength to body and soul.*

**- John Muir, "Father of the National
Parks"**

Transforming the estate zone into an estate park could form an answer to the current spatial problems. In the current situation, the estate zone is bordered off from the neighbourhood. Spatially, the estate zone can be seen as the pupil of the eye, but in reality, it is nothing more than a blind spot for many.

The manor and estate located within this blind spot feel like a whole different world. A world that is sometimes to be seen and to be desired, however seldom to be reached for the interested wanderer. This unreachable, mysterious yet peaceful landscape is about to open its long-closed gates and welcome the inhabitants of the Haagse Beemden as a long-lost friend.

The estate park functions as the green heart of the neighbourhood and has a societal function as well. It becomes a place of meeting, activities, wonder, recreation and local retail and production. At the same time, the natural values for the flora and fauna are as well preserved. The original estate The Burgst, together with shopping centre "estate" Heksenwiel and a "new estate", primary school De Werft provide with their sightlines a guiding element for the estate park.

The total vision can be seen in figure 4.2.

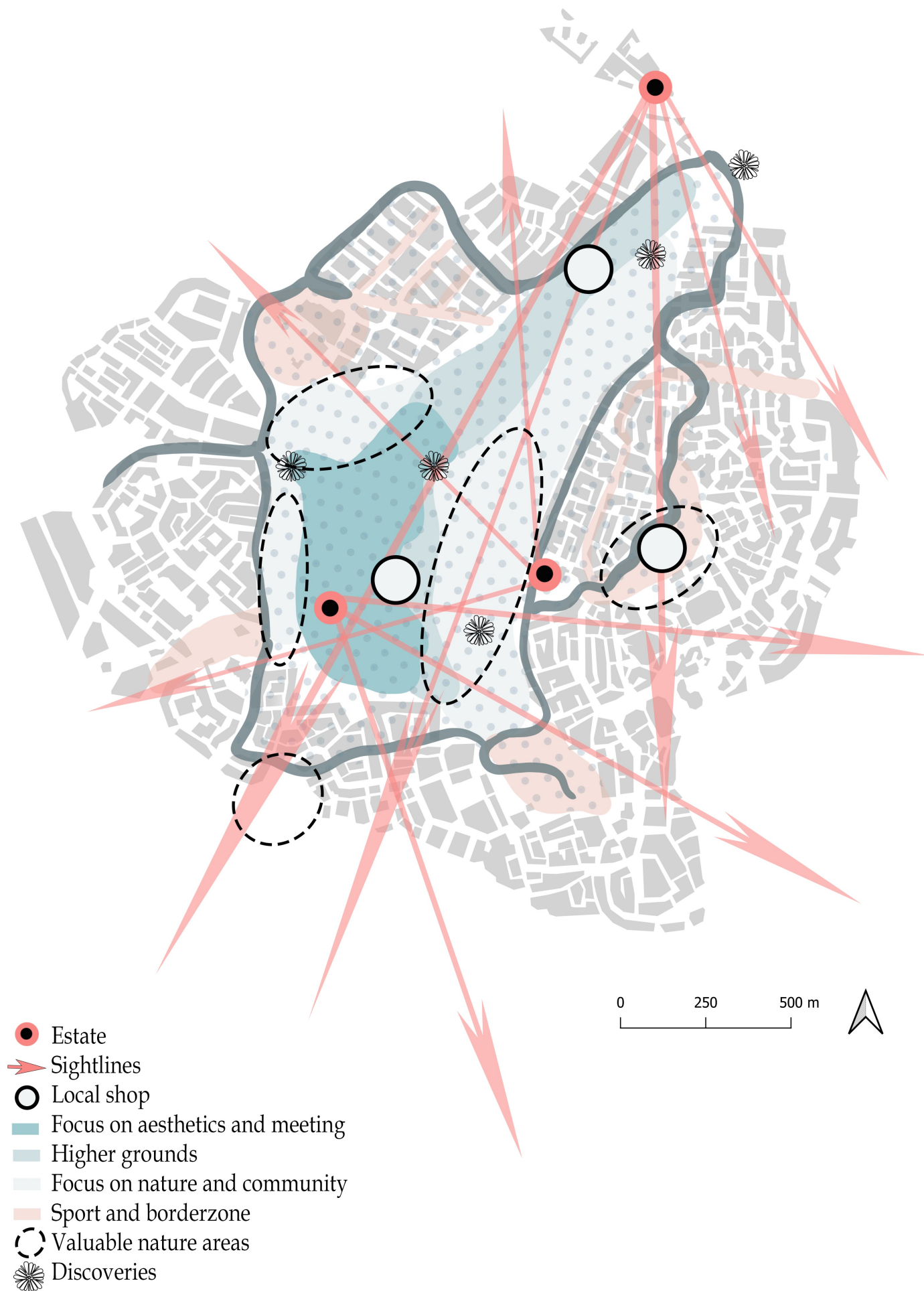


figure 4.2: Vision. Own image.

This estate park holds on to the idea of a country estate with a manor as a focus point but inverts the focus and design. The current manor of the Burgst is placed in a tactical location in the estate. The focus within this estate is pointed outwards. "Vista's" and sightlines present the surrounding landscape to the owner of the estate, emphasising his prestige and wealth.

At the moment, there is a hard border between land and city as the estate zone is hardly accessible.

In the "inverted estate" this focus is inverted. Instead of going outward and stopping at the hard border, the focus now points inward, coming from the neighbourhood districts surrounding the estate zone. The border becomes a soft border with more entrances, views and connections. People are guided towards the estate park by attracting functions and activities, or design interventions like appealing sightlines, lines of trees or landmarks. The estate park interweaves the city and the land together.

The Inverted Estate

Within the concept of the "inverted estate" the world of the country estate comes together with the world of the city landscape. This new concept therefore is funded on the earlier created typologies that describe the structure of the neighbourhood and its relation to the green structure, and on the ideas and elements of an estate. Combining these two topics leads to new typologies for this new "inverted estate" that function as composition elements of the estate park.

Figure 4.3 shows these composition elements and how they together form the basis of the estate park.

The estate park consists of the following composition elements:

- **Central green:** The estate park is on its basis a **public** space that is open to everyone. It is accessible for pedestrians, cyclists, people by small boats and joggers.

- **Selective collective:** Because the areas with a high ecological value should be preserved and improved, these areas have a **less public** character. This means that they are not/ sometimes accessible to visitors. Other areas, with for example a high cultural-historical value are public but more difficult to find. People have to wander off the main paths and discover these hidden locations. This makes these locations more special for the finders.

- **Semi-collective:** In the estate park, certain areas are **private property** of a local business or inhabitant. The places could for example be meadows for cattle, community gardens or an events location. Although these locations are private property, the yield or the use of it are meant for the local inhabitants/ visitors of the park. New local shops are placed in the park where this yield in the form of fruit, vegetables, milk, cheese, nuts or wood products are being sold. **Local products for local people.**

- **Connecting green:** The connecting green connects the houses to the park. It forms the soft **transition zone between the land and the city**. It consists of two parts that are influenced by common aspects of estates: the gardens and the tree lanes. The gardens are streets with a focus on the aesthetic green with use of a variety of colours, shapes and layers. These streets lead to the tree lanes. These tree lanes are placed along the existing old green structures and old waterways. Tree lanes of oaks and/or beeches guide the visitors into the estate park.

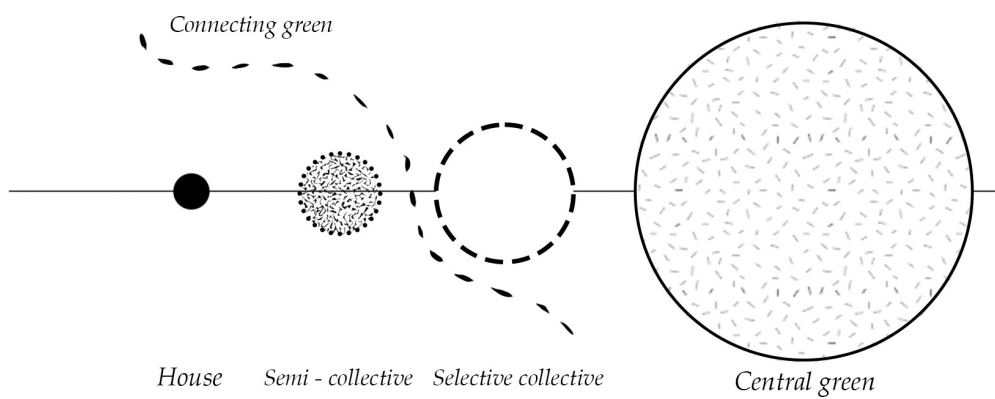
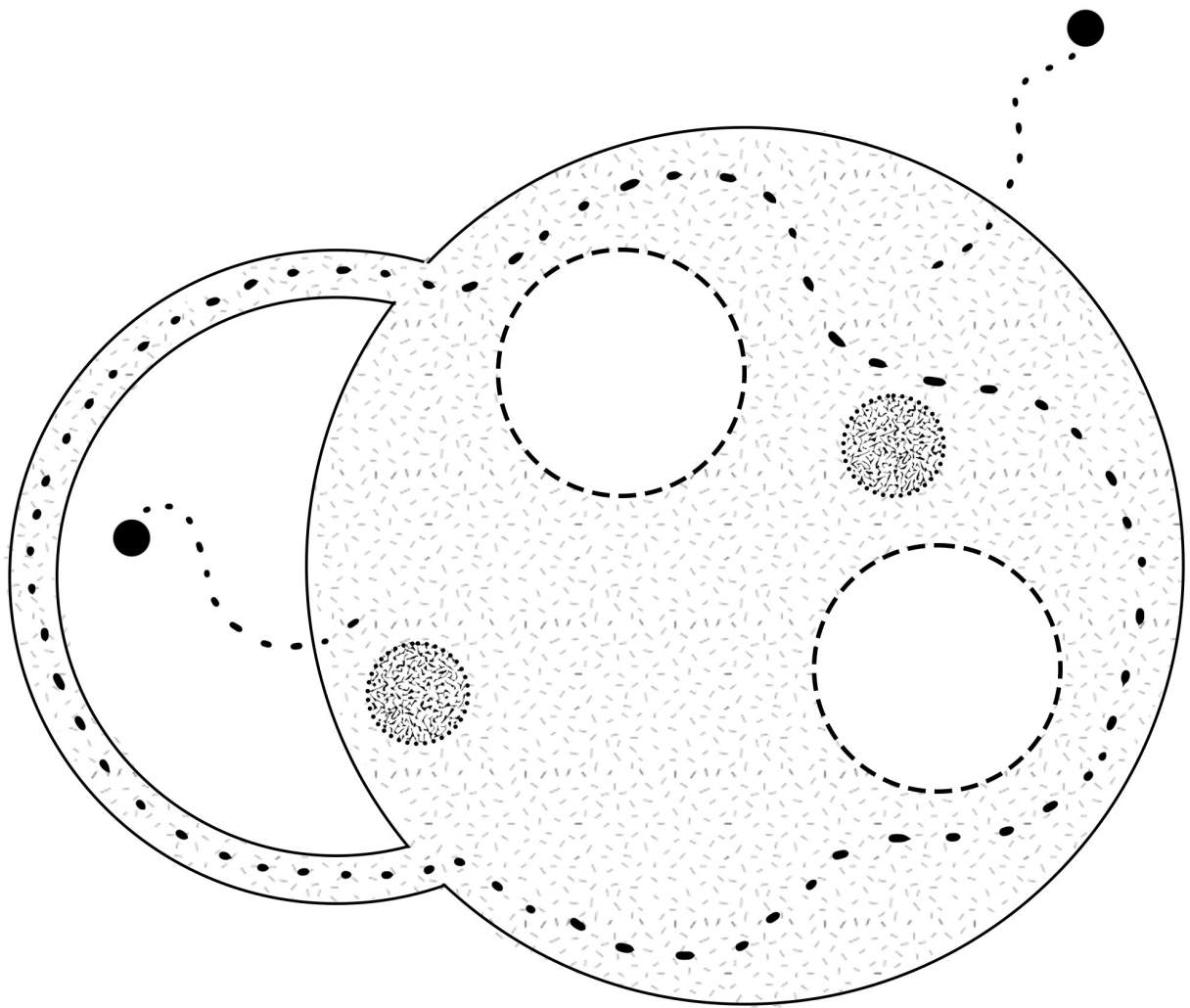


figure 4.3: Composition elements. Own image.

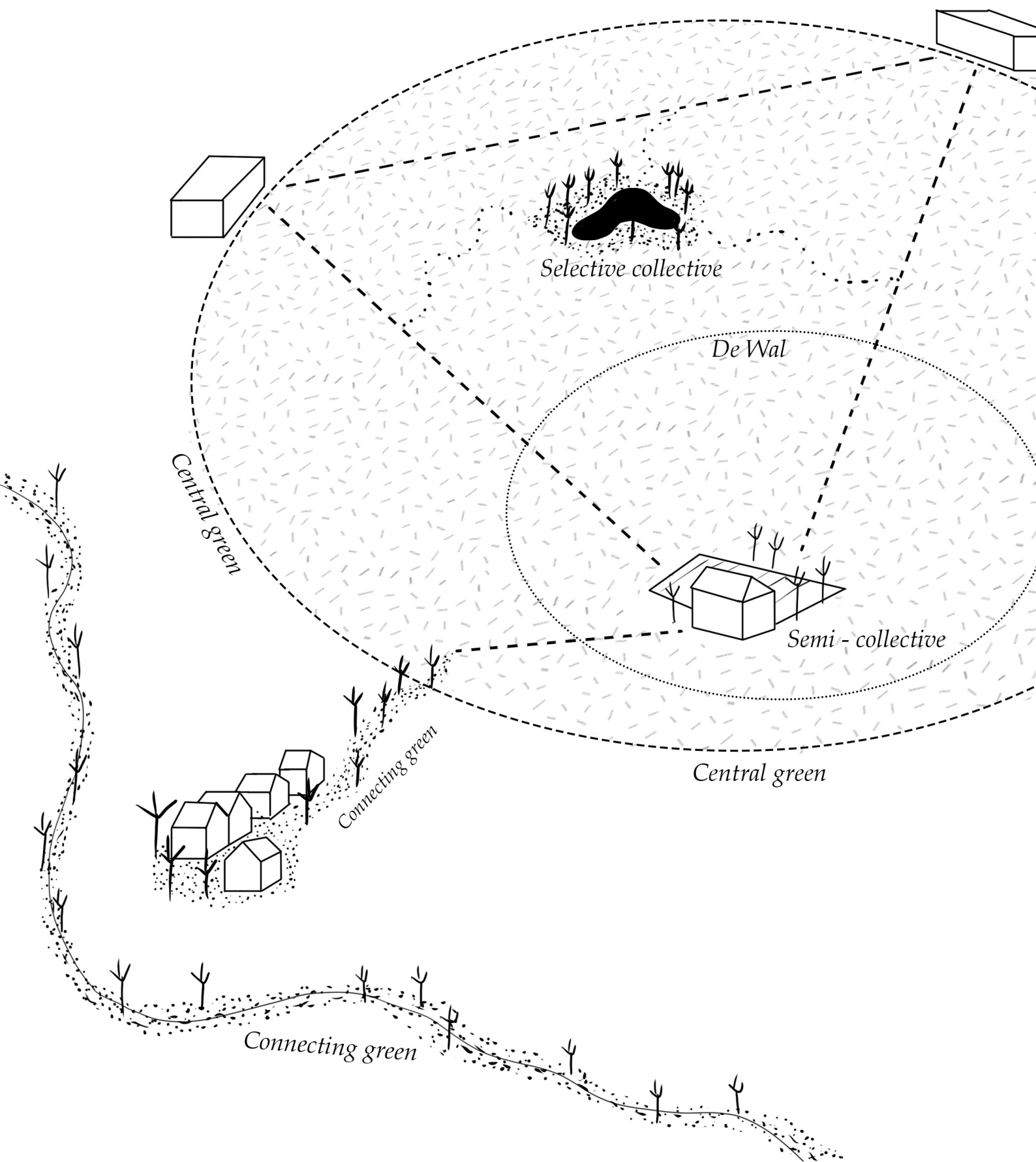


figure 4.4: Composition elements in perspective. Own image.

These composition elements together form a transition between the city to the land and give a fundamental idea of how the estate park itself works. Together with the design brief, they led to the design of the estate park which is explained in the following pages. Figure 4.5 shows the different layers of the design on top of each other.

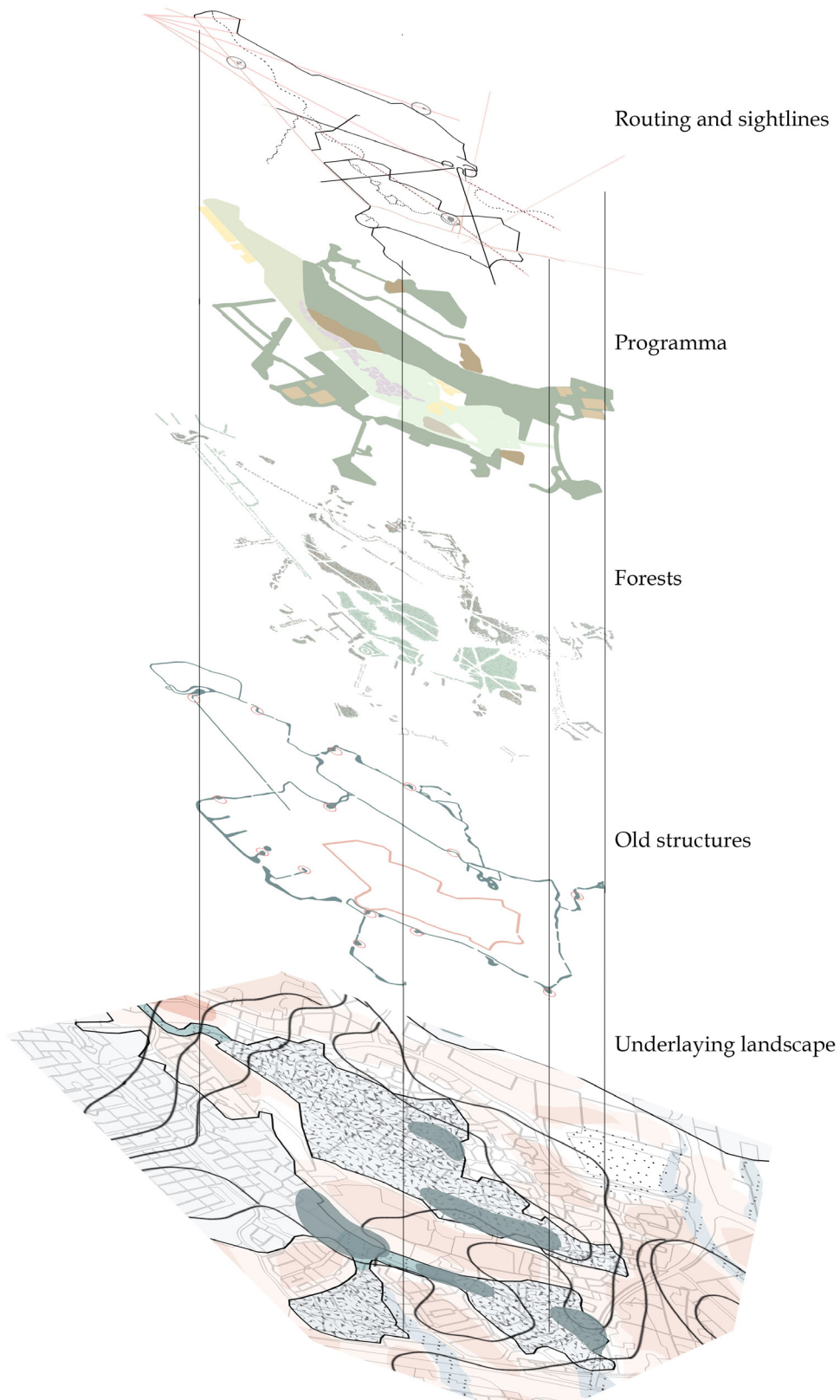


figure 4.5: Layers of design. Own image.

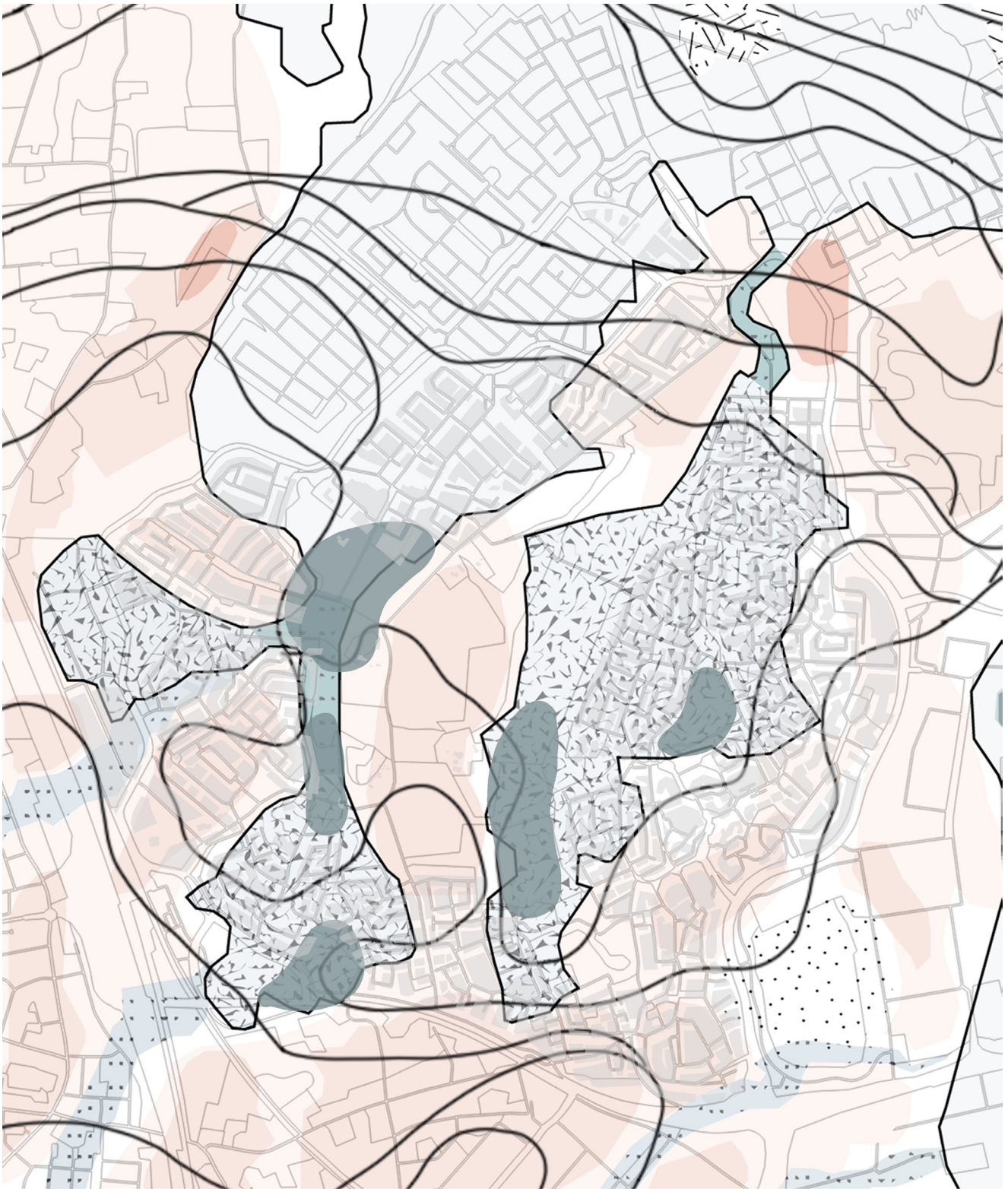
The natural layer

The first layer that influences the design for the estate park is the "natural layer". This layer consists of the soil types, relief and ground water level. They determine where what kind of program can exist and where the most valuable ecological areas are located.

The map shows a higher sand ridge going through the middle of the estate zone/neighbourhood enclosed by lower laying grounds. On these lower laying grounds, areas with seepage water can be found. On these locations nutrient rich water surfaces, creating an ecological unique area for a variety of rare animals and flora types. For this reason, these locations are areas that should focus on nature development. Human interaction is less desirable here.

The sand ridge going through the middle of the estate zone provides more opportunities for human activities. The estate Burgst is located on this ridge because of its advantageous aspects; the higher grounds kept the soil dry and easily usable for cattle and farming.

For these same advantageous aspects and the cultural historical reason, this sand ridge will host human activities again in the design for the estate park.



- Seepage water zones
- Higher Grounds. Place for aesthetic nature, meeting and human facilities
- Lower grounds. Place for nature development, wonder and wander

0 250 500 m



figure 4.6: Natural layer. Own image.

Old structures

One of the main aspects of the inverse town planning is the implementation of old original structures in the design for the neighbourhood. For the Haagse Beemden this means that the original waterways are still present in the neighbourhood, old roads now have the function of cycling paths and the old earthen wall that surrounded the acres of the estate is still present.

In the design for the estate park, these elements will still be kept but will also receive a new function that fits the need of today to keep their meaning and presence relevant.

The waterways:

The waterways will become the new outer border of the estate park. The water creates a legible and consistent factor that shows when you enter or exit the border of the park. This means that the park becomes bigger than the estate zone is today. It will include parts of the neighbourhood and create more sightlines with the outside world.

The waterway will be adjusted to host water activities like supping, moving around the neighbourhood by boat or simply have more contact with the water. Houses neighbouring the waterways have the opportunity to enter this new infrastructure from their houses and hereby enter the estate park.

Old roads:

The old roads that have transformed into cycling paths in the current design of the neighbourhood are mostly preserved as unsafe. This is caused by the fact that they lack eyes on the street and lack good lighting. However, these paths have a good opportunity to be well connected to the estate park. Therefore these old roads will be designed as part of the "the connecting green". They become tree lanes that guide inhabitants towards the park.

Earthen wall:

This wall used to prevent cattle to enter the agrarian field and keep them in their pastures. This wall therefore had an separating function. In its new function it will still separate different zones of the park but also has a guiding function. On top of the wall, a path will be created that guides visitors around the park. The path is legible and good accessible for all kind of pedestrians and other slow traffic.

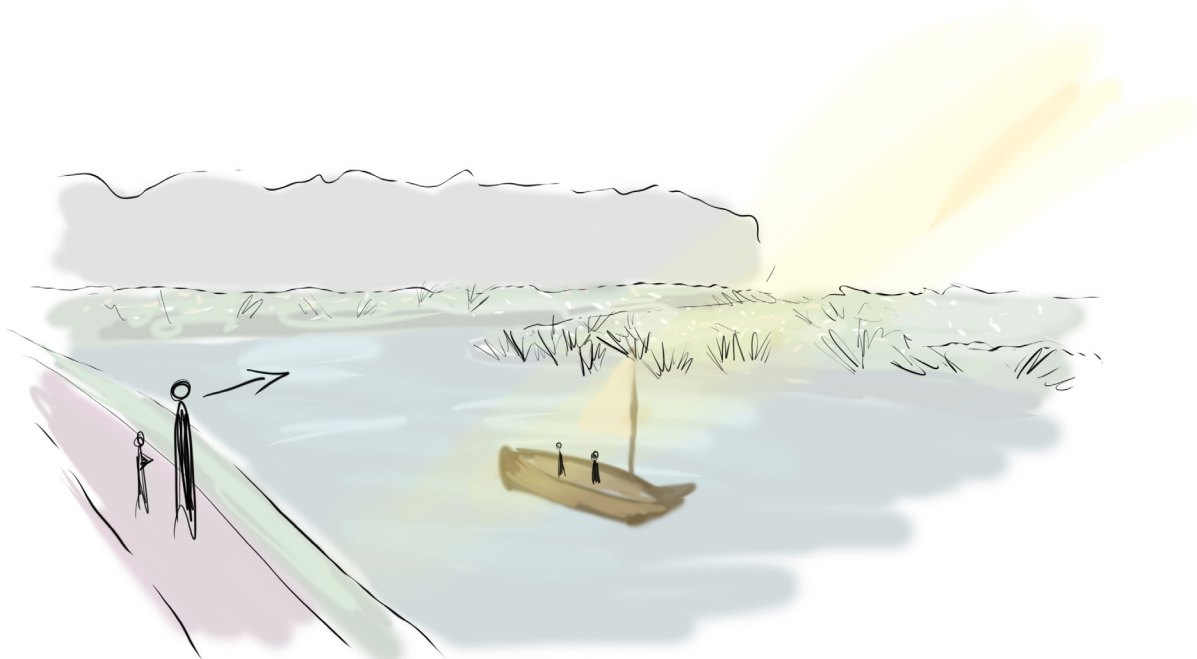


figure 4.7: Water as border. Own image.



- Recreative waterway (border new estate zone)
- Old structure: "De Wal" (new path that separates inner zone from outer zone.)
- Boarding places waterway

figure 4.7: Old structures. Own image.

Forests:

The location and type of forests are dependent on the underlying high and soil map.

On top of the higher sand ridge, forests are placed that are more focussed on human pleasure. They are/become park forests. The experience and trees are focussed on aesthetic and woodproduction. Wide lanes and more narrow winding paths lead the visitors through these park forests.

On the lower laying grounds, and therefore outside of the earthen wall, other forest types are created. These forests are primarily focussed on nature development. Different habitats are created and the maintained is more extensive.

The third type of forests that are created are the food forests. They arise on the locations that are in line with the sightlines of the shopping mall and "estate" Heksenwiel. This is because of their connection to the shopping identity of these lines. These forests contain a variety of edible trees, herbs and plants that can be used by the inhabitants.

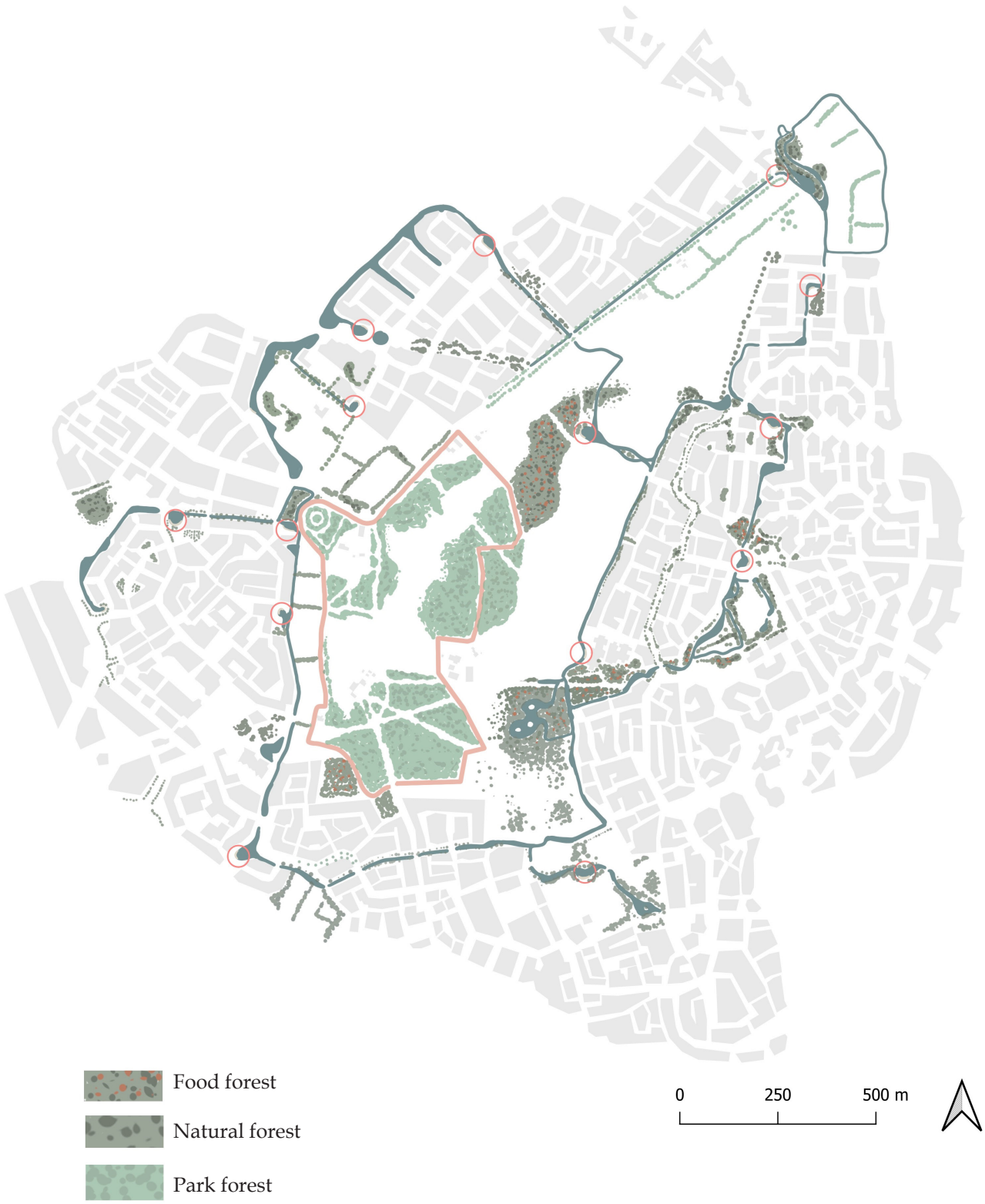


figure 4.8: Forest types. Own image.

Program:

The location within the earthen wall is programmed with people-focused activities. A park forest, butterfly garden, events location and community acres are located here. When we leave the inner side of the Wall, we arrive at the part of the estate park that is focused on nature development, sports facilities and production. The estate park is bordered by the waterway. Parts of the built neighbourhood fall within the border of the park. These parts have a special focus on the creation of garden streets.

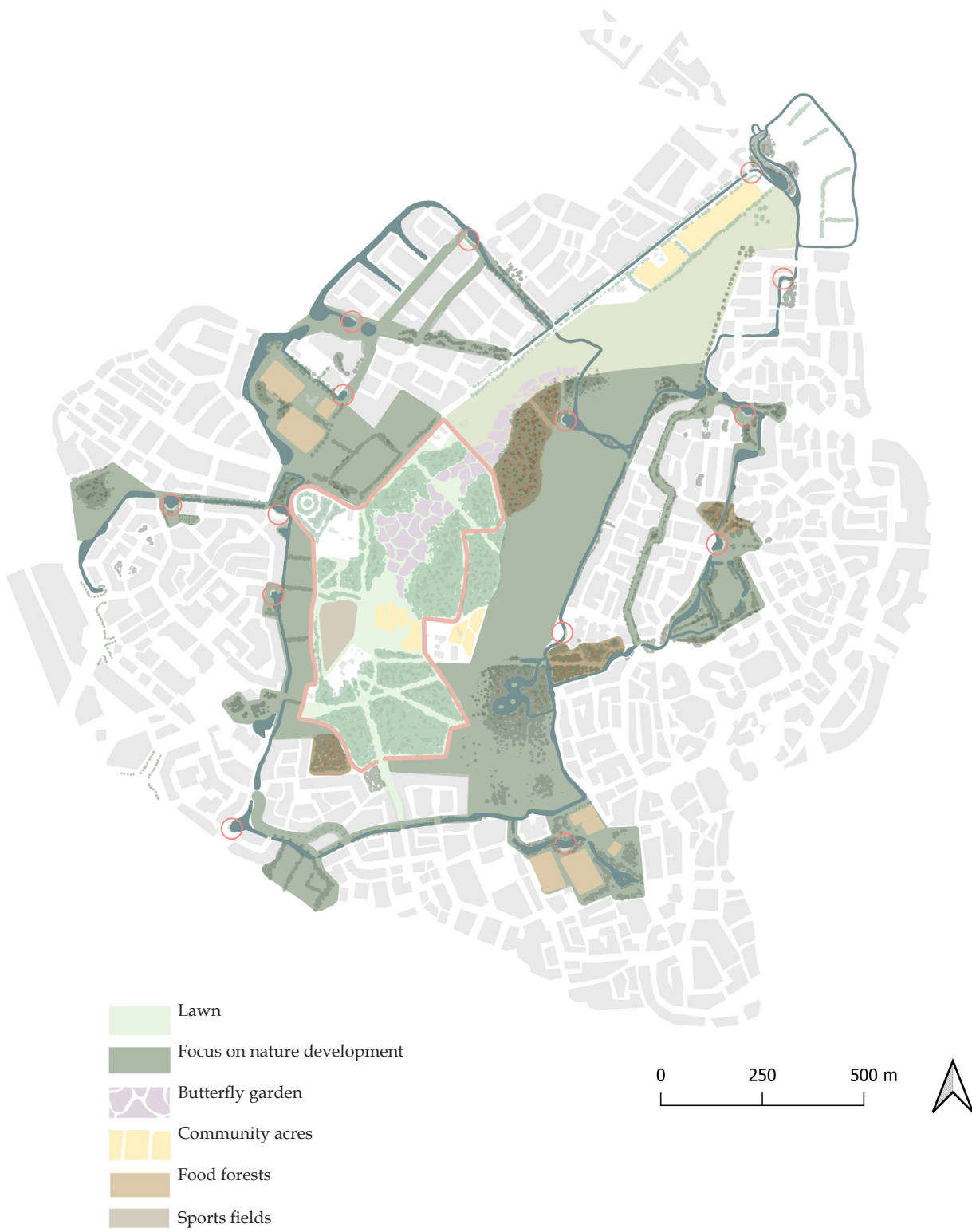


figure 4.9: Program. Own image.

The three estates:

As mentioned before, the Haagse Beemden currently has two "estates". The obvious one being the Burgst estate that dates back to the middle ages. The not so straight forward one being the shopping mall Heksenwiel. The design of this shopping mall is with its symmetry and sight lines inspired by old estates. However, the function of the estate is very different and when following the main sightline, its source is found in an old landscape wheel from which the shopping mall received its name.

You could say that two contrasting estates are currently present in the area.

In the design of the estate park, a new and third estate is introduced.

Following the formula of the "drieslagstelsel" the third and most important step is the implementation of landmarks that interweave both land and city through their attractive character. In the case of the Haagse Beemden, the primary schools are designed as these landmarks. However, they lack physical and visual connections to the estate zone. Therefore they are currently not successful as landmarks.

To make them successful as the third component of the "drieslagstelsel" they should be activated.

This is done by giving these schools the status of "estate" as well. They become important buildings that have a strong connection to their environment. Sightlines are used to create a visual and physical network between the primary schools. These sightlines come together at primary school de Werft, which will function as the main element of this new estate.

When following the sightlines of this new estate into the landscape further away, they are linked to the water storage zone and nature reserve called "De Vierde Bergboezem". This land is very important for the wellbeing of the city of Breda as it will protect the city in times of flooding or heavy rainfall. This area is also a very valuable natural area for rare animals and vegetation and is still in development.

You could say that the connection between the schools and this "Vierde Bergboezem" area focuses primarily on the future. The link between education, nature development and climate change is made.



figure 4.9: Sightlines. Own image.

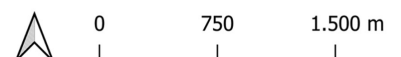




figure 4.10: Three estates. Own image.

With this new estate that is centred around De Werft, a total of three estates intersect each other in the new estate park.

All three have their own identity, use and focus. The materiality of the paths and areas of these estates therefore have their own theme.

- De Burgst:

This estate originally dates back to the Middle Ages and the current manor was built in 1790 in a neoclassicistic style. The house is coloured with white plaster and green accents and columns frame the front side of the house.

The theme of this estate therefore uses straight lines with white and green colours and formal lanes of trees. The paths are made of light concrete and easily accessible.

- De Werft:

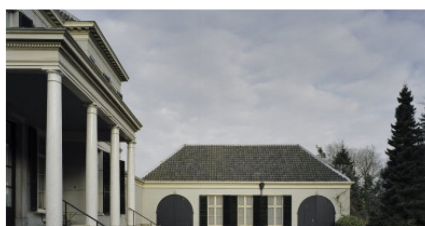
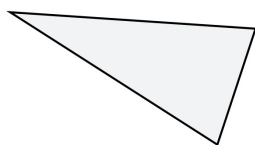
The theme of this estate is based on primary school de Werft. This one-story building has an interesting shape and a flat roof. The façade of the building resembles the shape of arches. This shape is used within the theme.

The schoolyard is recently redesigned and has a natural-looking character. Wooden poles and climbing trees are placed on top of wood chips. Low bushes enclose the different zones within the schoolyard. With the sightlines of this estate pointing towards the Vierde Bergboezem, nature development is also an important aspect of this theme.

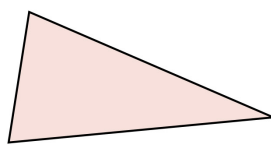
- Heksenwiel:

The sundial placed in the heart of the shopping centre is made of natural stone. These same stones will inspire this theme. Paths through the food forests and local shops have these stones implemented. Water plays an important role in the design of the shopping centre so this also is part of this theme.

Burgst



Werft



Heksenwiel

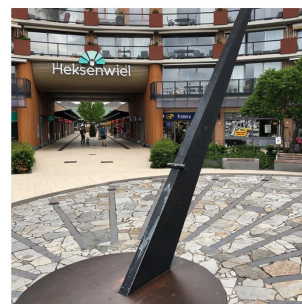
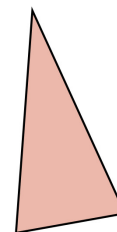


figure 4.11: Different themes. (Source: Google Images.)

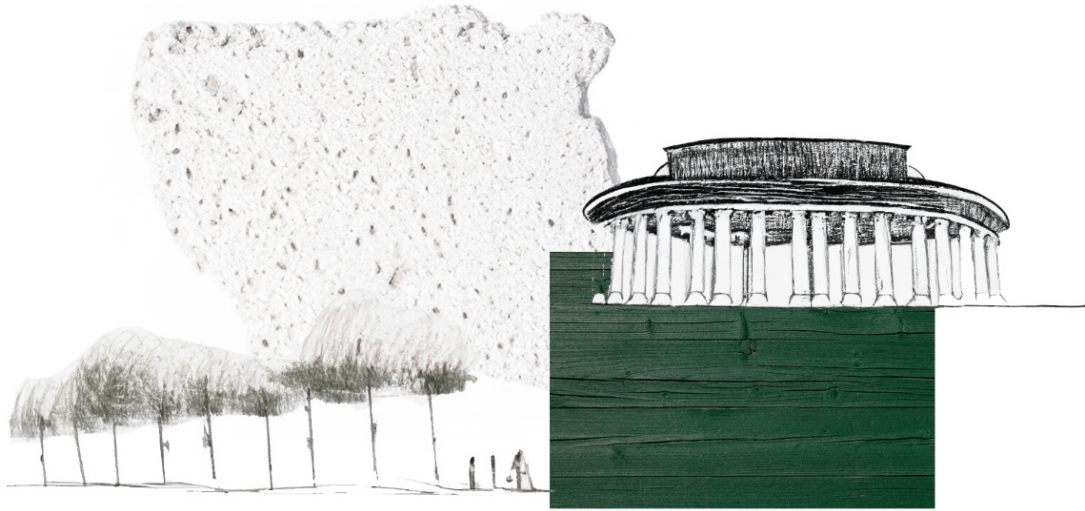


figure 4.12: Colours and materials Burgst theme. (Source: Adobe Firefly and Google Images.)



figure 4.13: Colours and materials Werft theme. (Source: Adobe Firefly and Google Images.)

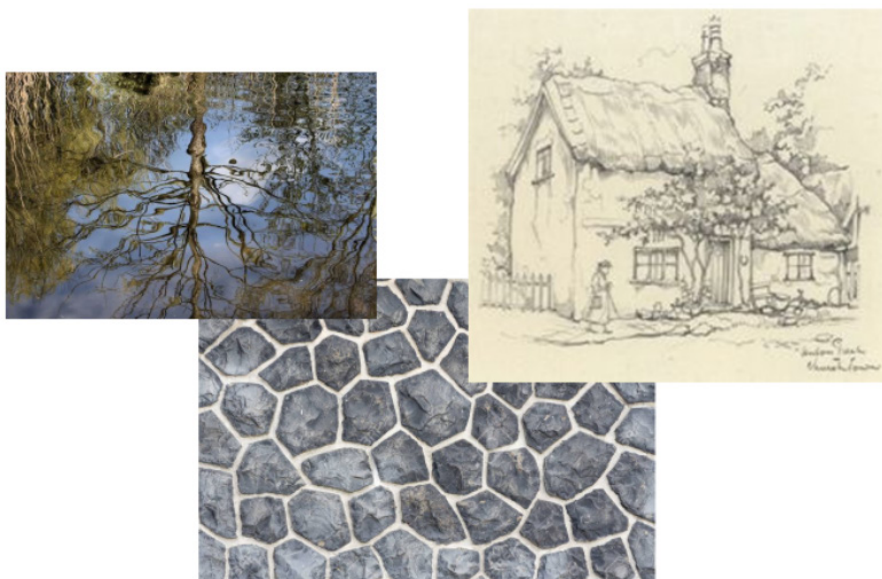


figure 4.14: Colours and materials Heksenwiel theme. (Source: Adobe Firefly and Google Images.)

Routing:

The estate park consists of three estates intersecting each other. These estates, together with the underlying landscape layer, form the foundation for the program of the park.

Routing is an important part of the experience moving through the park. The three themes provide the visitor with different experiences. The sightlines coming from the Burgst estate create paths that are very legible. They are enclosed by straight lines of trees placed in grids. These trees are meant for wood production. The experience on these paths is enclosed and embraced by the trees around.

The paths coming from the primary school de Werft are the inversion of the paths coming from the Burgst. Here, the wooden path is raised from the soil and the landscape is focused on nature development. The landscape is dynamic and less vertical. The experience from the raised wooden paths is viewing over the landscape. You feel like you are a guest in the landscape, not touching the soil yourself.

The paths coming from the shopping mall are winding through the irregularly placed trees. It feels more like a natural encounter in a natural forest. The stones are a bit more difficult to walk on, making it more challenging to follow this path. People feel more connected to the landscape on these paths.

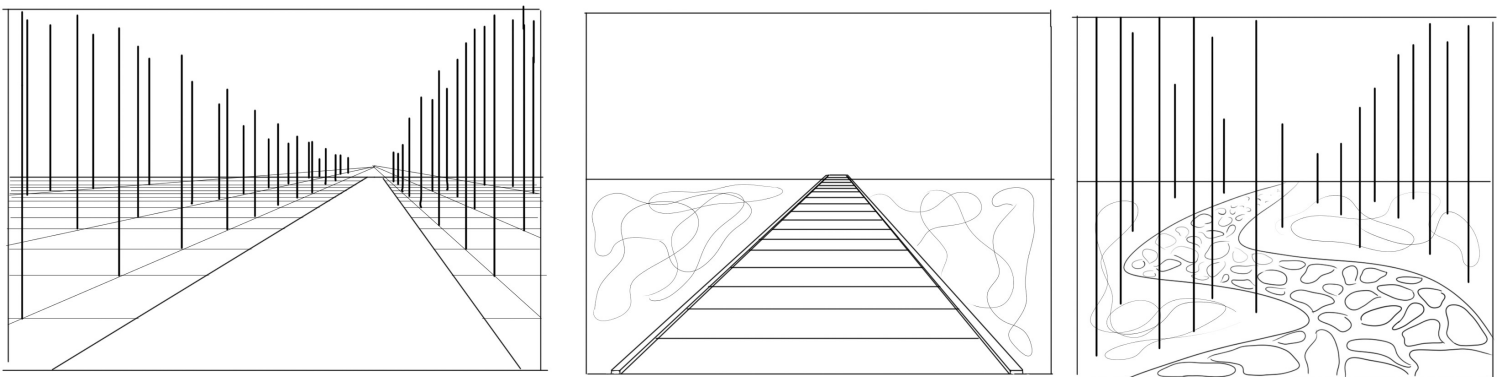


figure 4.15: Path typologies. Own image.

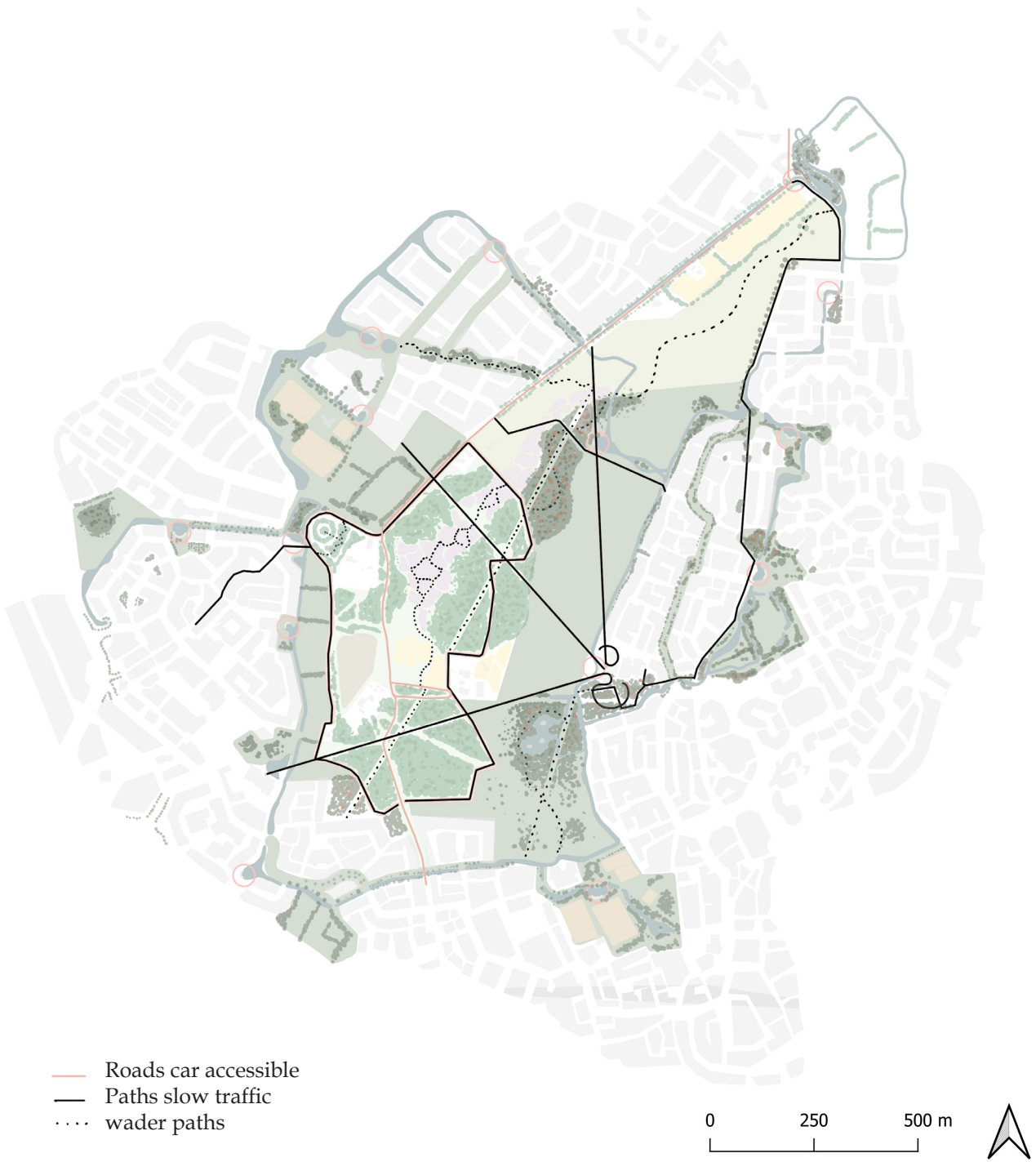


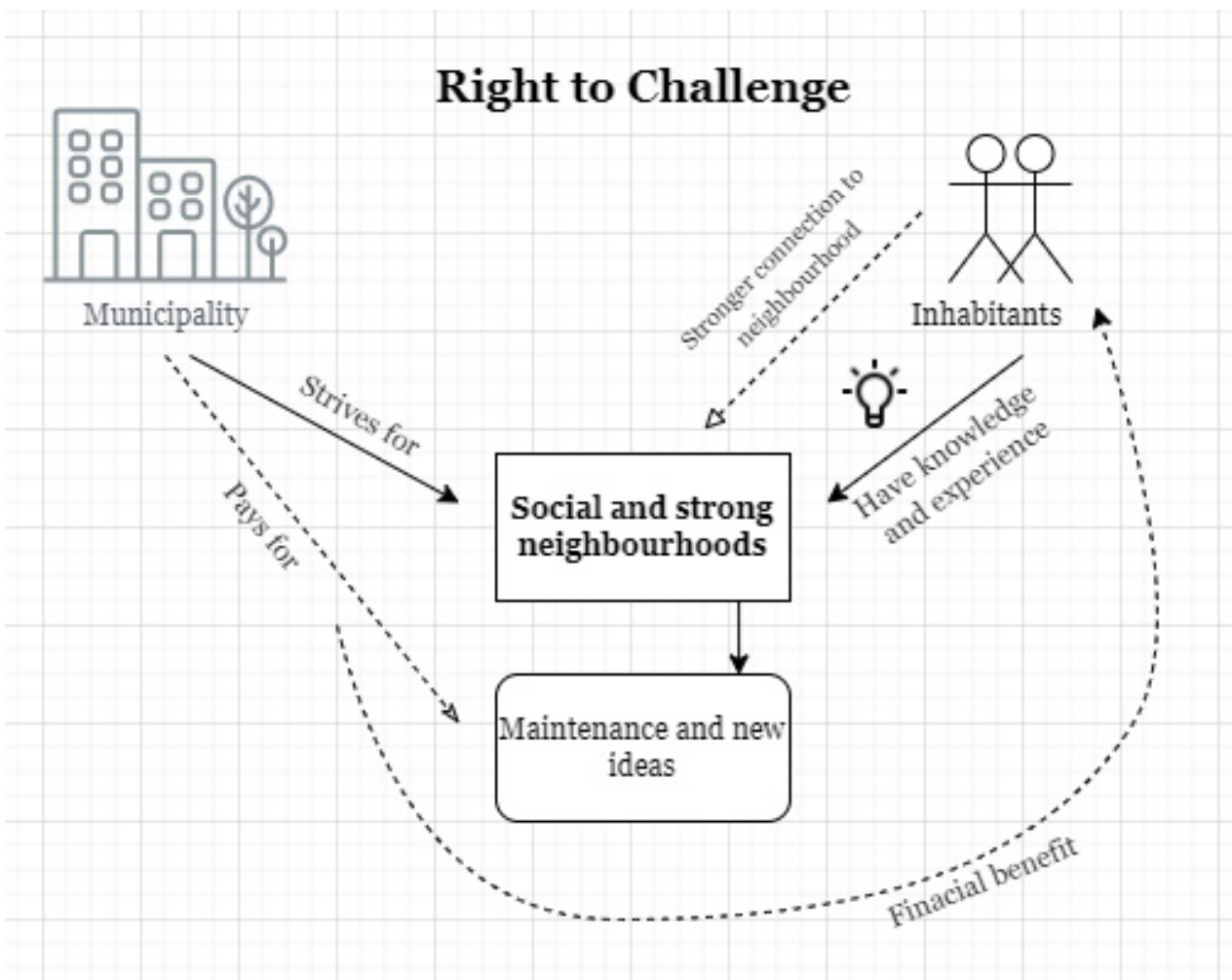
figure 4.16: Paths. Own image.

Stakeholders, production and maintenance

Figure 4.18 shows the different stakeholders that are linked to the different elements of the design. It also shows who maintains these elements. The Central green and the Connecting exist of elements that could be maintained by "the right to challenge". This is an agreement in the Netherlands that states that inhabitants have the opportunity to take over certain tasks of the municipality. They receive money for doing so. Using this right to challenge gives the inhabitants the opportunity to make money by taking care of the neighbourhood. This stimulates a better connection and appreciation towards the neighbourhood they are living in and has an economic benefit. This system can be seen in figure 4.17.

By creating work forces, inhabitants also get more in contact with other inhabitants, reducing loneliness.

The graph also shows the products that can be yielded from the estate park.



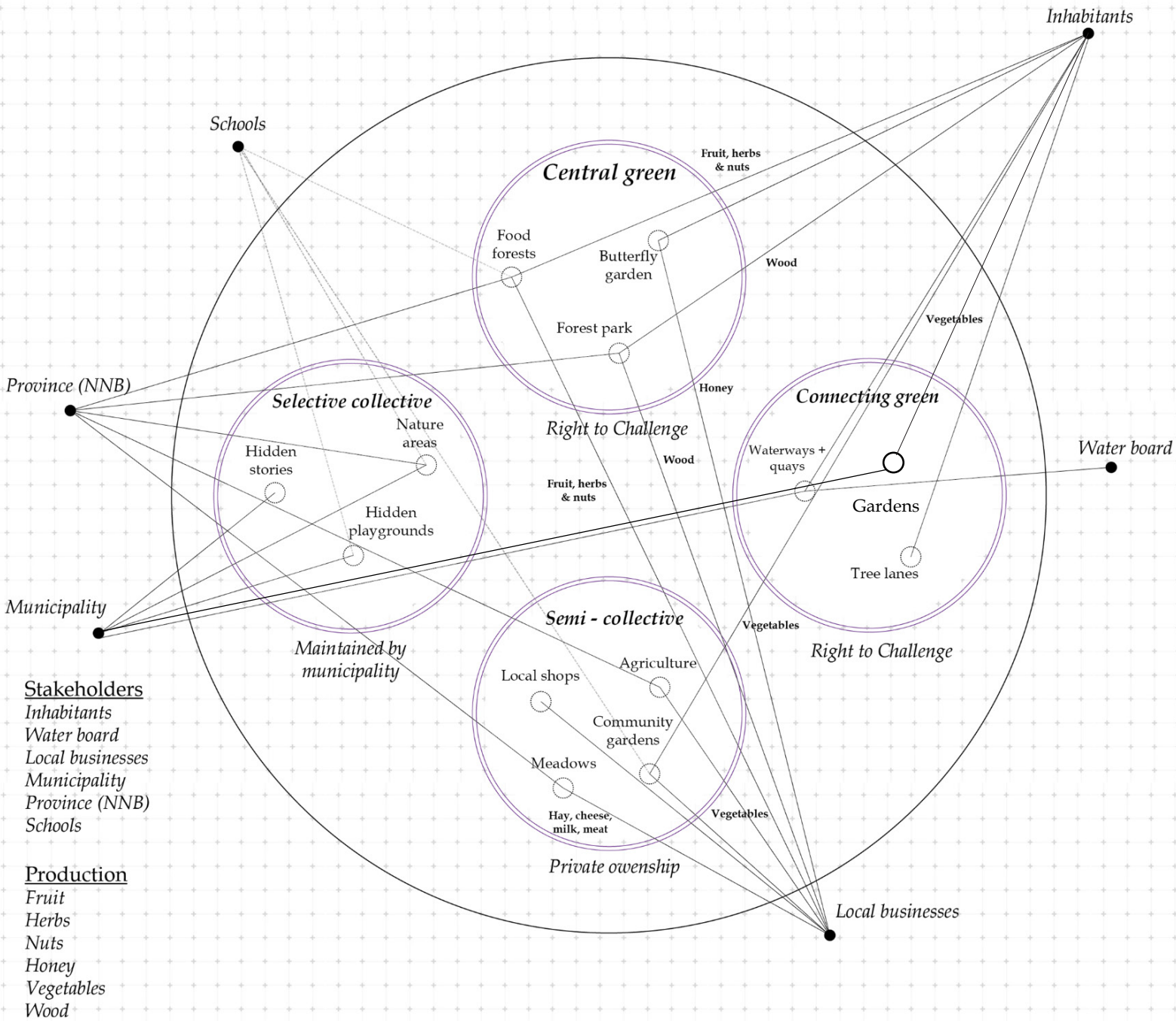


figure 4.18: Stakeholder scheme. Own image.

Detailed design

Figure 4.20 shows the before situation of this location. This location is interesting because all different composition elements are present as can be seen in figure 4.21.

The blue colors represent the "Connecting green" this element focuses on the transition between the houses and the estate park. Following the tree lanes and waterways, we arrive at the park itself. This park is for the most part very public. Roads and routes guide visitors along the park. Also, facilities like the event location are publicly accessible. This falls under the category of "Central green".

The valuable natural areas are classified within the "Selective collective. These locations are not often accessible for people to not interrupt the flora and fauna. "De Singeltjes" is also part of this category. An old cultural-historical story can be found here. This location is public but more advanced to get to. The existing farmhouse remains and gets a new local function. This makes this farm park of the "Semi-collective" category.

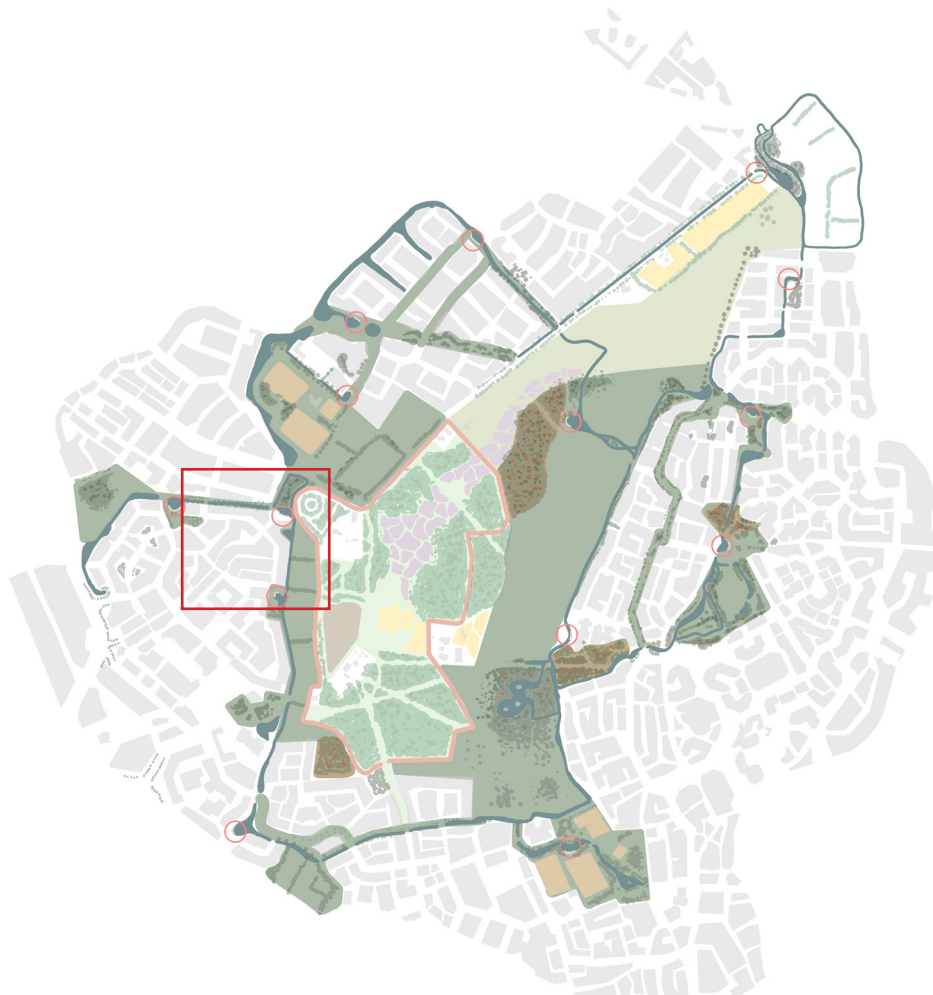


figure 4.19: Location design. Own image.



figure 4.20: Before situation. Own image.

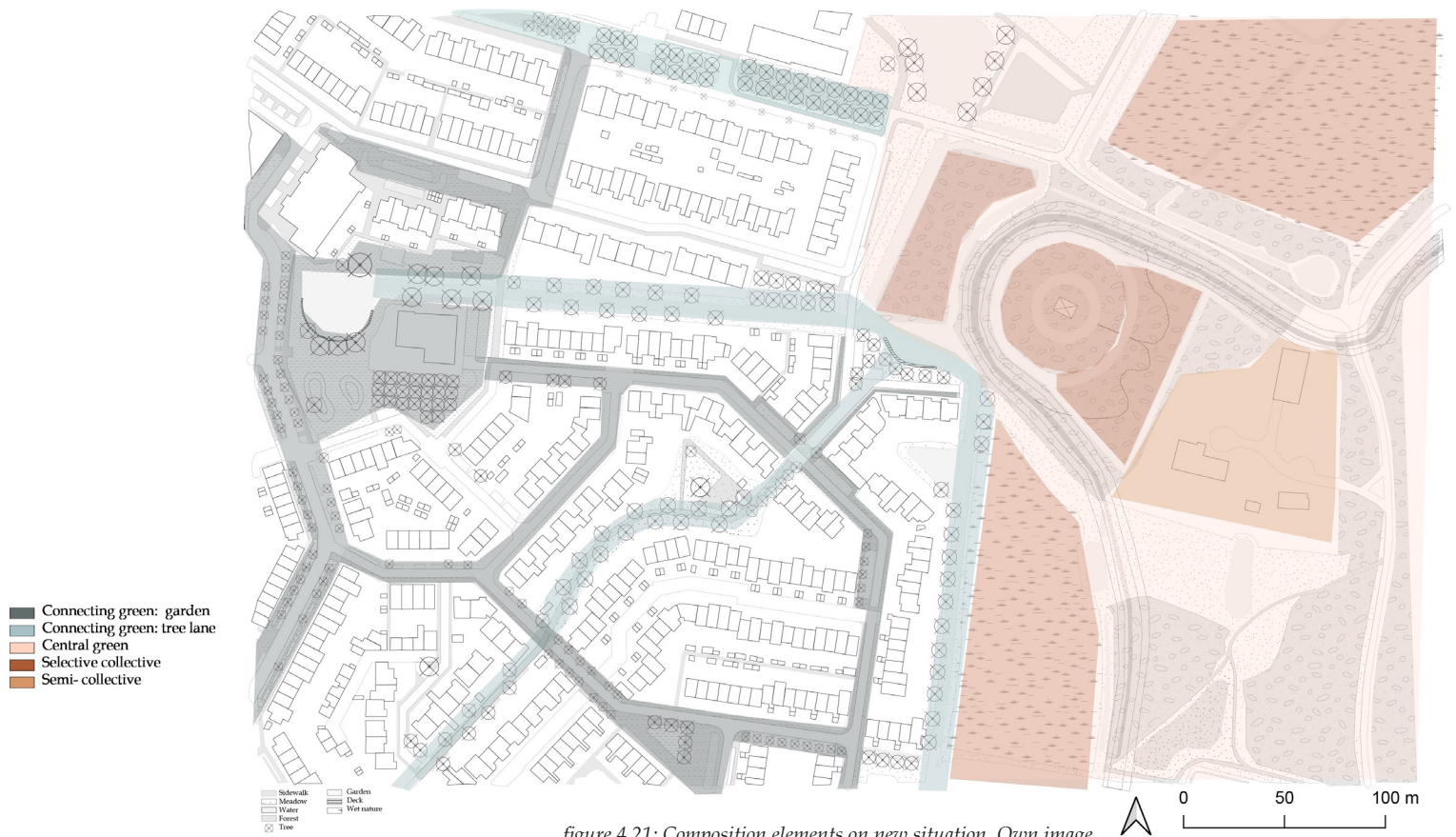


figure 4.21: Composition elements on new situation. Own image.



figure 4.22: New situation. Own image.













Connecting green:

The category Connecting green connects the dwellings to the park. This category exists of two steps, as shown in figure 4.23.

Bicycle paths and waterways will be designed as tree lanes. Old trees from the species Oak and Beech are planted along these infrastructural elements. The houses themselves are connected to these tree lanes. This is done by creating "gardens". Like gardens in old estates are focussed on aesthetics and experience, these streets are also improved by implementing a variety of colours, shapes and materials. Multiple layers of vegetation are planted. The trees used do not become very old as these garden streets can be adjusted through time. Birches are for example suitable trees to use as they do not become very old.

The houses facing the tree lanes of the Connecting green will receive a new entrance to the park. From their back gardens, the lanes and waterways are accessible.

-  Betula pendula
-  Prunus
-  Eragrostis spectabilis
-  Molina "swirl"
-  Sporobolus heterolepis
-  Scutellaria incana
-  Veronia "summer swan song"
-  Salix babylonica
-  Fagus sylvatica
-  Quercus robur

Connecting green
Gardens lead to connecting green: tree lanes and water ways

Gardens and entrances
"Gardens" placed behind new backsides of houses. New entrances

Houses and private properties

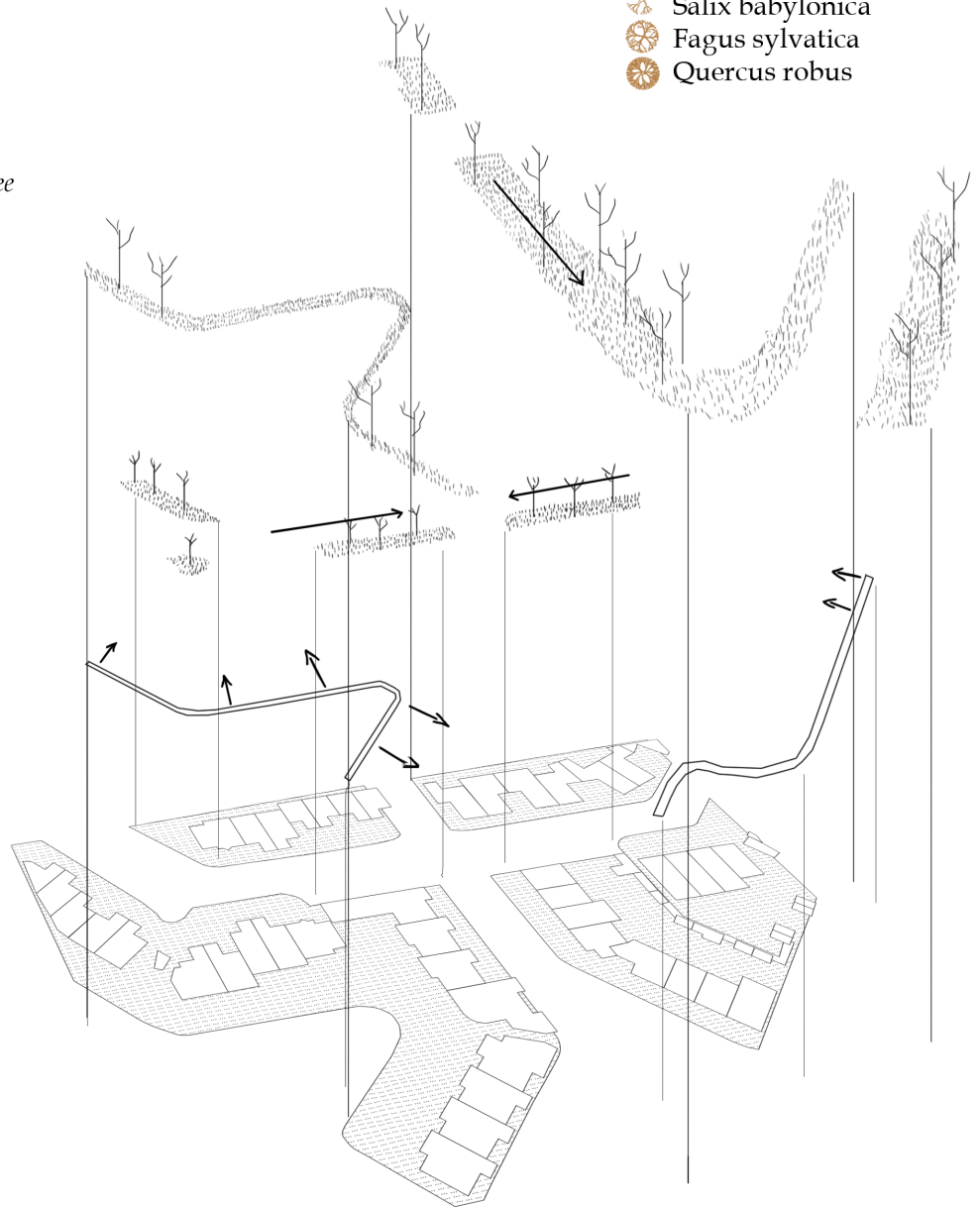


figure 4.23: Exploded view connecting green. Own image.

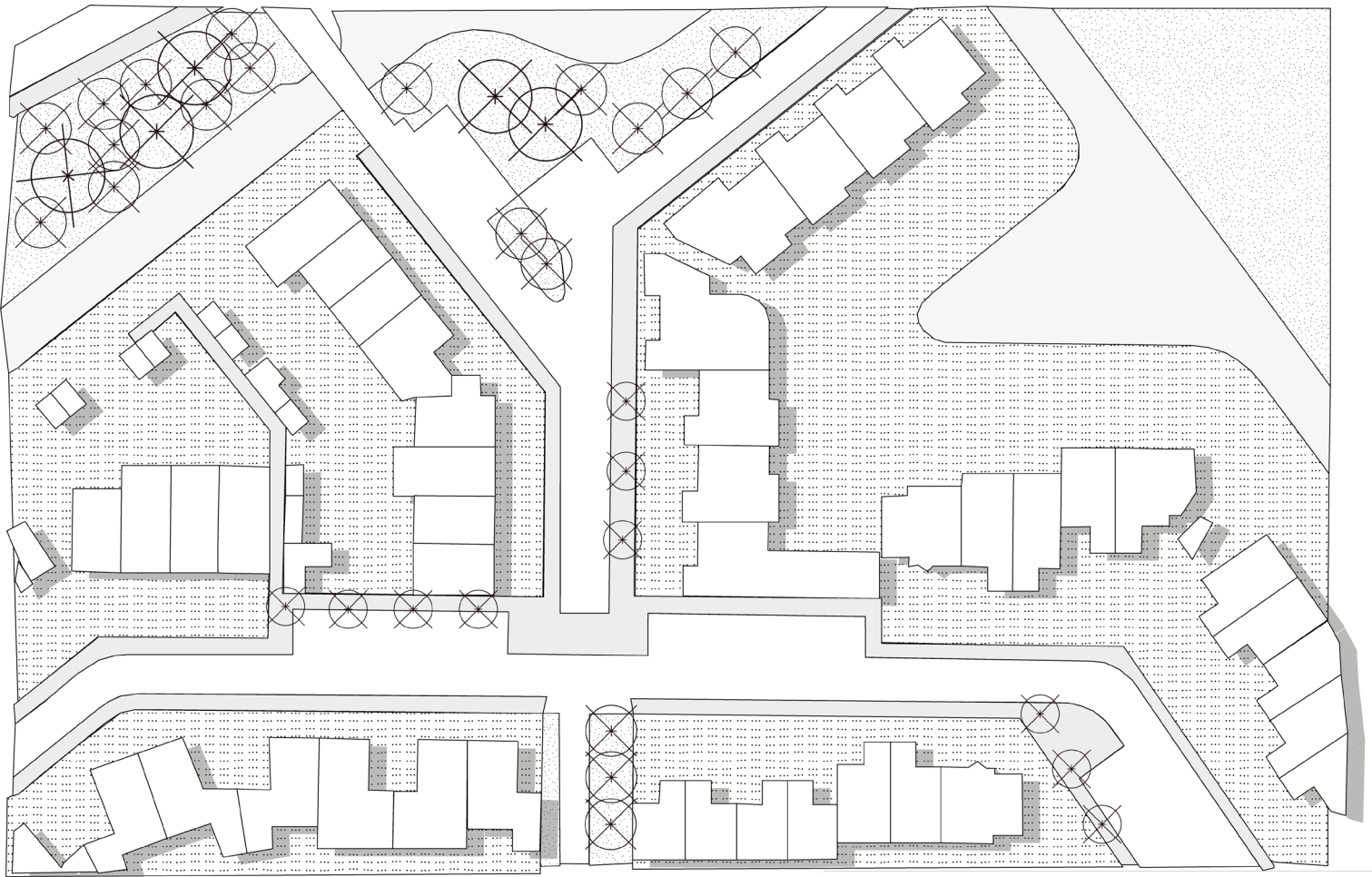


figure 4.24: Before situation. Own image.

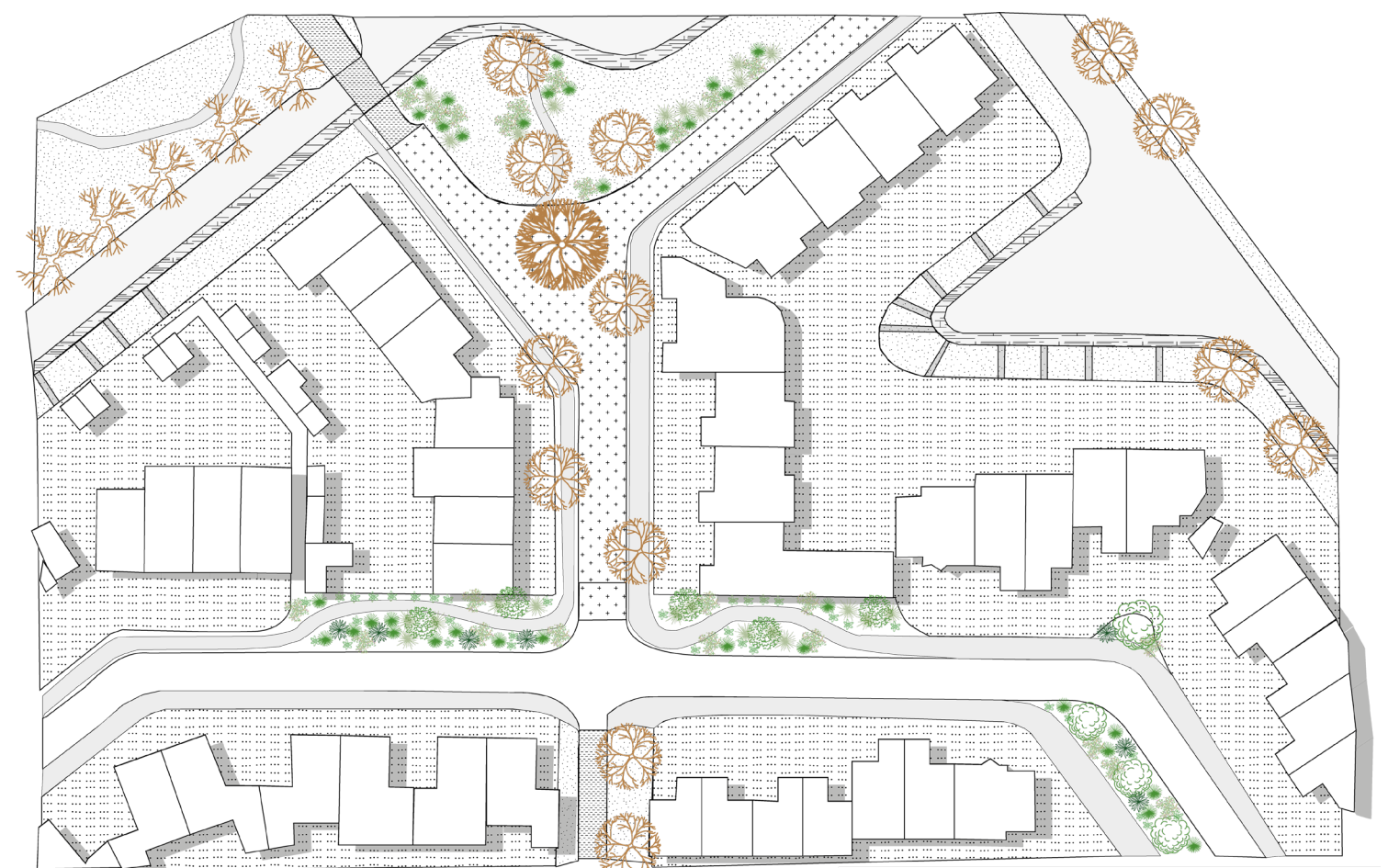
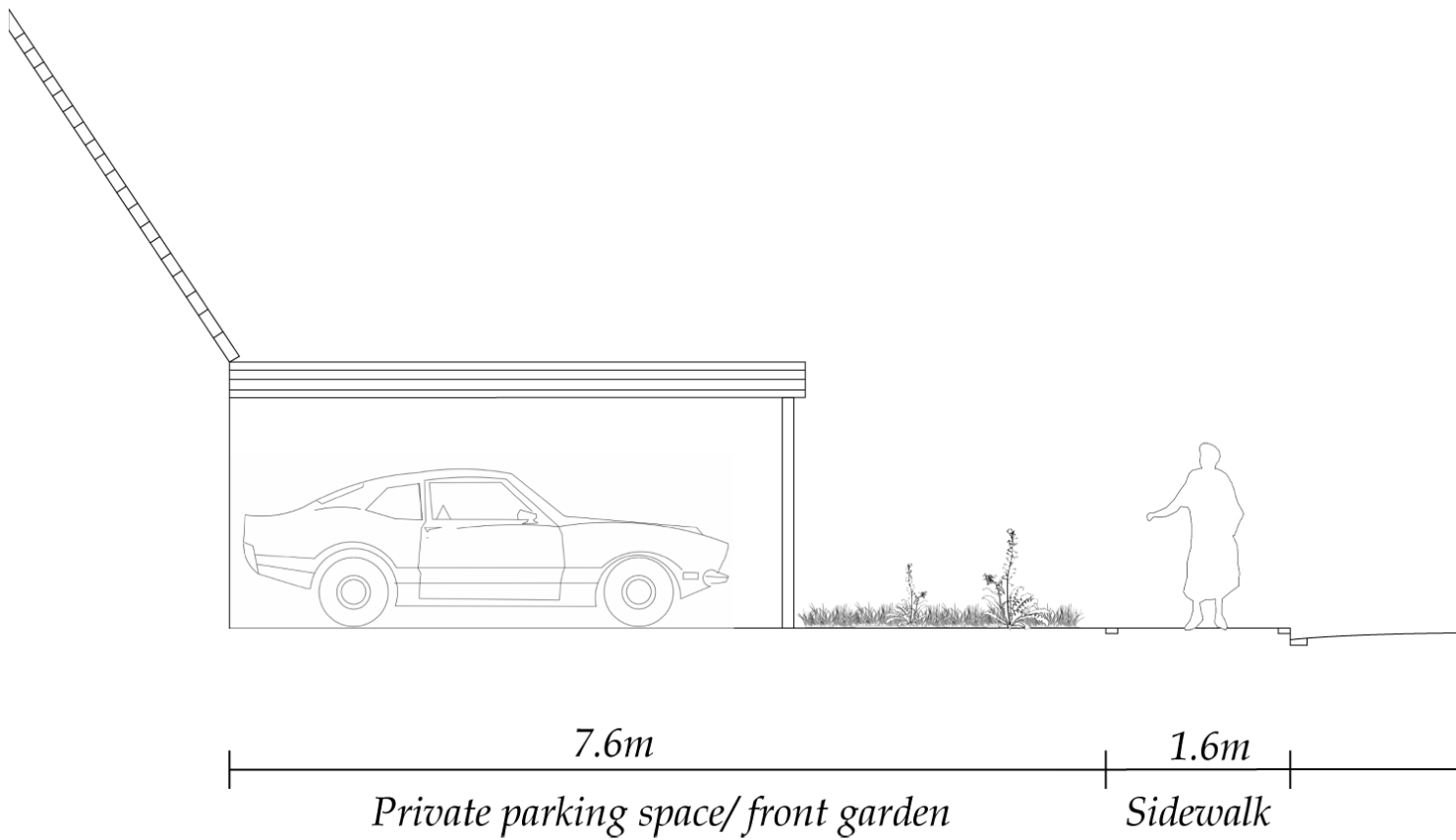


figure 4.25: After situation. Own image.



This section shows the garden street.
The transition between private property
towards the public garden zone becomes
clear.

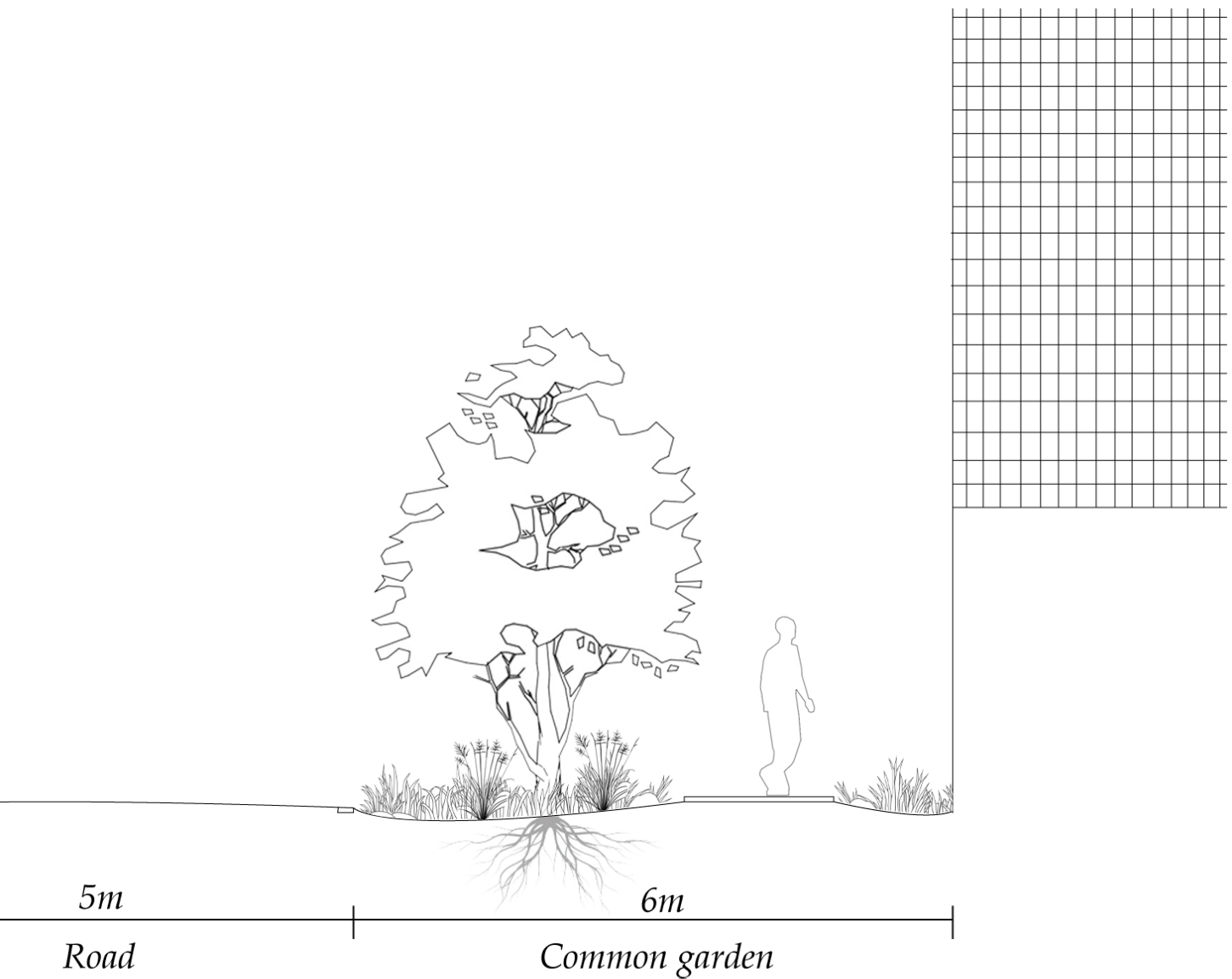
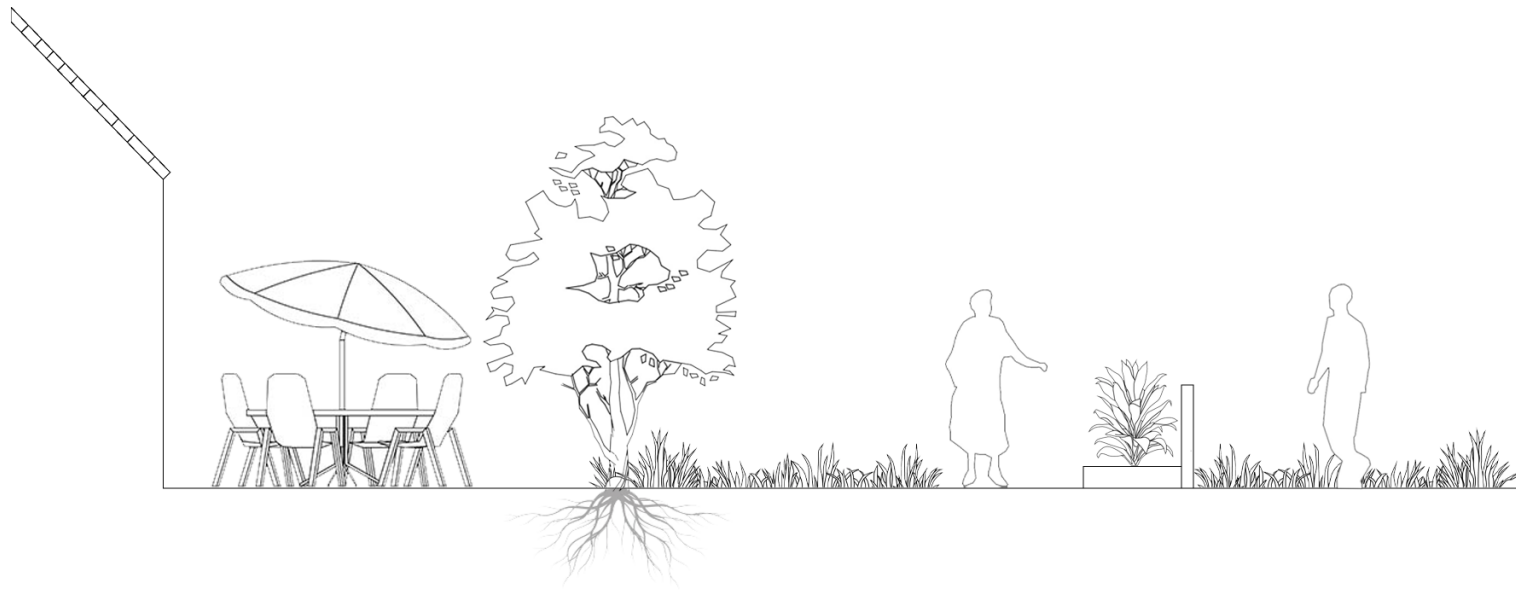
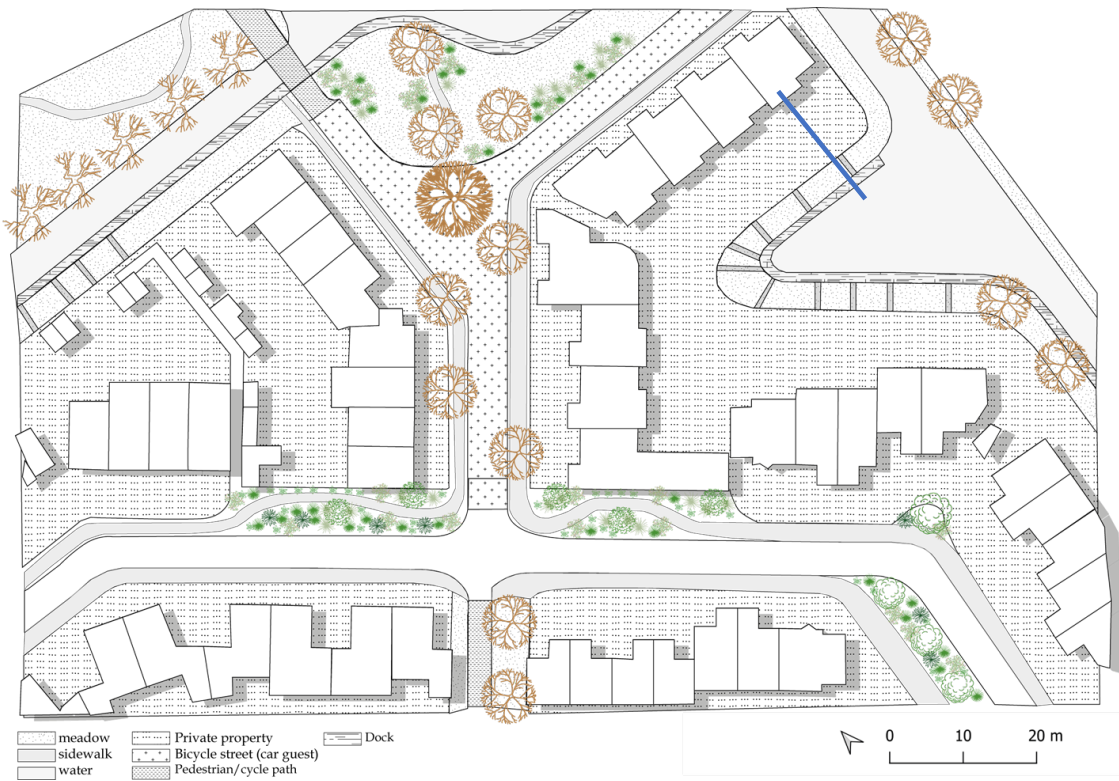


figure 4.26: Section street. Own image.



This section shows the transition from the back garden towards the Connecting green waterway.

The fence in the back garden is lowered to a maximum of 1m high. By doing this (giving the back garden the status of front garden) eyes on the street are ensured. This makes the connecting green paths and waterways more safe.

From the back garden, inhabitants have access to a new wooden deck from which the water can be reached.

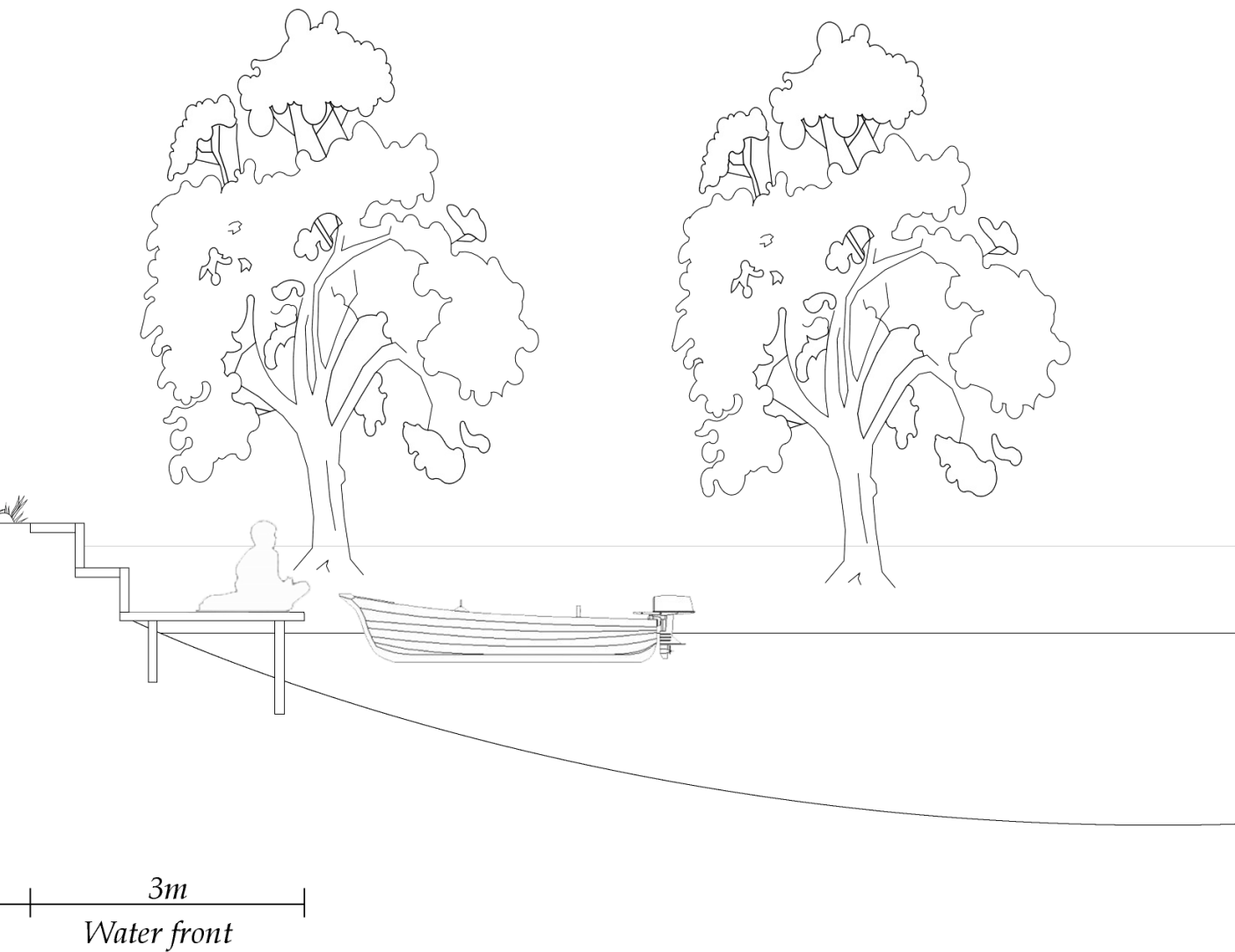
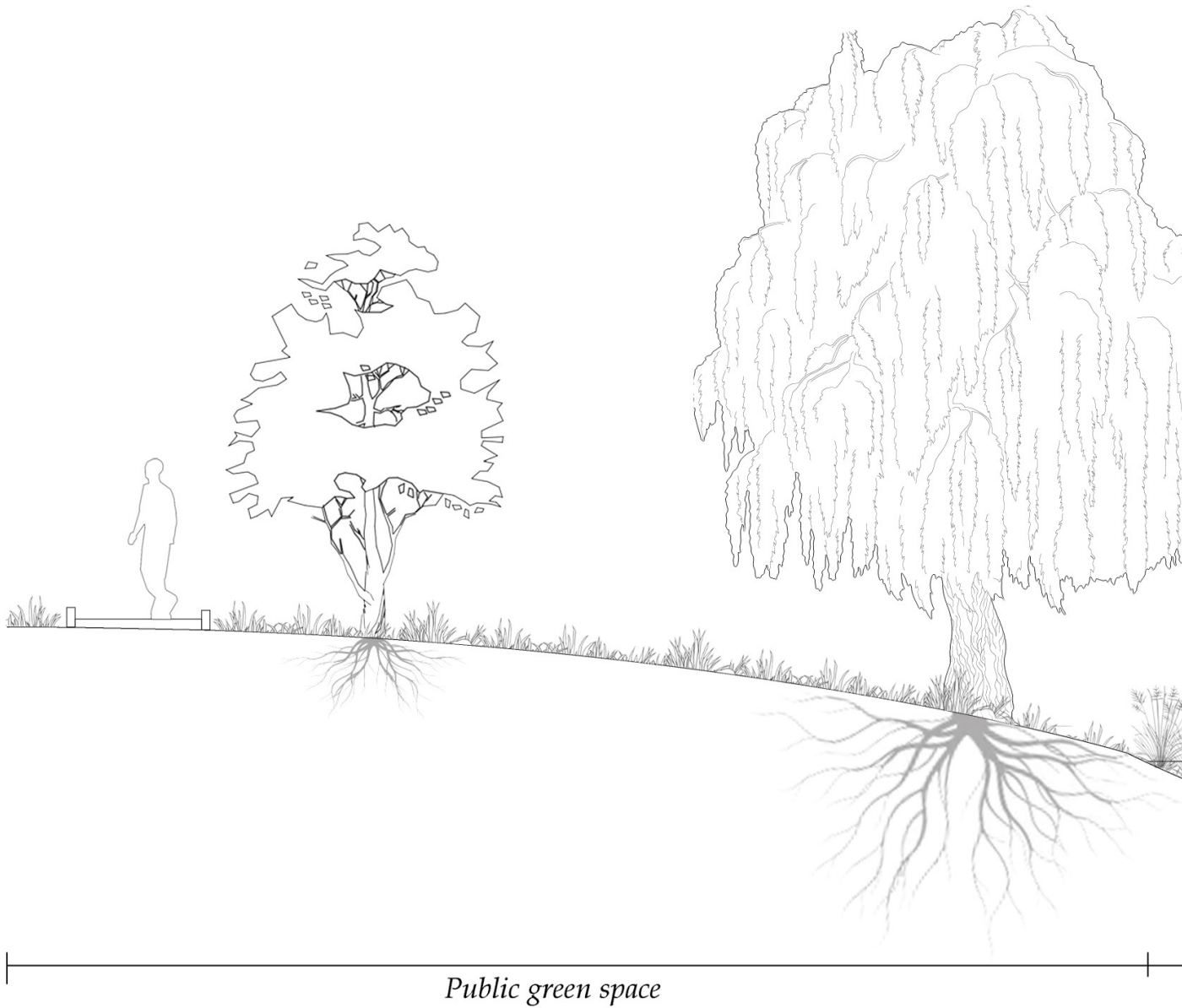


figure 4.27: Section backside. Own image.

This section shows a waterway with on both sides a different kind of edge. On the right side, a similar bank can be found as seen in the previous section. It shows the transition from the back garden to the water.

On the left side, a natural bank is created that stimulates many animal species to settle. This side of the waterway transitions into a small park with large solitaire trees and winding paths.



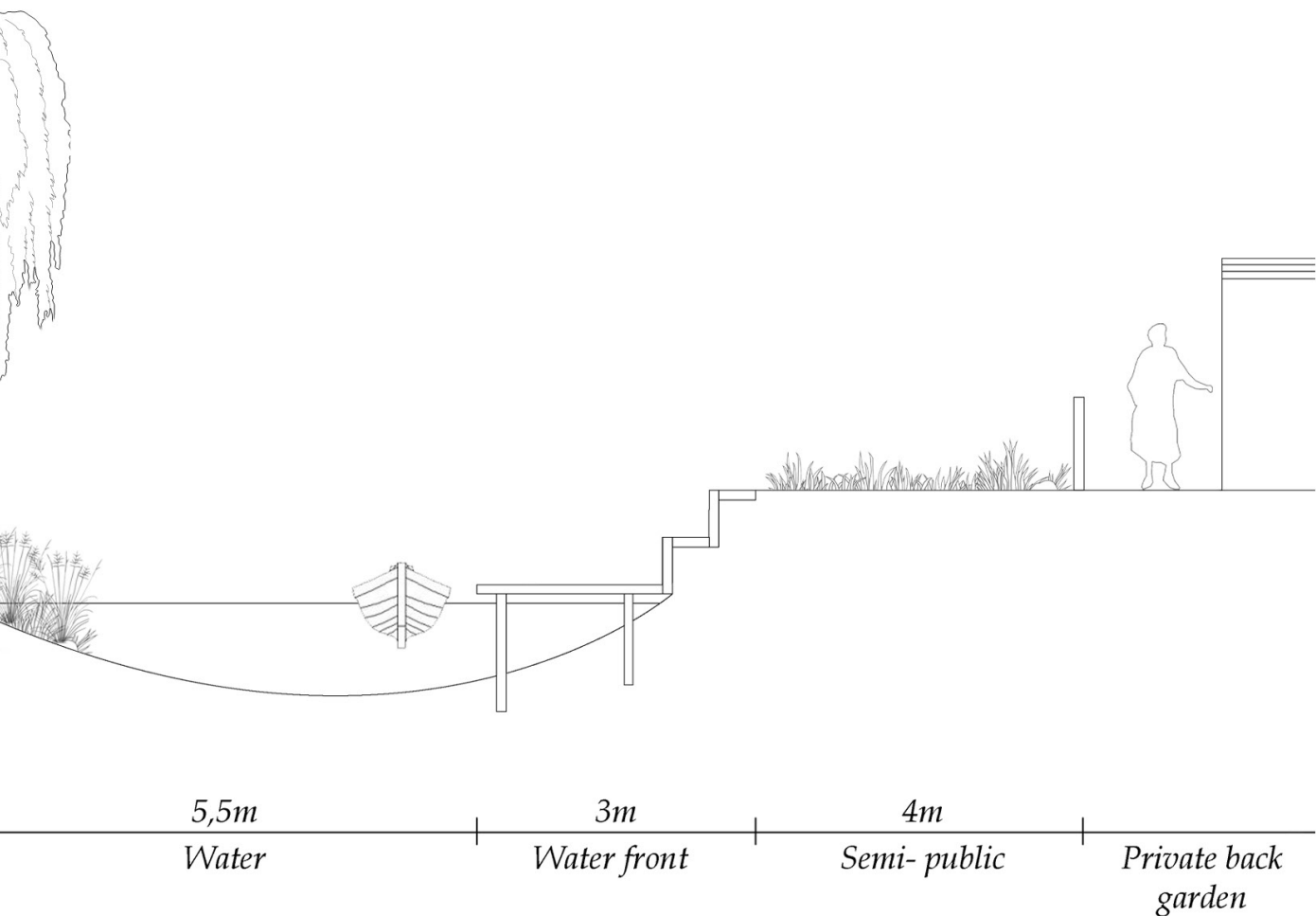


figure 4.28: Section connecting green. Own image.

Detailed design: “estate” Burgst

Primary school De Burgst is a location where multiple facilities come together: a primary school, a special needs school, a gym and community gardens. This location is a hotspot for a lot of people. It is however shielded off from the estate zone by hedges and it is not an entrance to this landscape.

The new design, as seen in figure 4.32 focuses on connecting the building to the estate park and the other schools. It does this by using sightlines that connect the schools to each other.

These sightlines are made of wooden walkways that cross a valuable wet nature area. People can walk and cycle over these paths but not ham the nature underneath.

The sightlines come together on the roof of the building, transforming into a path that slowly winds down through a new food forest. From this path, people can experience all layers of the food forest, giving it a multisensory, interactive and educational experience.

The new recreational waterway also crosses this new food forest and passes along the border of the estate zone.

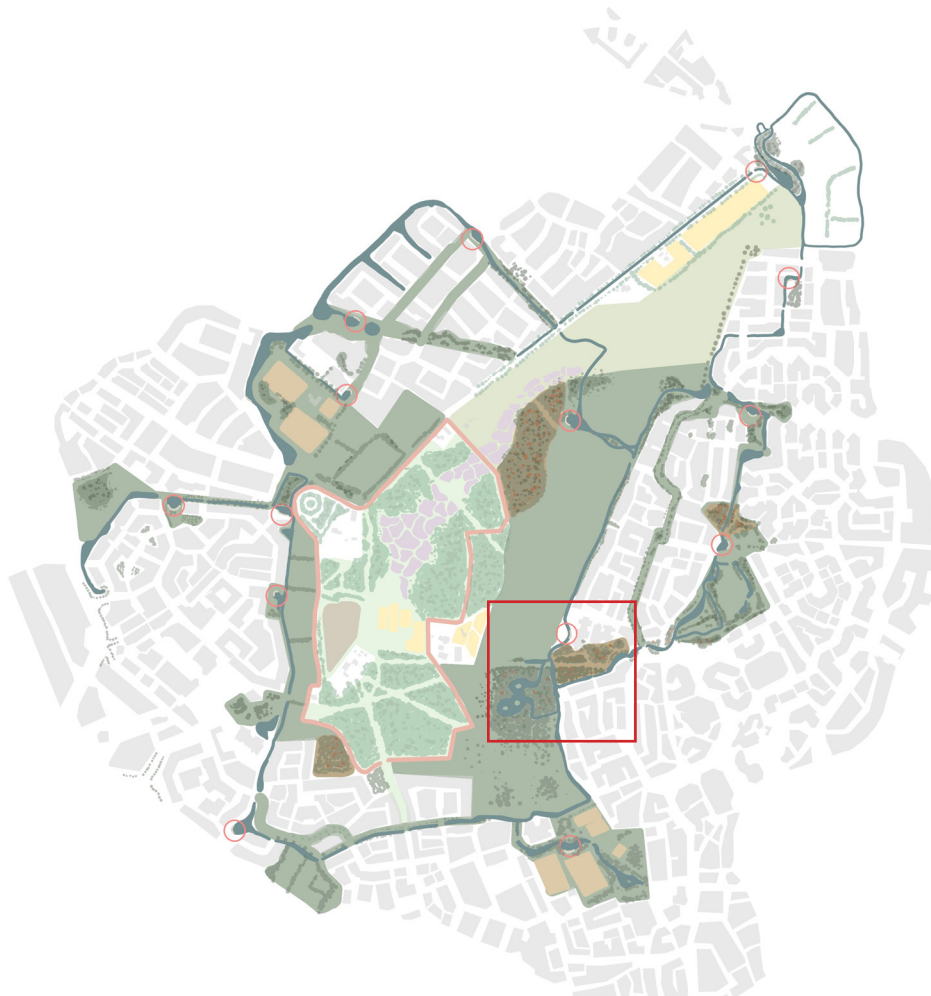


figure 4.29: Location design. Own image.



figure 4.30: Before situation. Own image.

- Sidewalk
- Water
- Forest
- Community gardens
- Meadow
- School yard
- Tree

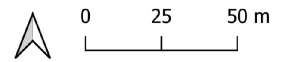
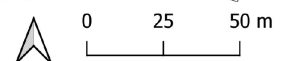
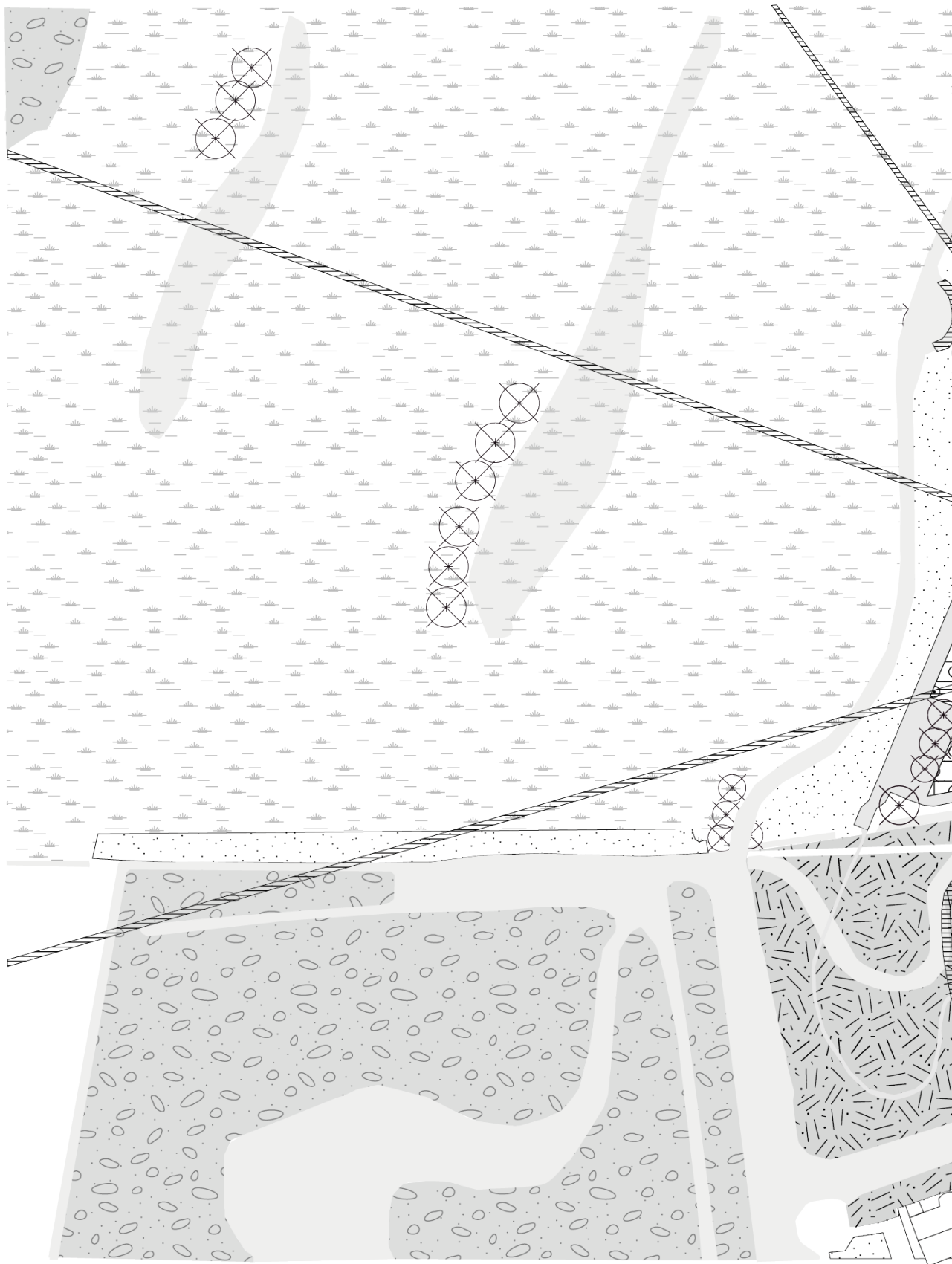


figure 4.31: Composition elements. Own image.

- Sidewalk
- Water
- Forest
- Community gardens
- Meadow
- School yard
- Tree
- Wooden path/deck
- food forest





- | | | | |
|---|-------------------|---|------------------|
|  | Sidewalk |  | Wooden path/deck |
|  | Water |  | food forest |
|  | Forest | | |
|  | Community gardens | | |
|  | Meadow | | |
|  | School yard | | |
|  | Tree | | |



figure 4.32: Design De Werft. Own image.

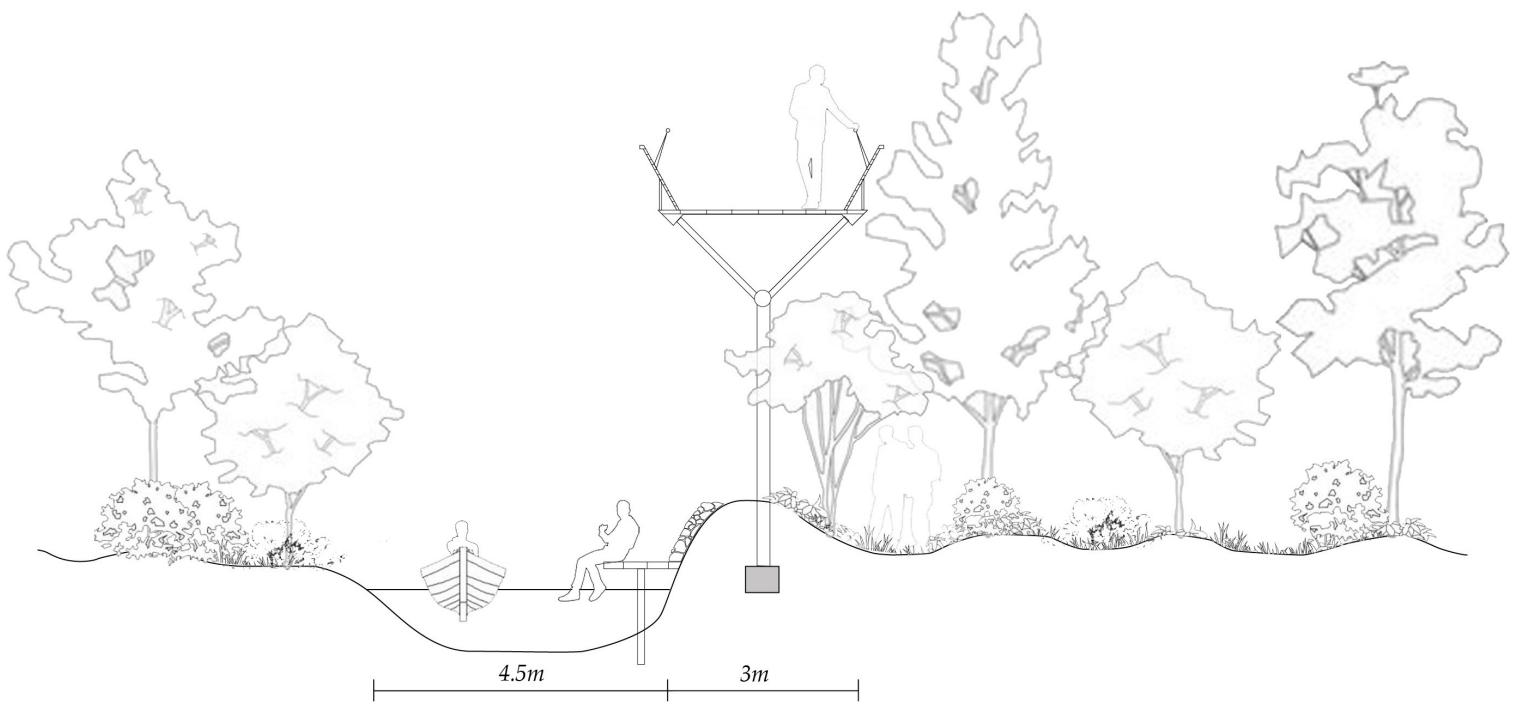


figure 4.33: Section food forest. Own image.

Detailed design: "estate" Burgst

This section and visualisation show how the new bridge, made of wood and Cortensteel moves through the forest. Underneath and beside the bridge runs the waterway from which the food forest can be entered as well.

The soil on this location is clay but too wet for most fruit trees. Therefore, the trees are planted on small terps that create more suitable water conditions for the trees. The wetter areas become wadi's where water can be collected in times of heavy rain, or times of drought.



figure 4.34: Impression food Forest. Own image.

The Inver



ted Estate.





PART V
CONCLUSION AND
REFLECTION



Conclusion

The aim of this thesis was to dive into the world of the inverse town planning as realised in the Haagse Beemden and discover why this concept does not seem to work optimally for the current social landscape. Through the lens of my fascination, using human-nature connectedness to improve social and physical challenges people living in cities are facing, I tried to look for its potential to contribute to an improved design for the Haagse Beemden. Through time, the neighbourhood has changed spatially, and the people living here have changed socially. The created design tries to improve the existing green structure of the neighbourhood in order to improve the spatial and social challenges.

The following main research question is stated at the beginning of this thesis:

What is the potential of nature connectedness to rethink “inverse town planning” to create a spatial design for the Haagse Beemden in Breda that stimulates better social cohesion among the inhabitants?

Before answering the main research question, theory and analysis tried to find answers to the sub-research questions.

1. What characterizes inverse town planning and how did it affect the spatial and social structure of the Haagse Beemden?

This sub-research question is important to answer when trying to understand how the neighbourhood is built up. Reading the report of Tummers and Tummers-Zuurmond (1997) provided the necessary understanding of this concept.

Inverse town planning is characterized by the composition of the neighbourhood and the shift in order of importance while designing the neighbourhood. The first step is determining what part of the existing landscape should be preserved. Then the neighbourhood is carefully designed around this enclave. Roads are the last step in the order of importance.

To make the inverse town planning successful, landmarks should be placed along the border of land and city. They interweave both of them together by attracting people to the landmarks and stimulate them to enter the enclave.

In the case of the Haagse Beemden, the inverse town planning led to an interesting layout of the neighbourhood. The estate zone is the heart of the neighbourhood, surrounded by maze-like "cauliflower neighbourhoods". Wayfinding is difficult here. These neighbourhoods have a lot of "woonerven". These are living streets on which social interaction between residents is stimulated. However, these neighbourhoods also have a monotone and grey character, not providing a unique character to the districts.

Old aspects of the original landscape are still present in the current design of the neighbourhood, like the old waterways, old roads or earthen walls.

In theory, the Haagse Beemden is designed as a neighbourhood with a focus on social interaction and a strong connection to the underlying landscape.

2. What are the current spatial and social challenges in the Haagse Beemden and what causes them?

Through time, a couple of key elements have changed on spatial and social levels in the Haagse Beemden. On the social level, the most striking change over time is the individualisation of the inhabitants. The maze-like woonerven structure led to a rearrangement of houses. The former backsides of the houses became the front sides of the houses. This means that carports, private parking spaces and sheds are placed in front of the houses. Also, the kitchen was moved to the street-facing side of the house. In the current day, women can no longer be found in the kitchen most of the day, making this kitchen-street interaction less frequent. People also have been attaching more value to privacy. Big fences are placed along the private property to ensure the privacy of the inhabitants. The number of cars in the streets also has drastically increased. The former living streets have therefore become parking lots with fences

shielding the houses from the street.

Spatial challenges are found around the extensive green structure in the neighbourhood. First of all, the estate zone used to be open to the public. People could cycle or walk along the roads of the estate zone. Nowadays, these roads are closed off to visitors. This makes the estate zone not accessible for the most part.

The old waterways and old roads have in the current design the function of green structures and cycle paths. Because these structures and paths are found behind the back gardens of houses, they are often preserved as unsafe. This is caused by a lack of eyes on the street. These green structures and waterways also are not well-maintained. The street trees also are due to be replaced in the near future. Along the streets, a lot of public green can be found. However, these patches of green are very monotonous, lack identity and do not stimulate the inhabitants to use them.

When analysing the "inversiedrieslagstelsel" and how this manifests in the Haagse Beemden, it became clear that the primary schools are designed as the "landmarks". However, they do not serve their purpose well because they don't have a physical of visual connection to the estate zone. Therefore they do currently not interweave the land with the city.

3. What are nature connectedness theories and how can they contribute to a better social situation in the Haagse Beemden?

Nature connectedness is a construct that measures the relationship between an individual and the natural landscape around them. By improving nature connectedness, it is possible to improve human well-being. Research showed that the presence or access to urban green space has a direct correlation to an improvement of social cohesion, health and social capital.

The theory on "pathways to nature connection" describes the criteria these urban green spaces should meet in order to improve human well-being. In this thesis, this study is used as a foundation

to understand how to achieve nature connectedness.

These pathways to nature connection are contact, emotion, meaning, compassion and beauty.

The outcome of this thesis is a design for an estate park created at the heart of the Haagse Beemden

The found challenges and the opportunities of nature connectedness led to a concept in which the estate zone opens its gates to the neighbourhood once again. It becomes a lively green centre in the middle of the neighbourhood.

The design of the estate park is composed with a couple of elements that came out of the analysis and vision phase: Central Green, Connecting Green, Selective Collective and Semi-Collective.

These elements compose the new transition between the neighbourhood and the estate park. Specific knowledge of urban forestry and the pathways to nature connectedness provided design guidelines on how to design these elements.

Figure 5.1 shows how the different pathways to nature connection influence the different aspects of the design. Interesting to see is that the composition elements "Selective collective" and "Connecting green" have the most overlap in pathways. This means that the design elements within these categories can be influenced the most by using the pathways to nature connection. Therefore these design elements should be focussed on primarily when wanting to improve the human-nature connection.

On the other hand, the design elements of the "Semi-collective" use the least amount of pathways to nature connection. These elements, therefore, are less important when focussing on nature connectedness.

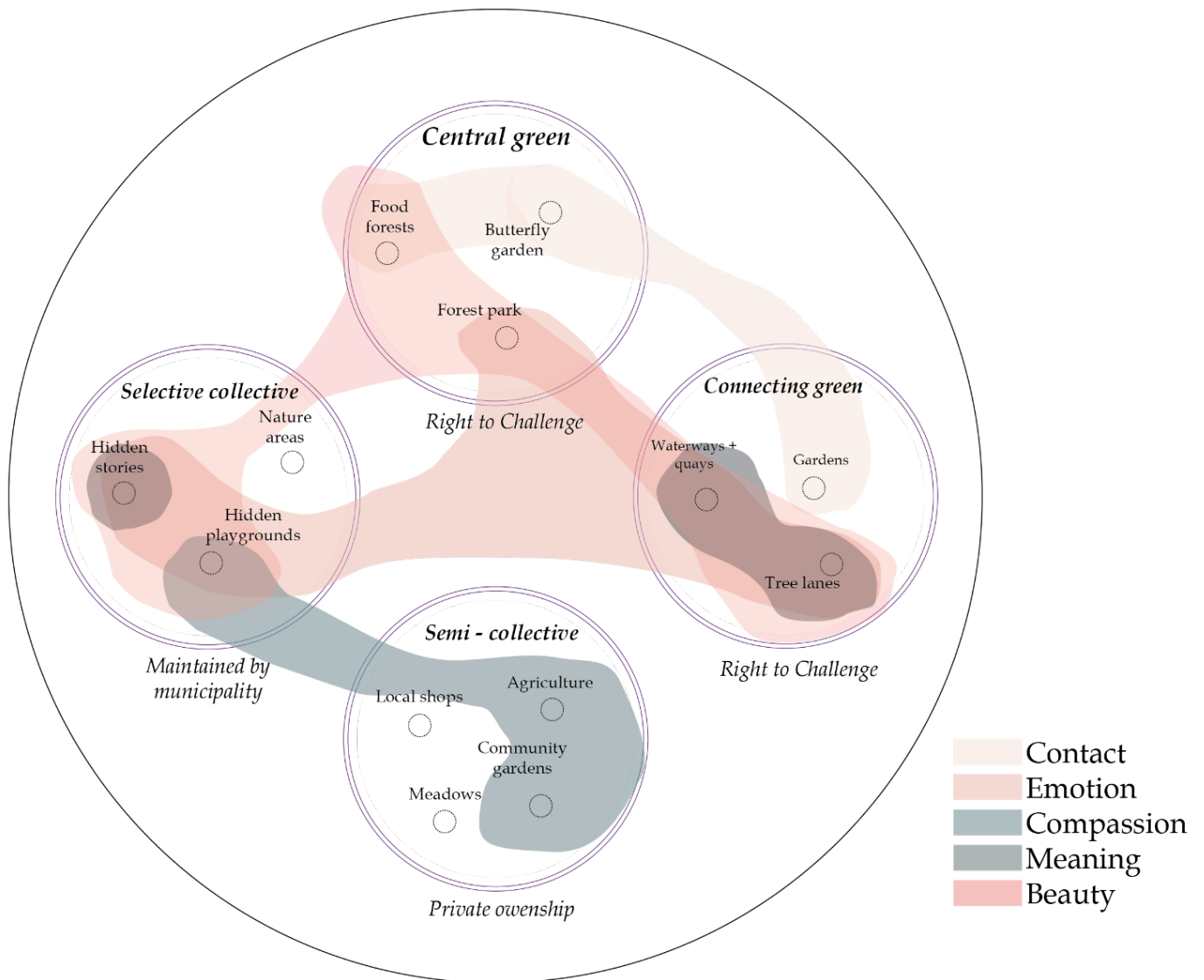


figure 5.1: Pathways to nature connection placed on design elements. Own image.

Comparing the spatial program of the estate zone to successful examples of urban parks/enclaves that have a neighbourhood centre function led to more insight into how the estate zone could successfully transform into an estate park. These design guidelines were implemented into the design and the result of these interventions can be seen in figure 5.5.

It stands out that elements from both Birkenhead and Maximapark have influenced the design of the Estate park Haagse Beemden.

- A new path is added within the park that is easily accessible for all visitors and shows them around different facilities and zones of the park.

- The park consists of different zones with different characteristics. They ensure, for example, the preservation of valuable nature areas.

- More functions are added within the borders of the park. They provide the inhabitants of more incentives to enter and use the park.

- Old cultural historical structures are used in the design and given a new use that fits the current societal needs.

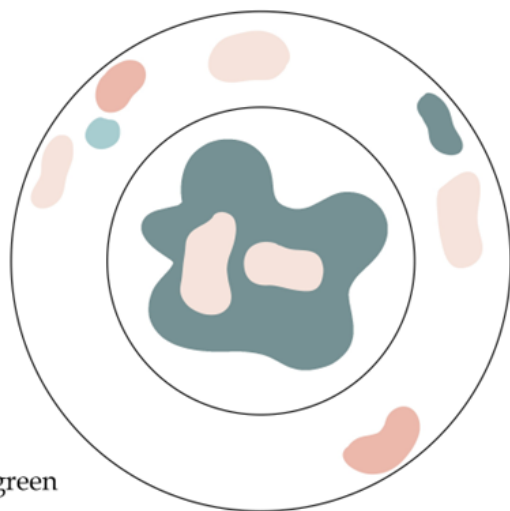


figure 5.2: Program circle Birkenhead. Own image.

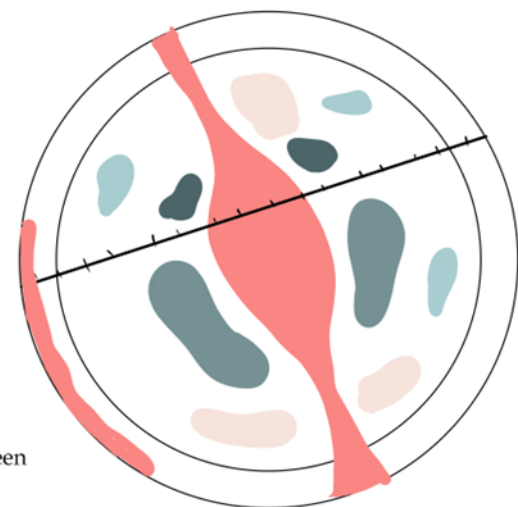


figure 5.3: Program circle Maximapark. Own image.

Estate zone Haagse Beemden

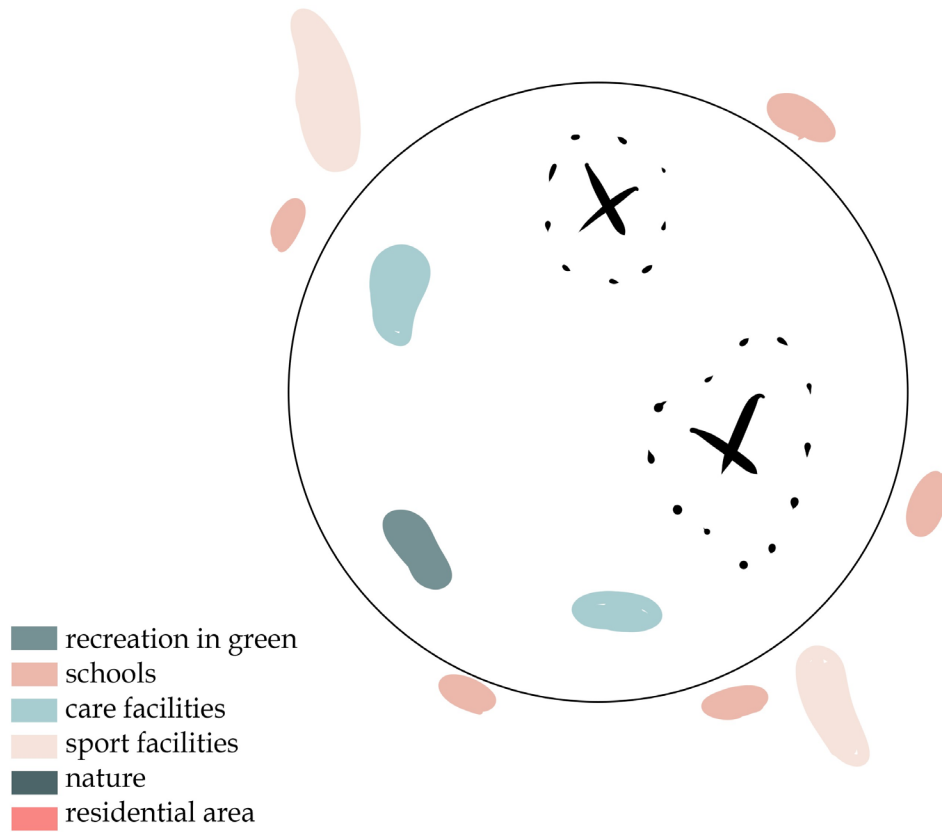


figure 5.4: Program circle Haagse Beemden before. Own image.

Estate park Haagse Beemden



figure 5.5: Program circle Haagse Beemden after. Own image.



Reflection

The relation to landscape architecture

The topic of my thesis includes the theory behind nature connectedness and how this can help reimagine the concept of inverse town planning to focus more towards a better social situation in a neighbourhood. This topic is seen through the lens of urban forestry, an important aspect of landscape architecture as it focuses on the possible use and qualities of trees in an urban environment. Possible uses include climate mitigation, creating landscape experiences, and creating nature connectedness. The concept of inverse town planning comes from the Department of Urbanism, making this department also relevant to this thesis.

Relation design - research

The research done throughout the thesis has highly influenced the design made. Design criteria used for the design are derived from the theory, analysis, and precedent studies. Doing the theoretical research and spatial analysis led to me broadening the topic further and further as more interesting possibly relevant side topics came up. As a result, the main objective and research question has shifted quite some times during the process. Doing more research and analysis made it possible to be critical of the work previously done, but at the same time makes it harder to stay focused on the set main objective. In the end, all the times I wandered away from this main objective and found other possible relevant side topics, have helped create a design I believe is quite complete and well-fitted for the area.

Throughout the process, I also used design as a research tool. Making sketches or visualizations of ideas or preliminary results makes it clear what yet is to be analyzed or researched. A drawing shows you what you don't know yet and can give you new insights.

Look beyond what you see

I started this graduation year a couple of years ago by noting down all the interesting landscape architectural topics I came across. A list of interests was the result. However, I did not have a concrete objective in mind yet. This objective came later when analyzing the relevant spatial and social problems of the area I originally chose, which was the center of the city of Breda. The problems I wanted to tackle, using my interests in pocket parks, were more related to climate mitigation, microclimate, and liveability. The idea of wanting to do something with pocket parks came before actually having a clear purpose for this. Analysis and research had to be done in order to try validate this decision. Eventually, doing this research, more interesting topics came to the surface that were worth exploring more. In the end, this thesis is not about pocket parks, nor about climate mitigation in the center of the city. This is a method of working that looking back on it, I used quite a lot. Setting a vision, idea or goal first, and then working back to where I already understood the story. While doing this, more interesting topics and ideas see the light of day and eventually the vision, idea or goal that was set is used in a different way than originally thought of, or not used at all.

This diagram shows a visualization of this process.

The dots stand for the ideas and visions I set first in the process. The blocks grow wider and wider as the amount of knowledge grows while trying to validate the dots. In the end, the orange lines represent the knowledge used to structure the design. Sometimes these lines meet a dot, but often they go around them to illustrate that the knowledge used was much broader in content than intentionally needed for answering the main research question.

I can conclude that this method of working is not necessarily the most efficient. It also becomes easy to lose focus on the process and the priorities. This made it sometimes hard for me to have a grip on where my thesis was going.

On the other hand, this method stimulated me to look further than the original plan and to find some interesting perspectives that can be used to give the design more meaning or creative impulse.

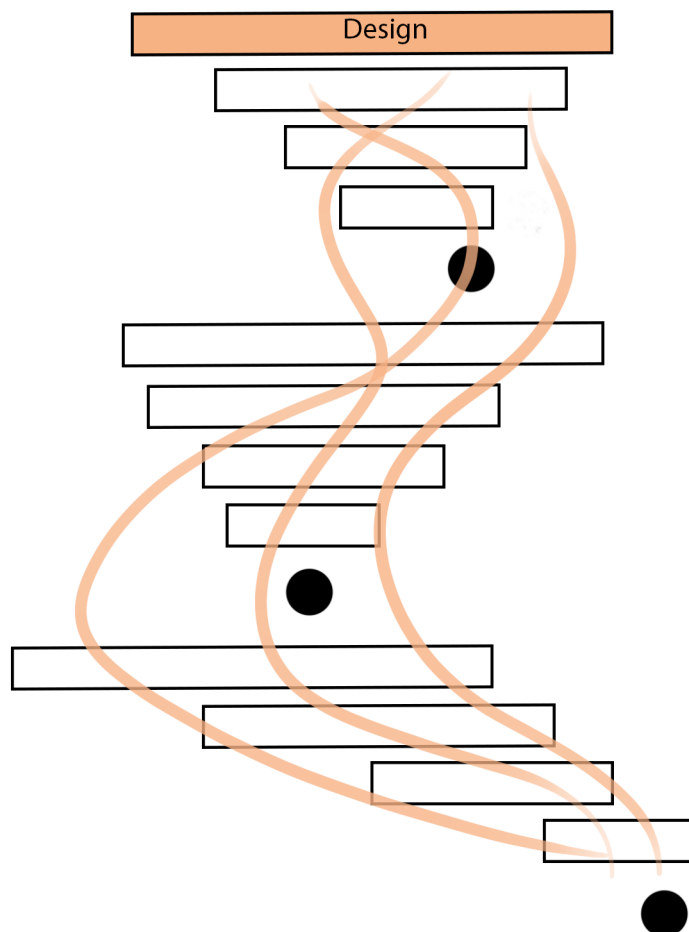


figure 5.6: Reflection diagram. Own image.

Academic and societal value

This thesis investigates new possibilities and potentials of the original concept of the inverse town planning. This exact concept is not used on a lot of places other than the Haagse Beemden but it has inspired a way of thinking that is more common nowadays and used within urban planning. A reimagined version of this inverse town planning, focused more on nature connectedness and integration of the landscape enclave within the neighbourhood, has the potential to again inspire a new way of thinking. This knowledge could be useful when redesigning a neighbourhood or creating a new one.

In this thesis, I specifically investigated the opportunities of using and improving the green structure of the neighbourhood in order to improve to social situation. Research hints towards a valuable contribution of nature connectedness to improving well-being and social cohesion.

Focussing on improving the green structure is however not the only possible solution for these social problems. This thesis however focusses specifically towards using nature connectedness. Deeper causes of the social problems are not analysed. This makes this research by design more broad and global, but also less specific for the Haagse Beemden.

Within this thesis, multiple self made typologies and concepts are created. They are funded on existing and academic knowledge but are newly created. The results of this design research are therefore not entirely based on existing concepts and typologies.

On a societal level, an urban plan and landscape design for a urban park like this will mainly promote a better connection between the residents and the green structure. The goal is to create a neighbourhood that has more social cohesion, is more green and has healthier and happier inhabitants. Local products are sold withing the estate park and inhabitants feel connected to the neighbourhood via the economic benefits it provides.

When looking at this design on an ethical level, it might be that too much is asked from the inhabitants. They have to be willing to put time and effort into maintaining the green structure and use the functions it provides for the design to fully work. However, it is possible that the municipality will take over the maintenance tasks. Another point of attention is the fact that a substantial part of the estate zone is private property. It is not accessible and the owner doesn't want to make it accessible at the moment. For the design to work, the land should become the property of the inhabitants and/or the municipality.

Transferability

The design includes an urban park taking the shape of an inverted estate that melts together with the surrounding neighbourhood. Urban parks have become an essential part of successful urban design. Estates are frequently found throughout The Netherlands and when looking at the future and the need to build more houses, chances are big that these new neighbourhoods are sometimes coming together with the existing estates. This thesis gives an example of how this intersection could be designed successfully. Old landscape structures and stories that are site-specific to the area are used to give depth to the design. These can of course vary between different sites. This makes every project unique and specifically tailored to the situation.

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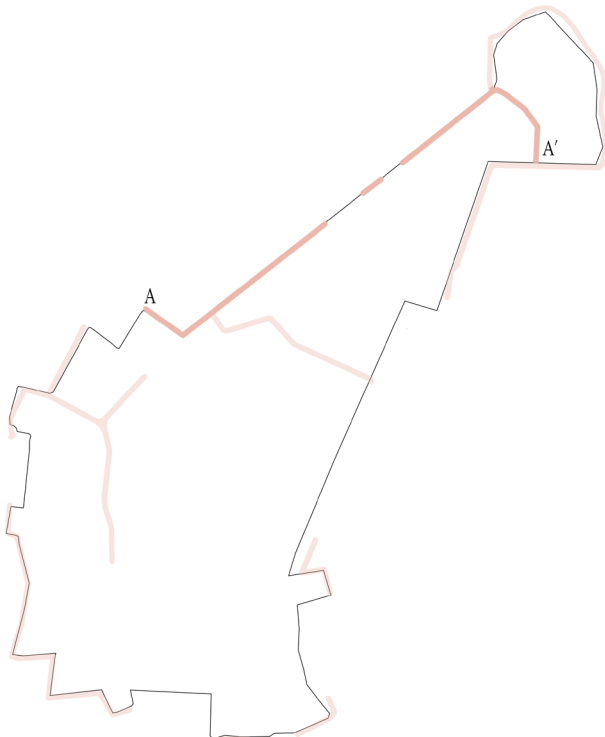
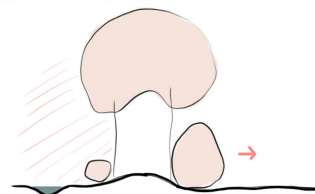
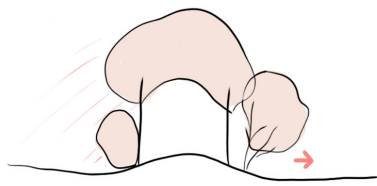
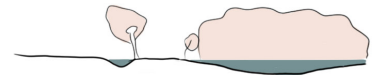
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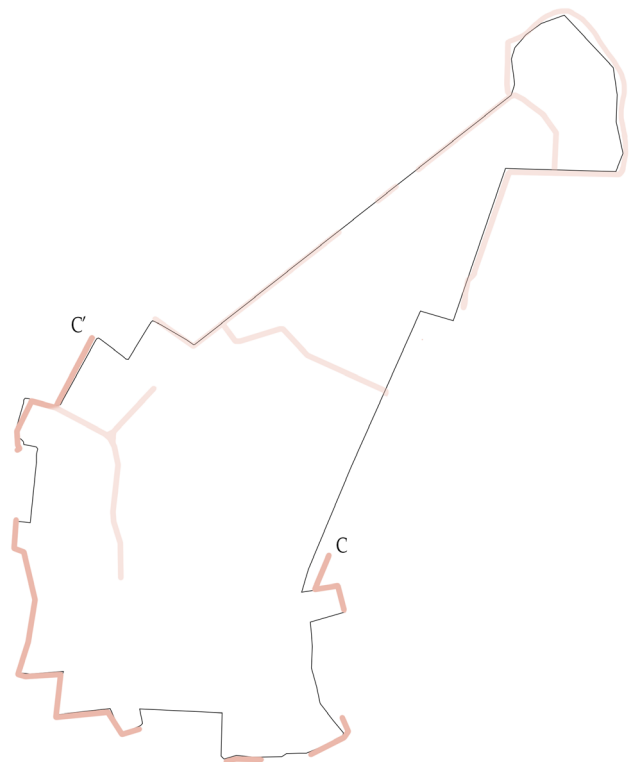
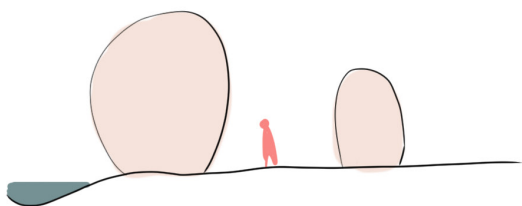
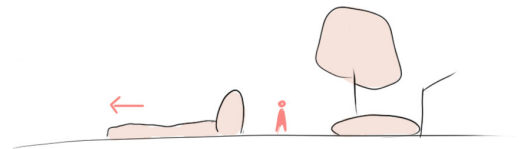
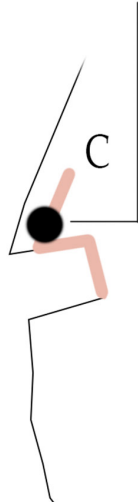
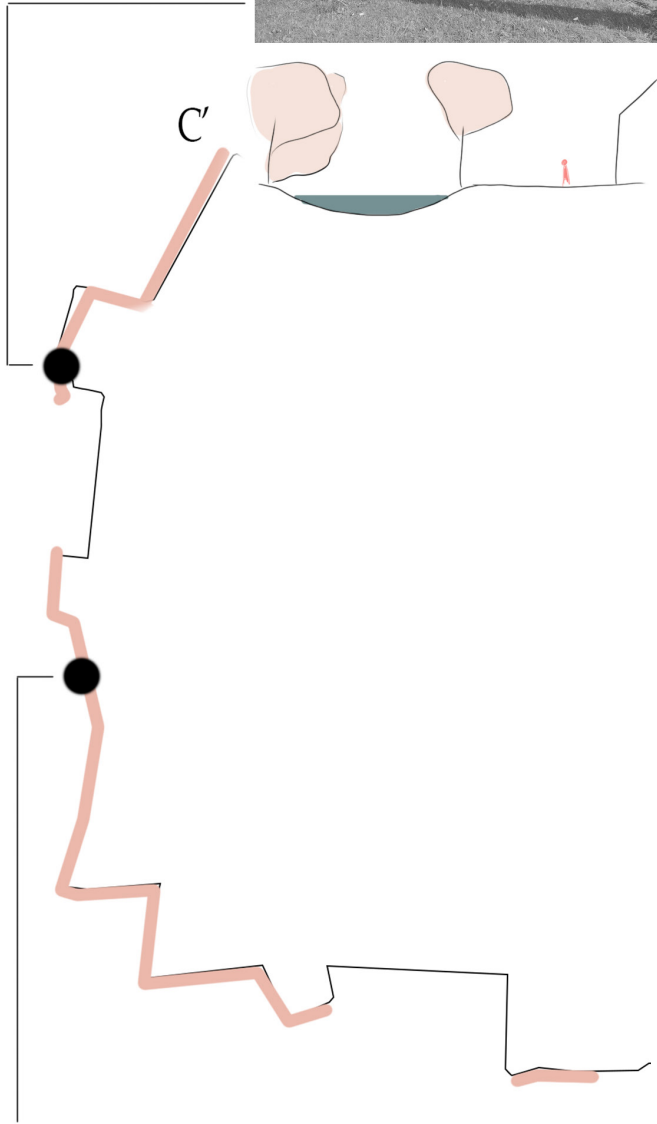
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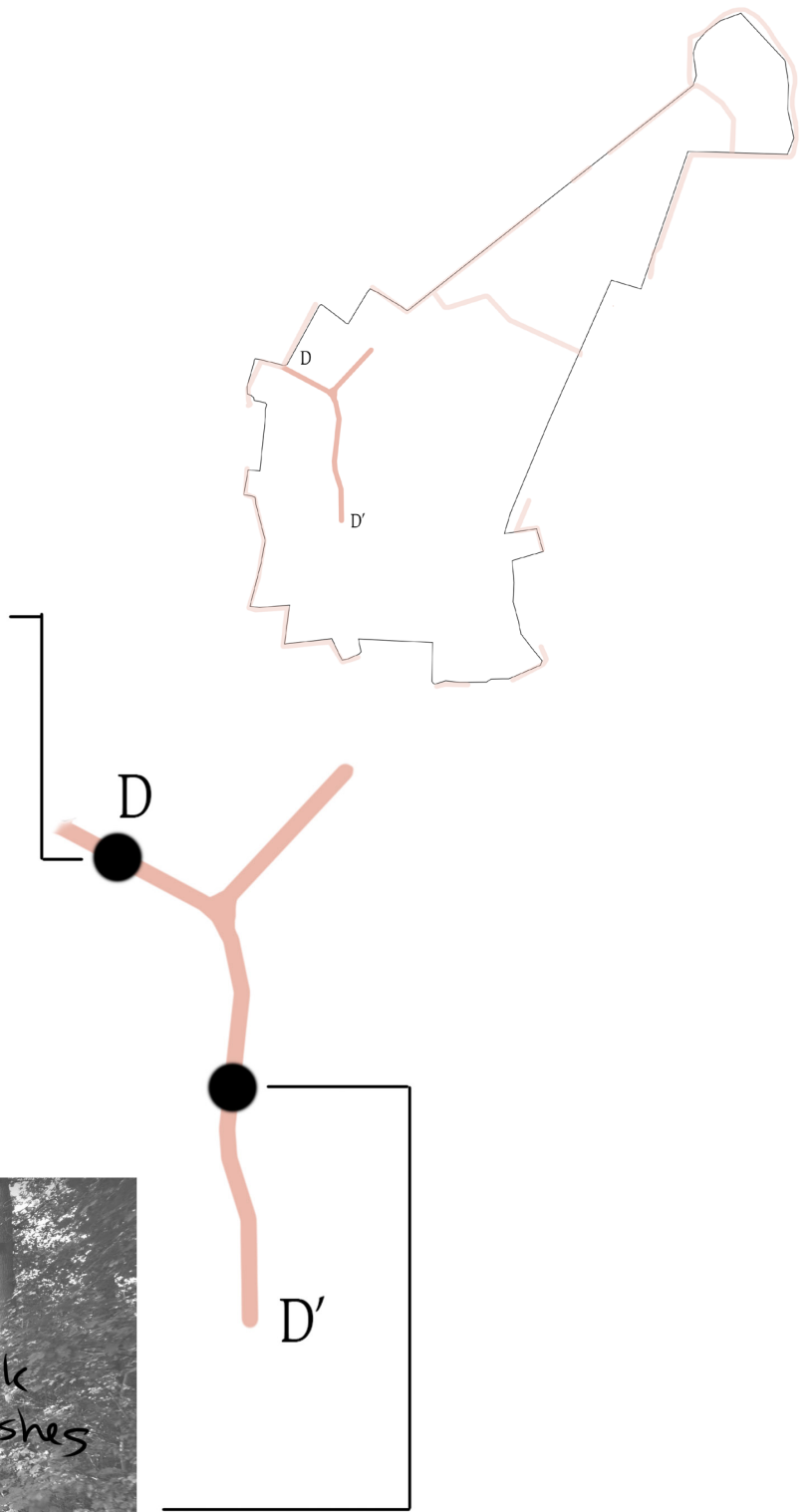
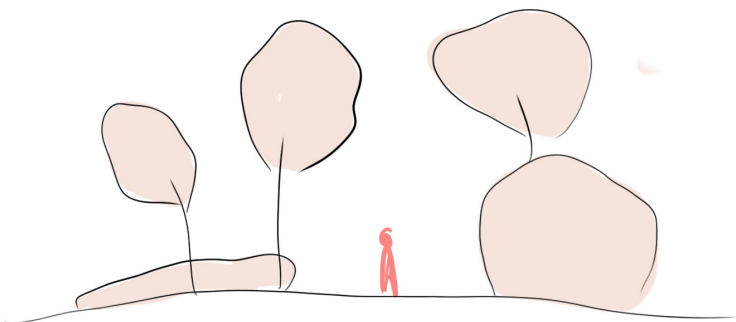
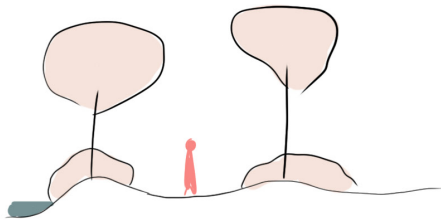
Apendix

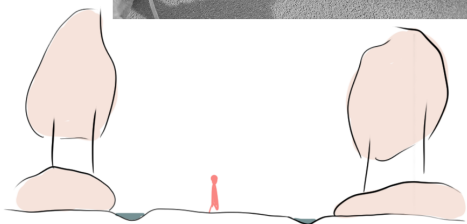


Visibility estate zone, seen from routes along the estate zone.

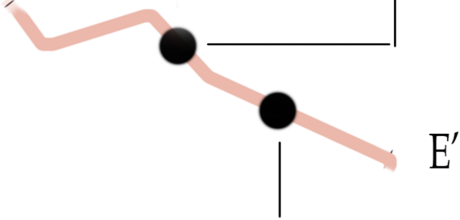








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