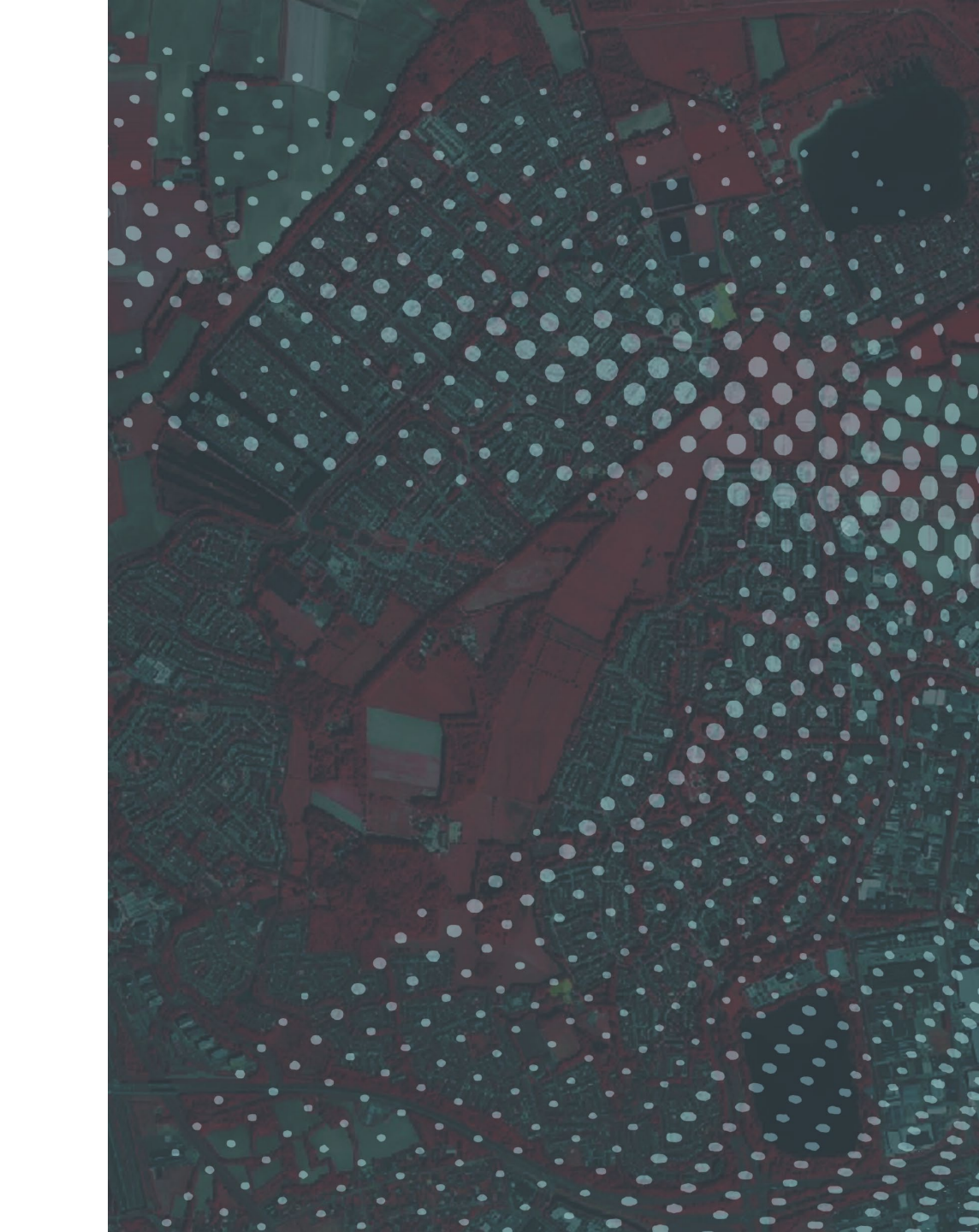




The Inverted Estate.

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

Annelieke Beckker

4970314

Lab: Urban Forestry, Forest Urbanism

P5 presentation

Mentors:

J.R.T. van der Velde

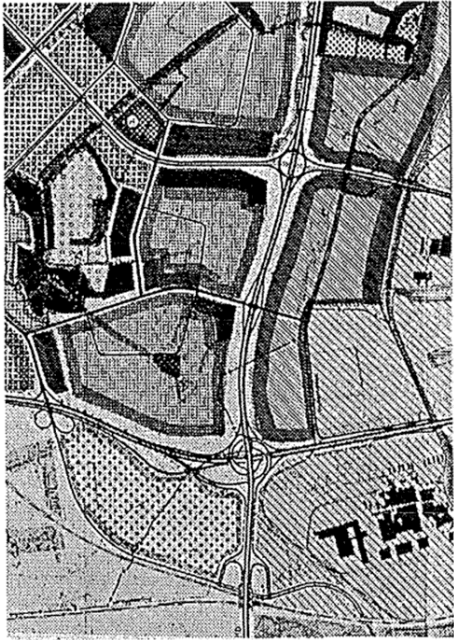
M.G.F. Overschie



What would you do

*if you were given the opportunity to design a whole new
neighbourhood?*

1971



1979



*Old and new design Haagse Beemden
(Source: Tummers & Tummers-
Zuurmond, 1997)*



*Hoge Vught in construction in 1971
(Source: Steenhoven, 2019)*



(Source: Steenhoven, 2019)

Inverse Town Planning

35 icons of Dutch spatial planning

- ➔ Focusses on liveability
Access to health care, education
and a **safe and stable environment**.
(Oxford Big Ideas Humanities, z.d.)
- ➔ Strong connection with underlying
landscape
- ➔ Green never more than 400m away in the
Haagse Beemden
According to research, urban green
catalyzes liveability and social
cohesion.
(Jennings & Barmkole, 2019)

“ The Haagse Beemden is one of the most outstanding and honored practices of spatial planning in the Netherlands.”
(Ministry of Infrastructure and Environment, 2012)



(source: planviewer, z.d.)

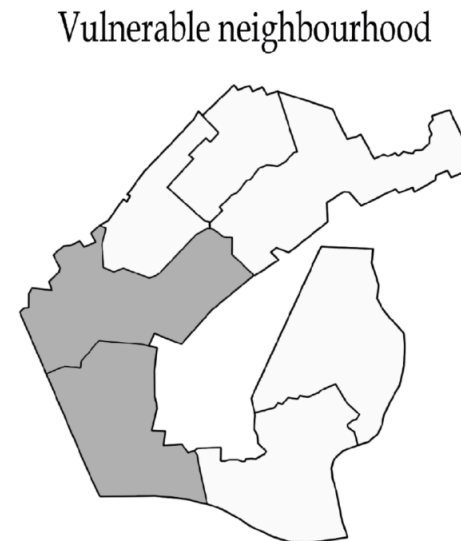
Problem statement

Although the initial design for the Haagse Beemden **targets specifically a good social landscape**, this is exactly the problem the neighbourhood is facing now. **Two parts of the neighbourhood are assigned the status of “vulnerable”**, meaning they suffer on multiple levels like income, opportunities, education, health, social participation, loneliness, and safety.

This indicates that, possibly, the green structure doesn't function like it is supposed to do.



Districts of Haagse Beemden. Own image.



Vulnerable neighbourhoods. Own image.

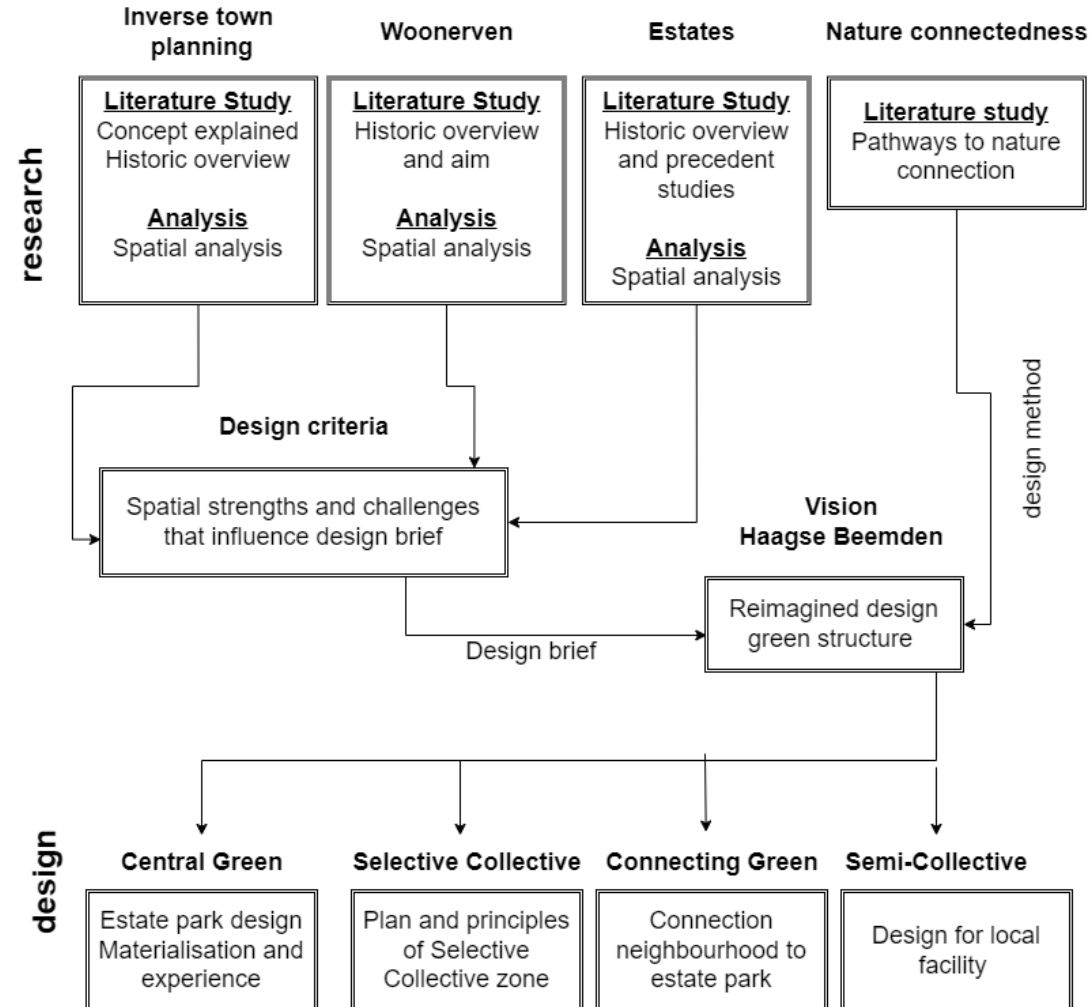
Research questions

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

Sub research questions:

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

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





PART I

THEORY
&
ANALYSIS

Inverse town planning

Woonerven

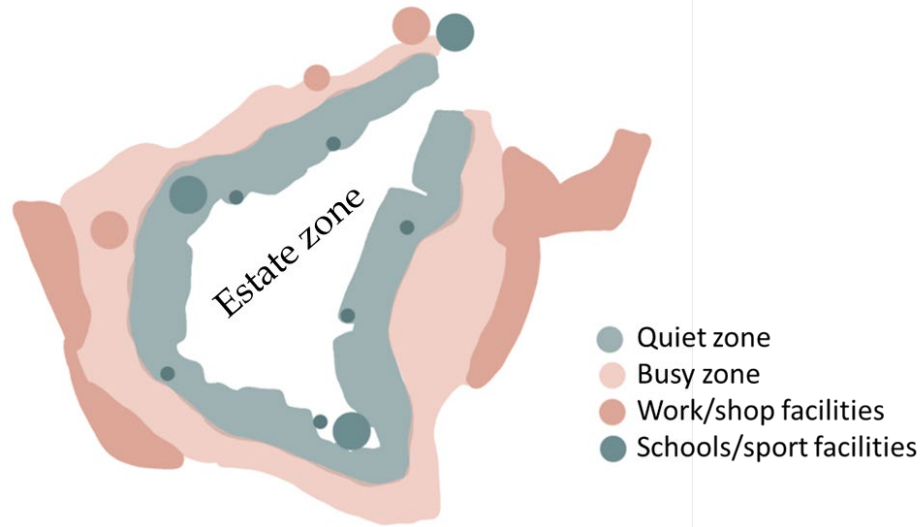
Estates

Nature Connectedness

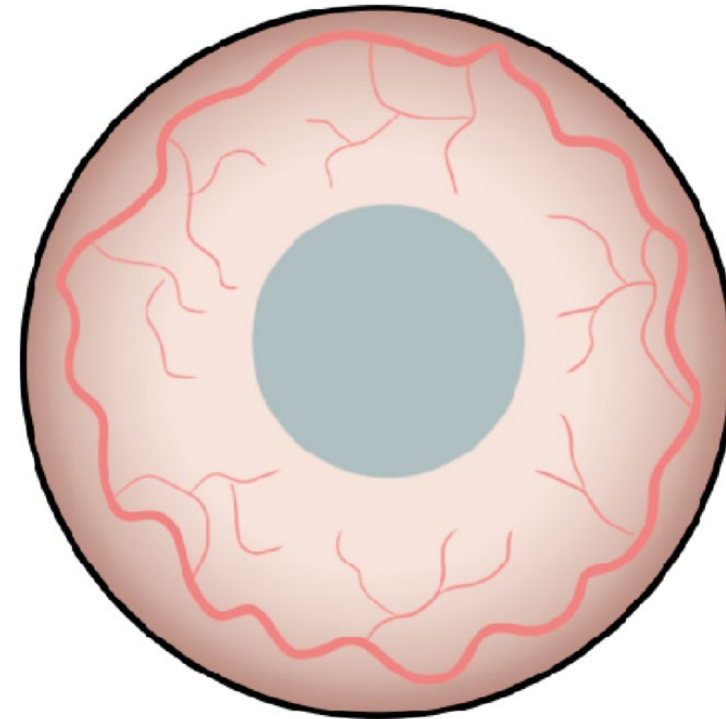
Concept inverse town planning

Order of importance in design:

1. *Landscape*
2. *Destinations. Contra shape*
3. *Roads*



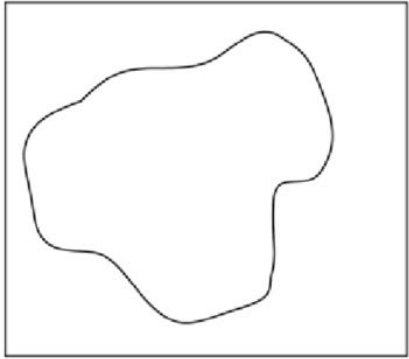
Spatial lay-out. Own image.



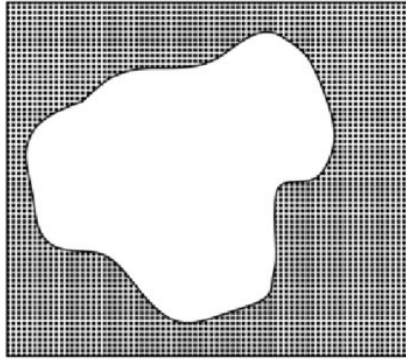
Two components:

- *The green heart/pupil*
- *The residential part*

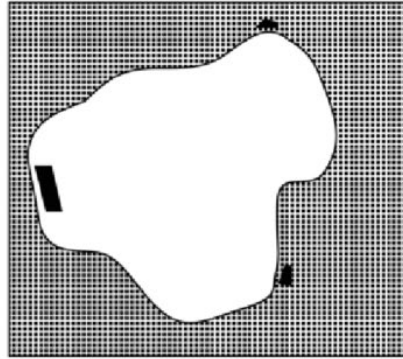
“Inversiedrieslagstelsel”



Open space with permanent status



Build areas around open space border



*Completes the system, is climax stage.
Special building or facility is placed around the border to unite the built area and the open space.*

figure: Inversiedrieslagstelsel principle. Own image.

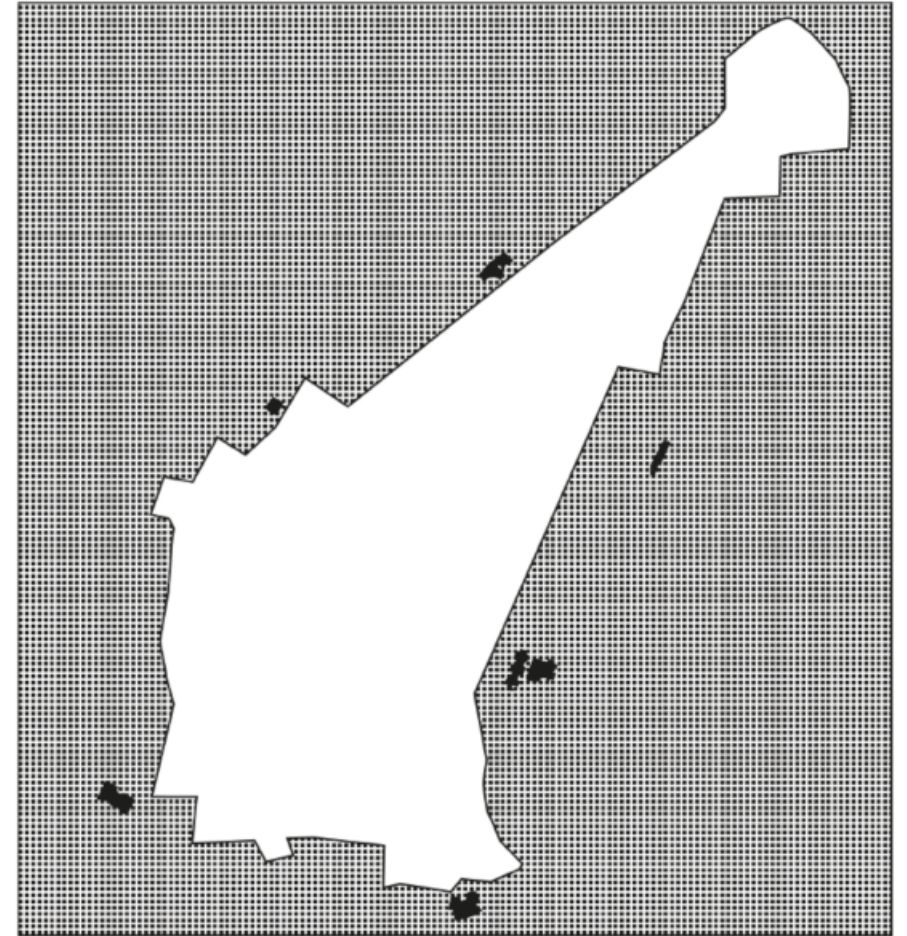


figure: Drieslagstelsel applied onto estate zone with primary schools as landmark buildings. Own image

Physical and visual connection estate zone - landmarks

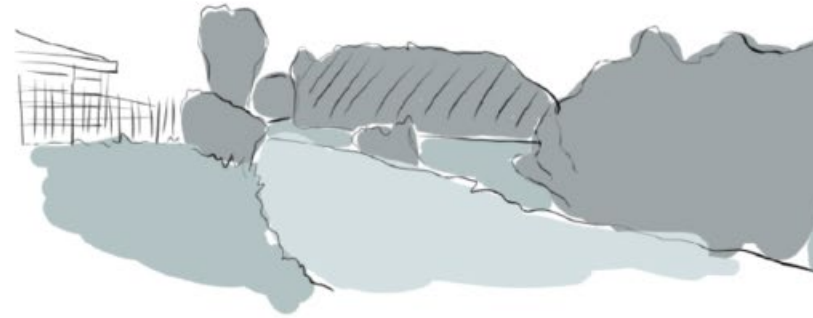


figure: Borders separating schools from estate zone. Own image



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

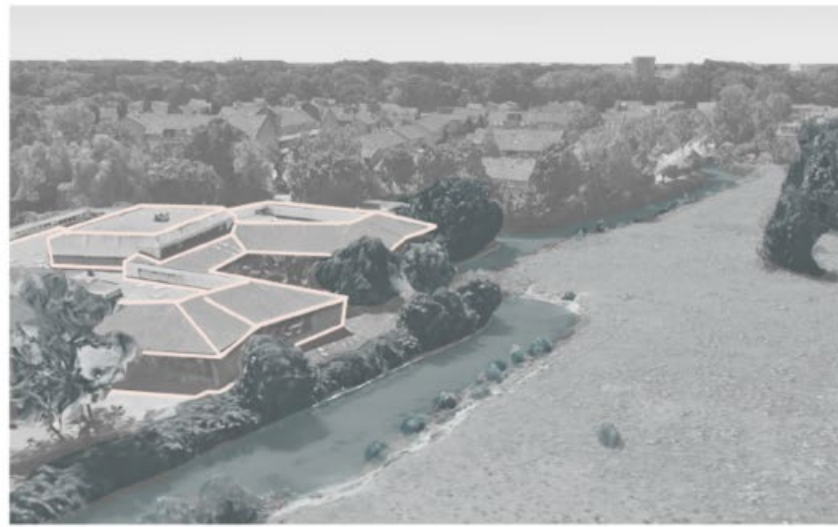


figure: Hoogakker primary school, relation to estate zone. Own image

	Physical connection	Visual connection
Nuts Basisschool Burgst	NO	NO
Basisschool de Rietvink	NO	YES
KBS Olympia	+/-	YES
NBS De Hoogakker	NO	YES
KBS De Werft	NO	NO
De Hoogakker (Blokmoeren)	NO	NO



The Inverted Estate

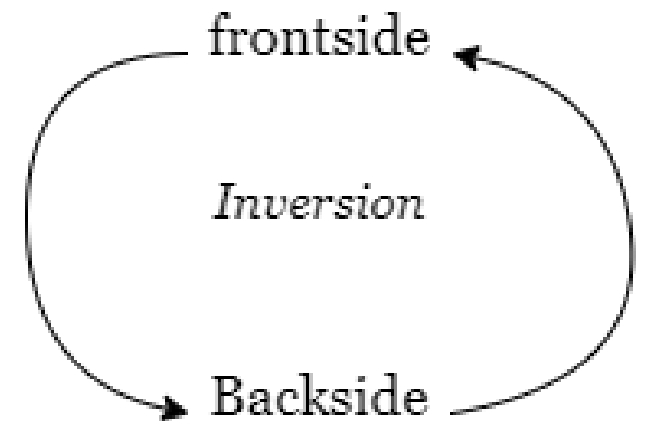


Woonerven

Inversion of facades and meaning



figure: Illustration boerenerven in brinkdorp. Own image.



Different relations woonerf/ green structure

Car accessibility



Cul- de -sac courtyards

Blind alleys

Continuous roads with squares

Continuous roads without squares

Green structures



Central public green

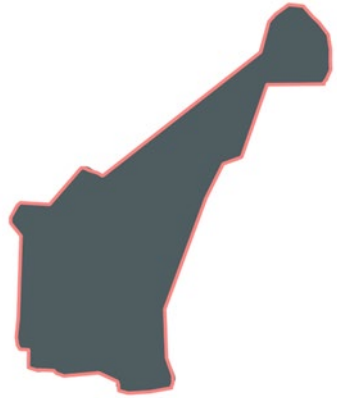
Spread public green

Collective green space in between districts

Green squares within living blocks

Source: Quaedflieg and Mooij, 2012

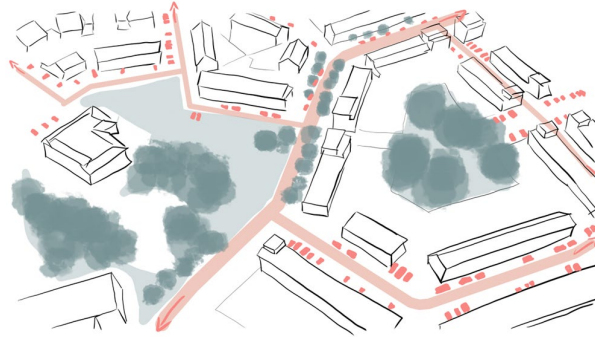
Woonerf typologies



Central green

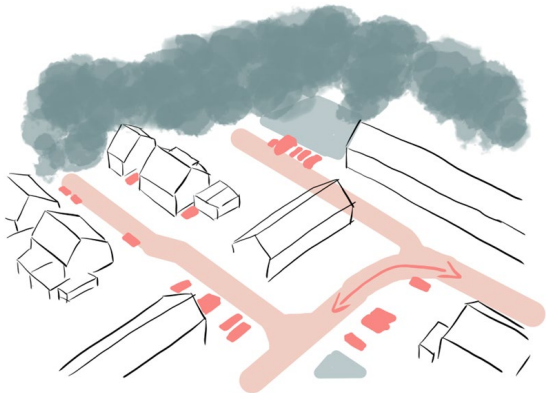


Selective collective



Rushing space

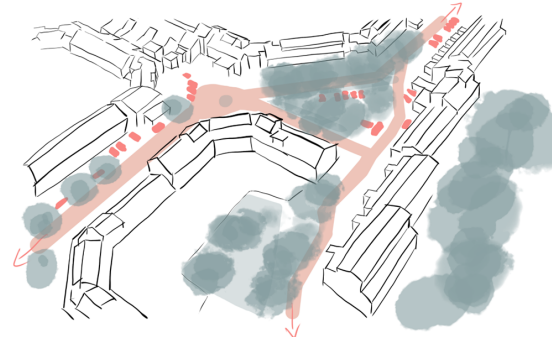
- Central green
- Selective collective
- Local public space
- Semi-collective space
- Rushing space
- Connecting green



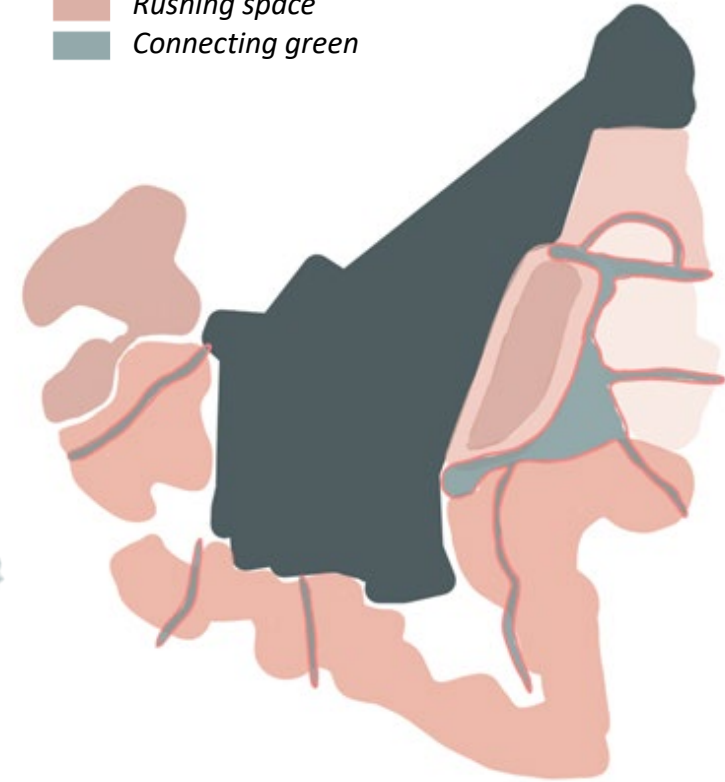
Local public space

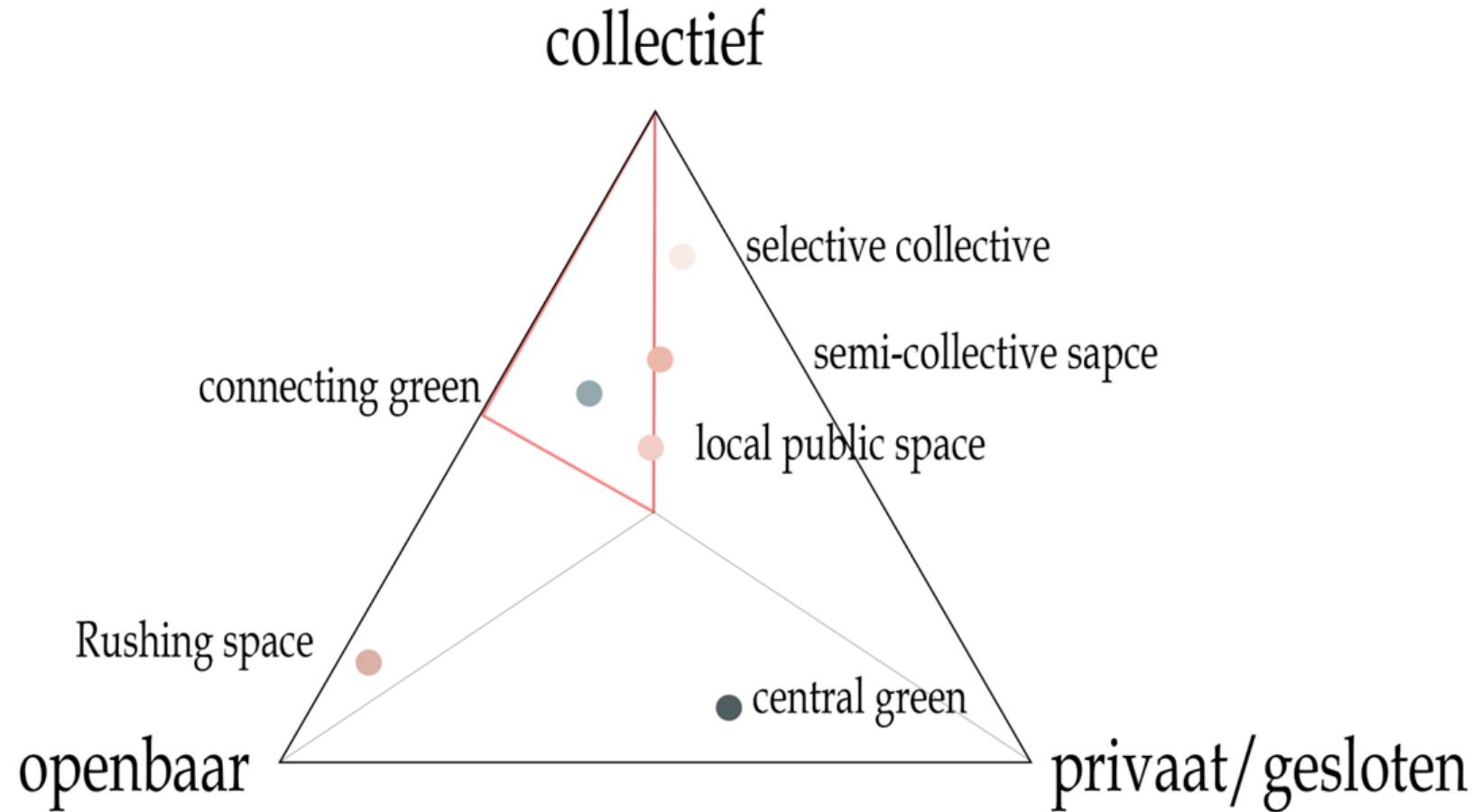


Connecting green



*Semi-collective
space*





Rushing space and central green have the biggest potential to improve with a spatial intervention.

Estates

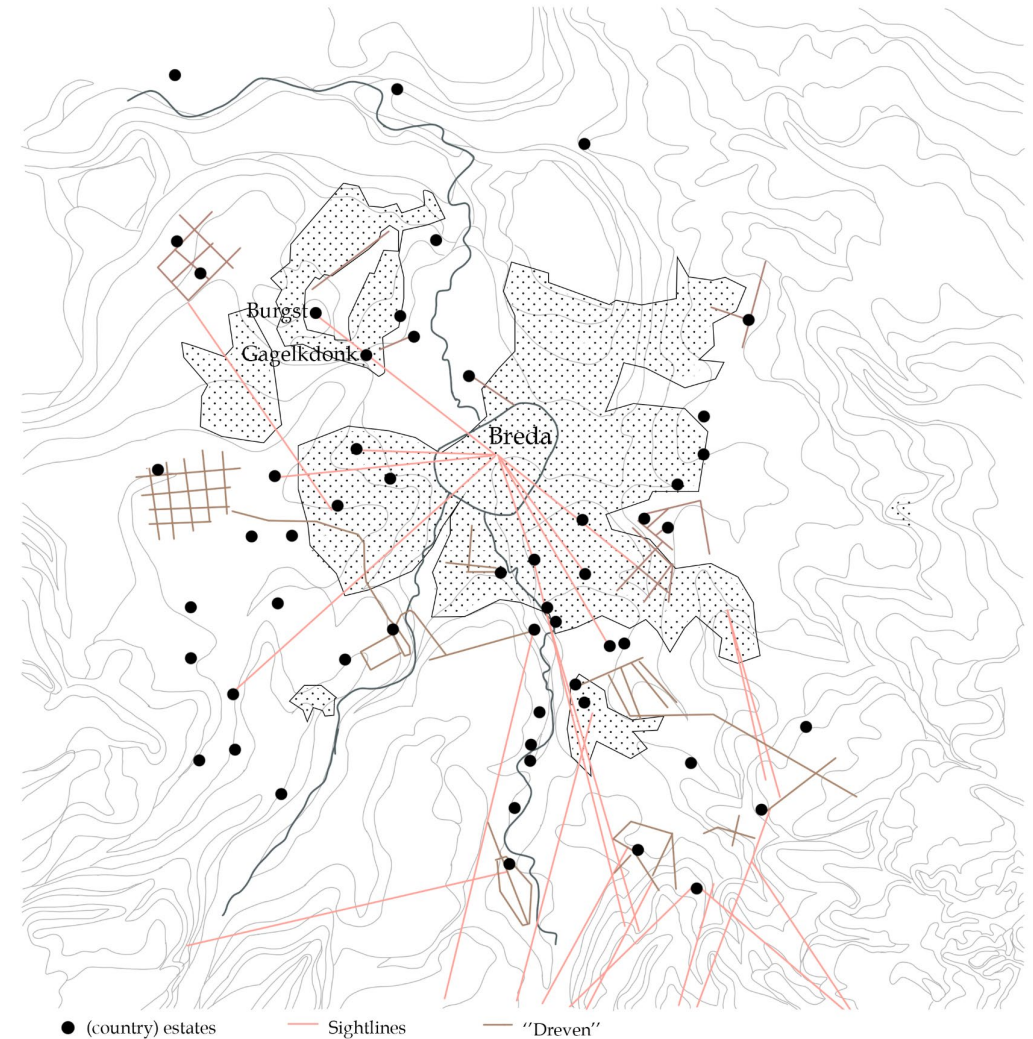
Exists of:

- residence of extraordinary character
- ornamental garden
- agrarian businesses
- forest parks
- waterbody
- lanes and "dreven"

- **Economic unity.** Yield is used for economic benefits.

Sightlines

Carefully designed to show status and prestige. Often linked manor to point of interest, like old church or other estates.

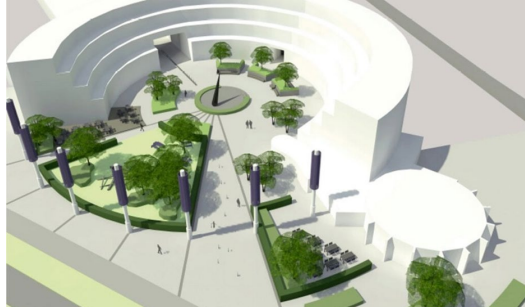


Estate landscape. Own image



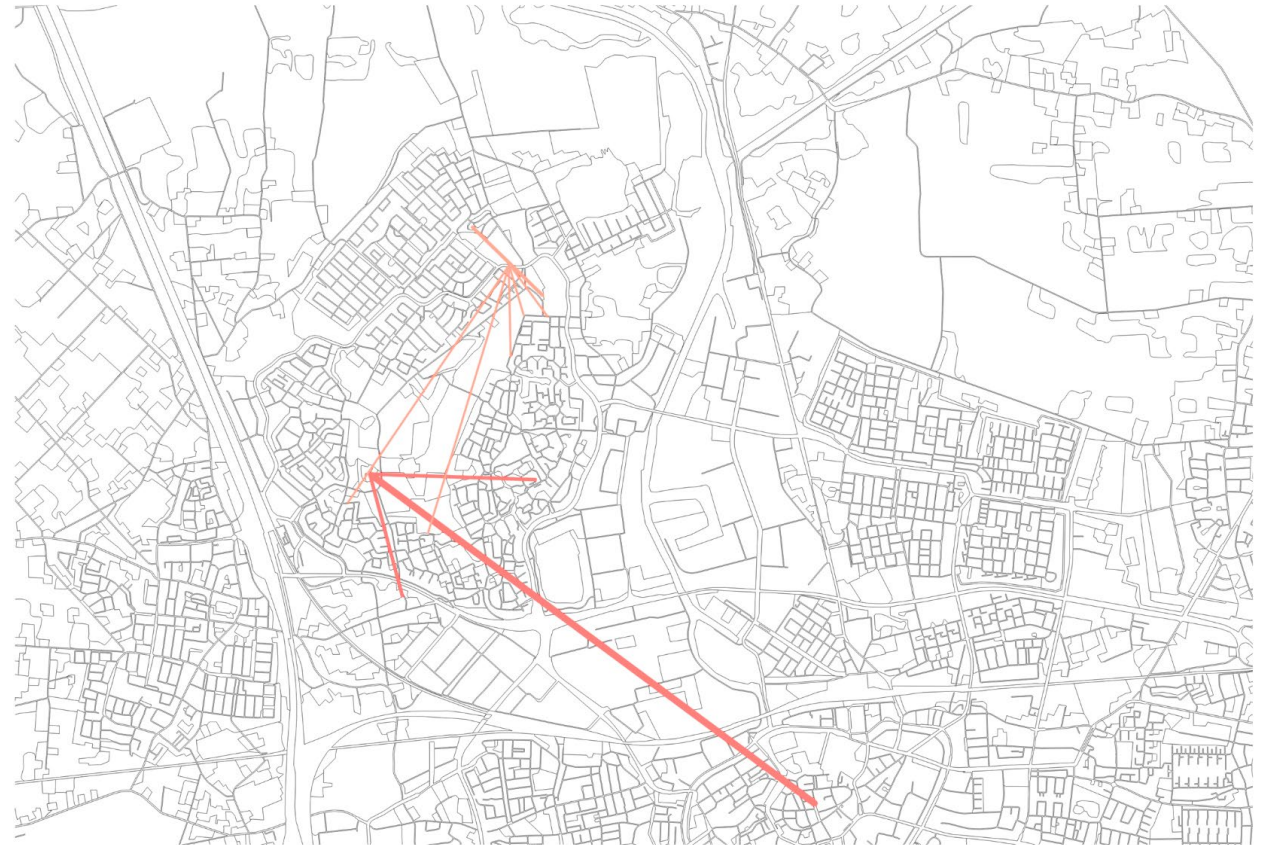
Landgoed Burgst

- 1790
- Sightline to church Breda, visual connection to city
- status and prestige. Private property.

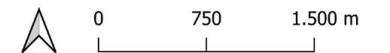


“Landgoed” Heksenwiel

- 1994
- Focus on cultural history (story) and estate zone.
- Public facilities.



Focus of estates. Own image



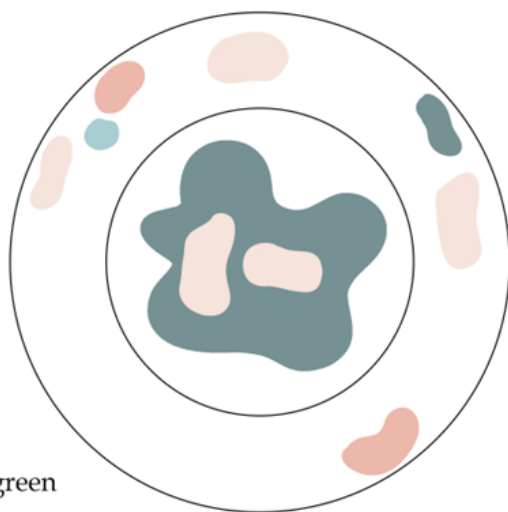


Source: Regio Leidsche Rijn

Design criteria

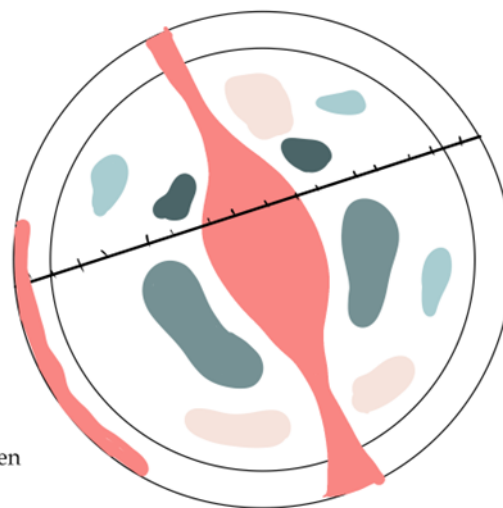
- Add extra path/border within park to attract visitors
- Include facilities within park, extend borders of park
 - Make whole park public property
- Make estate zone green center of the neighbourhood
- Use zonings for nature development/recreation etc.
 - Use old structures

Birkenhead



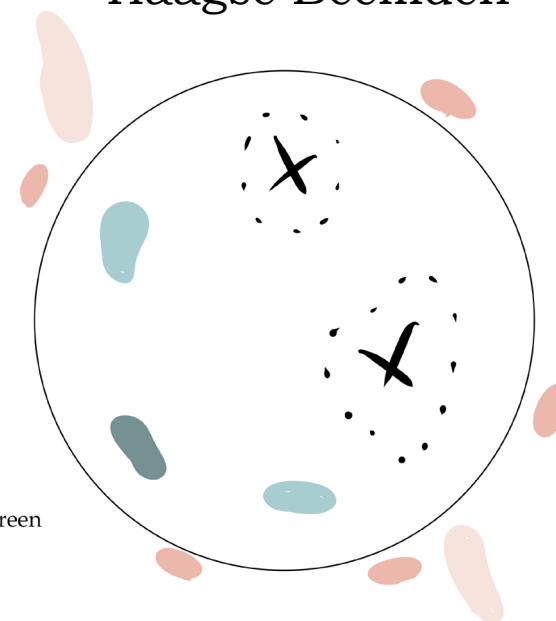
- recreation in green
- schools
- care facilities
- sport facilities

Maximapark



- recreation in green
- schools
- care facilities
- sport facilities
- nature
- residential area

Haagse Beemden



- recreation in green
- schools
- care facilities
- sport facilities
- nature
- residential area

Pathways to nature connection

How can we improve these green structures?

Research proved that there are 5 factors that are helpful in achieving a better nature connection:

(Lumber et al., 2017)

1. Contact
2. Emotion
3. Compassion + *urban forestry*
4. Meaning
5. Beauty

Contact

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

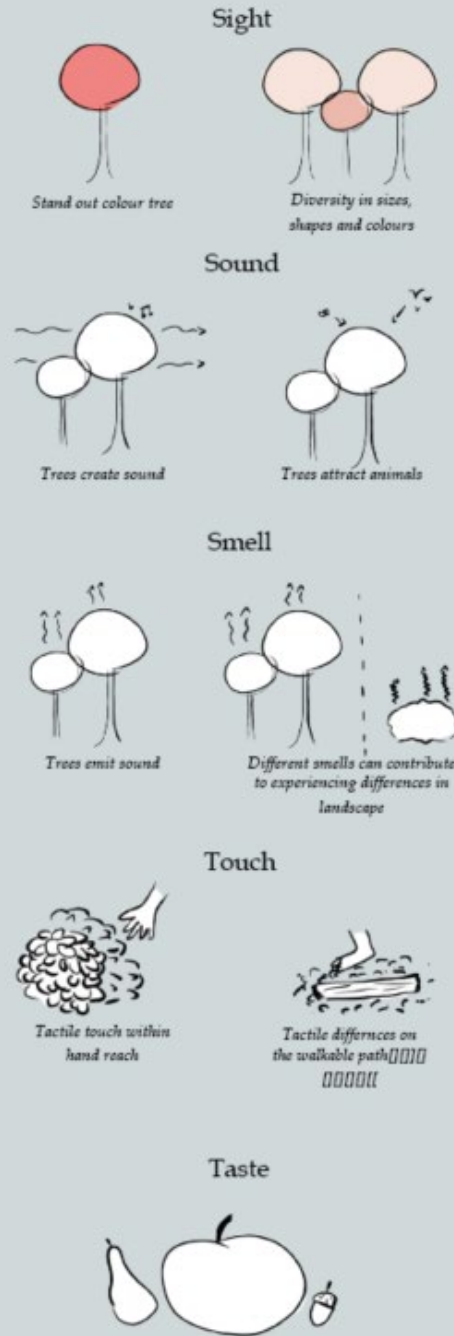
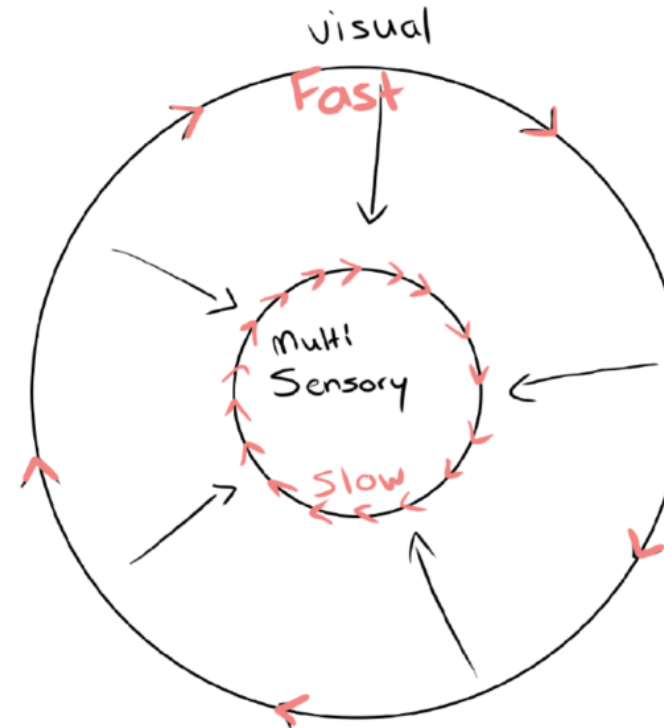
Fernsicht/nahsicht

Fast/slow

Far away/close by

Cars/cycle or walk

Focussing on nahsicht brings people closer to nature. (Dee, 2004)



Emotion

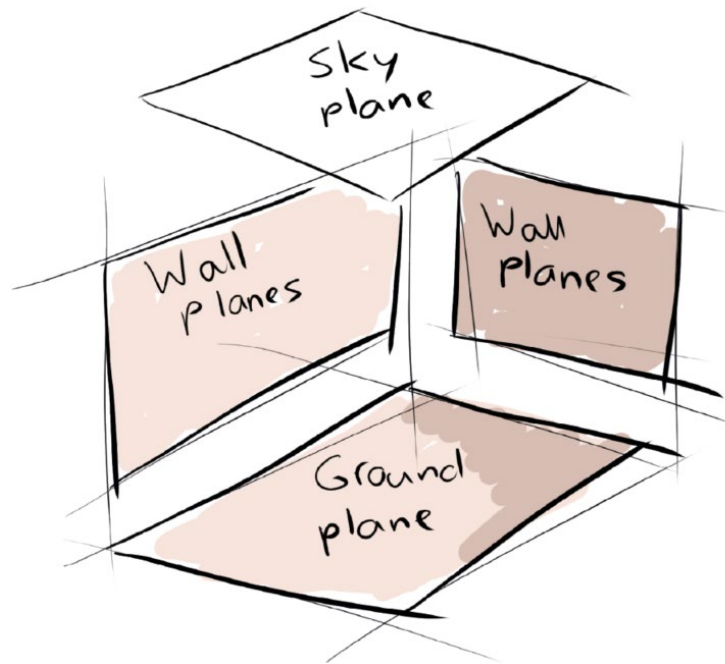
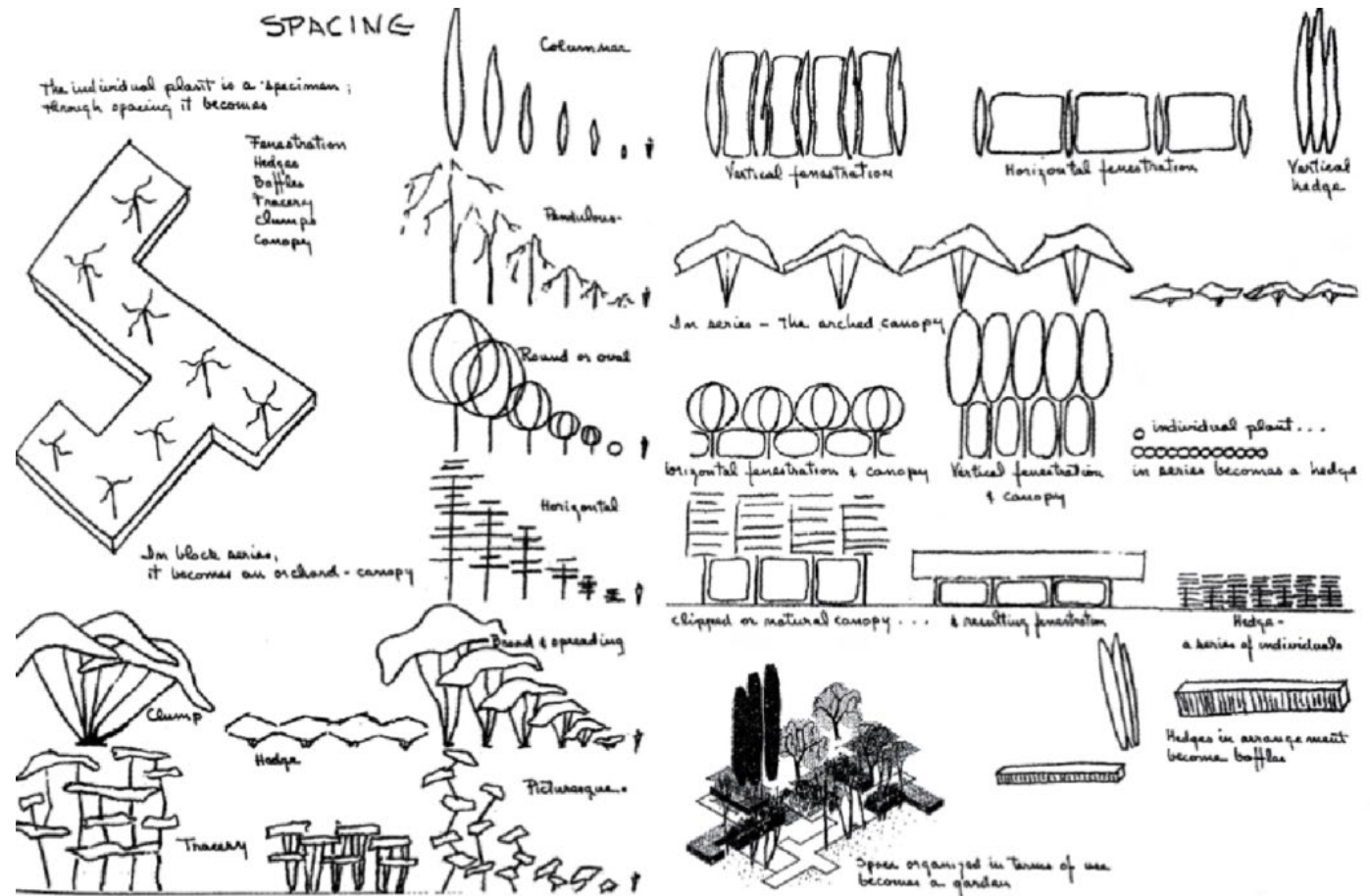


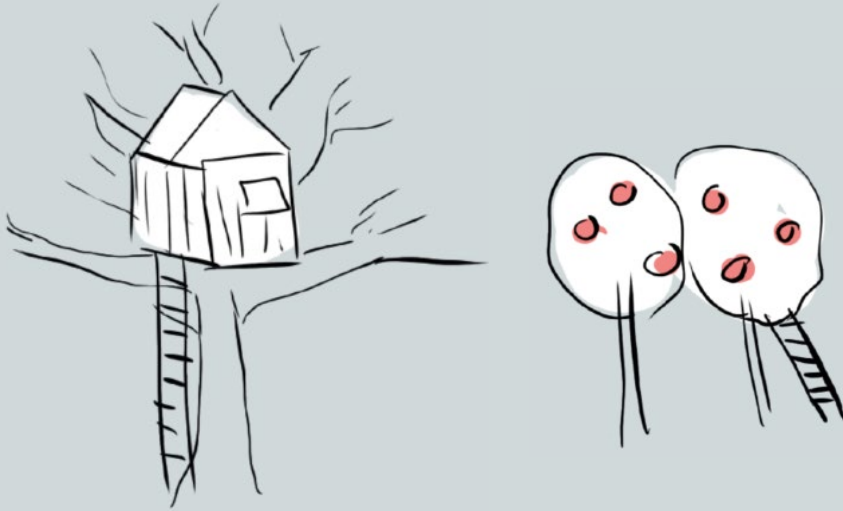
figure: Planes of space. Own image



1

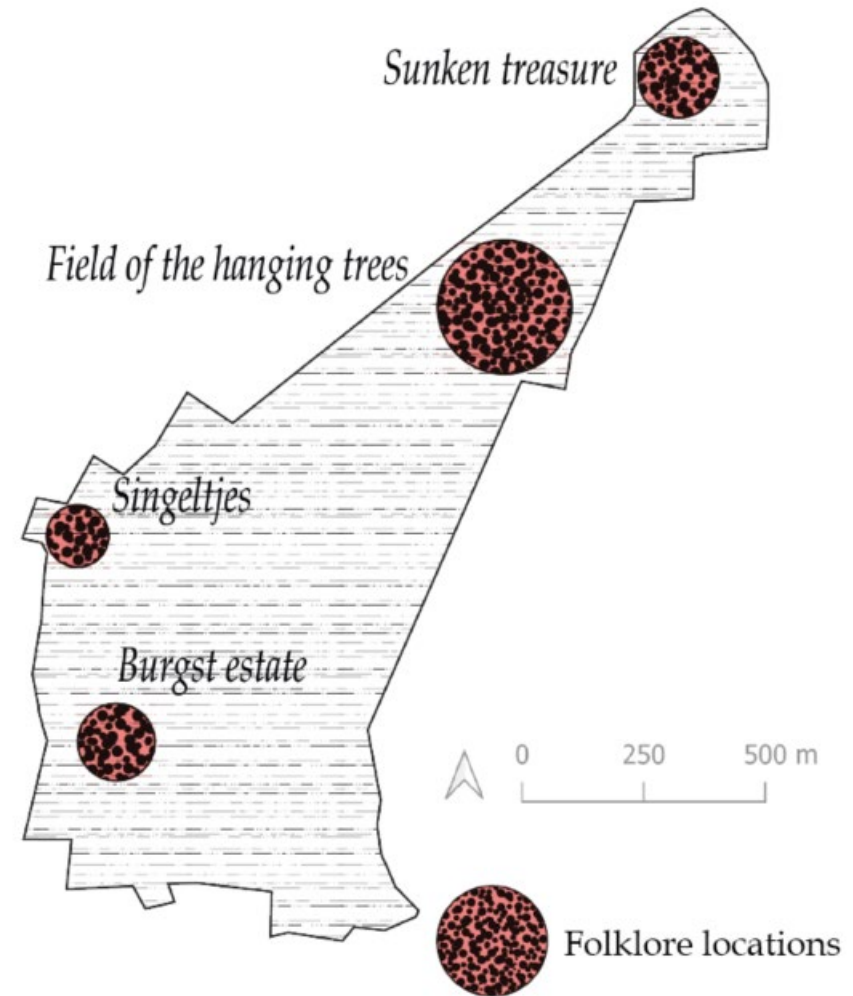
figure: Plant spacing. (Source: Rose, 1958)

Compassion



"De Jong (2017) states that an important factor in achieving biophilia is the longing for taking care of a place."

Meaning



Beauty

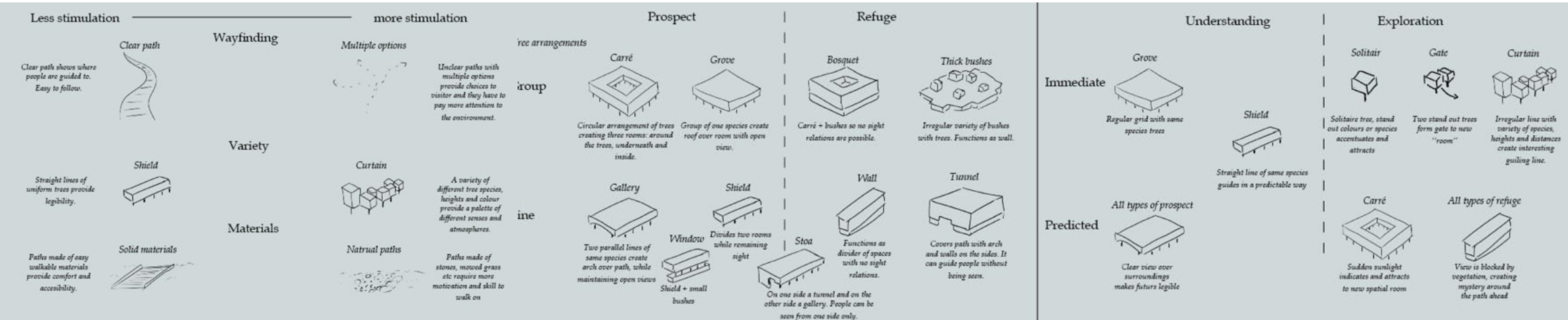
	understanding	exploration
immediate	coherence	complexity
inferred, predicted	legibility	mystery

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

Arousal and stimulation

Prospect-refuge

Environmental preference



So, why doesn't the green structure function as it should?

Social changes:

Individualization,

More cars,

Working women

Spatial changes/problems:

Landmarks, schools, do not function

Unsafe routes along old waterways and roads

Estate zone not accessible

Design criteria

Theory:

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

- The green space has a permanent status and is of a decent size.
- The borders of the enclave should benefit from a nice view over the open area.
- Paths perceived as unsafe should focus on having eyes on the street.
- The green structure should be easily accessible from the dwellings.
- Use multisensory experiences, especially within the “central green” and “connecting green”
- Use planes/tree architecture. This benefits “room” experience
- **Use shared ownership to stimulate compassion**
- **Use local folklore to stimulate meaning**

Analysis:

- Design Rushing Space to achieve more prestige
- Focus Central Green & Connecting Green on multisensory experience
- Make estate zone more accessible

Precedents:

- **Use an extra path/border Include facilities more within park**
- **Design a clear border between the park and the city**
- **Use old specific landscape elements in design**
- **Give facilities the function of a manor**

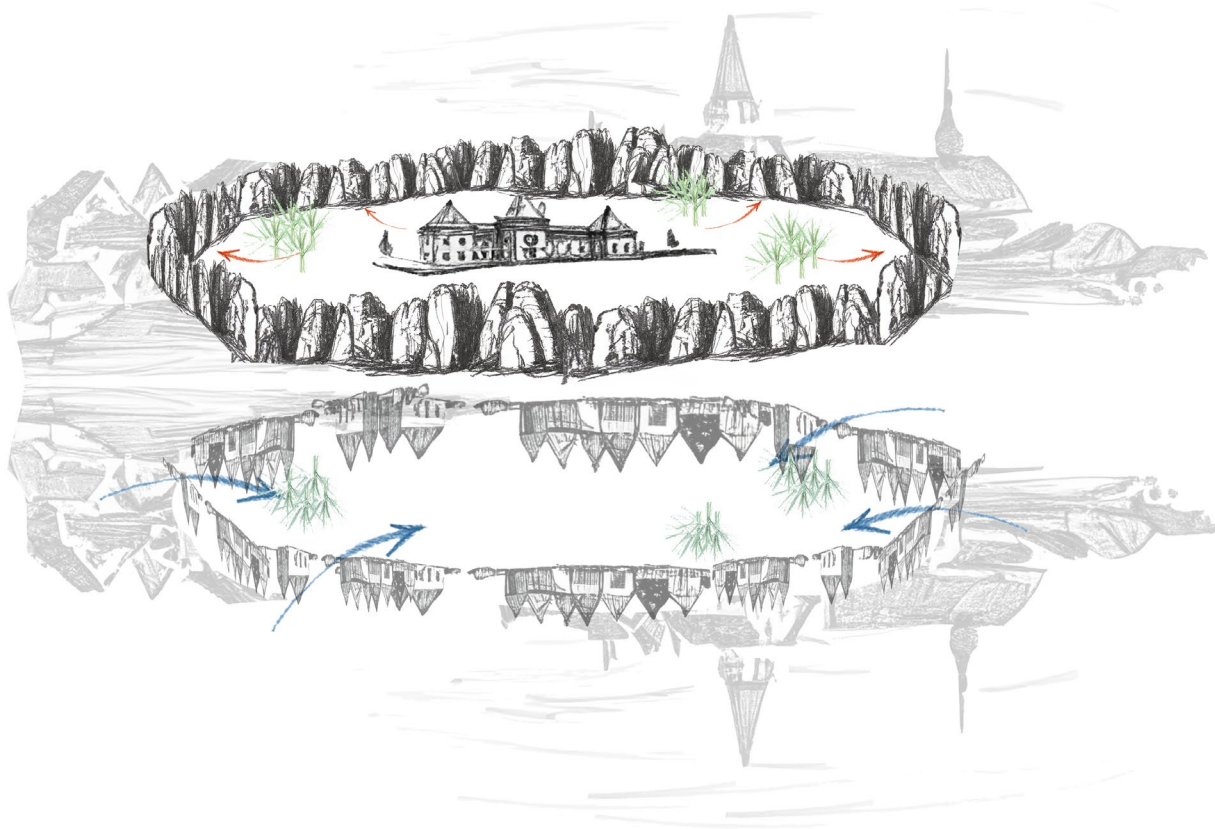


PART II

VISION
&
DESIGN

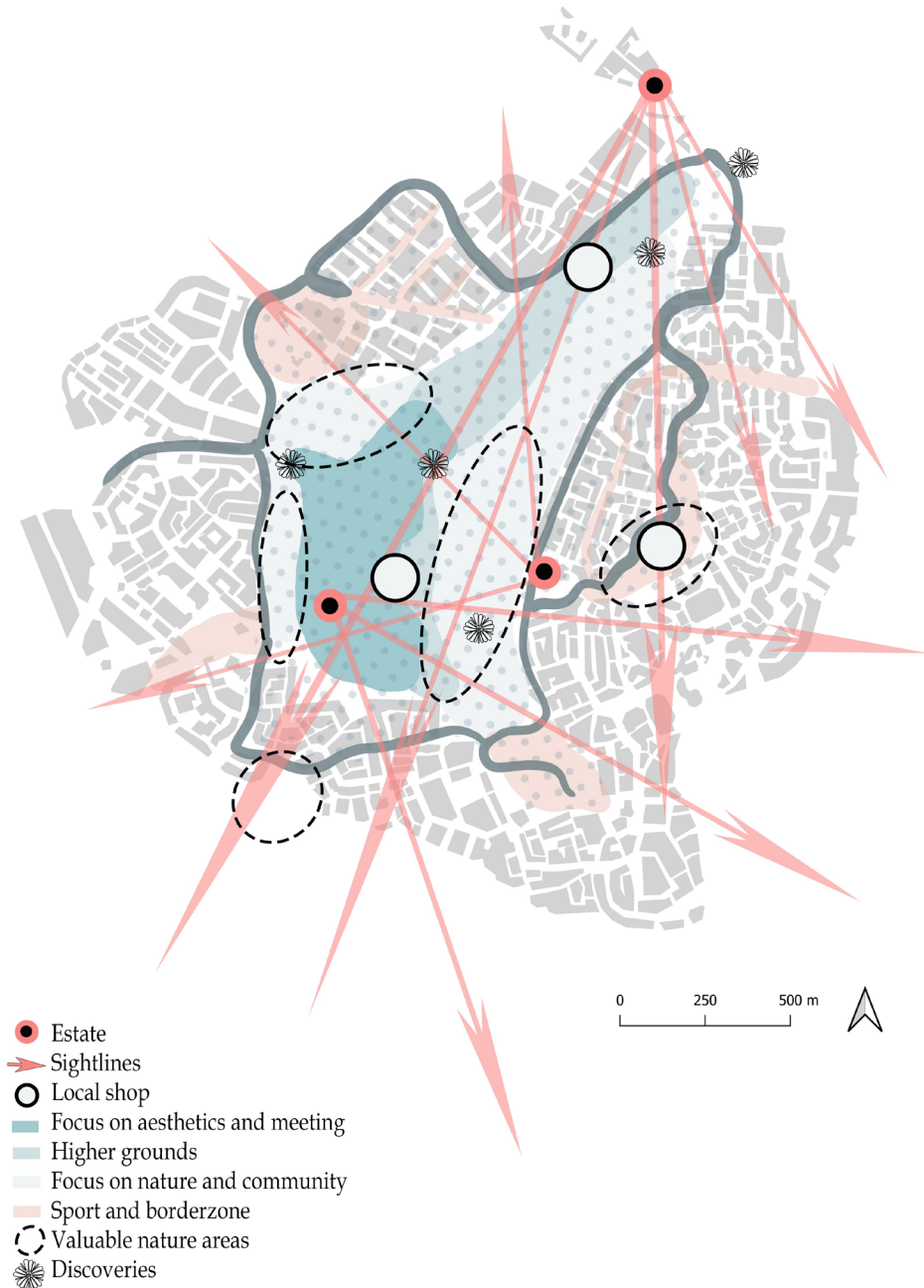


Estate park



Interweaves city and land

The Inverted Estate

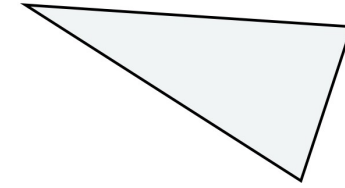


Vision

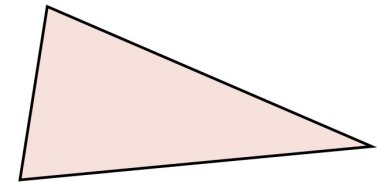
Estate park

- Urban park
- Extended in to neighbourhood
- Zonings for nature development, recreational nature, food forests, events etc.
- 3 estates lead with their sightlines to a network of physical paths, visual connections and new facilities.

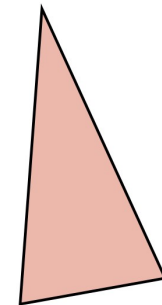
Burgst



Werft



Heksenwiel



Composition elements

Typologies + characteristics estate

1. Central green

Highly **public** space. Open to **everyone**

- Accessible urban park



2. Selective collective

Small area, only accessible for a **few**. Used **collectively**

- Places of wonder
- Places of nature development



3. Connecting green

Connects residential areas to central green

Public space, open to **mainly inhabitants**

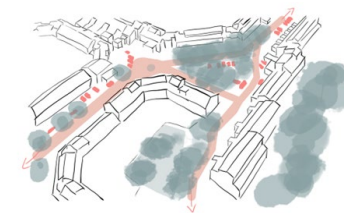
- Waterways and old routes/cycle paths



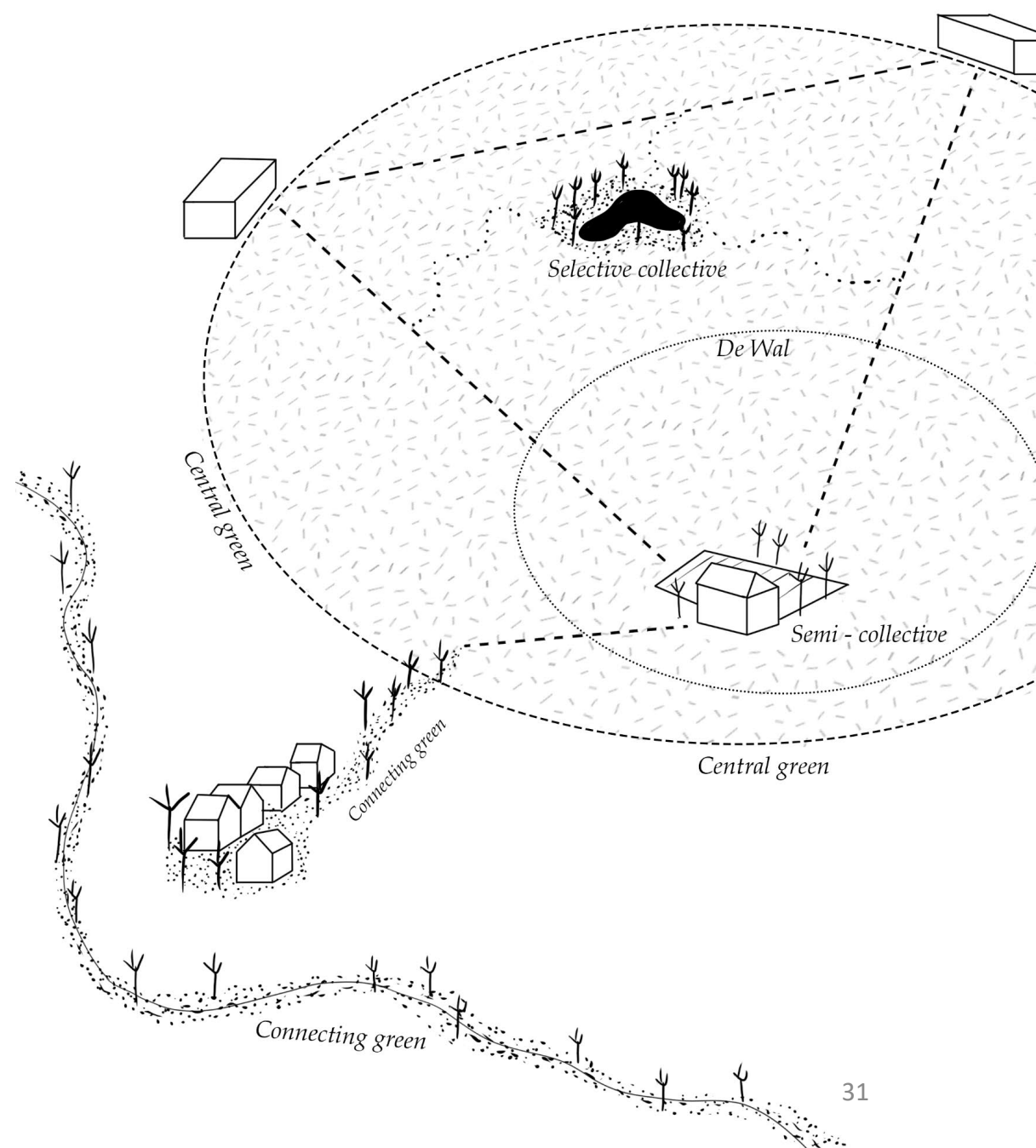
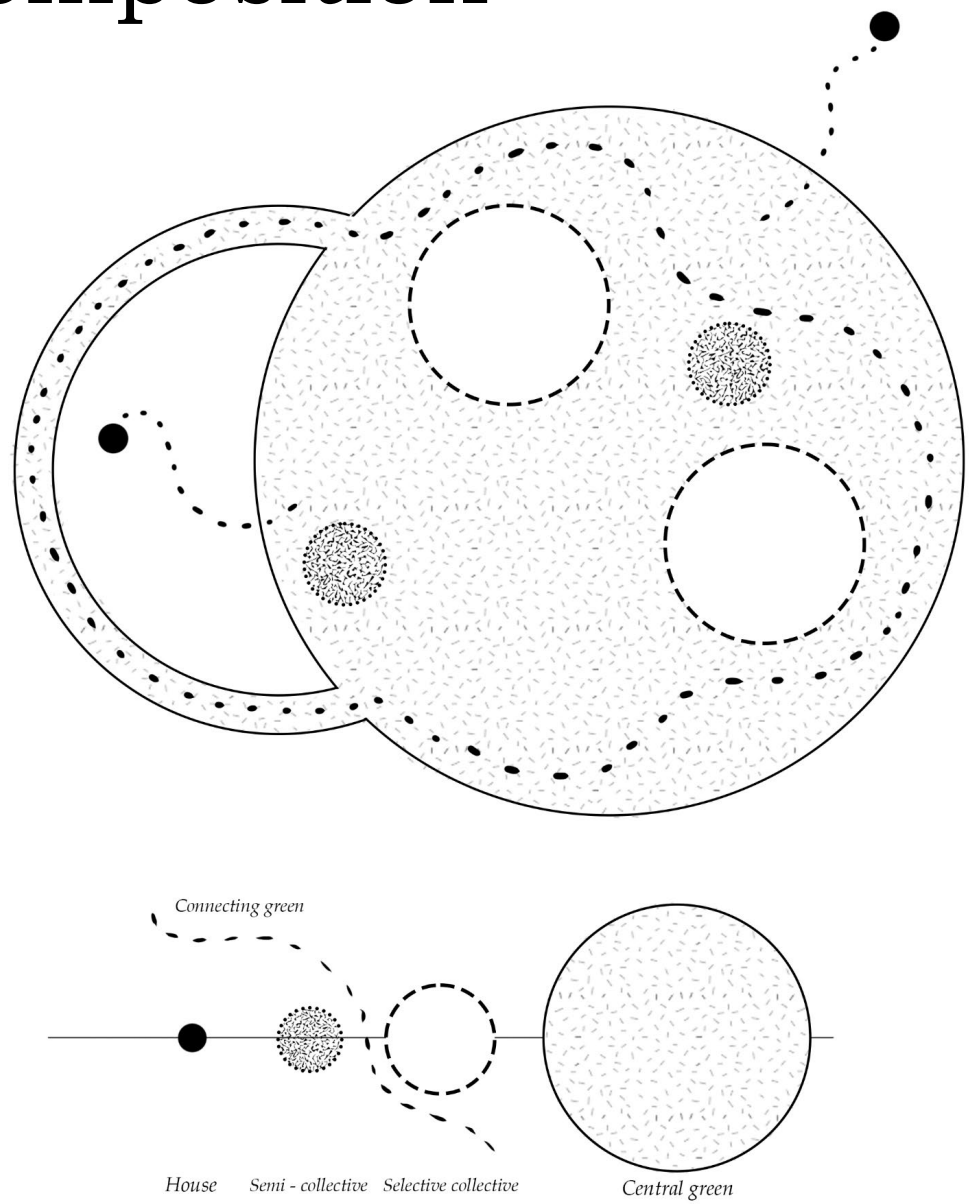
4. Semi-collective

Facilities/ places used **collectively**, but are **private property**. Accessible for everyone living nearby.

- Local shops/gardens
- Events location



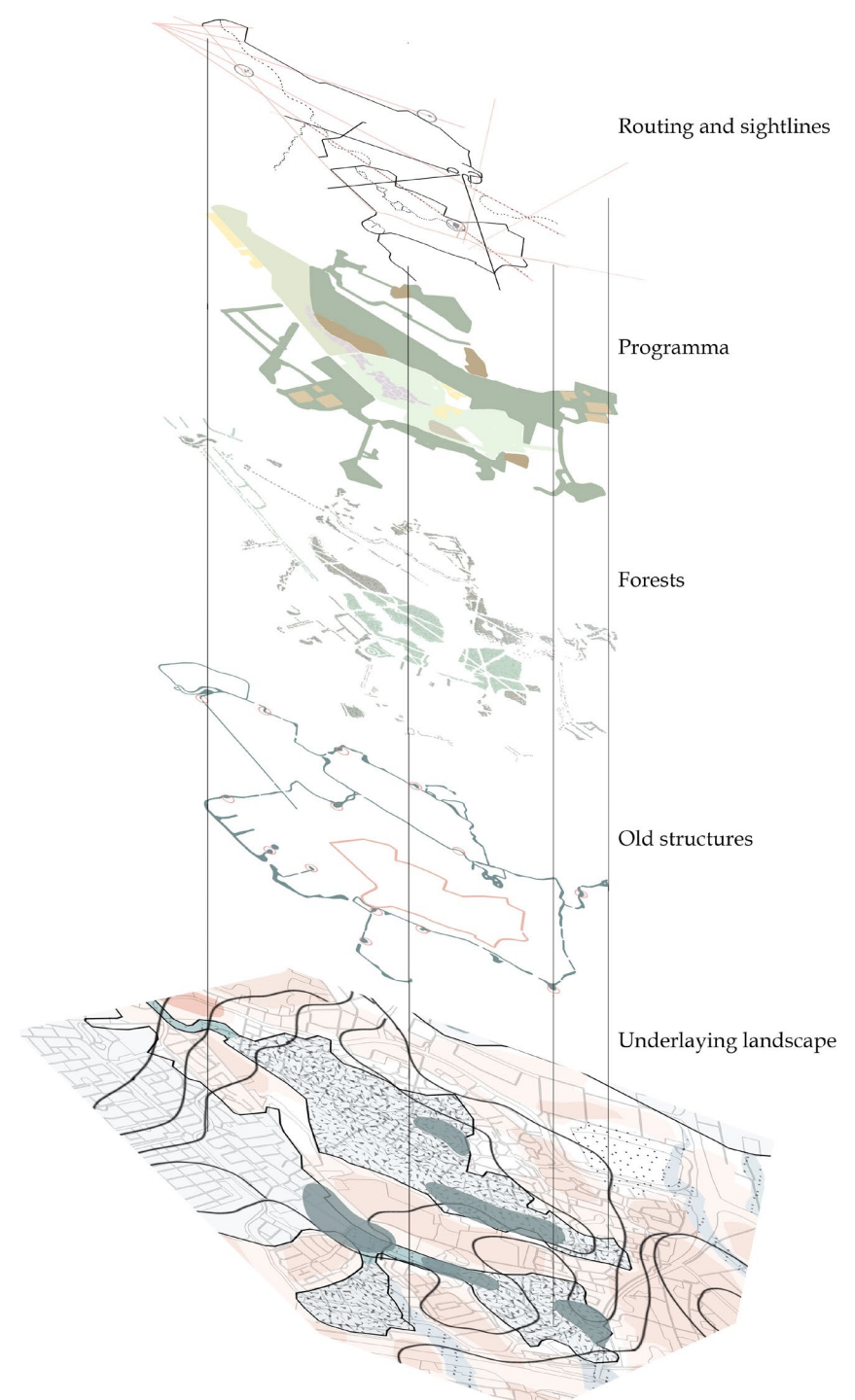
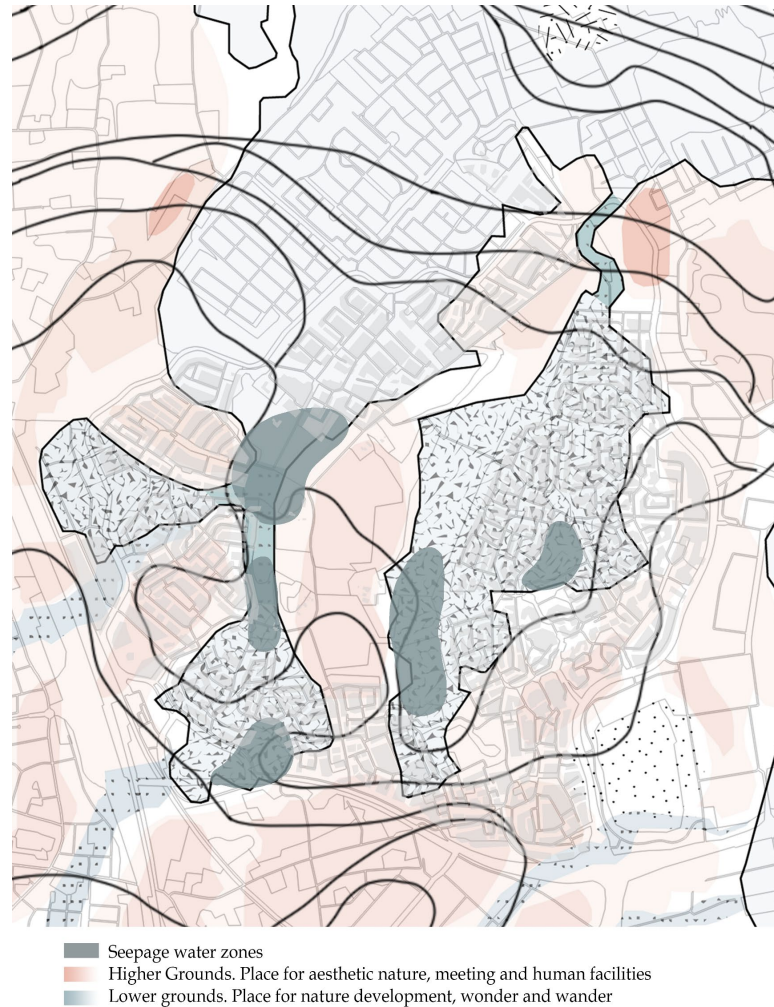
Composition



Natural layer

Where focus on
nature/ focus on
people?

Seepage water areas
-> protect



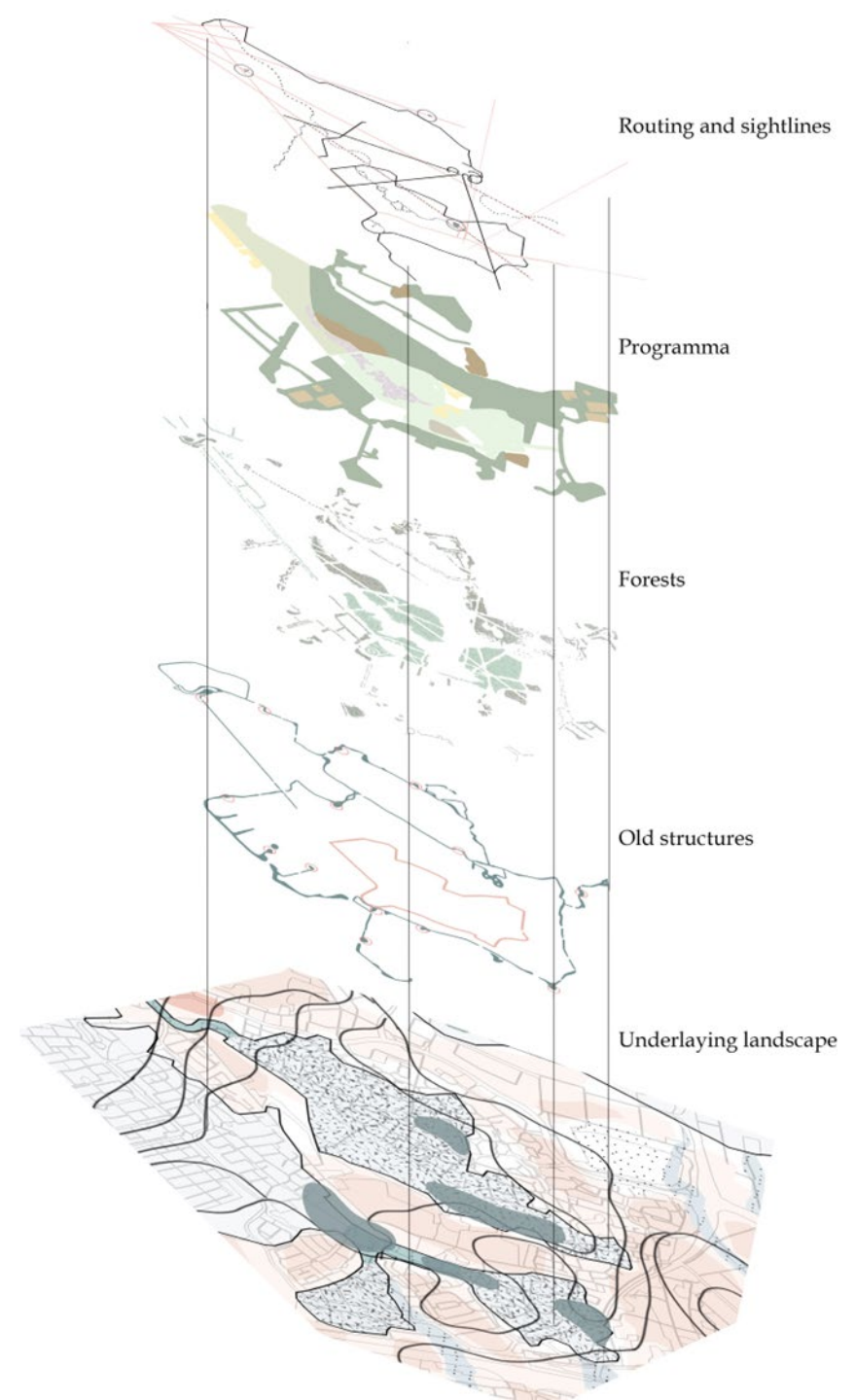
Old structures, new infrastructures

Old waterway guides new border.
New recreational network.

Earthen wall as new path, separates “within the wal” from “outside of the wal”.



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



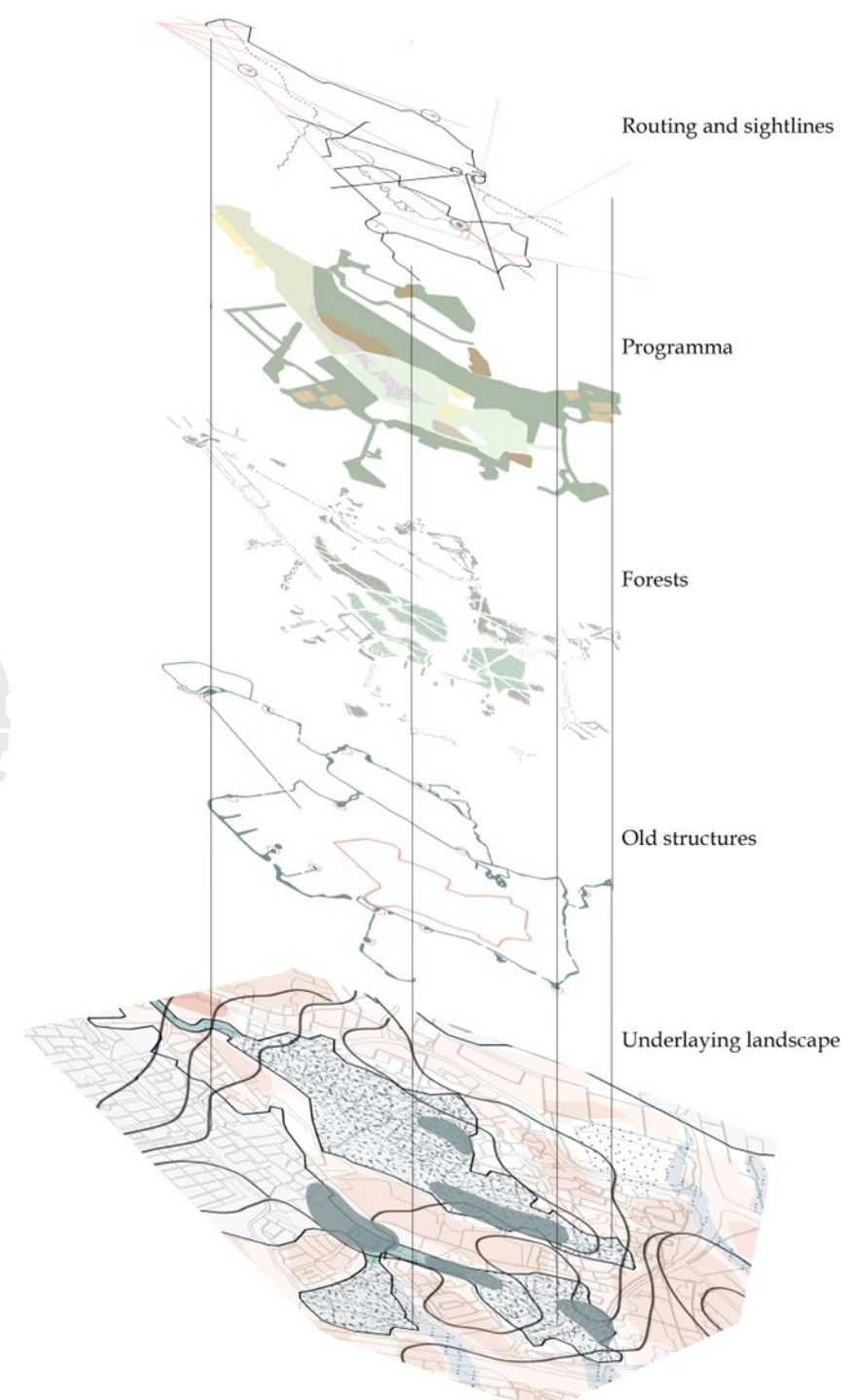
Forests

Location on higher grounds or lower grounds determines function of forests; wood production/ aesthetics or nature.

Forests that meet lines of Heksenwiel are assigned as food forests.



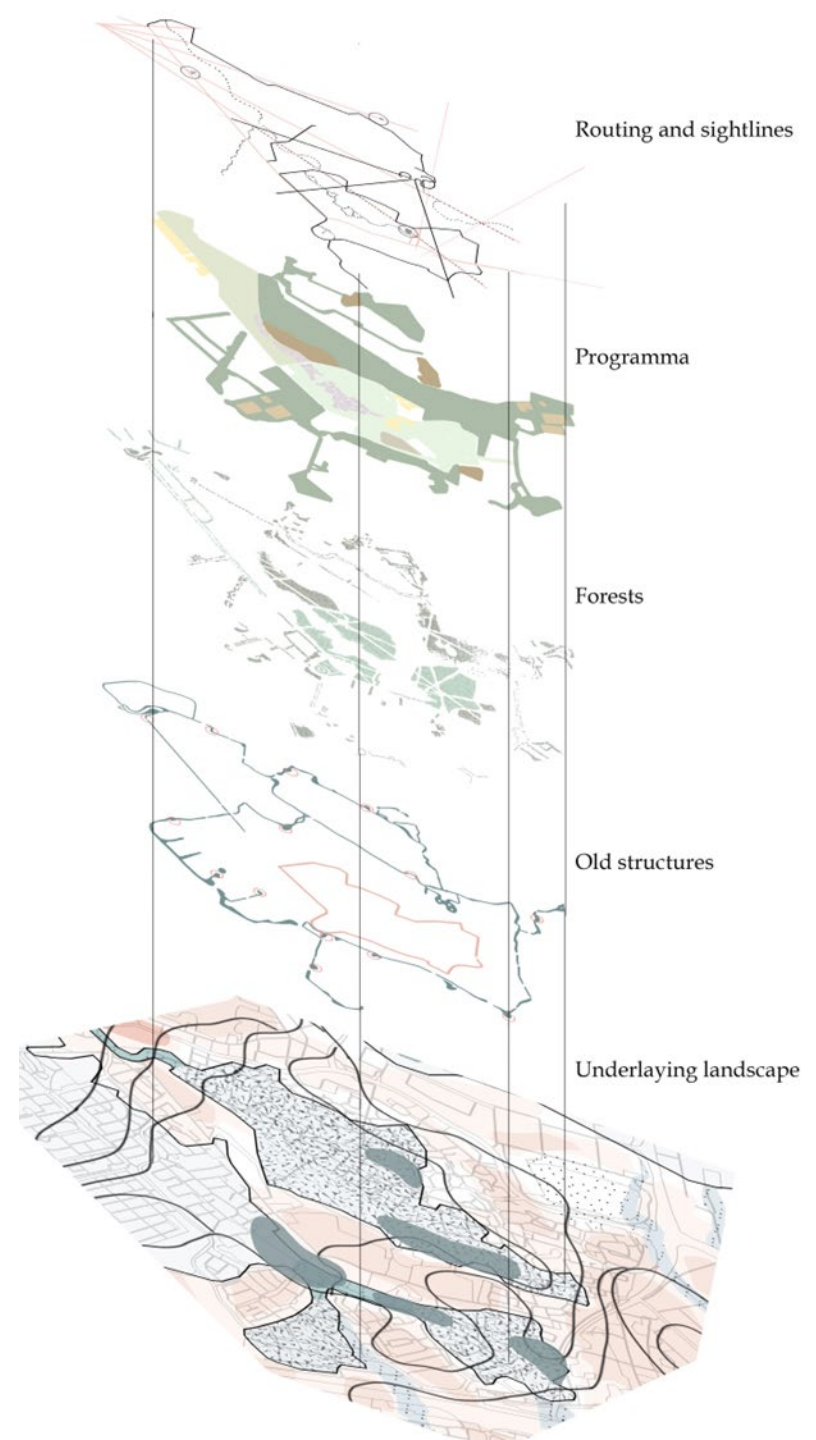
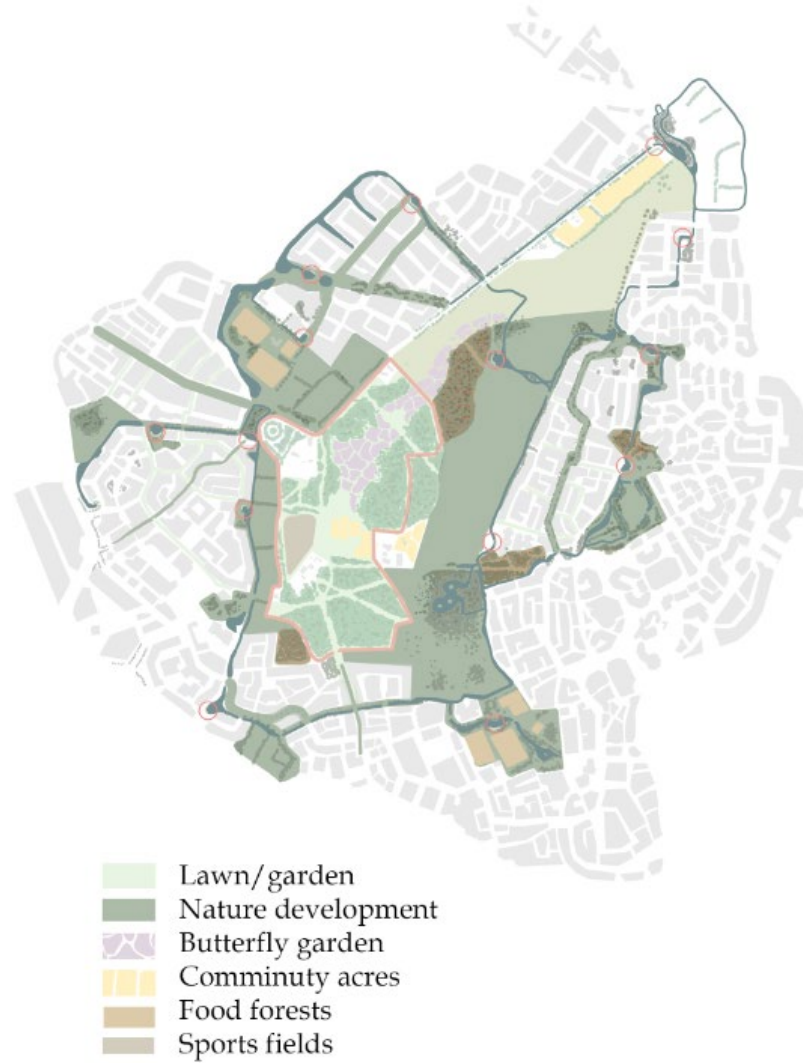
- Food forest
- Natural forest
- Park forest



Program

Focus on recreation and meeting “within the wal” and focus on nature “outside of the wal”.

Events location, butterfly garden, park forests and community gardens.



Sightlines

Sightlines have different themes.
(materials and experience)

New local shops on
sightlines
Heksenwiel.

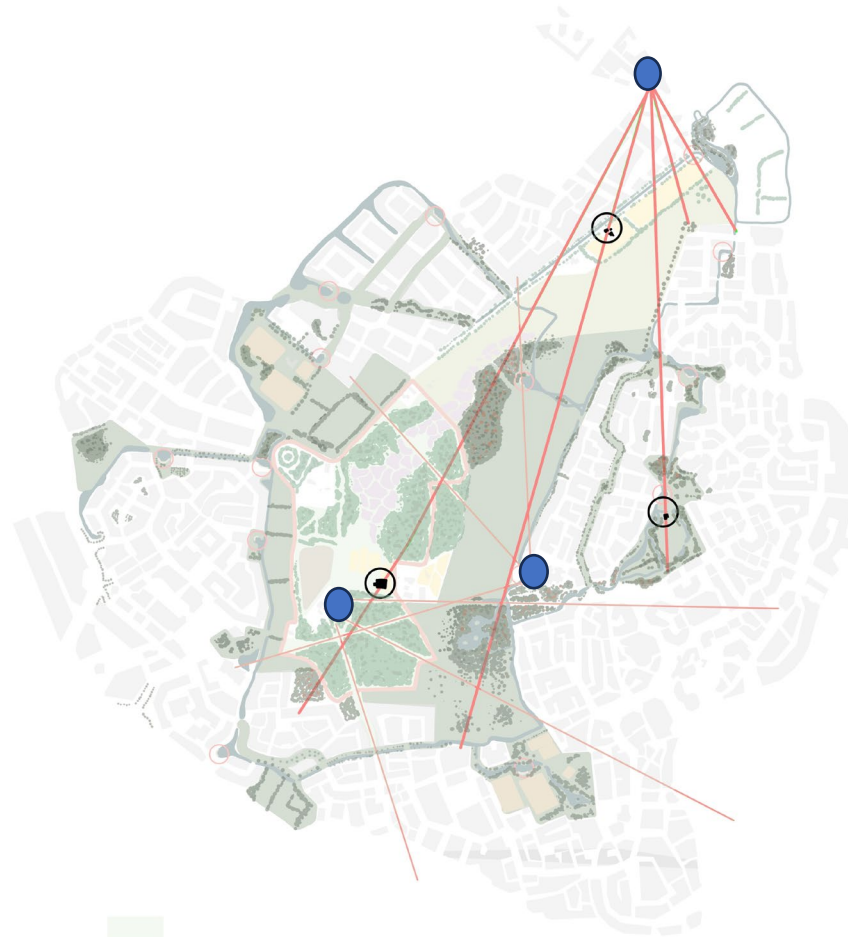


figure: Colours and materials Burgst theme. (Source: Adobe Firefly and Google Images.)

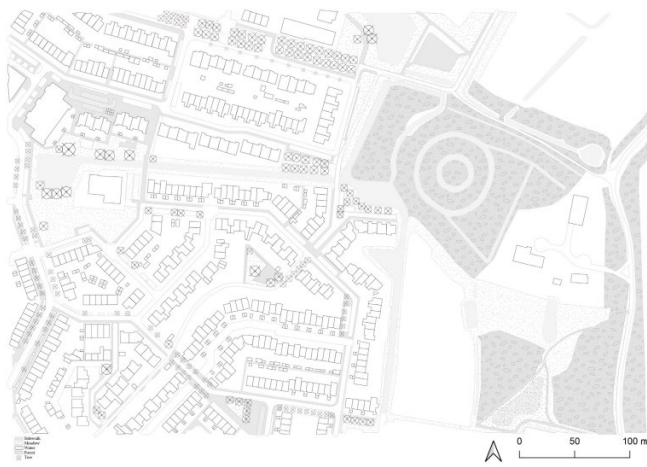


figure: Colours and materials Werft theme. (Source: Adobe Firefly and Google Images.)



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

Transition City to park



Before situation

Design

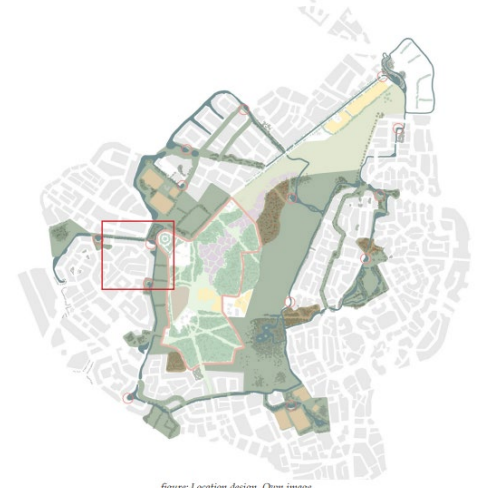
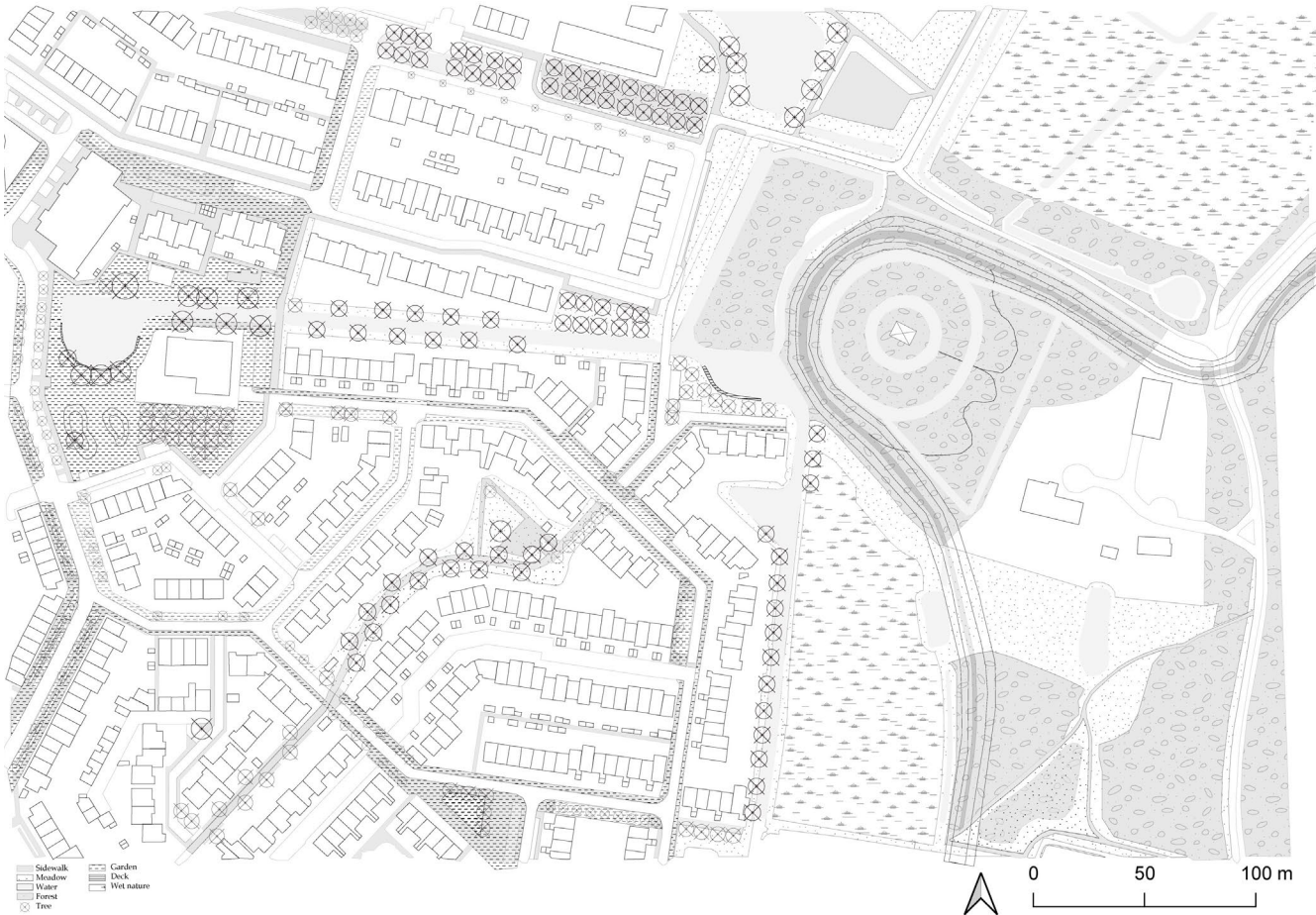


figure: Location design. Own image.

- Connecting green: garden
- Connecting green: tree lane
- Central green
- Selective collective
- Semi-collective

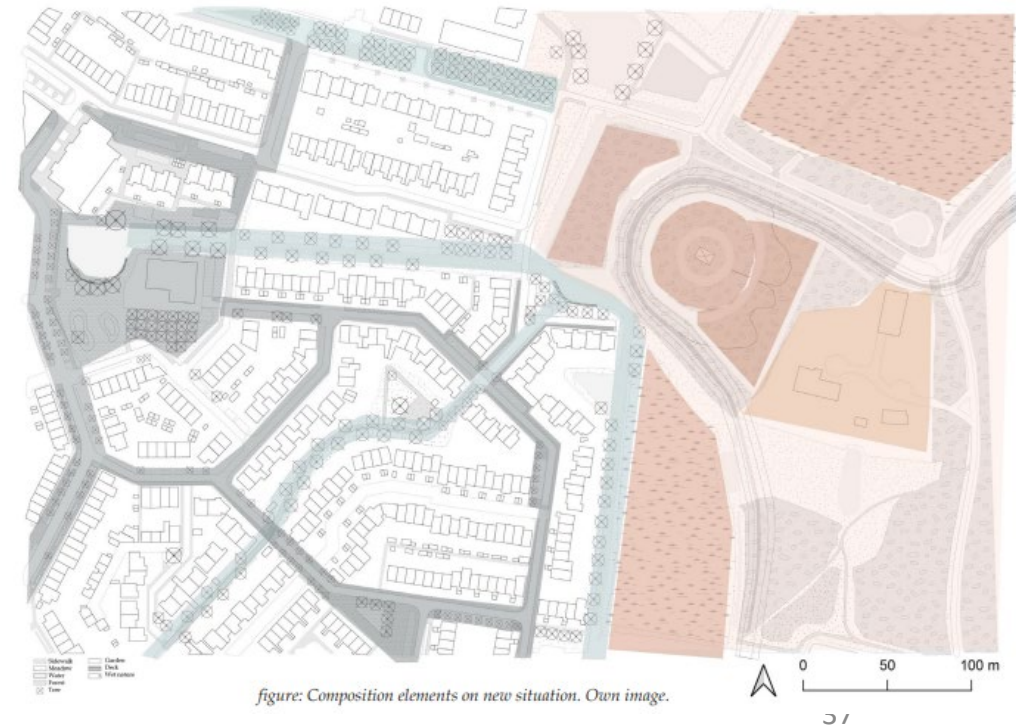


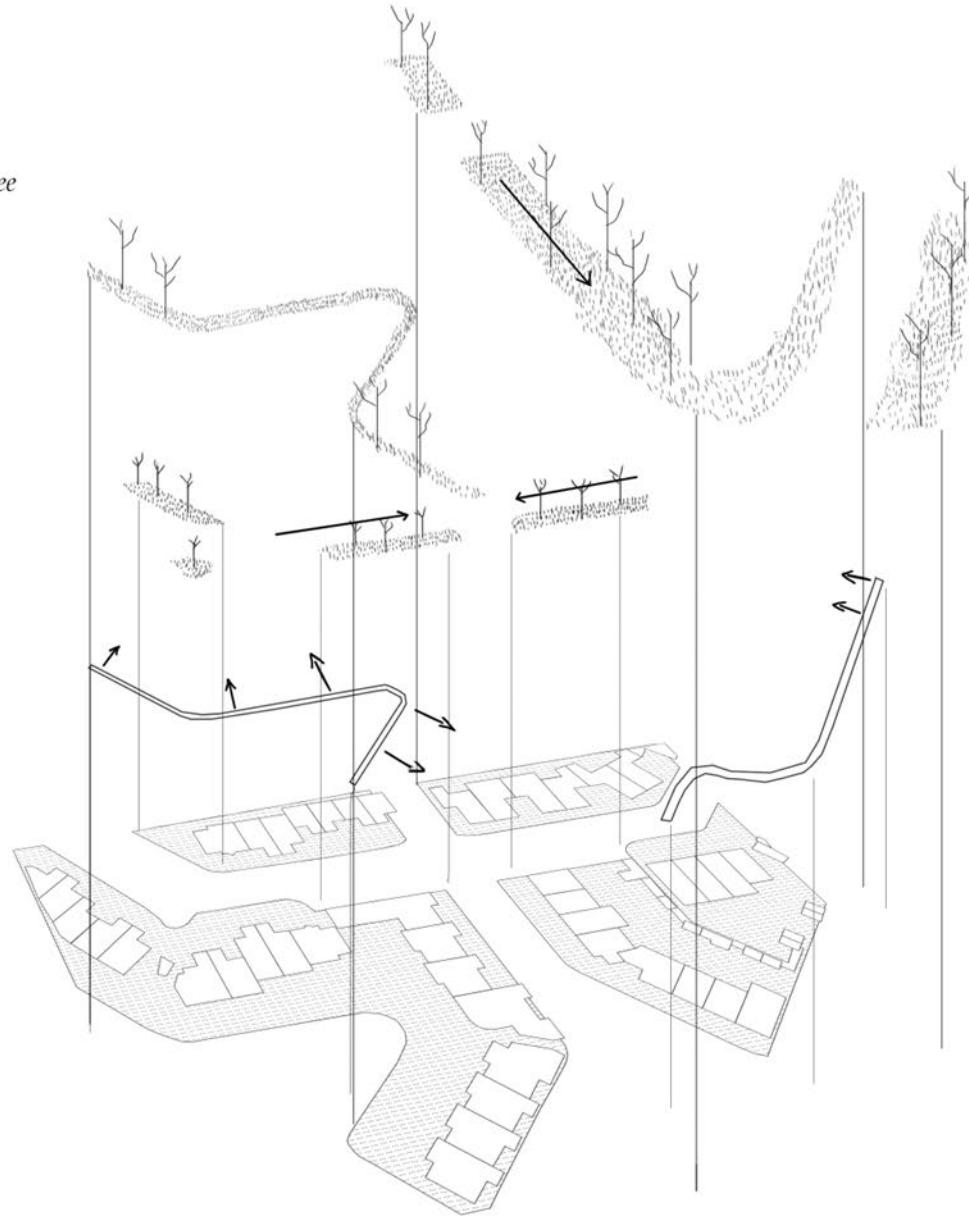
figure: Composition elements on new situation. Own image.

From house to Estate park

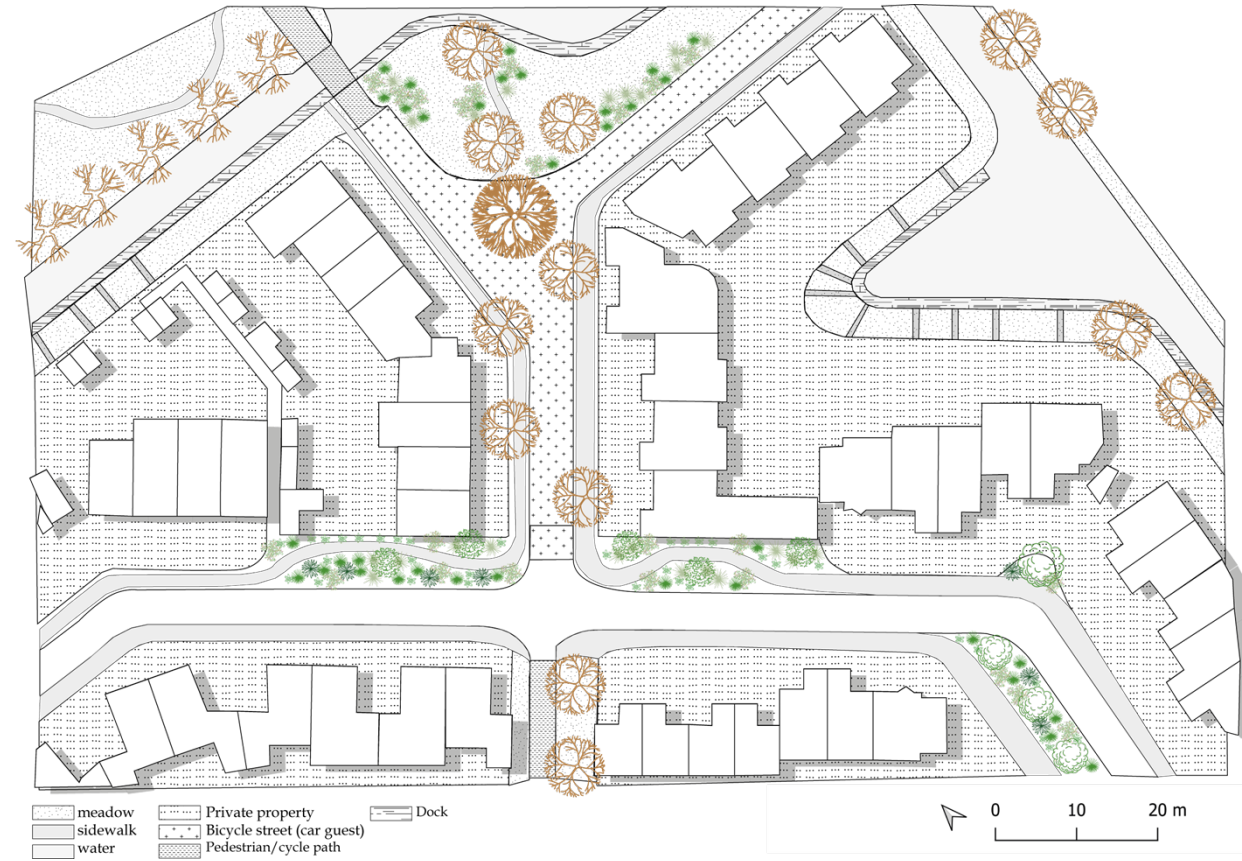
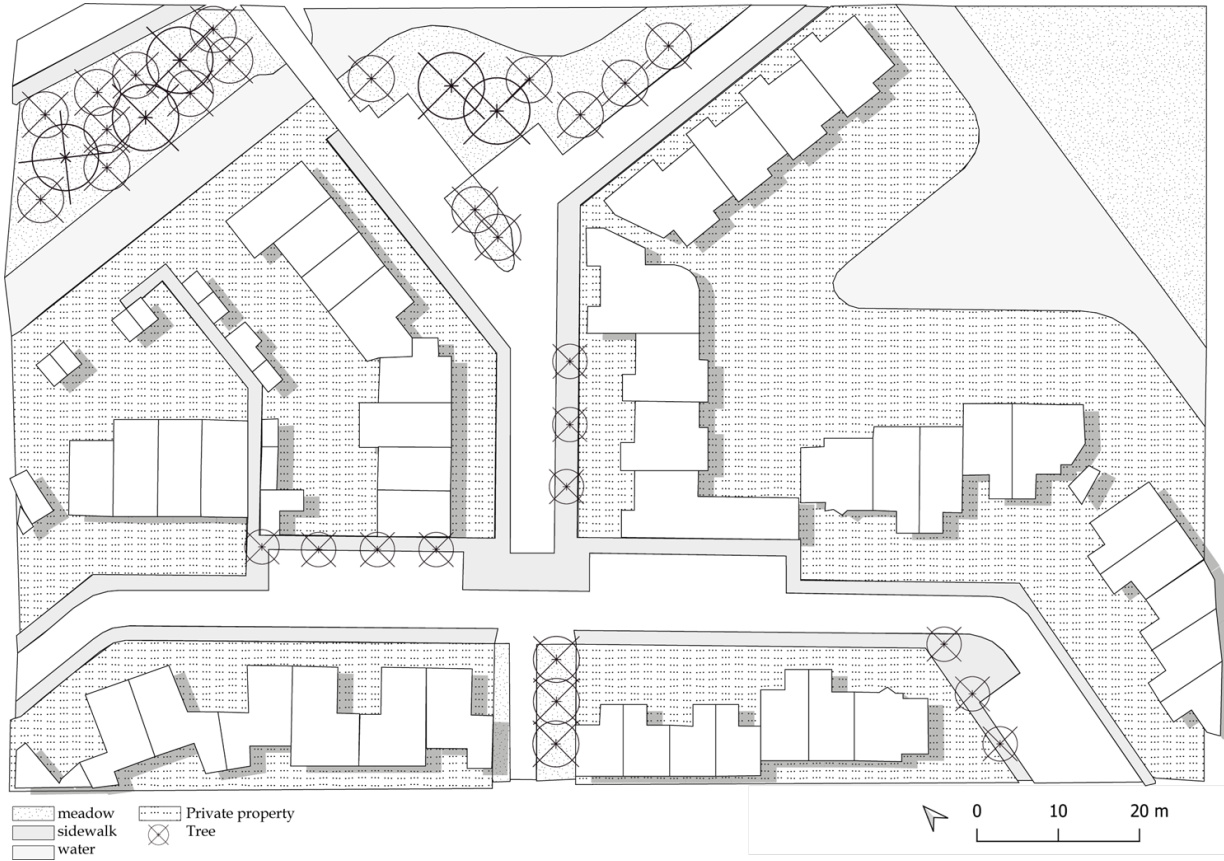
Connecting green
*Gardens lead to connecting green: tree
lanes and water ways*

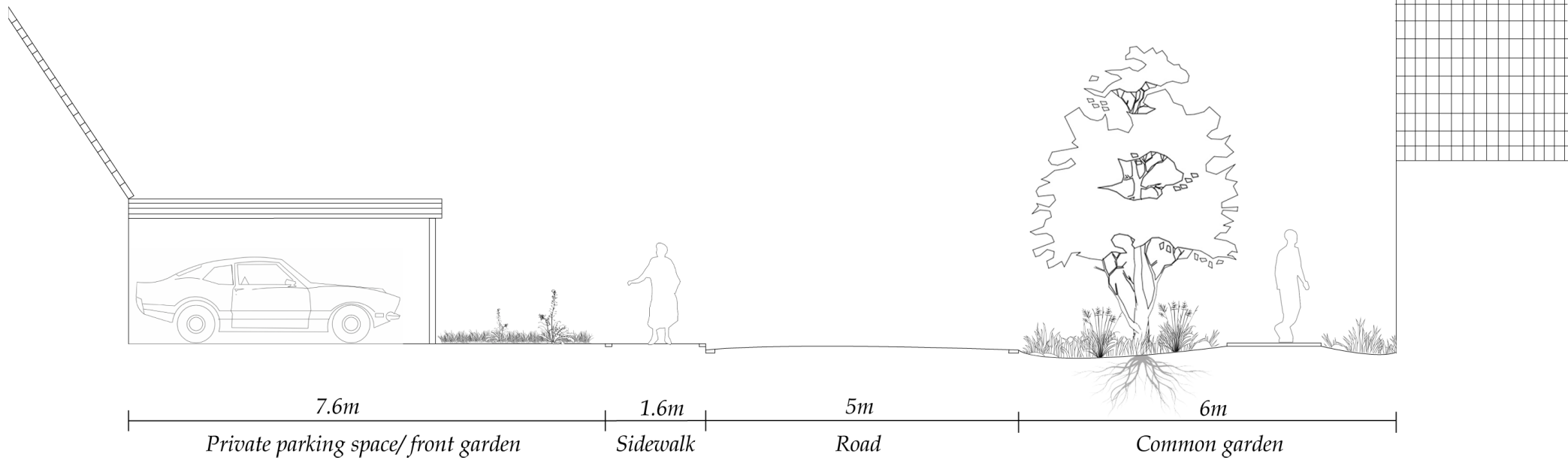
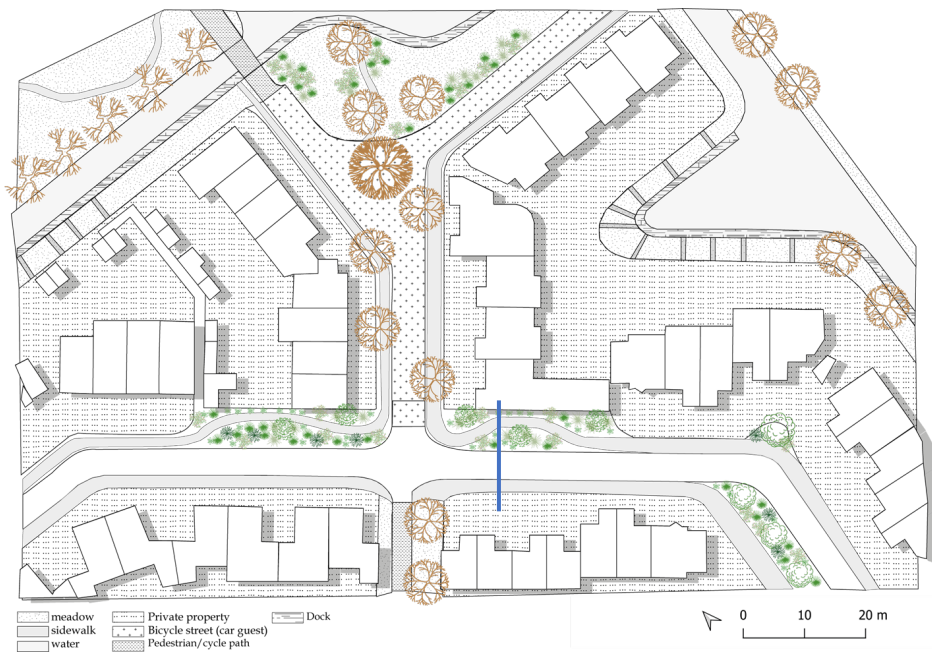
Gardens and entrances
*"Gardens" placed behind new
backsides of houses.
New entrances*

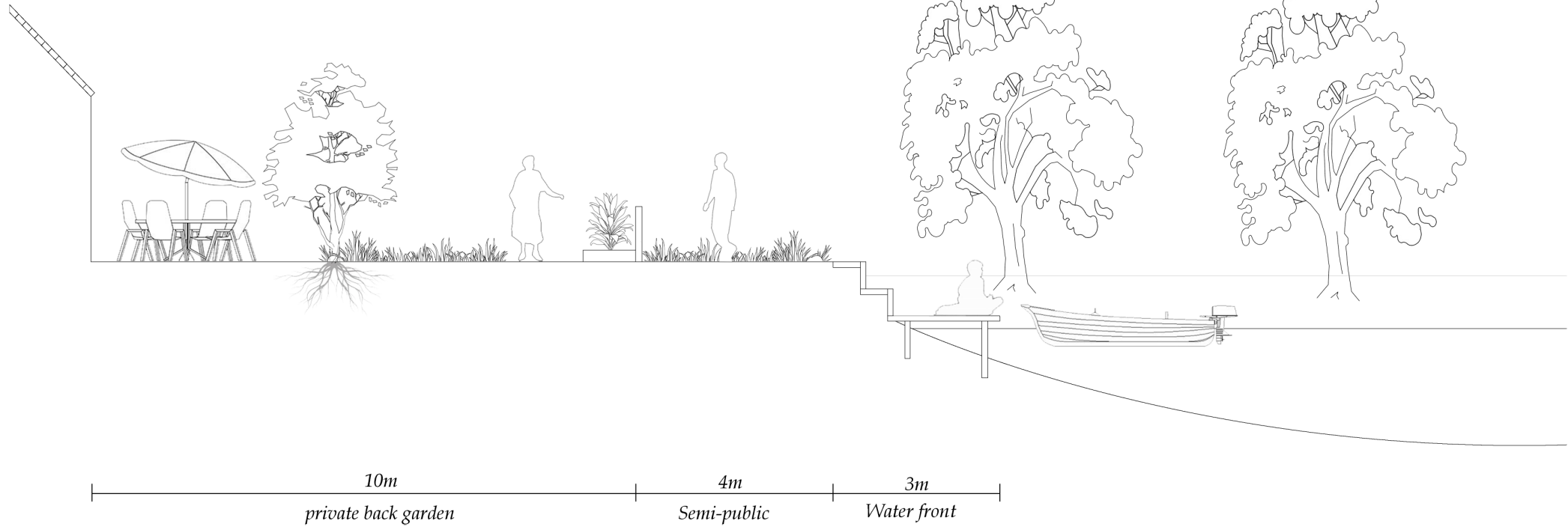
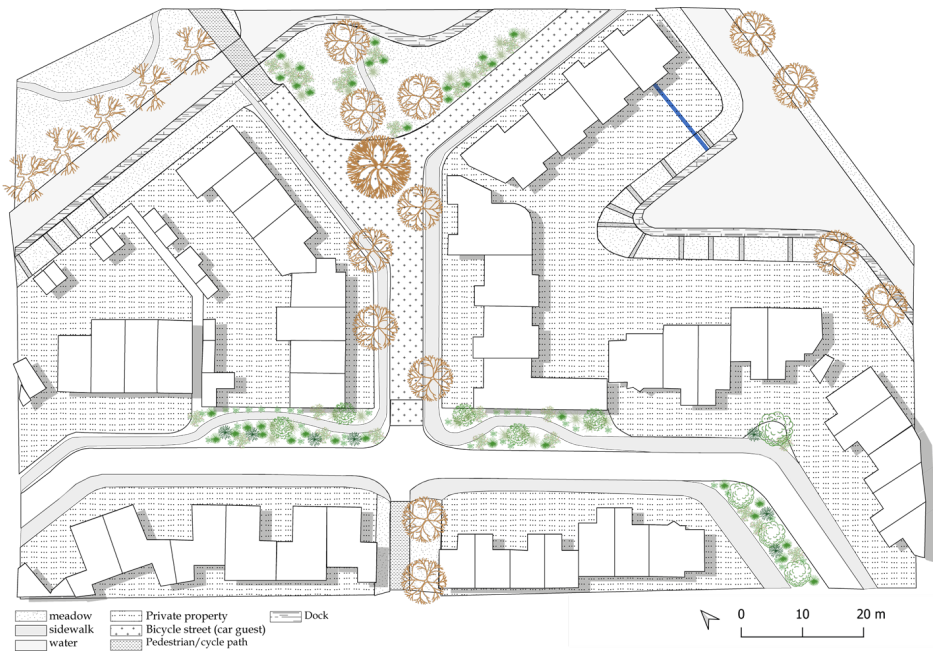
Houses and private properties



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







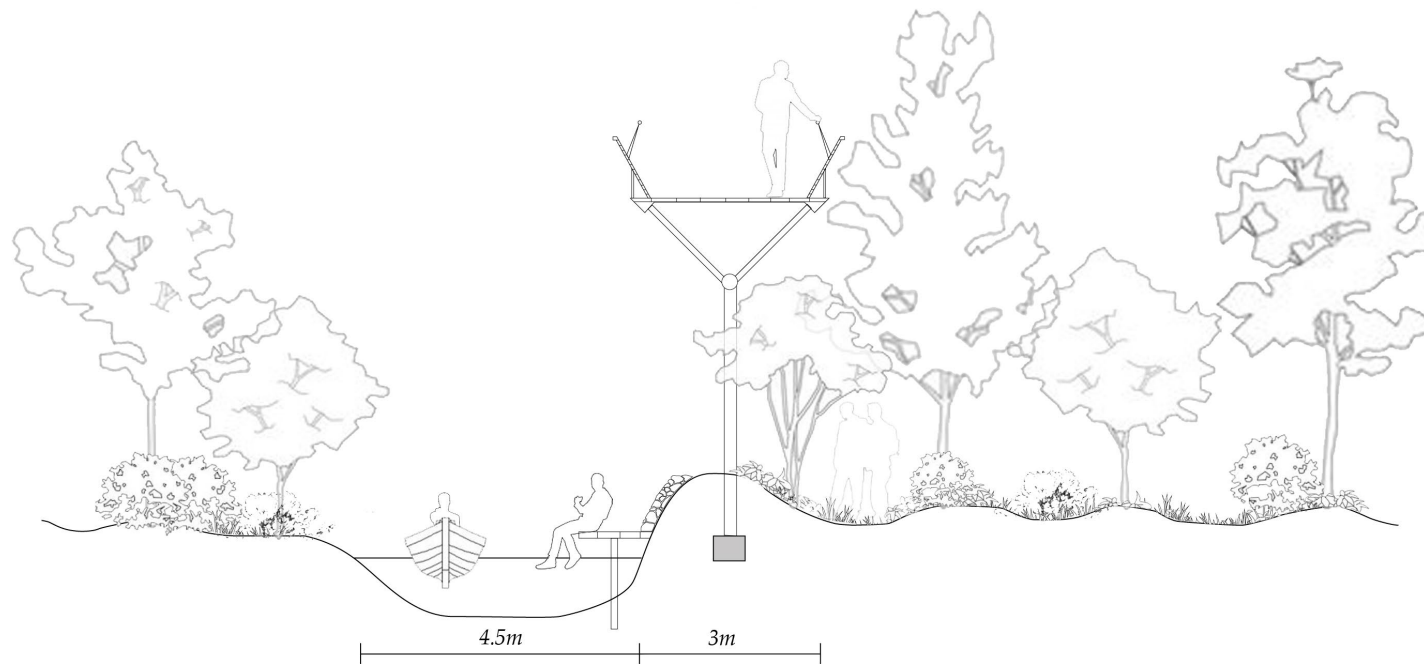


-  Sidewalk
-  Water
-  Forest
-  Community gardens
-  Meadow
-  School yard
-  Tree

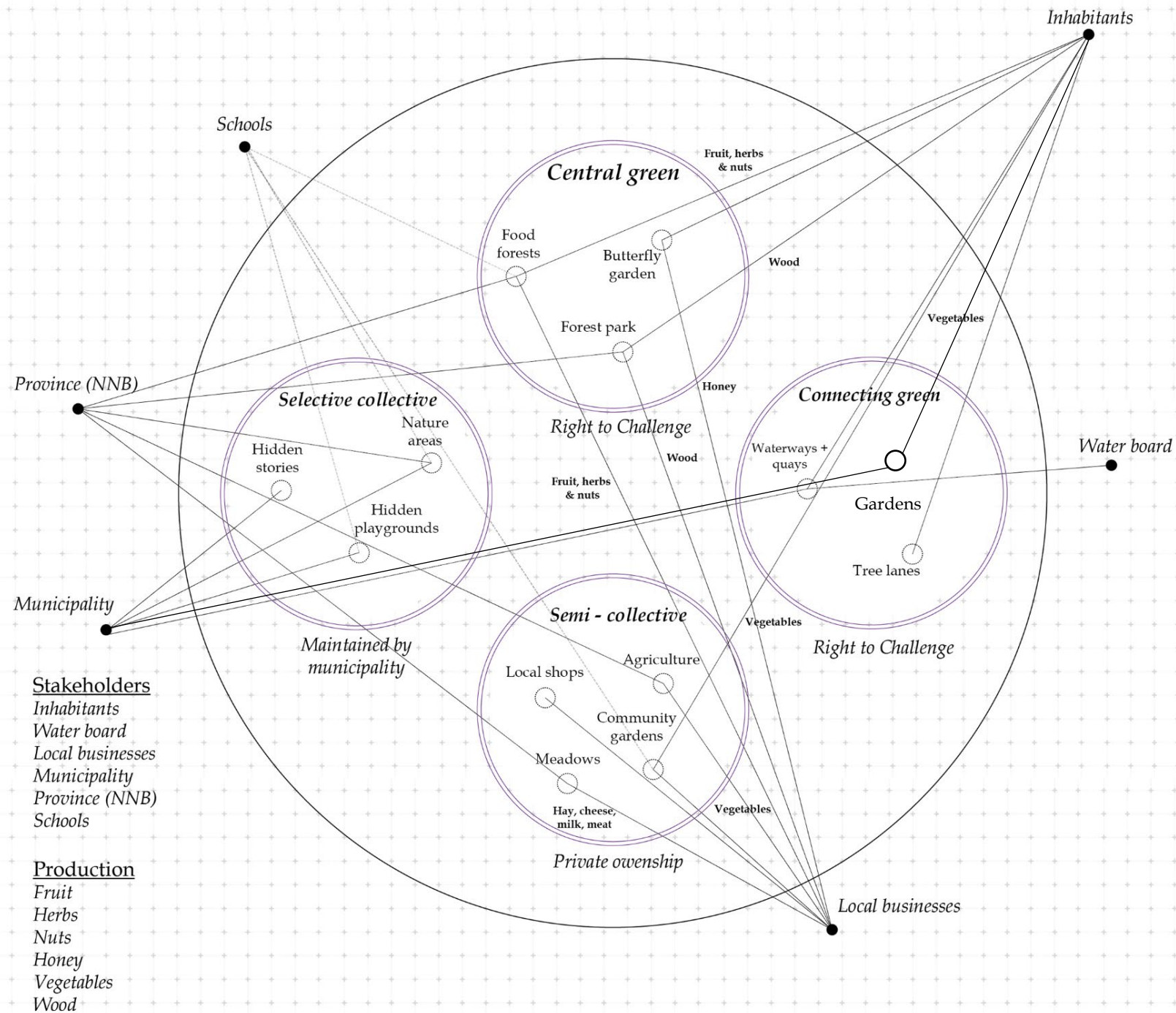


-  Sidewalk
-  Water
-  Forest
-  Community gardens
-  Meadow
-  School yard
-  Tree
-  Wooden path/deck
-  food forest

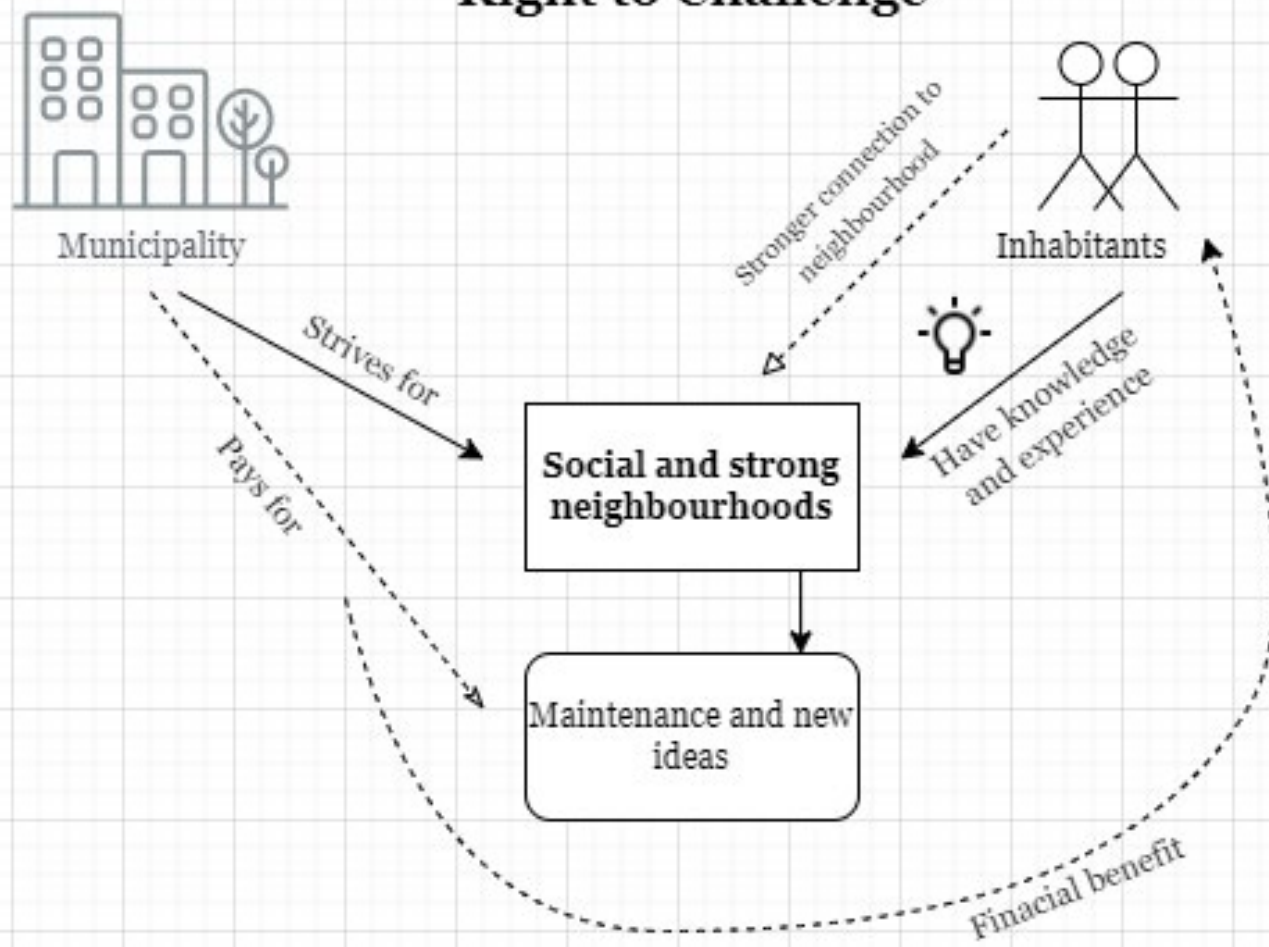








Right to Challenge





PART III

CONCLUSION

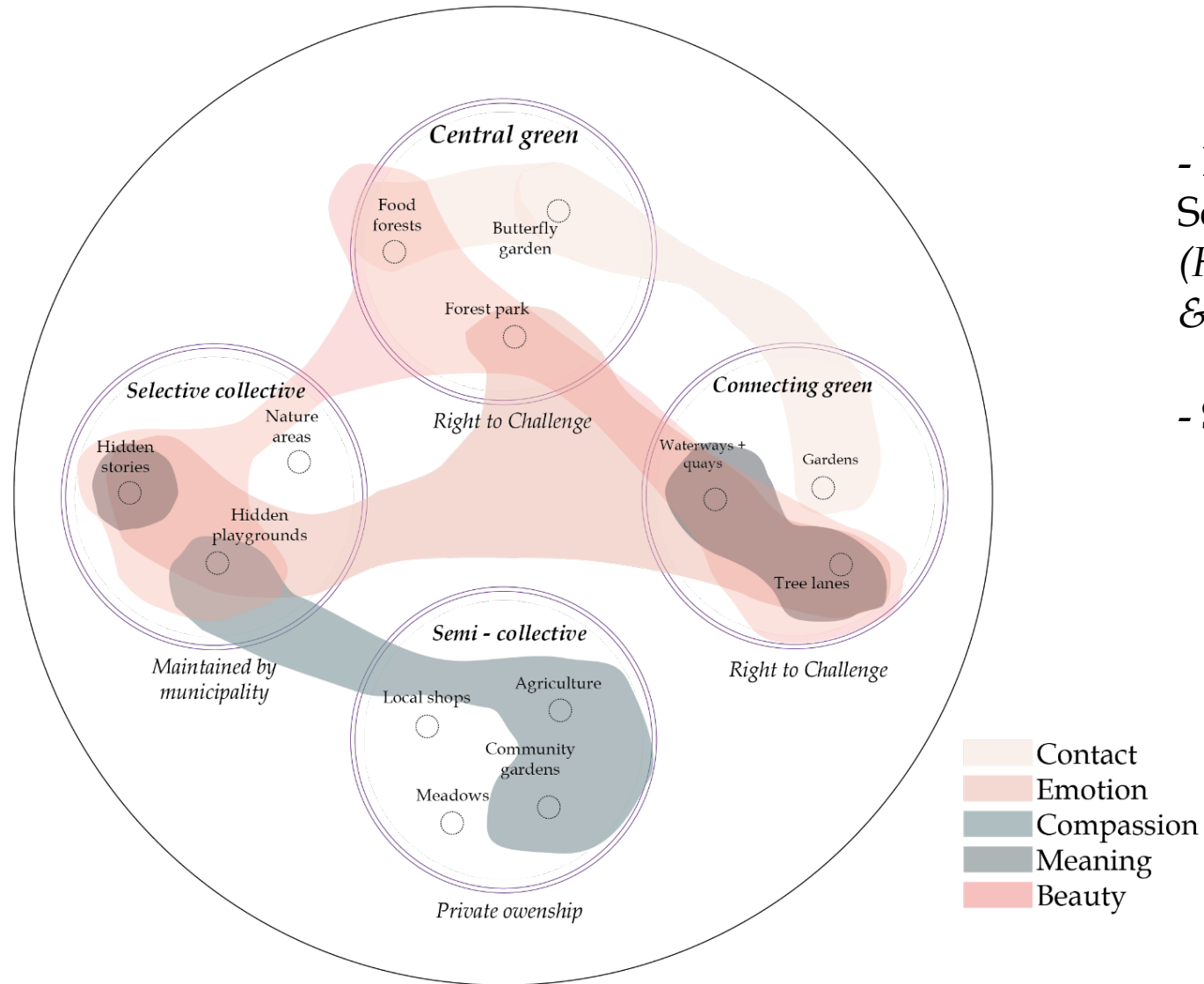




Research question

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

Pathways to nature connection placed on composition elements

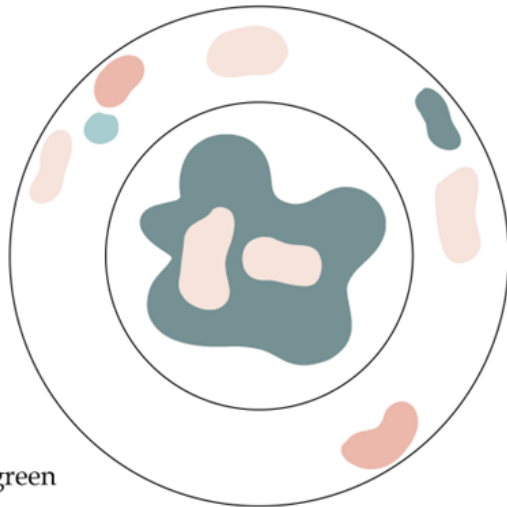


- Most overlap on Connecting green and Selective collective.
(*Hidden stories, Hidden playgrounds, Waterways & Tree lanes*)

- Semi-collective uses the least pathways.

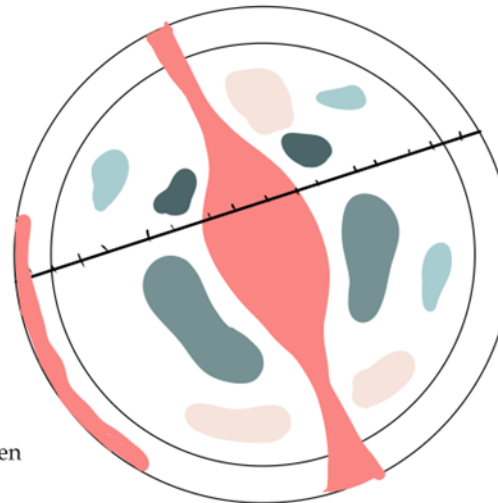
- New path “De Wal” adds connectivity to whole park.
- Different types of paths and zones give protection to vulnerable nature areas.
- More functions added within borders. Old structures used.

Birkenhead



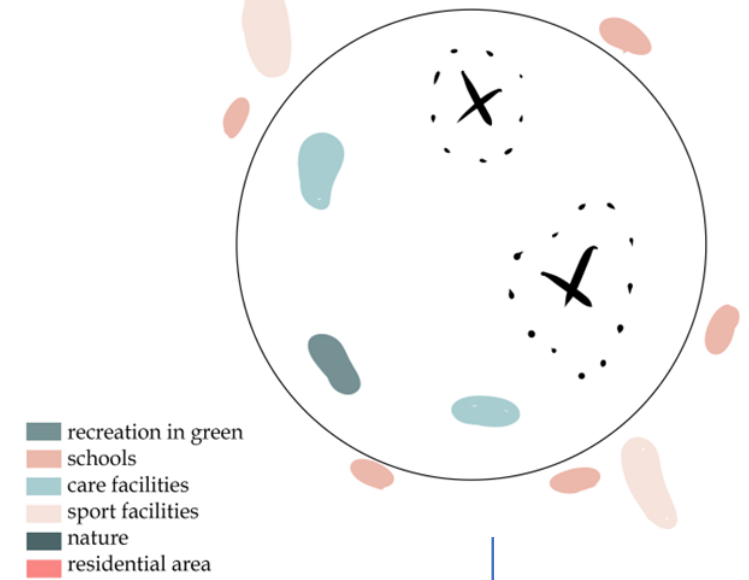
recreation in green
schools
care facilities
sport facilities

Maximapark

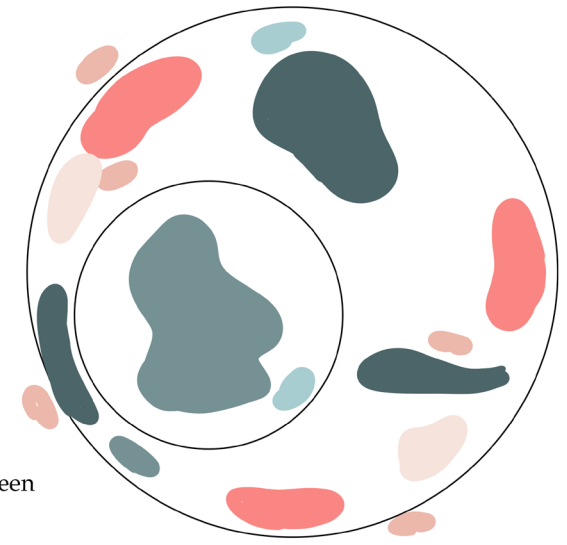


recreation in green
schools
care facilities
sport facilities
nature
residential area

Haagse Beemden



recreation in green
schools
care facilities
sport facilities
nature
residential area



recreation in green
schools
care facilities
sport facilities
nature
residential area

The Inverted Estate.



Appendix

Woonerven, designing the rear

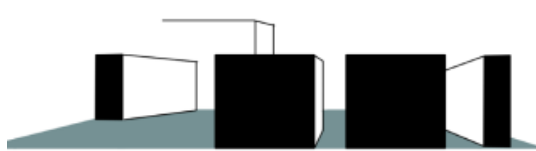


figure: 1. Position of sheds (Source: Van der Leun et al., 2008)

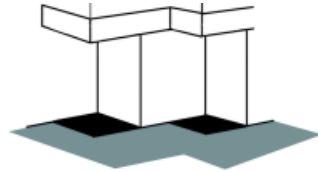


figure: 2. Overhang (Source: Van der Leun et al., 2008)

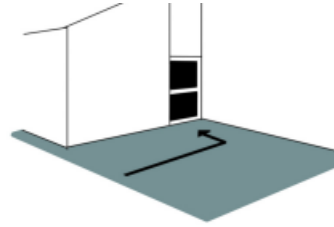


figure: 3. Position front door (Source: Van der Leun et al., 2008)

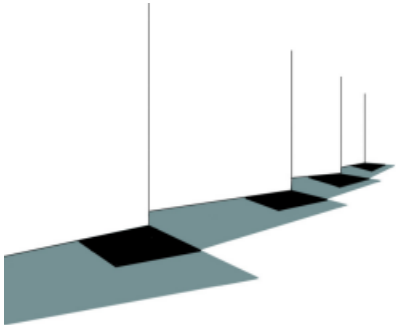


figure: 4. Front yards (Source: Van der Leun et al., 2008)

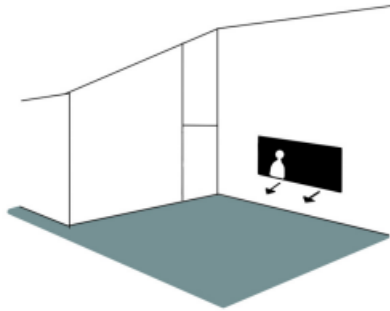


figure: 5. Kitchen position (Source: Van der Leun et al., 2008)

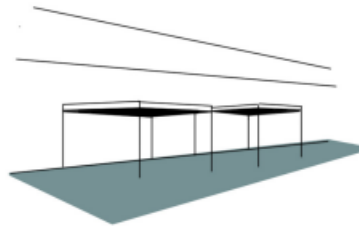


figure: 6. Carports (Source: Van der Leun et al., 2008)

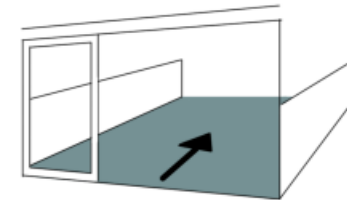


figure: 7. Garden orientation (Source: Van der Leun et al., 2008)



figure: 8. Sizes (Source: Van der Leun et al., 2008)

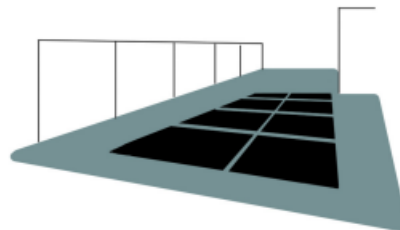


figure: 9. Patterns and materials (Source: Van der Leun et al., 2008)

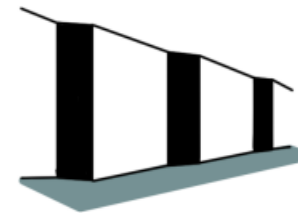
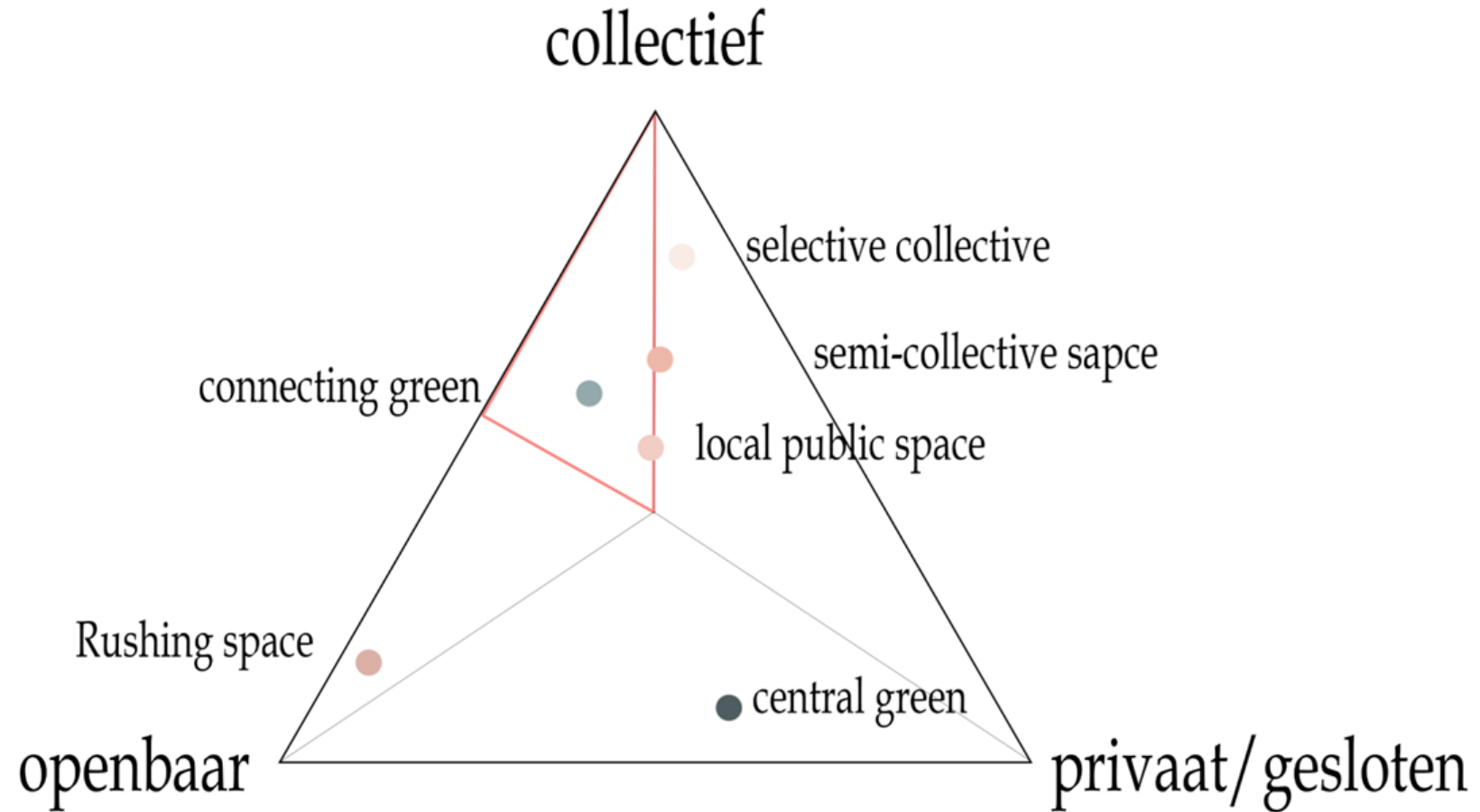


figure: 10. Repetition of elements (Source: Van der Leun et al., 2008)

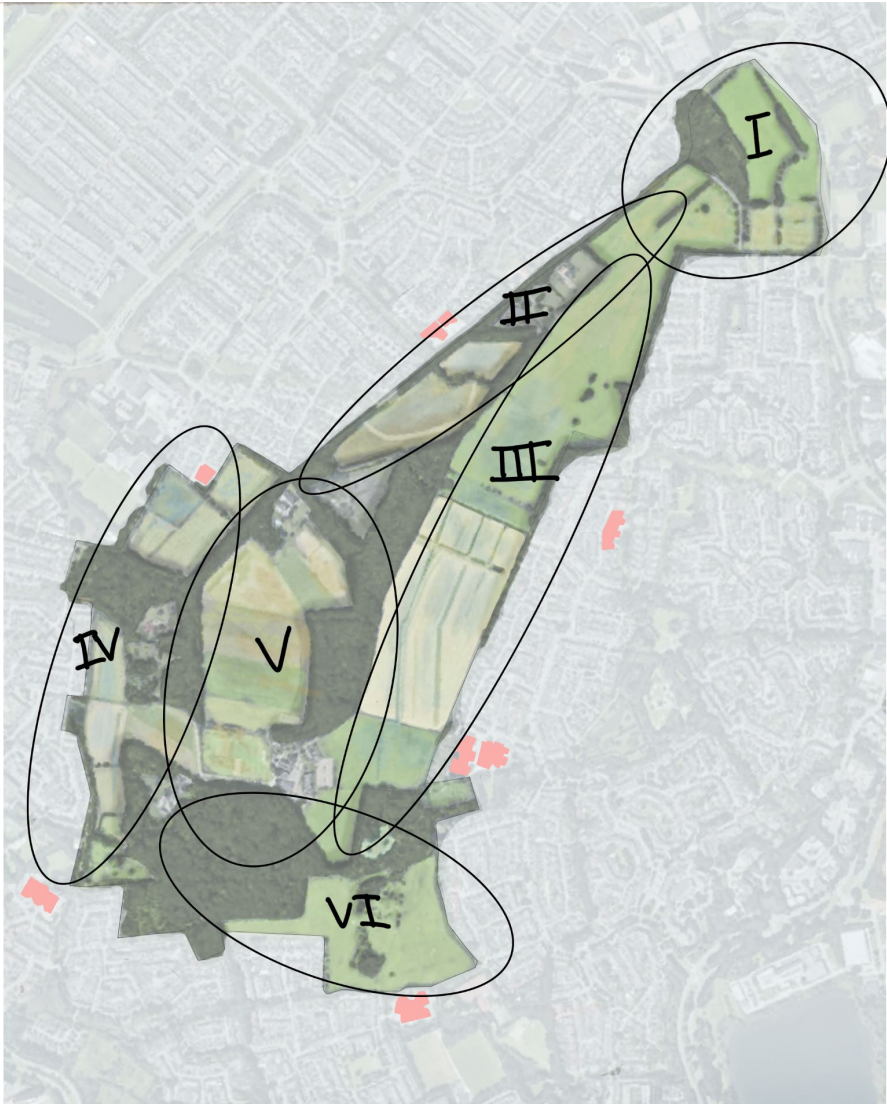
The Inverted Estate



Rushing space and central green have the biggest potential to improve with a spatial intervention.

Zone I: Coulissen cultuurlandschap

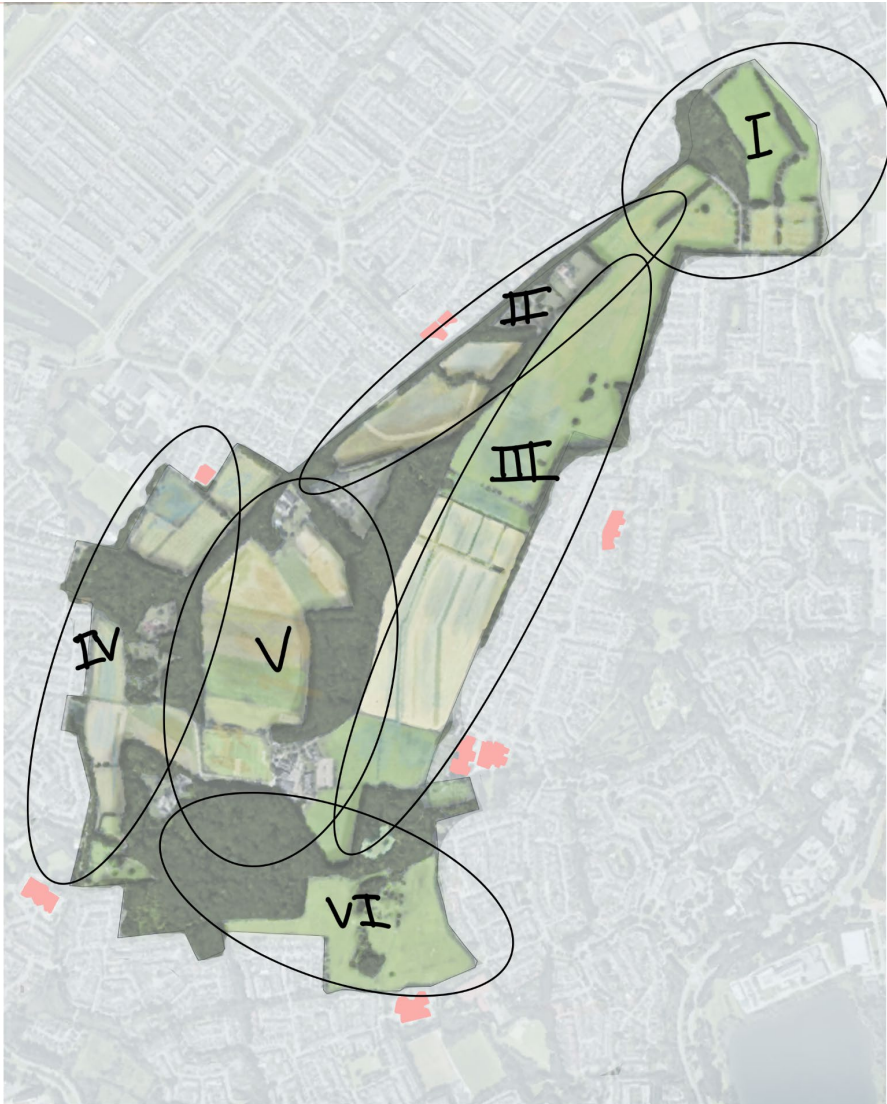
Bomen (Knotwilgen) en struwelen omsluiten akkers en weilanden. Dit gebied is onderdeel van een kleinschalig agrarisch cultuurlandschap dat doorloopt tot aan de Mark wanneer men de weg oversteekt. De ruimtelijke structuur van de kleine percelen met vegetatie omkadering kan geoptimaliseerd worden naar betere ecologische waarden. Lichte hoogteverschillen kunnen bijdragen aan het realiseren van verschillende habitatten.



Zone II: Dreven en boslanen

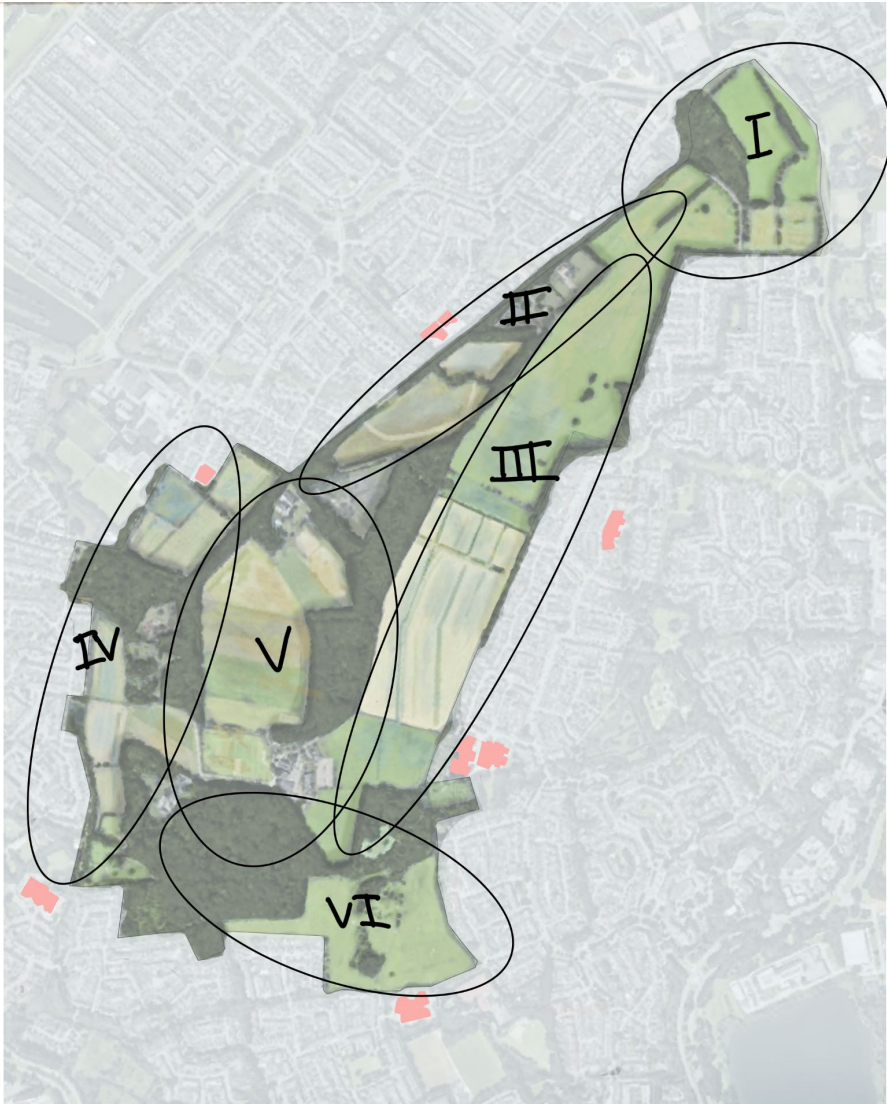
Deze zone langs de Burgtsedreef kenmerkt zich door zijn lange laan van oude eiken en beuken, enkele woningpercelen, natuureducatie en grote open percelen omringt door bebossing.

Het onderste perceel ligt ruim een meter lager dan de rest en staat regelmatig deels onder water. Dit perceel grenst aan de basisschool de Burgst.



Zone III: Grootschalig open wei- en hooilanden

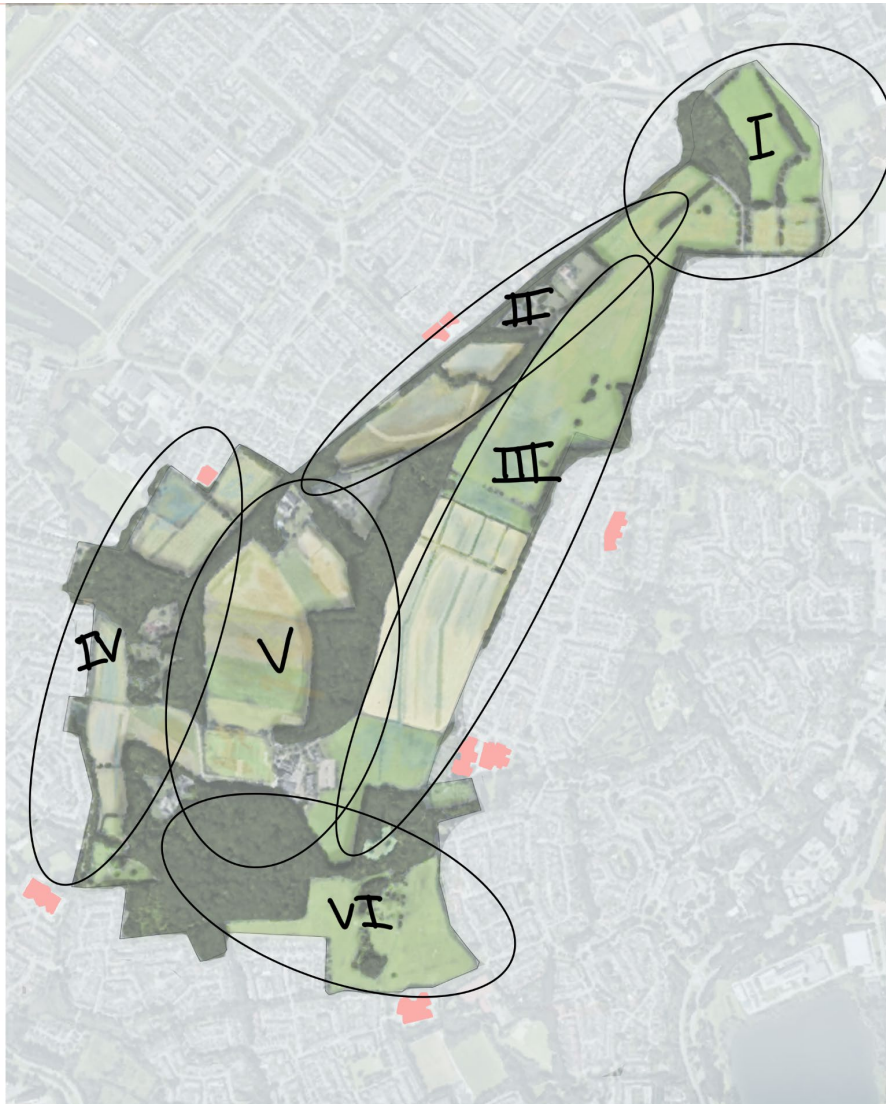
Het grote open gebied tussen de vloeigracht en de boszone kenmerkt zich door meer grootschalige weides. De grote open ruimte biedt een zichtlijn in noord-zuid richting die de grootsheid van het gebied illustreert. De zone bestaat grofweg uit twee delen: een relatief droog noordelijk deel en een relatief nat zuidelijk deel. Dit gebied heeft meerdere sloten en de grond eromheen staat regelmatig onder water. Rondom het wilderpad staat daarom soms onder water. Basisschool de Werft grenst aan het natte deel.



Zone IV: kleinschalige percelen tussen Kersterenloop en de wal.

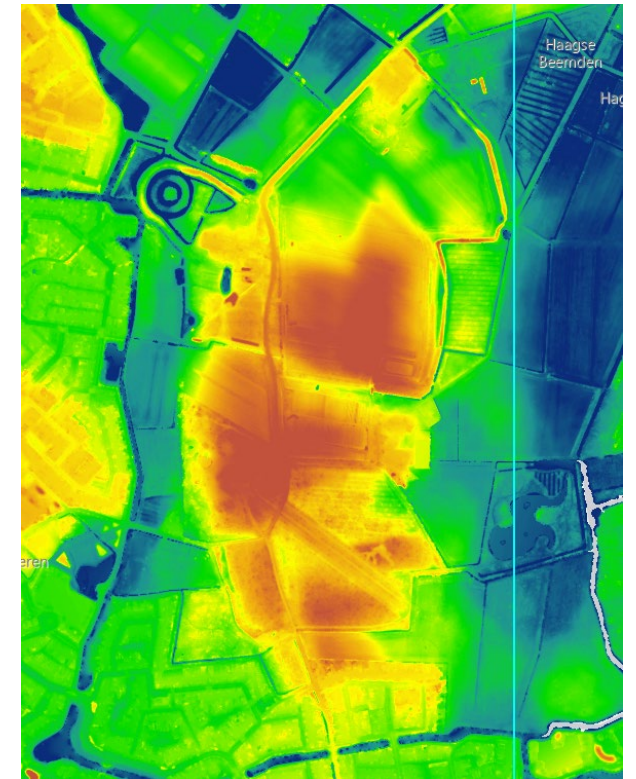
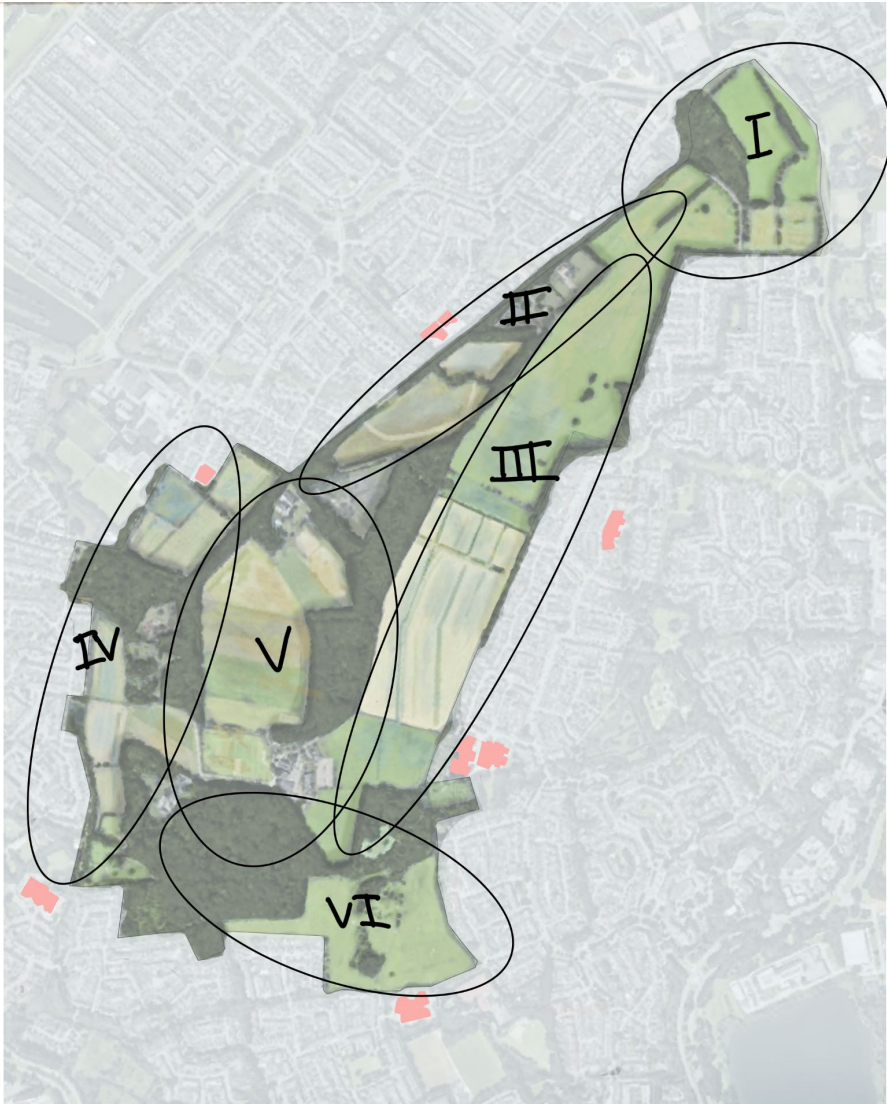
Dit gebied, van oorsprong bestaande uit kleinere hooilanden, was van oorsprong al aanwezig. Bewust is dit gebied open gehouden om een buffer te vormen tussen de wijk en het landgoed. Later zijn delen beplant met bomen waardoor op sommige plekken een harde grens ontstaat tussen huizen en bos en er meer diversiteit in ruimtes is.

Baisschool de Rietvink en Olympia grenzen aan deze zone.



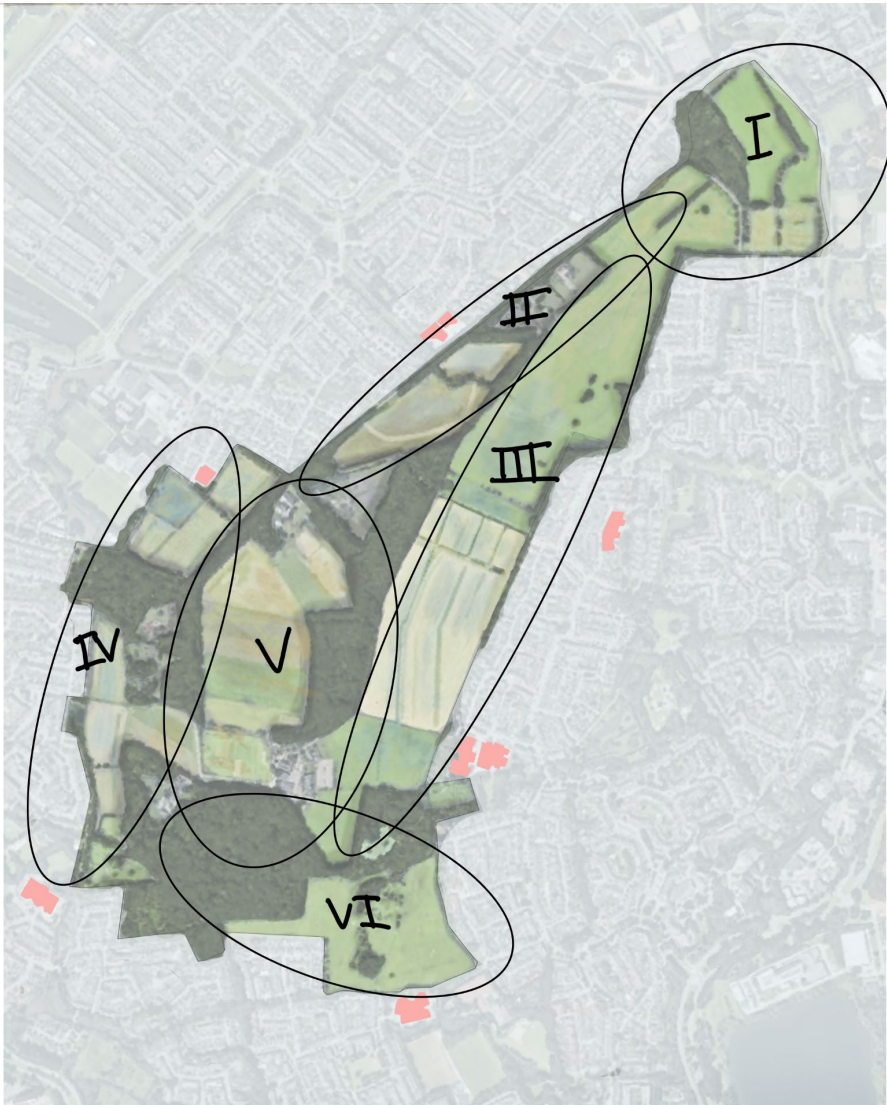
Zone V: Historische kern

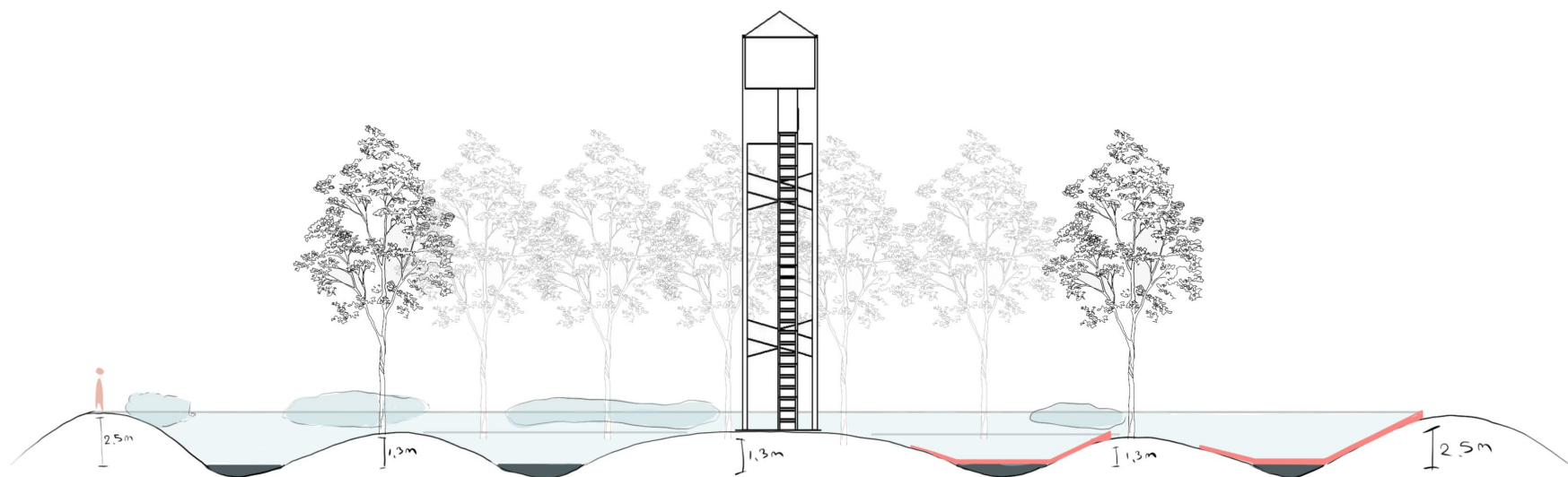
Deze zone is het hart van de LGZ. Bestaande uit een ensemble van de Cingeltjes, middeleeuwse akkers, hoeven en aarde omwalling rond dit ensemble. De middeleeuwse akkers zijn gelegen op een hogere donk met vruchtbare bodem. Rond dit open gebied bevinden zich bosgebieden.



Zone VI: Arcadisch landschap

Vanuit het landgoed De Burgst strekt een klassiek lanenstelsel door het gedeelte binnen de aarden wal en tot voorbij het bosgebied. Deze ganzenvoet is opgenomen als zichtlijn in het plan voor de Haagse Beemden. In de 19^e eeuw is de ensemble van het landgoed opgenomen in een wandelpark. De weilanden in het zuiden van de LGZ vormden hierin een belangrijk onderdeel met zijn parkachtige en arcadische karakter. Het onderhoud wordt meer strikt toegepast en verschillende boomgroepen stileren het landschap. Waardoor deze zone contrasteert met de rest van de LGZ. Basisschool de Hoogakker grenst aan dit gebied.





Mozesbrug, Halsteren

Sound



Trees create sound



Trees attract animals

Smell



Trees emit sound



Different smells can contribute to experiencing differences in landscape

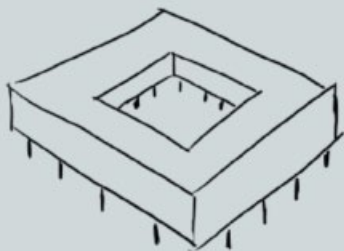
Understanding

Shield



Straight line of same species guides in a predictable way

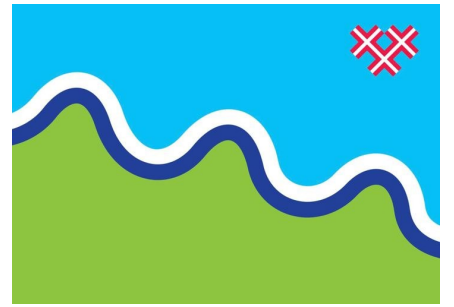
Carré



Sudden sunlight indicates and attracts to new spatial room



De Wal



SOMERWEIDE
Big gaited neighbourhood
playground



MOERENLOOP
Old waterway that runs trough
neighbourhood