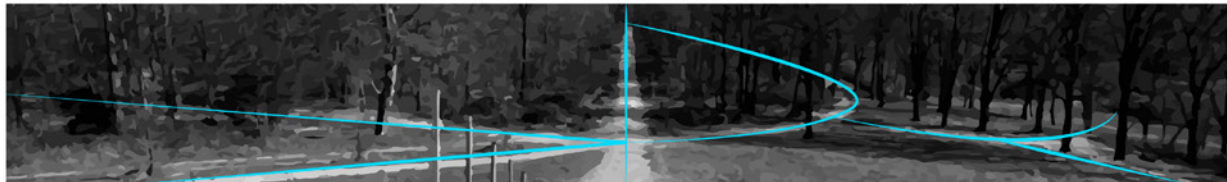


ESTATE SPACE

*Exploring the spatial-visual relationships
in the estate landscape of Gelders Arcadia*



Ming Jiang

LAB Gelderland

Mentors: Steffen Nijhuis, Leo van den burg

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REFERENCES

This chapter states the initials of why this area is an attractive place to do visual related designs and how such design influences cities around the world in development and policy making

1.INTRODUCTION

1.1 Fascination

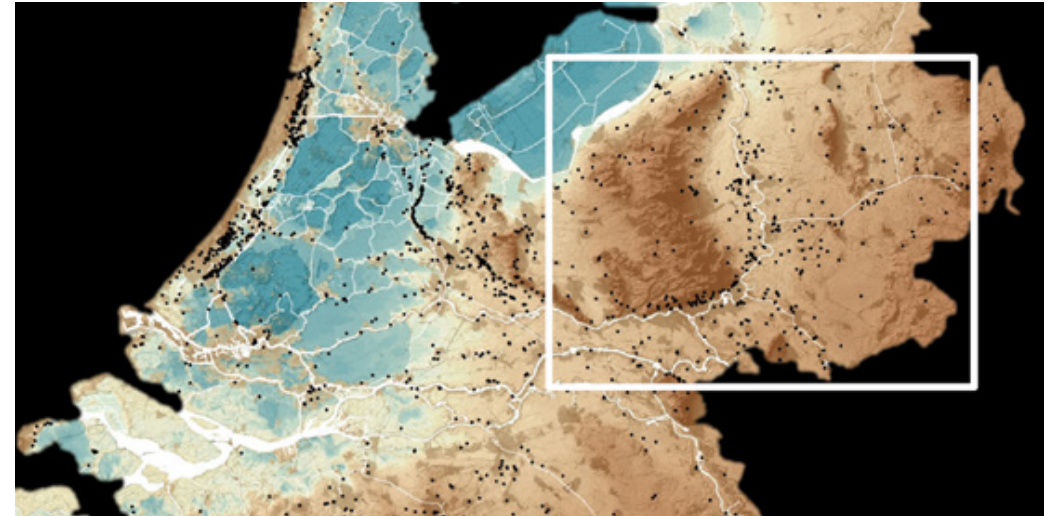
1.2 Problem statement

1.3 Research objective and Question

1.1 Fascination

Gelderland is a province in Netherlands, located in the central eastern part of the country. It is the largest province of the Netherlands. At the same time, the province has a large number of estates (total 369 country houses in Gelderland which is 18% of Netherlands). Thanks to the Veluwe, which is the largest push moraine complex in the Netherlands and has a very considerable height difference, very rare in the Netherlands.. This height differences created attractive conditions for the allocation of estates at strategic sites as symbol of power, but also to take advantage of good views and interesting visual experiences.

When one visits the area for the first time, you will immediately be attracted by the various of visual effects and relationships. The roads and pathways are curving up and down, creating a wide range of spatial experiences and that display the rich variety in vegetation structures, water flows and contrasts between open and enclosed landscapes in which the estates play a crucial role. At the Veluwe there are at least three major types of visual relationships between the estate and the surrounding landscape. The first one is the relationship between the estate and the city. When visitors stand at the observation area of the park Klarenbeek, they could be attracted by the panorama of the estate park and the Eusebius Church in the city center. The second one is the relationship between estate and infrastructure relics. Rozendaal is a famous estate which used to connect by the king's road. Nowadays, the old trace of sightlines is still exist. The last one is the relationship of the estate with its immediate surrounding landscape, creating an inner world. The visual connection of Zypendaal with the De gulden bodem is an interesting example of a visual relationship that was more focused on the 'internal' visual interaction between both. However, this relationship changed over time because of the style of the garden transformed from Baroque style to English style and some buildings were removed.



Distribution of estates in NL(Source: S. Nijhuis, TU Delft)



PARK KLARENBEEK-EUSEBIUS CHURCH
Estate-City



ROZENDAAL-KONINGSEWEG
Estate-Infrastructure relics






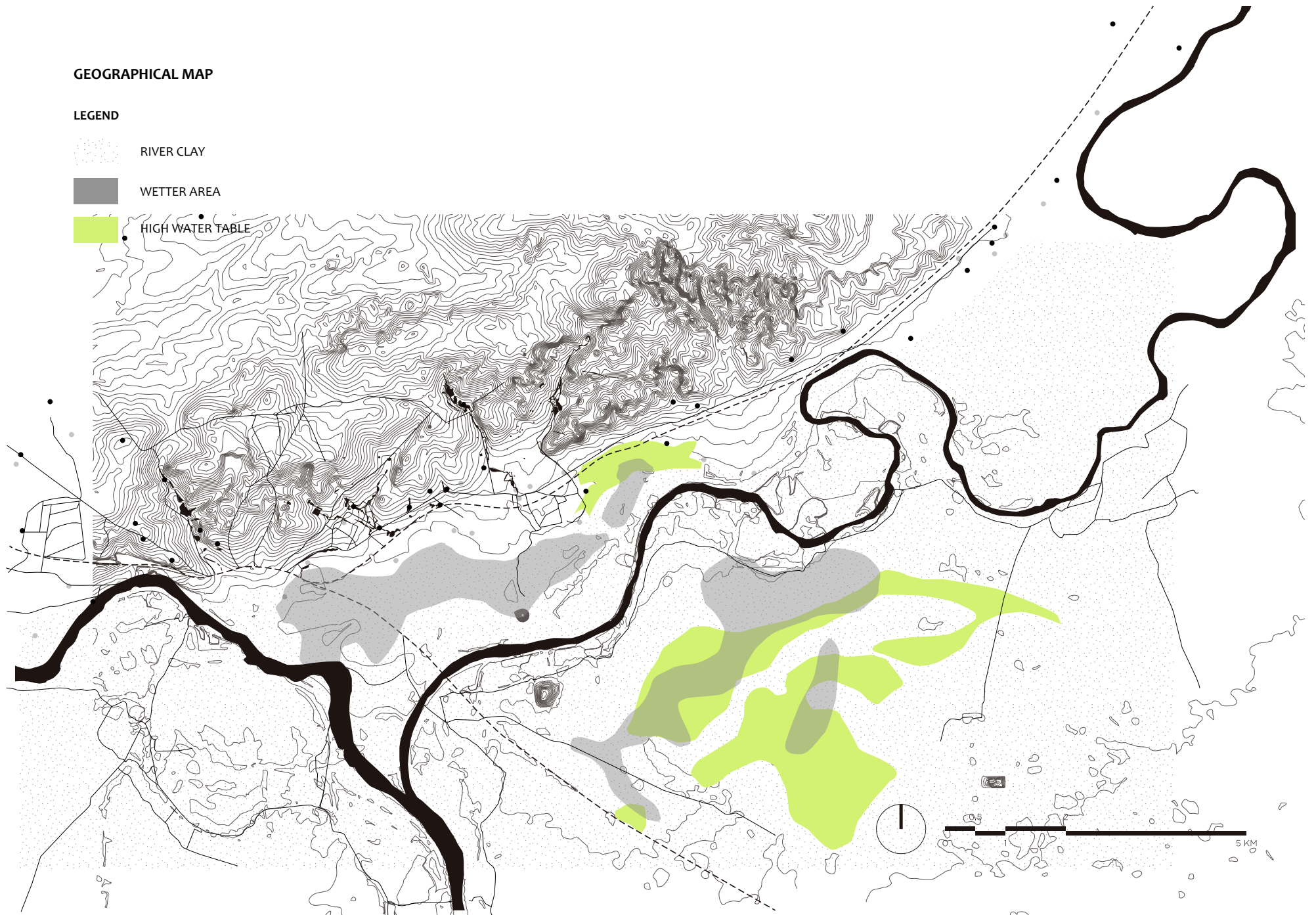
Zypendaal-De Gulden Bodem
Estates-Estates

Different kind of estate relations (Source: Google)

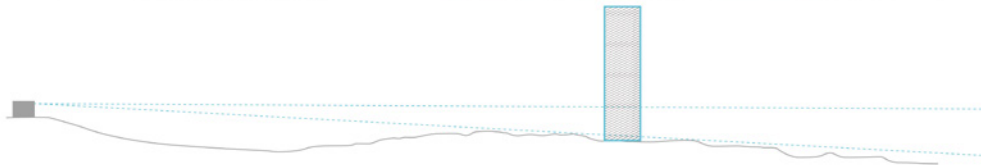
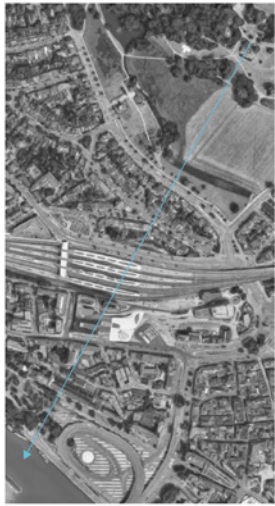
GEOGRAPHICAL MAP

LEGEND

-  RIVER CLAY
-  WETTER AREA
-  HIGH WATER TABLE

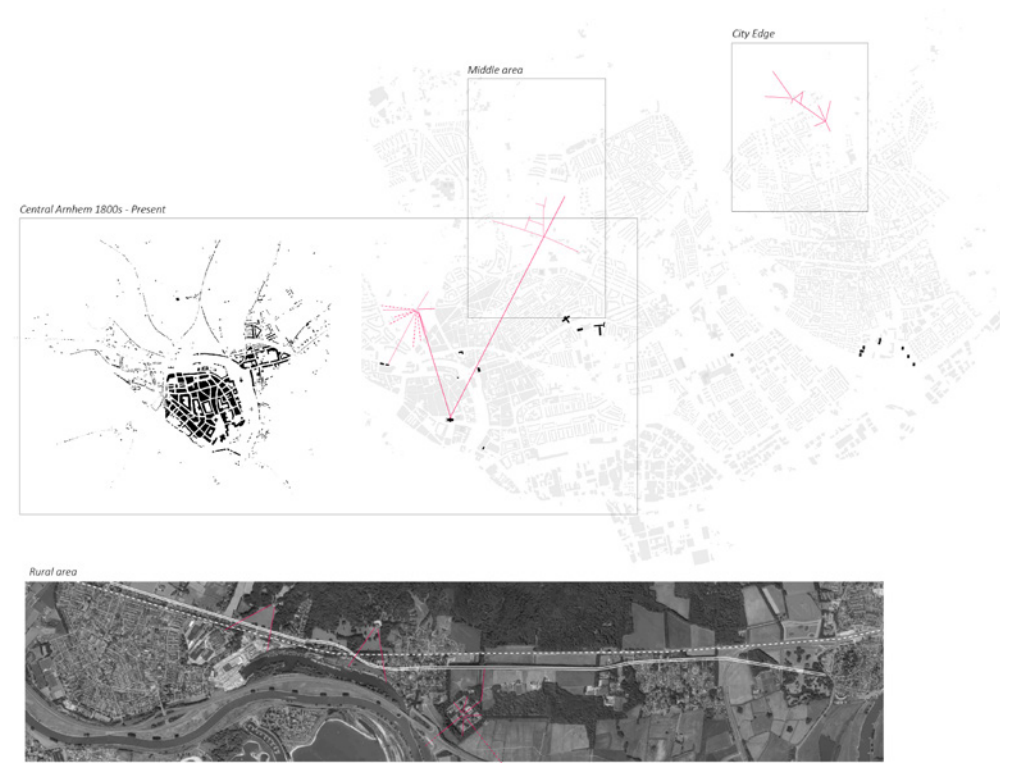


1.2.1 Problem statement



View from Sonsbeek to Rijn

As the city of Arnhem and other area developed. The precious vision of the estates are narrowing because of some reasons. The most important reason is the 'visual obstacles'. The city developed with high rises, the high rises block some of the visual channel that belonged to the estate. Like the park Sonsbeek, the house can see the river IJssel in the past times, which is a total different scene as now blocked by the project of Arnhem central station.



Changing of city pattern

Compare to the pattern of central Arnhem in 1800 to now, the trace of sightlines of estates did not being considered into the urban development. The problem might because of the estate did not develop with city, or in another word the city did not follow the rule of estate. Furthermore, there is no any policy in visual regulation in the city of Arnhem. This out of touch with the city actually caused another problem which is the fragmentation. The estate has their own territory at past but connected by the main infrastructures. The fast city development challenge the area of estate territory and cut down the connections. The situation of the estates right now are like isolated islands.

1.2.2 Initial Conclusion

With the initial overview of the area we can tell that the city has a considerable height difference in general to provide a good and unique sight in Netherlands, a relatively high density of beautiful and well-reserved estates, and various visual spatial typologies among estates in different scales.

With all the advantages hold, the three initial questions are proposed to inspire the first research for design and planning tools.

Can visual network guide urbanization?

Can visual elements make people aware of spatial qualities?

Can the connection deal with fragmentation?

There are lot of cases around the world inspiring on the aspect in policy making and the spatial visual control(See methodology

1.3 Research objective and Question

The research objective is:

To explore the potential of spatial visual framework for preservation and development of estates landscapes in urban context and to safeguard and develop the spatial visual qualities of the estate themselves

The following questions need to addressed:

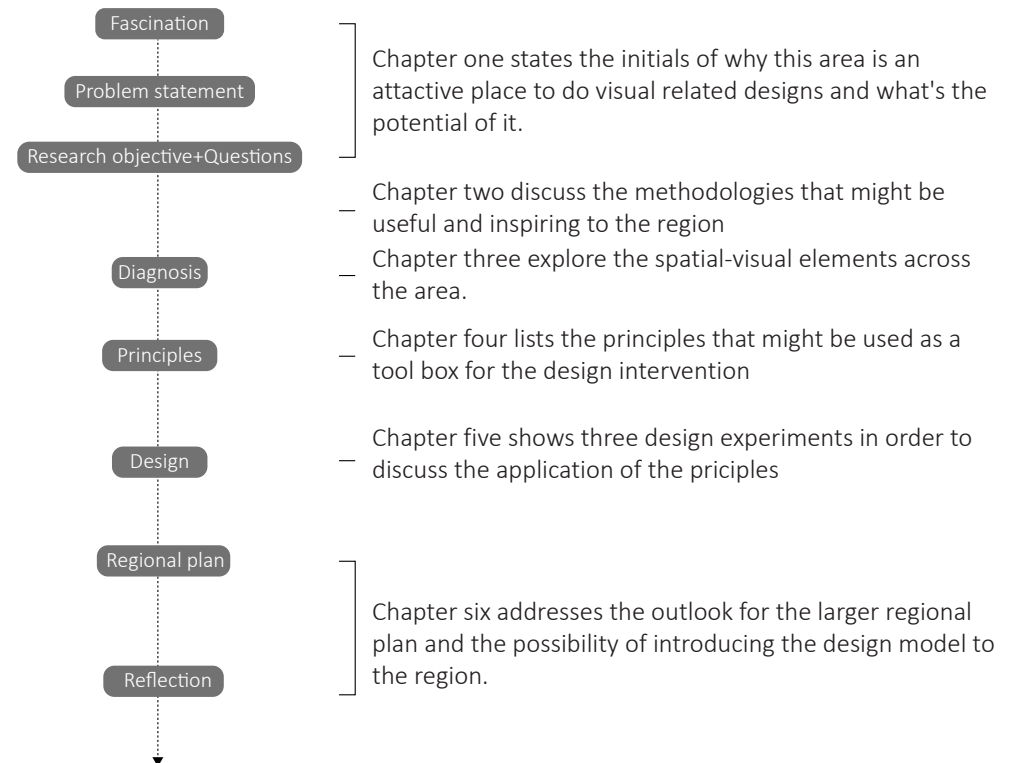
The question:

What are the spatial visual elements on and across the estates, and how to operate them?

What are the spatial visual principles to organize the spatial development of estates landscape?

How to apply the principles and strategies learned from cases and literatures to develop the landscape, to restore historical artifacts, reduce fragmentation and help the development of accessibility?

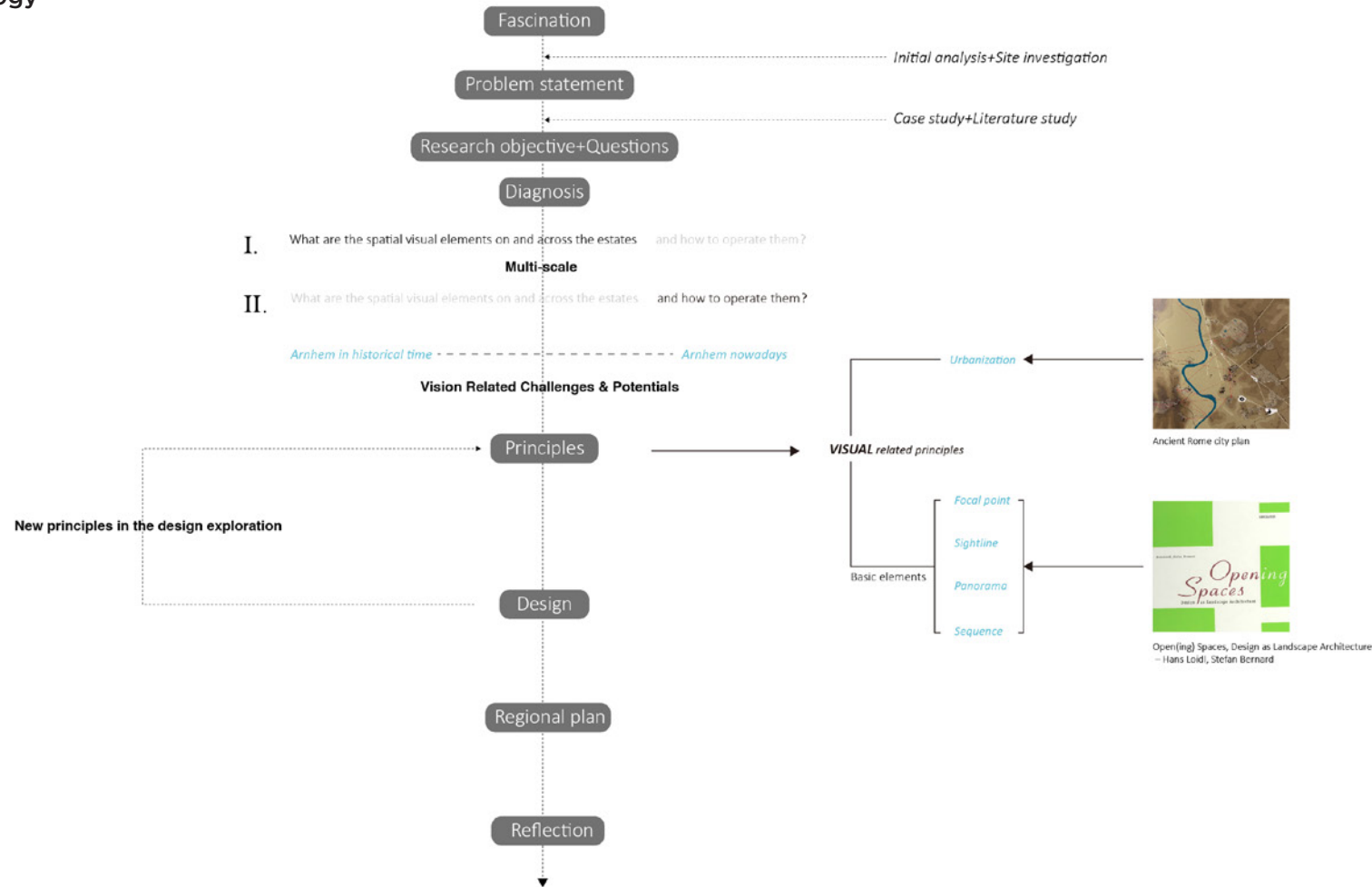
The report is structured as follows:



This chapter states the approaches and theories learned from books, articles and other resources I use for the graduation project. Also provides a complete theoretical structure of this report.

2.METHODOLOGY

2. Methodology



The project started by the field investigation and researches on the general knowledge of this area. Then, some international case studies helped to declare that visual spatial relationships can be well considered in the city plan.

There are two parts of my analysis to answer one research question. The first one is what are the spatial visual elements? In order to answer that, a multi-scale analysis of garden, estate landscape and regional scale to analyze different visual elements is vital. The second part is about how to operate them. To answer this I need to find the differences between the historical time and present time to see the vision related challenges and potentials.

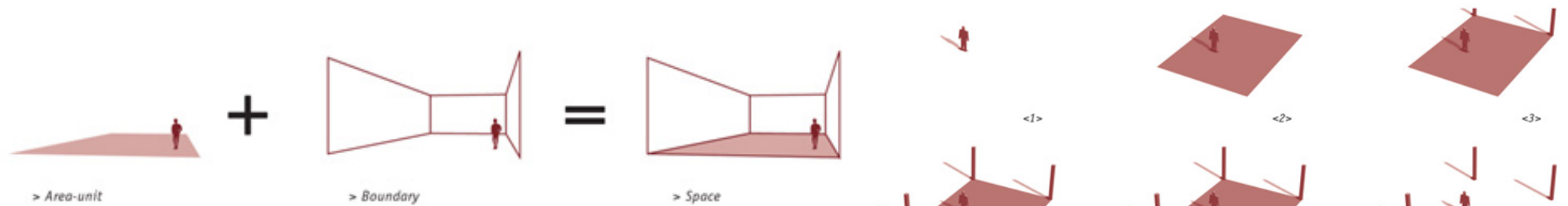
Principles are some general tool boxes that being used to adapt into different situation in design. In this project, visual related principles are the target that might help.

These principles got some key words. Focal points sightline panorama sequence are the 4 basic elements of vision. They could also be the 4 sets of principles. The book opening spaces provides many methods to emphasize the perceived visual experience which help me a lot with this.

The design framework has three parts. The first part answer the question of where can I put my design intervention. The second part answer the research question. To apply the principles into real time environment, taking detail visual spatial analysis as fundamental body to consider is very important. And the future plan is to dive into the potential of application and refine the principle as design progressing.

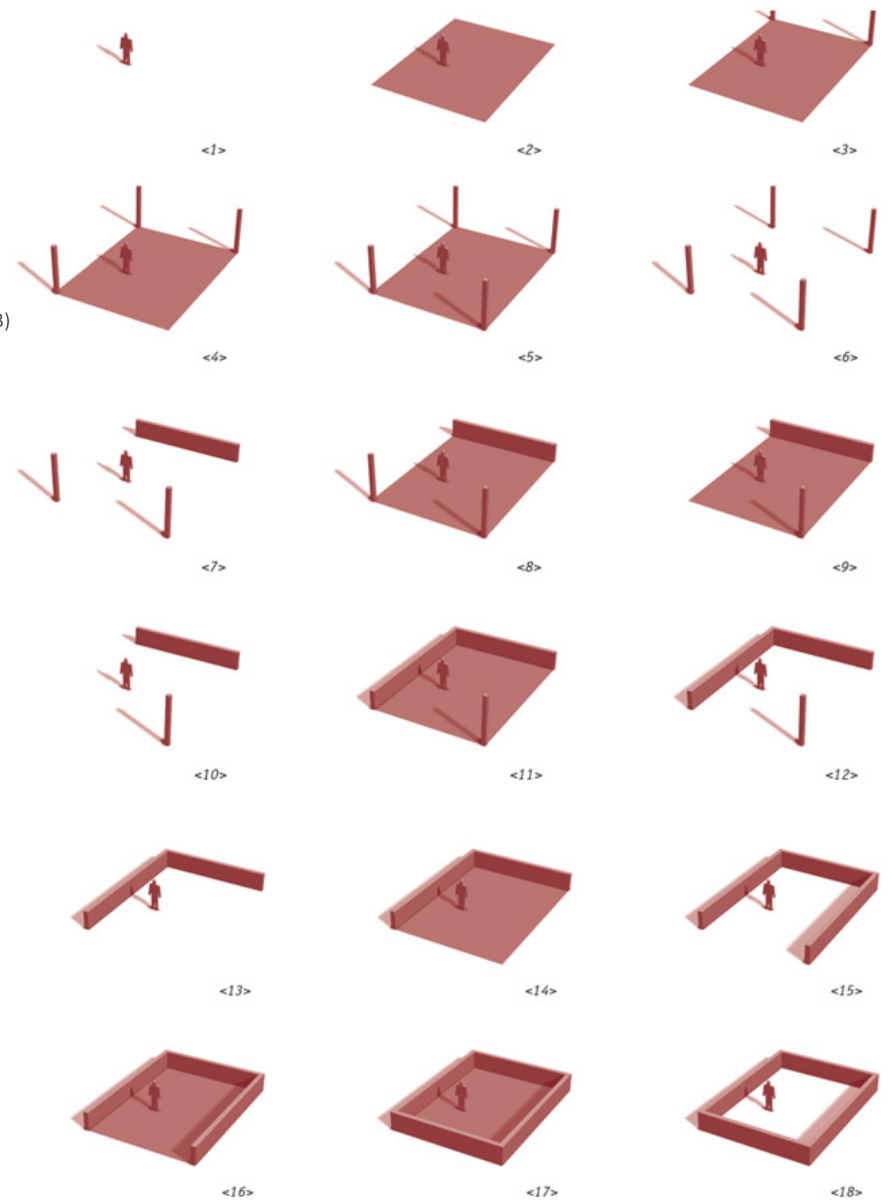
2.1 Literature study

How to define space?



Space is area unit and three-dimensional boundary (Han Loidl, Stefan Bernard,2003)

Area-unit and spatial boundary relate to each other reciprocally: the weaker the 'spatial boundary' is, the more indistinctly it will function as a space-creating criterion, and the area unit will have to assert itself all the more 'strongly' and clearly (and vice versa) (Hans Loidl, Stefan Bernard,2003,p44)



The weaker the boundary the stronger the area (Han Loidl, Stefan Bernard,2003)

How to define space?

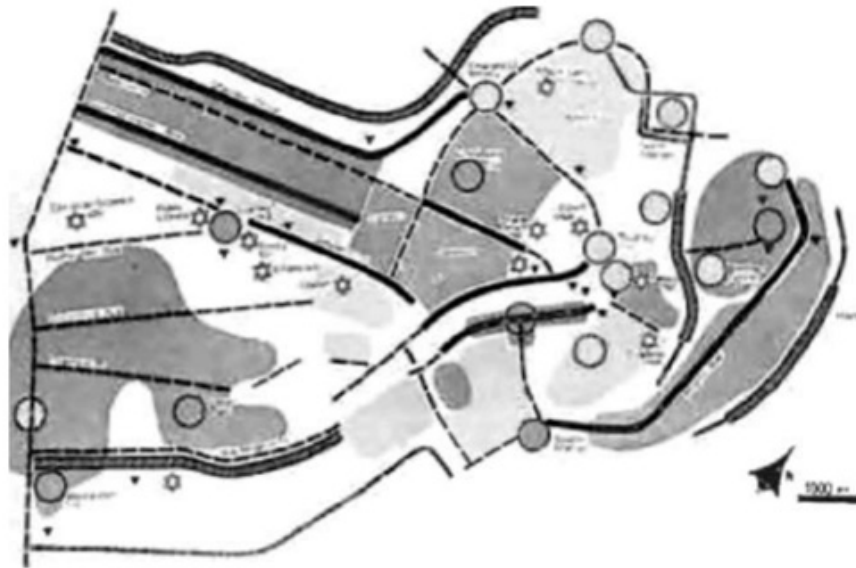


FIG. 3. *The visual form of Boston as seen in the field*

The visual form of Boston as seen in the field (Keven Lynch, 1960)

How to analyze space in a smaller scale and how to implement it?

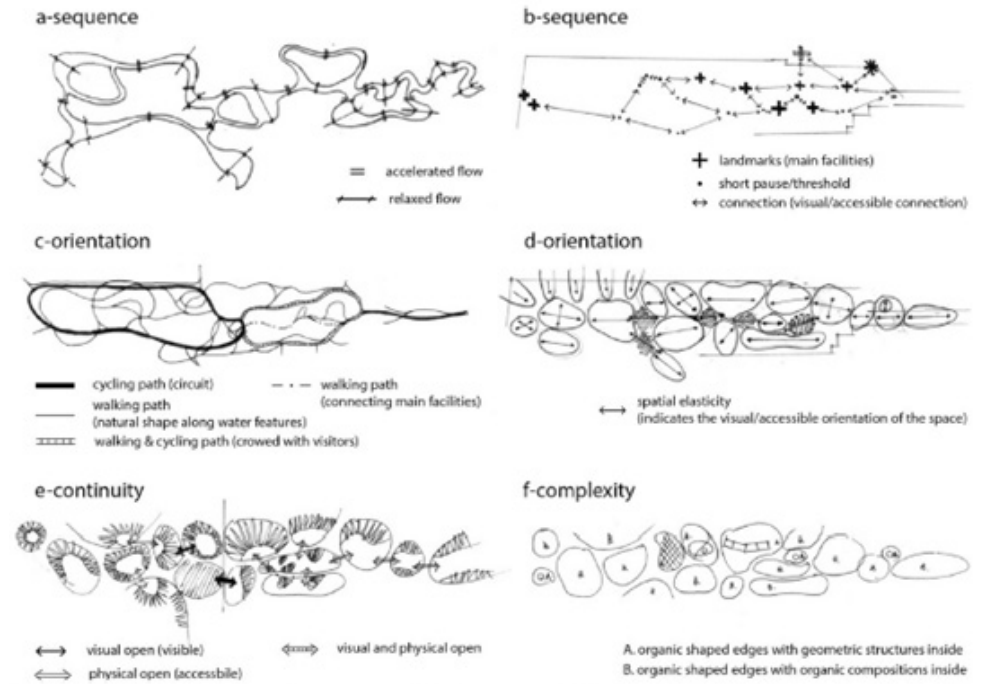


Fig. 3. A series of hand-drawn maps employing compartment analysis to describe the spatial-visual organization of Vondelpark (Field survey, January 2019).

A series of hand-drawn maps employing compartment analysis to describe the spatial-visual organization of Vondelpark (Mei Liu, Steffen Nijhuis, January 2019)

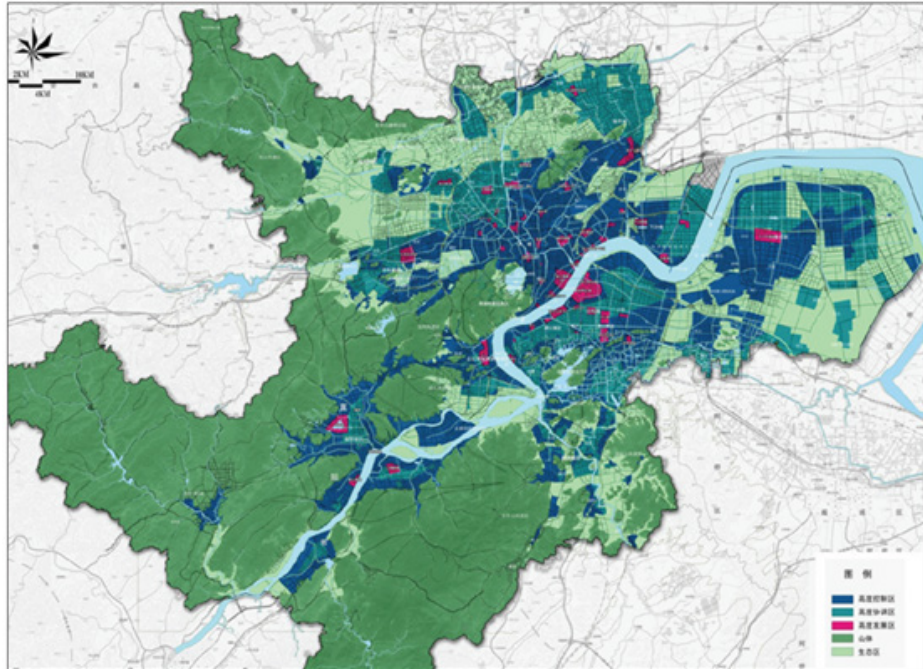
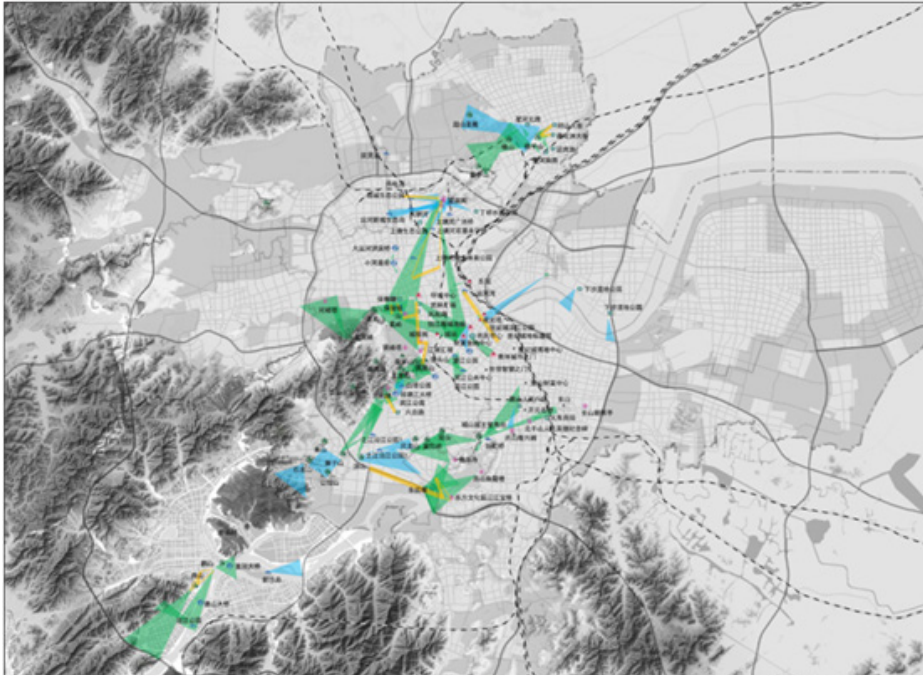
2.2 Case study



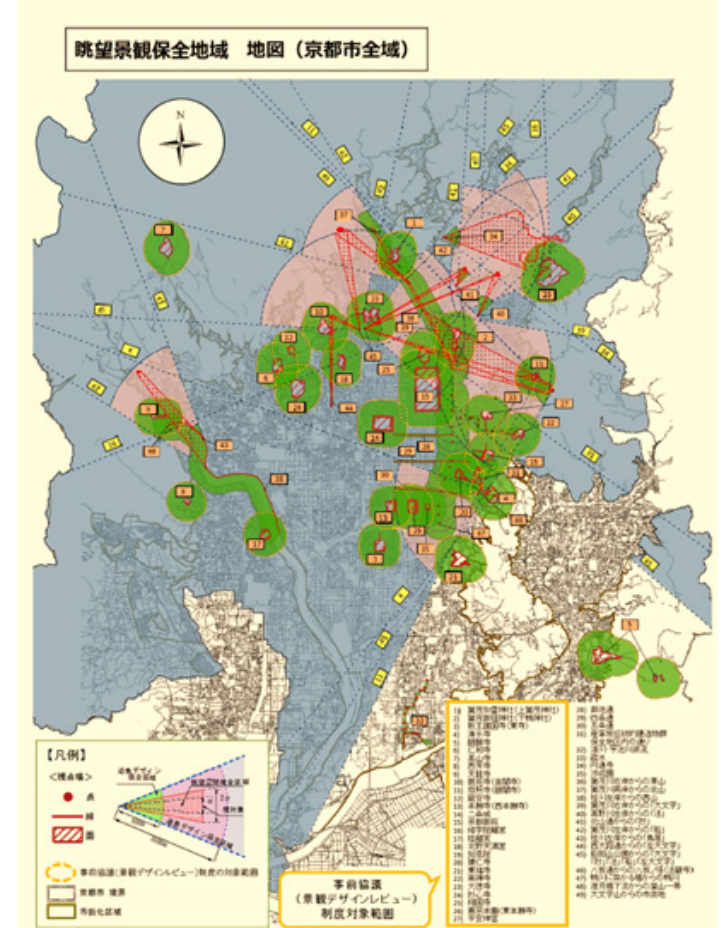
Nash's grand design of Regent's park(Clemens Steenbergen, Wouter Reh,2011)

In fact, there are some examples that shows the possibilities of visual effect in the city development internationally. The examples are basically categorized into two because they have a different point of thinking.

The first aspect is from the design point of view. London regents park and its connection with all the estates within the area is a wonderful example of how we are going to adapt the estates and visual relation into the modern city system and end up in a perfect visual experience. France is a country famous for its axis design in city planning. Meudon of Paris is a good example of how the old axis being fragmented and rebirth from the design.



Nash's grand design of Regent's park(Clemens Steenberg, Wouter Reh,2011)



Nash's grand design of Regent's park(Clemens Steenberg, Wouter Reh,2011)

The second aspect is from the regulation point of view. Kyoto of Japan is a city with a lot of world heritage sites. In order to preserve them and gain a maximum comfort of view from the top of the surrounding mountains, the city produced a plan for the visual regulation and set up several restrictions. So the traditional Japanese temples and palace will not be disturbed by the city development. The last example is my hometown Hangzhou, China. To preserve the value of vision around the famous world heritage site 'the West Lake', my city set up series of regulations to lower the buildings around the lake. This regulation made the skyscrapers inside the city look no taller than the top of the trees and mountains wherever you stand around the lake.

Conclusion

The cases around the world show the potential to apply this spatial-visual tool to Arnhem. Now we should analyze the basic condition of the estates in Arnhem to know how to operate them in the real conditions.

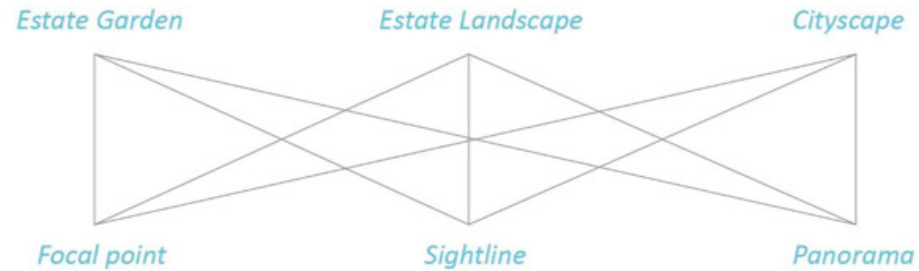
This chapter states the spatial visual elements that influence the design intervention and how they might elaborate with each other.

3. ANALYSIS

3.1 Analysis framework

I. What are the spatial visual elements on and across the estates and how to operate them?

Multi-scale



Visual elements

II. What are the spatial visual elements on and across the estates and how to operate them?

Arnhem in historical time *Arnhem nowadays*



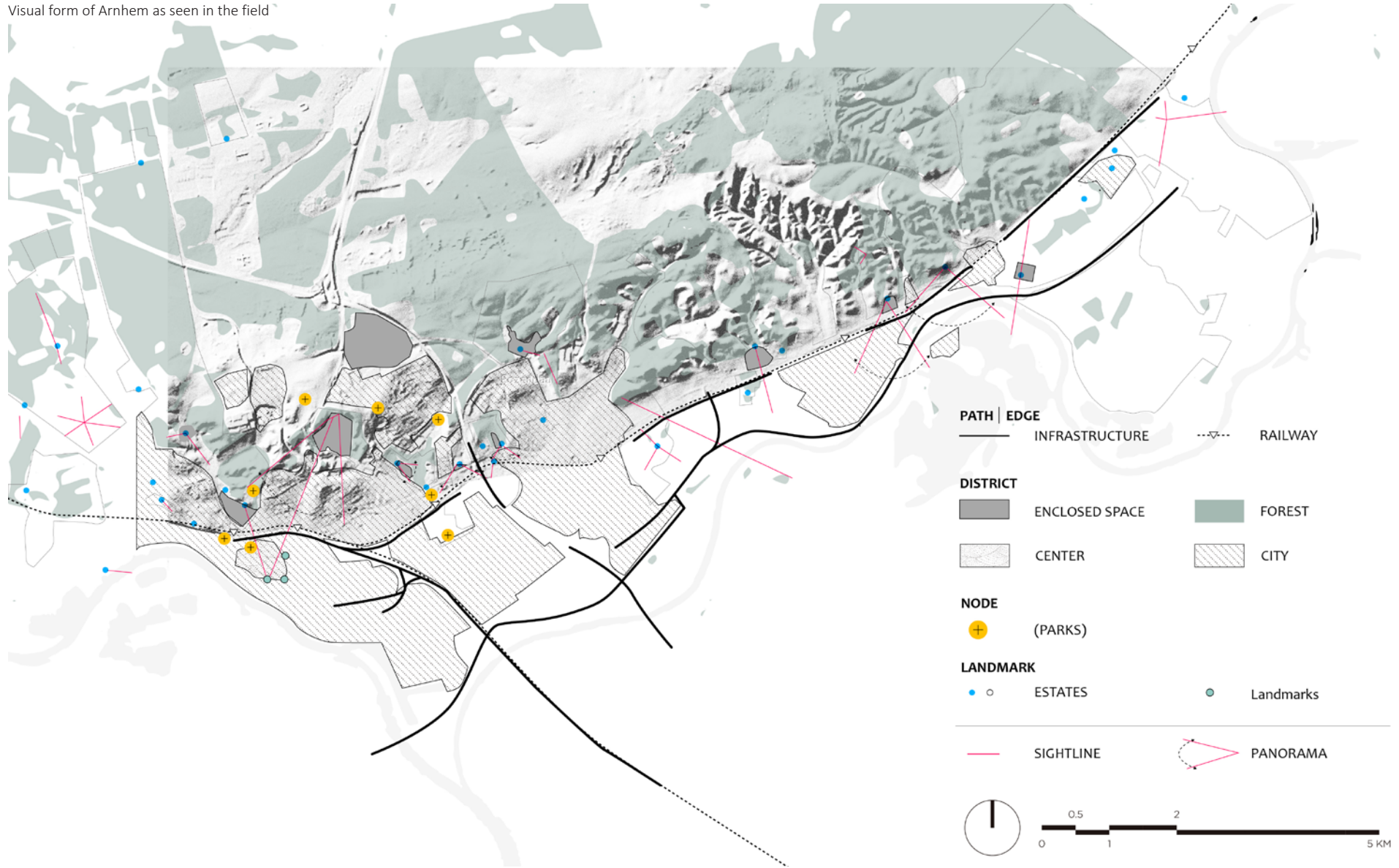
Vision Related Challenges & Potentials

There are two parts of my analysis to answer one research question. The first one is what are the spatial visual elements? In order to answer that, a multi-scale analysis of garden, estate landscape and regional scale to analyze different visual elements is vital.

The second part is about how to operate them. To answer this I need to find the difference between the historical time and present time to see the vision related challenges and potentials.

3.2 Regional + Local understanding of the visual relationships with the area

Visual form of Arnhem as seen in the field



There are three different visual elements-focal point, sightline and panorama in and across this region. Basically they were structured by the historical infrastructures.

And follow the method that was been taken in the book the image of the city of Kevin Lynch. I try to make the visual form of Gelderland as seen in the field in order to tell the characteristic of the estates

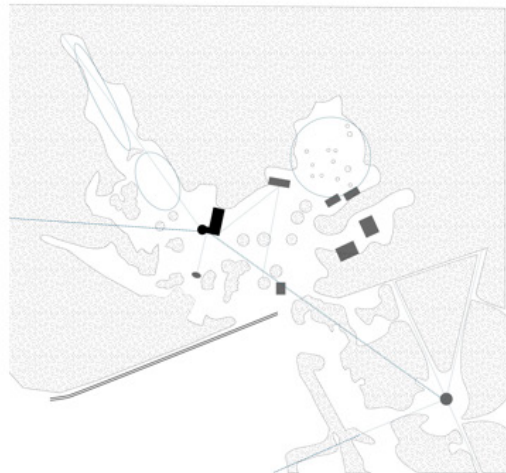
SONSBEEK



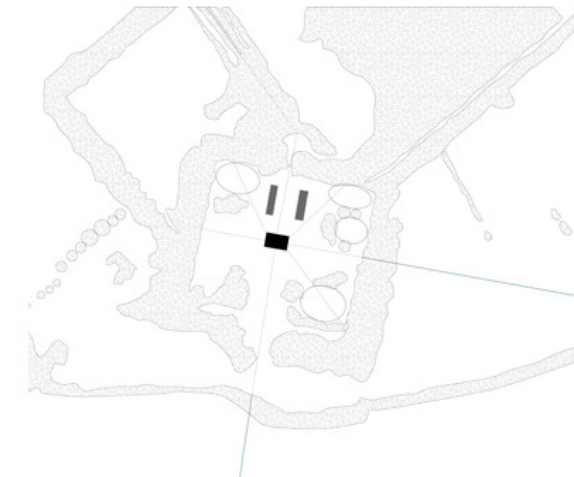
KLARENBEEK



ROZENDAAL



MIDDACHTEN



When we zoom in into smaller scale, I took four estates to analyze for finding the visual elements. The first one is sonsbeek. In the garden scale, we can see the memorial. And in estate landscape scale with some enclosed fields, and the entrance to the near neighborhood . In the regional scale, we can see the church of Eusebius

When it comes to Klarenbeek, a relic of gallows is very interesting in the garden scale, and because the park klarenbeek is a baroque garden , so you can still see the trace of it. What is special is in the regional scale it can see the city of Arnhem very well.

The famous Rozendaal also has different visual elements in three different scales. Especially the king's road is quite important.

The final one is Middachten. As a place for the hunting in the old time , the visual relation with its hunting field is very important, now we didn't see any of it.

So, we can conclude from these analysis that, the basic visual elements of focal point, sightline, and panorama are existing in every scale of the estates which contain loads of information and the value of the estates themselves.

3.3 Relation between the city pattern and the visual elements



These serial of maps contain the information of the territory of estate, pattern of the city, location of the estates, and area of the mass (forest). These maps show the development of the city & estates in the historical times.

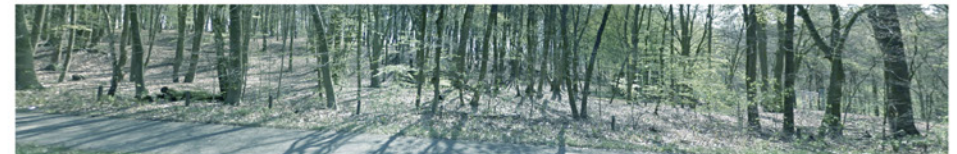
In the time before 1800, people cut trees in order to develop the paper industry and wood industry so there were not so much green left. At this time, the domain of the estates are large for various of purpose like hunting & agriculture. The city was limited to the defensive wall. The estates and the city remains independent only with roads connected.

As the work of remediating the forest started, the area of the forest began to rise in a fast speed. The city began to seek for room between estates. However, the estates still remain huge and all of them are on the edge of the city. And in this period, some of the estates became vanished.

When we take a look at the map right now. The expansion of the forest wasn't stopped. The development of the city swallowed some of the estates in the past years. Though the municipality of Arnhem had several plans to activate the south bound area, the city still grew a lot towards north.

We can see that as the main factors that influence the spatial visual quality of the area changed, as the trees being planted more, lost of the estate territory and expand of the urban area, the overall visibility of each estate is going down

3.3 Challenges and opportunities



When we take a walk from sonsbeek to rozendaal, this old main infrastructure now is a wide road. You can tell the visual spatial sense is not strong. And the historical elements are not well guided. Like in klarenbeek...

And when we have a look at the visibility of this area, the sonsbeek and klarenbeek are able to see church eusebius very well, but unable to see each other. In triangular relationship like this, the two estates can not see each other due to the slope and there is no landmark like the church guide the sight. The challenges now are to reconnect the visual relation among

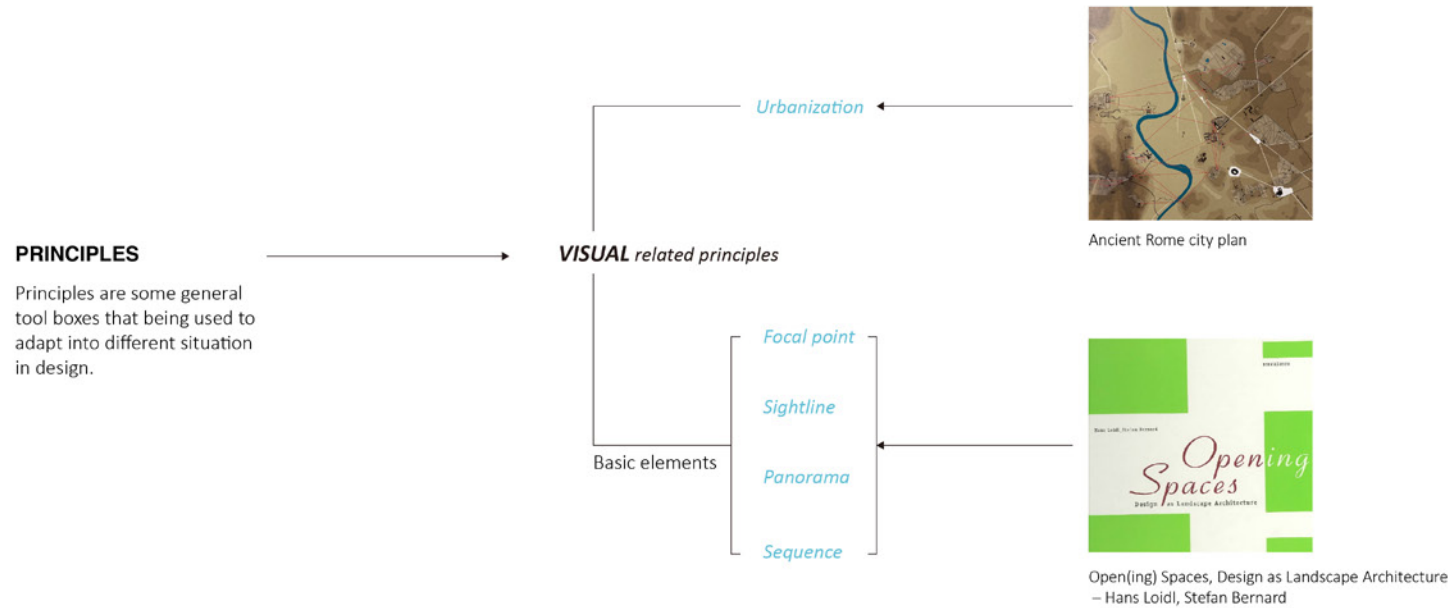
estates, make people more aware of the value of the estates to reduce fragmentation and obstacles.

The lost visual relations are the potential for this.

Principles are some general tools that can adapt to different situations through design. In this project, the following visual related principles are used as a basis for the spatial organisation and design of the territory and estates (Nijhuis, 2011; Loidl & Bernard, 2003):

4. DESIGN PRINCIPLES

4.1 Principle framework

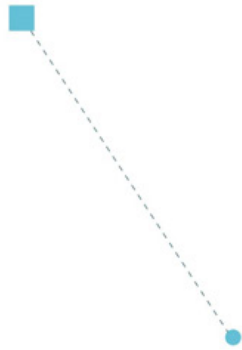


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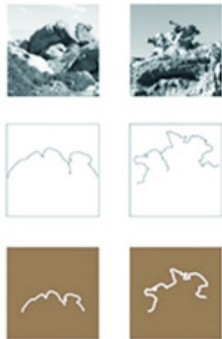
These principles got some key words. Focal points sightline panorama sequence are the 4 basic elements of vision. They could also be the 4 sets of principles. The book

opening spaces provides many methods to emphasize the perceived visual experience which help me a lot with this. After these principles are set, they could all lead the future urbanization in a more visual way of thinking. This urbanization process is inspired by the Ancient rome city plan.

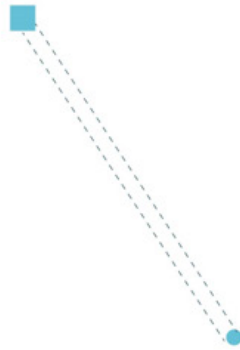
FOCAL POINT



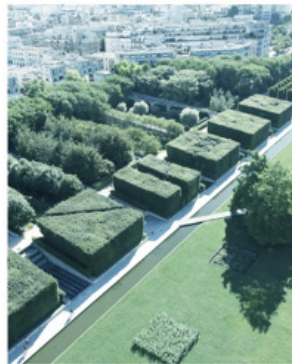
Attracting people



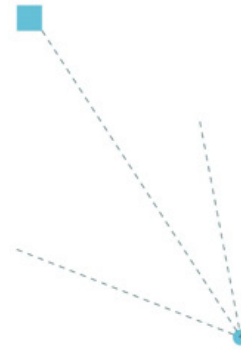
SIGHTLINE



Connecting people



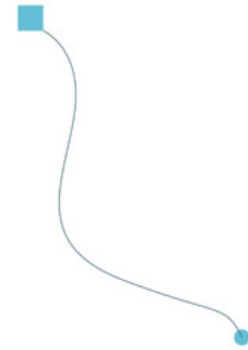
PANORAMA



Directing people



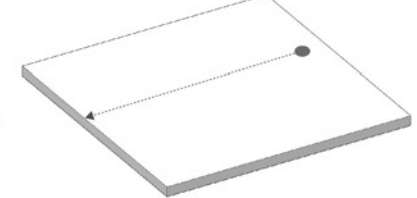
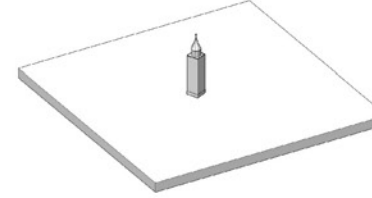
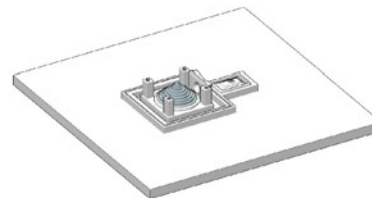
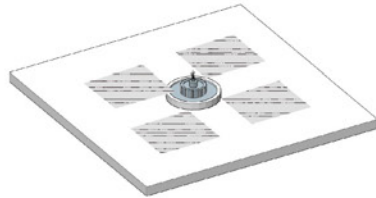
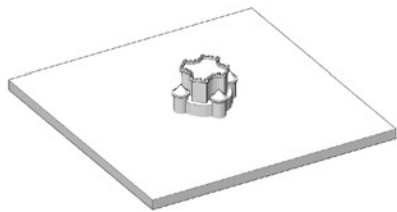
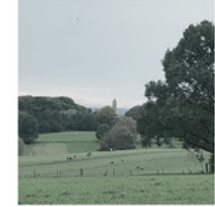
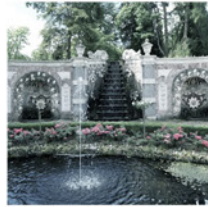
SEQUENCE



Moving people



4.2 Focal point



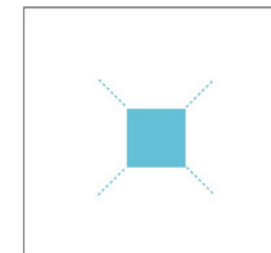
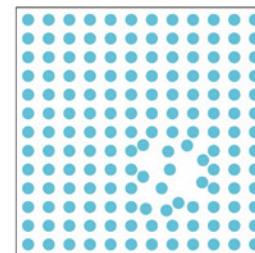
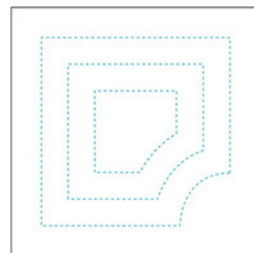
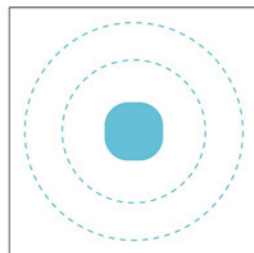
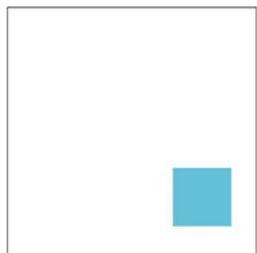
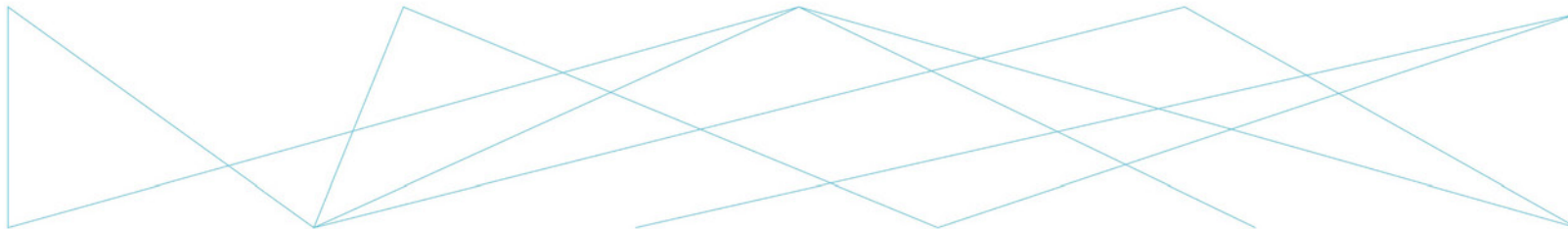
Estate

Garden

Memorial

City marker

Observation point



Density in emptiness

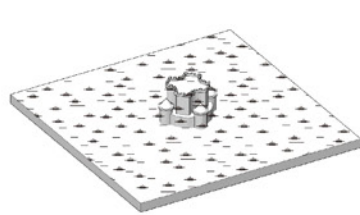
Elevation difference

Rounded with angular shape

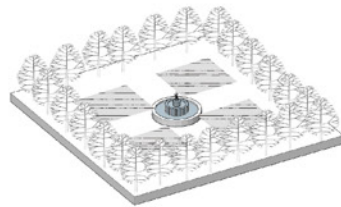
Disorder in order

Empty in density

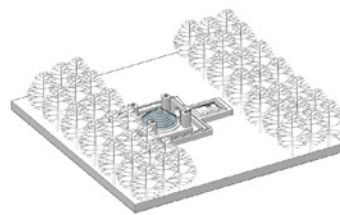
Visual marker



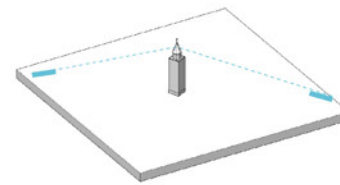
Estate *Density in emptiness*



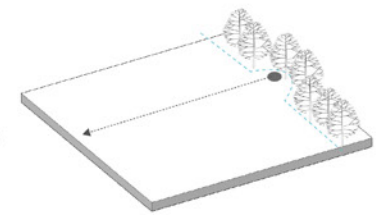
Garden *Disorder in order*



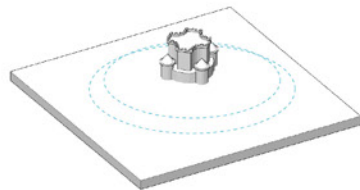
Memorial *Empty in density*



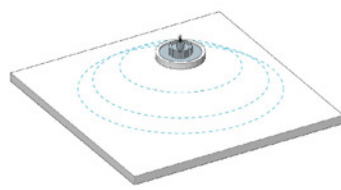
City marker *Elevation difference*



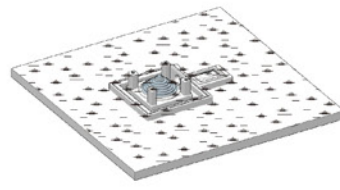
Observation point *Rounded with angular shape*



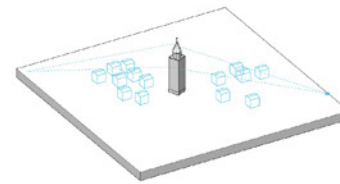
Estate *Elevation difference*



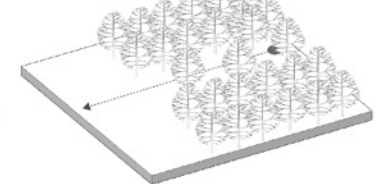
Garden *Elevation difference*



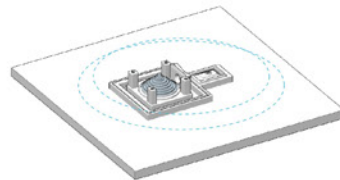
Memorial *Density in emptiness*



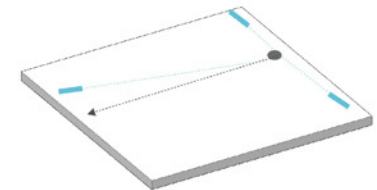
City marker *Visual marker*



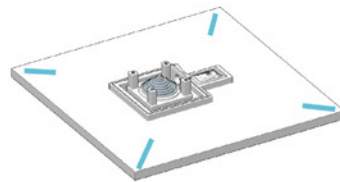
Observation point *Disorder in order*



Memorial *Elevation difference*



Observation point *Visual marker*

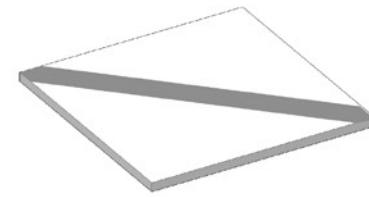
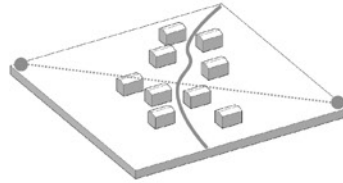
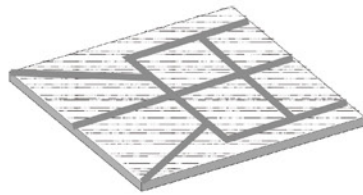


Memorial *Visual marker*

Focal points: Focal points strengthen, change or create spatial situations. They define areas, condense meanings, attract attention are “attractors”. Focal points are anchorage and orientation points for our movement, our looks, our behavior.

4.3 Sightline

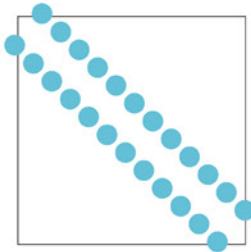
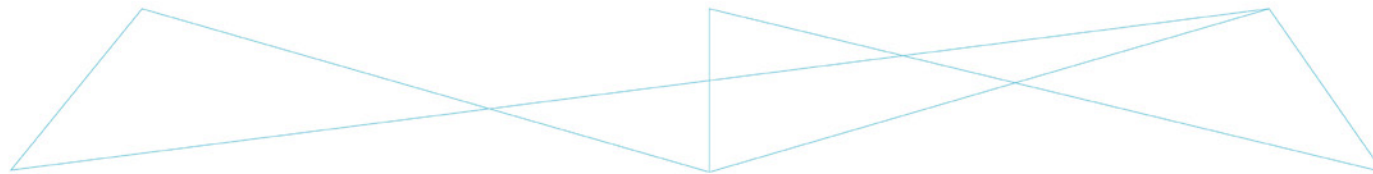
SIGHTLINE



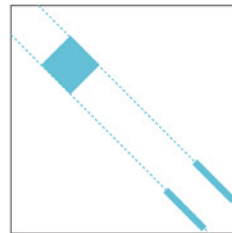
Baroque garden

Historical connection

Historical road



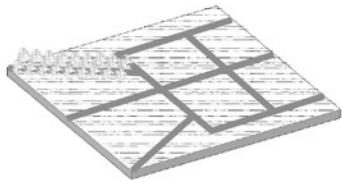
Visual corridor



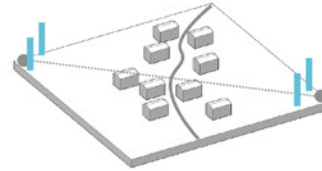
Visual marker



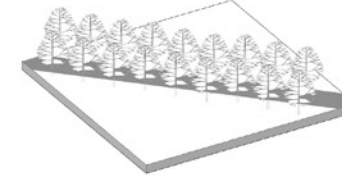
Texture in structure



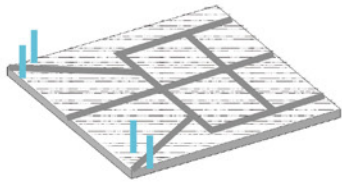
Baroque garden *Visual corridor*



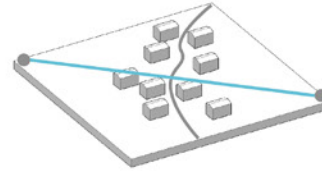
Historical connection *Visual marker*



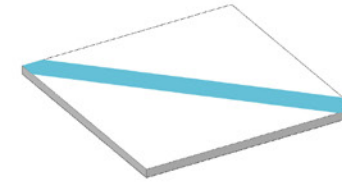
Historical road *Visual corridor*



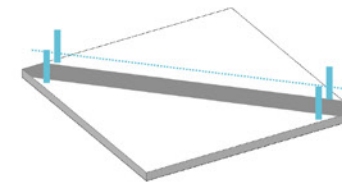
Baroque garden *Visual marker*



Historical connection *Texture in structure*



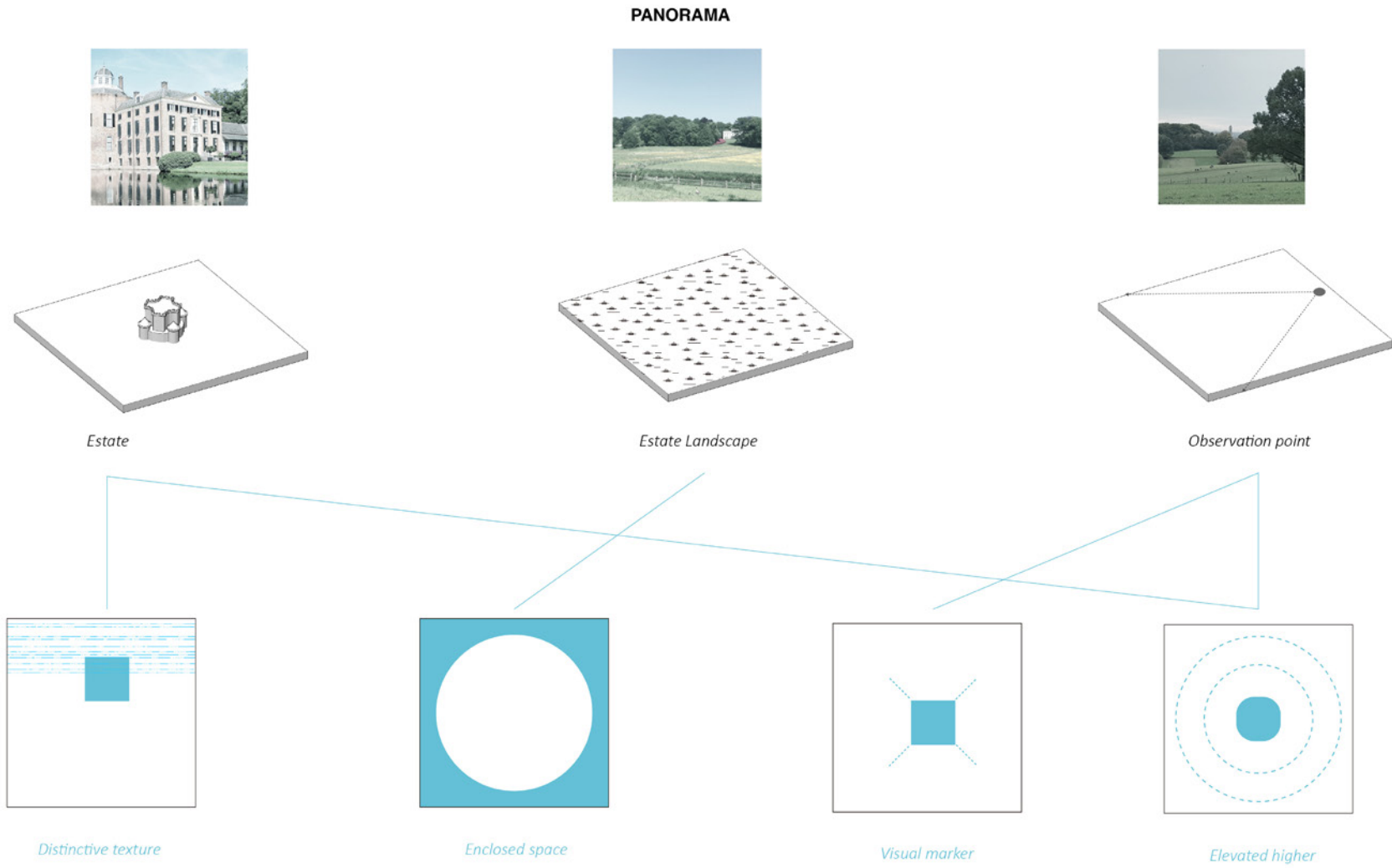
Historical road *Texture in structure*

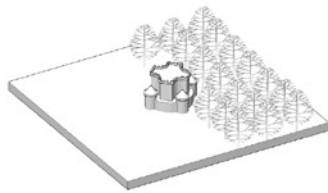


Historical road *Visual marker*

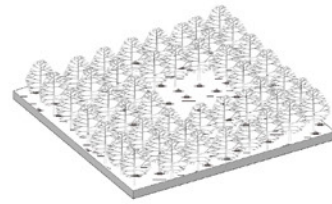
Sightlines: sightlines are about to leading people and make paths. The most important purpose are reveal some of the most important historical connections and infrastructures, trying to build the visual channel between time of past and present.

4.4 Panorama

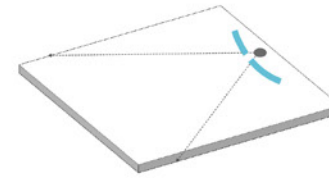




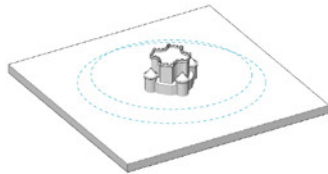
Estate *Distinctive texture*



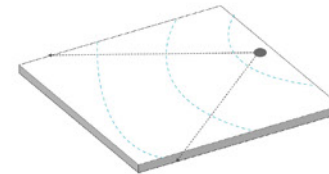
Estate Landscape *Enclosed space*



Observation point *Visual marker*



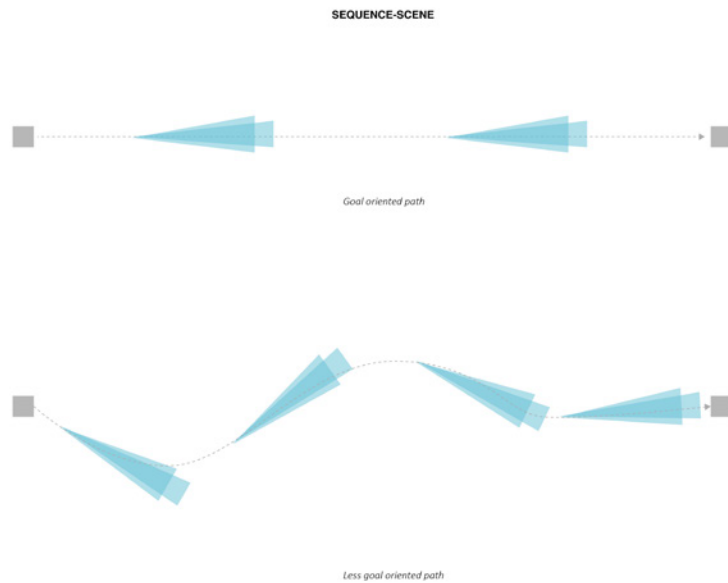
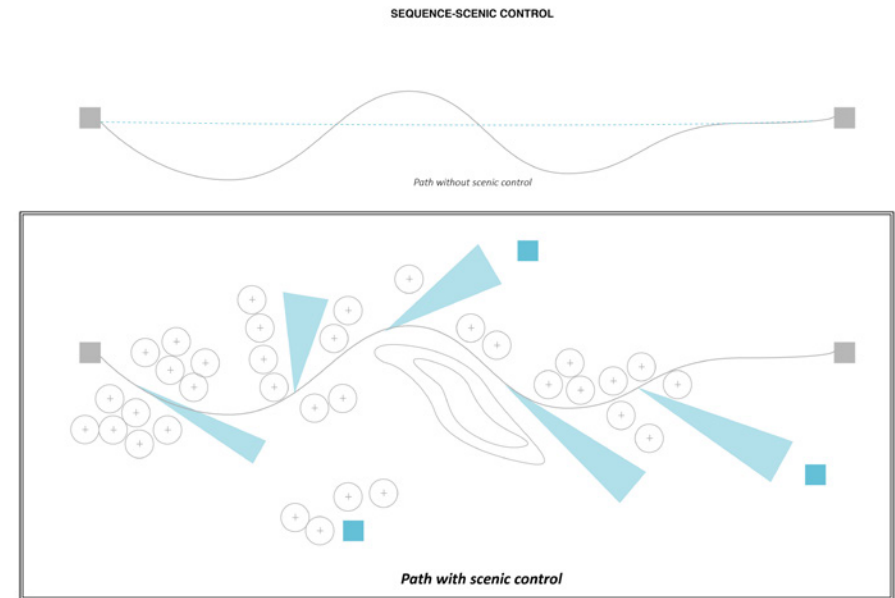
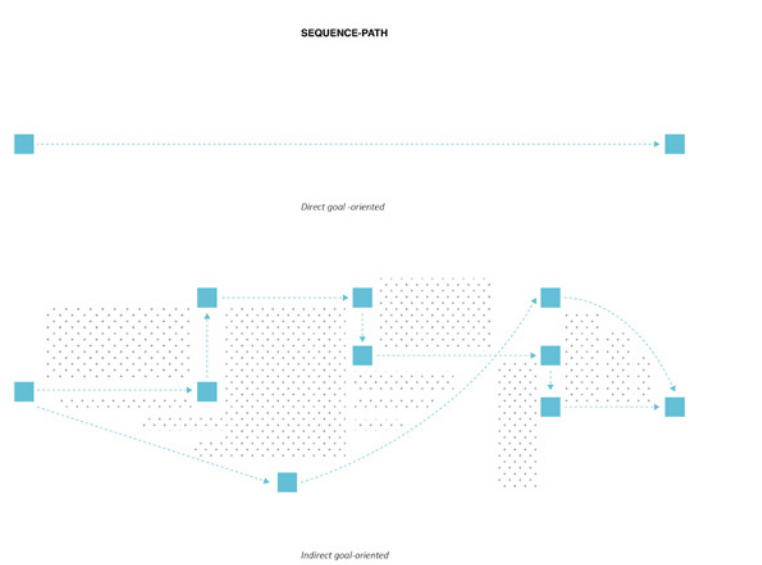
Estate *Elevated higher*



Observation point *Elevated higher*

Panoramas: Panorama creates space that formed by vision's limits. It is also an iconic visual character in the area due to the geography and the style of the estate.

4.5 Sequence



Sequence is about the movement of people, so first, path is a vital elements for sequence. There are two different path, direct goal-oriented and indirect goal oriented. These different path have different visual effect when the vision added. The path plus vision form the scene. According to the previous path, there are also two different scenes. When we have a path without scenic control, people will just go straight to the final point, but with the scenic control and the control elements of point, line and panorama, the path with control would be a good sequence to form the visual experience and connect the estates, reduce the fragmentation.

Conclusion

From this chapter, the principles are listed regardless of the condition of the estate. It is just a general toolbox for design to use. So when it comes to the practical design intervention, not all of the principles are suitable for the development. The condition should be taken into account seriously. In some cases, the principles might have the same representation but for a totally different purpose.

The flexible and adaptable principles should be using to better form a complete experience for every estate.

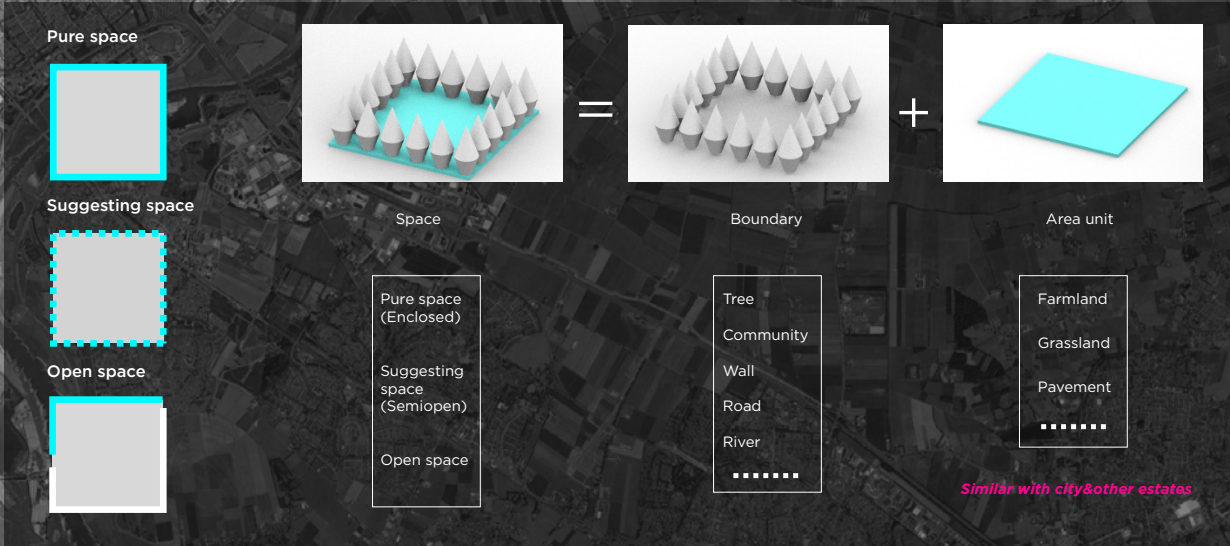
*Three experimental design introducing the application of the principles and
tring to explore more relations amongst estates*

5. DESIGN EXPLORATION

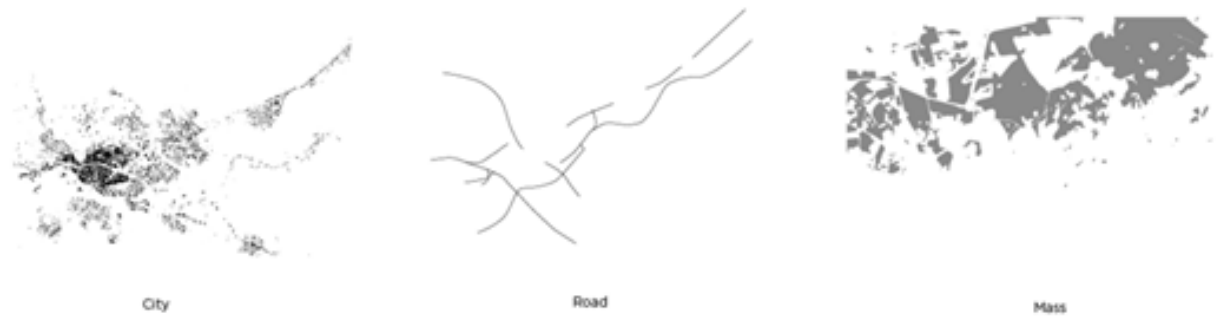
CATEGORY OF THE ESTATES BASED ON THE SPATIAL QUALITY



- Pure space
- Suggesting space
- Open space



5.1 Introduction to the design experiments



Three main parameter that influence spatial-visual quality

The elements that influence the visual and spatial qualities of estates are basically listed in the map of image of Arnhem. In this case, I will just layer the elements which are: built area, road that cut the space, and mass in the area.

After the mapping work, we can tell a relatively complete map for the city's visual spatial overview and see the position of the estates.

With the map holding, how am I going to distinct the estates from it?

From the book opening spaces there are some definition for space. The full explanation is in the theory chapter. Basically, space is made by boundary and area unit. There are three different space, first is what it called 'pure space', with complete boundary and stable consistent area unit. Second one is called 'suggesting space', with mentally completing boundary but perceived incompletely. The last one is the open space with incomplete boundary and also perceived incompletely.

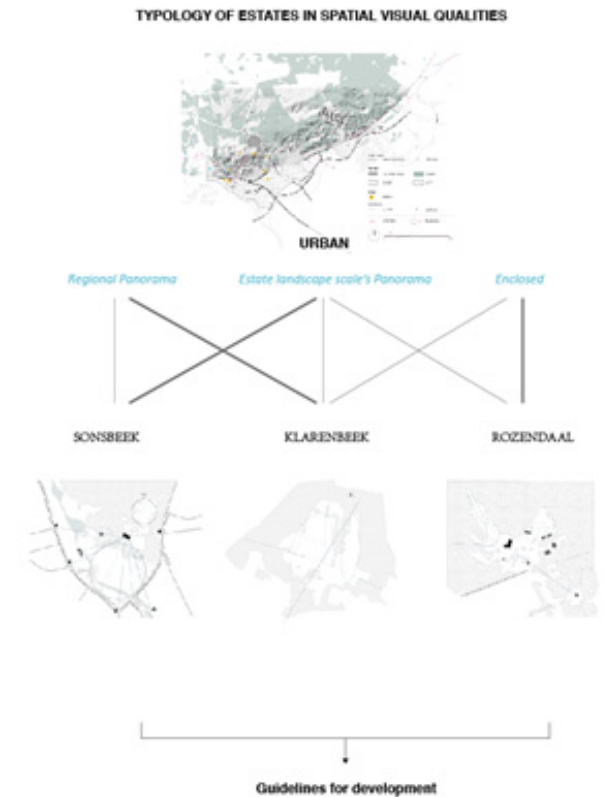
In this case, the three different definition for space could be used to identify the estates in this area, in order to pick one for each space as my experimental design. However, the concept for boundary might changed a little bit in this case for boundary to the estate's own boundary. In order to get rid of the influence of the city to define the space.

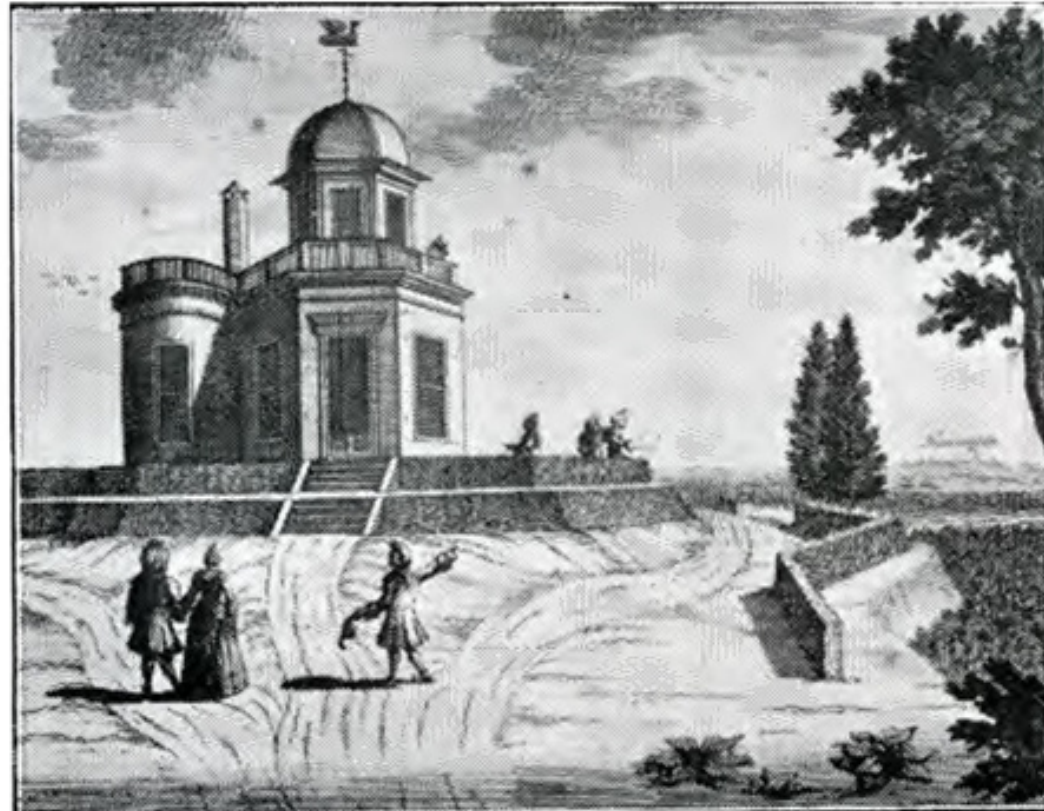
From the map, pure space can also be called enclosed space in the area. The boundary for it is rather solid and mostly formed by forest and wall. The area unit is pure as farmland and grassland. Most of them are located in the urban fringe or rural area. Most of the suggesting spaces located in the urban area to the urban fringe. Some of their boundaries are permeated by community, road and river. However the area unit for them are consistent.

Open spaces are located inside the town with an incomplete boundary with a consistent area unit.

So in general, the area unit of the estates are continuous and preserved well. The spatial qualities are mainly depending on the boundary type.

The estates that I pick for the experimental design are Rozendaal, Klarenbeek and Sonsbeek. These are some of the well-known estates in the city but also the connection with the urban area is still there, so I see the potential not only in the spatial visual quality but also in how they can deal with the urban development in the future. And they are significantly different from each other.

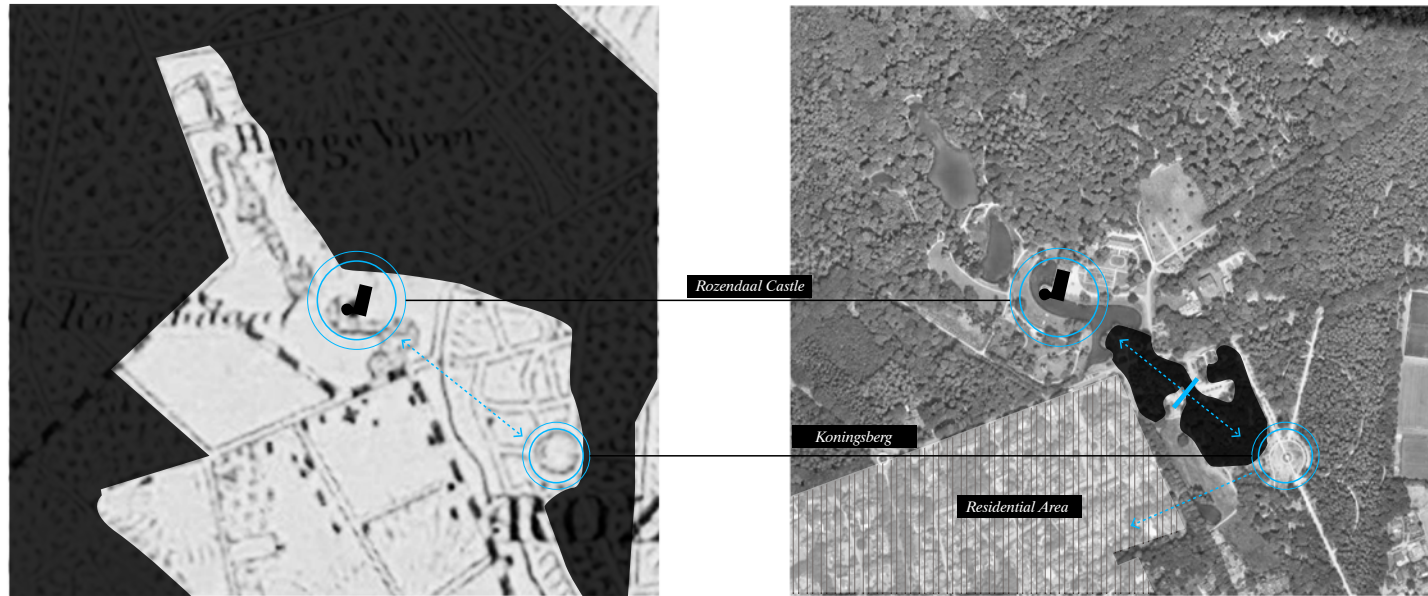




Konings-huisje op de Koningsberg te Rozendaal ca. 1700

Design Experiment One—Pure Space
Koningsberg of Rozendaal

Why Rozendaal is interesting?

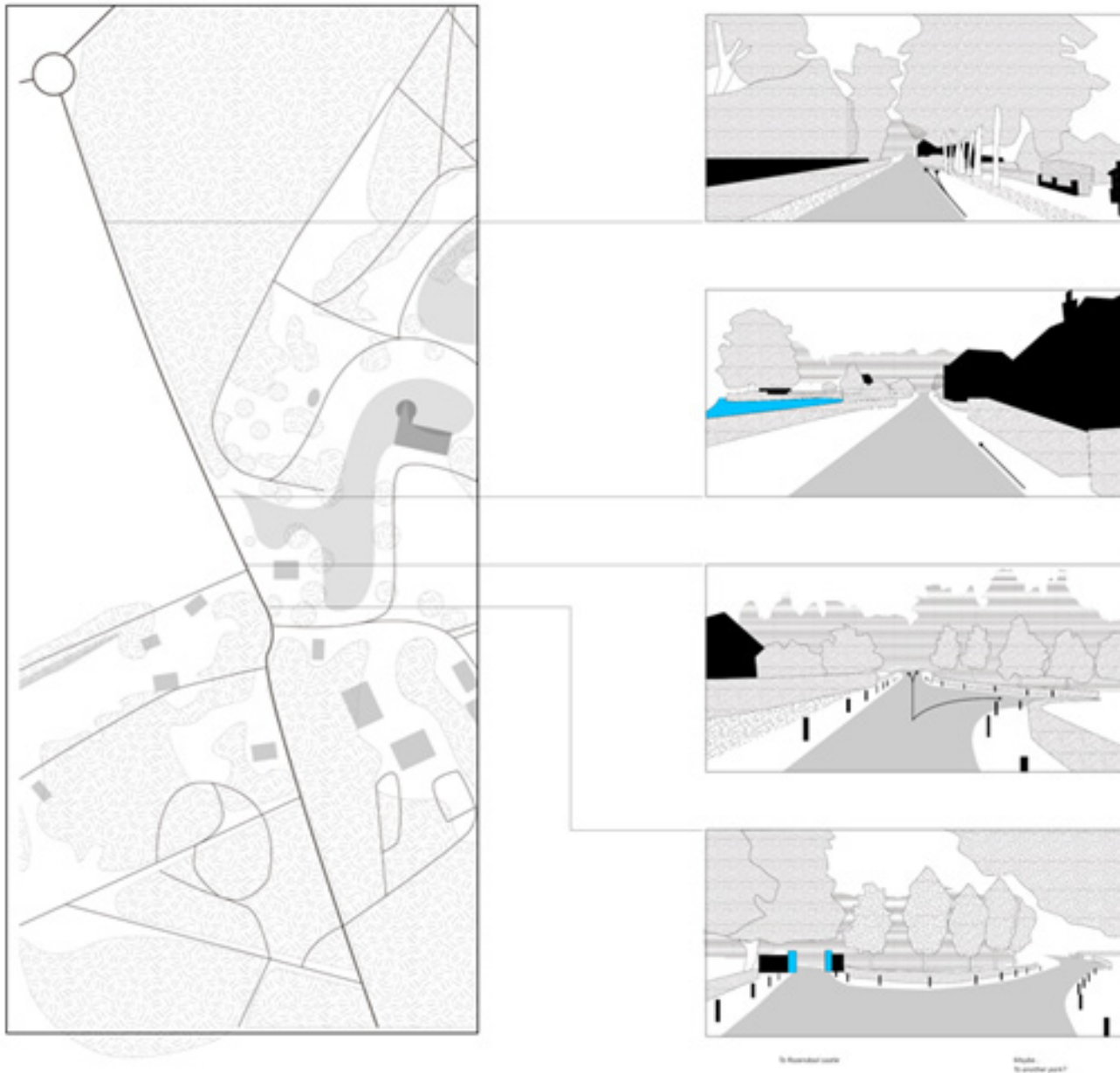


- 1. The change of spatial visual experience to the estate landscape*
- 2. The future relationship with the neighbor of this region*
- 3. The future recreation composition for visitors*

The principles as mentioned before are used as the basis for design explorations to test the possibilities of their application. Three estates are selected: Rozendaal, Klarenbeek and Sonsbeek.. Here the Rozendaal estate serves as an example.

Although the castle and the king's berg didn't change too much. The spatial visual experience to the estate landscape changed a lot from its original design. King's berg belongs to the Rozendaal as a part of its landscape, however, this relationship has gone in times. Due to the growth of forest, the once empty between area turned into mass, which block the way of visibility, making the park a left corner for the estates. Also, the relationship between Rozendaal and the king's road is also very interesting.

Visual sequence analysis



When approaching the estate landscape. People will lead by the road, trees and walls. In the halfway, they will even be attracted by the beautiful river beside the castle. This attraction indicates the future direction. At the final choice in front of the entrance, a gate on the left attracts people going inside, plus the view from the previous road. It is the normal people's routine to just go inside of the landscape around the castle, but ignored to take a right turn to the rest of the landscape which is also part of the estate. Because there is no any indicator or landmarks to gain attention.

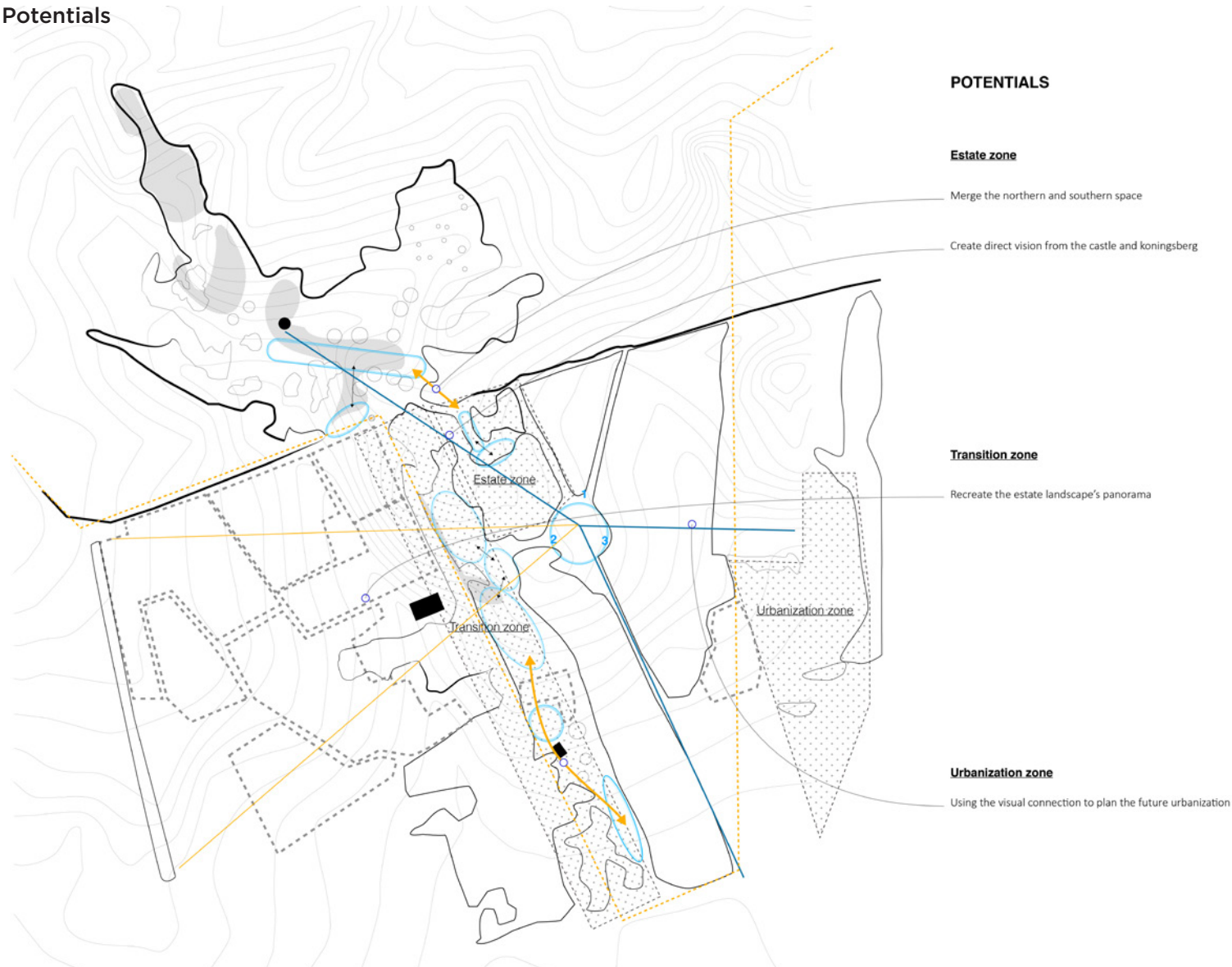
Spatial analysis



Further look at the spatial visual composition of the Rozendaal, the spaces inside the northern part of the estate are tightly connected to each other and the path. And in general, the northern boundary of space is thicker than the southern part, in the Koningsberg there will be looser space and gaps connect to the surroundings. But we can also see the lack of connection between the space of the King's Berg to the Rozendaal. This is one of the reasons that why the southern part is not that merged with northern part. Besides, the inconsistency of the pavement is also producing fragmentation. In the eastern area there are some big spaces with less thick boundaries.



Potentials

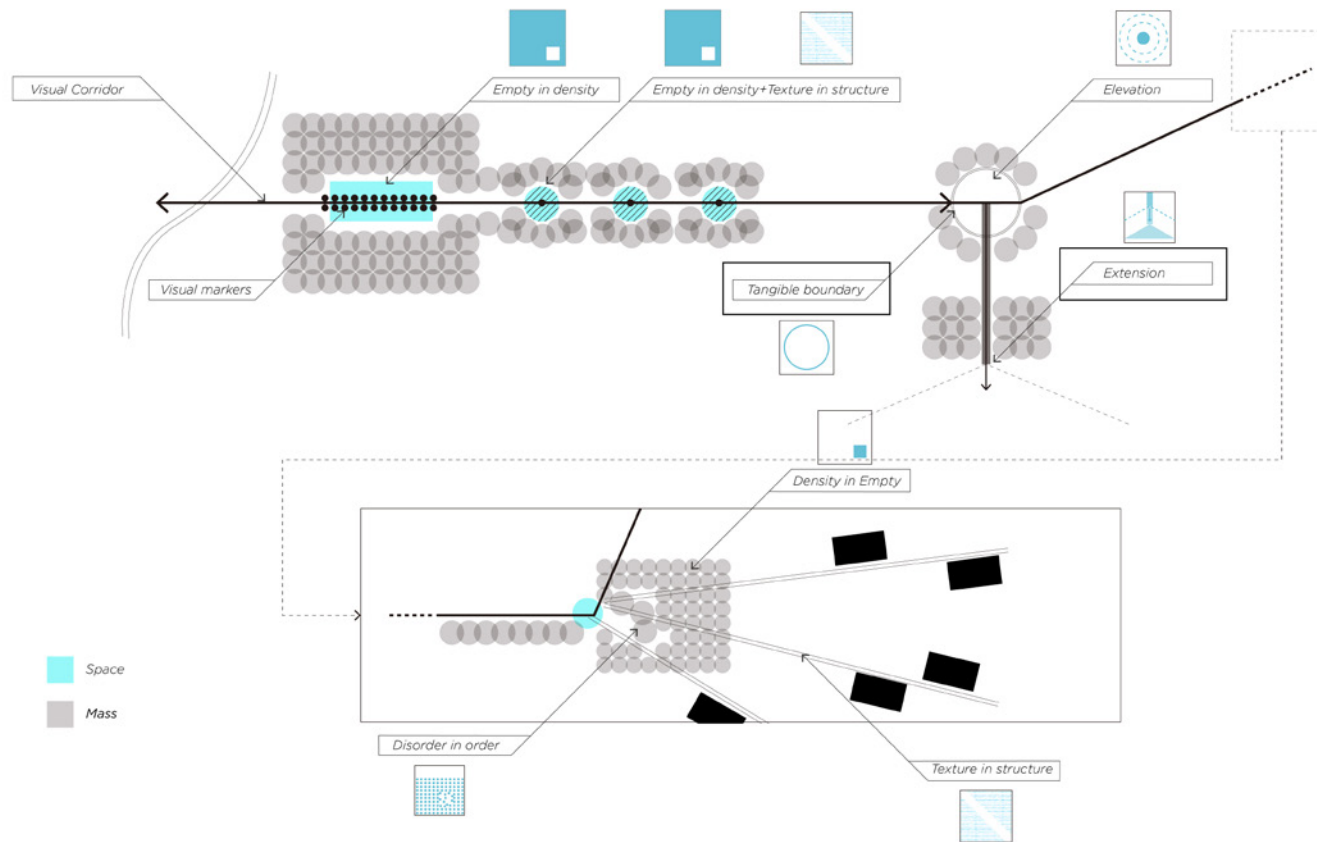


Here the design exploration is focussed on re-establishing the visual relationship between the parts of the estate and visually guide people into this area as well. The design consists of three conceptual layers that refer to the past, present and the future, represented by three different zones: 1) The spaces surrounding the estate, 2) urban neighbourhoods, and 3) urban fringes. From the connection inside the estate which is the estate zone, there could be a chance to trace the old sightline from one focal point to another which is from Rozendaal to Koningsberg. Also there will be a chance to reveal the panorama to the neighborhood which is the transition zone,

but also there is going to a potential area for the future urban development and it could be the place to show how the landscape principle could affect the urban development in a way.

Principle composition Rozendaal

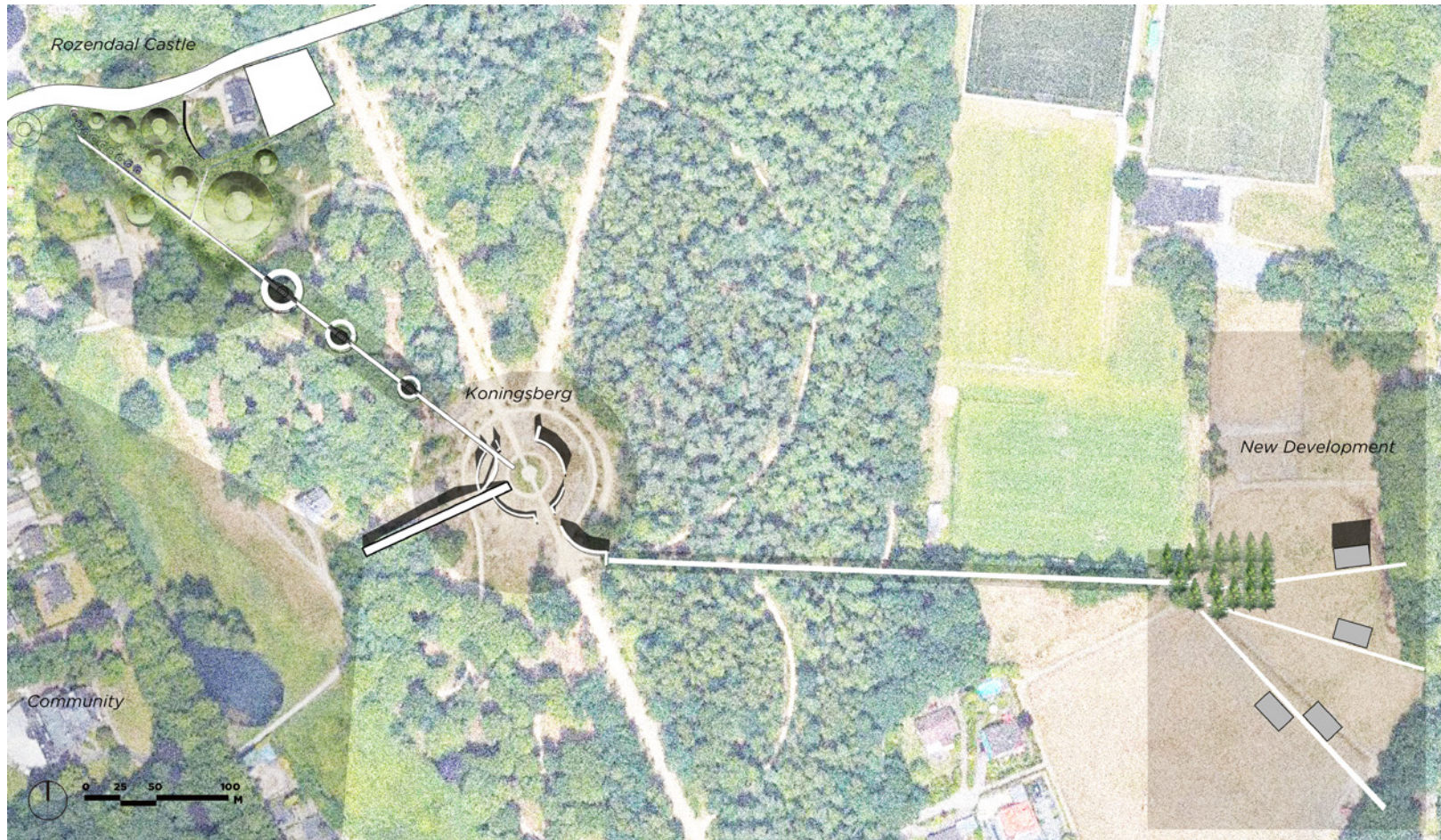
PRINCIPLE COMPOSITION-ROZENDAAL



The principle I am going to use mainly come from "Sightline"& focal point. In order to connect the space between Rozendaal and koningsberg, the space would be created and the northern part of the design to attract people but also emphasize the space. With some visual markers create orientation of the route and as part of the visual corridor. The visual corridor is the main principle that I am going to use to build up the visual channel and it is a direct and strong principle to use in order to make people aware of the connection without cutting too much trees. On the routine, there will be some small spaces in between and by using the principle of texture in structure the space would be highlighted to move people from one space to another. With this process going on, I realized that there will be a new principle which I can add to the tool box called 'tangible boundary'. It is a principle that can stable and enlarge the spatial quality

of koningsberg which is a basically round perceived space. Also the koningsberg itself as a focal point is elevated to emphasize. There will also be another new principle called extension. It is basically to extend the view to the panorama of neighbors. Also a recall of the old times.

For the potential future development area, the principles would be focused on direction the way of the koningsberg-the historical relic and indicating the focal point of this new community. The use of texture in structure is to distinguish the road to koningsberg and the area unit. The density in empty is to emphasize the cluster of trees that marks the focal point of the new community-entrance of koningsberg. The disorder in order is to further focus eyes on the point.



Design plan in Rozendaal

In this way, when people first come into this estate, their attention will be drawn to the southern park, then still get a sharp awareness of the connection between the park and estates. With the channel being made, when people stand at the top of the mount in the central king's berg, they can clear see the castle. Indicating the relation.

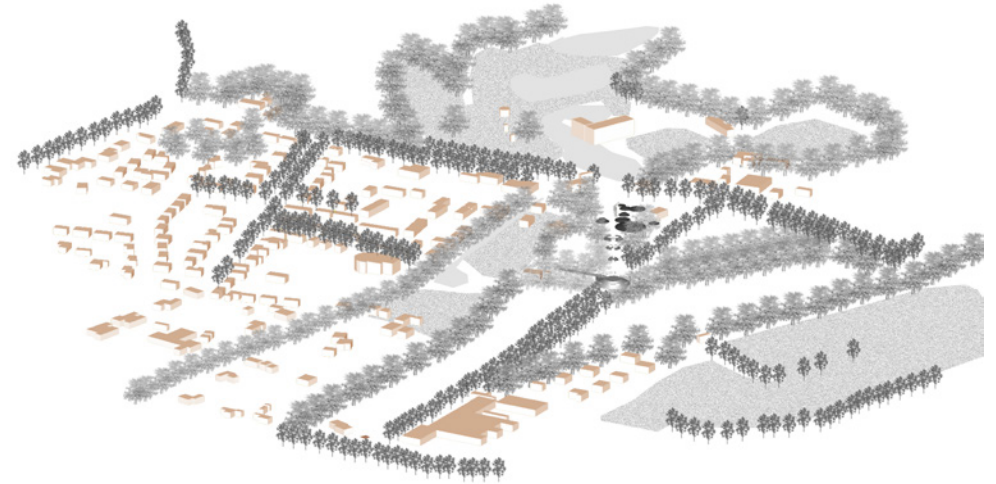
To reflect the historical view of a small scale of panorama, the king's berg would have an area for the panorama, once to the estate landscape of west side, now to the neighborhood.

The parking space would be moved to the east side of the old one.

Spatial changes of the area

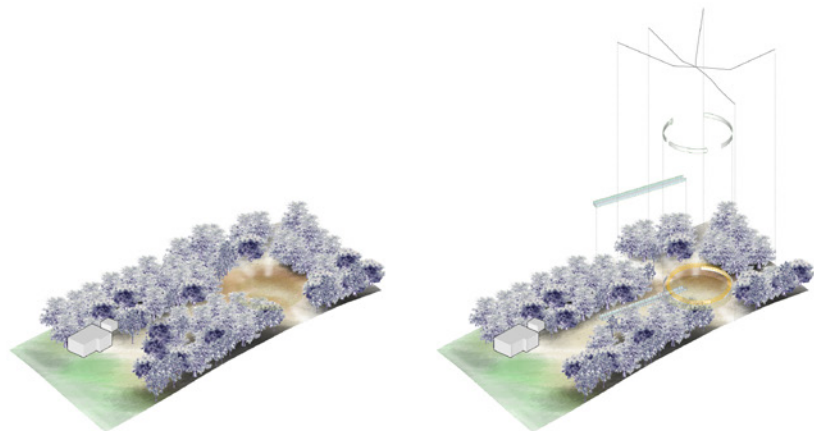
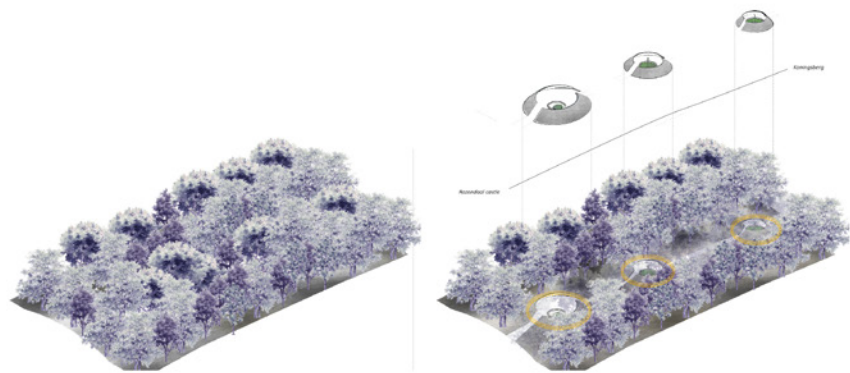
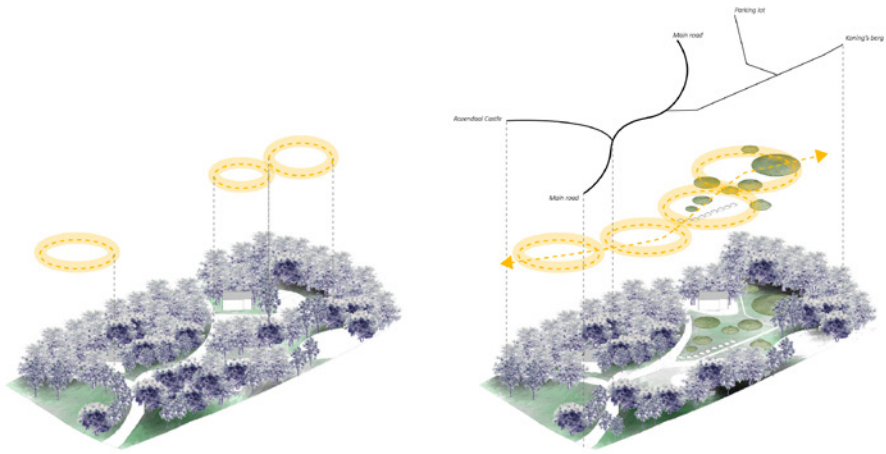


Ariel view of Rozendaal Before intervention



Ariel view of Rozendaal After intervention

The image shows the visual spatial relations in the perspective from the koningsberg to Rozendaal castle and nearby neighbors. You can see after the intervention, the relation within the estate is more straight forward and tight. There are more channels opened to the are. The whole design is being proposed in order to maximize the effect and minimize the crush with environment.



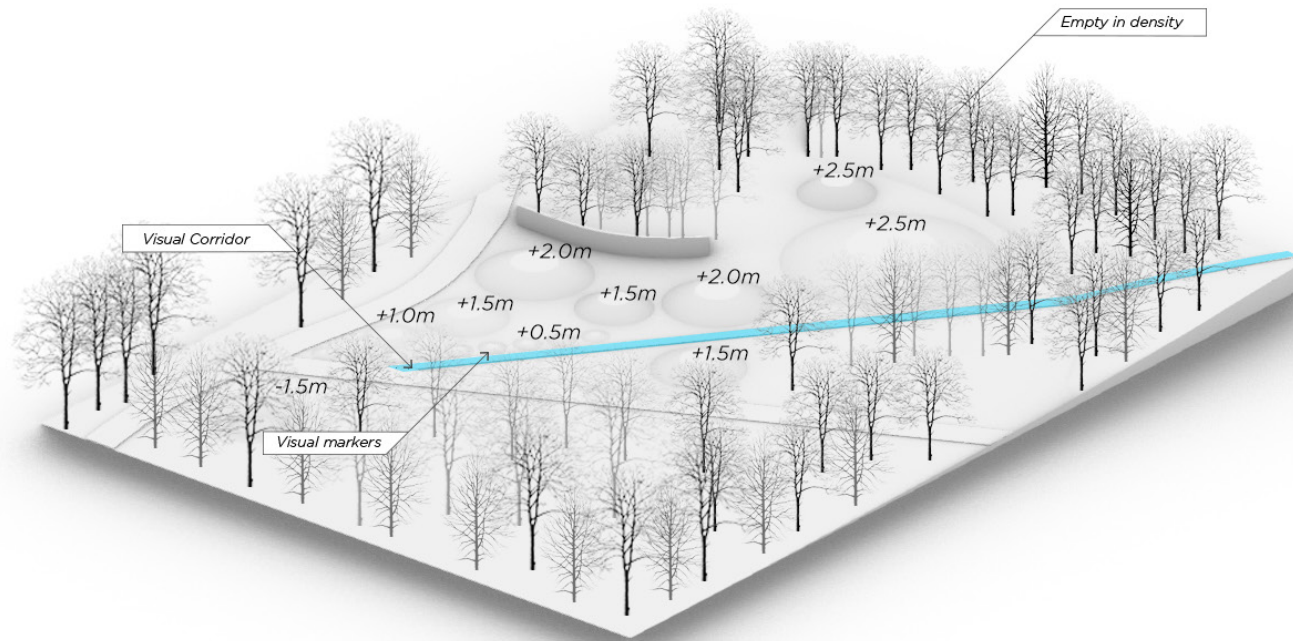
Spatial contrast before and after

In order to understand the design, I divided it into 3 parts.

The first part is the buffer area of northern part of the estate to the southern part. From before to after, the spaces are opened up to connect people and space from one side to the other. The shaping of the little mount in a way guiding people to move. Also indicating the geographical characters of koningsberg. As their tops mark the height of the former ground.

The second part is to create a visual channel, it helps to build the visual connection to the castle and its landscape. The third part is to extend the vision by adding a sky bridge towards the neighbors. And enhance the perceived spatial qualities by adding some wall towards the direction of the forest.

Entrance part



Design explanation

The first part is the buffer area of northern part of the estate to the southern part. In order to connect the space between Rozendaal and Koningsberg, the space would be created to attract people but also emphasize the space. With some visual markers create orientation of the route and as part of the visual corridor.

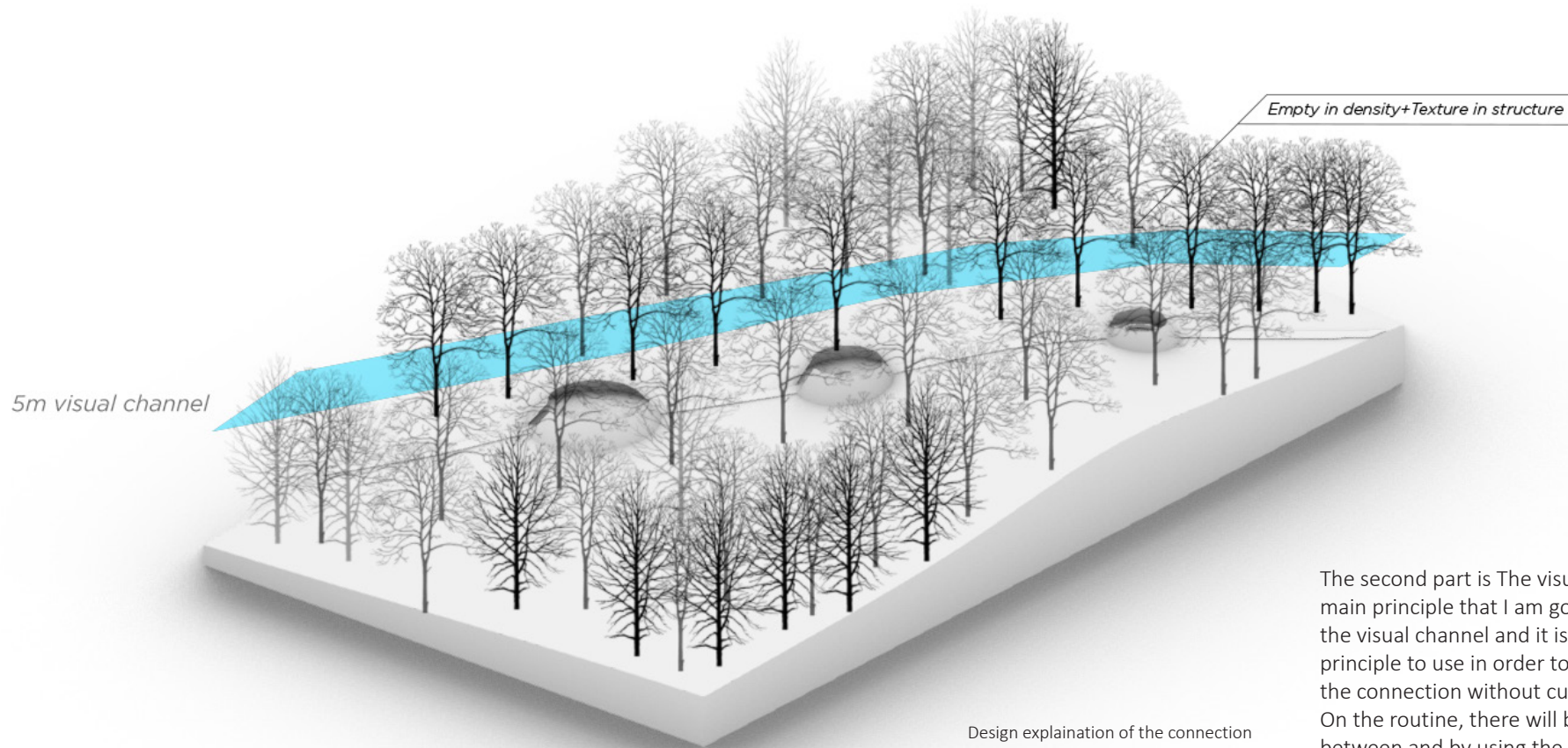


Section of the entrance space



Perspective of the entrance space

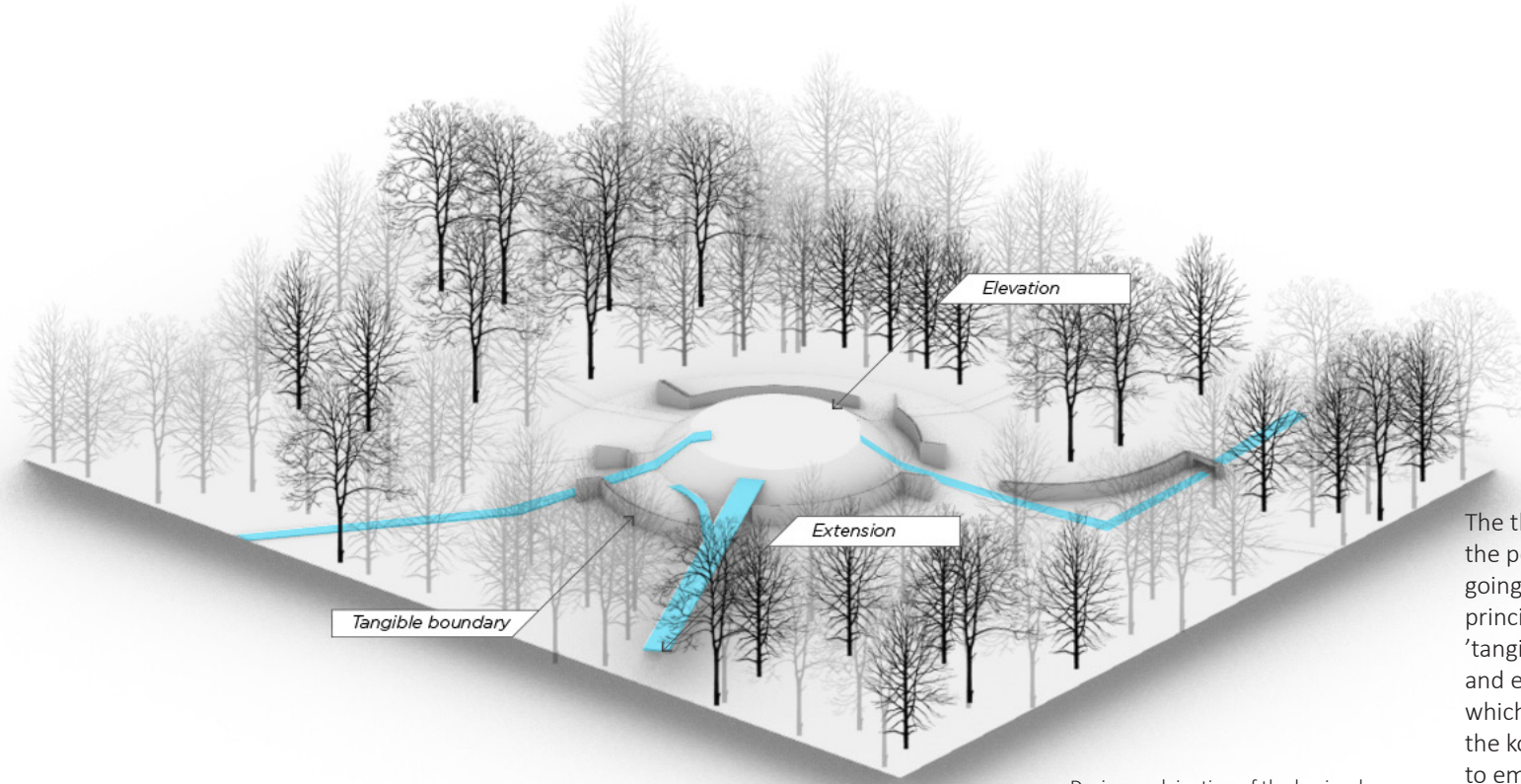
Connection part



Design explanation of the connection

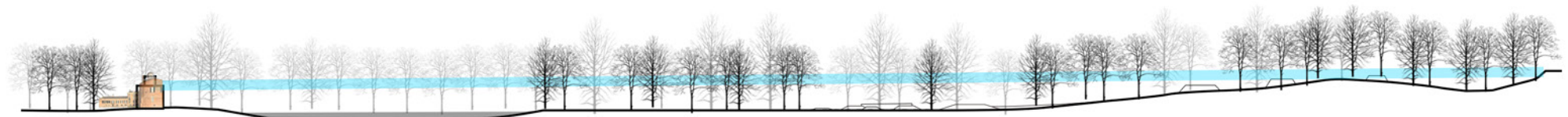
The second part is The visual corridor is the main principle that I am going to use to build up the visual channel and it is a direct and strong principle to use in order to make people aware of the connection without cutting too much trees. On the routine, there will be some small spaces in between and by using the principle of texture in structure the space would be highlighted to move people from one space to another.





Design explanation of the koningsberg

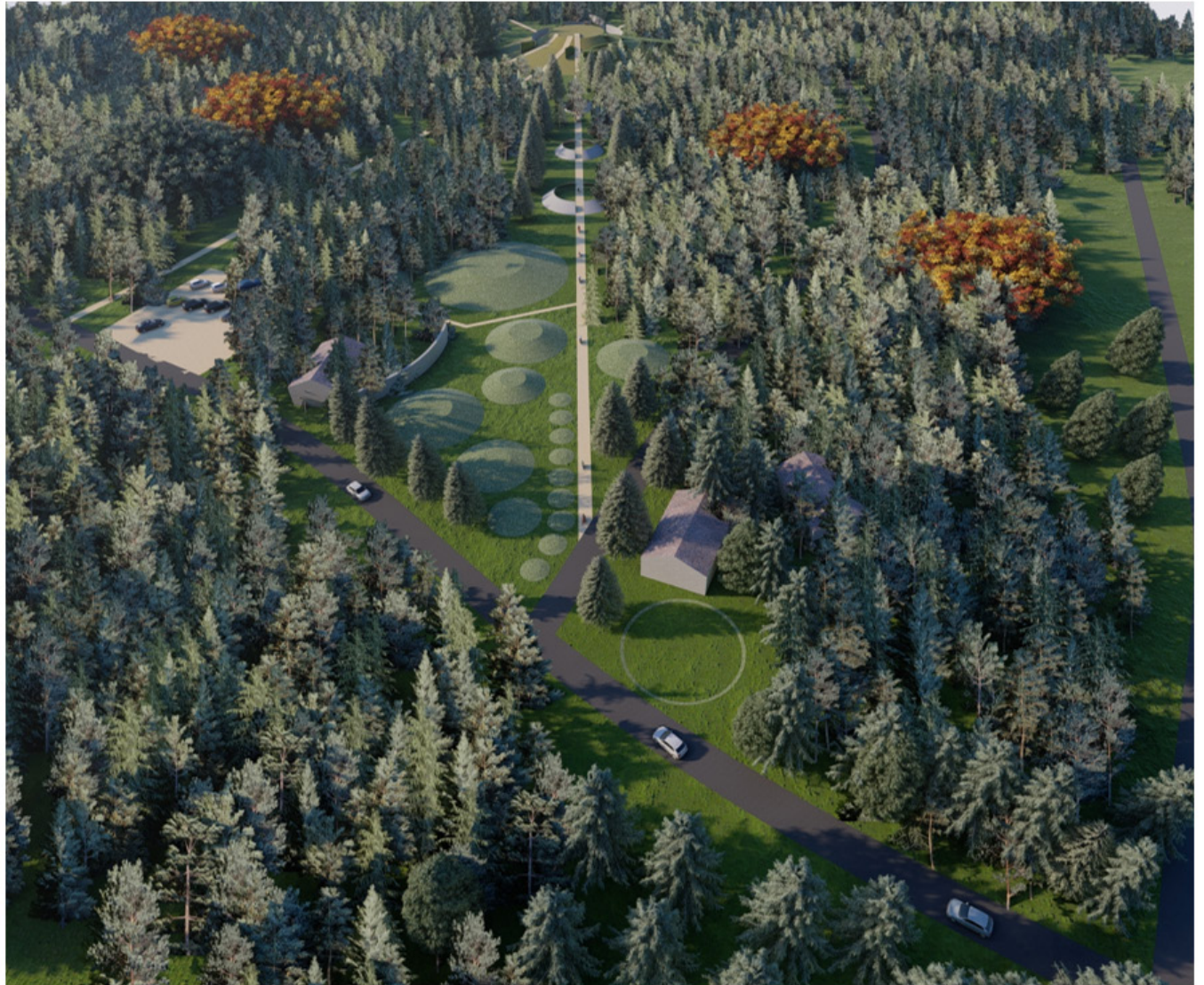
The third part is to extend the vision and enhance the perceived spatial qualities. With this process going on, I realized that there will be a new principle which I can add to the tool box called 'tangible boundary'. It is a principle that can stable and enlarge the spatial quality of koningsberg which is a basically round perceived space. Also the koningsberg itself as a focal point is elevated to emphasize. There will also be another new principle called extension. It is basically to extend the view to the panorama of neighbors. Also a recall of the old times.



Section of the visual corridor



Perspective-Koningsberg to castle



Bird eye view of Rozendaal

The eye level rendering shows the relation between tangible boundary, bridge and the little mount. People can go up to the mount and enjoy the view, or they can just go straight up to the bridge and enjoy the extension of views. By this implement, people can see from koningsberg to the castle.

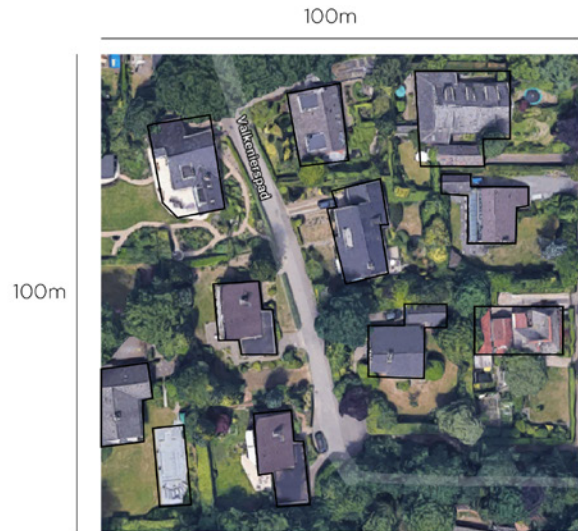
Urban development



The northern area of Rozendaal is fenced, it has an indirect relation with the surrounding with only few entrances. However the southern part on the other hand has a lot of links to the surroundings but different kind of roads. As for the possible area for the future development, the connect will be based on the existing road system to connect with the city.

Link to the surroundings

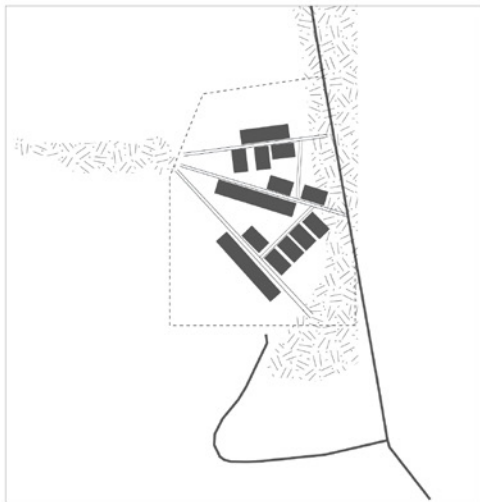
Urban development



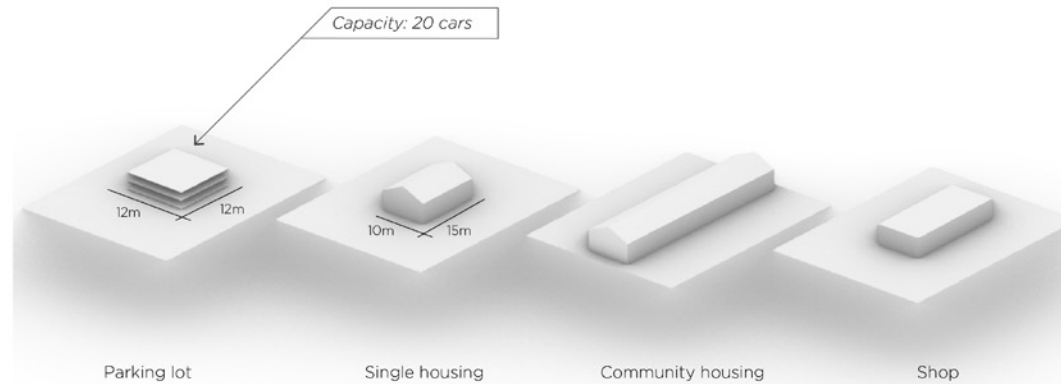
Density of the nearby community
Aprox: 25%



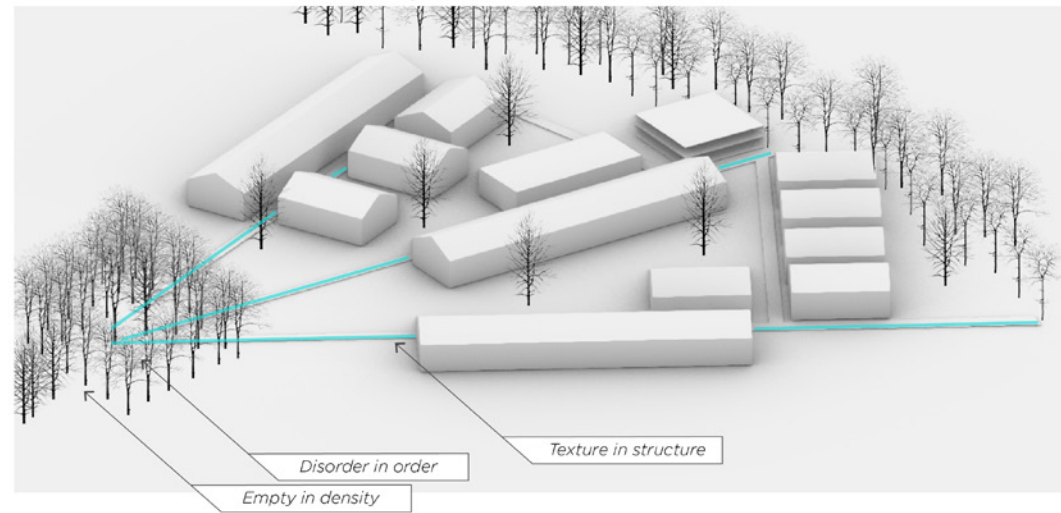
Maximum Buildable height-8m



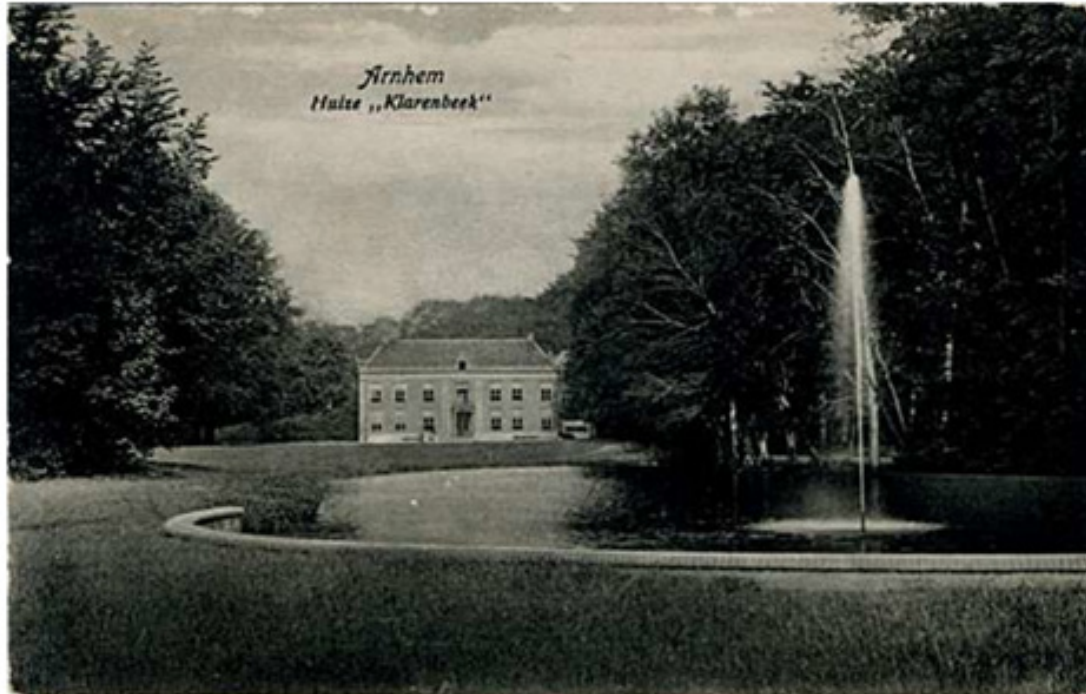
Building Typology



Possible result for the future community



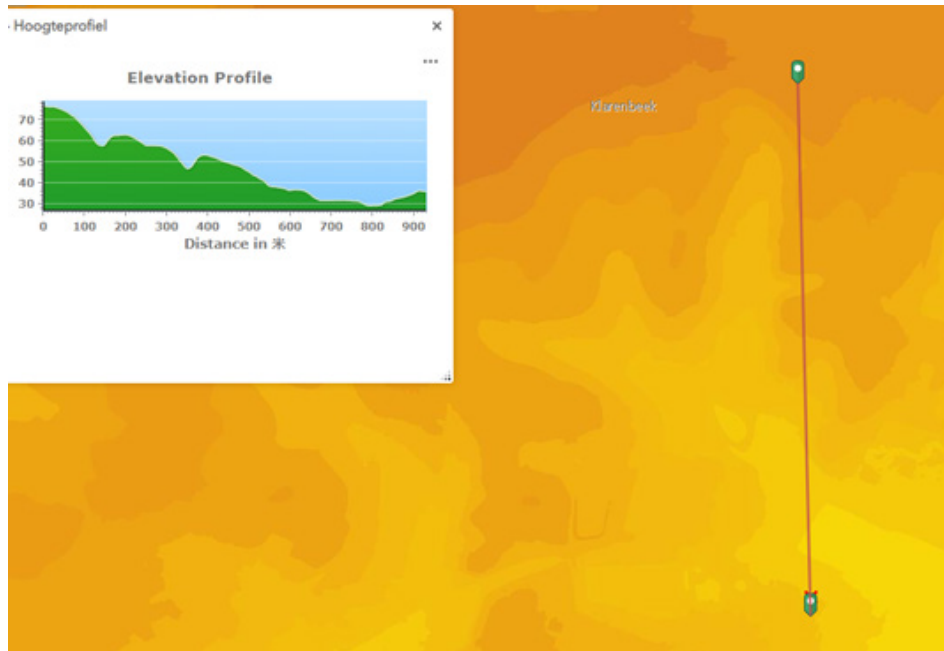
The typologies in this future community would be like: First is about the typology of the residential house. This area would mainly focus on the development of living places. It would be a low density development, the main character of the houses should be aligned with the houses surrounding the area which is individual dutch houses . And in order to keep the whole zone feel like they are in an estate area, it would be a car free zone with parking space outside of the community. So the maximum height would be less thanXXmeters, which would lower than the trees around make sure the building could merge with the site. For the road system, they will connect with the external one , but with an inner direction to the entrance of koningsberg.



Huis Klarenbeek, ca. 1890

Design Experiment Two—Suggesting Space
Klarenbeek

5.3 Klarenbeek Why Klarenbeek is interesting?



Height difference Klarenbeek(source: AHN)

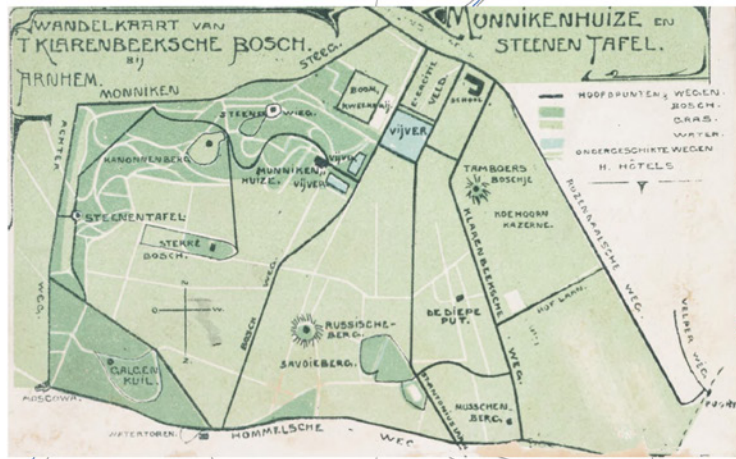


Klarenbeek is a place prospered by its iconic geographical characters. The biggest height differs over 45m. This is the huge advantages to create and embed with one of the most beautiful panorama of the city. And from the top point there is a old relics called De Steenen Tafel, from this place, the best view to the city could be captured.

Historical analysis



Stage1 Map of 'Monnikhuizen'



Stage3 Modernization



Stage2 Map of house Klarenbeek

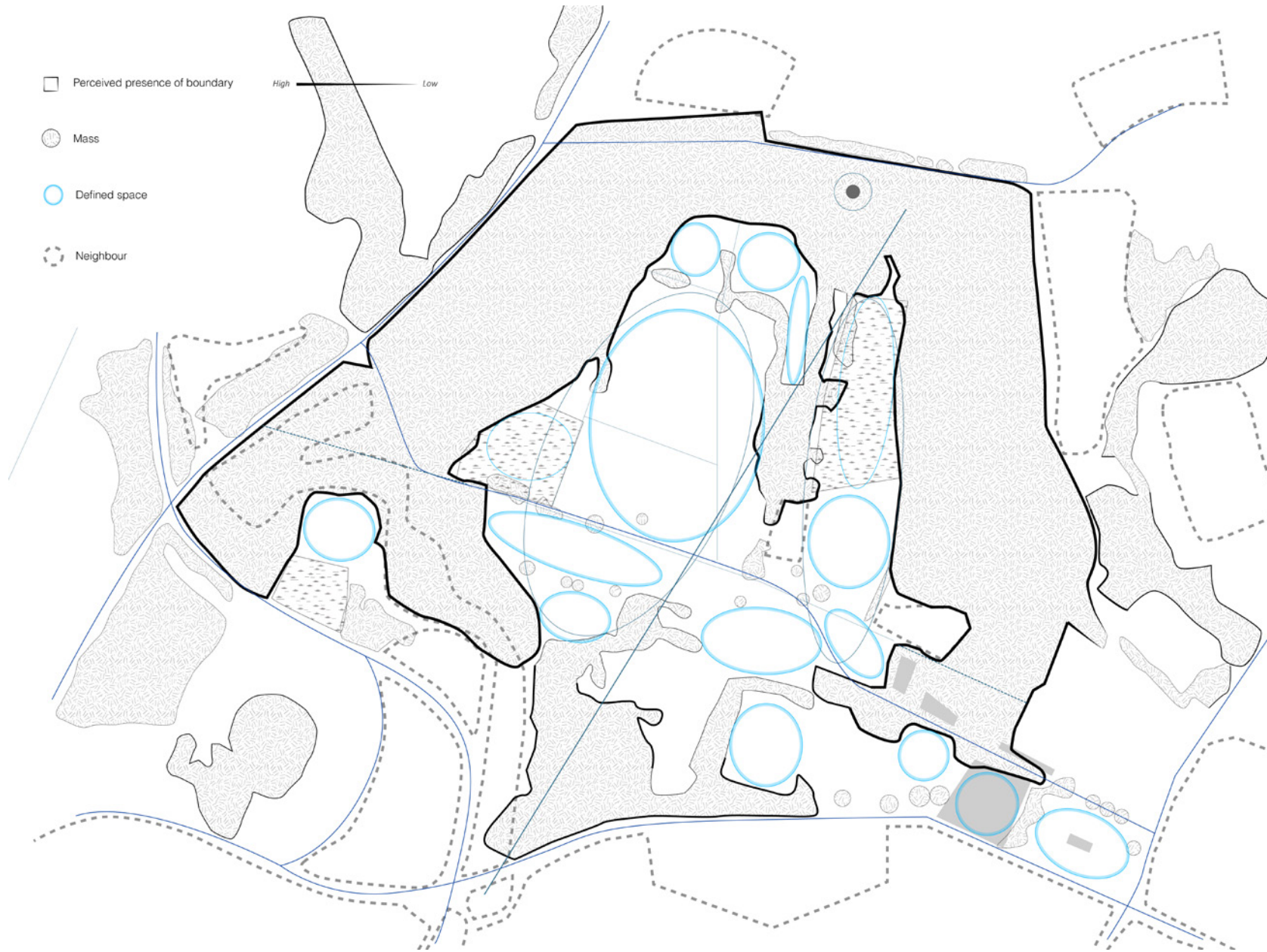
STAGE 1
1335-1581

STAGE 3
1850-

STAGE 2
1600-1900

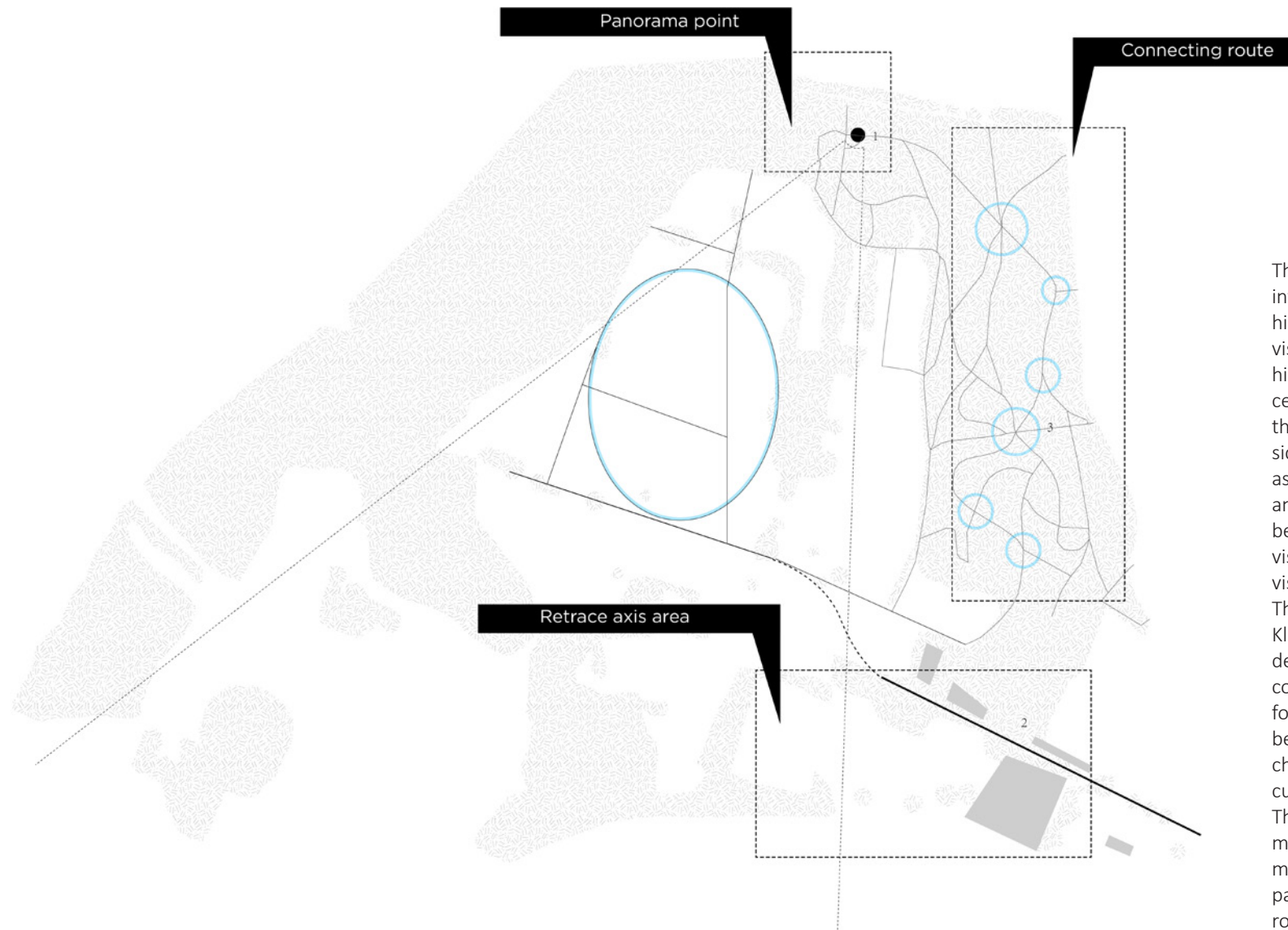
From the historical analysis we can see that there are mainly three stages in the history of Klarenbeek. The first stage is the establishment of a monastery called 'Monnikhuizen' from 1335 to 1581. During the time, the territory of the estate expanded. The second stage is in the year of 1653, it combined with Monnikhuizerbeek to a estate now we consider as estate Klarenbeek. The final stage is when the year came to 1850, the owner of the estate Jan baron van Pallandt modernize the park from Baroque style to English style. And made it open after 1850. Thus, it is the very first city park of Arnhem.

Spatial analysis



From the spatial analysis of Klarenbeek, it is quite clear that most of the mass boundaries are quite thick, and the space are centralized in the middle of the landscape. Giving a good view of the previous baroque trace. While the English styled garden is hidden in the forest with heavy canopy and boundary. However, from the space itself, we can not identify the quality of this estate by the spatial perceptions. The boundary of the estate landscape is interweaved with the community around it. And the unique big height difference of the estate erase the boundary even more as people can easily see above the boundary when stand in the higher ground

Potentials for Klarenbeek

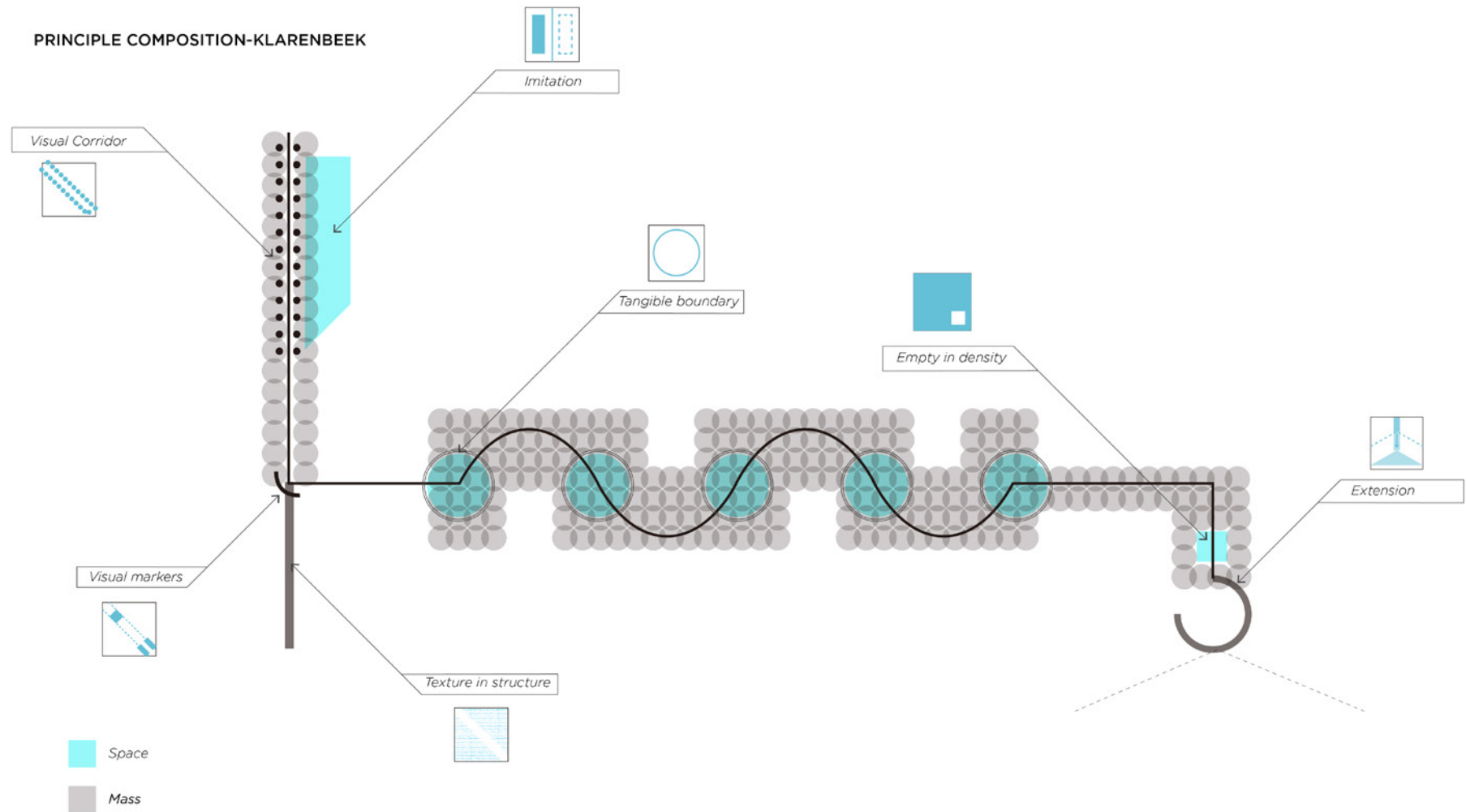


Map of potentials

The plan for the area is basically divided into three part, coherent with the historical stages. In this way the spatial visual quality of every stage in the history could be enlarged and distinct celebrating the attractive diversity of this area. The first stage is on the upper side of the mountain where can see the astonishing panorama of the whole city and the estate landscape itself. There will be a potential to extend or enhance the visual experience of people when they visit the space.

The second stage is the area of house Klarenbeek, although the house is destroyed, we could still see some complete landscape like the pool built for springen. And the roads there once be the axis of the estate. There will be a chance to reveal the lost and emphasize current symmetric quality.

The third stage is the so called modernization stage, it is basically an meandering routine towards the upper part. But right now the junctions of the road is messy, and there will be a chance to create the space in the forest to guide people in the way and enlarge their feelings during the route.



The principle I adapt into this design is about attract people and to move them. It is about to create a complete journey of the amazing visual tour. Start from the bottom of the estate landscape. There will be a new principle added, what is called 'imitation'. It is a principle that about imitating the water pool around the former estate garden, to create a symmetric intention that this road once was the axis of the estate. And this principle will be explained in the chapter after. Also there will be a visual corridor made by mirror sticks to extend the road geometrically to the grassland where was part of the axis.

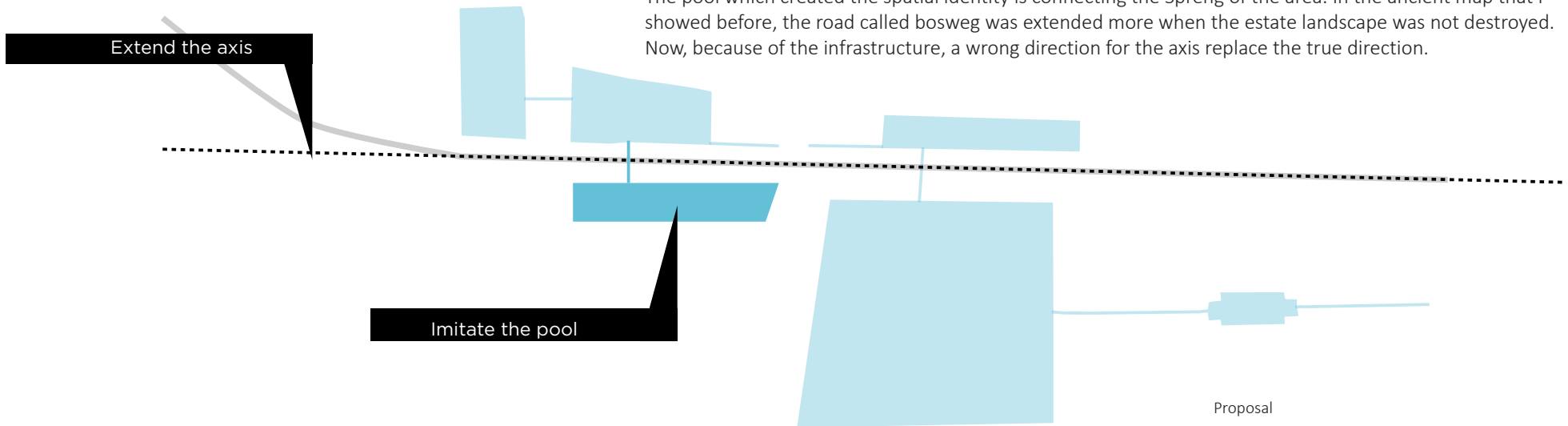
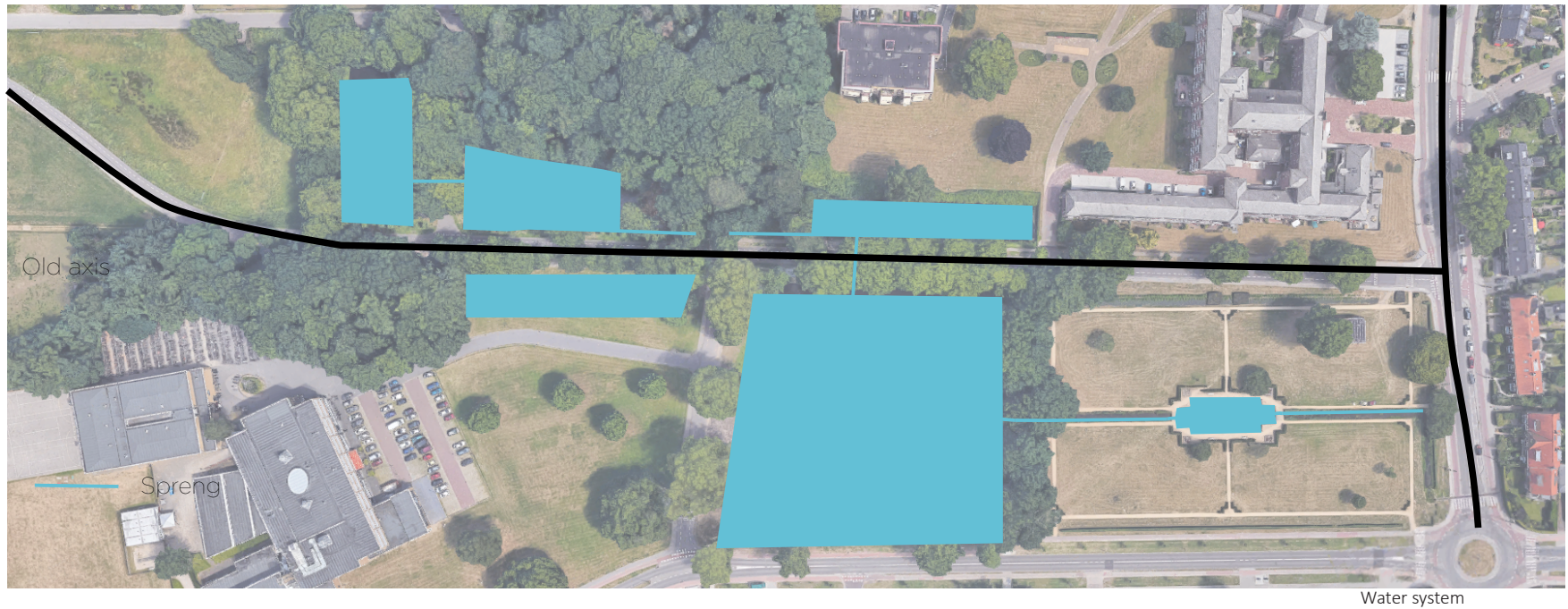
In the forest, small spaces in every junction of paths are made in order to indicate the direction of the De steenen tafel where visitors could enjoy panorama. While the space that created based on the principle called tangible boundary from Rozendaal will enhance the space feeling and move people as a sequence. Finally, in the end of the routine, there will be an empty space in dense forest and an extension towards the downhill in order to gain the maximum view and experience when people stand on this extension.



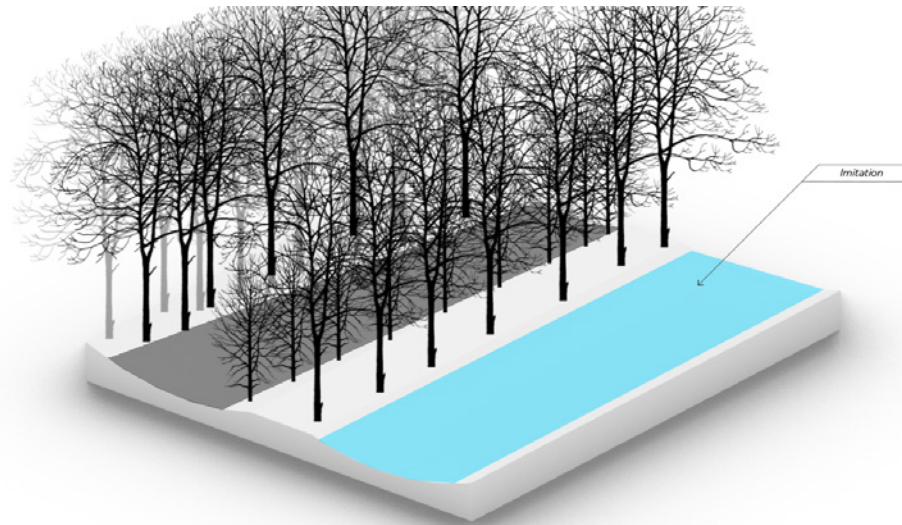
Design plan in Klarenbeek

A complete routine of this new visual spatial experience is made to attract people from any side of the road. Some orientation marker and small installations are set in this route. In order to give the minimum impact on the current environment, while make huge difference on the atmosphere here in Klarenbeek. The feeling of this routine is emphasized than before.

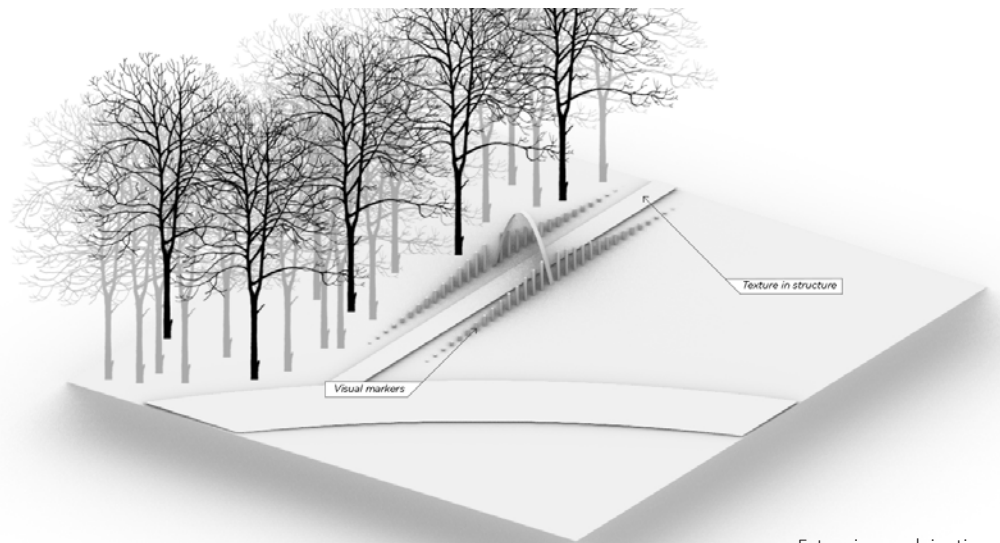
Condition diagram- Lower part



This part locates at the lower side of the route, for enhancing the feeling of the former estate landscape. The pool which created the spatial identity is connecting the Spreng of the area. In the ancient map that I showed before, the road called bosweg was extended more when the estate landscape was not destroyed. Now, because of the infrastructure, a wrong direction for the axis replace the true direction.



Imitation explanation

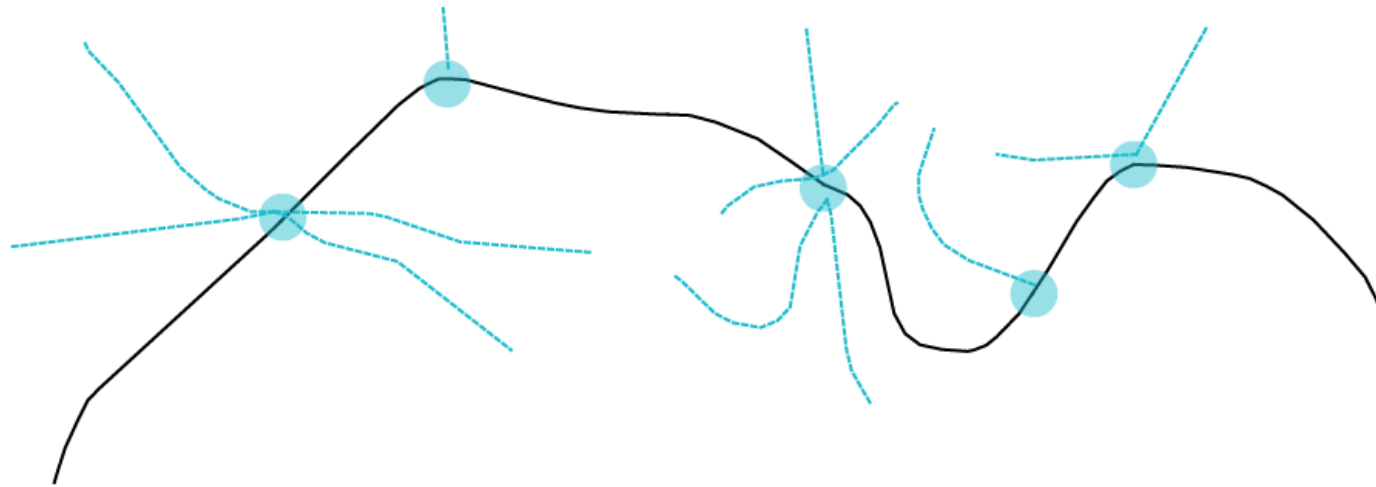


Extension explanation

And In order to recall the old trace and enhance the visual perception, There will be a new principle added, what is called 'imitation'. It is a principle that about imitating the water pool around the former estate garden, to create a symmetric intention that this road once was the axis of the estate.

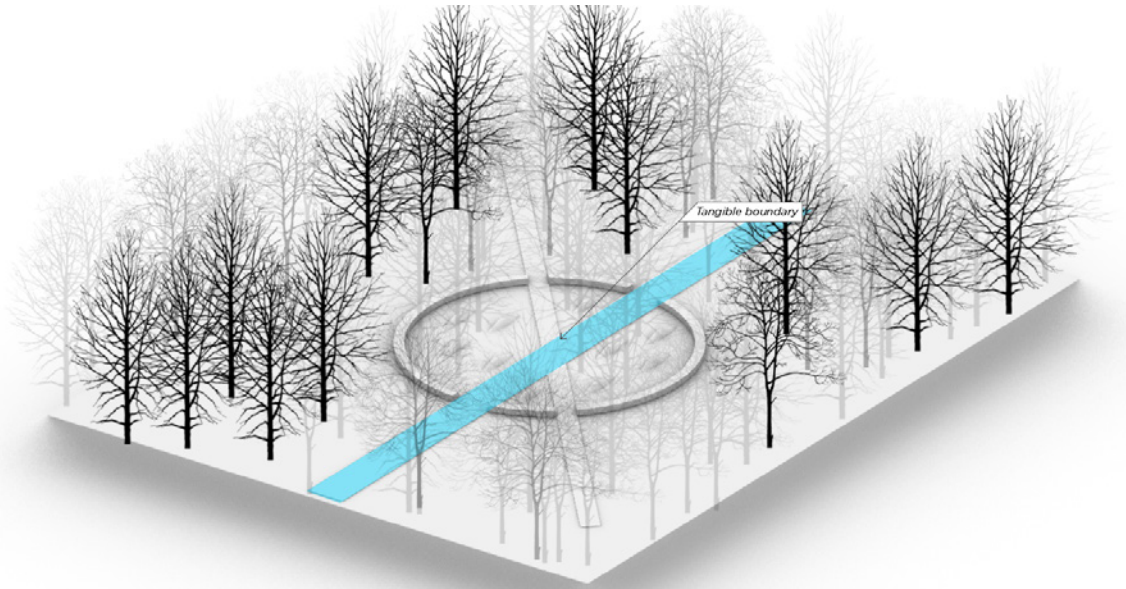
To extend the road, I designed a gate as the focal point for people to see through and define the orientation for the axis., with the white concrete sticks as a visual corridor on both side of the gate and getting lower the farther. This indicating the extension of bosweg.

Middle part-routine analysis



Route from lower part to the upper part

The middle part was changed in the stage three where the modernization happened. The paths here are meandering in the forest. The weg langs de steenen tafel is the main road up. However, as the space in the forest is quite similar and there are a lot of small path interweaving with the main road, it is unclear for this route sequence to identify the direction.



Tangible boundary in the forest



Human perspective

So the design interventions here is to use a mirror circle to form a space. This mirror circle's radius is about 15m. Why mirror? Because the mirror can reflect the environment, make the boundary of this space less hard, not too strong. The little mound on the ground showing the direction of the main road all the way to the top, making the orientation clear but in an elegant way. This two installations are set to enhance the spatial feeling but keep balance with the beautiful forest.

Upper part

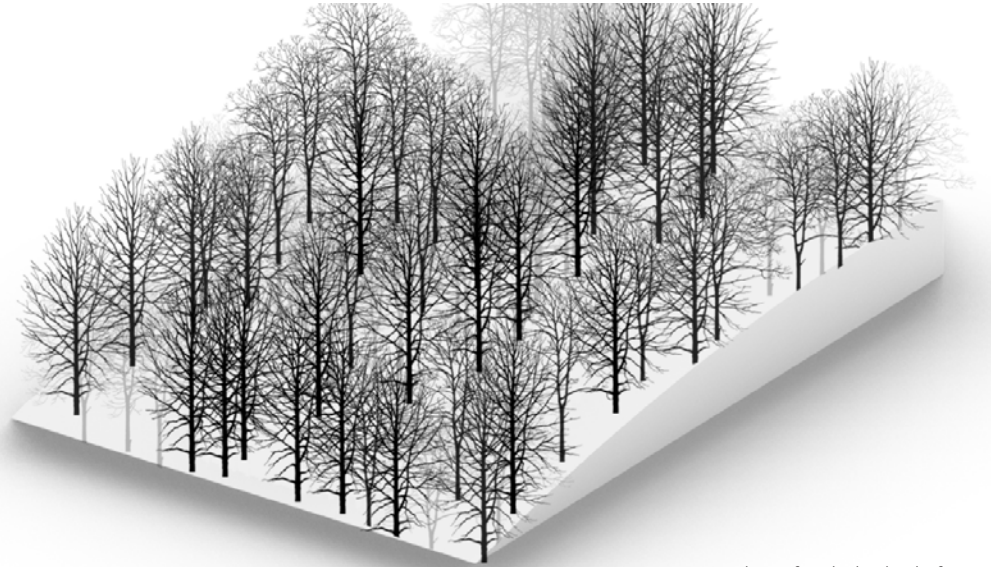


De steenen tafel 1890

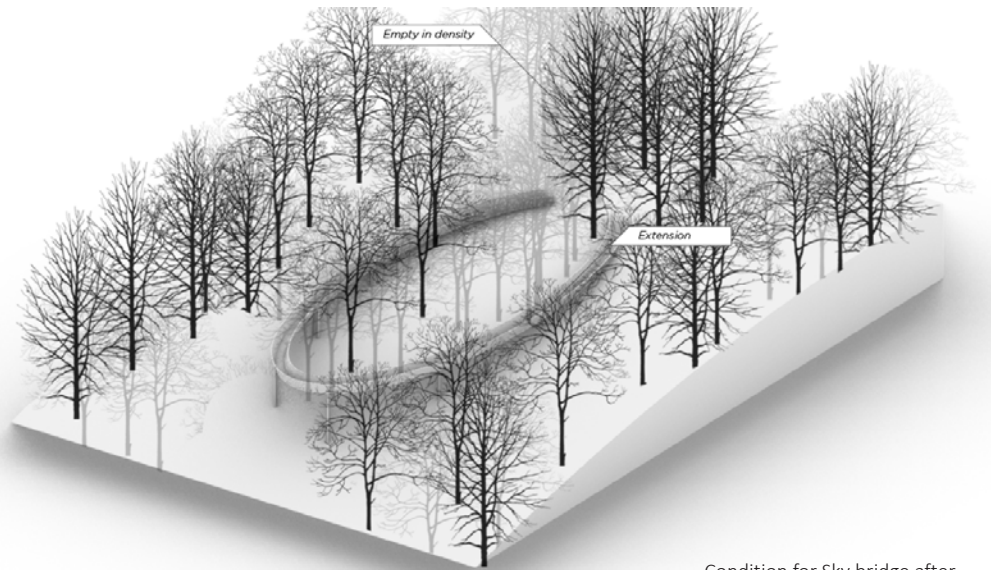


De steenen tafel now

The upper part is the relic of the monastery. Around 1900, the trees were planted in the region, at de steenen tafel, there was once cherished by its beautiful panorama. This was also a place for people to gather and enjoy their lives.



Condition for Sky bridge before



Condition for Sky bridge after

However, as the trees growing taller and larger, the views right now are blocked and not clear anymore.

So the sky bridge is what the principle called 'extension', helping people go beyond the slope and go above the trees. It is going to one of the best place to see the city and the small baroque trace of the park.

And the upper part would be an amazing end point for this routine.



Perspective



Maize [Sonsbeek](#), ca 1850

Design Experiment Three—Open Space
Sonsbeek

Historical analysis



Picture of sonsbeek(source: <https://www.geldersarchief.nl/>)



Sonsbeek as an estate just next to the station, and an open space as a landscape. It holds art exhibition every year. Which makes it so close to the life of citizens and visitors mentally but also, most importantly, space wise. The house of Sonsbeek is also well preserved and use as a city villa, which is also showing the openness of this estate. Before the city center of Arnhem was developed, the view from Sonsbeek is so far. When people stand in the estate, they can see

the Rijn. However, the sight from Sonsbeek to the outside world is narrowed due to the rise of station and also the boundary of local communities. From these two images we could tell how wide the views are and the estate landscape seems to merged better with city.

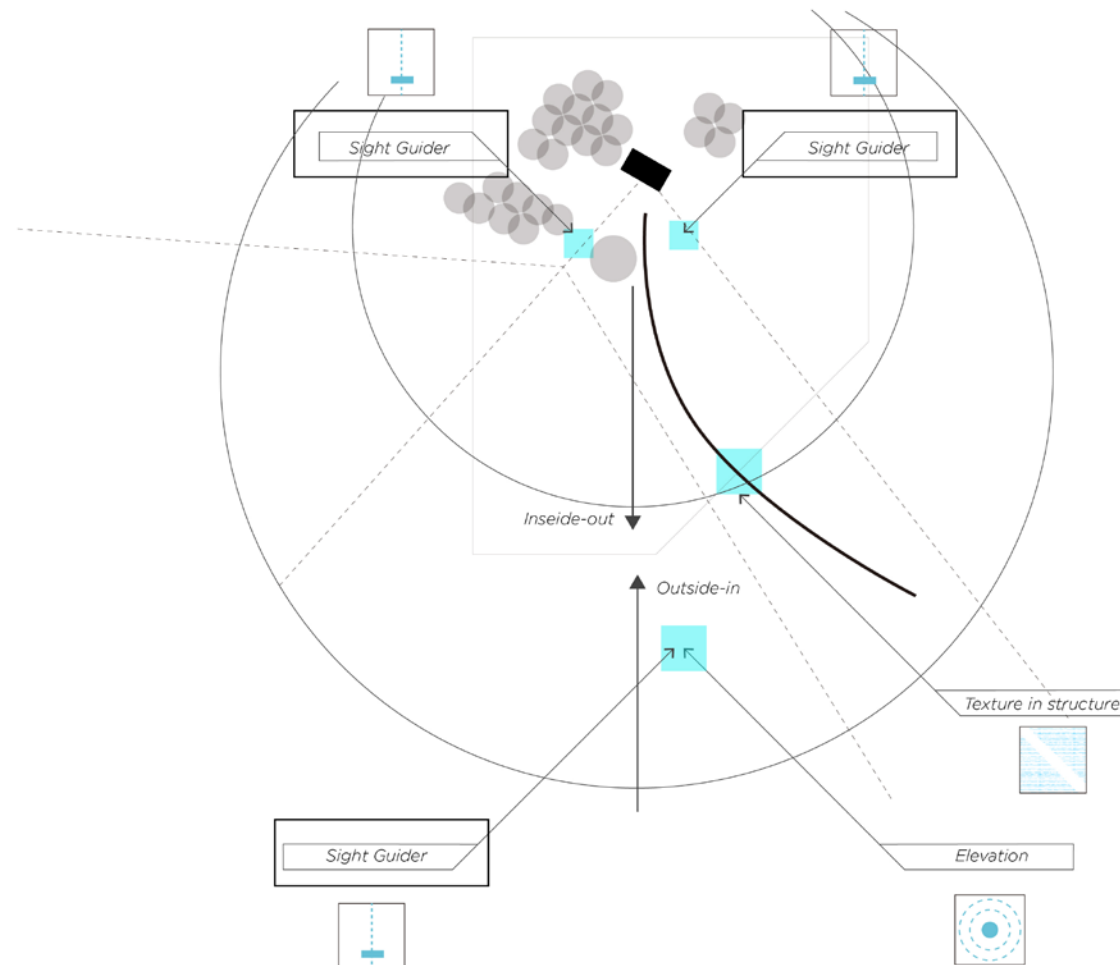
Spatial analysis



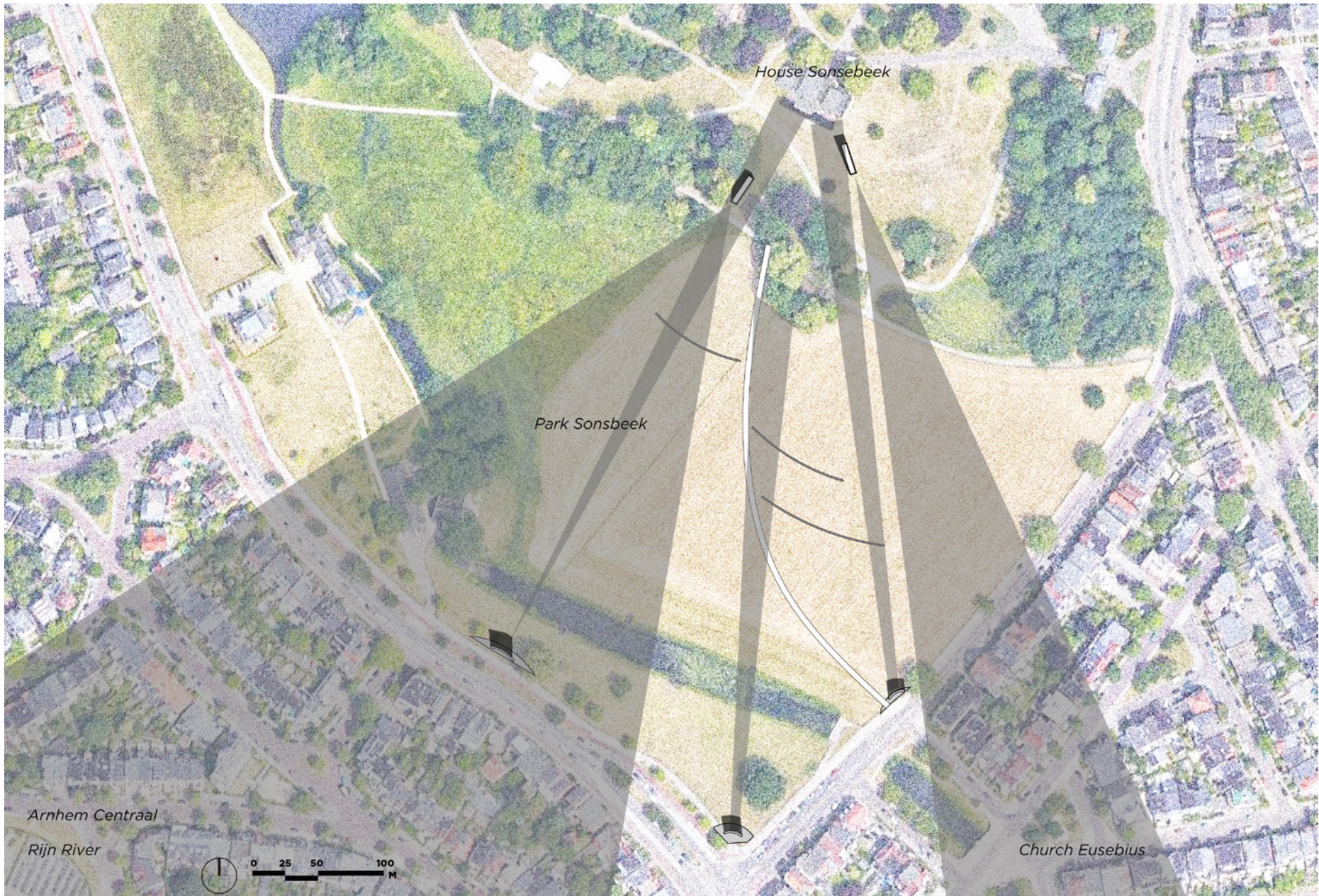
The spatial analysis shows the space within the territory of Sonsbeek is well connected. A very big space in front of house sonsbeek touch the boundary of the city infrastructure, making the distance of the landscape so close to the city. The view to some valuable point like church Eusebius is clear. However, the house itself hidden behind the trees in many perspectives when see from the city. As the visual spatial relation within the estate is this good, Marking the sightlines towards outside surroundings is one of the potential for this estates.

Sonsbeek is actually one of the victims in the fast urbanization and lack of policy supporting. However, the angle could turn around when think about this estate. Sonsbeek is an open space, the role it plays in the city is to involve in the urban development. This drive to a point-it is much more important for sonsbeek to attract people from the city and make people in the urban context realize the existence of this estate.

PRINCIPLE COMPOSITION-SONSBEEK

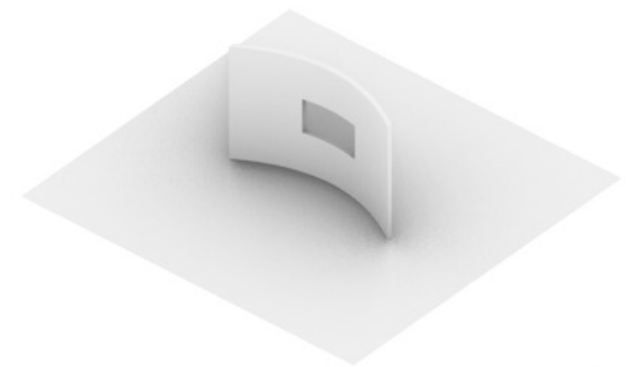
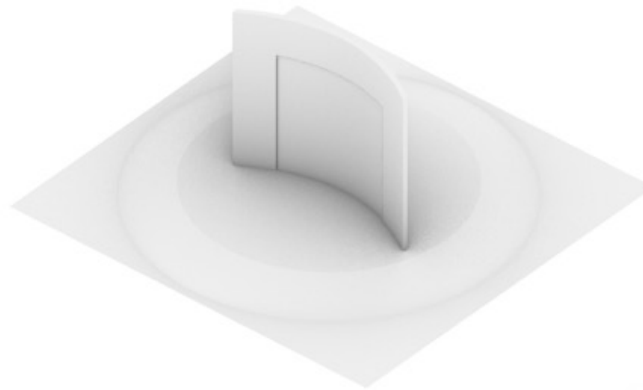
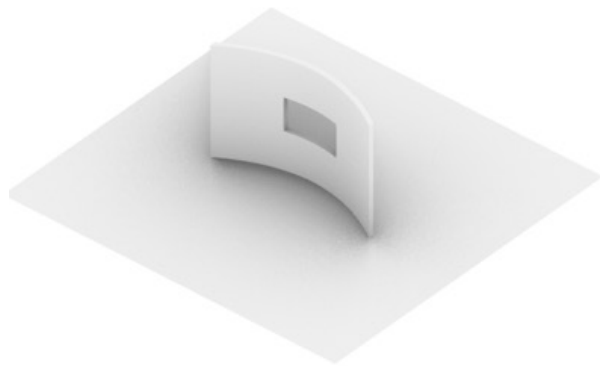
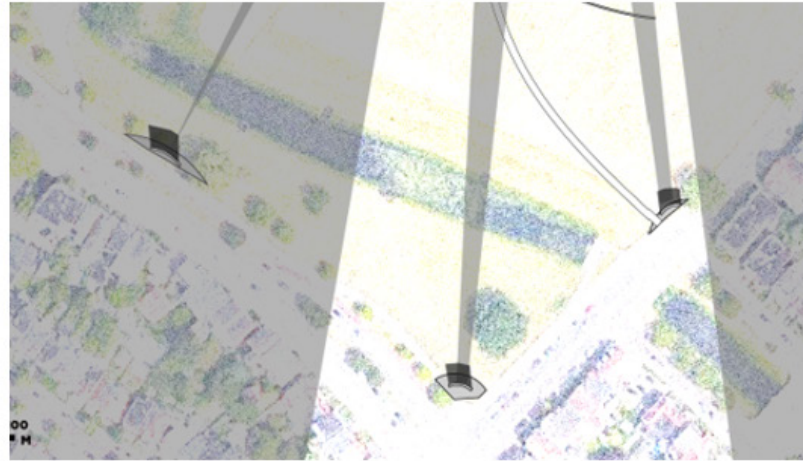


As for the goal of design intervention for sonsbeek mainly focus on the view not only from estate to outside, but also from city to estate. The new principle called 'sight guider' would be designed as a focal point to the estate landscape but also to the city. It is also defined as the connector for the urban environment with estate. The texture in structure principle in this case is to create a direct path from the urban development to the estate.



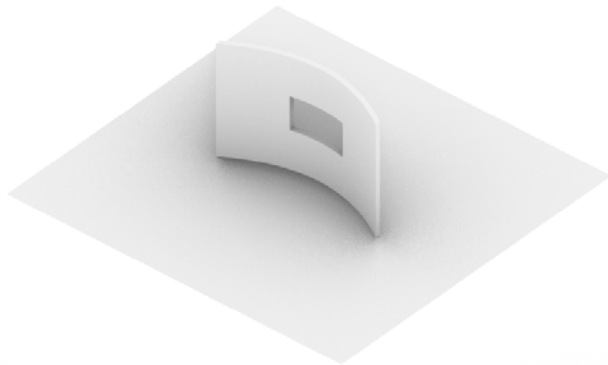
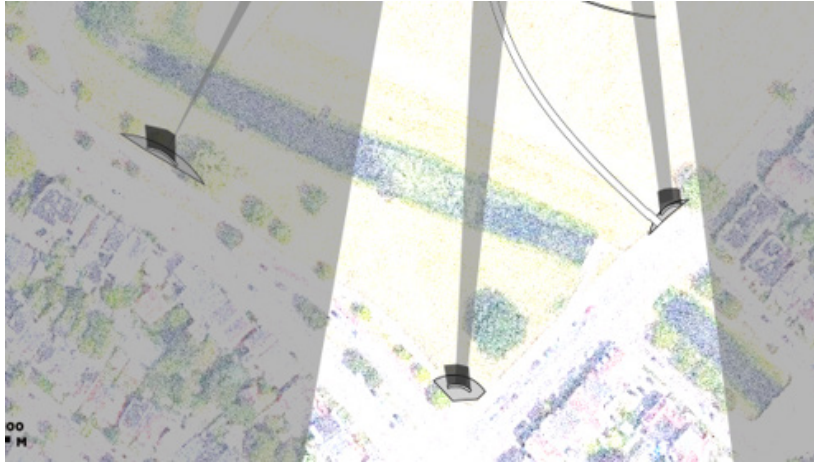
The different visual guiders have their different functions and outlooks. They are scattered in the southern part of the estate, providing three different angles towards the estate—the front, the cross-section with the spring, and the welcoming point for visitors. The direct path starts from the side of Sonsbeek Road, providing a direct path guiding people's movement and view.

Three visual guider from city to Sonsbeek



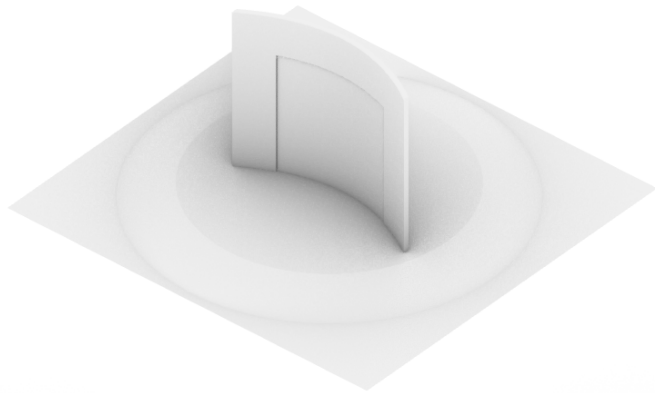
The different visual guider has their different function and outlook. They scattered in the southern part of the estate, providing three different angles towards the estate-the front, the cross section with the sprengr, and the welcoming point for visitors. The direct path starts from the side of sonsbeek road, providing a direct path guiding people's movement and view.

Front



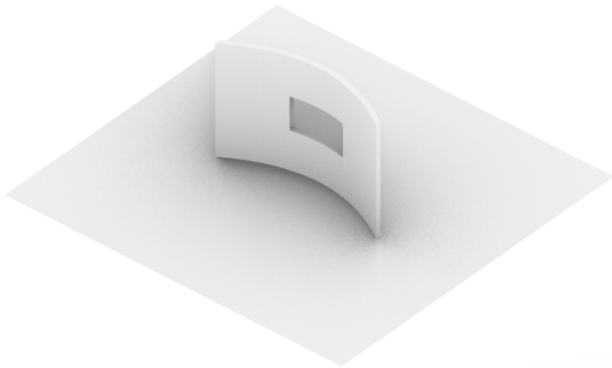
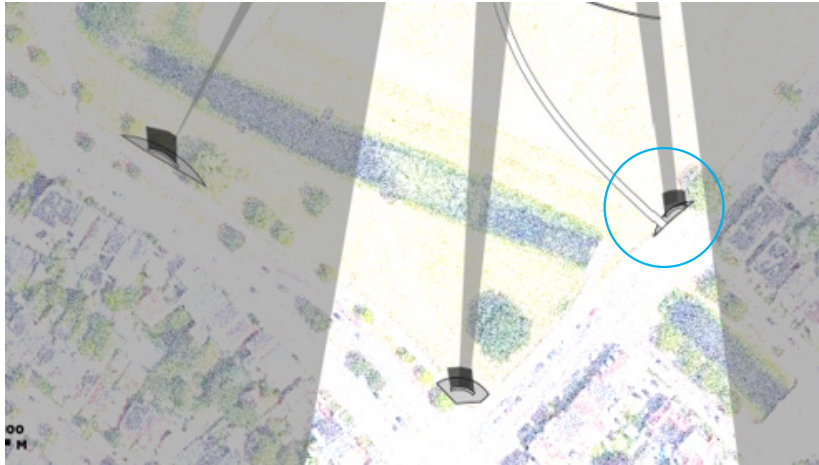
From this point, people from the west could have the easy access of this front view for the estate, This installation is meant to focus on the estate. So this installation would be simple in design. And in order to reduce the impact of this visual guider to the environment, the material for it would be rough glass.

Welcoming point



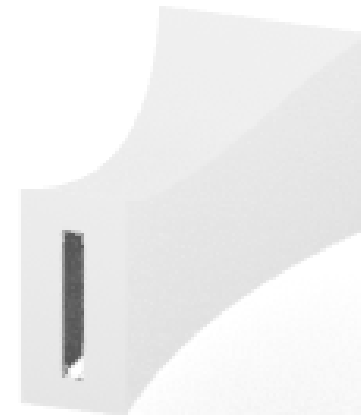
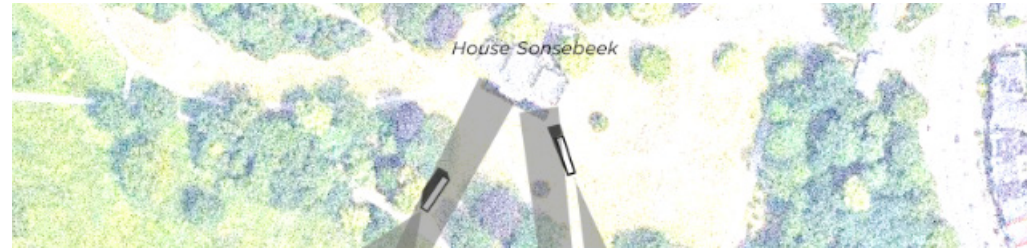
The welcoming point indicating the outline of the estate, When visitors from the direction of the Arnhem central, the estate building right now is not quite clear for them to recognize. This installation would be a strong focal point to attract people from the city and to highlight the outline for the estate. The structure for it is to have a frame with 3/4 of mirror to reflect the environment of the city and in the middle, there will be a glass with the outline to emphasize.

Cross-point



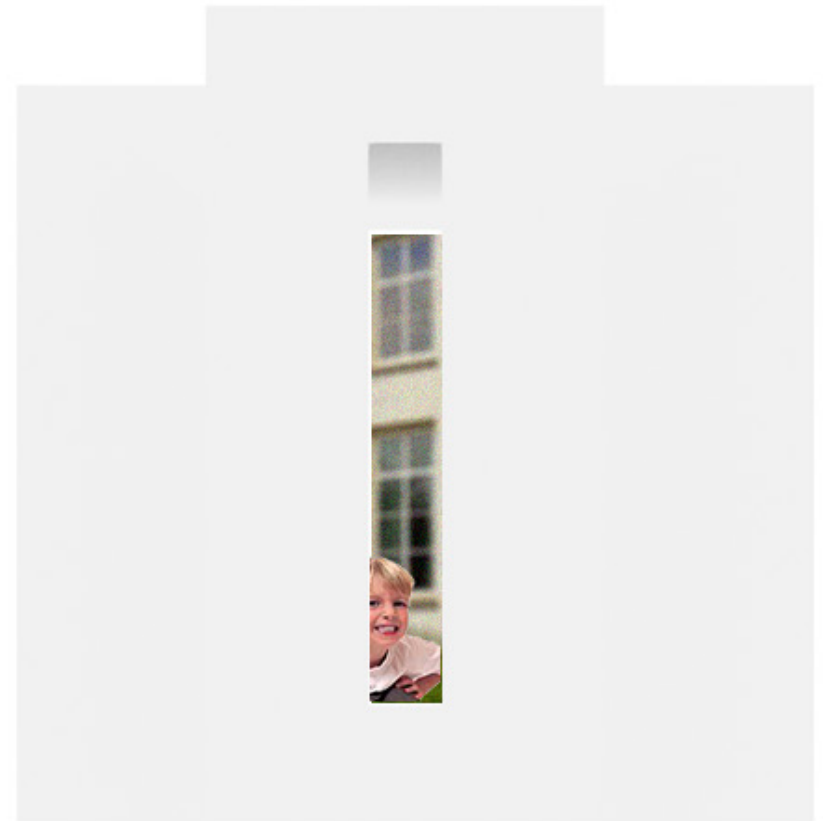
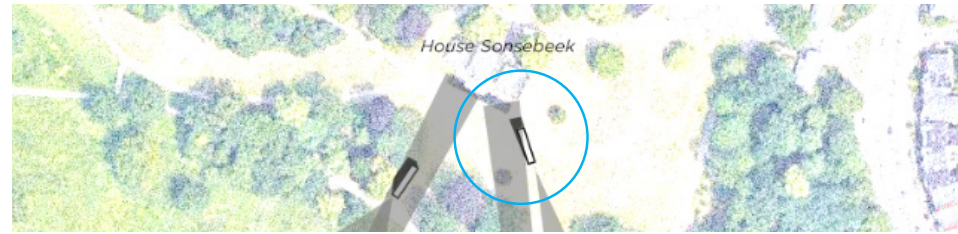
The cross-point is at the junction of the new path and the sprengring. In this case, the installation is about marking the start point for this new path, and also creating the orientation for the clearer outline of the estate building as people go north along the Sonsbeekweg.

Installation from inside out



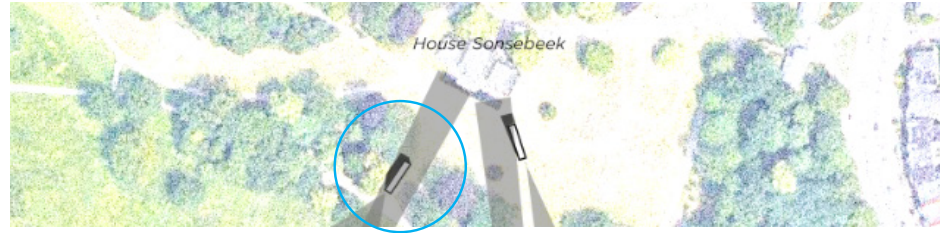
There are mainly two points in side the city have connection in view with Sonsbeek. One is the church Eusebius. Another is with the Rhine River

Installation from inside out-To church Eusebius



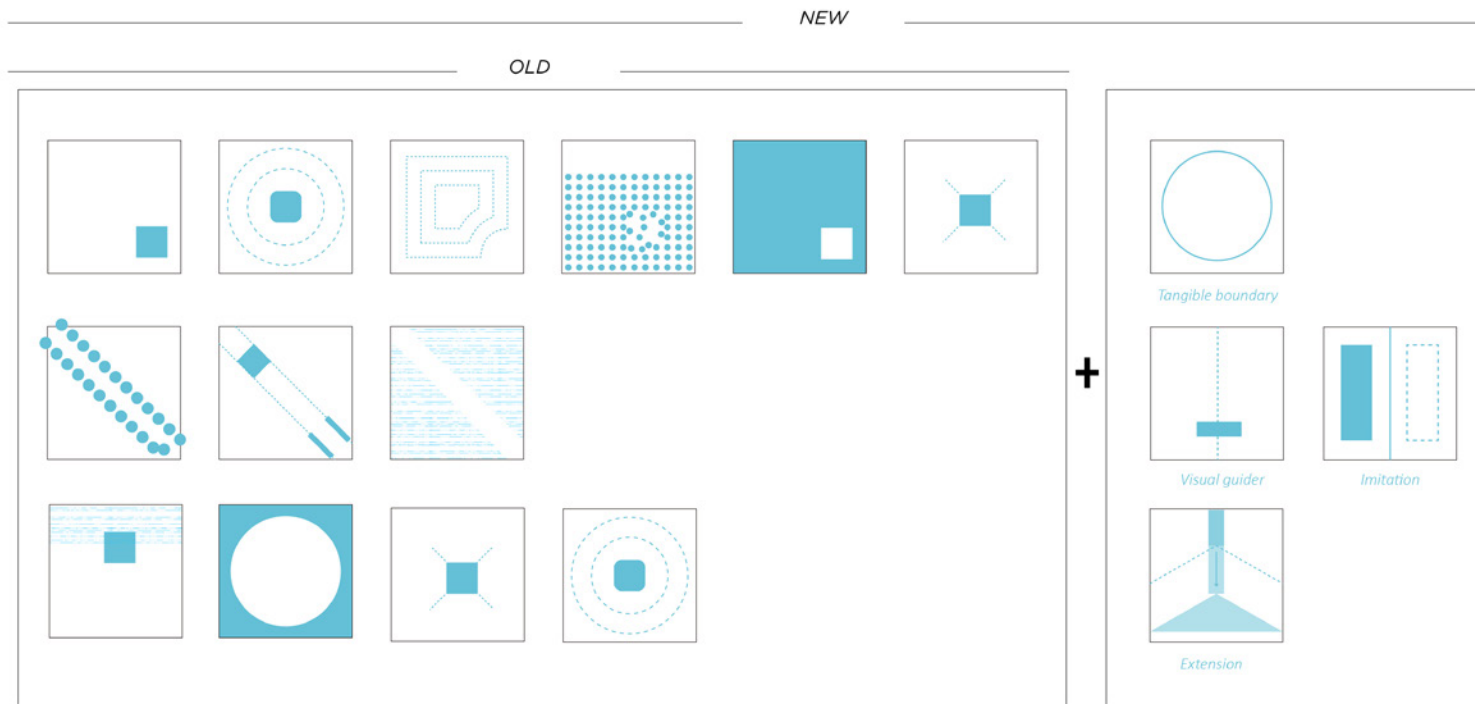
First is to better guide people of the church, When visitors get inside the installation, they will be focused on only the church. And the installation itself has the function of orientating.

Installation from inside out-To the Rhine



The second installation is to recreate the visual relation from Sonsbeek to Rhine. With a blue glass marking the position of the river, people could acquire the old scene.

5.5 Comparison and conclusion



The experimental design for the three estates answer the problems that addressed in the beginning chapter. The using of principles links the city with the estate, recreates the visual connection which the estates used to have, and reconnects the inner relation of some estates. By this process, not only the potential of estates are being explored, but also safeguard and develop the spatial visual qualities of the estate themselves. And this proves the principles that listed in the previous chapter is valid and worth developing.

There are some extra findings in this design experiment:

Extra principles are being used

The extra principles emerged during the design process. It is also one of the goal for this experimental design-expanding the toolbox to give more choices when designing estates. The extra principles are the results in the design where the current toolbox can not fit some certain conditions thus there must be some specific principle for such condition.

EXTENSION

This principle is about extending the views where the mass or boundary is too strong to block the view. It always in a form of bridge, tower and elevated path.

TANGIBLE BOUNDARY

This principle is a visual principle which is meant to enhance the spatial perception and create the boundary of a small-scale space.

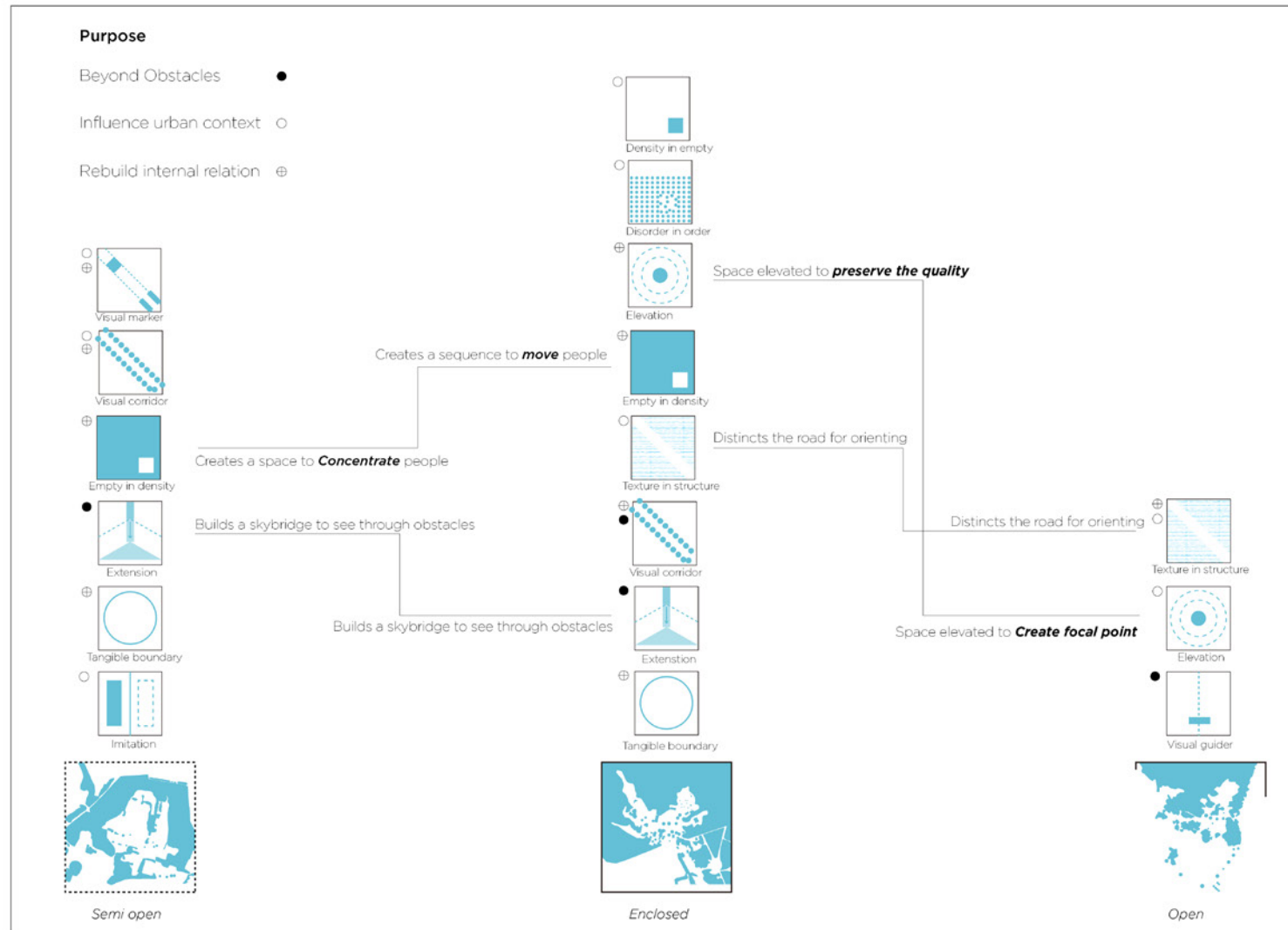
IMITATION

This principle is to use the materialization or formation of one elements in the historical time of a estate. This is meant to achieve some of the ambitions in creating axis or the old atmosphere.

VISUAL GUIDER

This principle is to guide people's view to certain object. It is an installation for people to see through rather than providing hint to people.

5.5 Comparison and conclusion



Different principles are used in the design process to solve different problems and challenges that were addressed in the previous chapter.

The same principles might have different purpose in different context of estate.

Like empty in density, this principle is to create a sequence to move people in Rozendaal, but in Klarenbeek, it is slightly altered to create a space to concentrate people.

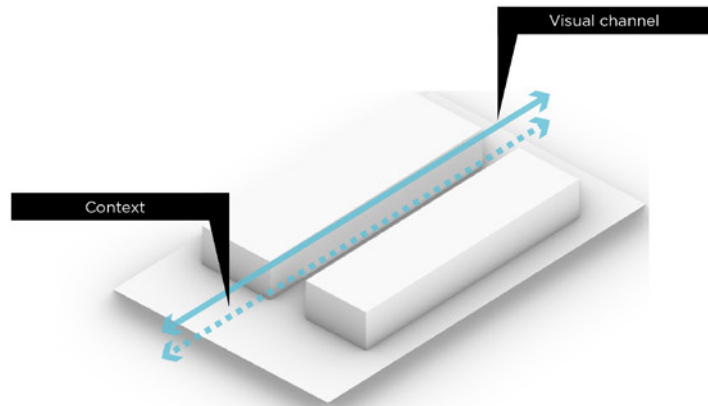
Though there are some differences, there are also some similarities like texture in structure, this principle is to distinct the road for orienting not only in Rozendaal,

but also in Sonsbeek.

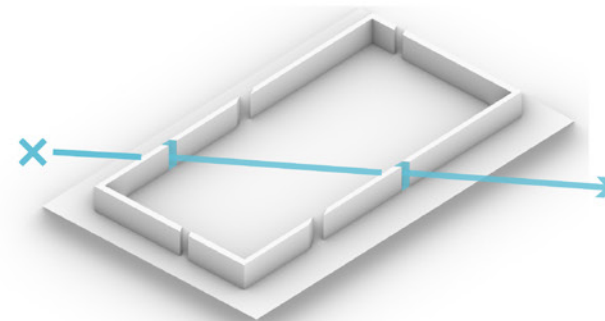
The similarity and differences prove that spatial visual approach is a contextual sensitive approach, which allows me to apply the principles and design the site in a flexible way to respect the 'Genius Loci'.

6.DISCUSSION AND CONCLUSION

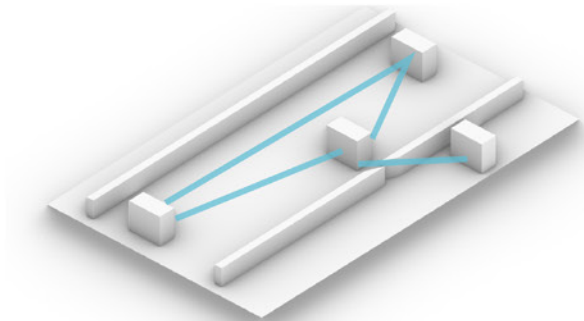
6.1 Lessons learned Rozendaal



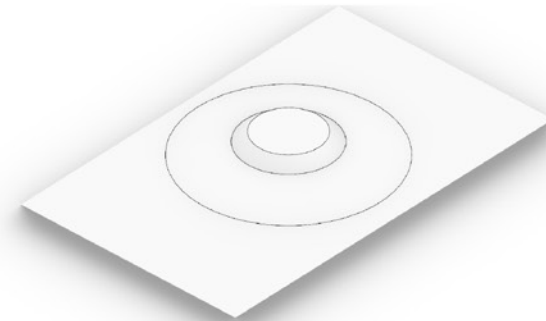
1. Strong background story



2. Remain the pure space



3. Balanced internal and external relations



4. Respect the topography

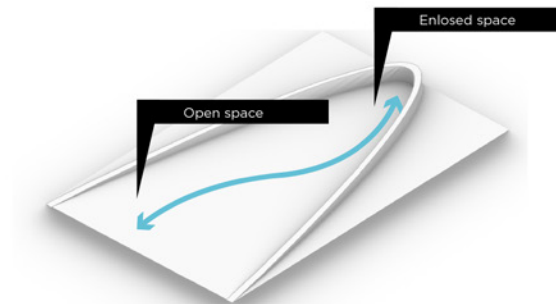
The experimental design for estates like Rozendaal shows that this provides important clues for enhancing the spatial experience and to contribute to spatial coherence. The design principles applied to Rozendaal can also be applied to other estates which also are characterised by enclosed spaces. The obstacles in the design process in Rozendaal also could be a guideline for the other estates. For such enclosed space, there are some important things that should be concerned when doing a design about it.

1. When creating the visual channel, it is important that there must be a strong reason and back bone addressed to support it. Because normally the space is so pure that when putting some interventions to the design, the effect would be strong so a story behind always helping in describe the reason better.
2. To remain the spatial quality of enclosed space-pure space. Do not intent to open too much boundary for accessibility or reasons like this. Because

in this way, the boundary would be fragmented and the space quality would not be convincing and the space can not be established in this way. Just remove the key part.

3. The enclosed space always have a strong identity of itself. In the design intervention, there are always a tend to connect more . The inner connection and the outer connection should keep a balance so the space would not be too open to perceive. Keep so called mysterious
4. Respect the topography of the city like Arnhem, in this case is the little mount of koningsberg. Always keep that in mind, because this undulating topography add another layer as the estate's iconic space components.

6.1.2 Lessons learned Klarenbeek



1. Comprehensive story for various of space



2. Use the best of the current connections



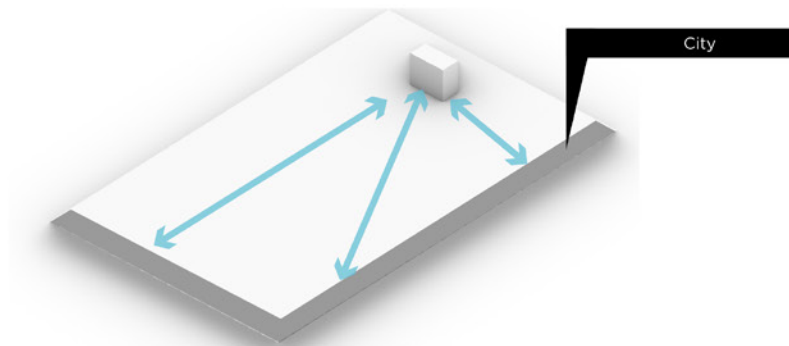
3. Respect the topography

The experimental design for Klarenbeek shows that this provides important clues for enhancing and rebuilding the spatial visual experience and also the ability to guide people by the spatial approach. The design principles applied to Klarenbeek can also be applied to other estates which also are characterised by suggesting spaces (Semi-open spaces).

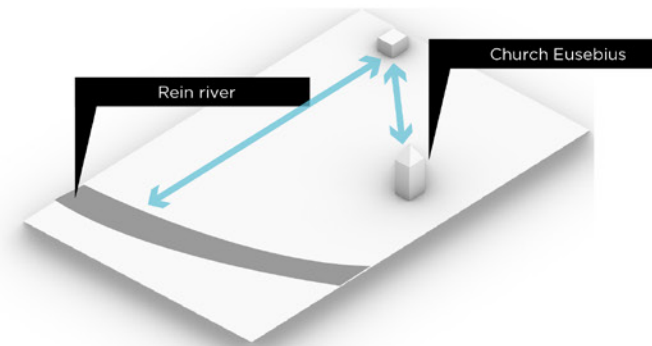
For the suggesting spaces, there are some important things that should be concerned when doing an design about it.

1. Spaces are diverse in these estates, It can start from a very open space and end up with a enclosed space. So the sequence of making a comprehensive story is important.
2. Try to use the current interior and exterior connection as there are some of them breaking the boundaries. Which always being popular used. It is not necessary to open more boundaries rather than use up the current condition.
3. Respect the topography of the area especially in Arnhem. In the case of Klarenbeek, the height difference is what makes this park. And the routine that go through this park helps to experience this unique journey.

6.1.3 Lessons learned Sonsbeek



1. Think in another way around



2. Connection with the city

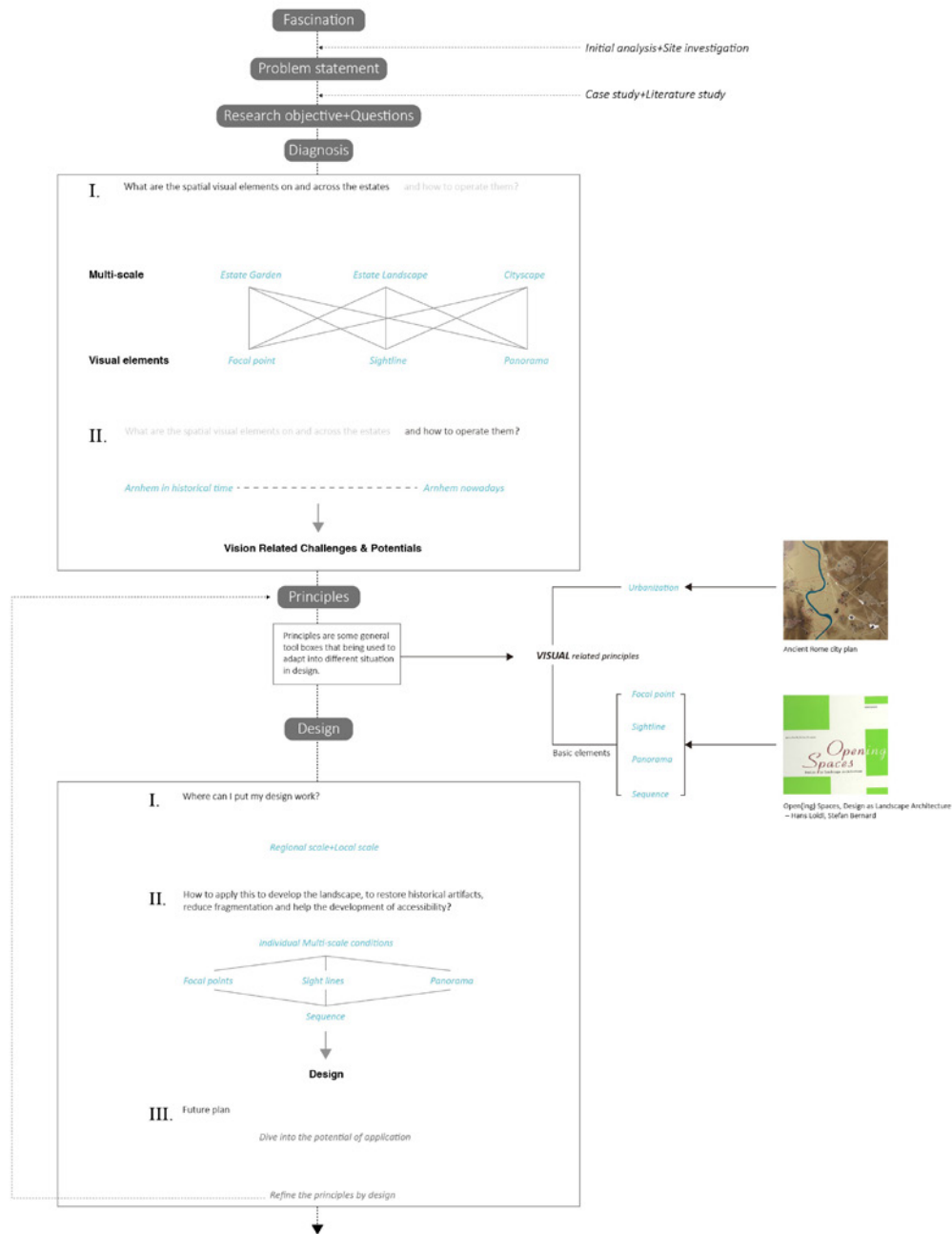
The experimental design for Sonsbeek shows that this provides important clues for connecting the estate with city to enhance the visibility from perspective from the city and vice versa. The design principles applied to Sonsbeek can also be applied to other estates which also are characterised by open space.

For the open spaces, there are some important things that should be concerned when doing an design about it.

1. The estate landscape as an open space in the city is always easy to access. The space is so open that within the estate the space is tightly connected and the visual barrier is not that influential within the boundary, So when the situation drops to this, we might think in another way around which is – is the estate or the estate landscape visible enough in the perspective of the city. Then the spatial visual approach can take over again.

2. Make use of the elements in the city, so the open spaces will not only about estate landscape but also the surroundings which is also an important part for these kind of estates in the urban context.

6.1.4 Methodology, research and design approach



FOCAL POINT



Attracting people



SIGHTLINE



Connecting people



PANORAMA



Directing people



SEQUENCE



Moving people

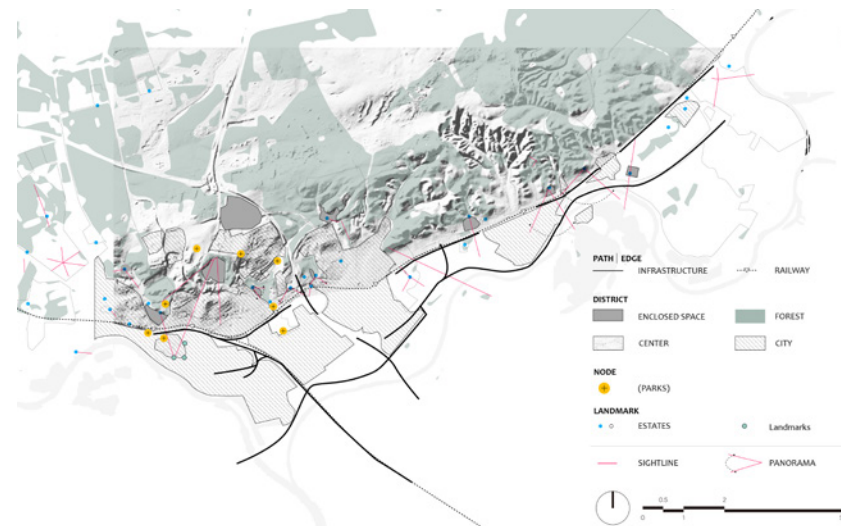


The process started tough because the spatial visual approach is not easy to understand at the first place. But it is a very pure approach that only consider about the space and view, which simplifies the layer of the whole region. At the same time, this approach is a powerful and direct way to deal with problems. The layer of the city is always a distract aspect that might deviate the process a little bit. It took efforts to analyse the city in a spatial visual way.

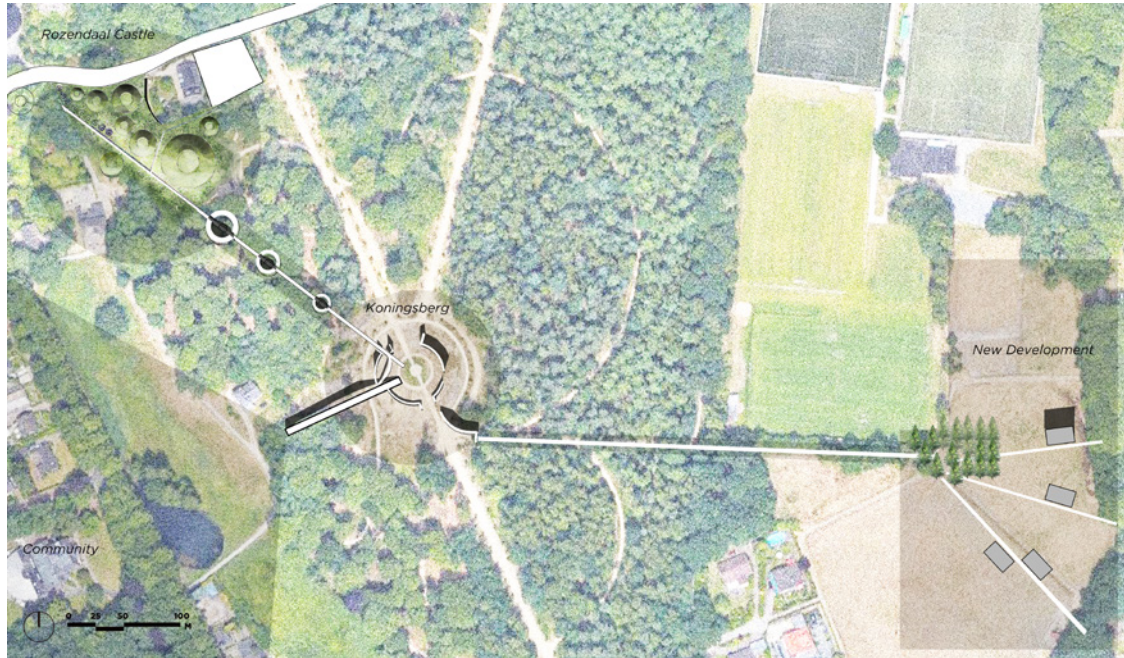
And the answer of 'What are the spatial visual principles to organize the spatial development of estates landscape' came out as principles, they become the bullet for design. The design process went fluent as the spatial visual approach is a flexible approach to apply.

6.1.5 Design exploration process,discoveries

Designing resilient heritage landscape is also about rethinking and reconstruction of the visual relations of the estates with the surrounding landscape and amongst themselves. Using visual relationships proofs to be a strong design approach that considers the local conditions like geomorphology and historical patterns that make up the visual landscape. There is no doubt that visual relationship is a vital element for designing landscapes. This visual way of dealing with fragmentation of estates in Gelderland provides a new aspect for policy making. Also it can be regarded a great opportunity for the city Arnhem to rethink the relationship between these precious estates and the city.



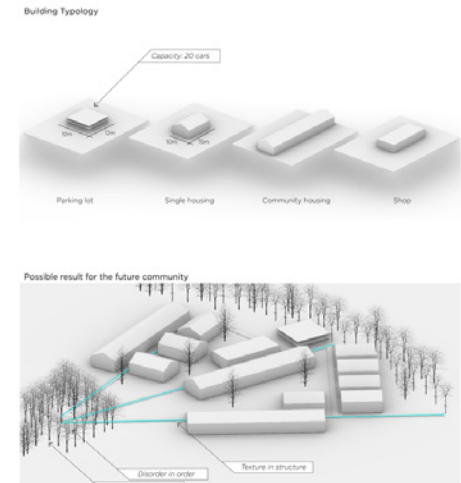
6.1.5 Design exploration process,discoveries



Realizing each estate has some differences in context, so the best way to tryout the model is to make more design experiment in order to adjust the toolbox to a complete version. So, the very ideal situation is to try out as much as one can. Besides, the research itself was done in a pure theoretical way of thinking, so it does have some dilemmas when take them into design proposal, sometimes I need to reconstruct the way of considering the principle in order to fit it into the design, otherwise there will just be a new one to fill in the toolbox. When the experimental design started for each estates, I surprisingly figured out that the approach of each design went extremely similar, which gave me confidence in providing a model for each category of space and promote the models to the area.



Spatial visual approach is a strong design approach that considers the local conditions like geomorphology and historical patterns that make up the visual landscape



Principles



Rozendaal

Klarenbeek

Sonsbeek

1. Historical analysis
2. Spatial sequence
3. Spatial visual analysis
4. Potentials
5. Principles
6. Master plan
7. Detail intro of the design
8. Urban plan
9. Lessons learned

1. Historical analysis
2. Spatial sequence
3. Spatial visual analysis
4. Potentials
5. Principles
6. Master plan
7. Detail intro of the design
8. Lessons learned

1. Historical analysis
2. Spatial sequence
3. Spatial visual analysis
4. Potentials
5. Principles
6. Master plan
7. Detail intro of the design
8. Lessons learned

Similar process

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Ideal situation

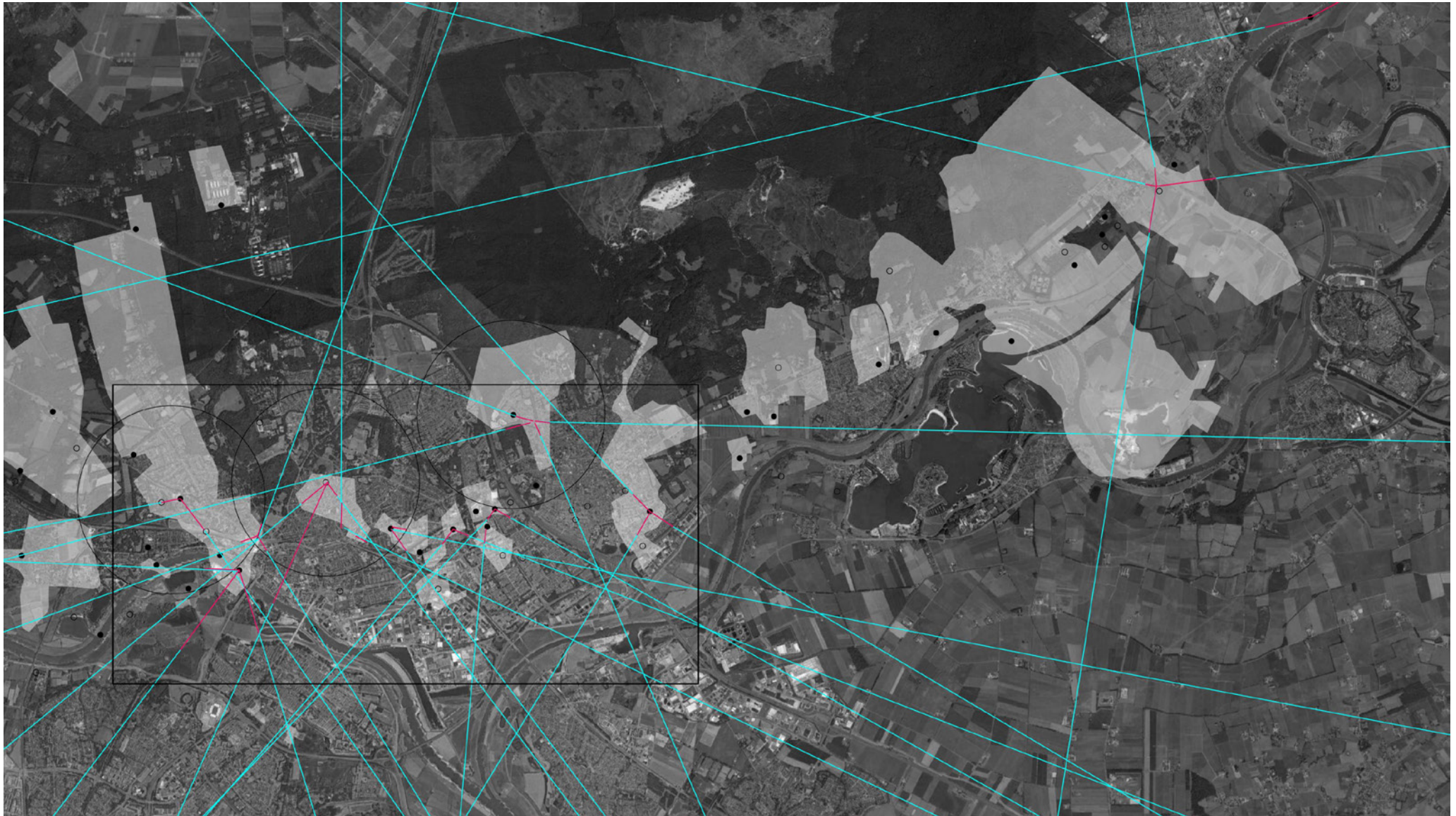
Policy?

Difficult to practice, economic value.....

Models to promote

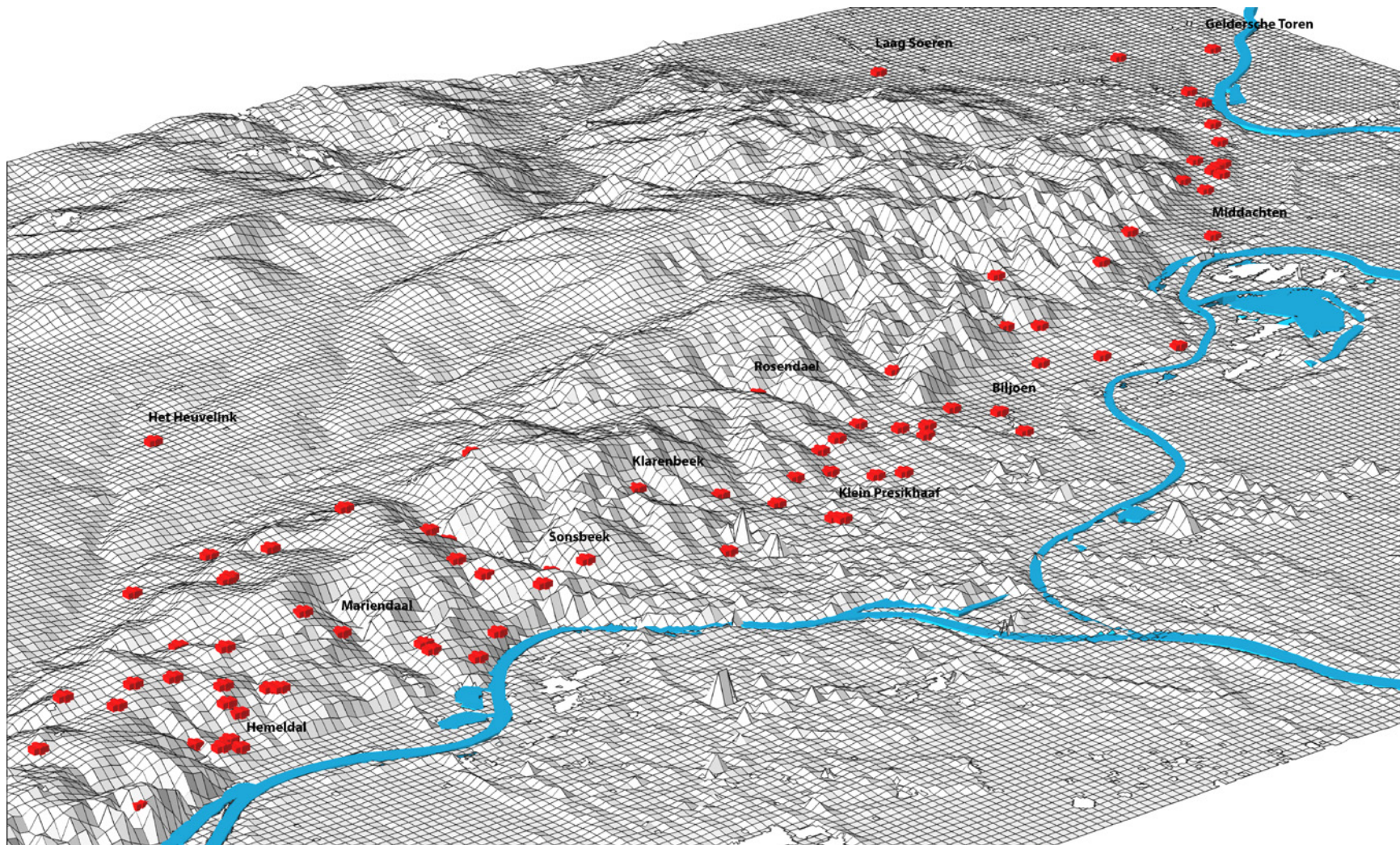
In the policy making point of view. The policy of visual control needs huge effort from the city and from the people. Citizens and policy makers really have to figure a way out to balance the city development and the precious view of the estate, which in this project will not be discussed too much because it is an academic work. Still, I think it worth the research to come up with a guideline for the city to obey and the result for this kind of policy is epic.

6.2 Regional significance



With this approach, every category of estates will be re-planned in the local scale. A new conceptual map for Arnhem would emerge. This map shows when the current visual relationship+ Recreated visual relations are being extended to the region. In the spatial expression, the extended part could be a clear visual channel, a continuous installation in the city or the extension of specific roads. With this plan, the space in the Arnhem even in Gelderland could have a spatial visual oriented framework and guidelines for preserving the estates' qualities

6.3 Outlook



Source: Steffen Nijhuis, TUDelft

The contextual backgrounds for this area are aligned with the region's advantages which are height differences, density and estate quality. Among these, the height differences is the most significant factor that influence the spatial-visual qualities of estates. Thus, the introduction of principles to the region will be limited to the southern Veluwe where the estates share similar topography conditions and hydrology conditions. Also the approach could be there to reduce the fragmentation of estates in an urban development point of view.

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