

The design of the masterplan Driebergen



Site Analysis Booklet

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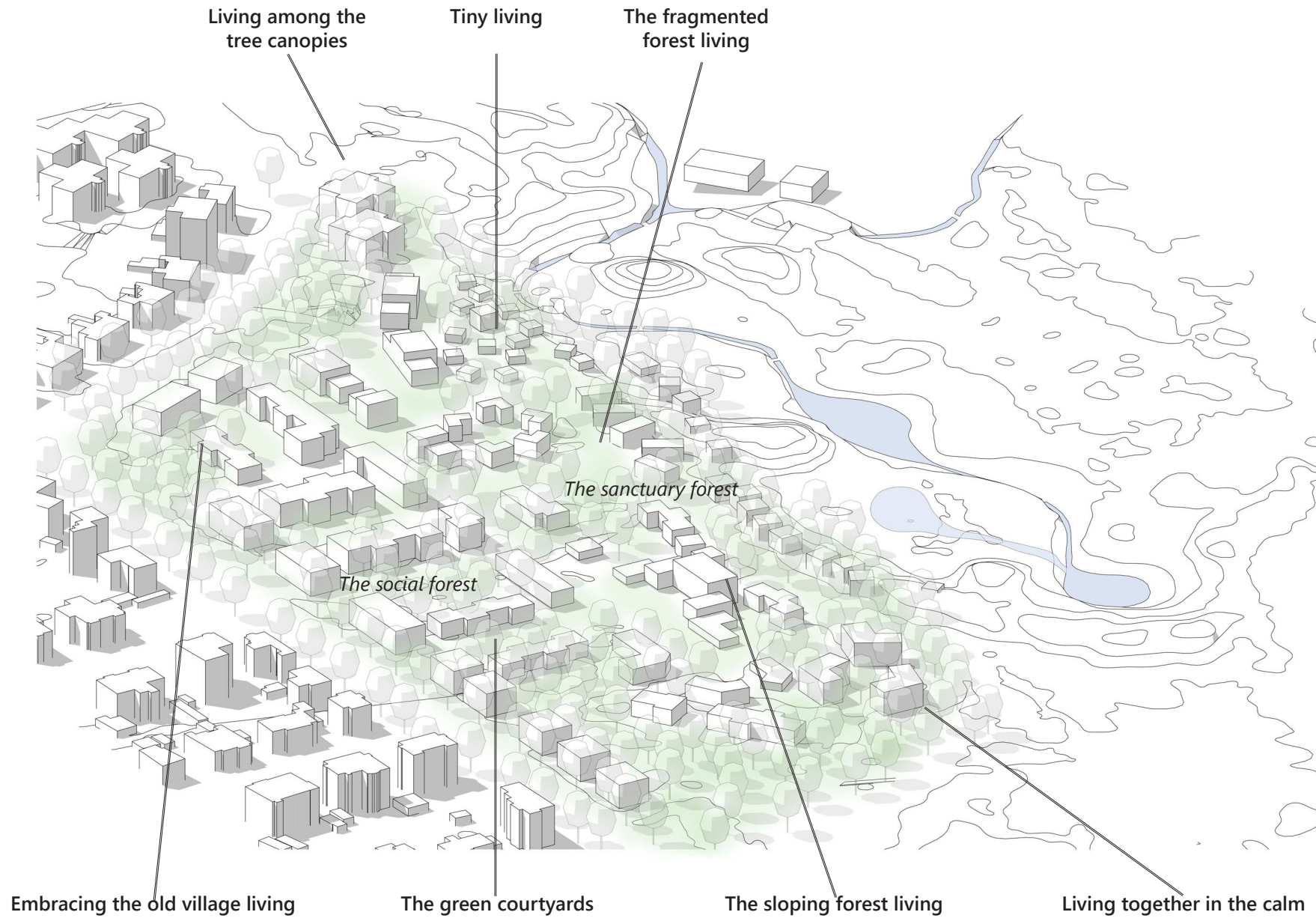
IX. Appendix



Thuisbos

A new lifestyle for everyone

Thuisbos is unique in that it provides a place to grow old healthy, happy and actively with others, not without others, and in that it provides a way of living that is deeply rooted in its relation with nature. In **Thuisbos** forced relocation is fully prevented with housing that is able to change along with the needs of its inhabitants, regardless of their age or disabilities. Choices on where to live in **Thuisbos** are focused on the characters of its future inhabitants in relation to a diverse range of characters of homes and their surroundings in the plan. **Thuisbos** has many more features through which **Thuisbos** distincts itself from other types of dwelling in the Netherlands. All features are explained in the following pages.



The characters of the site

Everyone can live in each part of the site, the choice is made upon their preferred character

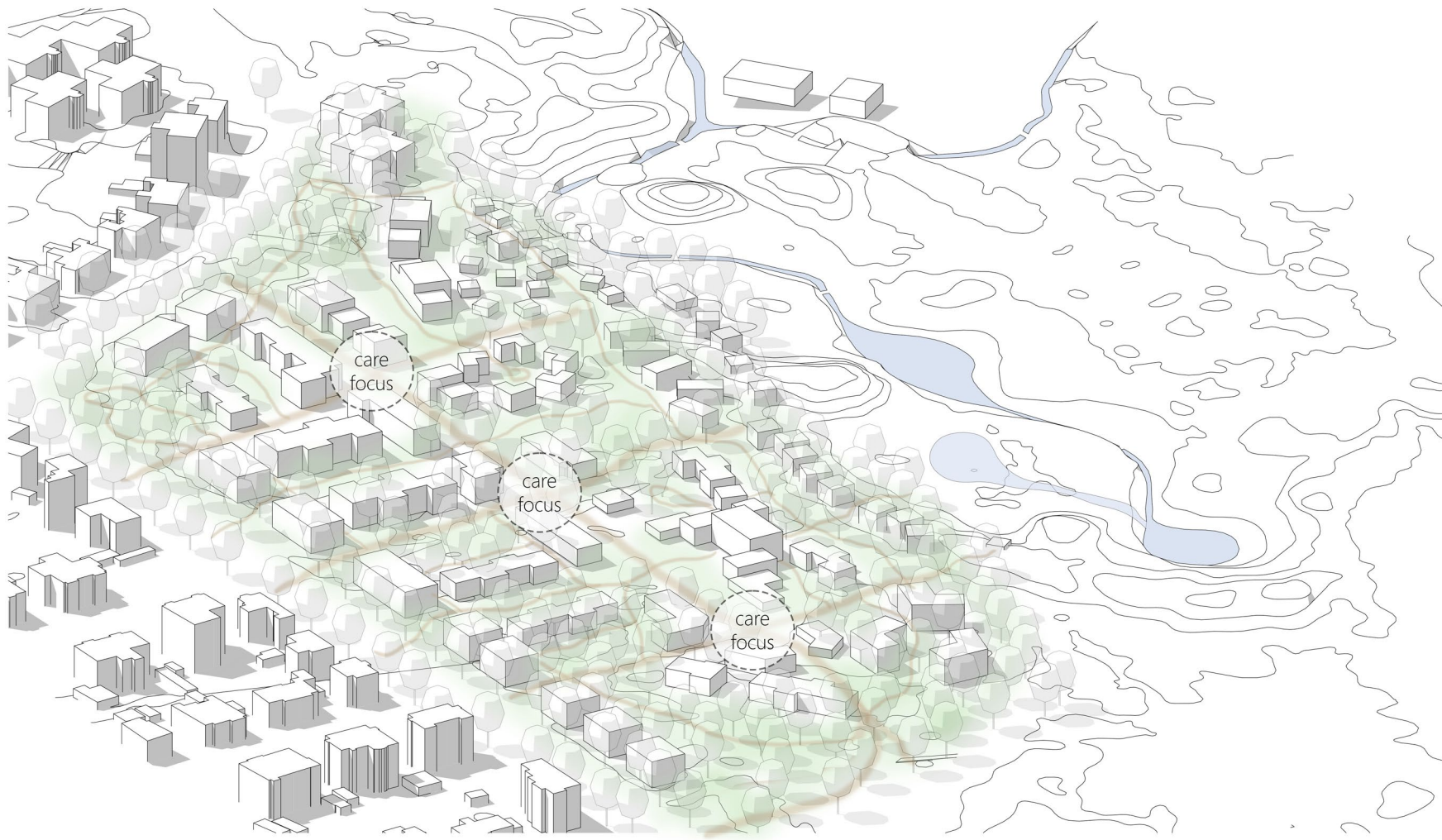
Prevention of relocation

Everyone can live anywhere

by providing several ways of living throughout the project and creating housing that is age proof.

Having to relocate from one's home to an unfamiliar environment as a result of the need for (sudden) care can be a quite stressful event. Especially for people in late life it can cost more energy to leave one's known environment behind and to reintegrate into a different society, neighbourhood or care home while at the same time facing negative biases just because of one's age. Nowadays people in late life are often relocated to nursing homes and placed into an environment with people who are similarly or more heavily disabled, thus they live without any stimulation and completely shut off from the society in general.

In Thuisbos forced relocation is fully prevented with housing that is able to change along with the needs of its inhabitants, regardless of their age or disabilities. Choices on where to live in Thuisbos are focused on the characters of its future inhabitants in relation to a diverse range of characters of homes and their surroundings in the plan. A wide range of ways of living in connection to the surrounding forest and neighbourhood are provided throughout the whole project, thus giving the future inhabitants the chance to base their decision on where to live on character and not be limited by their financial means, health condition or age. Thus, in Thuisbos people will live in a small community with neighbours that might look different in size of household and care needs, but that has the same mindset as they do.



The lanes as the hallways of a care home

Care givers from from the care focus spots towards the homes in need of care

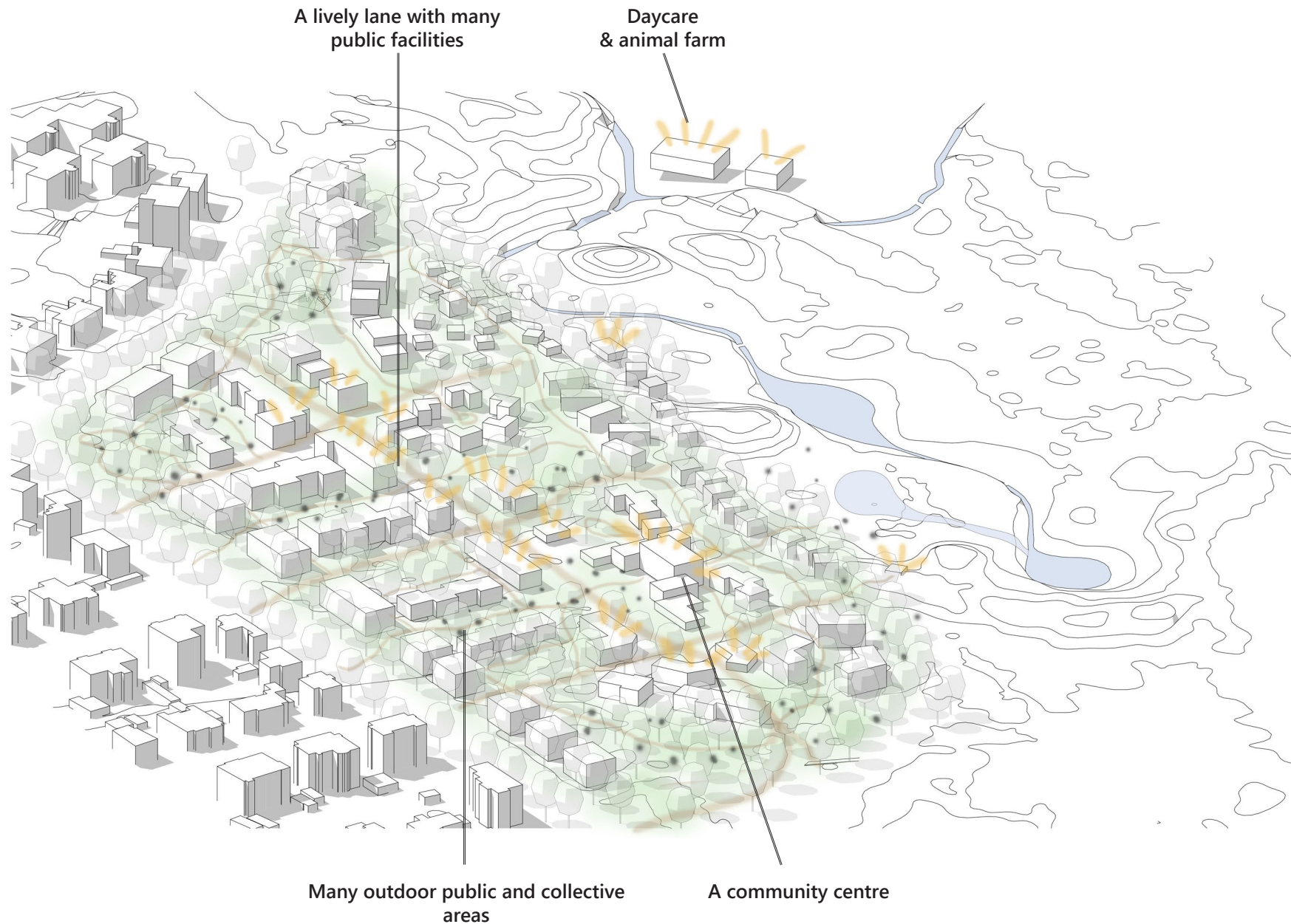
Care at home

The lanes as the hallways of a care home

Needing care does not change the home.

In Thuisbos providing care at each home was a point of high importance as it prevents forced relocation, allows for people to stay and participate in their communities, and it does not discriminate people on their health condition, no one can see which house is in need for care. In Thuisbos the lanes form the basis for possible care at each home. With concentrated care spots for parking and storing materials care at each home is made possible at any time of the day. 24 hours a day caregivers will be available for the people who need assistance. They will be provided a home in the area and as a result of creating three care spots at the site, they will be able to efficiently get materials needed and drive by the people needing care.

At the final stage of illnesses such as dementia it is possible that people will become a danger to themselves or to their community. This is usually an unfortunate, confronting and sad situation for everyone. In order to protect those people and their surroundings while at the same allowing them to still live in the neighbourhood and thrive, two buildings, one positioned in the forest and one positioned at the edge of the existing neighbourhood and Thuisbos will provide housing for people in need of 24 hour guidance. In these housing they will be able to go outside and wander in the sensory garden while still being looked after at a distance by caregivers.



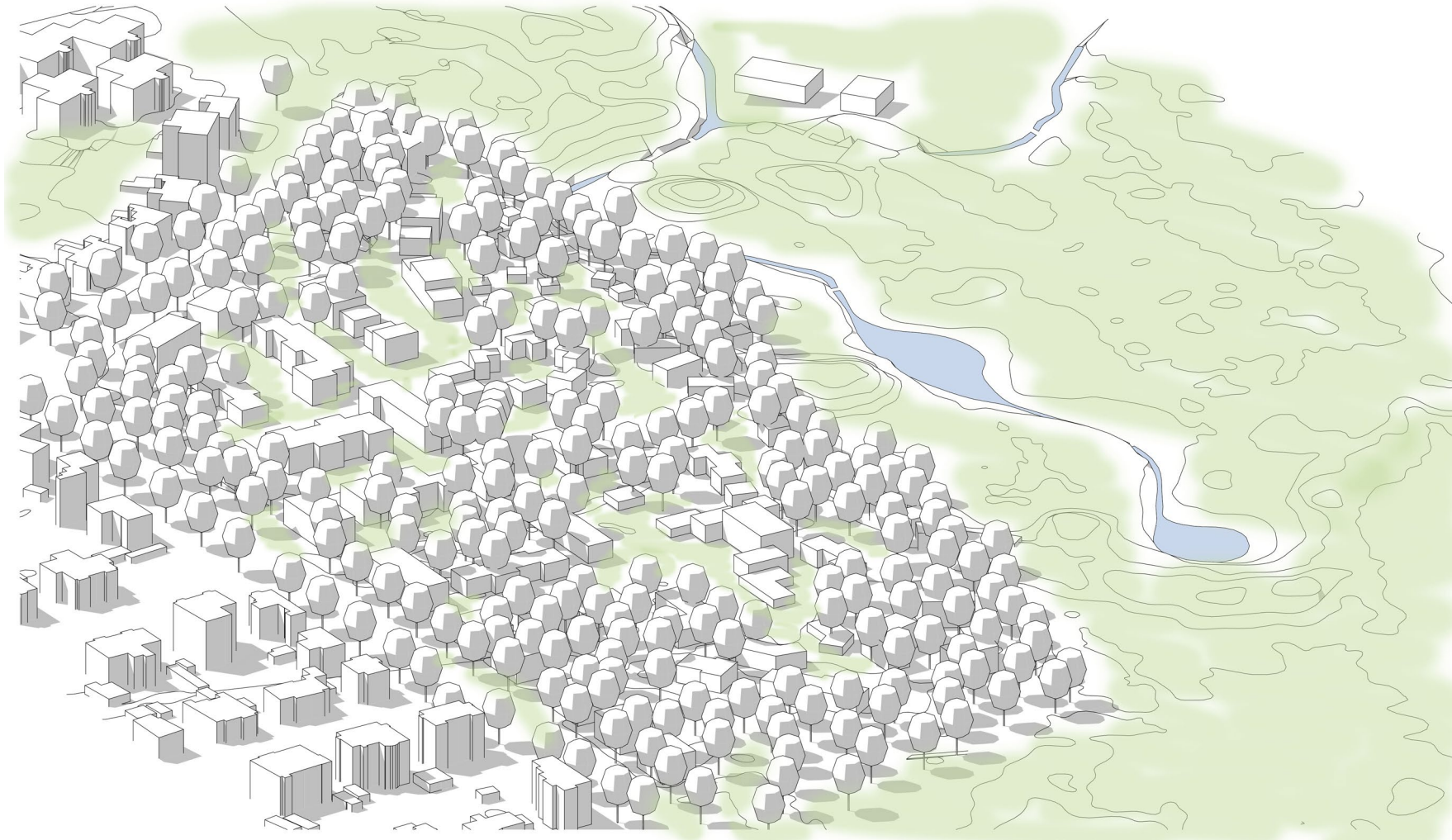
The many outdoor spaces and facilities in short distance from every home

Everyone can take part in the community

Opportunities for full participation in society

The creation of easily accessible facilities and outdoor spaces

All several ways of living are well connected by and at a walking or wheeling distance of The Driebergjes Lane, an easy readable lane that provides public facilities needed on a daily and weekly basis. As a result of creating public facilities nearby every home, each inhabitant is enabled and encouraged to do the groceries themselves, to cycle to their pharmacy and have a coffee with their friend or neighbours, and thus they are able to stay independent and participate in their communities. As well a large variety in many publicly or collectively accessible outdoor spaces throughout the area allows the inhabitants to stay connected to their communities by meeting them spontaneously outside when taking a short 5 minute walk and when seeking contact outside in the sun. Every lane encourages slow traffic by making sure that car traffic is limited and car and bus traffic is slowed down. This allows people, especially people with mobility issues, to feel safe enough to go outside and cross the lane.



The existing trees are shown, almost all are largely kept in place and in tact

Living and respecting the nature of Driebergen-Rijsenburg

Reconnection to nature

Respecting nature's boundaries and seeing its beauties

Upon living in Thuisbos one will find that all inhabitants of Thuisbos hold a similarity that keeps them closely attached, Thuisbosly seeking a close connection to nature. In Thuisbos people are encouraged to respect the forest and the nature of the site. Car use is limited with a car sharing system that reduces the amount of cars, with concentrated car parking spaces that are out of sight, with one-way roads and with a traffic system that makes sure that the cars have to stay behind a cyclist on the lanes. Biking, walking and strolling in a wheelchair are encouraged by creating wheelchair accessible streets that are attractive, by removing thresholds and by giving them priority in the lanes.

Besides encouraging slow traffic, people are made aware of the sacrifices that nature had to make in order to house all the dwellings. This awareness is created by for example the positioning of tree trunks besides the streets that had to be cut in order to build. As well, an eco-garden is placed to educate people on the flora and fauna of the site.

Lastly, the positioning of the dwellings were grounded greatly on the positioning of the existing trees. As many trees as possible were kept alive and well at the site. As a result, many open outdoor space is left that has been turned into several types of gardens of which at least one will suit the mood of its inhabitants that day.



The way of living for elderly in Thuisbos

When living in our master plan the elderly will have exactly the same opportunities to participate in a community as people in other life phases and to live everywhere in Thuisbos. As a result they will live with similar people as well as with people in other life phases. When facing increasing disabilities or illnesses (as a part of aging or not) they do not need to move out of their house. When in need of care, caregivers will come to their homes and provide the care they need. Moreover, the elderly will be encouraged and able to reach the supermarket themselves, to dine with others, and to go to the forest with possible assistance of their neighbour whom they have got to know throughout the years at the community centre. In other words, the elderly will be able to live, flourish and thrive in Thuisbos like everyone else, and when needed will be offered help at their homes by caregivers and their community.



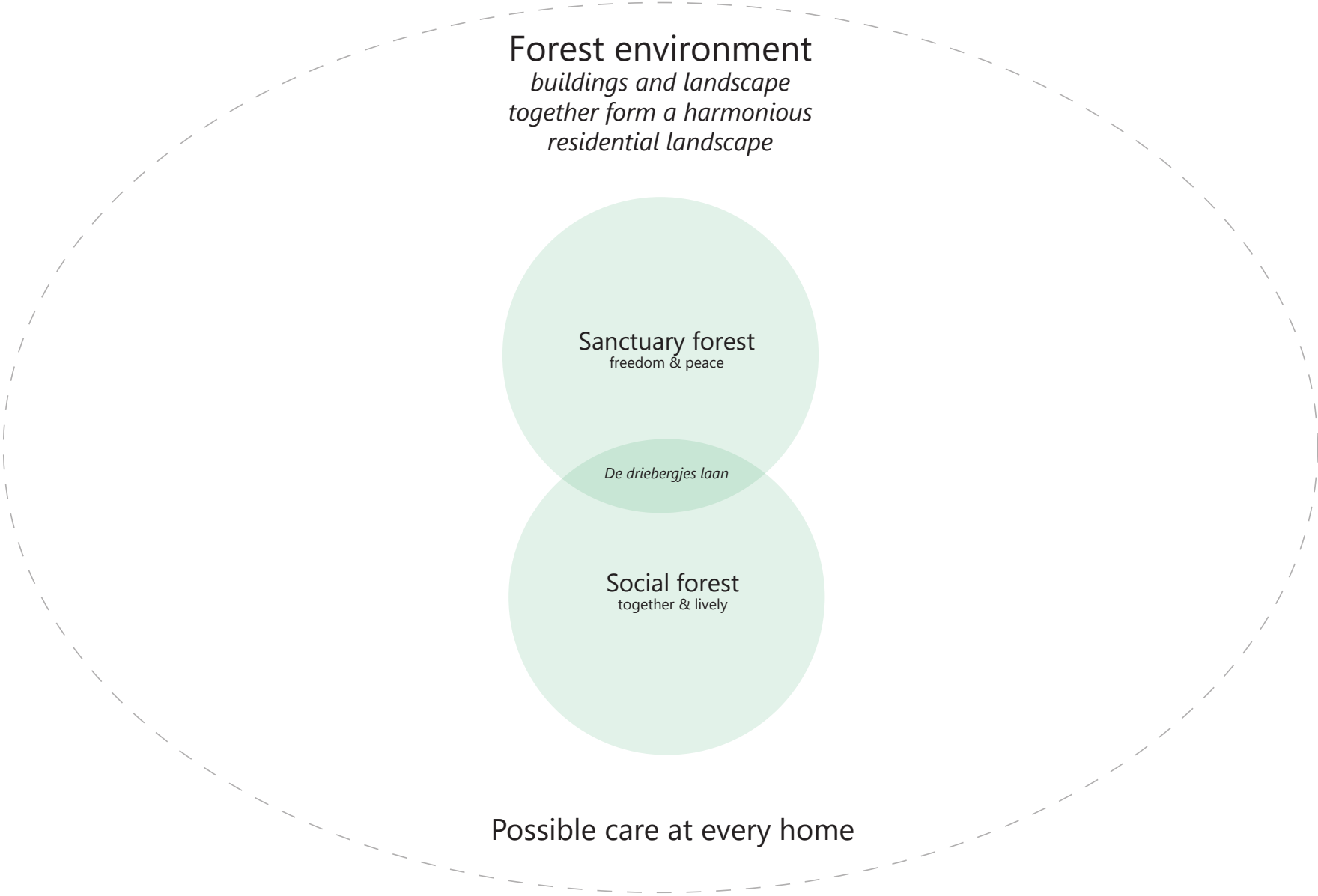
Thuisbos as an inclusive living environment

Thuisbos creates opportunities for every person regardless of their age or health condition to dwell throughout the entire neighbourhood. This translates into architectural as well as urban details such as a clearly readable lane that connects daily and weekly facilities and the forest with each other. Facilities are brought in close reach from each dwelling, making sure that everyone is able to participate in society and to be seen. As a result, in each part of Thuisbos people will live from different ages and thus Thuisbos allows already at the start of moving in that one is physically integrated into a community of several ages. Once settled, people will live in different community sizes and types depending on their own preference, and will mentally become attached to their neighbours as they share certain facilities and join similar events, and most of all they share their main garden: the forest. Thus, everyone is included in a smaller community existing of their neighbours and them, and the bigger community of Thuisbos as a whole their own preferred way.



Steps of action for Thuisbos

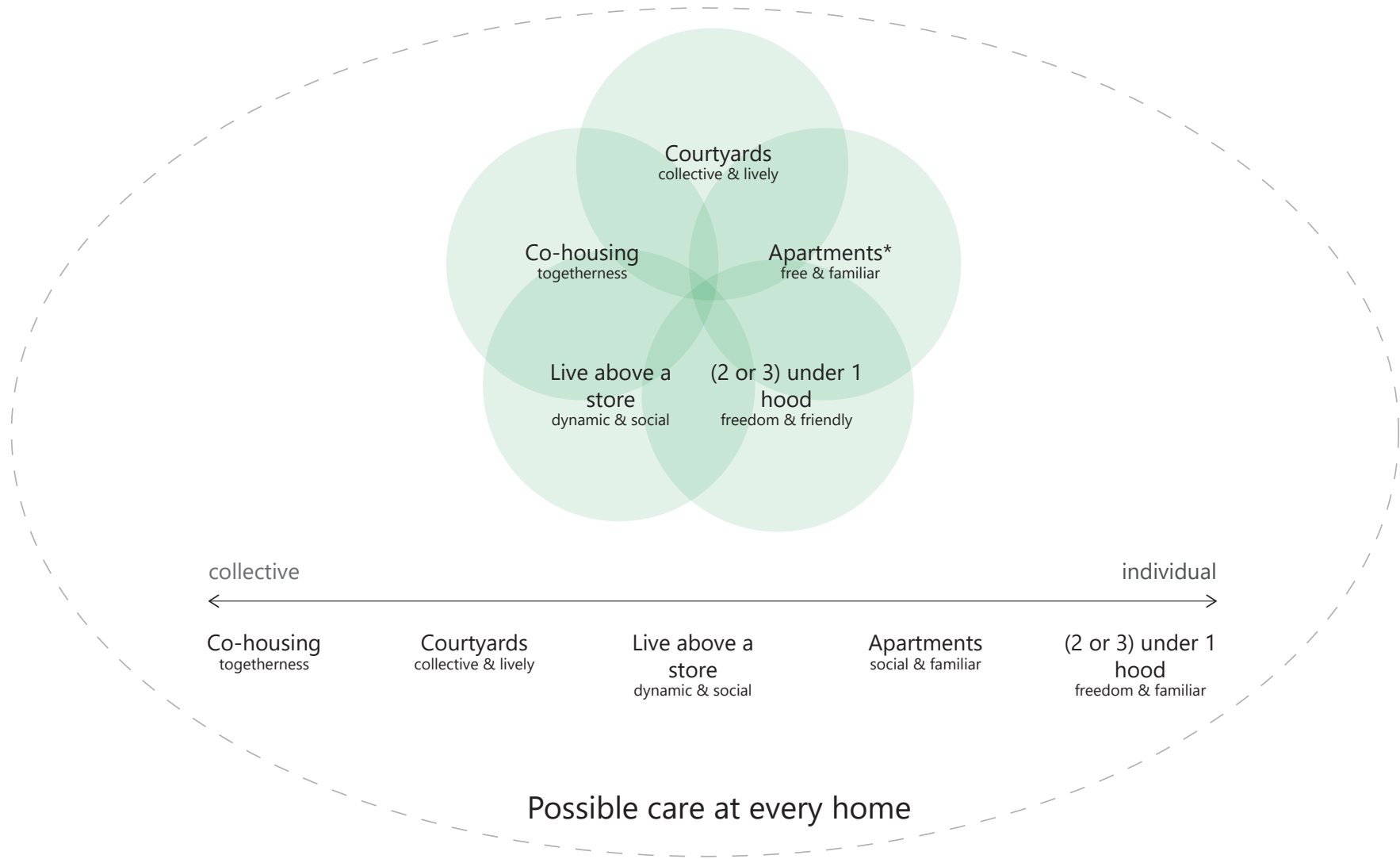
Thuisbos is a carefully set-up neighbourhood that is made to work within today's society of people in the Netherlands. To make it function, first of all, an open minded attitude of everyone involved towards older or ill people is important. The negative biases on elderly should be turned towards a positive view in which they are seen as worthy (to our society). Thuisbos will take part in turning this negative view to a positive one by showing people of all ages that elderly can contribute to society by for example gardening, looking after children and sharing their wisdom. Second of all, although Thuisbos has carefully placed details in the urban setting, like preventing thresholds, creating clear distinctions between roads for vision problems, adding plants with scents to help memorise people with dementia etc, people within the community need to carefully look after changes that could be made in the future in the architecture of Thuisbos. By all means, architectural elements should allow for everyone to be able to be included into their community.



Forest environment

The entire master plan is located in a beautiful forest landscape that connects directly to the natural forest and the residential area. We distinguish two different characters in this area: the Social and Sanctuary Forest. Both areas characterize the good connection with the green landscape. The entire master plan consists of homes with life-proof homes and houses where care at home can be provided at a later age.

Social forest

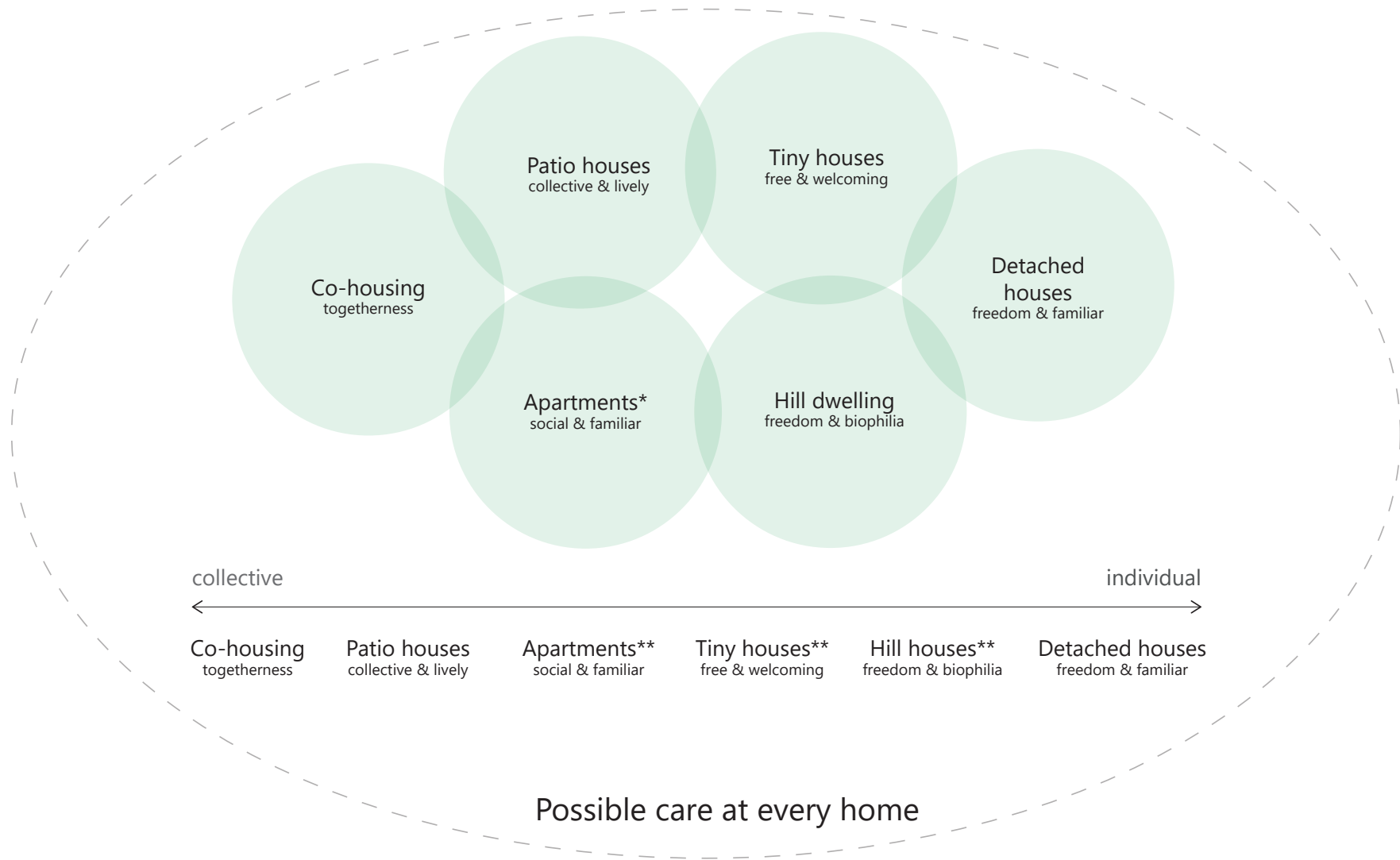


*part of the apartments will be used for severe dementia households (Super Vision apartments)

Social forest

The majority of houses with a social character are located in the social forest. In this area we distinguish five different housing types. The sequence of these housing types describes the different properties of how people would live in this area, from shared housing to your own private room with a collective garden. The different types are explained in more detail.

Sanctuary forest

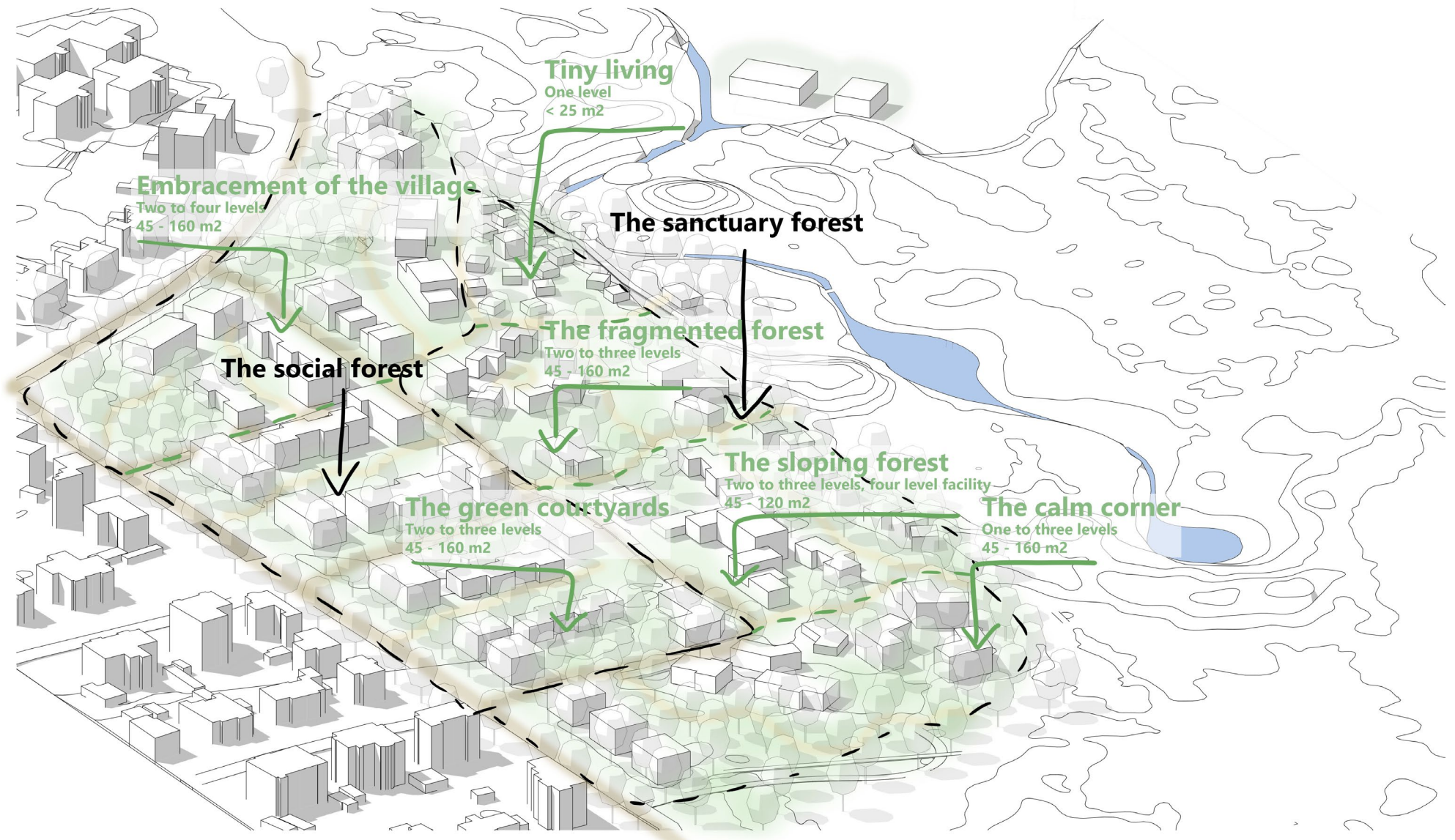


*part of the apartments will be used for severe dementia households (Super Vision apartments)

**the order may change depending on the environment

Sanctuary forest

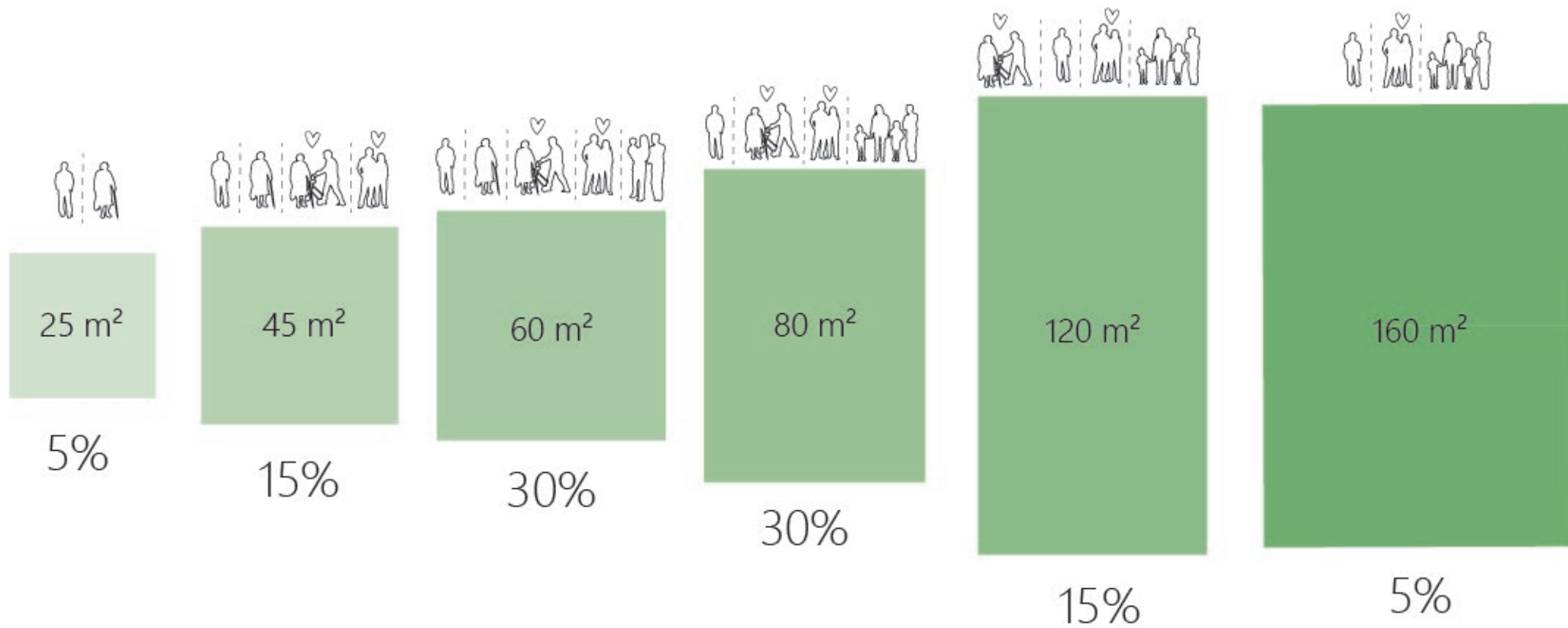
The sanctuary forest characterizes the dwellings with a direct relationship with nature. These homes differ from properties: collective homes to private detached homes. Different housing types to enter into a direct relationship with nature. We distinguish six different housing types. The different types are explained in more detail.



An axonometry of the master plan, the existing neighbourhood and the forest

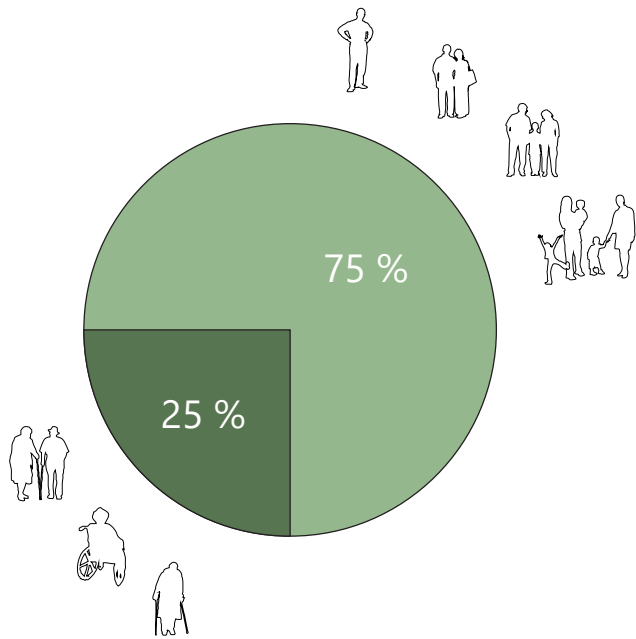
The master plan at the P2

On the site about 316 homes are placed. The site has two main characters: the social forest and the sanctuary forest.

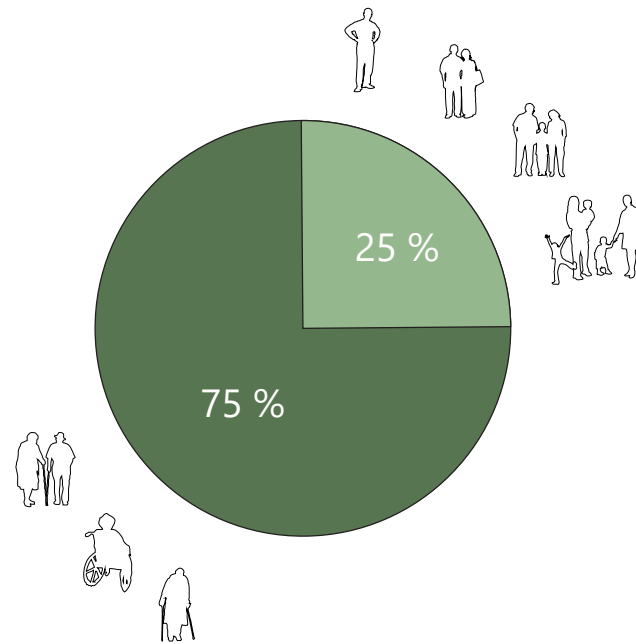


Target groups | Masterplan

The new neighbourhood contains a mix of different population groups. The neighbourhood is accessible to young and old and will not discriminate on age. Therefore, our masterplan contains different sizes of houses. In the figure on the right you see our first proposal of a division of different sizes of houses.



Idealistic



Maximum

Age balance

Idealistically, the amount of elderly or disabled people is a reflection of society. This means that in 2040 where 25% are elderly, therefore 25% of the people in Thuisbos are also elderly. This amount of elderly and disabled friendly livings can grow up to 75%. This number is quite high, but due to the bigger size houses, like family houses, these livings will not be of preference for elderly¹.



I Nature and Thuisbos

Introduction

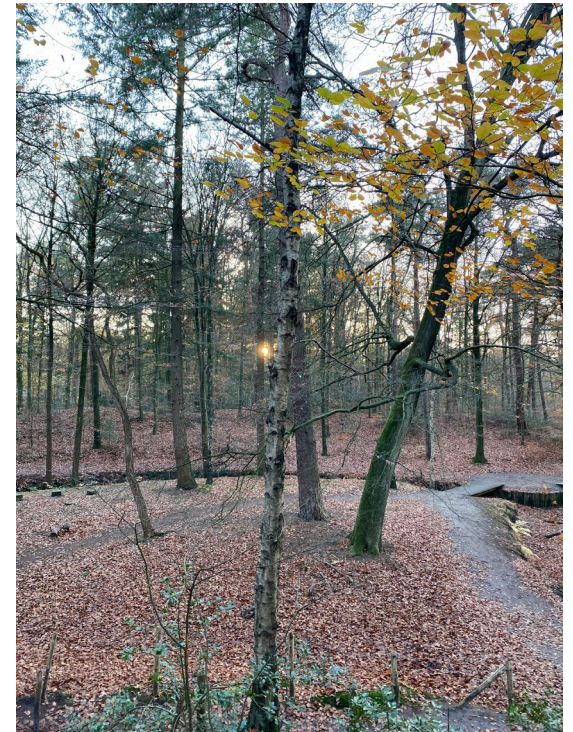
From the beginning of the design process the climate of Driebergen-Rijsenburg has been taken into account. For example, the sizes of open outdoor spaces were important as research showed that the many trees of Sparrenheide could pose a threat to receiving enough daylight in the area. In the upcoming pages it will become clear how Thuisbos reacts to the climate of Driebergen-Rijsenburg.



The sun in the surrounding neighbourhood



The sun setting at the Northern area of the site



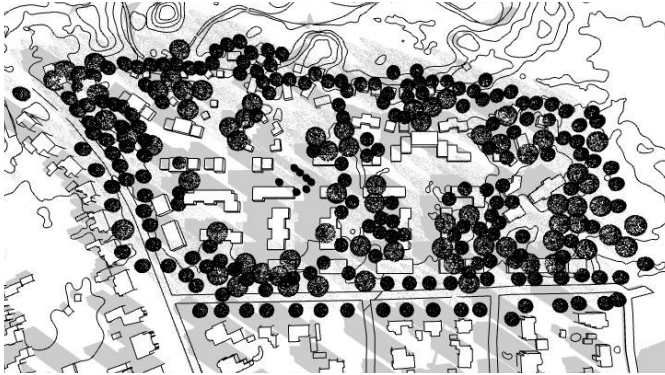
The sun through the trees, the Northern area of the site

The sun path

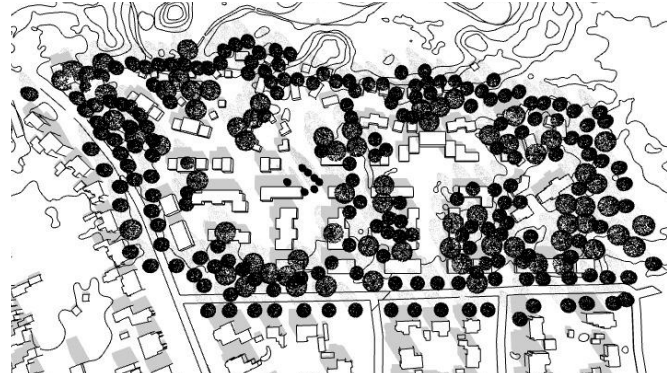
At the very start of the design process the sun path in each season has been taken into account (see the Site Analysis Booklet, chapter 'Climate'). It became clear that the many existing trees create much shadow at the site. At the models on the next pages the sun path is shown together with the existing trees, and the buildings of Thuisbos. While the buildings have been largely placed according to the direction of the extended lanes coming from the existing neighbourhood, many of the outdoor spaces (including the small private gardens extending into collective gardens) have been made of a large area size to make sure that sun is able to enter the gardens, and as a result as well as in the homes. Therefore, at each time of the day there will be an outdoor public space that has sun or shadow which is in short distance of each home. Lastly, every building has been kept at a low height (with a maximum of 4 levels) in order to maximise sunlight entrance at each outdoor place.

Daylight through the day

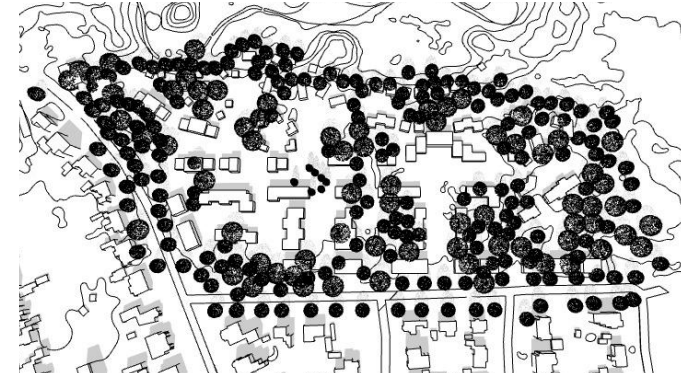
Summer 21 juni



08:00



10:00

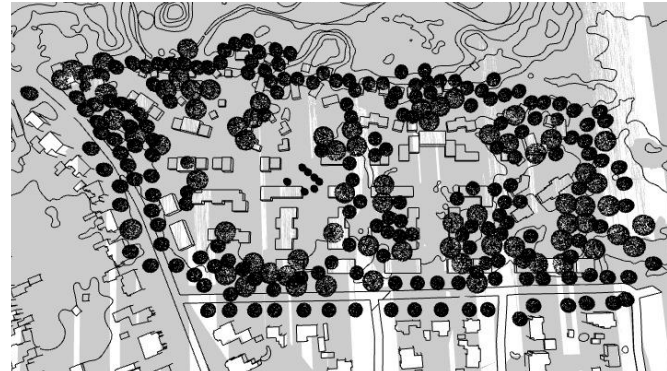


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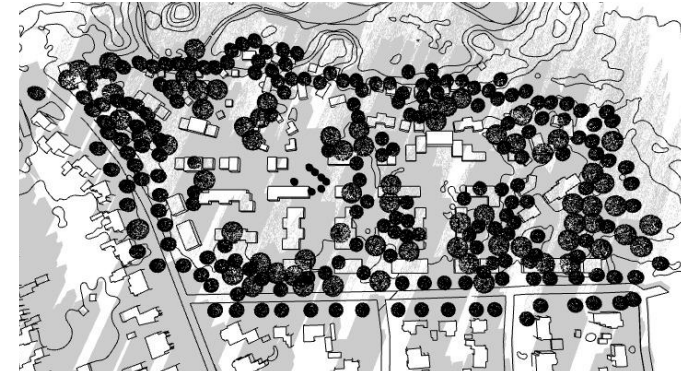
Winter 21 december



08:00



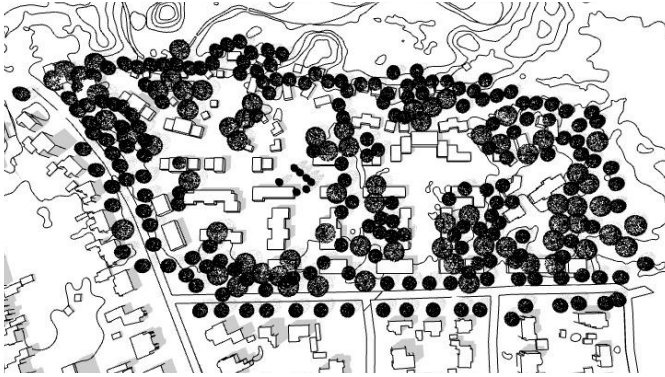
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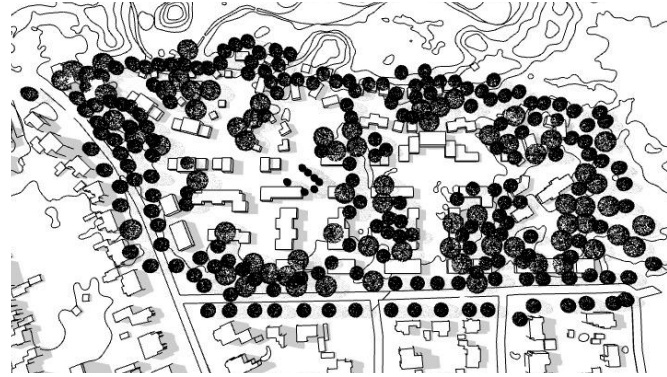
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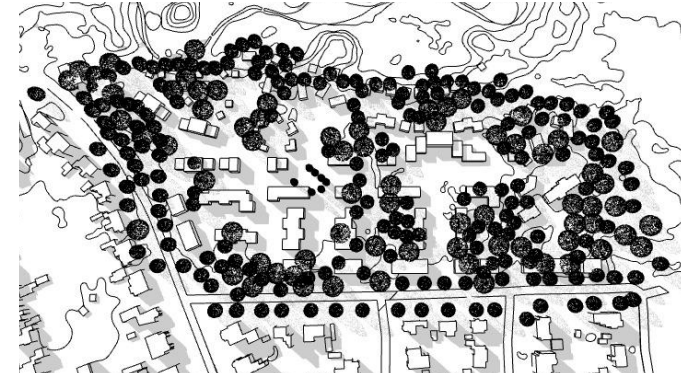
Simulation of sun orientation within the surrounding nature during winter and summer.



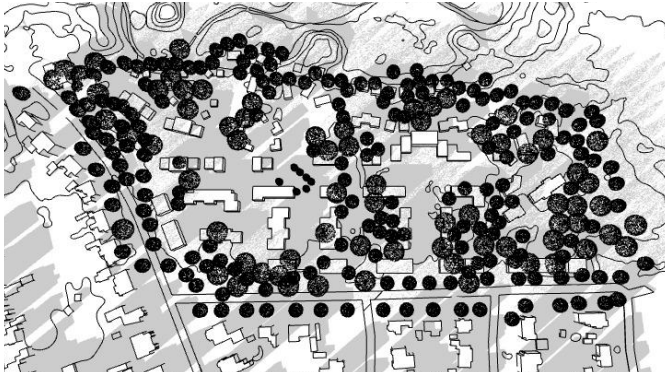
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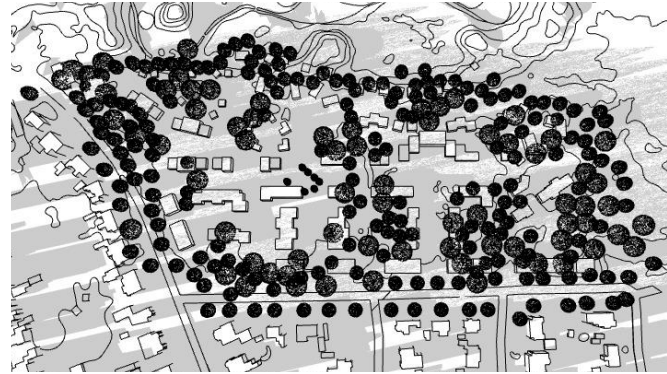
16:00



18:00



14:00



16:00

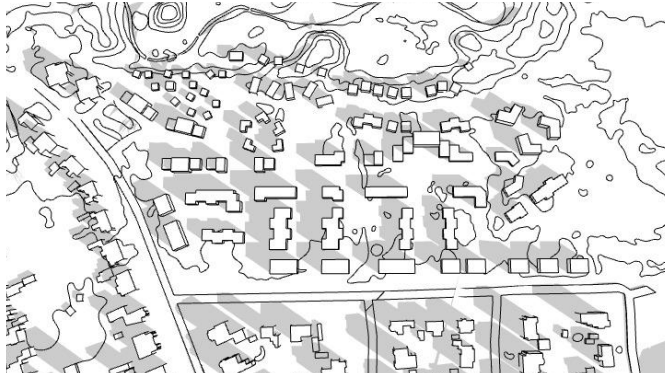


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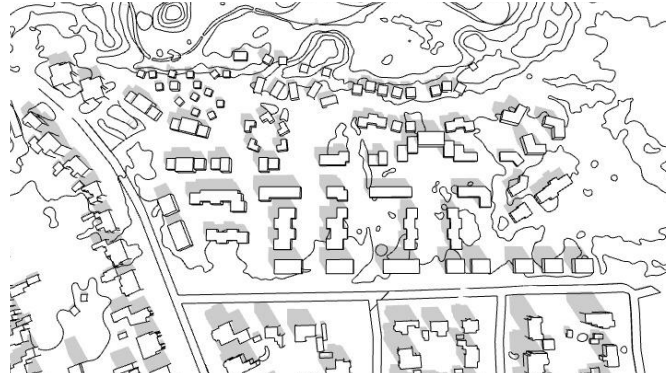


Daylight through the day (without existing trees)

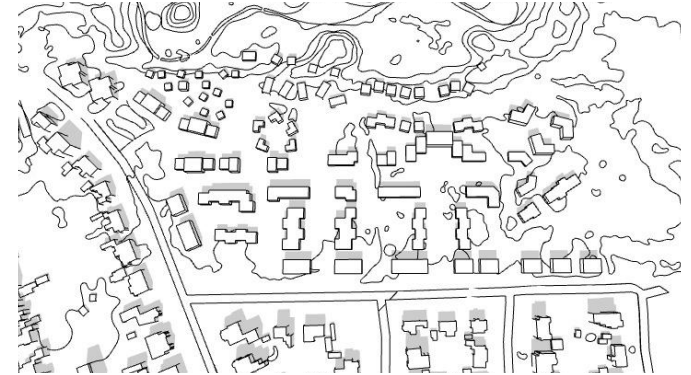
Summer 21 juni



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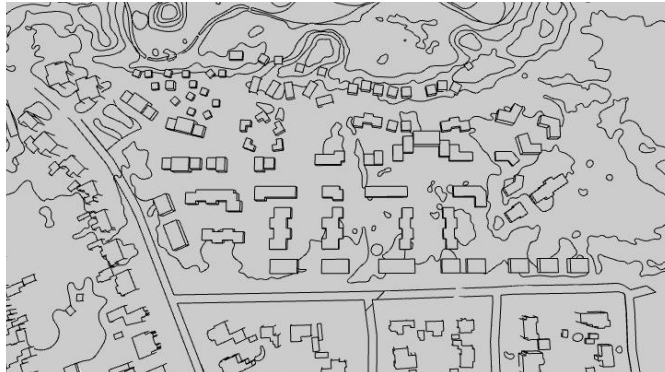


10:00



12:00

Winter 21 december



08:00



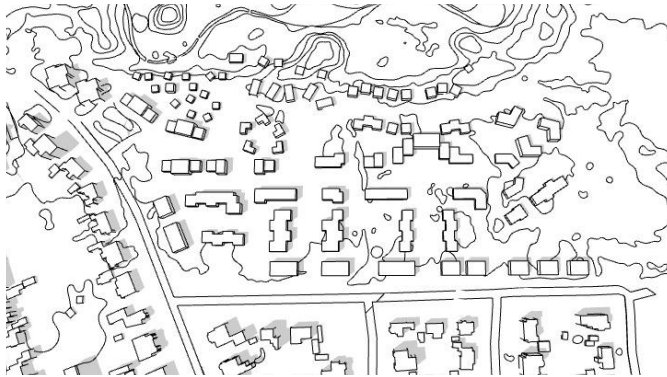
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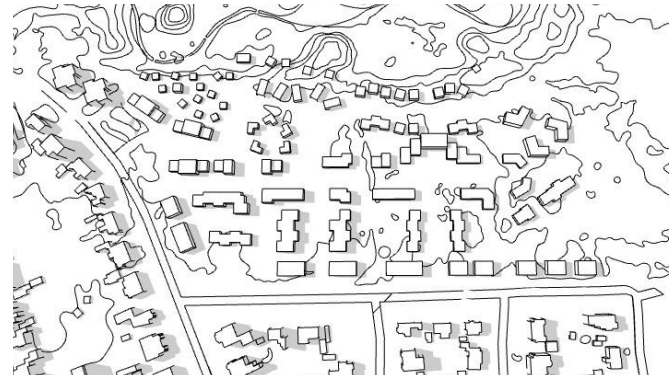
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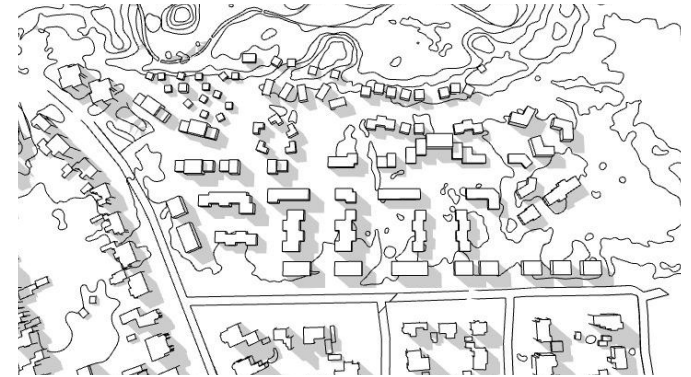
To get more knowledge about the summer and winter sun orientation in our site, the trees were left out of the simulation. This is not how reality will deal, but it is more clearer what shadows are caused by the buildings and which ones by nature.



14:00



16:00



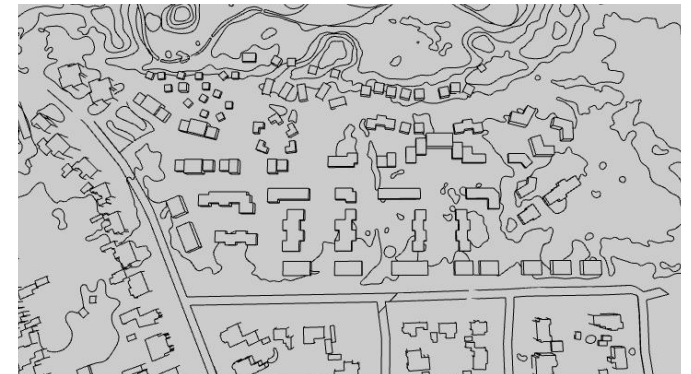
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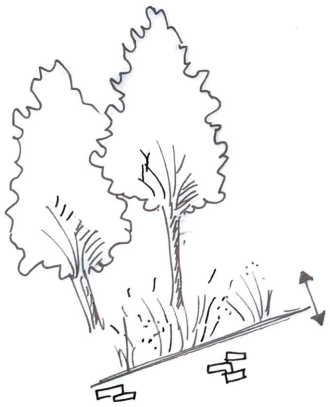


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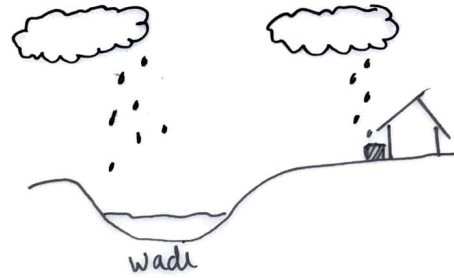


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Use hard surfaces only when needed



Retaining water in the neighbourhood



Create awareness of water uses

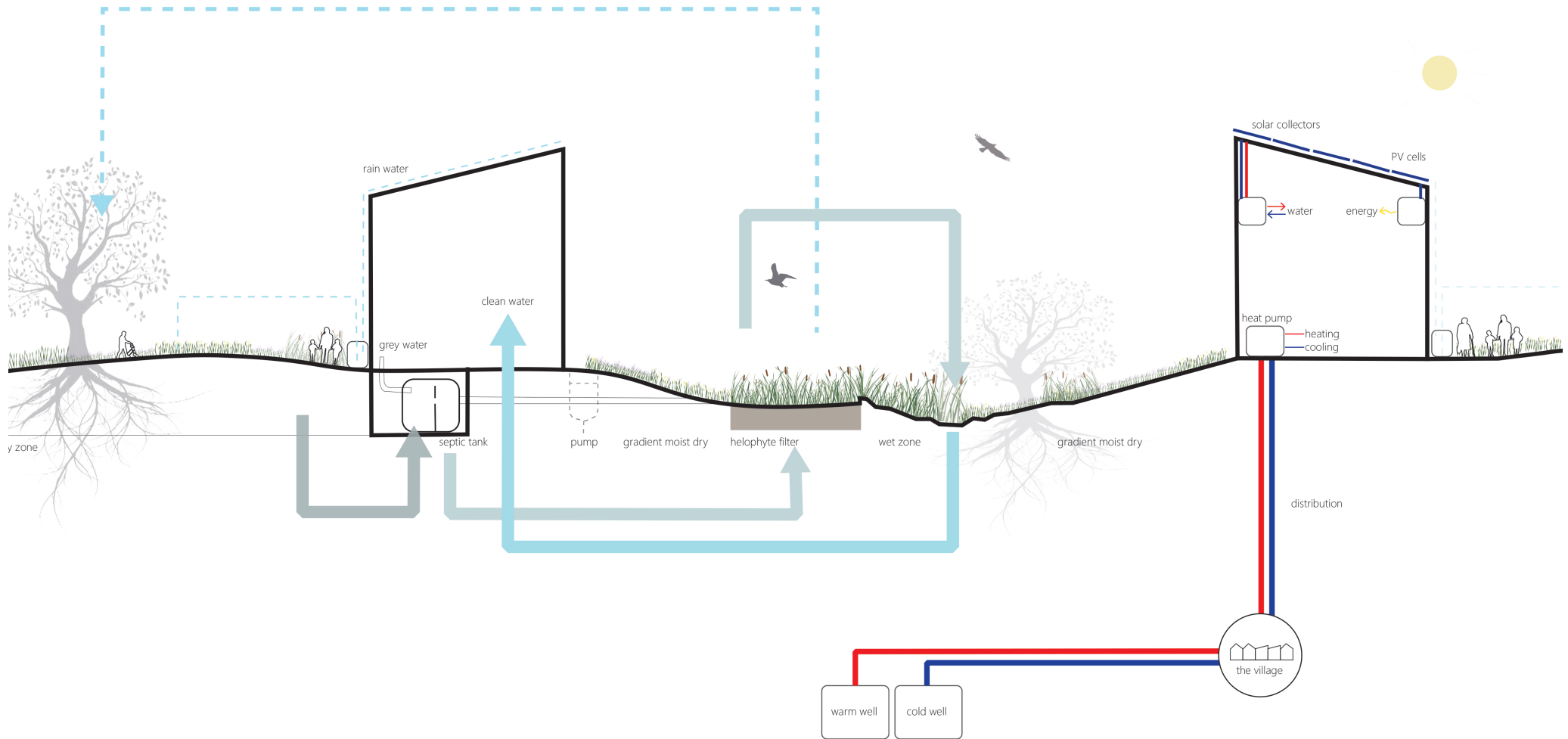


Circulation of water

Water plan | Key points

There are four key points that belong to the theme "Water plan in the Masterplan". These are:

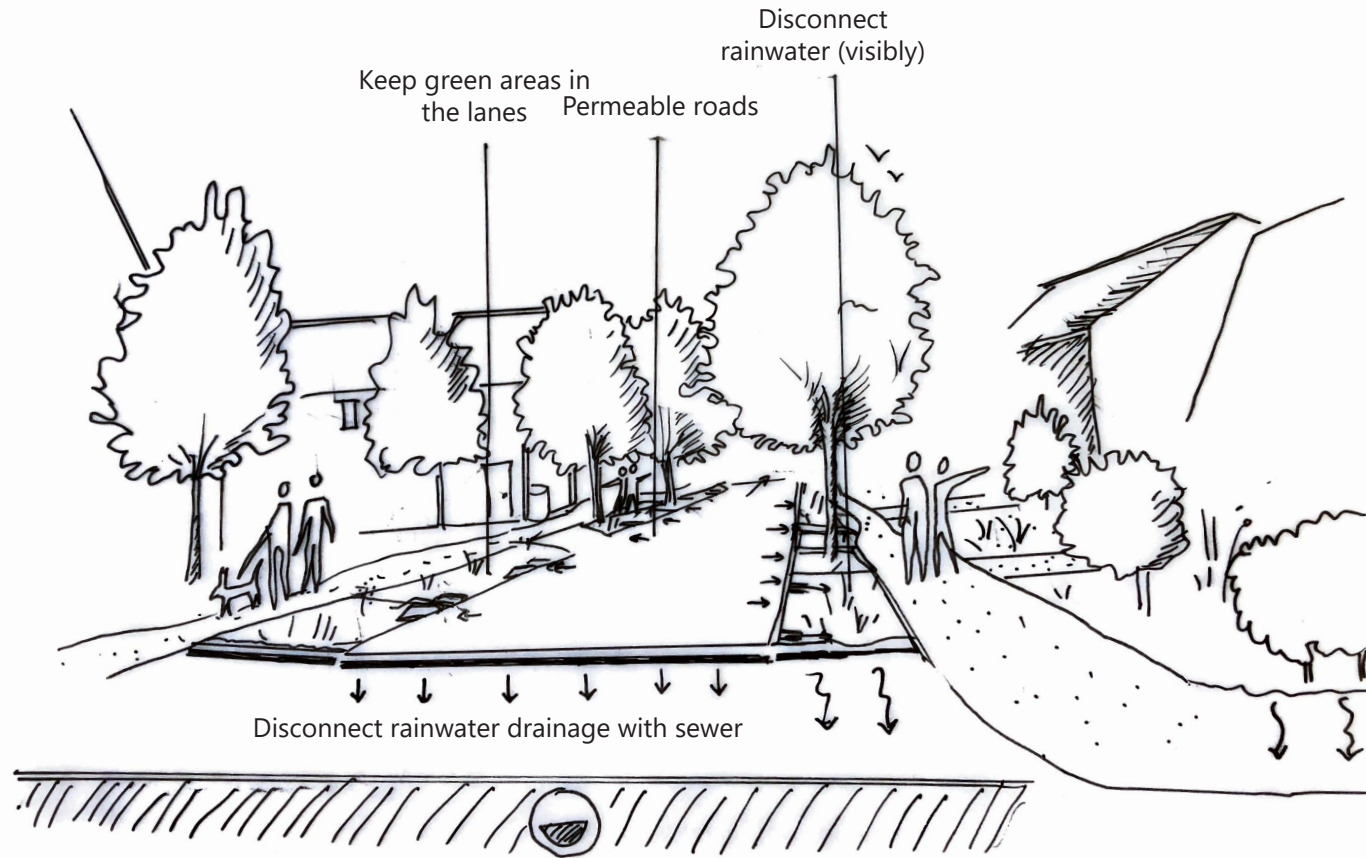
- Use hard surfaces only when needed
- Retaining water in the neighbourhood
- Create awareness of water uses (information board, e.g. wadi explanation etc.)
- Circulation of water



Schedule of sustainability concept

Sustainability Schedule

This section gives a brief impression of our sustainable principle of our masterplan. Our masterplan consist of energy neutral houses, therefore we implement solar panels to generate energy and heat pump to control our houses from heating and cooling.



Sketch of the waterplan for the vertical lanes

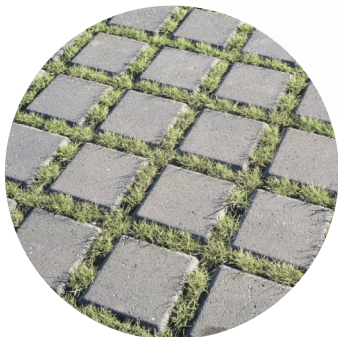


Figure 1. Less tiles more green²



Figure 2. Disconnect rainwater (visibly)³



Figure 3. Use large gutters in nature for rainwater drainage⁴

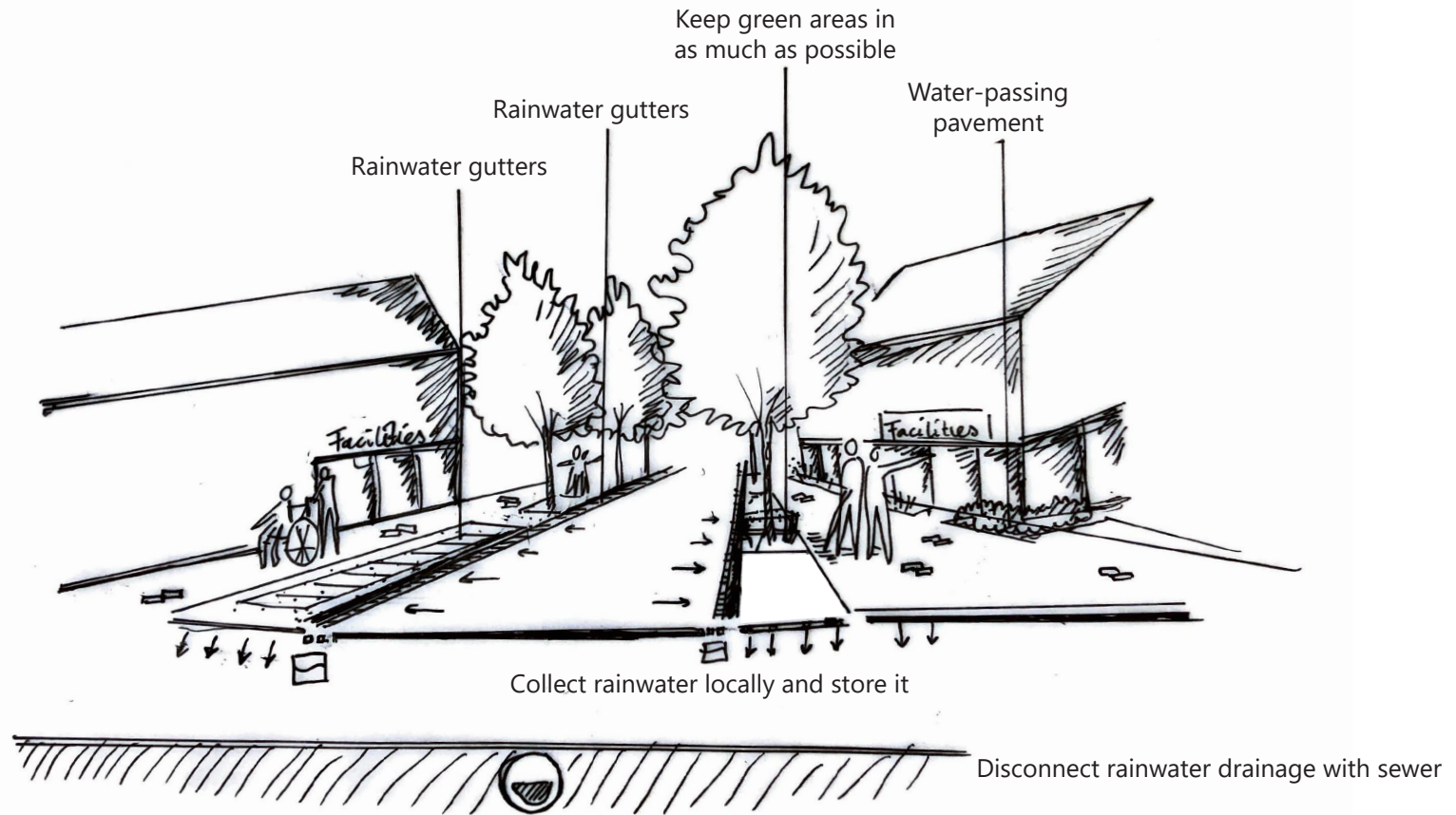


Figure 4. Use of semi-pavement Nobre Cál

Water plan | Vertical lanes

- The vertical lanes are provided with separation of sewage and rainwater drainage. *Why?* Because of this the pressure on the sewer decreases. In the future it is predicted that it will rain more often and harder. The normal sizes of a sewer is not designed for this. That is why it is better to disconnect the rainwater from the sewer, collect it locally and store it. Water will become much more visible in the neighborhood. We want to drain the rainwater above ground as much as possible: make it visible
- Keep green pieces as much as possible. *Why?* Green (grass and trees) retains (rain)water and creates shade, but also captures particulate matter and absorbs CO₂. Moreover, it provides a pleasant living environment. It strenghtens forest character that matches the character of the Utrechtse Heuvelrug.
- Use of space gutters or wadi where possible to store the water from extreme rain showers.





Sketch of the waterplan for the Driebergjes Lane

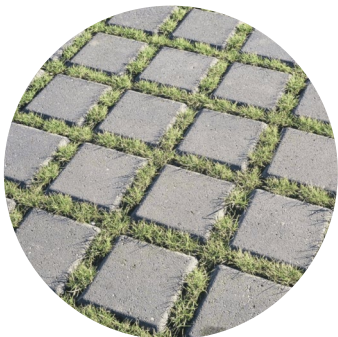


Figure 6. Less tiles more green⁶



Figure 7. Water-passing pavement⁷



Figure 8. Green parking spaces⁸







Figure 9. Use of water gutter in the areas of surfacing⁹

Water plan | De Driebergjes Lane

- The Driebergjes lane is similar as the vertical lanes provided with separation of sewage and rainwater drainage. *Why?* Because of this the pressure on the sewer decreases. In the future it is predicted that it will rain more often and harder. The normal sizes of a sewer is not designed for this. That is why it is better to disconnect the rainwater from the sewer, collect it locally and store it. Water will become much more visible in the neighborhood.
- Keep green pieces as much as possible. *Why?* Green (grass and trees) retains (rain)water and creates shade, but also captures particulate matter and absorbs CO₂. Moreover, it provides a pleasant living environment. It strenghtens forest character that matches the character of the Utrechtse Heuvelrug.
- We use clinkers for the paved parts, which have the property that they allow good water to flow through.
- Use of space gutters or wadi where possible to store the water from extreme rain showers.





-  Wadi
-  Water gutter
-  Above-ground water gutter
-  Public water tap



Water plan | Masterplan

Location and distribution of rainwater circulation of our master plan. The wadi areas are the places where rainwater can be temporarily collected. The gutters are also temporary places where rainwater is collected.



Facility street made of pulverised stones of the demolished building

● Red LED street lighting
To prevent disturbance of flora and fauna (and differentiates the lanes from the facility lane)

● LED street lighting
*Saves energy, lasts longer & is adjustable
 From 23:00-05:00 light is dimmed to save energy
 Light can be adjusted to guide people to their destination*

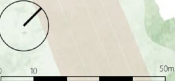
— Reused tree trunks
Tree trunks that had to be cut are put besides the lanes to prevent parking and provide playful seating

- - - Reused building blocks
The building blocks of the demolished nursing home are reused as a base for the artificial hills

— Wadi added for water drainage
A wadi is added for the site for extra water drainage and to create awareness on water use

● Almost all existing trees are kept at their place

🚗 Car sharing system: limited cars and car parking spots



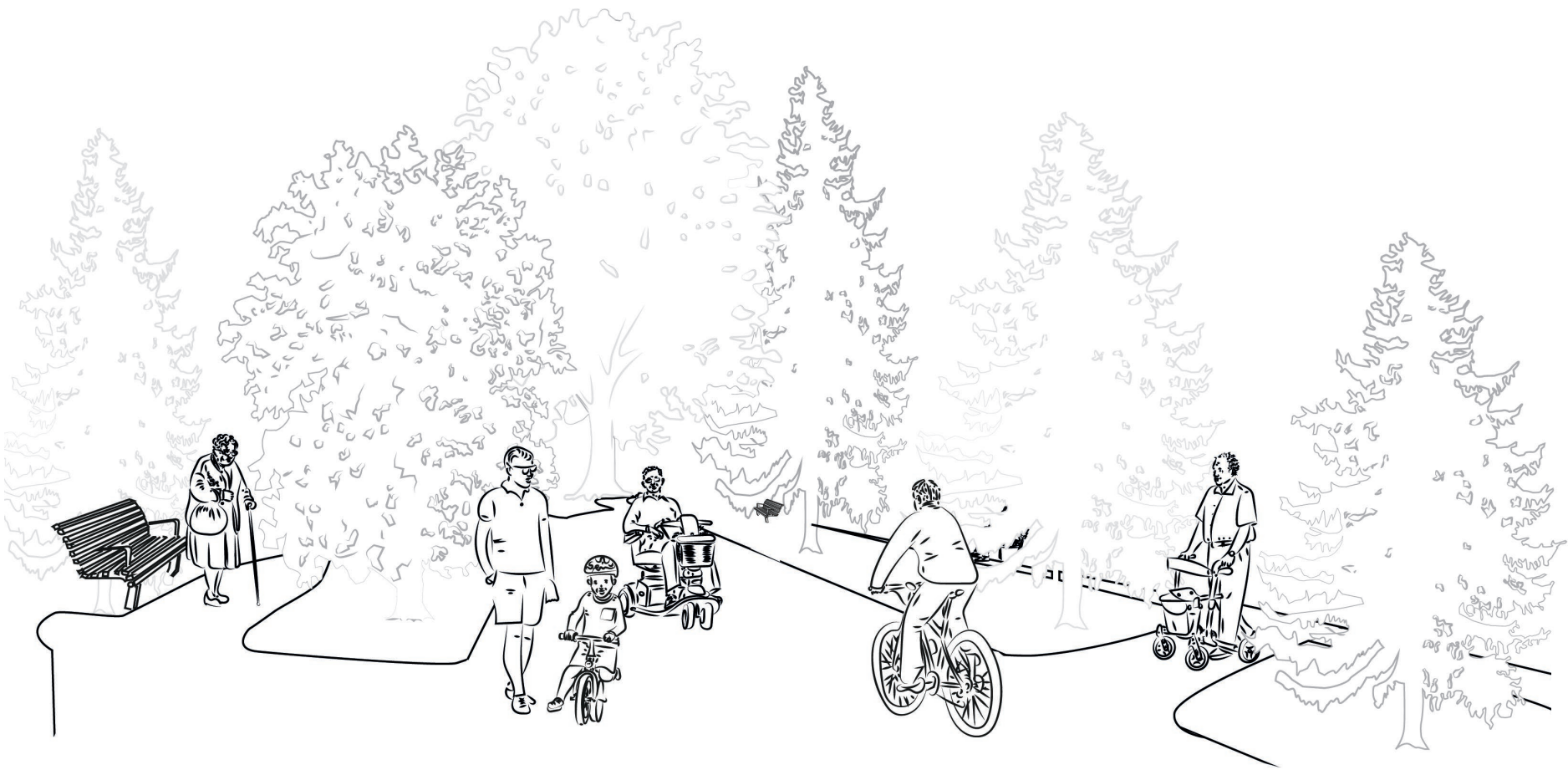
Sustainability

Besides looking at the sun path of the area (as explained earlier) other measurements to make Thuisbos sustainable on the larger scale have been made. In the map on the left page some of these measurements are explained. The measurements range from choosing sustainable street lighting to reusing tree trunks.



Biodiversity | Masterplan

Biodiversity was of high importance in our plan. To allow insects and animals to flourish several spots for nesting and resting are placed throughout the entire site. As well, nice smelling flowers which are attractive to bees are placed along the sensory path to allow people to see the insects. Bird houses are either placed in trees or integrated into the facades.



II Infrastructure

Introduction

The infrastructure of Thuisbos is based on three specific focuses, firstly, the idea that everyone should feel safe enough to travel around in the area albeit via bus, wheelchair or walking, and regardless of any health issues. Secondly, the idea that nature should be protected as much as possible via, for example, preventing pollution from cars. Lastly, that walking, rolling and cycling should be promoted as it has many health benefits for people of all ages. On the next pages the translation of these ideas becomes clear within Thuisbos.



Facilities | Masterplan

To give the residents of our masterplan more grip of their daily activities we implement facilities in the centre of our design location. Currently, the facilities are too far away for walking distance for the seniors. Thereby, implementing facilities inside our masterplan gives the residents more individualism about their life, gives possibilities to get a purpose of activities to do in life and encourage the sense belonging to their direct surroundings in order to get more know-how of your neighbours. To give orientation where the facilities are located in our masterplan, we decided to locate all the daily and weekly facilities next to horizontal facility lane named "Driebergjes Laan". People can recognize these lane through different material for the ground, the smell of flowers next to the street and a one way street which will dominate by bicycles. The ground floor will be occupied through shops and facilities.



Care facilities | Masterplan

The symbol of care are the focus points of care from which care is given. Here are the storage places for care as well as care offices and lunch places. Besides there are care car parking spots along the facility lane. Throughout the entire plan are toilet spots for everyone to use. Lastly, a pharmacy, a physiotherapy, a dentist, lifts and special guidance apartments are found.



Traffic | Masterplan

As a result of the important features of **Thuisbos**, Thuisbosly respecting nature and allowing it to thrive and providing lanes that feel safe enough to walk slowly and wheelchair on, slow traffic has the lead on every lane at the site. Therefore cars and public transport are the guest at the lanes and cyclists, walkers and wheelers will have the lead. The Driebergjes Lane is one way traffic for cars and the bus in order to prevent a hectic street.

The arrows on the roads indicate the direction of the streets. The bus icons indicate the stops of the bus.



160 Covered Bike Parking Spots

16 Covered & Locked Scootmobile Parking Spots

100 Car Parking Spots
 22 'easy' parking spots
 50 car sharing spots
 28 visitors of the inhabitants spots

Extra spots up Southwest

160 Covered Bike Parking Spots

16 Covered & Locked Scootmobile Parking Spots

127 Car Parking Spots
 22 'easy' parking spots
 85 car sharing spots
 20 visitors of the inhabitants spots

Possible extension of parking to the Northeast

Parking within the site
 For people whom suffer from severe mobility issues it is possible to park near their homes

1 Car sharing spot for immobile people per 4 households (of which 25% for immobile visitors)

Care Parking Spots
 at each square on the Driebergjes Lane

Used for vehicles in care and cleaning

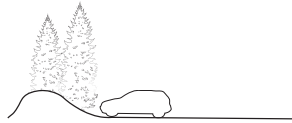
Large car parking lot at the edge of the forest near the swimmingpool

127 Car Parking Spots
 Parking for people visiting the forest and possibly the neighbourhood



Parking

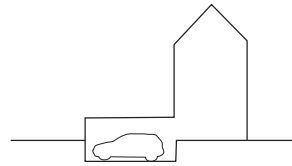
As a result of the car sharing system less parking spots are needed within the area. To encourage people to use the bike, to walk or to roll, and to minimise views on cars, two concentrated parking spots are concentrated on both sides of the site. The parking area on the west side is embraced and thus visually closed off by existing hills, while around the parking area on the east side artificial hills are created (with reused building blocks of the removed nursing home) to visually shut off the parking spots. Each parking area is partly for car sharing as well as for visitors of inhabitants of the site. If really needed a parking spot can be bought for an individual car by inhabitants of the site according to their household income, but with an unattractive expensive price. At each parking spot one will first encounter roofed parking spots for bikes and scoot mobiles. The parking spots for scoot mobiles can be safely shut off.



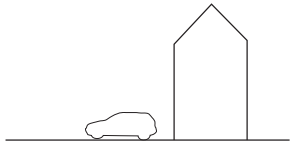
Car parking behind the natural slope



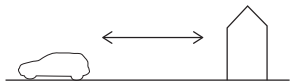
Car parking behind the hedges



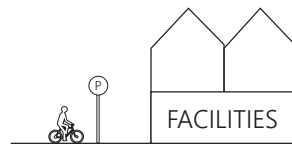
Car parking (half) subterranean



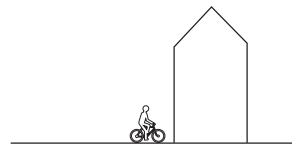
Parking of (shared) cars directly front of your homes



Big parking places far from your house



Visible bike parking places close to facilities



Bike parking directly front of your house

Car parking principles

Within Thuisbos there are several ways of parking. The two large car sharing parking plots fall in the category of parking behind a natural slope and further away from home, this prevents cars in the area and views on the cars from the area. In the dwelling area itself parking for people with mobility issues is provided via half subterranean parking or parking next to the homes. To encourage cycling or wheeling parking spots for bikes are made visible near facilities and dwellings.



Figure 10. A simple and calm timber communal shed for bikes with playful roofs¹⁰



Figure 11. Locked and roofed scooter park spots made of timber¹¹

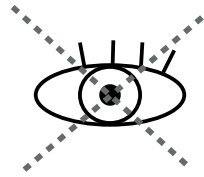
Bike and mobility scooter parking

To encourage people to take the bike or mobility scooter instead of the car, the parking spots for slow traffic are put at the entrances of the parking spots (and thus are seen first). Both for the bikes and the mobility scooters roofed timber parking spots are made that have a playful touch. Timber is used to allow the parking spots to blend more easily into the forest. Both parking spots can be locked if needed.

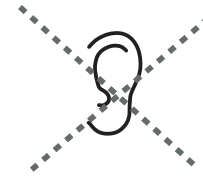
Difficulties to walk



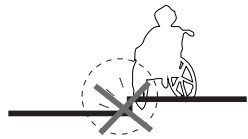
Poor visibility



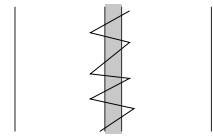
Poor hearing



Difficulties mentally

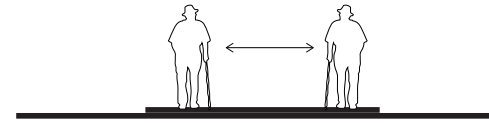


Threshold free

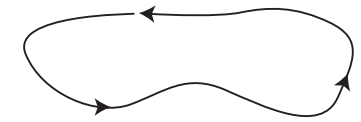


Use of guidelines²:

1. Tangible differences in textures / materials
2. Brightness in colours
3. Use of little high differences



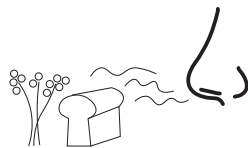
Distance at least 1,5m



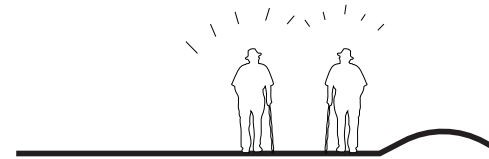
Continuous path



Use of horizontal paths



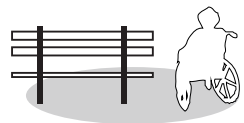
Creating landmarks through different smells



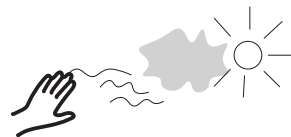
For bad hearing: Creating quiet (meeting) places



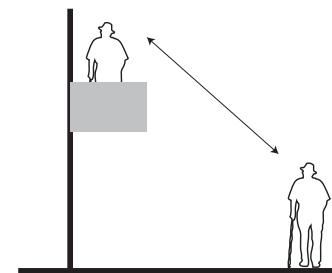
Structure



Creating wheelchair proof meeting places¹



Feeling of wind or sunlight for orientation of intersections and buildings



Connections by view



Contrast



Touching, smelling, hearing can stimulate the brain

Points of attention | Limitations

An overview of basic principles for designing for people with disabilities. A distinction between physical limitations of mobility, blindness and deafness and a mental limitations of Alzheimer. The principle: "Creating wheelchair proof meeting places" at column 1 and "Use of guidelines" for the people with poor vision is further explained on the following pages.

Haug, (2005)¹²

Melis-Dankers, Havik (2012)¹³

Kimbols (2021)¹⁴

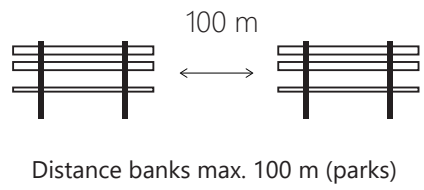


Figure 12. Example of wheelchair friendly furniture.¹⁵

Creating wheelchair places | Difficulties to walk

Creating wheelchair friendly benches and picnic tables accessible with a wheelchair, or space for a wheelchair next to the sofa, or picnic tables, partly wheelchair accessible by wheelchair (bottom minimum 0.75 m high).¹⁶



Figure 13. Melis-Dankers, 2012



Figure 14. Melis-Dankers, 2012



Figure 15. Kerckebosch, Zeist



Figure 16. Melis-Dankers, 2012

Use of guidelines | Poor visibility

Guide line is formed by elements that are not specially intended for the partially sighted and blind people, but can serve as route guidance, provided it is uninterrupted and free from obstacles.

Examples are:

- curb
- facade line
- grass edge,
- hedge
- wall
- hash
- tactile contrast (texture differences)
- brightness contrast in pavement.
- drainage channel

(Melis-Dankers, 2012)¹⁷

(Kimbols (2021)¹⁸

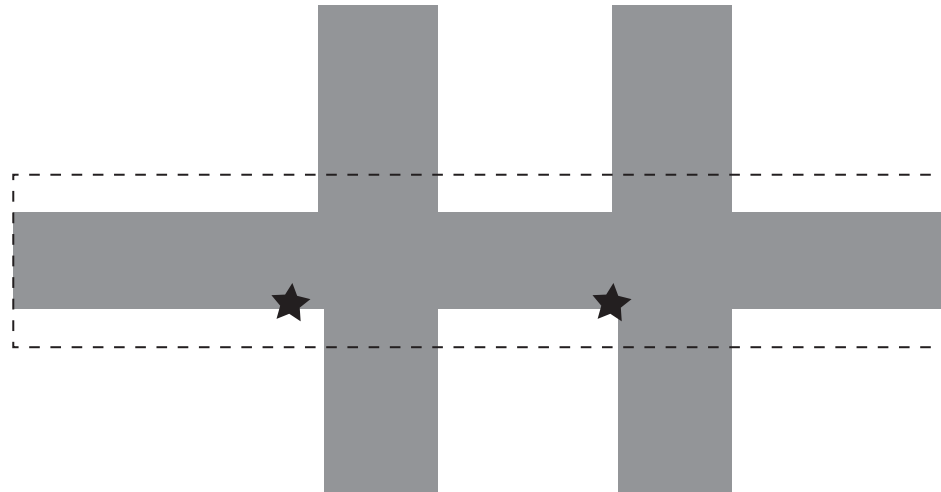


Figure 17. De Dilgt in Haren

Consistency and predictability | Poor visibility

For people with a visual impairment, it is important that the environment offers sufficient support so that they can move around in a safe and comfortable way.

A clear and simple structure makes what is a suitable place to walk and cross.

For all road users, but certainly for the visually impaired target group, it is important that the design elements are used consistently and that they are used in the same way throughout the area.

Predictability of the environment makes navigation easier. He / she knows the way to his home based on landmarks and experience

Source:

Haug, J.J.M (2005). *Toegankelijkheid voor natuurpaden*. Bouw advies toegankelijkheid. Utrecht.

Melis-Dankers, B.J.M., Havik, E.M. (2012). *Shared spaces voor slechtziende en blinde mensen, een uitdaging voor ontwerpers aandachtspunten een toegankelijke openbare ruimte*.



Figure 18. De Dilgt in Haren



Figure 19. Care center d'n Horstgraaf in Venlo



Figure 20. Residential care center De Vloet in Oisterwijk

Gardens for Alzheimer

For people who suffer from Alzheimer, it is useful to stimulate the brain in order to slow down the mental illness. Movement, sunlight and nature is one of the important conditions. For an Alzheimer friendly garden is a clear structure with boundaries one of the necessities for the patients, this creates an overview. None dead ends are used, only a continuous path so the Alzheimer patients (who feel the urge to move), can keep walking. This way they can dispose their tension. Another way to get rid of their state of agitation, is placing a busstop for instance. People with Alzheimer often are searching their way back home, now they can rest while waiting. Smelling flowers, touching (not abstract) sculptures and hearing birds help in giving experience on a smaller scale. The recognizable flowers and plants are heightened so seeing and feeling is more comfortable for the elderly. Because the elderly are familiar with the kind of flower/plant by their colors and smells, it is good for their memory. A railing next to the garden has to be available since some elderly have balancing issues.¹⁹



-  Existing Road
Characterised by the typical Driebergse way of living: hedges and neatly placed lane trees
-  Road to Parking
Similar to the existing road, only less hardened
-  The Driebergjes Lane
Characterised by the daily & weekly public facilities
-  Lanes from community to forest
Characterised by its nature
-  Walking/rolling paths
Characterised by its natural movements and recreational atmosphere
-  Existing forest walking/cycling paths
Characterised by the surrounding high trees and height differences



I Lane Characters

Introduction

In the master plan a horizontal lane, Thuisbosd the Driebergjes Lane, and four lanes from the neighbourhood to the forest were designed. As both have different functions, traffic and destinations, it was needed to characterise them differently from each other. As well, it was important to characterise them differently to help people suffering from memory, vision and hearing problems to orientate themselves within the site. Whereas the lanes going from neighbourhood to forest are more naturally shaped and less hardened, the Driebergjes lane is mostly straight, functional and clearly readable.



Picture of street in Kerckebosch, Zeist



New image of Kerckebosch, Zeist

Streetview of Kerckebosch

A great source of inspiration for Thuisbos was the dwelling project Kerckebosch in Zeist, the Netherlands. When wandering around the project we enjoyed the many street views of streets that, compared to many other streets in the Netherlands, were more naturally shaped and featured more porous surfaces and grasses. One of these streets was the street on the picture on the left. The tree trunks in combination with the yellow porous wandering walking paths and a selection of grasses inspired us for the atmospheres of the lanes from community to forest. However, our view was blocked by the many cars and trash cans at the site. For people in wheelchairs the cars would completely block their sight. We wondered what the street view would look like without the cars and trash cans and thus removed them from the picture. The 'new' street view allows for more space for nature, provides a more calm atmosphere and allows for views that reach further.



Cycle street 3,5 m of sustainable red asphalt (*LatexFalt*)

'Rabatsbrook' 0,5 m in pink bricks (*basket weave*)

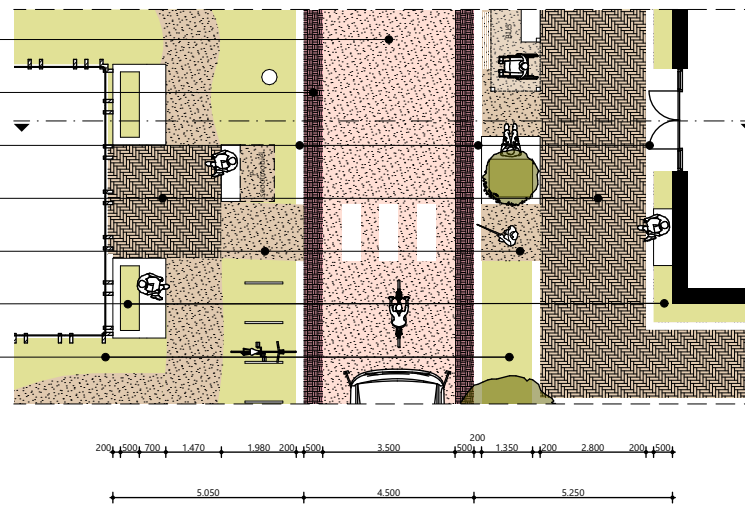
Concrete strip with ridges (*visual and tactile contrast*)

Brown bricks with small spacing (*herringbone*)

Wheelchair friendly, porous paved path 1,5 m (*Nobré Cal*)

Flowers with specific scents and colours

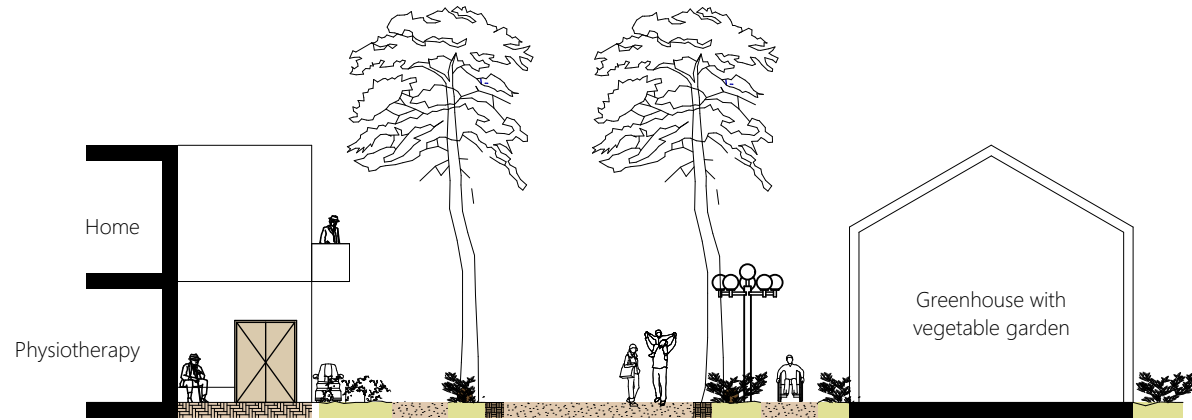
Grass/heather



Section and plan of the Driebergjes Lane 1:200

The Dribergjes Lane

The Dribergjes Lane is characterized by its main function: that of connecting all the daily and weekly facilities at the site with each other. Thus this lane has a lively spirit with cafés and shops, while also being functional in going to the pharmacy for example and hosting the bus route. Having to guide people towards certain facilities while also hosting all kinds of slow traffic and cars and buses, the Dribergjes Lane needed to be a clearly and easily readable and accessible lane for everyone, regardless of disabilities.



Re-used tree trunks to prevent parking

'Rabatsstrook' 0,5 m in brown bricks (*basket weave*)

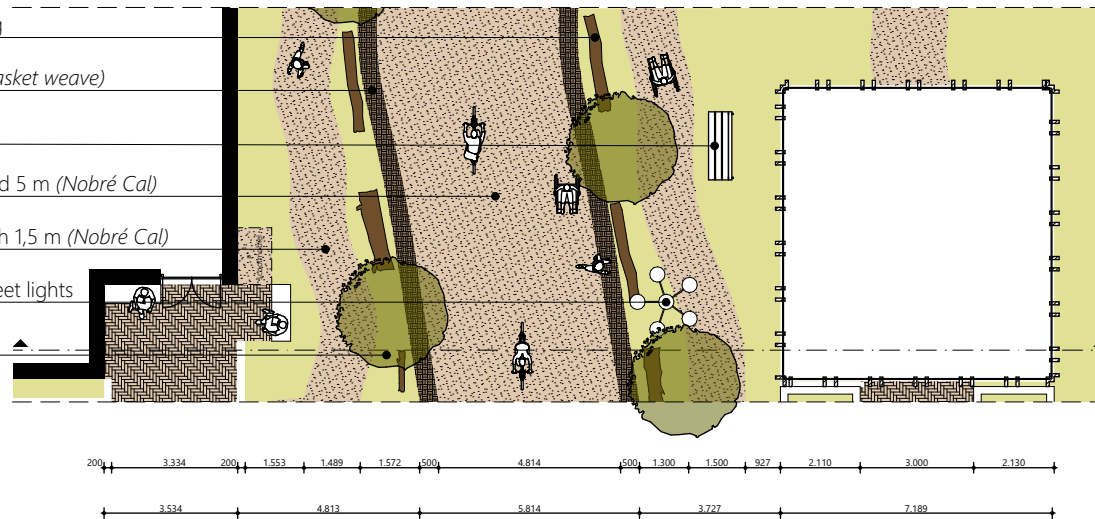
Benches in the grass

Wheelchair friendly, porous paved road 5 m (*Nobré Cal*)

Wheelchair friendly, porous paved path 1,5 m (*Nobré Cal*)

Streetlighting that refers to the old street lights

Grass/heather



Section and plan of the lanes from community to forest 1:200

Lanes from community to forest lanes

The lanes coming from the existing neighbourhood towards the forest obtain quite a different character than the Driebergjes Lane they once cross. The lanes from community to forest mainly host inhabitants finding their way home or inhabitants or visitors walking towards facilities or the forest. Therefore these lanes obtain a more informal character in which meandering paths and natural elements such left open grass areas and tree trunks are placed. As well, these lanes will host a lot less car traffic and mainly walking and cycling traffic.

The Driebergjes Lane (clearly readable, functional, public transport)



Concrete strips for contrast

Reference: *Klimaatwijk Klapwijk*



Seating at many places, along greenery and scented flowers

Reference: *Delfland Water Authority*



Inclusive streets with safe crossing spots with ridges that can be felt for vision problems

Reference: *Jackson Street, in St. Paul*

The lanes from community to neighbourhood (more naturally shaped, usually only slow traffic, nature takes the lead)



Re-used tree trunks to prevent parking and allow seating

Reference: *Kerckebosch*



LED street lights to limit energy use and to dim for fauna

Reference: *Kerckebosch*

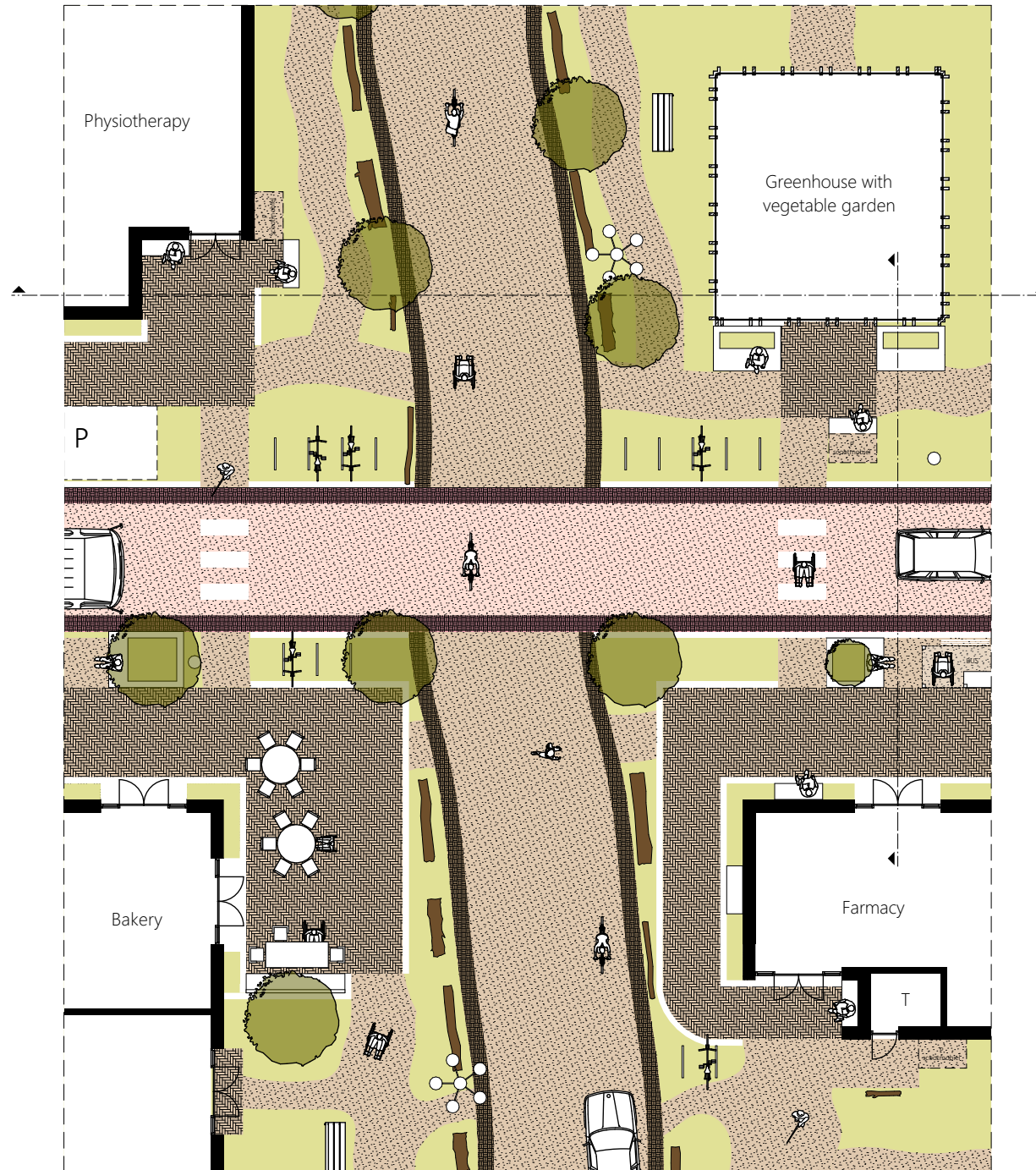


Wandering walking/rolling paths in natural shapes

Reference: *Kerckebosch*

The atmospheres of the lanes

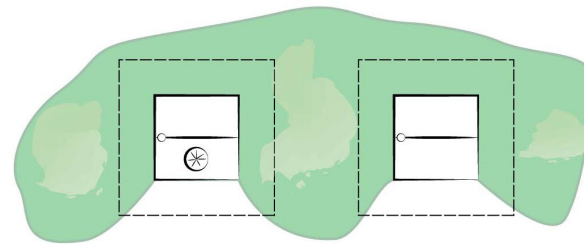
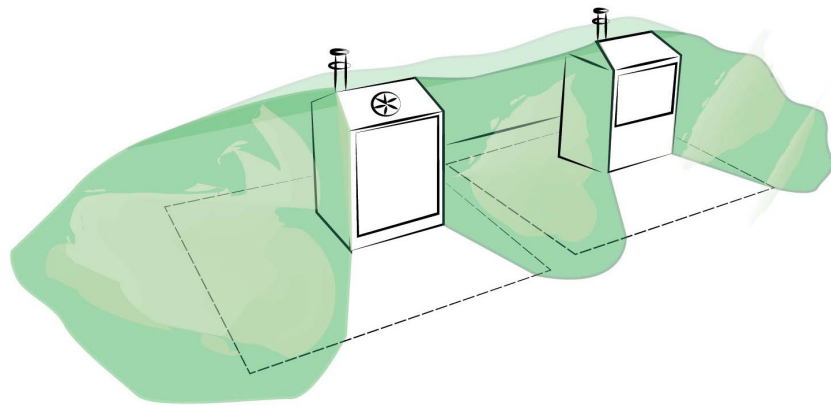
On the left pictures can be seen that provide extra insight on the characters of the lanes explained in the previous pages. Besides elements referring to the atmospheres of the lanes, sustainability was as well an important topic. LED lights for the streets are used that are dimmed at night to save energy as well as to limit influences on fauna at the site. Tree trunks that unfortunately have to be cut during construction will be re-used. Lastly, nature via grass, flowers and plants is included in all lanes to allow for water drainage.



Plan of the crossing of the Dribergjes Lane and the Lanes from community to forest 1:200

The crossing of the lanes

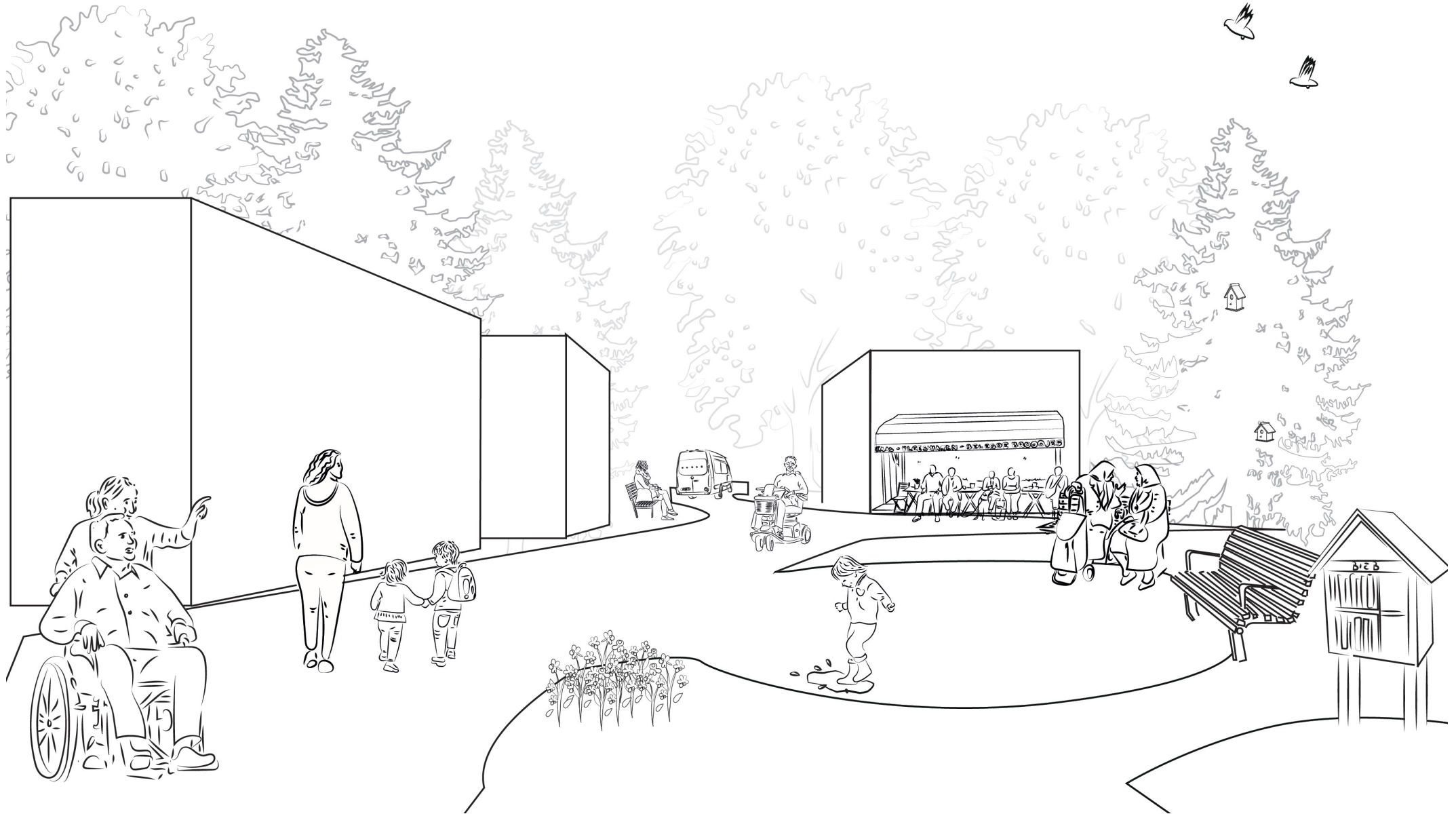
As the Dribergjes Lane needs to guide everyone in the neighbourhood to a certain place, the Dribergjes Lane continues when crossed with the other lanes. In the plan of the crossing on the left the different characters of both lanes can be clearly seen. The Dribergjes lane has more straight angles, a straight concrete strip for contrast and many entrances, while the other lane has more natural shapes, tree trunks and less hard surfaces.



Garbage bins surrounded by nature.

Hidden garbage spots

In order to prevent garbage spots that are dirty and where garbage is placed outside, nature in the form of grasses and small slopes will be placed along the actual garbage cans. This will give the spots more value and thus it may prevent garbage placements outside. To allow people with memory problems to find the garbage spots, signs will be placed next to the spots that can be seen from further away.



Public and Collective Spaces

Introduction

The collective and public spaces form the backbone of the masterplan as they connect not only each dwelling, but also each inhabitant living at the site. In the upcoming pages one will find several studies on public and collective spaces suitable for each type of living, and lastly an extensive diagram of the characters of the public outdoor spaces.



Closed courtyard:
Bakenesserkamer



x 12 households



<-> **23 m** x 25 m



+/- 27 m² nature per
households

■ = 5 m²



Closed courtyard:
Evalanxmeer



x 32 households



<-> **26 m** x 55 m
<-> **38 m** x 55 m



+/- 37 m² nature per
households

■ = 5 m²



Closed courtyard:
Knarrenhof



x 48 households



<-> **20 m** x 76 m



+/- 31 m² nature per
households

■ = 5 m²



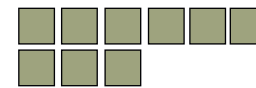
Open courtyard:
Evalanxmeer



x 26 households



<-> **18 m** x 55 m
<-> **25 m** x 55 m



+/- 45 m² nature per
households

■ = 5 m²

Results | Public & collective spaces

In this research we distinguish three different collective and public spaces types. These are: closed courtyard, open courtyard and direct nature with fragmented houses. In this study, we conducted various studies to find the ideal measures of public and collective spaces, household clusters and the distances between houses.

In the figure on the right you see an overview of the results of the sizes of these three different typologies. In summary, it can be seen that the amount of green in a closed courtyard is in all cases a lot smaller than the other two types.

A disclaimer of the closed courtyards, the examples are mainly localized in urban environments. This also contributes to the fact that the size of the collective gardens is therefore not very large in comparison with the examples of the open courtyards as the fragmented houses.

The results of the open courtyard and fragmented houses are explained in more detail on the next page.



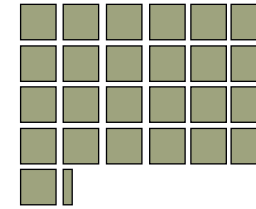
Open courtyard:
Vogelenzang



x 36 households



<-> **16 m** x 190 m
<-> **32 m** x 190 m



+/- 126 m² nature
per households

■ = 5 m²



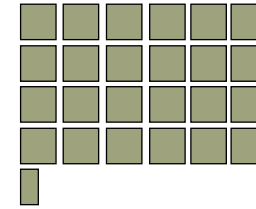
Open courtyard:
Kerckebosch



x 12 households

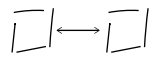


<-> **20 m** x 34 m
<-> **32 m** x 34 m



+/- 123 m² nature
per households

■ = 5 m²



Fragmented houses:
Vogelenzang



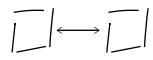
x 6 households



<-> 7,2 m - 13 m



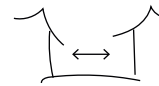
One big nature space



Fragmented houses:
Kerckebosch



x 12 households



<-> 5,8 m - 15 m



One big nature space

Results | Public & collective spaces

All reference projects of the open courtyards and fragmented houses have been selected on a similar natural landscape as our master plan. For this reason, the quantities of nature per house of the last column are also relatively larger.

The size of nature in open courtyards is therefore also a broad concept. They can vary from 45 m² to 123 m². But the distances between the houses vary from a distance of 18m to 32m. So that is a measure that we also applied in our master plan.

Zooming in on the fragmented houses, we also see an agreement with distances between the houses, in the direction of the large natural surface. The distances can differ from 5.8 m to 15 m. And these distances also vary over the area. We have also applied this in our master plan



Figure 21. Closed courtyard, Bakenesserkamer

Closed courtyard | Bakenesserkamer

Locatie: Haarlem

Bouwjaar: 1395

Aantal woningen: 12

*Woning erg klein = 20 m² oppervlakte



Figure 22. Closed courtyard, Evalanxmeer

Closed courtyard | Evalanxmeer

Locatie: Culemborg
Bouwjaar: 2000
Aantal woningen: 32

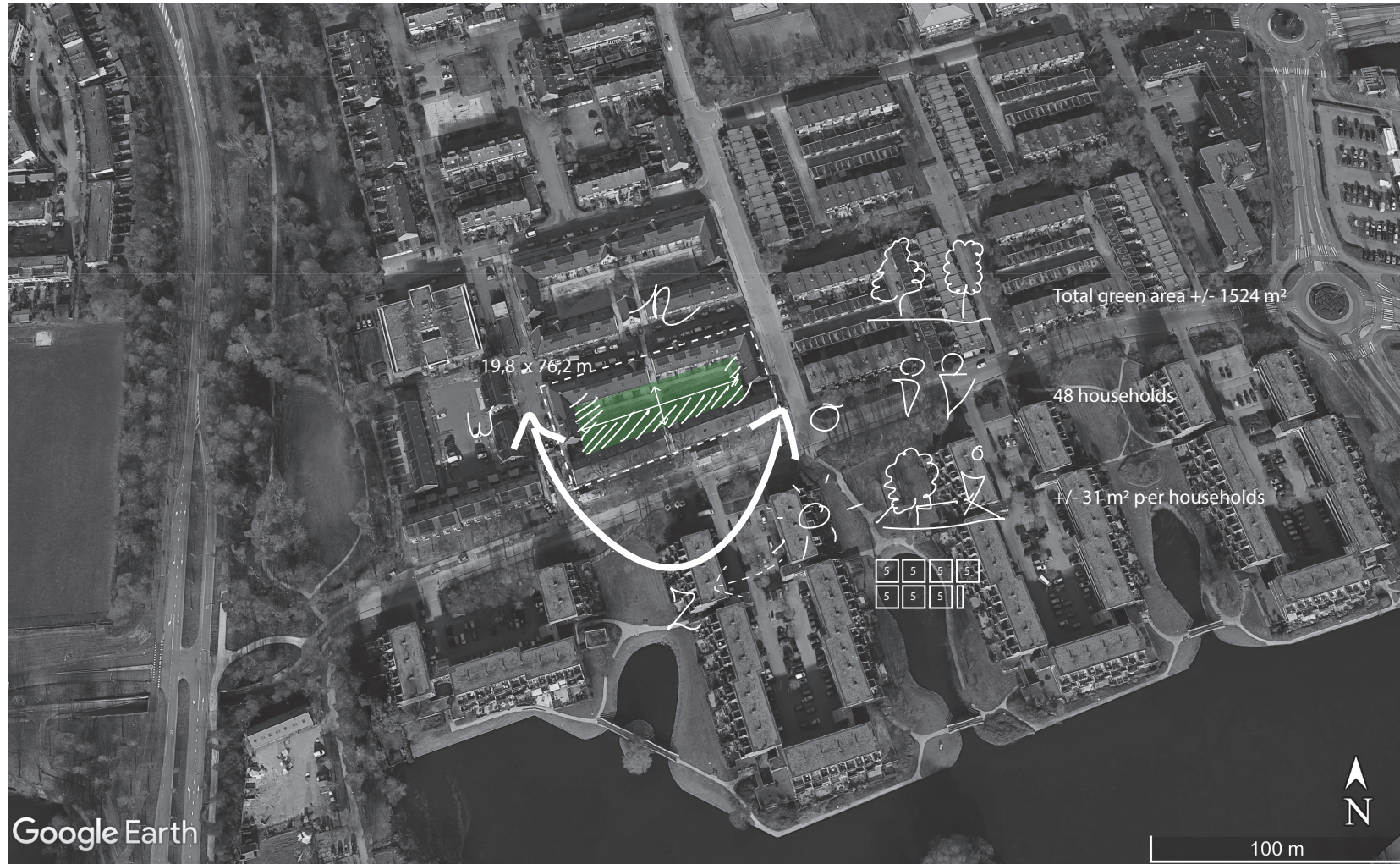


Figure 23. Closed courtyard, Knarrenhof

Closed courtyard | Knarrenhof

Locatie: Zwolle

Bouwjaar: 2018

Aantal woningen: 48

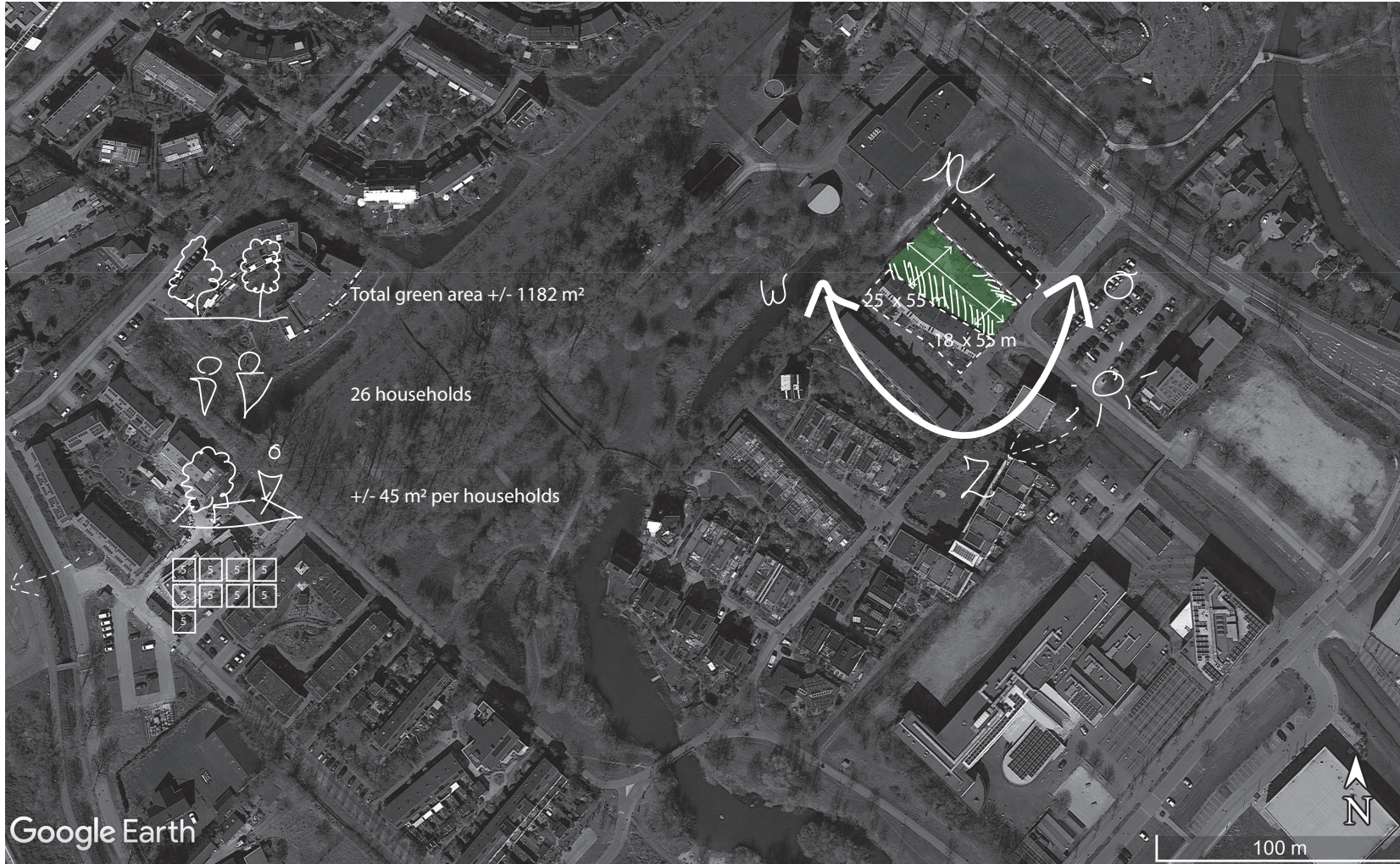


Figure 24. Open courtyard, Evalaxmeer

Open courtyard | Evalanxmeer

Locatie: Culemborg
Bouwjaar: 2000
Aantal woningen: 26

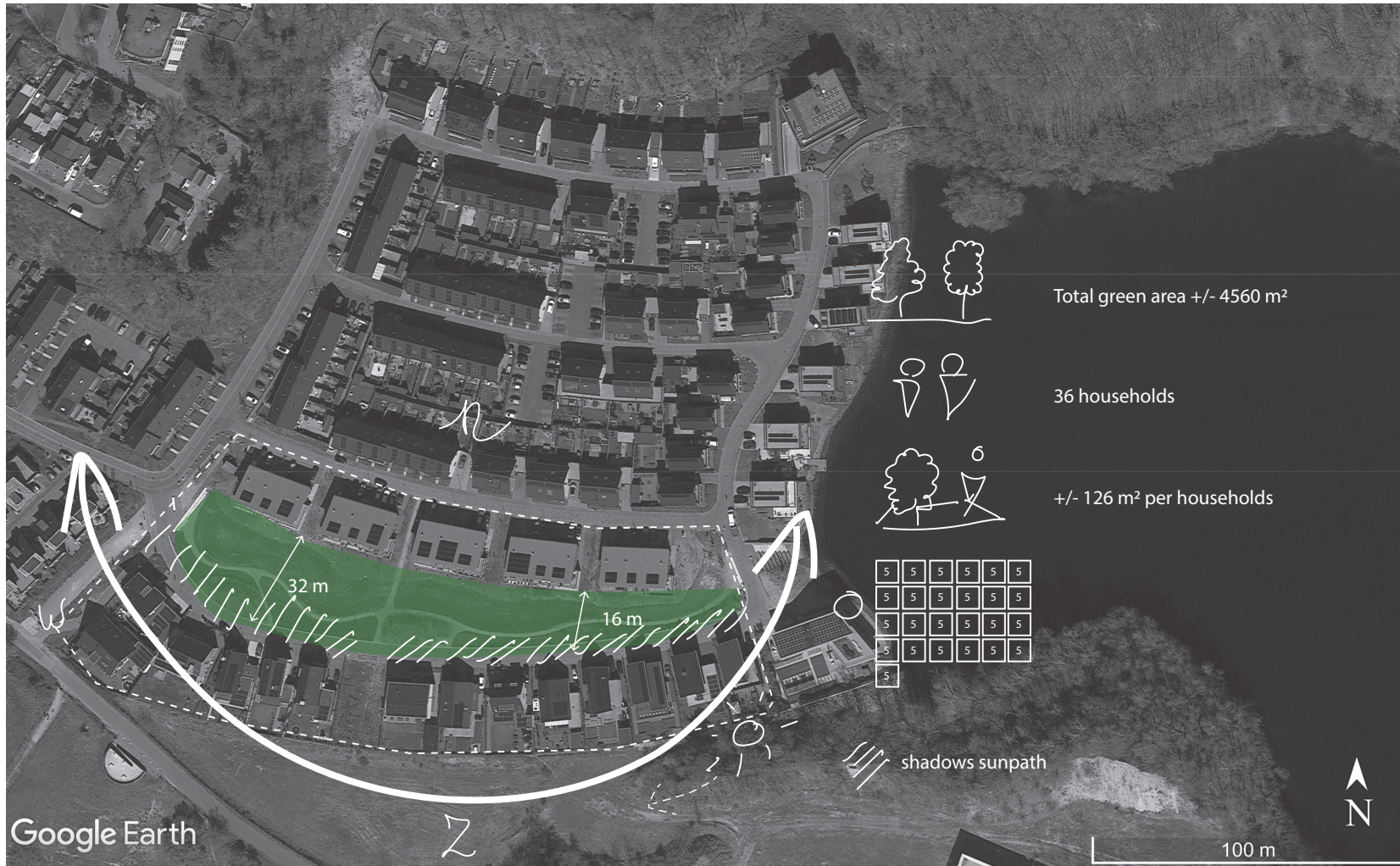


Figure 25. Open courtyard, Vogelenzang

Open courtyard | Vogelenzang

Locatie: Rhenen

Bouwjaar: 2018

Aantal woningen: 36



Figure 26. Open courtyard, Kerckebosch

Open courtyard | Kerckebosch

Locatie: Zeist

Bouwjaar: 2020

Aantal woningen: 12

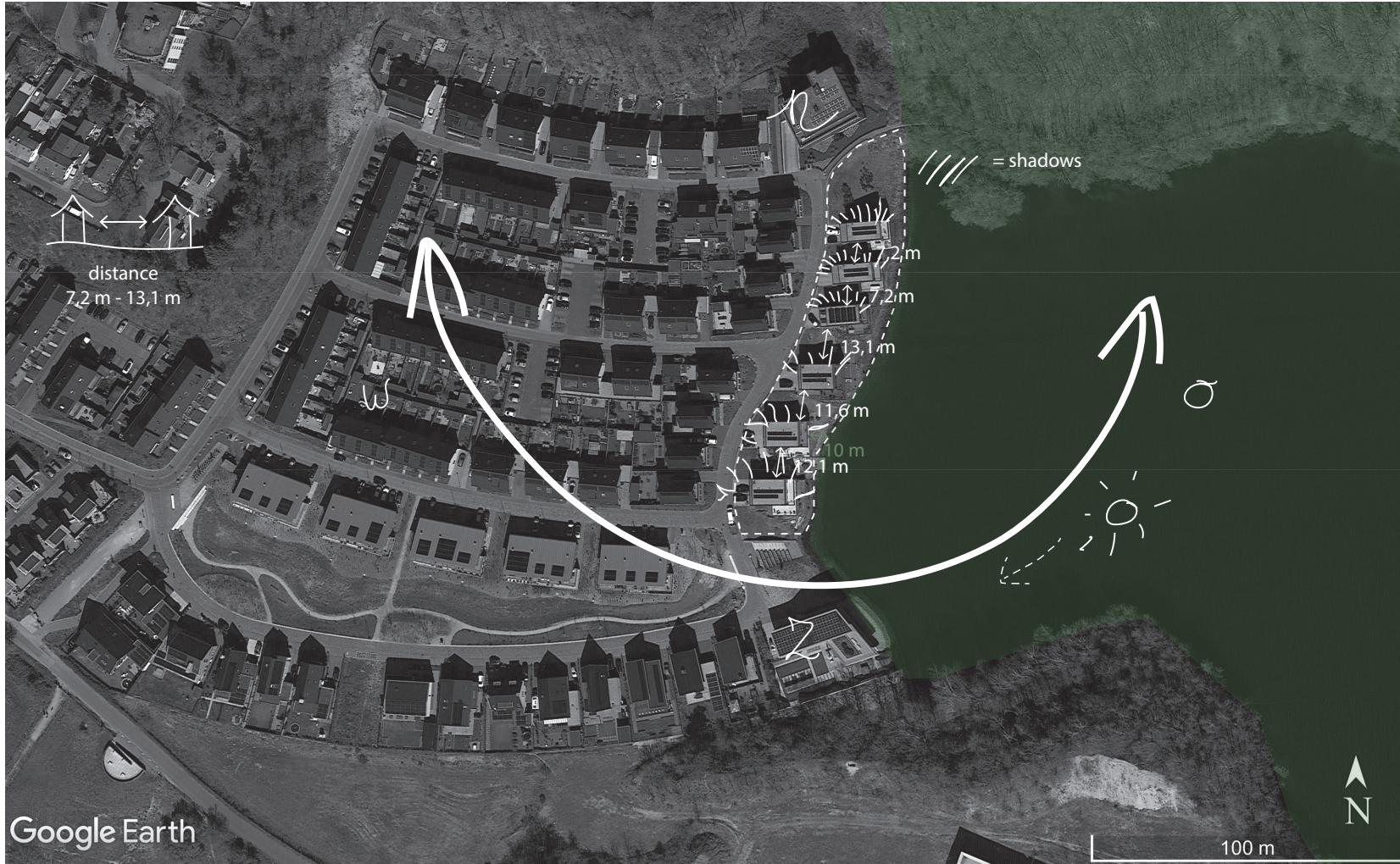


Figure 27. Fragmented housing, Vogelenzang

Fragmented housing | Vogelenzang

Locatie: Rhenen
Bouwjaar: 2018
Aantal woningen: 6

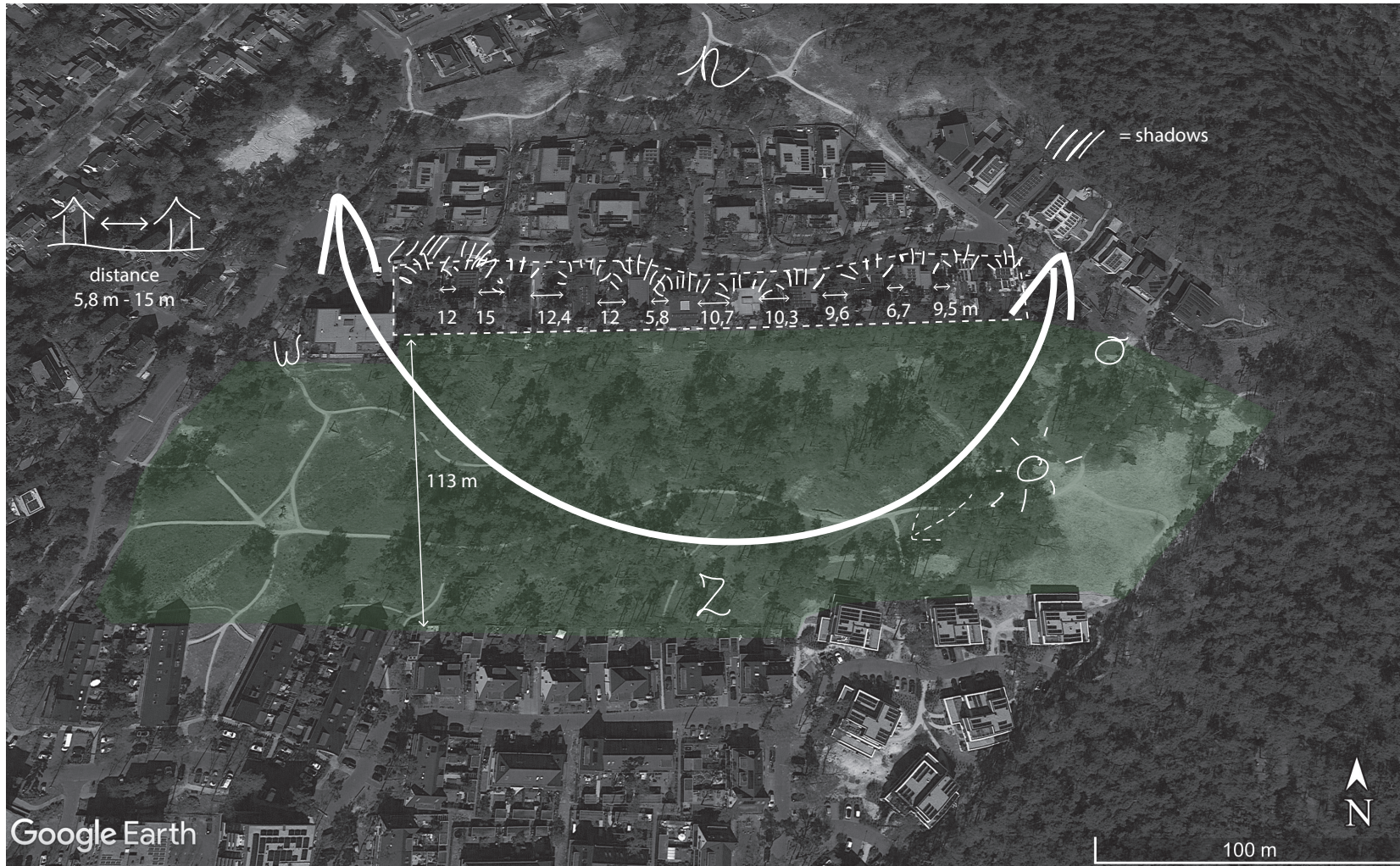


Figure 28. Fragmented housing, Kerckebosch

Fragmented housing | Kerckebosch

De wijk Kerckebosch

Locatie: Zeist

Bouwjaar: 2020

Aantal woningen: 12

Dakpark



Dakpark



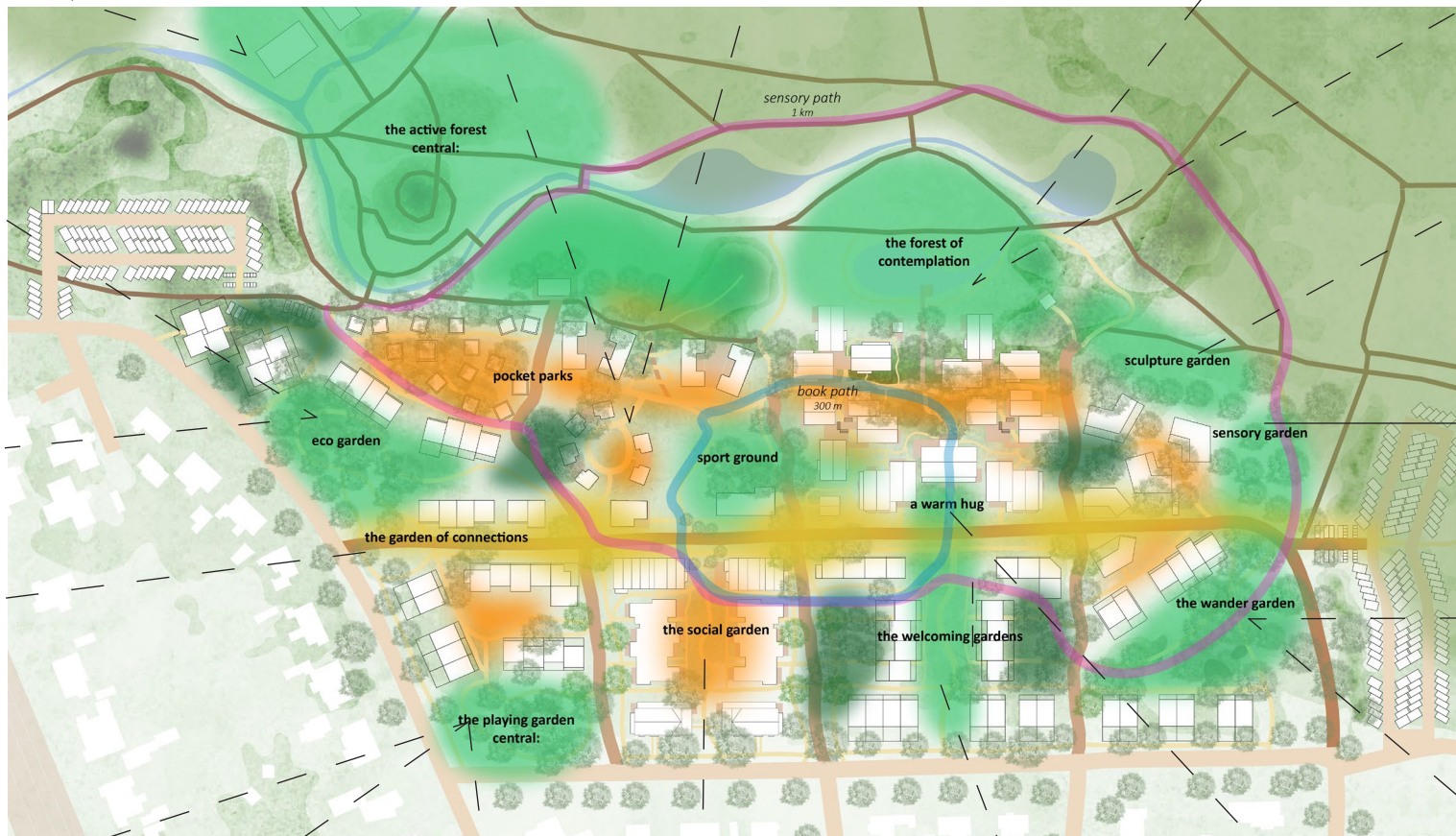
Sportbos - Alken



Miriam's River House



Buitenhof



Benson



Dakpark



Dakpark

Klapwijk



Noord Oogst



Noord Oogst



Oosterpark



Knarrenhof



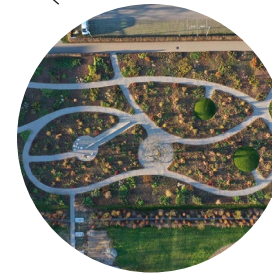
Dakpark



Dakpark



Piet Oudolf



Outdoor public spaces

Within Thuisbos it was important to provide gardens at short distance from every home, as a result numerous public and collective gardens have been made. All gardens have been given different characters to give inhabitants the chance to visit a garden that suits their mood that day. The garden characters differ from silent gardens where contemplation is key (mostly placed near the forest in 'the sanctuary forest') to active gardens where interaction with other inhabitants is central (mostly placed near the surrounding neighbourhood and facility lane, in 'the social forest'). Every garden is connected to another via small wandering walking/rolling paths as well as via a larger walking/rolling route 'The scented path' (pink), that features particular scents and colour. Another path that connects the gardens is 'The book path' (blue) where the exchange of books and reading is central. All gardens will be explained in the upcoming pages.

-  Collective / Personal
-  Public connection
-  Public parks
-  Pocket parks
-  Public Forrest
- Private

**The sources of the images can be found on the next pages.*

ANIMALS IN THE 'WILD'

DRINKING COFFEE

WALKING

ADVENTURE

CYCLING UP THE HILL

BAREFOOT PATH

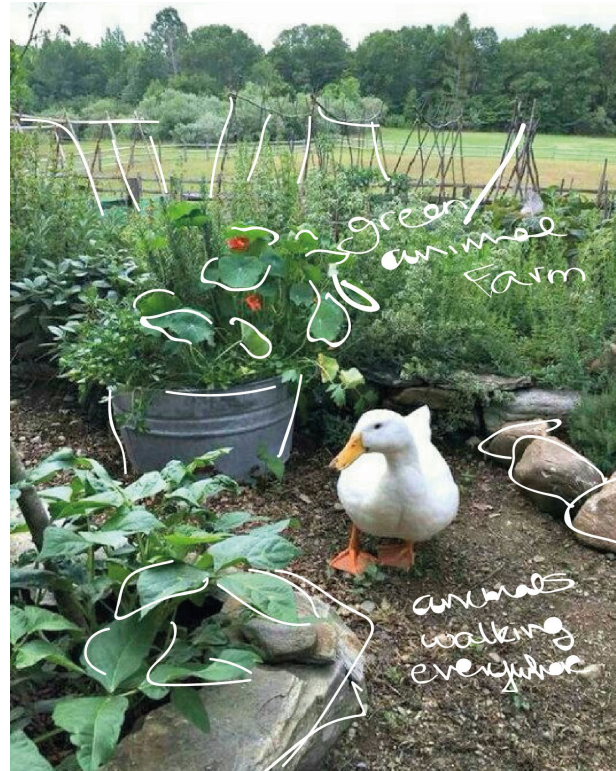


Figure 29. Duck in garden. A different kind of animal farm.²⁰

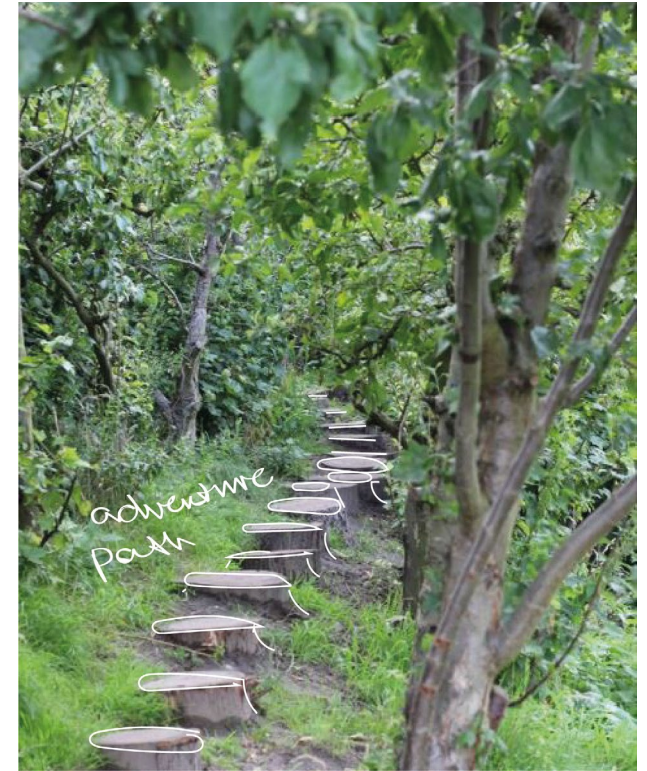


Figure 30. Dakpark.²¹

The active forest

Within the active forest adventure is central. As it is part of the forest behind Thuisbos the highest hill is featured in the active forest with an already existing playful timber bridge overlooking a part of the forest. As well, many cyclists can be found in this area already who enjoy cycling uphill. The active forest is the most 'rough' and adventurous garden of the area.

Besides the adventurous outdoors, a daycare in which interaction with animals is central is also part of the active forest. The daycare is located on a large open flat surface to make sure that everyone is able to reach the daycare and the animals easily.

LEARNING BY PLAYING
ENVIRONMENT
SUSTAINABLE
GREEN ENERGY
GARDENING



Figure 31. Dakpark, gardening area²²



Figure 32. Gardening in Buitenhof, Tilburg²³

Eco garden

The eco garden is the first garden one sees when coming from the train station of Driebergen-Rijsenburg. The garden invites everyone who passes by to stop and involve in gardening with others. Central here is to learn about the nature of Thuisbos by playing and gardening. As well it is a way to interact with not only inhabitants of Thuisbos, but also with inhabitants of the surrounding neighbourhood. Raised gardening beds will be placed for people with mobility issues, as well as lowered playful gardening spots for children.

PLAYING GROUND NATURAL MATERIALS



Figure 33. Natural playing garden, Oosterpark²⁴



Figure 34. Natural playing garden, NoordOogst²⁵

The playing garden

Opening up towards the surrounding neighbourhood is the playing garden, located at the most southern part of the site. An active garden like the playing garden is placed at this location to attract people with children from the neighbourhood to explore Thuisbos and to interact with its inhabitants. Here natural elements for playing are put that invite climbing, jumping, hopping, balancing and sliding. These elements will be made of tree trunks that had to be cut during the construction process of the master plan.

MOVING
HEALTH
ACTIVITY
PHYSICAL
REHABILITATE IN NATURE



Figure 35. Sporting forest, Alken ²⁶



Figure 36. Dakpark playing area ²⁷

The sports ground

To make moving, working out and playing sports attractive and in reach for everyone, the sports ground is placed at the center of the facility lane 'The Driebergjes Lane'. Logically the sports ground is located next to the physiotherapy, this allows the facility to practice outside. At the sports ground elements are placed to get people moving, like running tracks and old truck tires to jump from.

ARTISTIC
EATING TOGETHER
MOMENTS OF INTERACTION
STRUCTURE
SIGHTLINES

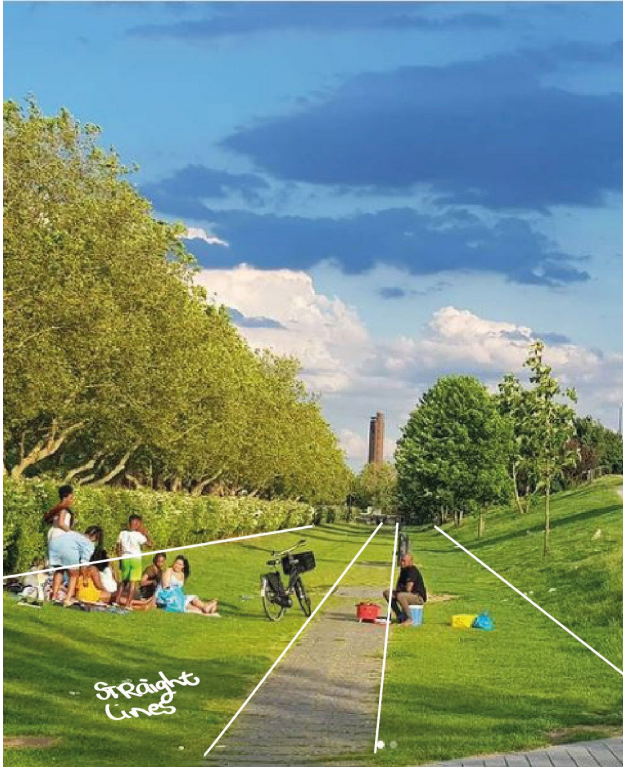


Figure 37. Dakpark ²⁸



Figure 38. Dakpark ²⁹

The welcoming garden | A warm hug

As the Thuisbos states, this garden welcomes people into the site and invites them to walk further to the community centre, something that should feel like a warm hug. As one function is to invite people towards the community centre, straight lines are of importance here which guide people in clear directions. The welcoming garden is surrounded by courtyard housing and thus also functions as a place for interaction. Spots to eat together and have a drink are of importance here. The garden slowly evolves into a warm hug, a garden where finding the entrance of the community centre is important.

WANDERING AROUND
BEING ON YOUR OWN
RELAXATION
BEING WITH A GROUP



Figure 39. Aromatic and colourful flowers ³⁰



Figure 40. Vitra garden of Piet Oudolf ³¹

The wander garden

Located at the edge of forest and dwelling between the more active and more quiet and calm gardens is the wander garden. The wander garden navigates between the busy atmosphere of the welcoming garden and the calm atmosphere of the sensory garden by the creation of paths that wander off towards the northern side. From this garden one can wander towards the forest or the sensory garden. Here relaxation in a group or with someone else is made possible. It is mainly a place to wander with others, although wandering alone is as well possible.

HEARING
TOUCHING
SEEING
ART



Figure 41. Sculpture garden Benson³²

Sculpture garden

The sculpture garden is adjacent to the sensory garden and the forest of contemplation. Thus, it is a garden to explore senses as well as to be more quiet and relax. The sculpture garden will feature non-abstract art to make it more recognisable for people with memory problems. Art made during art workshops with the community can as well be displayed here.

MEDITATION
QUIET
NATURE
ORGANIC

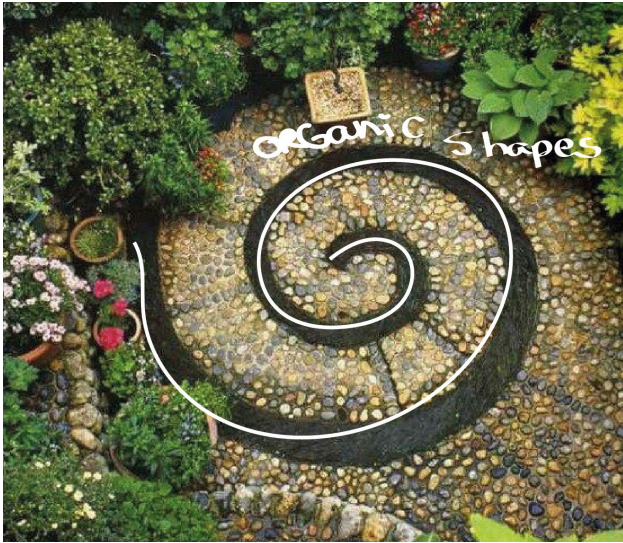


Figure 42. Meditation garden ³³

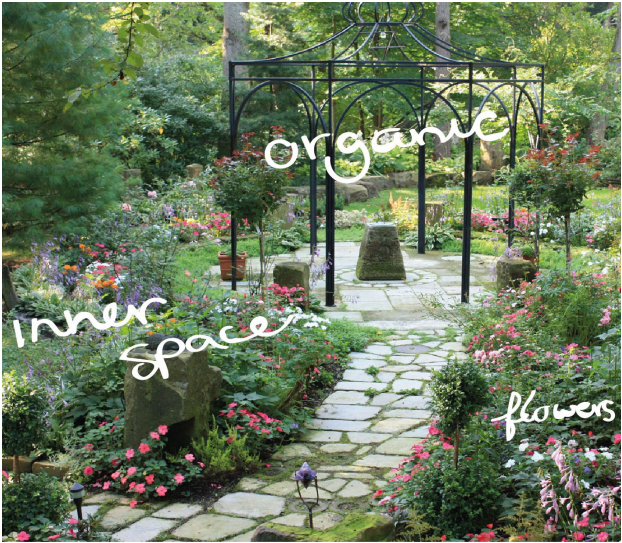


Figure 43. Miriam's River House ³⁴

The forest of contemplation

At the edge of the dwell area and the forest is the forest of contemplation. It is located here as it is embraced and protected by the high hill tops that surround it, as well as by the existing waterways. As new water wadi is made in the forest of contemplation as the sound of water soothes and relaxes. The dwelling surrounding this garden is dwelling with a more private relaxed character. Meditation and nature is central in this garden.

COURTYARD
COMMUNITY
KNOWING EACH OTHER
MEETING PLACE
SHARED SPACE



Figure 44. Knarrenhof³⁵

The social garden

The social garden is characterised by the courtyards that surround this open outdoor space. Central here are moments of interaction. The width of this outdoor open space is wider than the width of the welcoming gardens because the social garden is made as a place to stay, whereas the welcoming garden is made as a place to stay as well as a place to guide towards the community centre. Central in the social garden is the feeling of community and knowing one another as well as the feeling of taking care of a space together.

HEARING
TOUCHING
SMELLING
SEEING
TASTING



Sensory garden

Within the sensory garden it is important to allow people to explore their senses without distraction from others or loud activities. The sensory gardens are placed next to the apartments as one of these apartments can be turned into apartments for people suffering from the most severe form of dementia. Flowers and plants with strong particular scents or colours can help retrieve memories back in people suffering from memory loss.

chives



leaf parsley



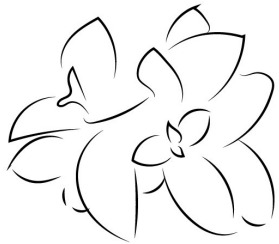
dill



coriander



basil



oregano



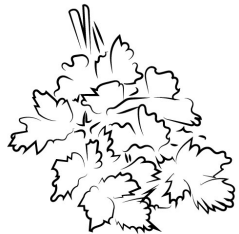
rosemary



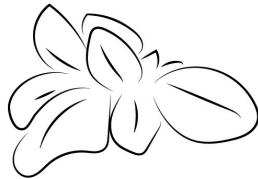
parsley



celery



mint



sage



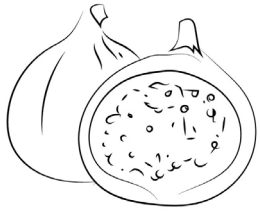
thyme



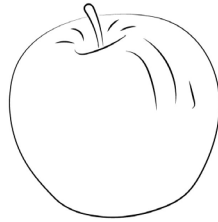
Sensory path | herbs

These herbs create smell and also the opportunity to taste it. Pick your herbs and use it for a meal or tea you want to prepare. This way the products are very local.

figs



apple



lemon



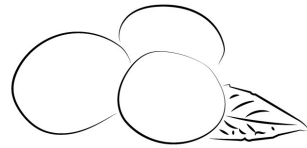
cherry



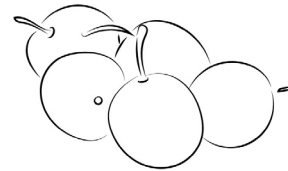
yellow mirabelle



red mirabelle



green mirabelle



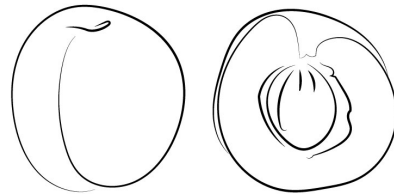
nectarine



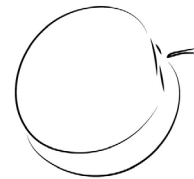
pear



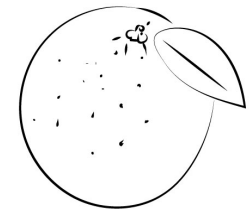
peach



plums



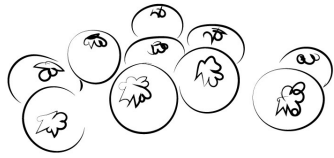
orange



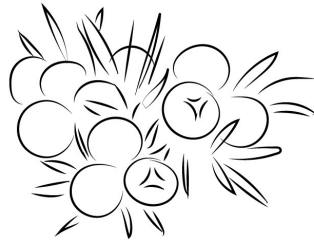
Sensory path | fruit trees

Fruit picking can be your daily activity. Taste the fruit that is on the trees or has already fallen down.

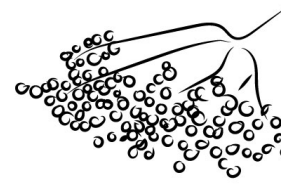
blueberry



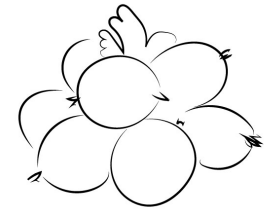
juniper



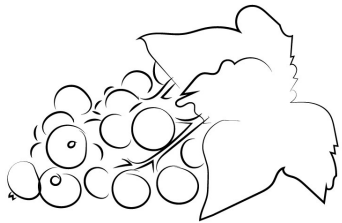
elderberry



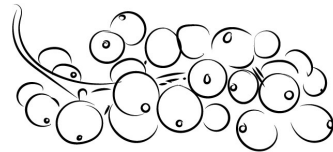
yellow gooseberry



blackcurrant



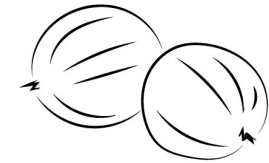
red currant



African ground cherry



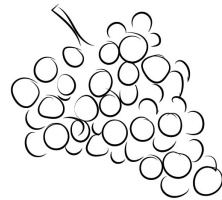
red gooseberry



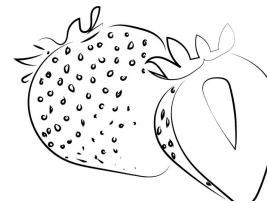
white grapes



blue grapes



strawberry



raspberry



Sensory path | fruit bushes

Fruit cannot only be found in the trees, but also in bushes. All these products are free to grab. On top of that are the kinds carefully chosen so that no poison herbs or fruits are found here.



Dwelling

Introduction

The masterplan consist of several types of houses in order to create homes which fits for different types of people. We want to create a living environment that people can choice their home because of their own preferences and not in due to their limitations. Therefore our masterplan is suitable for young and old, rich and poor, disabled and healthy in order to create an inclusive environment which fits for everybody. For example we designed several tiny houses on the top of our masterplan at the edge of the forest, these houses is suitable for people who wants to live in the forest with a little ecological footprint. We assume that the residents who are living in these houses are ecological interested no matter how old you are. In the whole masterplan we implement: every resident has the choice to get care at home. People can choice to live in a community: like the co-housing houses close to the facility lane or the veranda community houses close to the forest or people can choice to live individual in our area. These chapter consist of a brief explanation of choice of different types of dwelling types.



Apartments

Tiny houses

Hill houses

Veranda homes

Terraced houses

Patio houses

4 under 1 veranda

Apartments

Co-housing

Living above a store

Terraced houses

(2 or 3) under a roof

Courtyards

(2 or 3) under a roof



0 10 50m

Masterplan | living types

The figure on the right shows the different housing types. The colours indicate which areas are provided with these living types. Co-housing is spread over the area but can be combined with different housing types. The light grey blocks are buildings that only have a facility and no residential function.



Masterplan | living types

The figure on the right gives an impression of our different houses typologies as discussed earlier in the section 'Living types'.

**The sources of the images can be found on the next pages.*

Hill Houses

VIEW
PEACE
FREEDOM
SPATIAL
FRIENDLY
BLENDING
IN NATURE



Detached Houses

SPATIAL
FREEDOM
PRIVATE
DYNAMIC
FRIENDLY
PEACE
VIEW



Tiny Houses

SMALL SCALE
LIVING
ECOLOGICAL
FOOTPRINT
VIEW
COLLECTIVE FEELING
FREEDOM
FRIENDLY
BACK TO NATURE



Apartments

VIEW
FRIENDLY
HIGH DENSITY
PAY ATTENTION TO EACH OTHER
DYNAMIC
COLLECTIVE
HIGH PERSPECTIVE



Courtyards

CONTACT
ACTIVITIES
COLLECTIVE
COURTYARD
PRIVATE HOME
COMMOTION
VILLAGE FEELING



Co - Living

GROUP FEELING
COLLECTIVE INSIDE
AND OUTSIDE
DYNAMIC
BEING TOGETHER
SOCIAL
COMMOTION



(2 or 3) under on 1 hood

LANE LIVING
FAMILIAR
FRIENDLY
DYNAMIC
PRIVATE
FREEDOM



Living above the store

PUBLIC
TRANSPORT
FACILITIES
DISTRICT
WALKING
DISTANCE
DYNAMIC
VARIED



Patio

COLLECTIVE
FAMILIAR
FRIENDLY
DYNAMIC
VIEW ON COMMOTION
NATURE



Overview typologies

**The sources of the images can be found on the next pages.*

KEYWORDS:

VIEW

PEACE

FREEDOM

SPATIAL

FRIENDLY

BLENDING IN

NATURE

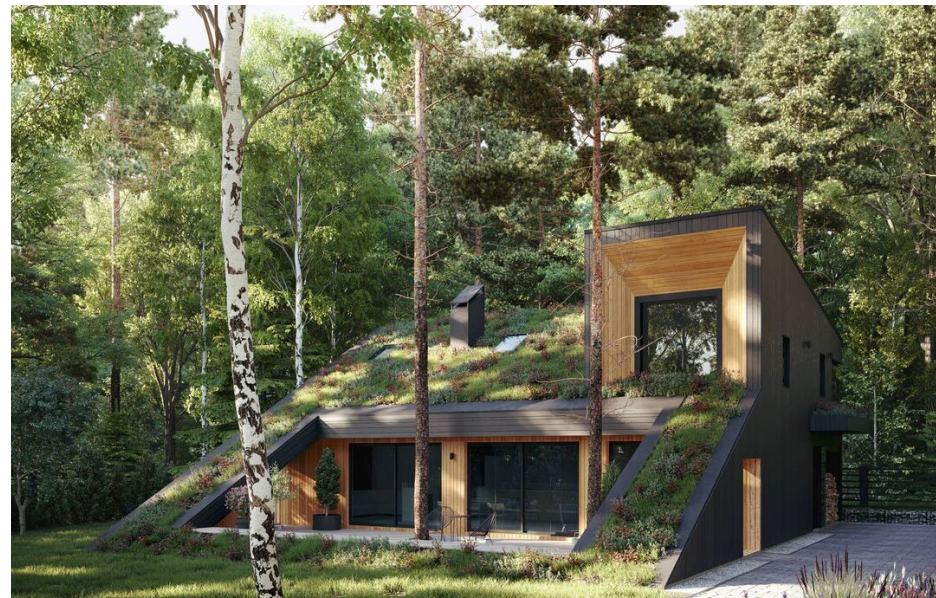


Figure 45. Hill houses⁴⁸

Hill houses | living profiles

Hill houses are large detached houses that blend with the immediate surroundings. In this concept you live much more on yourself and nature. But these large houses can also provide for different households in which there is a community. These homes are ideal for all age types who have a strong preference for living in green.

KEYWORDS:

SPATIAL
FREEDOM

PRIVATE

DYNAMIC

FRIENDLY

PEACE

VIEW



Figure 46. Detached houses⁴⁹

Detached houses | living profiles

A detached house is understood as a house that is not attached to another building, this is often a single-family house. It provides a clear demarcation of your own domain. The residential program is focused on comfort, view and privacy. In this concept you live much more on your own. Beautiful view on nature. These homes are ideal for all ages who have a strong preference for connecting with a wooded environment

KEYWORDS:

SMALL SCALE
LIVING

ECOLOGICAL

FOOTPRINT

VIEW

COLLECTIVE FEELING

FREEDOM

FRIENDLY

BACK TO NATURE



Figure 47. Tiny houses⁵⁰

Tiny houses | Living profiles

The tiny houses are small and detached houses with a floor area of up to 50 square meters, with the smallest possible ecological footprint. The houses are ideal for people with an environmentally conscious background but not age-related. The houses are configured in the natural area to give a community feeling with a central collective space and a good connection with nature. It gives the feeling of being on holiday in your own home.

KEYWORDS:

VIEW
FRIENDLY
HIGH DENSITY

PAY ATTENTION TO EACH OTHER

DYNAMIC

COLLECTIVE
HIGH PERSPECTIVE



Figure 48. Apartments⁵¹

Apartments | living profiles

Apartments are understood as a large block where different households live on the same floor. These complexes have a maximum of four building layers. In this house, pay attention to each other and where the corridors become the spaces of collectivity. In these homes are the size of your apartment less important. The houses are life-proof and accessible to everyone. The apartment are located close to facilities and nature.

KEYWORDS:

CONTACT

ACTIVITIES

COLLECTIVE
COURTYARD

PRIVATE HOME

COMMOTION

VILLAGE FEELING



Figure 49. Courtyards²²

Courtyards | living profiles

Living in a courtyard are private houses which are linked around a collective garden. The configuration gives the feeling of collectivity and care (for each other). These homes are ideal for people with a high demand for a good connection with your neighbours. There is a strong feeling of community. These houses are life-proof and for all age attractive if you want to live in a collective living environment. Spontaneous meetings and commotion are an explicit part of this concept.

KEYWORDS:

GROUP FEELING
COLLECTIVE INSIDE
AND OUTSIDE

DYNAMIC

BEING TOGETHER
SOCIAL
COMMOTION



Figure 50. Co-housing⁵³

Co-housing | living profiles

Co-housing is an alternative form of housing in which a group of residents in different homes use multiple, communal facilities (inside and outside). They can be houses of one or more persons. This form of living creates strong relationships with your immediate neighbours, strengthens the sense of collectivity and community. This type of house is suitable for young and old who do not want to live in private circumstances but in a collective company. The private houses will therefore be smaller because large common areas can also be used.

KEYWORDS:

LANE LIVING
FAMILIAR
FRIENDLY
DYNAMIC
PRIVATE
FREEDOM



Figure 51. 2 or 3 under one hood^{F4}

(2 or 3) under on 1 hood | living profiles

These living types are semi-detached houses of 2 or 3 houses that create a direct relationship between the existing neighbourhood and the new neighbourhood. The houses have the appearance of houses living on a lane but with an open character. The people lives here is independently but likes to be part of a well-organized harmonious society. These residents look after each other when it is necessary: a good neighbor in an open community.

KEYWORDS:

PUBLIC TRANSPORT
FACILITIES DISTRICT
WALKING DISTANCE
DYNAMIC
VARIED
COMMOTION



Figure 52. Living above a store⁵⁵

Living above a store | living profiles

These houses are linked around and above the shop and facilities street. This street is the busiest place in the new neighbourhood, there is a lot of activity. There is a great diversity in residents and buildings. Privacy is less important. Care and convenience services are provided within walking distance as needed. People can live here until old age. Shops, a doctor and public transport are available at a short distance. There are facilities in the complex that support the feeling of community.

KEYWORDS:

COLLECTIVE

FAMILIAR

FRIENDLY

DYNAMIC

VIEW ON COMMOTION

NATURE



Figure 53. Patio⁶⁶

Patio houses | living profiles

Living in a patio houses are private houses which are linked around small collective garden and bigger collective garden. The configuration gives the feeling of collectivity and care (for each other). These homes are ideal for people with a high demand for a good connection with your neighbours. There is a strong feeling of community. These houses are life-proof and for all age attractive if you want to live in a collective living environment. Spontaneous meetings and commotion are an explicit part of this concept.



Section AA'

- (2 or 3) under 1 roof
- Courtyards
- Living above a store
- Patio houses
- Hill houses



Housing typologies | Section AA'

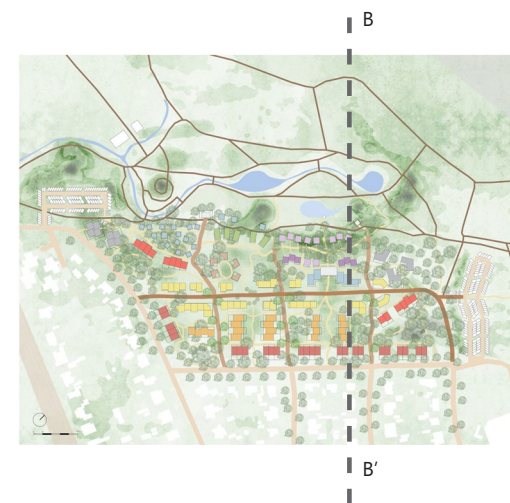
The height differences increase from the horizontal the Driebergen lane (Driebergjes laan). The further the forest, the greater the slopes of the hills.

The typologies of the social forest are close to each other and are oriented towards each other. The houses in the sanctuary forest have a clear relationship with the large forest behind them. The public spaces around the houses provide social control, activities and cohesion between the residents.



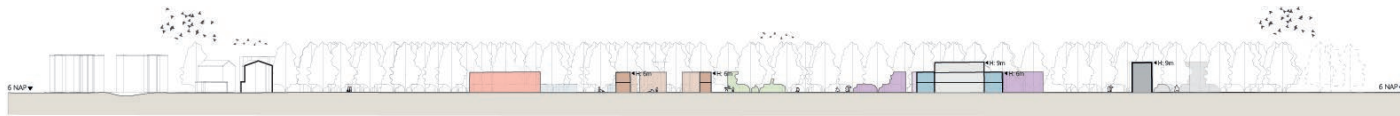
Section BB'
1:2000

- (2 or 3) under 1 roof
- Courtyards
- Living above a store
- Co-housing
- Facility building: community centre
- Detached houses



Housing typologies | Section BB'

The slopes become steeper again as you head towards the natural forest. The houses vary from 12 m high houses on the side of the original neighbourhood to 6 meters. Broadly speaking, the sizes of houses towards the forest are smaller.



Section CC'
1:200

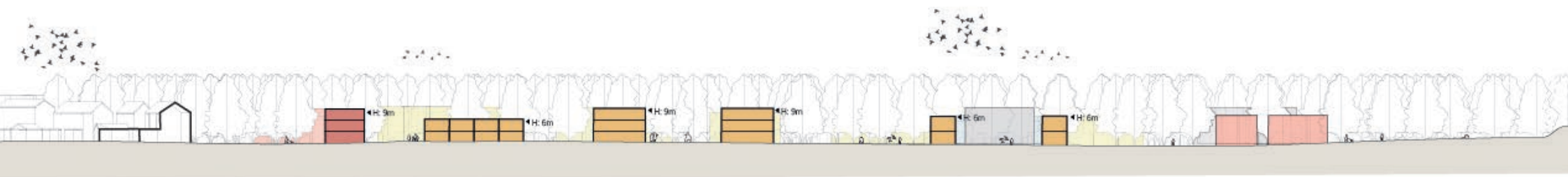
- Terraced houses
- Patio houses
- Tiny houses
- Hill houses
- Detached houses
- Co-housing
- Apartments
- Facility building: community centre









Housing typologies | Section CC'

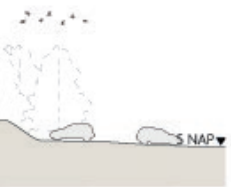
In this section the ground is quite flat. The ground will differ from 5 NAP to 6 NAP. In this section we distinguish eight different house typologies.

The public spaces between the buildings are spacious and provide social control and cohesion. Every public space has its own character.



-  (2 or 3) under 1 roof
-  Courtyards
-  Living above a store
-  Facility building: community centre
-  Co-housing
-  Terraced houses

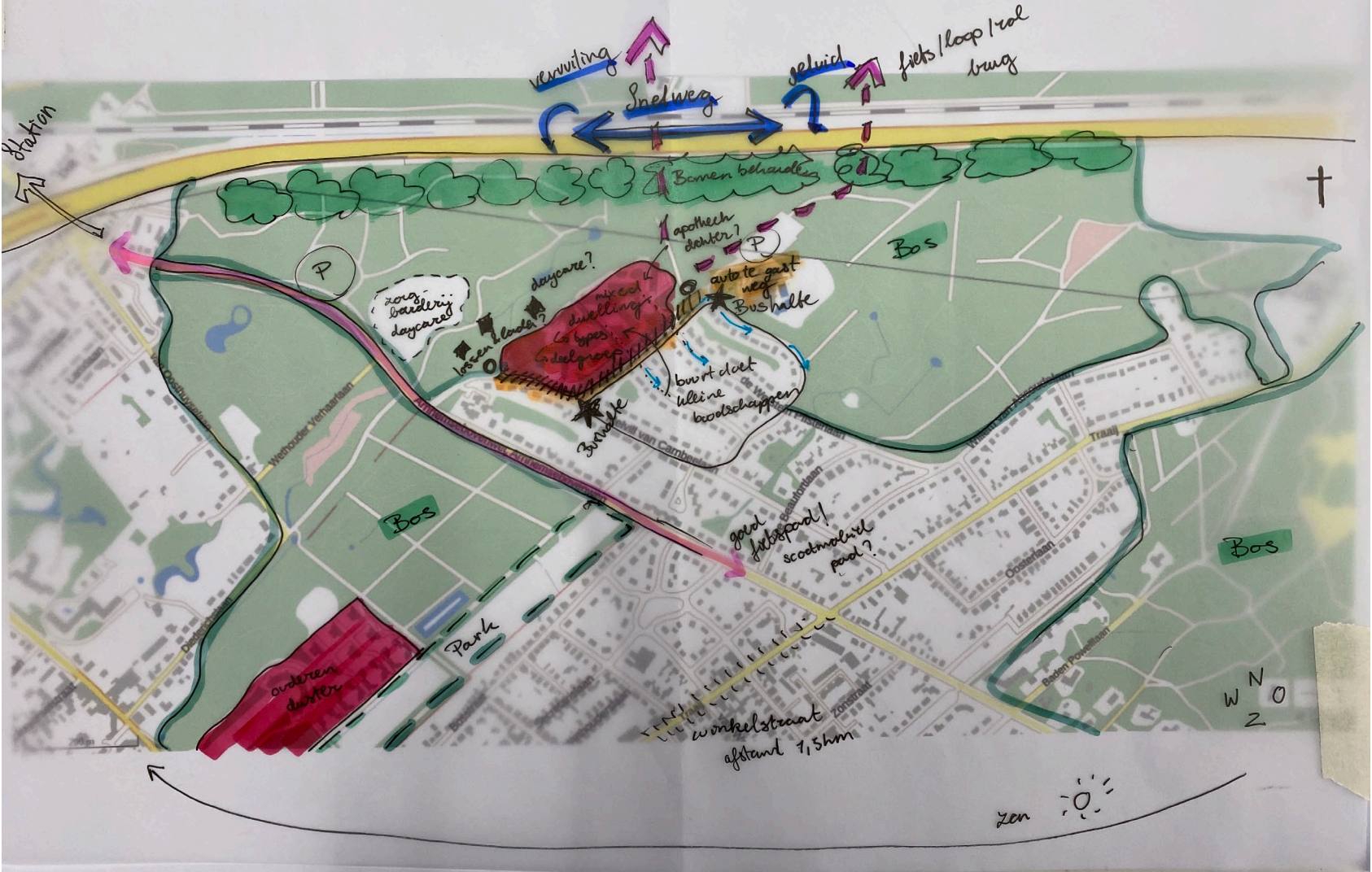




Housing typologies | Section DD'

In this section, the height differences are also not very great. In this section we distinguish six house typologies. They all have a social character.

Concept Visie Grote Schaal

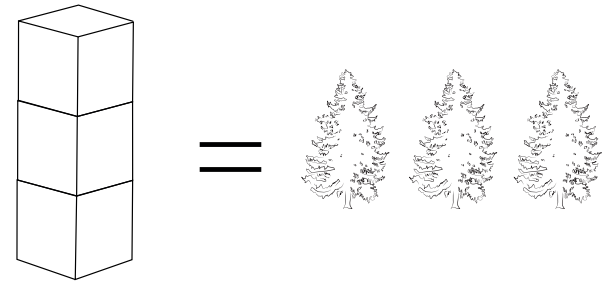
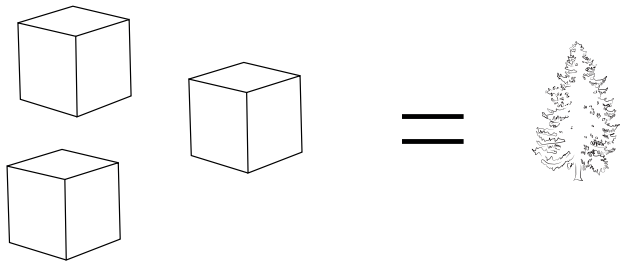
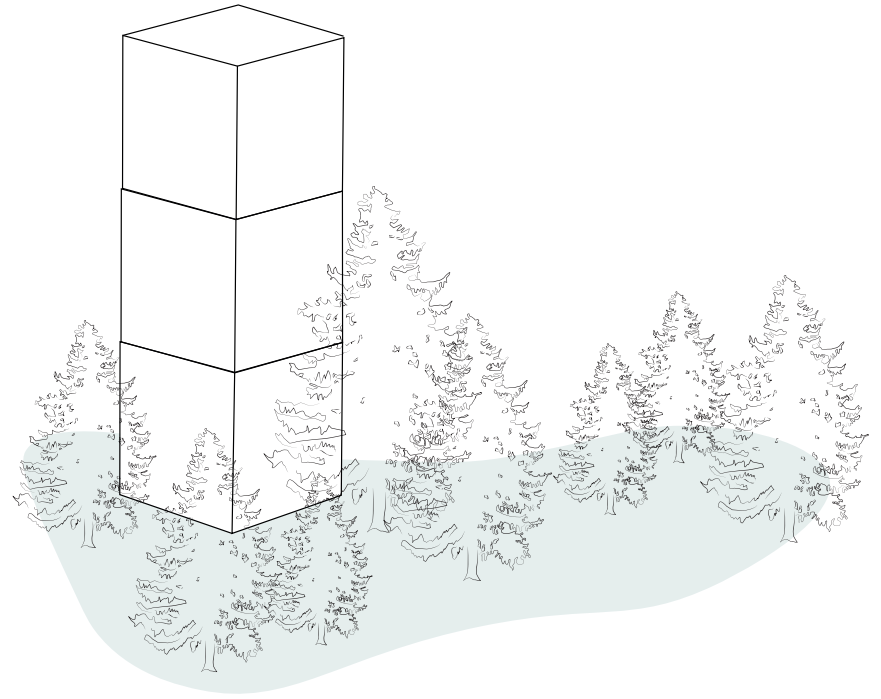
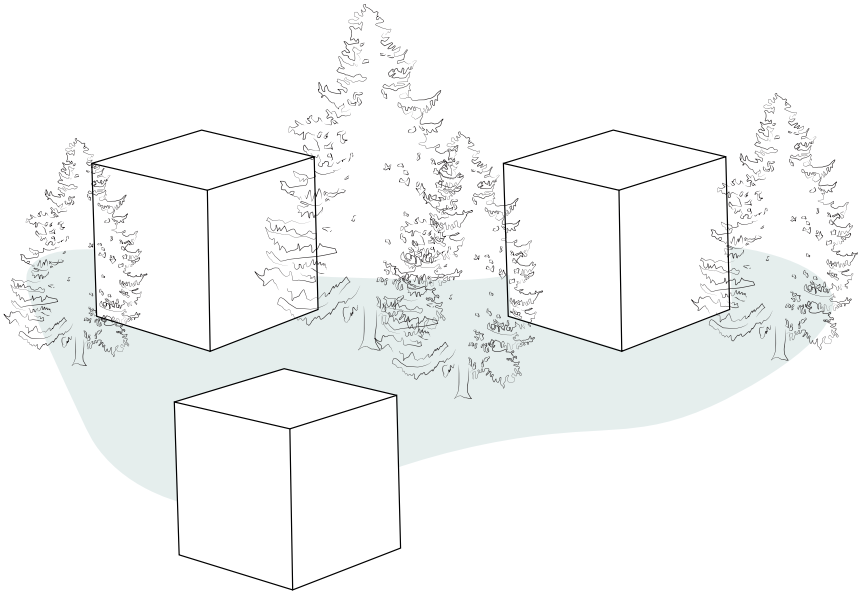


A sketch we made that belonged to our vision of the site at the time of 01-12-2020

? The Process

Introduction

The process of developing the master plan for the site of Sparrenheide has been an interesting one with many long but fruitful discussions, showing references, dimensioning and thinking on how everyone could equally and happily live in our plan. In this chapter the process of developing the master plan for the site of Sparrenheide is shown via sketches, diagrams and pictures.



The position and volumes of buildings in nature

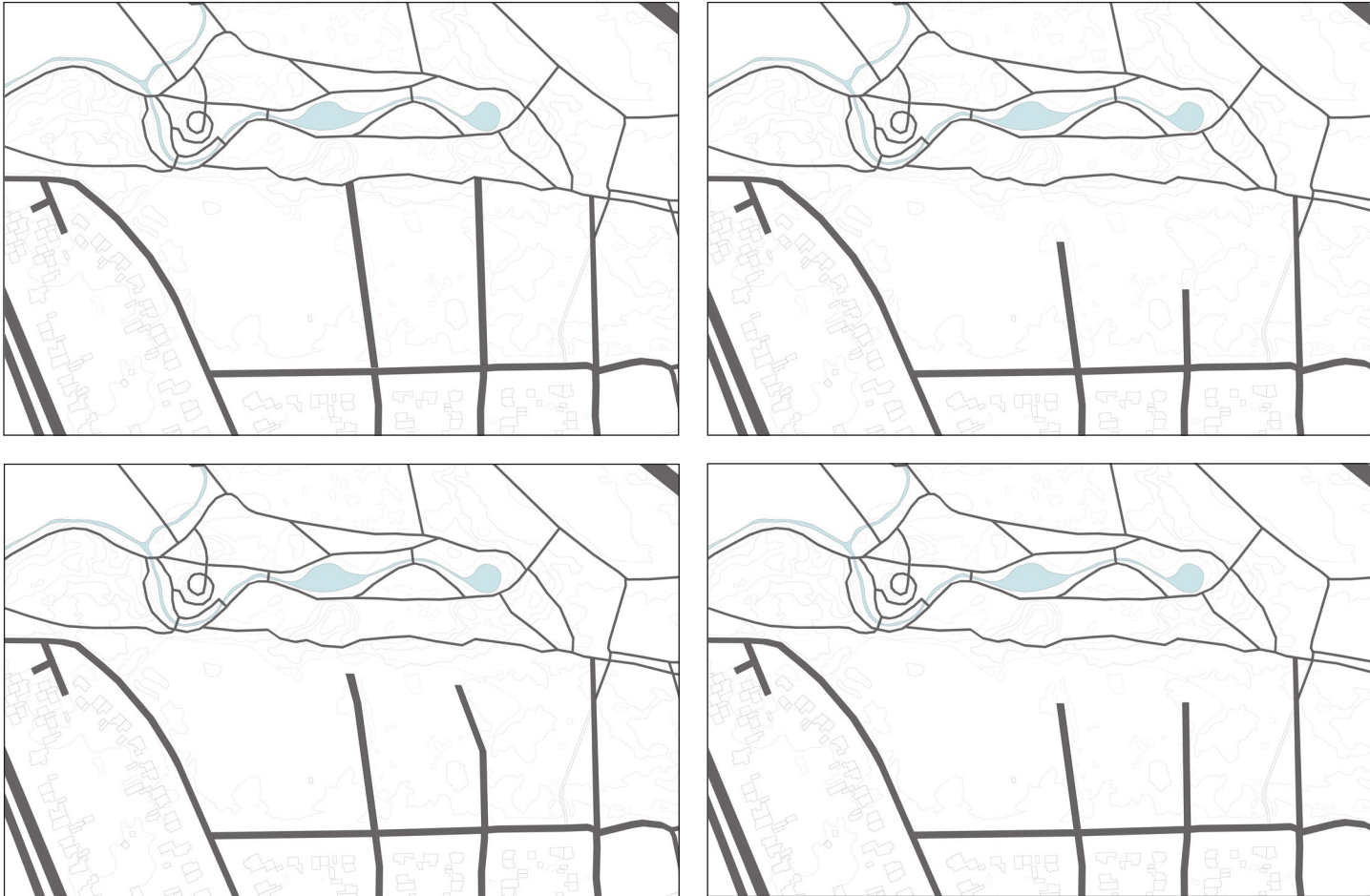
We have looked into the two options of building. The first one is low rise and the second one is high rise.

When creating the same amount of surface for dwelling, high rise buildings have a smaller footprint than low rise buildings. Stacked volumes provide more space for nature compared to the distribution of volumes.

However, the connection with nature on floor 5 may be less strongly experienced than from the ground floor.

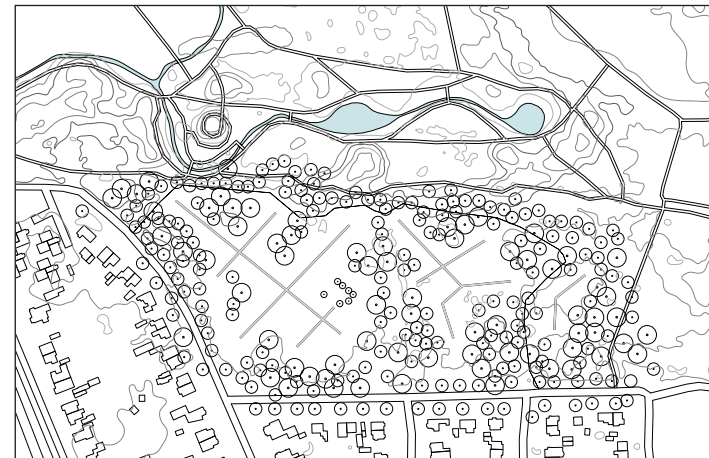
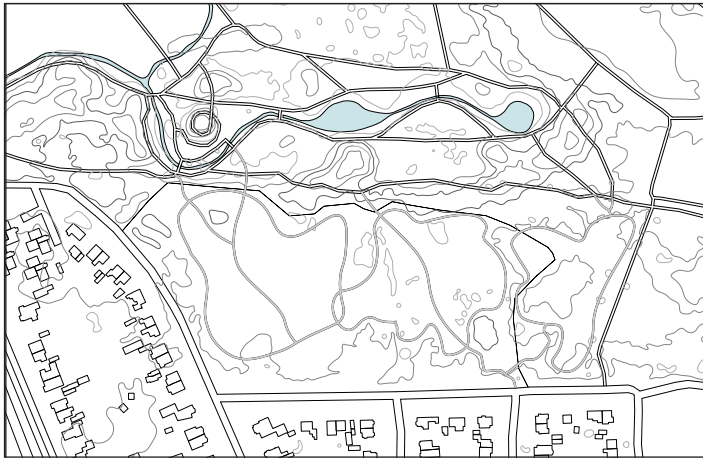
On the next pages both options are examined: a master plan from the point of view from nature, and from the point of view from the existing village.

Developing the master plan



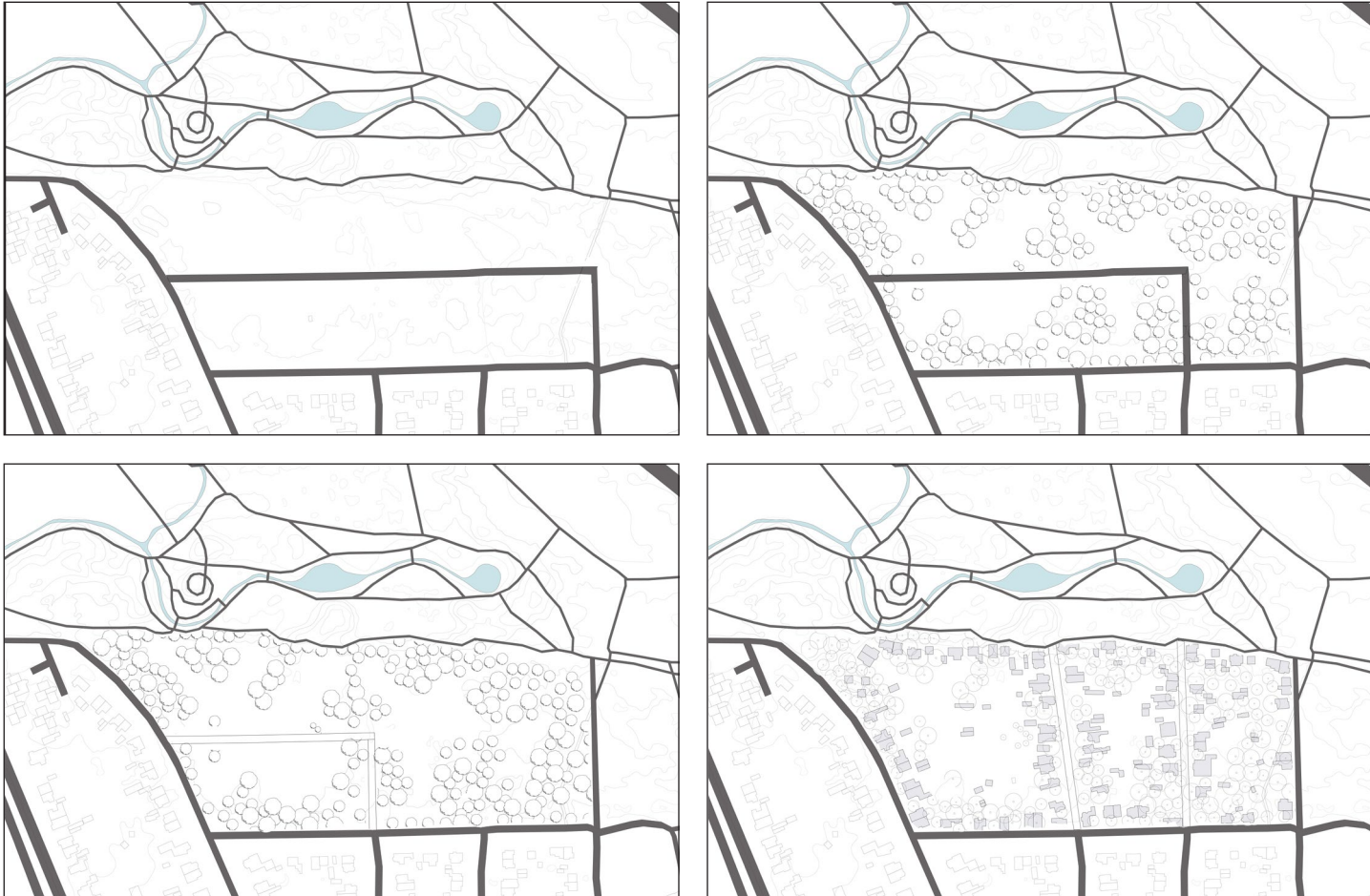
Street plan derived from the neighbourhood

Developing the master plan



Street plan derived from the forest up north

Developing the master plan



Street plan derived from the neighbourhood

A natural versus straight-forward approach

Both approaches, from the forest and from the village, show a clear contrast when compared to each other.

The approach from the forest allows for naturally shaped pathways, almost looking like a holiday park.

The approach from the village allows for straight-forward clear axes, fully making the site part of the village.

On the next pages the final results from both approaches are shown, followed by an atmosphere impression we want to achieve within our master plan.

The extreme master plan

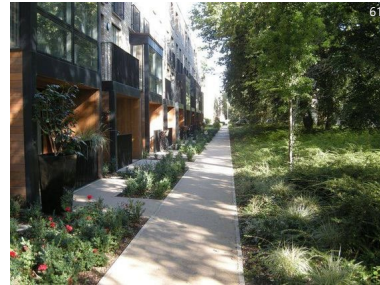


Urban plan derived from the position of existing trees

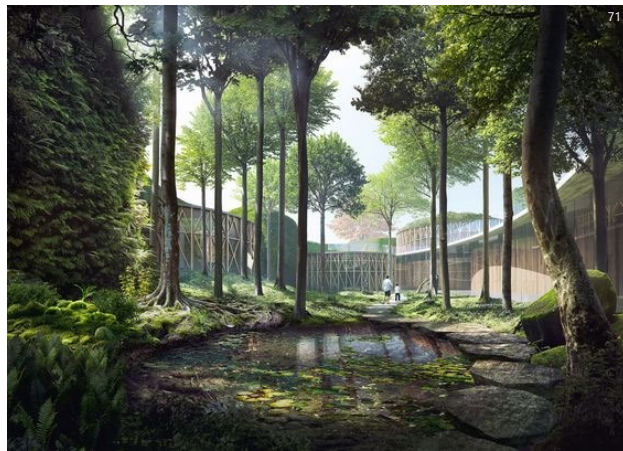
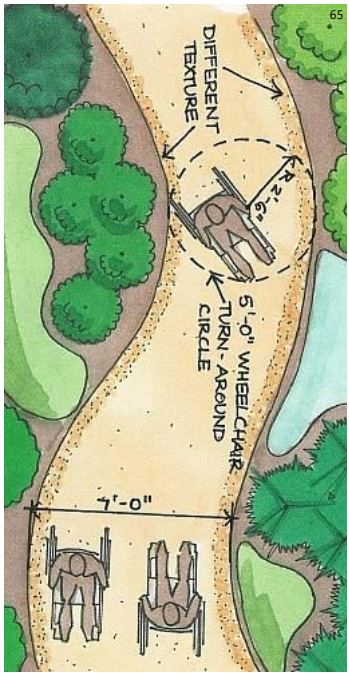
The extreme master plan



Urban plan derived from the buildings and streets of the neighbourhood



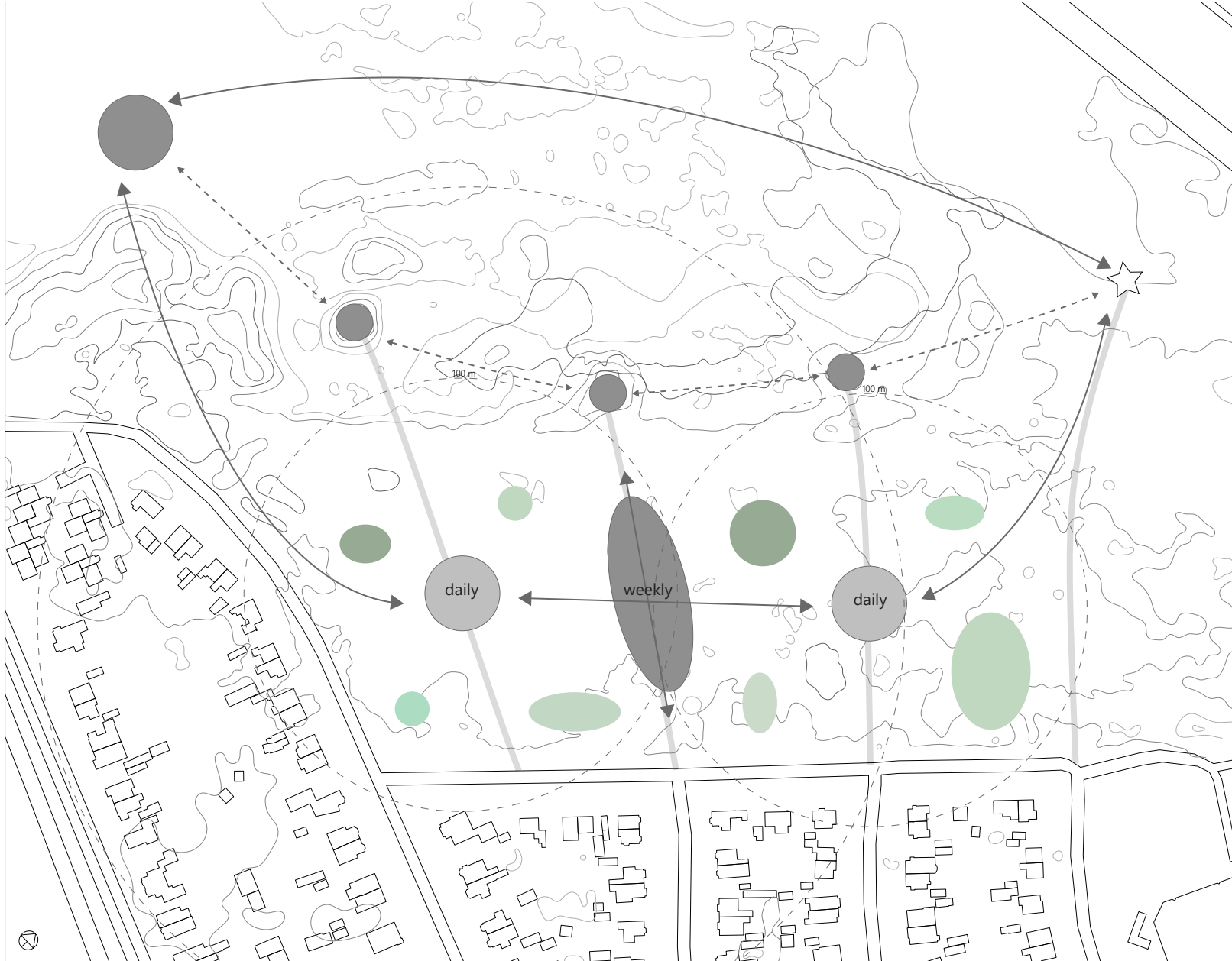
References we looked at as a group for new insights on living in nature and dwelling for care



References we looked at as a group for new insights on living in nature and dwelling for care

Developing the master plan

The pictures on the left show the process of developing a master plan that is both approached from the side of the village as well as from the side of the forest. Besides, the conclusions on the site analysis was sought to put into this master plan.



A diagram on the plan that we showed during the Pre P2 in december

The master plan at the Pre-P2

A. Connection with the surrounding nature

Via view lines/points

Via connecting walking/cycling/rolling paths

B. Involving the neighbourhood

Via extending axes from the neighbourhood to the site

Via adding facilities into the site, attracting the inhabitants of Driebergen

C. Daily activities (distance to facility < 150 meter)

Via the creation of clusters including essential facilities (mix of daily groceries/cafe/bakery) nearby

D. Weekly (+monthly) activities (distance to facility < 300 meter)

Via axes around which facilities such as the dentist and hairdresser are placed

E. Feeling at home in every part of the site (when relocation is needed one is already familiar with the site)

Via weekly activities are placed throughout the site, making sure people have to also go to different parts of the site

A decomposition of the master plan at the Pre P2

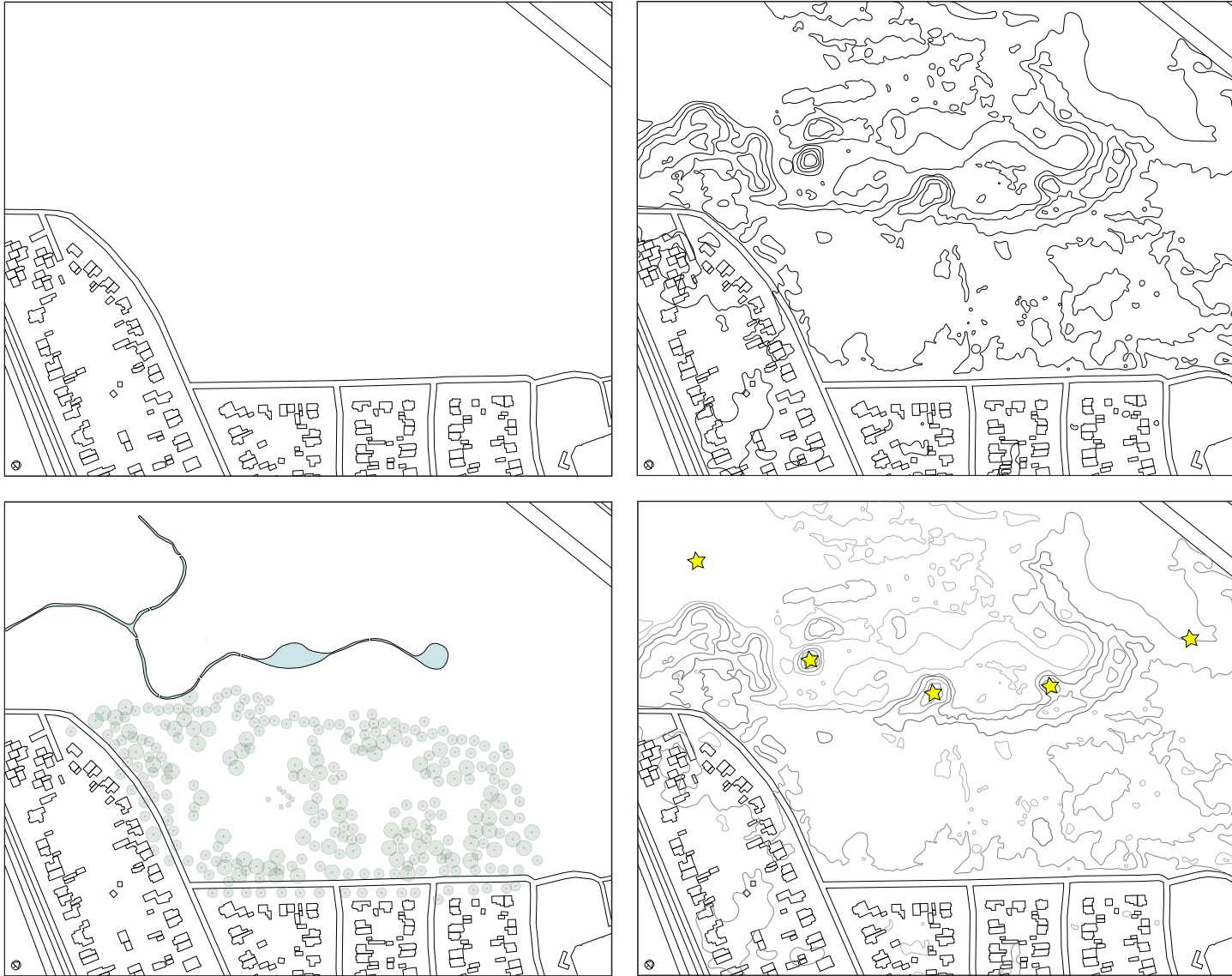


Figure 61. Existing streets and buildings - height lines - trees and water - view points (left to right)

A decomposition of the master plan at the Pre P2



Figure 62. Slow traffic (car is the visitor) roads extended from neighbourhood - sight lines - walking/strolling path - cycling path

A decomposition of the master plan

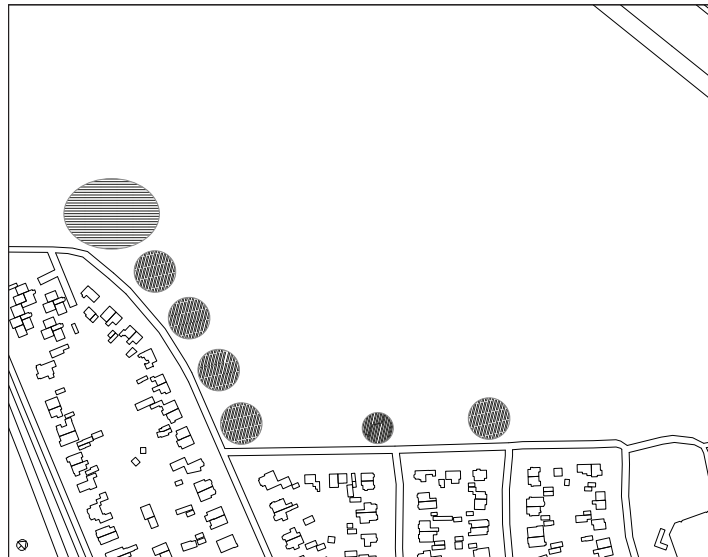


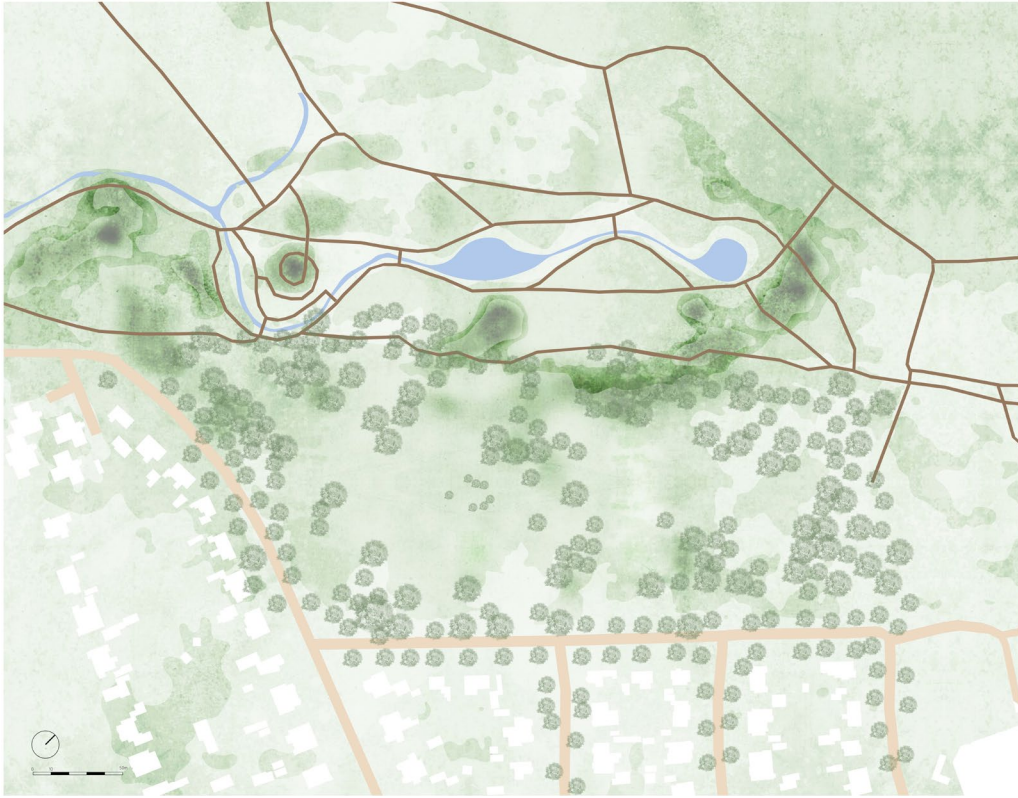
Figure 63. Sketch for placing parking spots



Facilities | 1:1000

The master plan at the P2

On the page on the left the master plan we presented at the P2 in January is shown. On the following pages the explanation of this master plan is visually shown and was part of our P2 presentation.



The existing



The village lanes enter the site



The forest merges in the site



Respect nature's boundaries



Circles of facilities



Different housing through the entire site



Creating connecting paths



The master plan



A NATURAL SOUND BARRIER

THE FOREST

THE VILLAGE OF DRIEBERGEN-RIJSENBURG

200 m

P

P

P

THE FOREST EMERGES IN SITE

EXTENDING THE VILLAGE LANES

TOO FAR AWAY PUBLIC FUNCTIONS ADDED

INTEGRATION OF BUS ROUTE

BUS TO TRAIN STATION

Masterplan | Village scale

The current situation of our location is relatively far from the city center of Driebergen. As a result, the daily facilities such as the supermarkets and drugstores are not within walking distance for the generation of the older population.

In addition, the current public transport bus stop is not (very) accessible to the residents of Sparrenheide.

Our proposal: include facilities for the new master plan and connect (public) bus line with our master plan in order to easily transport for the whole village. Our master plan makes a connection with the forest and the existing neighbourhood. So from both sides we want to create an optimal connection.



Impression the village lane



Impression of the forest paths



Impression the daily core



Impression of the calm forest



Working together at the faculty



Presentation for Habion

Epilogue

Looking back at the past half year and the many hours spent together on designing, discussing, researching, laughing and eating together we feel a sense of pride in the masterplan we have carefully made and delivered. Working closely as a team for many months has given us new insights on the way of living and designing, and most of all new friends for life!

APPENDIX

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? Appendix

The annual increase in rainfall is mainly due to increases during autumn, winter and spring

There is hardly change in rainfall during summer

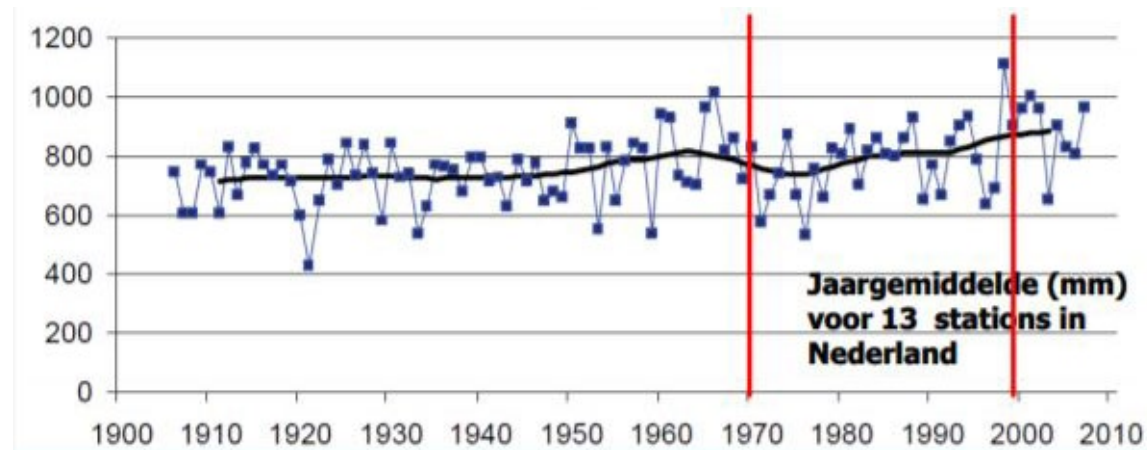


Figure 64. Increase in rainwater⁷⁶

Expectations rainwater (2030)⁷⁴ :

- The amount of rainfall is expected to increase by about 5% until 2030.
- Extreme rainfalls will increase as well

Rule⁷⁵ :

Current rule of liter rainwater per m²: Per m² = ca. 650 L = 0,65m³

Our masterplan: 50.012m² area

50.012m² x 650 = 32.507.800 L = 32.507.8 m³ collected rainwater

Information rain water

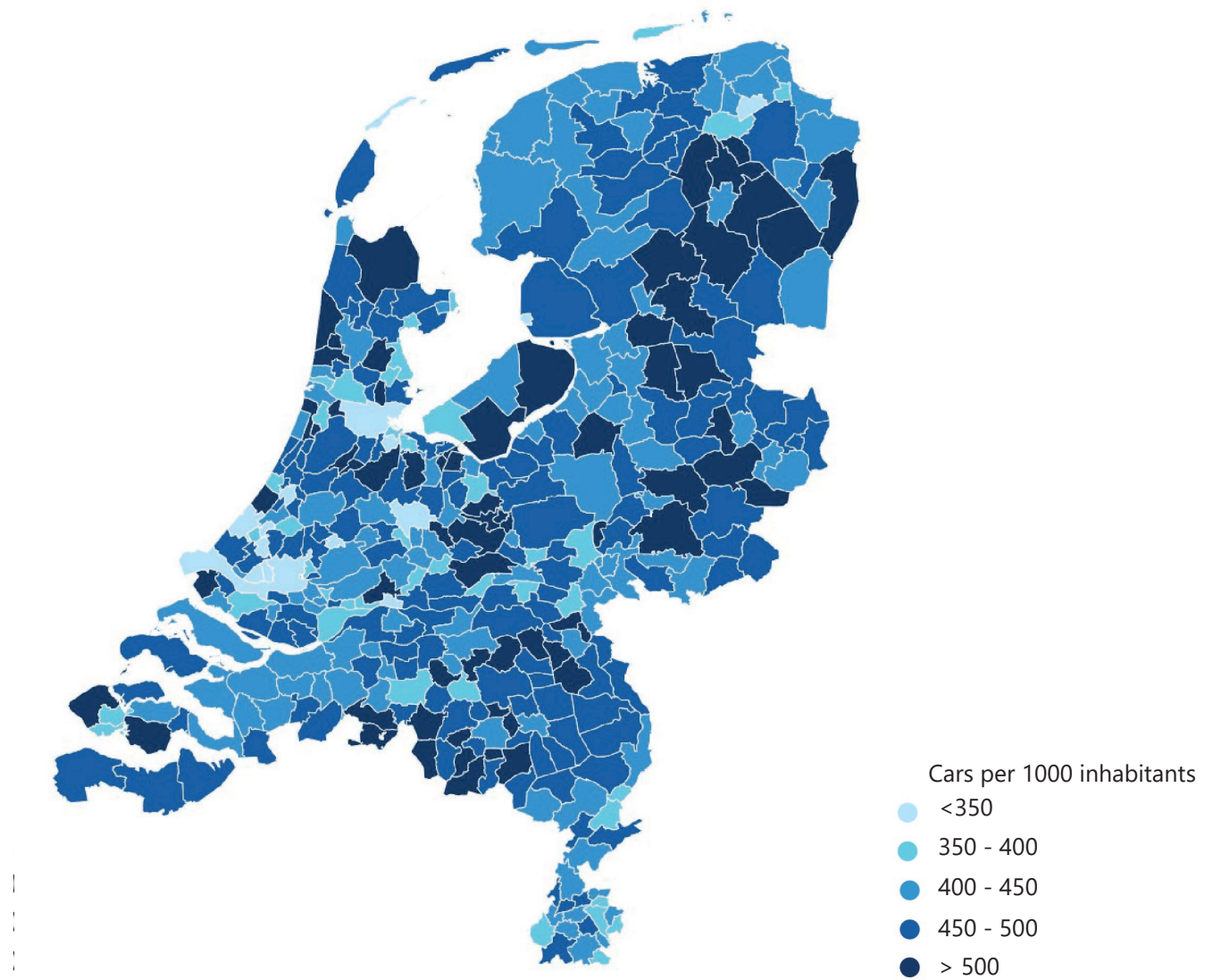


Figure 65. Ownership cars of people in the Netherlands, who are 75+ years old.⁷⁷

Ownership cars 75+

Almost 50% of the people in the Utrechtse Heuvelrug has a car.



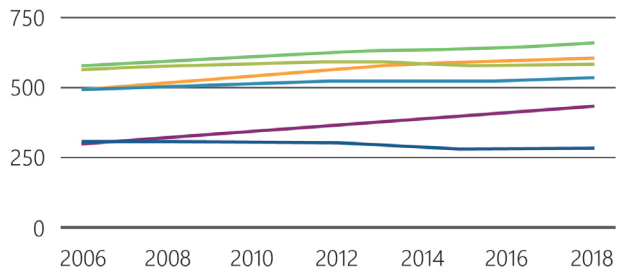
Figure 66. Ownership cars of people in the Netherlands, who are 75+ years old.⁷⁸

Change in car ownership

- Activities that a car is used for:
- groceries/daily activities/ weekly
 - visiting

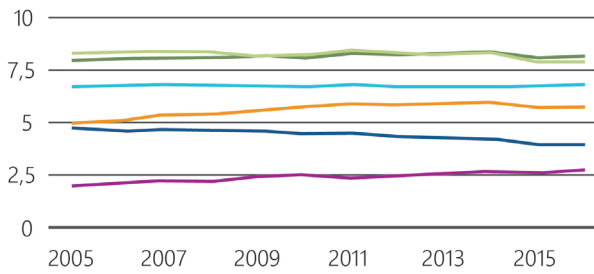
Ownership passenger car

x 1000 inhabitants



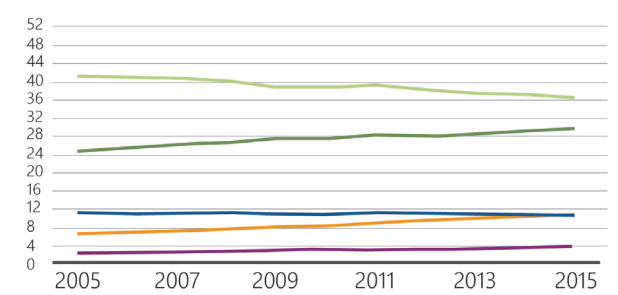
Kilometers per inhabitant

x 1000



Development of private passenger car kilometers

x billion km



- Total
- 30 - 50 years
- 65 - 75 years
- 18 - 30 years
- 50 - 65 years
- over 75 years

Figure 67. Ownership, Kilometers, development⁷⁹

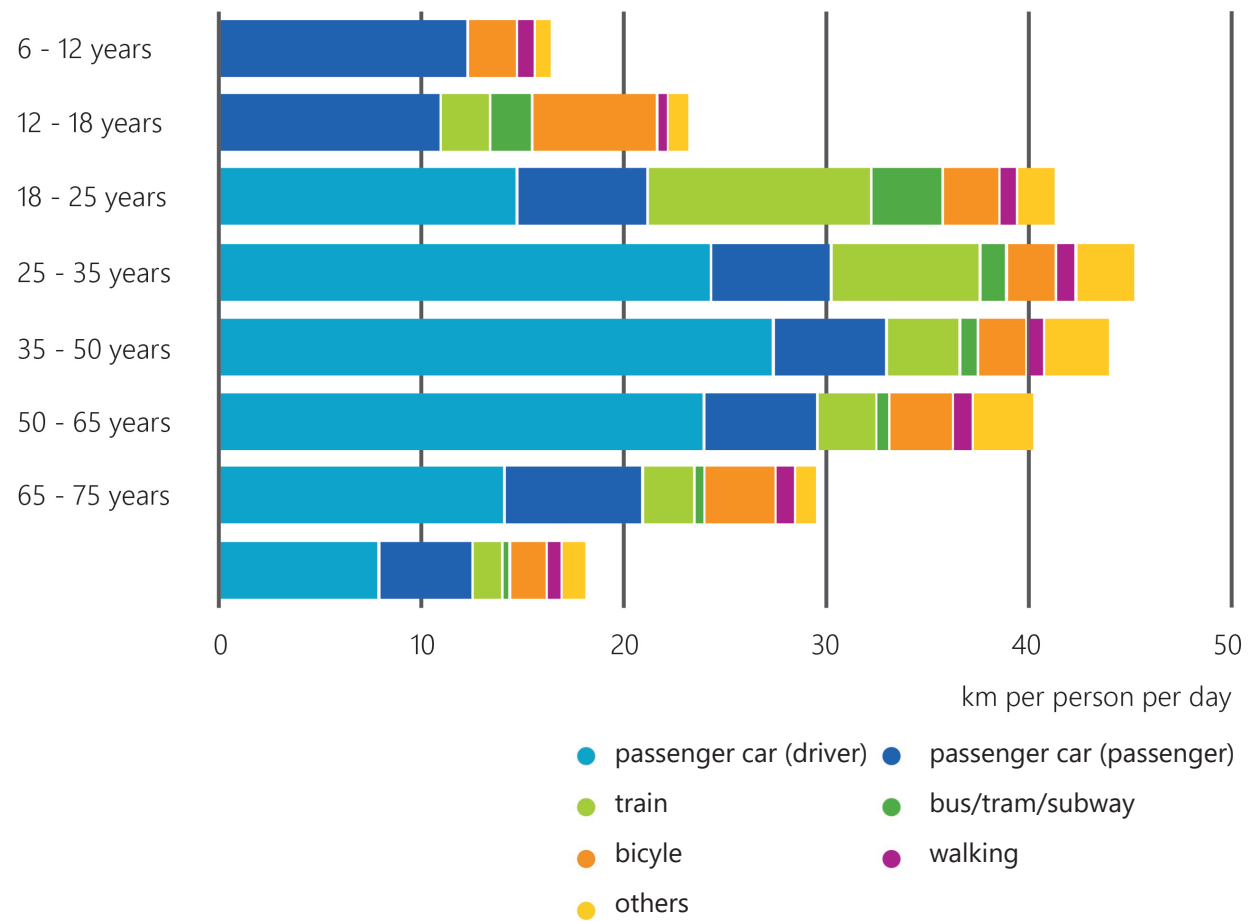
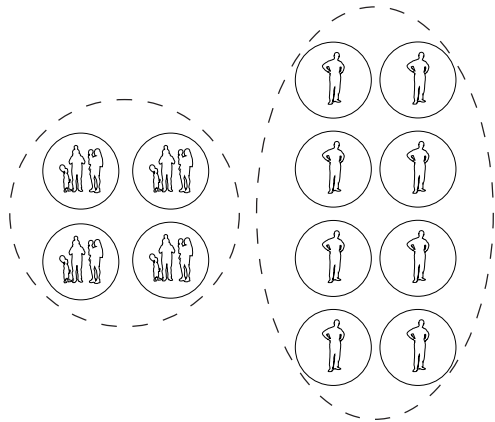
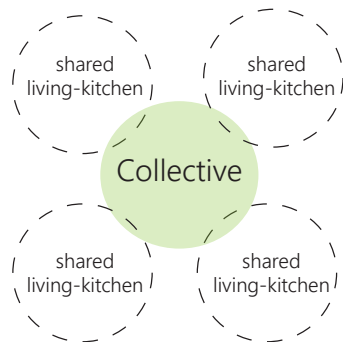


Figure 68. Distance traveled by age²⁰

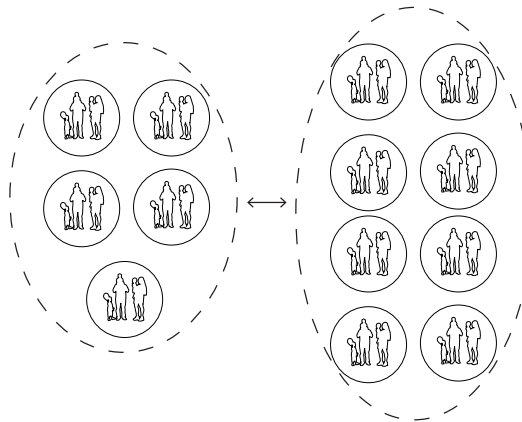
Distance traveled by age



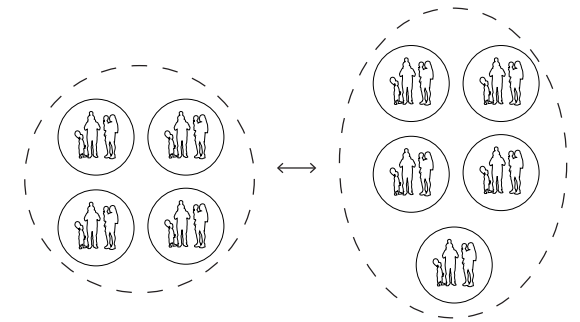
4 households = 1 cluster
 8 Persons = 1 cluster
 1 cluster = one extra shared living-kitchen



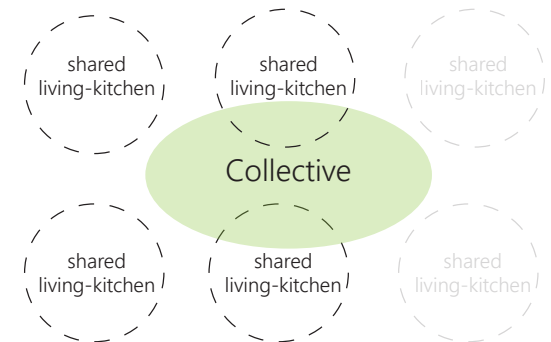
4 clusters = (16 households) => +/- 30 - 60
 persons around collective space (courtyard,
 hobby room)



Between 5 and 8 households = 1 cluster
 1 cluster = one extra shared living kitchen



Between 4 and 5 households = 1 cluster
 1 cluster = one extra shared living kitchen



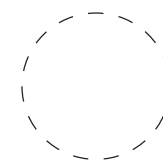
Collective space surrounded by residents
 < 100 persons



= One household
 1 or 2 Adults with/without children
 (All ages)



= One person
 1 Adult
 (All ages)



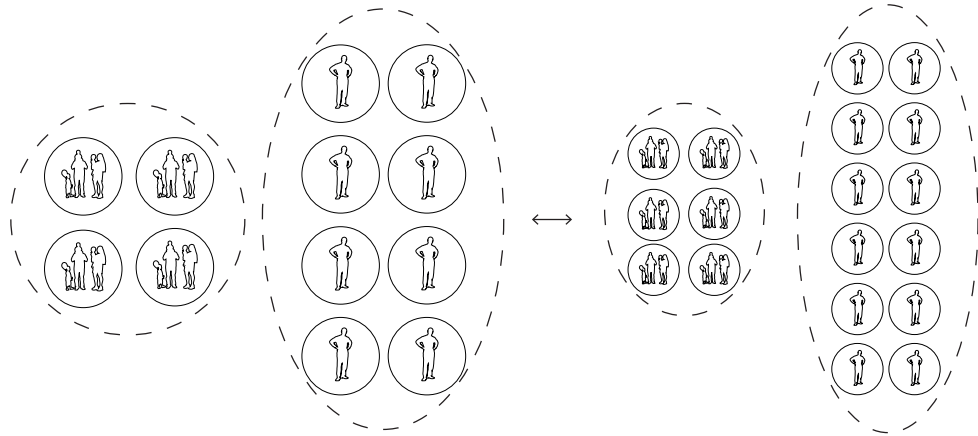
= One cluster
 (All ages)

Study groupsizes | communal living

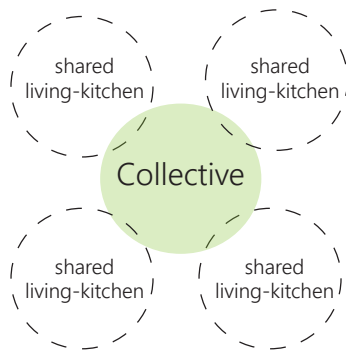
This study compares three different sources to determine the ideal group size for communal living. This group size fits for both the elderly and young families etc.

All three sources indicate that the numbers often overlap. The cluster size can vary between 4 households or 8 individuals to 8 households. One cluster contains one collective space e.g. living kitchen in addition to the private home. The clusters can be surrounded by a collective function such as a garden, courtyard or a collective facility. A recommendation here is that the number of people can vary from 16 households of 30-60 people, as long as the number is less than 100 people.

Social forest

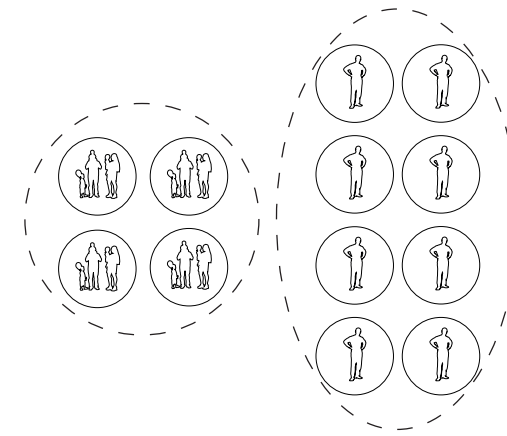


4 - 6 households = 1 cluster
 8 - 12 Persons = 1 cluster
 1 cluster = one extra shared living-kitchen

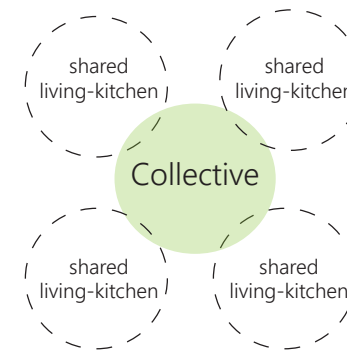


4 clusters = (16 households) => +/- 30 - 65
 persons around collective space
 (garden, courtyard, hobby room)

Sanctuary forest



max. 4 households = 1 cluster
 max. 8 Persons = 1 cluster
 1 cluster = one extra shared living-kitchen



max. 4 clusters = (16 households) => +/- 30
 persons around collective space
 (garden, courtyard, hobby room)

Study groupsizes | communal living

In our master plan we work in two large areas with all their own properties Thisbosly: the Social forest and the Sanctuary forest. The collective housing sizes will also differ from areas. In the social forest, the clusters can consist of several households (4-6), so that the social network can be expanded. The sanctuary forest has more intimate and smaller numbers in a cluster ($x < 4$).